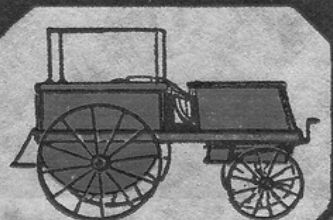




PROTECTION

FROM BLOSSOM TO BASKET

"FRIEND"



SPRAYERS

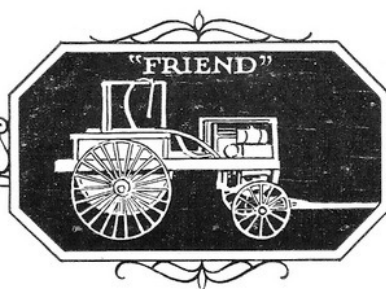
PROTECTION FROM BLOSSOM TO BASKET

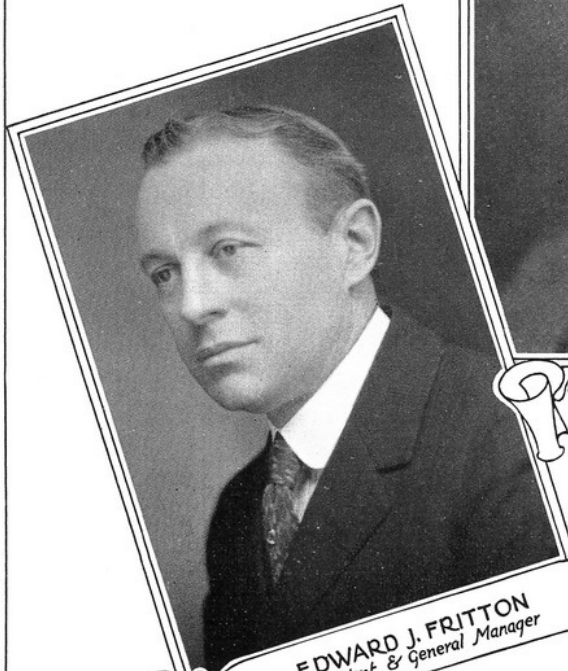
To protect your crops from pests and disease, — to relieve you of worry and sleepless nights, — to help you produce finer and more profitable crops, — this is "Friend's" job.

For thirty-one years "Friend" has worked with this thought in mind. For thirty-one years, upon a foundation of friendship and honest dealing, has this business structure been built. That today "Friend" enjoys the greatest volume of business in its history, and the reputation of building a sprayer second to none in quality, is indeed a tribute to the vision of its founder, and to the faithful efforts of his successors.

"FRIEND" MANUFACTURING CO.
NIAGARA COUNTY
GASPORT, NEW YORK, U. S. A.

Catalog G—1927

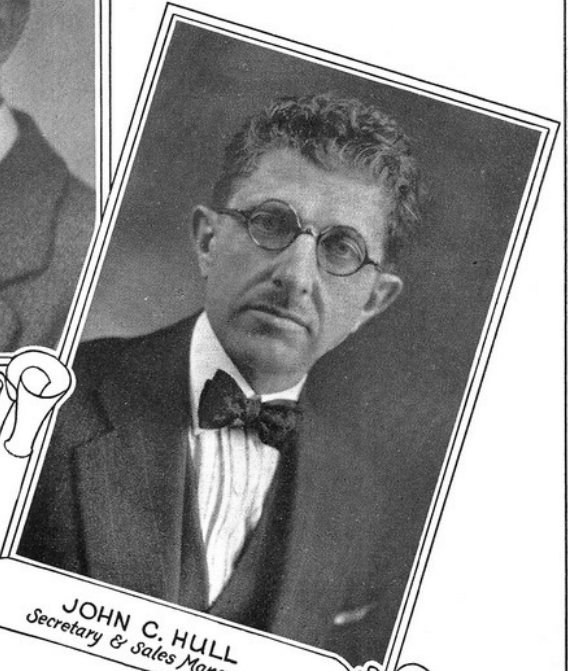




EDWARD J. FRITTON
Vice President & General Manager



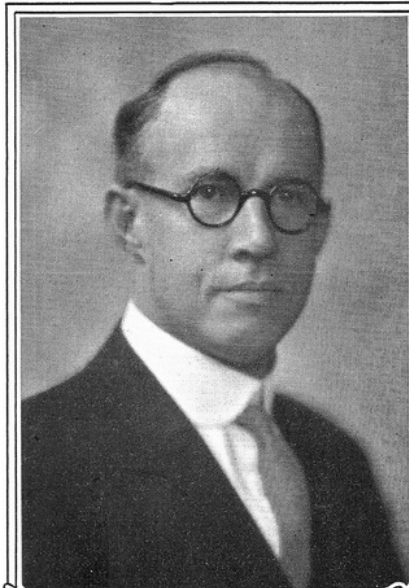
ARTHUR B. HULL
President & Production



JOHN C. HULL
Secretary & Sales Manager

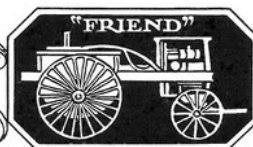


G. ALBERT HULL
Treasurer and Accounts

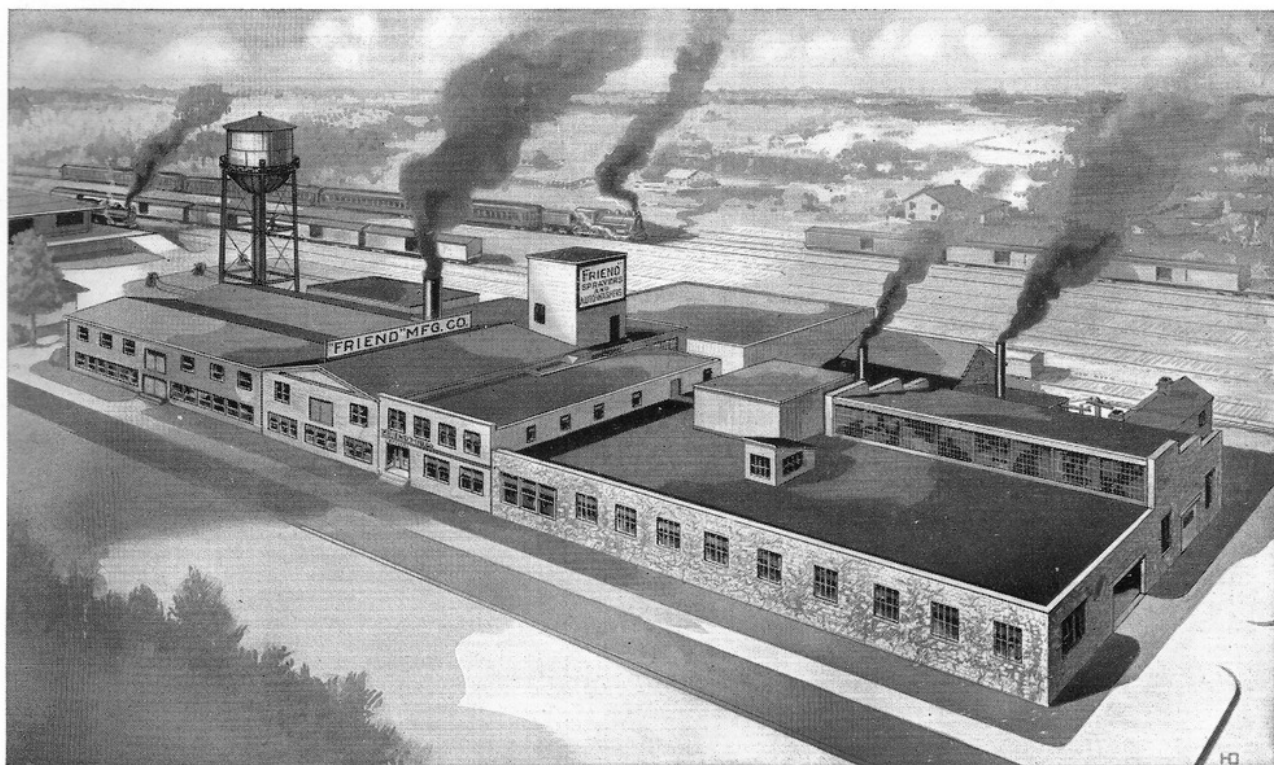


GEORGE WOOD
Superintendent

PROTECTION FROM



BLOSSOM to BASKET



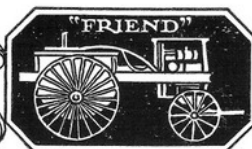
WHERE "FRIENDS" ARE MADE

FROM the little one-room workshop where, thirty-one years ago, Hull Brothers built the first "Friend" Sprayer, to the modern, efficient plant pictured above is a tremendous advance, not easily achieved nor unworthily won.

A single lathe, hand-powered, has made way for machine shops complete in every detail, — shops fully equipped for the delicate work of machining valves and cages, pistons and crank-shafts to that exact point where they will operate at the highest efficiency. Drafting-rooms where constant improvements and refinements of design are perfected; assembling rooms where motor-pumps and chassis are bolted stoutly together; experimental laboratories where "Friend" Sprayers are tested under conditions far more severe than they will ever meet in field and orchard; — each is doing its share to build for "Friend" the enviable reputation of being the best sprayer made.

It is this fairly earned reputation for quality that has made possible such gratifying expansion, and so to the ideal of quality and honest value is each new unit dedicated.

PROTECTION FROM



BLOSSOM to BASKET



SPRAYING

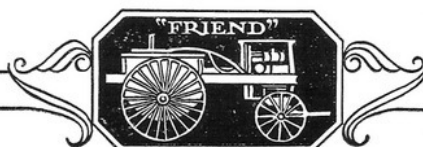
THE DIFFERENCE BETWEEN PROFIT and LOSS

PROFIT? — with the ease and content that comes at the end of a good season — or loss? — with the worries and petty economies that always follow?

Every commercial fruit grower knows that the answer to this all-important question depends on a few vital factors, and the observance of a few fundamental principles of orcharding. Proper and intelligent pruning; sufficient tillage and fertilizing; good drainage, — all contribute to success. But most important is a knowledge of fruit pests and diseases, and the best way to combat them.

Every farmer having an orchard should spray. This is commonly accepted fact. Yet we have found, all over the country, growers working under exactly the same natural and climatic conditions obtaining widely varying results. One grows "A" grade, high quality fruit, with a uniform yearly yield and a worth-while profit. Another harvests a crop of poor quality, low-grade fruit, and loses money on it. And in the great majority of cases this difference between profit and loss is simply — spraying.

PROTECTION FROM



BLOSSOM to BASKET

Spraying is necessary to the production of good fruit. It keeps the trees healthy, and makes possible larger yields. It is the cheapest insurance you can buy for your fruit, — *providing you use a sprayer that will do the work fast, and be ready when you need it.*

You know, of course, that fruit trees should be sprayed thoroughly, at the right time, and with the right materials. The number of sprays required, and the time of their application, will depend on the locality, variety of fruit, season, and pests to be controlled. For instance, in some seasons and in some sections four or five sprays may be sufficient for the Baldwin apple, which is not very susceptible to scab and other fungous diseases. In other seasons and other sections eight sprays may be needed to produce good quality McIntosh, — a variety very susceptible to apple scab. There is such a short time available for each spraying, too, that your machine must be absolutely reliable. You can't afford to have your sprayer laid up for repairs just as the buds are breaking open.

Because of these conditions, the deciding factors in your accessibility and large capacity and in the "Friend" Sprayer make for speed and reliability, you will find them developed to a point not approached by other



The First Gasoline Power Sprayer Made

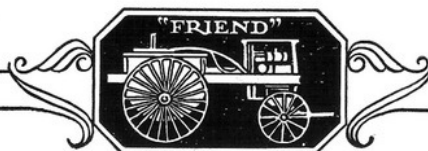
as the buds are breaking open. speed and reliability should be choice of a sprayer. Simplicity, make for speed and reliability, you will find them developed to sprayers.

A pump of larger capacity than is needed will always prove more satisfactory than one which cannot take care of the demands made upon it. As trees and orchards increase in size, the importance of having a machine which will enable the fruit grower to cover a considerable area quite carefully becomes apparent. The grower must either purchase a new machine of larger capacity, or look ahead at the outset and provide for the future.

The sprayer should be as simple as possible, with a minimum of parts which ordinarily require attention. These parts should be easily replaced when worn, and the whole mechanism quickly accessible.

The durability and reliability of your sprayer depends on its weight and strength, the quality and kind of material used in it, and the excellence of the workmanship. Good design is an important factor. Cheapness usually means that inferior material has been used, and that inefficient or negligent employees, who slight their work by accident or design, have been employed.

When you buy a sprayer, consider these points, — durability, simplicity, accessibility, design, capacity and power. Upon them depend your profits. Compare "Friend" point by point with any other sprayer made, and "Friend" will be your choice.





Official Test of the First Spragun ever produced, and
the First New System Sprayer—1916

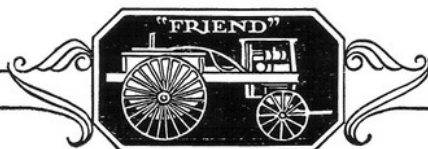
THE PEAK OF SPRAYER DEVELOPMENT

THE development of spraying equipment, from the time of the first hand-powered sprayer to the present "Friend" New System outfit, has shown a consistent trend toward greater capacity and more power.

From 1900 to 1910, spraying machinery passed thru a period of transition, and pumps used for different kinds of spraying became special purpose machines, designed to spray some special crop or series of crops which are treated in a similar manner. For example, this evolution developed a traction machine of large capacity which could furnish liquids at comparatively high pressure to do grape, field and potato spraying. For these purposes, the traction sprayer was quite efficient and economical of labor and material.

The introduction of the "Friend" New System sprayer in 1916 was the most notable advance that has been made in the sprayer industry, however. This was a 10 horsepower machine for orchard spraying, having a 20 gallon-per-minute capacity. At the same time "Friend" presented the Spragun, which, with the pumping unit, comprises the New System. Prior to this invention, it was universally conceded that a fine spray could not be thrown a great distance, but now, when discharged by a spragun at high pressure, it can be done very satisfactorily.

PROTECTION FROM

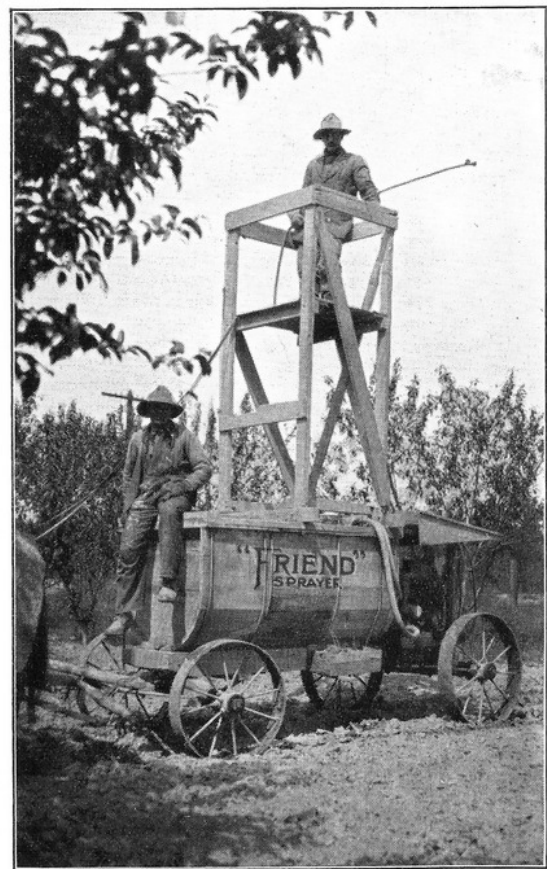


BLOSSOM to BASKET

This is accomplished by a powerful air draft,—a “Friend” discovery. The high-powered “Friend” pumping unit and the large capacity spragun create a very high pressure. This forces the mixture from the gun with such velocity, and in such volume, that a very strong air draft is made, carrying the large volume of minute particles of solution in a swirling motion thru the entire tree. Every leaf, twig, branch and bud is completely involved in this whirling, mist-like spray. The air draft not only carries these fine particles a great distance, but also makes the leaves flutter and the small branches move, which allows the spray to have complete contact on all sides. By using this New System air draft, you don’t overspray the near side of the tree in an effort to spray the center and far side, for the branches nearest you move and let the spray through.



One of the First New System Air Draft Demonstrations



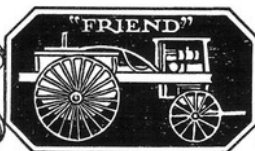
An early model “Friend”

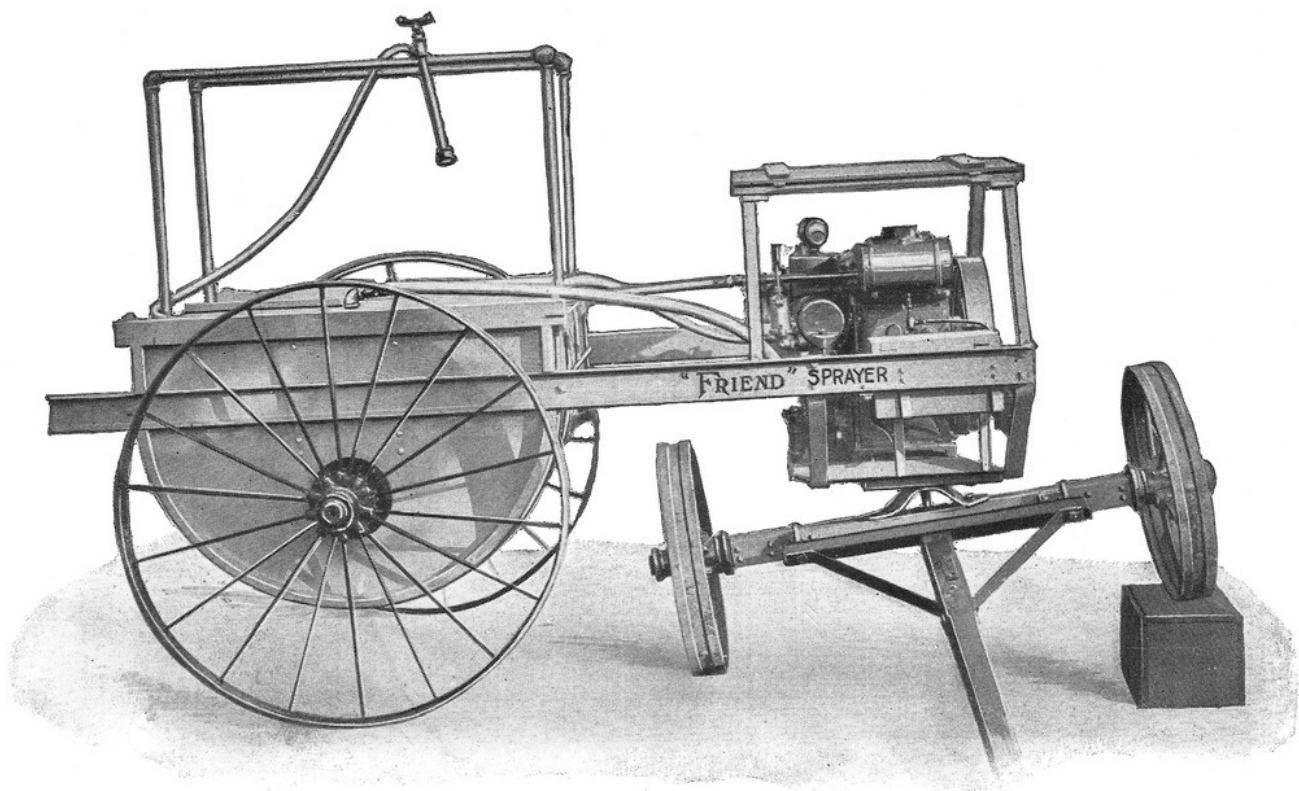
Without this powerful air draft the spray would not be of the proper consistency to make a satisfactory coating. It would leave the gun in a coarse, spattering spray. But the New System deposits a uniform coating of spray solution over the entire tree.

Along with the spragun, “Friend” developed the under-slung, low center of gravity tank, which has made this sprayer famous for its ability to stay upright on steep grades. This unique and beautiful feature has made many friends for “Friend”. Another practical advantage is the cut-clear-under construction which makes possible an extremely short turn. This is especially valuable in making turns to get close to well or pond for filling, and in turning at the end of rows of smaller fruits, vineyards, etc., where the rows are close together. In the spray tank cypress of the best quality is used, and the general structure is substantial.

Agitator, motorpumps, chassis—all are built to stand the strain of years of service.

Comparison will show that the “Friend” is the handiest, quickest-turning, most adaptable and practical power sprayer on the market, and the old style sprayers are fast giving way to it.





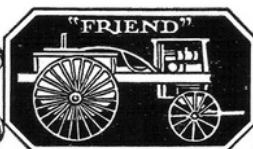
SPECIAL PATENTED FEATURES COMMON TO ALL "FRIEND" SPRAYERS

THE following trade names used in this catalog are registered in the U. S. Patent Office: "Friend", "New System", "Air Draft", "Spragun". There are also many patents on the "Friend" Sprayer.

The very notable success which "Friend" Sprayers have attained has been due in no small measure to these special features common to all "Friends", and exclusive with them. Without them, "Friend" would be no better than any other sprayer, but by their use, "Friend" today offers the best value in sprayers obtainable. Read these ten outstanding advantages carefully!

1. Complete short turn—cuts clear under, follows horses anywhere.
2. Flexible fifth wheel allowing rigid frame—keeps working parts always in alignment.
3. Larger wheels to carry heavy spray material—easy drawing.
4. Low down, easy of access for adjustments or loading—top of tank only 52 inches from ground on 250 gal. tank size.
5. Direct propeller agitator—no gears, belts or chains. Keeps solution thoroughly mixed.
6. "Friend" patent motor-pump unit; motor, transmission and high pressure pump all in one—stress self-contained.
7. Auto marine type water-cooled motor; dual lubrication and magneto ignition.
8. Frictionless roller bearing direct pump drive. "Friend" direct line plungers.
9. Quickly accessible and adjustable packing with inside positive lubrication.
10. Quickly accessible and detachable valves, cages and seats.

PROTECTION FROM



BLOSSOM to BASKET

FOR STEEP HILLSIDES AND CROWDED ORCHARDS

The unique "Friend" type of sprayer, designed several years ago, provides a spray rig which is particularly convenient on steep hillsides and between crowded rows of trees. The underslung tank provides a low center of gravity, and the cut-under wheels make "Friend" the handiest, quickest-turning, most adaptable and practical power sprayer on the market.

REGULAR "FRIEND" PRESSURE CONTROLLER

This sturdy, compact controller has been used as standard equipment on "Friend" power sprayers for many years and has given universal satisfaction. Many have been sold to owners of other makes of sprayers, giving complete satisfaction where other controllers failed.

A simple ball valve held on a bronze seat by a tension spring regulates the overflow. When the pressure exceeds the amount that the spring has been adjusted for, the pressure raises the ball, (see illustration) compressing the spring, and allows the spray solution to pass through the overflow hose back into the spray tank.

For example, if the spring was set to resist 300 lbs. pressure and the gun disk was exactly the size to take the entire capacity of the pump, the spring would hold the ball on the seat; but if the spragun should be partly closed, the pressure would naturally raise the ball of the seat allowing the surplus liquid to pass into the overflow. With spragun entirely closed the entire capacity of the pump would pass into overflow.

Unhooking the controller handle immediately relieves the tension on the spring and takes the pressure off the pump.

Two adjustments can be instantly made on this valve, with the controller handle, with a difference of about 50 lbs. Permanent adjustment is quickly made by screwing the nut on top of controller up or down—up to increase, down to decrease pressure. Never screw so tightly that coils of spring come together.

Valve and spring easily removed by taking out the two cap screws.

Price, code *control*, \$.....

AUTOMATIC CONTROLLER

This controller is so constructed that it allows the pump to work under no pressure when the spraguns are closed, but still holds the air chamber pressure.

If it is necessary to keep the spragun closed for any length of time due to a tree being out of a row or in turning at end of row, this arrangement relieves the engine of the load. When the spragun is again opened the same pressure is right at the nozzle and the pump instantly starts to pump under pressure.

A very convenient and practical device if the spragun must be closed much of the time.

HOW IT WORKS (see illustration)

Lower valve B is simply a check valve through which all the solution passes while the spraguns are in operation. When the spraguns are closed the pressure increases slightly, raising diaphragm C so that valve stem D raises upper valve ball E, opening valve F.

The controller is adjusted for the desired pressure by wing nut. Screw the nut up tighter to increase pressure. Do not screw so tightly that coils of spring come together. Have spraguns open when adjusting pressure.

At the instant valve F is opened, starting overflow, ball G seats, retaining the air chamber pressure. The solution then passes freely up through the controller port or discharge passage and down through valve F, back into the spray tank under no pressure.

When the spraguns are opened, releasing the air chamber pressure, diaphragm C is forced downward by spring H which in turn allows upper valve ball E to seat shutting off the free unobstructed overflow. The pump then forces the solution through the spraguns.

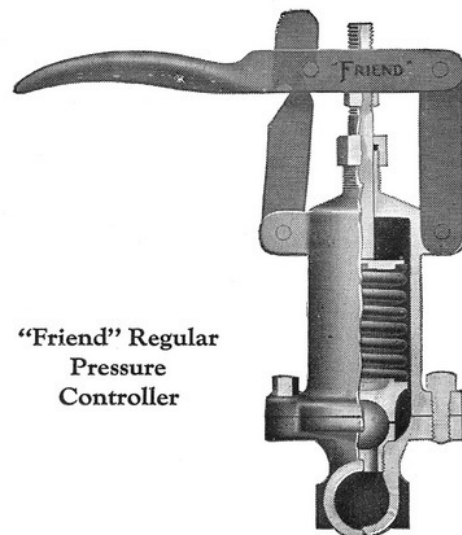
The dotted arrows show direction solution flows.

Price, for AXA, AXBA and AXB, code *congress*, \$.....

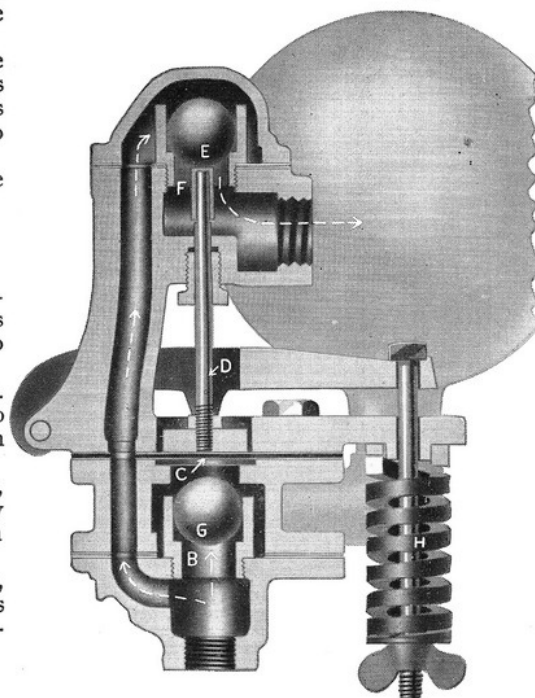
Price, for DXA, DX and BX, code *confection*, \$.....



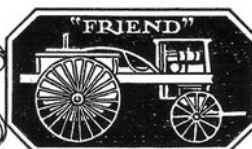
Extreme short turn is possible between trees



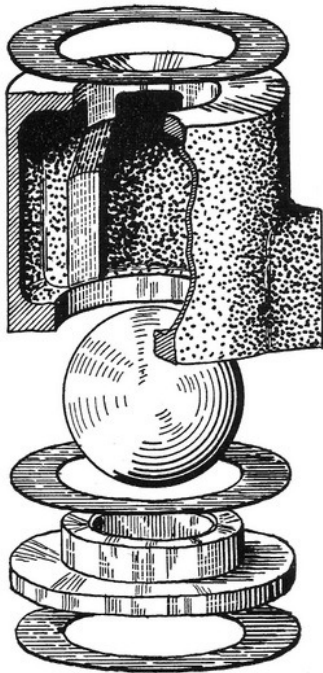
"Friend" Regular
Pressure
Controller



"Friend" Automatic Pressure Controller



VALVES



"Friend" Valve Assembly

The pump valves are a vital part of any spray pump, and must work perfectly and be very durable if a spray pump is to give satisfactory service.

"Friend" intake and discharge valves embody simplicity and durability.

The very best materials must be used in spray pump valves if they are to last for any reasonable length of time.

The entire valve, body or cage, ball and seat are made of acid resisting metal. The special acid resisting bronze valve ball and seat give long service in the caustic spray solution.

"Friend" valves are instantly and easily removable by simply loosening manifold cap screws.

Gaskets are placed between seat and manifold; between cage and seat and between cage and pump cylinder, and the valve is held securely in place by the pressure when the manifold is drawn toward the pump cylinder by a screw provided for that purpose. Cage and seat are simply placed in position and held between two surfaces. No screws in seats on the "Friend" valve to corrode and stick. No internal gaskets,—everything where you can see it. Think what it means in a busy season to be able to remove dirt from under a valve ball and get going again in less than two minutes.

If for any reason the ball becomes stuck the drain plug can be removed and ball loosened with a nail. The guides inside the cage prevent the ball from raising so high that it will shut off the discharge of valve.

Through years and years of service the "Friend" valve has proven itself superior in every way.

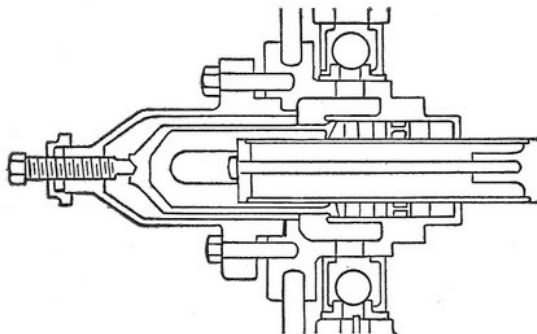
PLUNGER AND PACKING

A plunger and packing that is made right and works right is a vital necessity to any spray pump. This part of the "Friend" spray pump has been given great attention and the simple, efficient working "Friend" plunger and packing is second to none.

A strong, smoothly finished plunger works in several rings of special packing, (made for "Friend" pumps) which makes a long non-leaking packing surface for the plunger to work in.

The packing can be tightened at any time (if pump starts to leak) by simply turning down the packing adjusting screw in end of pump cylinder enough to force the hollow packing gland against the packing and stop the leak. This can be done with machine working at high pressure. This positive and quick adjustment is an exclusive "Friend" feature.

The plunger tube and packing can be removed and replaced with new in a few minutes. No threads are placed where they become corroded or impossible of loosening. The simple easy working plunger and quick adjustable soft packing of the "Friend" makes possible the long and satisfactory service given by "Friend" spray pumps.



Plunger and Packing

AGITATOR

Thorough agitation of spray material is absolutely essential if proper results are to be obtained.

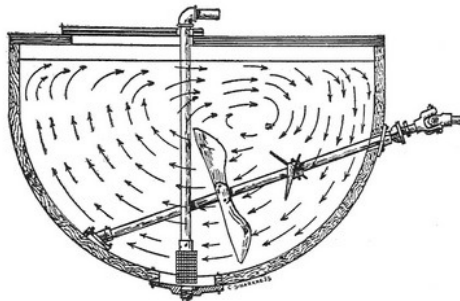
The "Friend" agitator has two large paddles like propellers which are driven direct from the pump crank. All parts are very simple in construction and it is extremely reliable.

Cheaper makes of sprayers often use gears, chains, or belts to drive the agitator, which at best have nowhere near the adaptability or durability of the "Friend" direct eccentric drive. Gear, chain or belt drives often break on account of the twisting of the machine or become loose and slip, all causing annoying delays.

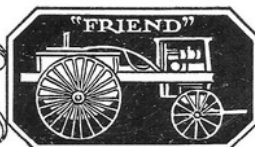
A suction well as shown in the illustration makes possible complete emptying of the tank through the suction. A drain plug is placed in the bottom of this well, making it easy to flush tank free of dirt and sediment.

A brass suction strainer is fitted to end of suction pipe. The liquid is taken in through the sides of the strainer, (the bottom being solid) and prevents the frequent clogging caused when strainer is on the bottom.

The strainer is easily replaced if it gets jammed or broken.



Agitator



SCOTCH YOKE DRIVE

THE pump plungers on "Friend" spray pumps are operated by a scotch yoke drive.

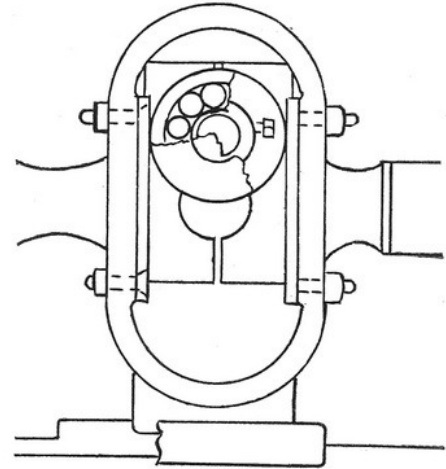
A pump crank block connects the pump shaft with the pump pin. The pump pin is made of special steel and carbonized. It works in long roller bearings which are in a roller and forms a frictionless contact between the crank and yoke. Constant lubrication of the pump crank roller and bearings is provided for.

The pump plungers are fastened to either side of the sturdy yoke, which is kept in perfect alignment with the pump cylinders by a tongue on the bottom of the yoke which works back and forth in a channel guide provided in the suction manifold.

Hardened yoke plates are bolted on the inner side of the yoke, which the crank roller works against.

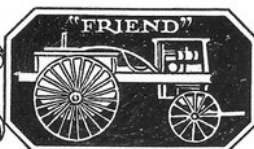
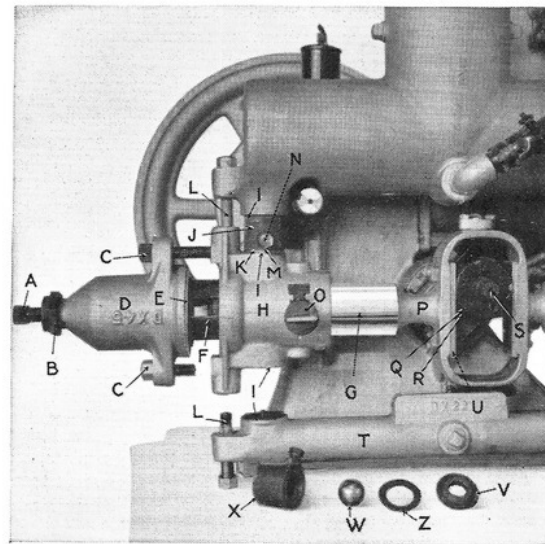
When worn, the new plates are all that is necessary to renew. The yoke is good for the life of the sprayer.

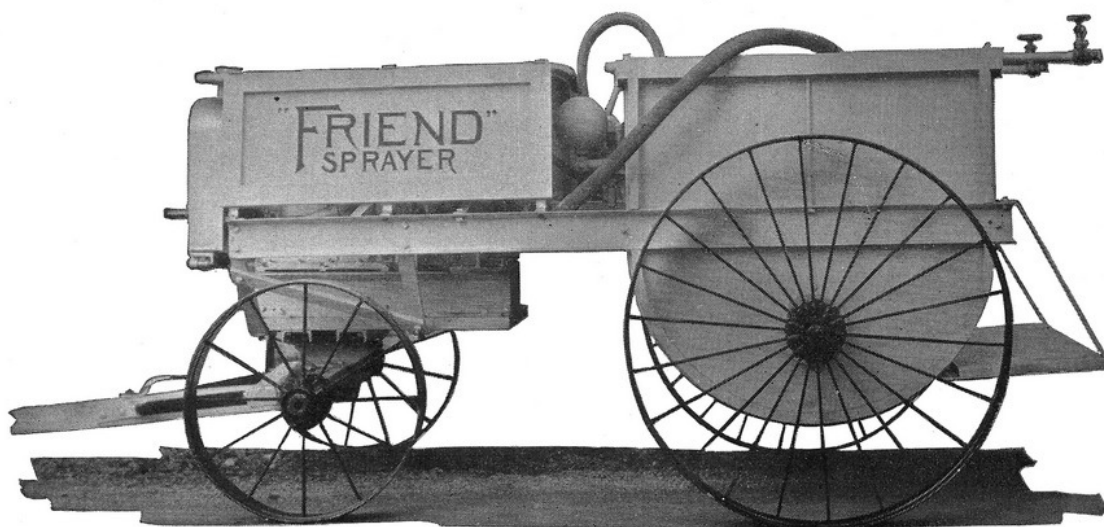
Everything is simple and sturdy and new parts are easily put into place by any farm hand.



IMPORTANT ACCESSIBLE FEATURES FOUND ON ALL "FRIEND" SPRAYERS

- | | |
|--|---|
| <p>A. Packing adjustment screw; make adjustment while pump is operating under pressure.</p> <p>B. Packing adjusting screw stuffing box.</p> <p>C. Cylinder cup screws for quick access to packing.</p> <p>D. Cylinder cup.</p> <p>E. Cylinder cup gasket.</p> <p>F. Packing gland, tightening A forces gland F against packing to prevent pump from leaking. Adjustable while pump is working under pressure.</p> <p>G. Pump plunger tube. Easily removed for renewal by removing cylinder cup D and packing gland F, and remove packing from pump cylinder H, loosen and remove plunger tube and put new one in place.</p> <p>H. Pump cylinder. Remove cylinder cup and packing gland to repack.</p> <p>I. Valve gasket. Upper: Between seat and pump cylinder and between cage and pressure manifold. Lower: Between seat and suction chamber and between seat and cage. And between cage and pump cylinder.</p> <p>J. Discharge valve body; no threads; quick detachable.</p> <p>K. Valve gasket between seat and cage.</p> <p>L. Pressure manifold screw; release to detach valve; tighten to secure.</p> <p>M. Quick detachable valve gasket.</p> <p>N. Discharge valve drain plug; drains pressure manifold and may be removed to loosen ball if stuck.</p> <p>O. Packing grease cup; forces grease into grease ring which lubricates plungers.</p> <p>P. Pump yoke; transmits power from pump crank to plungers.</p> <p>Q. Pump crank roller; a frictionless contact between crank and pump yoke.</p> <p>R. Roller bearings; anti-friction device on crank.</p> | <p>S. Pump pin; made of special steel, carbonized and ground to size.</p> <p>T. Suction chamber.</p> <p>U. Hardened yoke plates which pump crank roller works against; made detachable for renewing when worn.</p> <p>V. Quick detachable suction valve seat, made of metal which resists chemical action of solution.</p> <p>W. Valve ball.</p> <p>X. Quick detachable suction valve cage.</p> <p>Z. Valve gasket.</p> |
|--|---|





SPECIFICATIONS — “AXB” SPRAYER

STYLE: The famous “Friend” cut clear under, short turn, low down, flexible sprayer. Large wheels carry load, easy draft.

WHEELS: Strong steel wheels. Diameter front 30", rear 48" with 6" tires. Wheelbase 65", tread 62".

BED: Connecting motor-pump and tank, length 102".

CAB: Convenient cab for quick accessibility of all working parts, light, neat, substantial, rigid support.

TANK: Celebrated “Friend” under-slung type cypress spray tank, 300 gallon capacity, ingeniously designed. Large filling hole and handy drain plug, easily accessible for filling and cleansing. Drain plug in bottom of tank, complete drainage. Tank hoops easily tightened by turning down nuts on top of tank, Substantial iron binding.

AGITATOR: Direct propeller agitator, has two large paddles. Furnishes complete and efficient agitation.

LOW DOWN: Top of tank 59" from ground. Motor-pump base 24" from ground. Very low center of gravity.

SUCTION: 1½" high grade rubber suction hose with pipe extension. “Friend” type suction strainer, very efficient, never clogs—always accessible. Strainer screen easily replaced. Suction well in bottom of tank permits of complete discharge of spray tank.

TOOL BOX: Substantial and conveniently located.

GUARD RAIL: Substantial guard rail for work from top of tank furnished if desired.

PLATFORM: Step platform on rear of machine for convenience of operators or for carrying material.

HOSE CONNECTION: Connection for one or two hose lines with shutoffs at rear of tank. Provision may be made for more if desired.

MOTOR: 15 H. P. LeRoi Auto marine 4 cylinder motor.

COOLING: Water cooled, radiator and fan.

PUMP: “Friend” Quadruplex deep oil bath high pressure plunger pump. All parts and adjustments easy to “Get At.” 30 gallon per minute capacity.

EQUIPMENT: Whiffletrees and neck-yoke for two horses; tractor hitch in place of horse equipment at no extra cost. Two 50 ft. lines braided spray hose and two “Friend” Spraguns. Complete set of tools. Complete ready to operate.

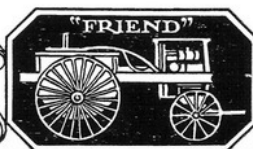
WEIGHT: Shipping weight crated and boxed about 3100 lbs.

PRICE, code, *ability*, \$.....

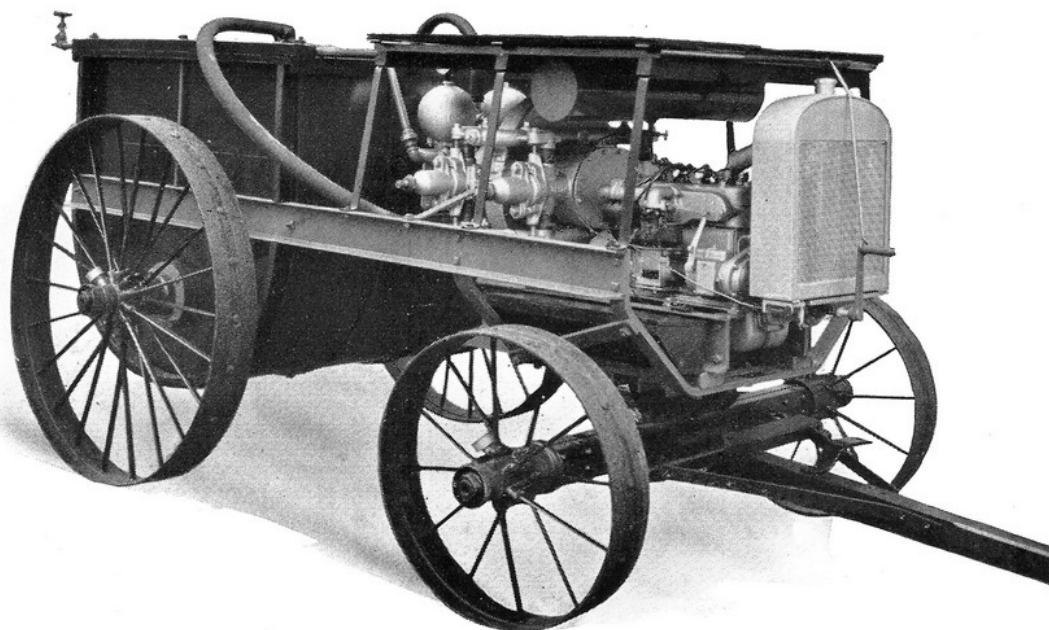
SIZE AXBA is identical with above, except that it has ½" shorter pump stroke giving it a capacity of 25 gallon per minute.

PRICE, code, *able*, \$.....F. O. B. Gasport.

PROTECTION FROM



BLOSSOM to BASKET



SPECIFICATIONS "AXA" DEEP OIL BATH SPRAYER

STYLE: The famous "Friend" cut clear under, short turn, low down, flexible type sprayer. Large wheels carry load, easy draft. Beautiful in appearance, simple in construction.

WHEELS: Strong steel wheels. Diameter front 30", rear 48" with 6" tires. Wheelbase 65", tread 62".

BED: Connecting motor-pump and tank, length 102".

CAB: Convenient cab for quick accessibility of all working parts, light, neat, substantial, rigid support.

TANK: Celebrated "Friend" under-slung type cypress spray tank, 300 gallon capacity, ingeniously designed. Large filling hole and handy drain plug, easily accessible for filling and cleansing. Drain plug in bottom of tank, complete drainage. Tank hoops easily tightened by turning down nuts on top of tank. Substantial iron binding.

AGITATOR: Direct propeller agitator; has two agitator paddles. Furnishes complete and efficient agitation. See page 10.

LOW DOWN: Top of tank 59" from ground. Motor-pump base 24" from ground. Very low center of gravity.

SUCTION: 1½" high grade rubber suction hose with pipe extension. "Friend" type suction strainer, very efficient, never clogs,—always accessible. Strainer screen easily replaced. Suction well in bottom of tank permits of complete discharge of spray tank.

TOOL BOX: Substantial and conveniently located.

GUARD RAIL: Substantial guard rail for work from top of tank furnished if desired.

PLATFORM: Step platform on rear of machine for convenience of operators or for carrying material.

HOSE CONNECTION: Connection for one or two hose lines with shutoffs at rear of tank. Provision may be made for more if desired.

MOTOR: 10 H. P. Universal Auto-marine 4 cylinder motor.

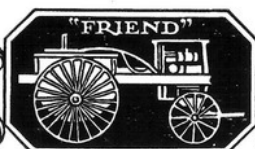
COOLING: Water cooled, radiator and fan.

PUMP: "Friend" Quadruplex deep oil bath high pressure plunger pump, easily accessible and adjustable. 20 gal. per min. capacity.

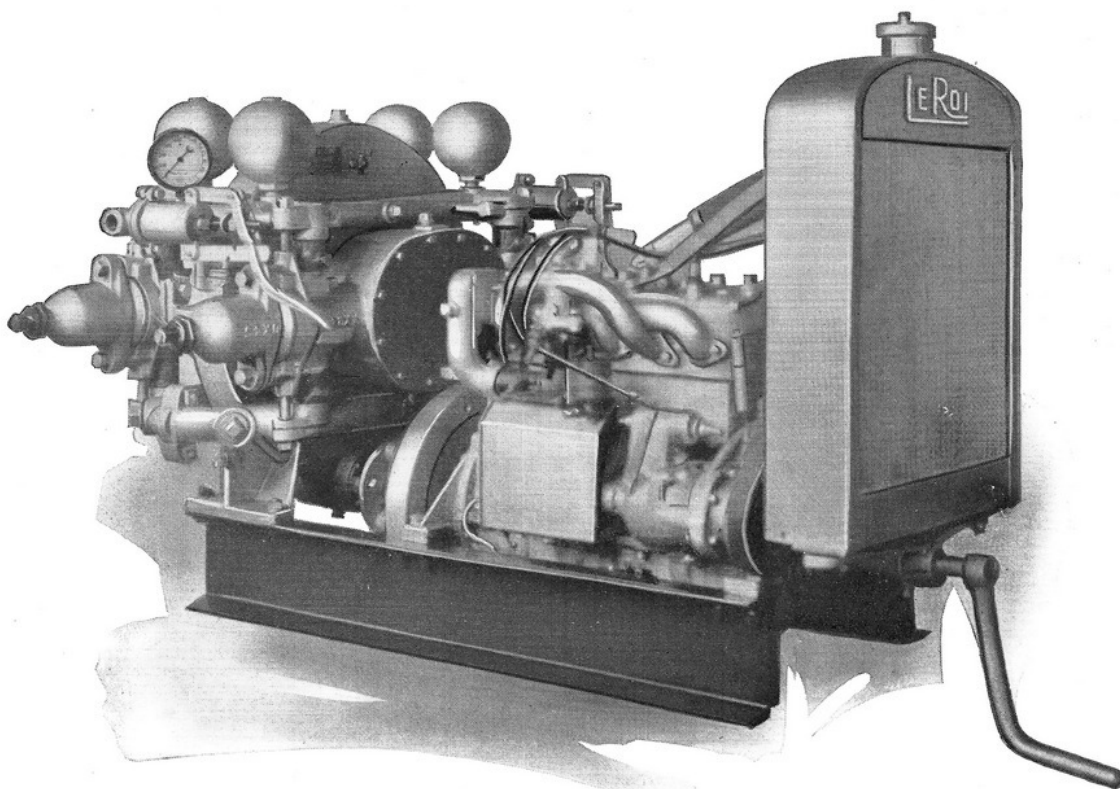
EQUIPMENT: Whiffletrees and neck-yoke for two horses, tractor hitch in place of horse equipment at no extra cost. Two 50 ft. lines braided spray hose and two "Friend" spraguns. Complete set of tools. Complete ready to operate.

WEIGHT: Shipping weight crated and boxed about 3000 lbs. Export shipping length 11' 2"; width 5' 2"; height 5' 9". Price, F. O. B. Gasport, code, *ajax*, \$..... Price, AXA with 350 gallon tank, code, *atlas*, \$..... For Export—Weight 3600, cu. ft. 260.

PROTECTION FROM



BLOSSOM to BASKET



"FRIEND" DEEP OIL BATH MOTOR PUMP

AXB AND AXBA

MOTOR: 15 H. P. LeRoi auto marine 4 cylinder motor. Oil bath throttle governor. Eisemann magneto, Zenith carburetor. Water cooled; radiator and fan. 5 gallon gasoline tank, gravity feed. Quiet muffler. Splash system of lubrication—accessible and detachable oil pump.

Test cock provided to show if oil is circulating, also float indicator to show height of oil.

Maximum speed 900 R. P. M. Sturdy and durable.

PUMP: "Friend" quadruplex deep oil bath high pressure plunger pump. All parts and adjustments easy to "Get At." 30 gallon per minute capacity, $2\frac{1}{2}$ " plungers, 8 ring packing, 4" pump stroke.

Regular or automatic controller optional.

Gear ratio on AXB motor-pump 9 to 1. Connection provided for two hose lines with shutoff valve. Provision may be made for more. Shipping weight, motor and pump about 1108 lbs.

PRICE, motor-pump only, code, *abduct*, \$.....
F. O. B. Gasport.

AXBA is same as above except that it has $3\frac{1}{2}$ " pump stroke and 25 gallon per minute capacity. PRICE, motor-pump only, code, *aboma*, \$.....

(Be sure to state which controller is wanted when ordering.)

AXA

MOTOR: 10 H. P. Universal Auto-marine 4 cylinder motor. Oil bath throttle governor. The famous Bosch high tension magneto. Efficient carburetor with air filter or washer which keeps dust, sand or any other destructive substance from cylinders, adds greatly to life of motor. Water cooled. Radiator and fan. Five gallon gasoline tank, gravity feed. Simple quiet muffler. Splash system of lubrication with float indicator for height of oil in motor base, accessible and detachable oil pump and glass chamber to indicate oil flow. Maximum speed 900 R. P. M. This new Universal motor is a marvelous engineering achievement.

PUMP: "Friend" quadruplex deep oil bath high pressure plunger pump. All parts and adjustments easy to "Get At". 20 gallon per minute capacity. 2" plungers, 8 ring packing, 4" pump stroke.

Regular or automatic controller optional.

Gear ratio on AXA motor-pump 9 to 1. Connection provided for two hose lines with shutoff valve. Provision may be made for more. Shipping weight, motor and pump, about 1030 lbs.

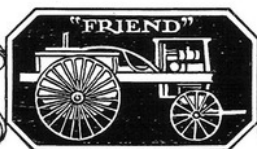
PRICE, motor-pump only, code, *admiral*, \$.....

Pump only, shipping weight about 650 lbs.

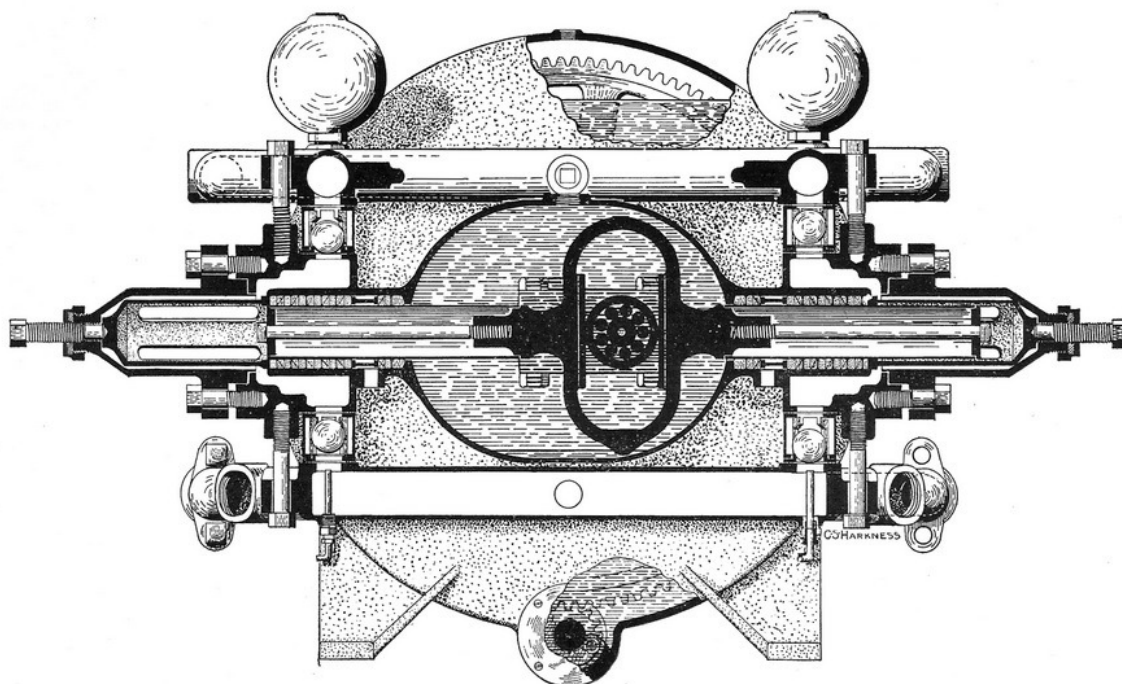
PRICE, code *apron*, \$.....

(Be sure to state which controller is wanted when ordering.)

PROTECTION FROM



BLOSSOM to BASKET



DEEP OIL BATH PUMPS

SINCE its introduction the "Friend" quadruplex deep oil bath pump has rapidly increased in popularity, because of its excellent performance and dependability under all spraying conditions. For fast high pressure spraying the "Friend" size AXA, AXBA, and AXB are second to none and glowing reports of these wonderful motor-pumps are coming in from all sections of the country where they are being used.

SPECIFICATIONS

CONSTRUCTION: Quadruplex deep oil bath type. Pump gear and yoke cases constitute an oil tight case, sand and dust proof. Gears, plungers, shafts, bearings, yokes, etc. work in oil bath. Perfect and constant lubrication. Oil cases have handy filling and draining holes.

CYLINDERS: Drain ring in each cylinder prevents any leakage of solution into oil cases. Cylinder cup and packing gland removed by taking out two screws. Packing and plunger tube quickly removed. Packing adjusted with strength of one finger on a small wrench.

SHAFTS: Carbonized, hardened and ground. Main pump shaft driving plungers is 2" in diameter.

BEARINGS: Hyatt High Duty Roller Bearings on both pump shafts. Extra long bearings having 14 rollers are used on main shaft. Give long service.

GEARS: Hardened and ground.

YOKE DRIVE: Hardened yoke plates on wearing surface—removable, replaceable, adjustable. Crank pin works in roller bearings, held in place by a roller which works against yoke plates—a frictionless contact. Carbonized and ground.

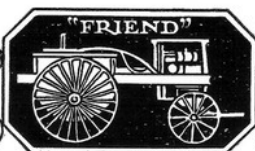
VALVES: Easy to get at; removed quickly. Entire valve removed by loosening one cap screw. No screwed-in seats, pockets or internal gaskets. Equipped with drain plugs. Manually operated valve lifters on suction valves to loosen ball if stuck. Valves made of bronze.

CONTROLLER: Regular or automatic controller furnished as desired.

AIR CHAMBERS: Ball type. 4 small ones used with regular controller. 2 large ones with automatic.

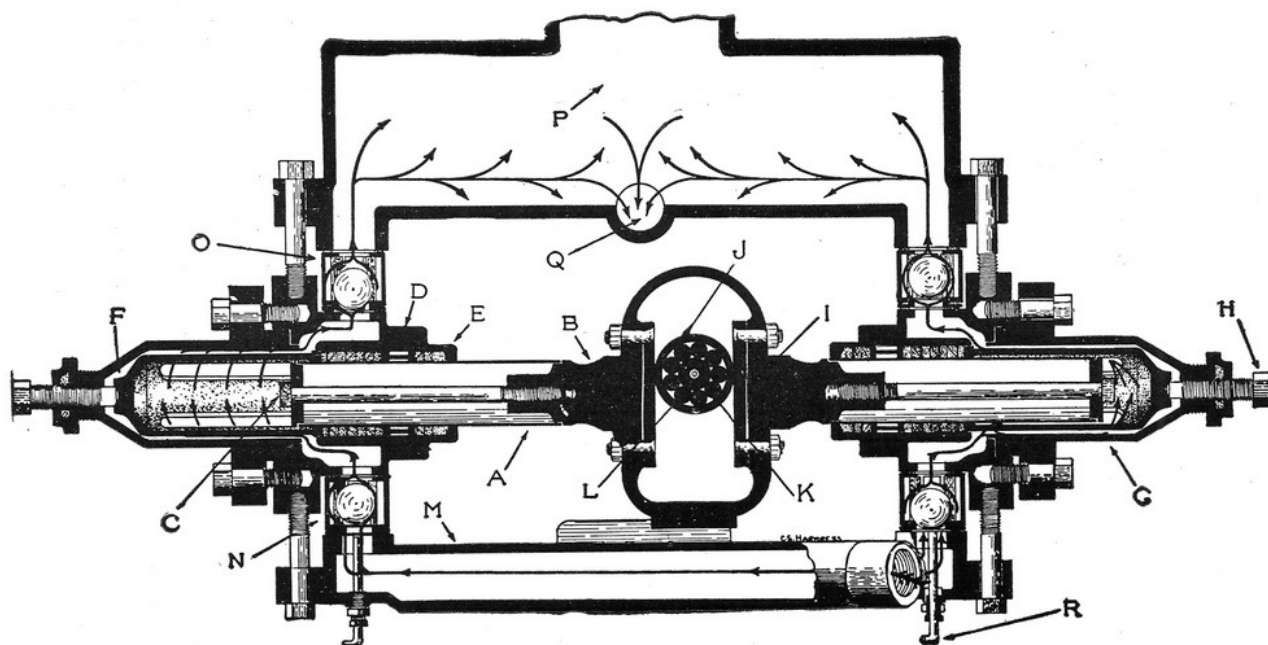
QUALITY: The very best materials and workmanship used throughout.

PROTECTION FROM



BLOSSOM to BASKET

DXA, DX AND BX PUMPS



Follow the arrowed lines and you will find no air pockets—a free unobstructed course.

- | | |
|---|--|
| <p>A Quick detachable acid resisting plunger tube.</p> <p>B Pump yoke to which plunger tubing is attached.</p> <p>C Plunger bolt and cap to close tube and hold plunger in place.</p> <p>D Grease gland on smaller outfits; drain ring on Model AXA which retains oil.</p> <p>E Special diagonal packing, made for spray solutions.</p> <p>F Packing adjustment gland, holds pump packing in place.</p> <p>G Pump cylinder cup, for removal when repacking pump.</p> <p>H Pump packing adjustment screw. Adjust packing while running.</p> <p>I Hardened adjustable yoke plates. Reversible, adjustable, durable.</p> | <p>J Hardened and ground outer roller for frictionless roller bearing.</p> <p>K Hardened roller bearings or bushings, absolutely frictionless.</p> <p>L Hardened and ground roller bearing pump pin.</p> <p>M Suction chamber or manifold, connects both cylinders.</p> <p>N Quick accessible and detachable suction valve, cage and seat.</p> <p>O Quick accessible and detachable discharge valve cage and seat.</p> <p>P Spacious and dependable air chamber, connects both cylinders on duplex pumps. Quadruplex pumps have a ball type air chamber for each cylinder.</p> <p>Q Discharge connection for pressure discharge.</p> <p>R Suction valve ball lifter, for loosening ball and draining. On all models except EX and CX</p> |
|---|--|

SPECIAL FEATURES

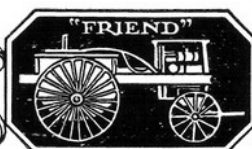
The long smoothly finished plungers work in 6 rings of "Friend" special packing. DXA and DX plungers are 2½" in diameter. BX plungers are 2" in diameter. A grease ring is located in the pump cylinder, filled by a handy grease cup, thoroughly lubricating plunger tubes.

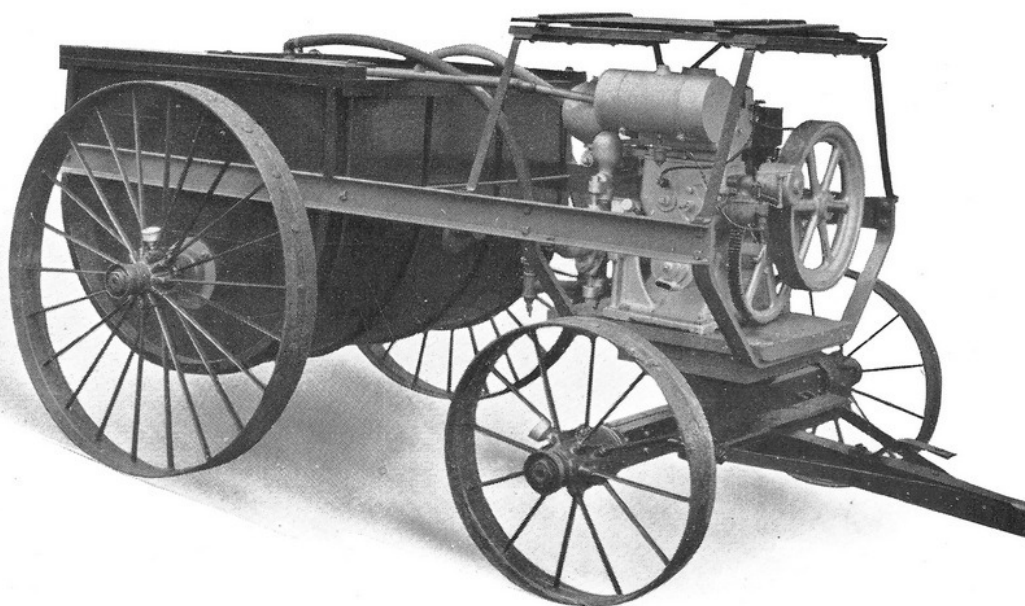
The frictionless roller bearing pump drive is lubricated by a grease cup on DXA and by a drip oil cup on DX and BX.

A large air chamber is provided, as shown in above diagram, when regular controller is used. When the automatic controller is used this air chamber is replaced by two ball type air chambers. The large chambers provide ample pressure cushion, which keeps the pressure discharge even.

Automatic controller is standard equipment on DXA. Costs extra on DX and BX.

These pumps are exceedingly simple and sturdy and will give many years of hard service at a very low upkeep cost.





SPECIFICATIONS "DXA" SPRAYER

STYLE: The famous "Friend" type low down, cut clear under, short turn, large wheel, easy draft, flexible sprayer. Single unit motor-pump. Sturdy and simple in construction.

WHEELS: Strong steel wheels. Diameter front 28", rear 48", with 5" tires. Wheelbase 60", tread 60".

BED: Connecting motor-pump and tank. Length 96".

TANK: Celebrated "Friend" under-slung type cypress spray tank, 250 gallon capacity. Filling hole and drain plug easily accessible, for filling and cleansing. Hoops easily tightened. Substantial angle iron binding.

AGITATOR: Direct propeller agitator, has two large paddles. Complete and efficient agitation.

LOW DOWN: Top of tank 52" from ground; top of cab 57", motor-pump base 23" from ground. Very low center of gravity.

SUCTION: 1" high grade rubber suction hose with pipe connection. "Friend" type suction strainer, never clogs—always accessible. Suction well in bottom of tank permits of complete discharge of spray tank.

SEAT AND GUARD RAIL: Either guard rail for work from top of tank or seat may be furnished as specified.

HOSE CONNECTION: Connection for two hose lines with shutoffs at rear of tank.

MOTOR: "Friend" 6 H. P. single cylinder auto-marine water cooled motor. See specifications page 20.

PUMP: "Friend" duplex high pressure plunger pump. 15 gallon per minute capacity.

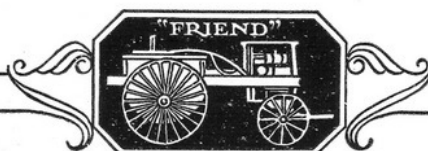
EQUIPMENT: Whiffletrees and neck-yoke for two horses. Two 50 ft. lines braided spray hose and two "Friend" Spraguns. Complete set of tools. Complete ready to operate. Shipping weight about 2325 lbs.

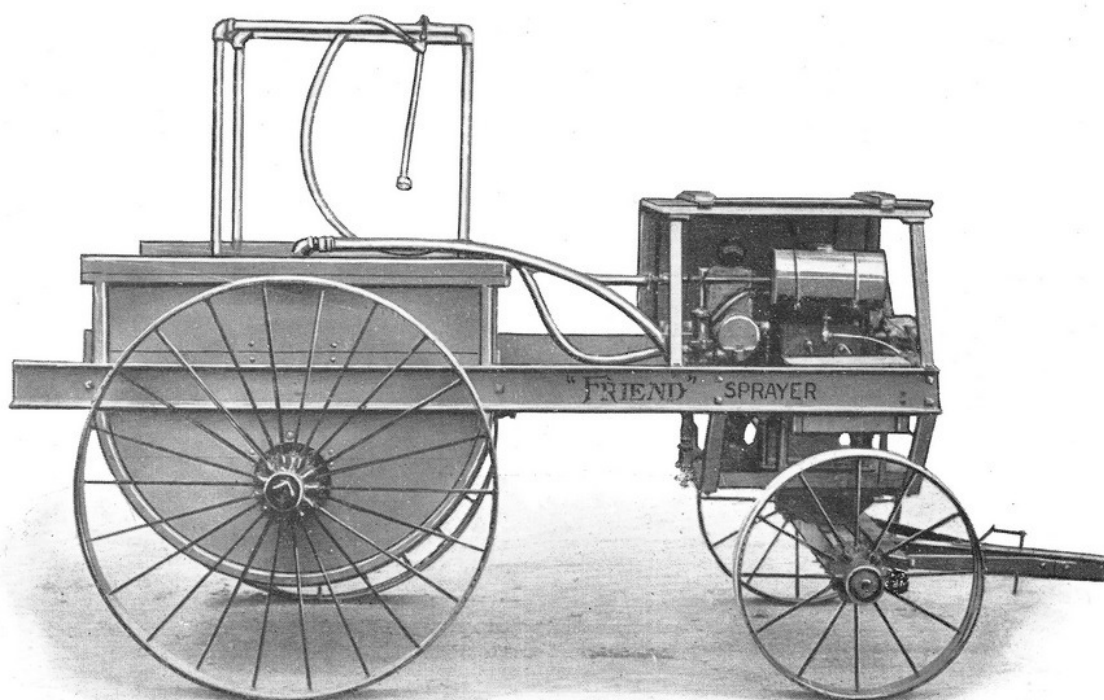
Price, DXA 250 gallon tank, code, *dove*, \$.....

Price, DXA Motor Pump on 200 gallon tank chassis, code, *dolly*, \$.....

Price, DXA Motor Pump on 300 gallon tank chassis, code, *dimple*, \$.....

FOR EXPORT: Weight 2800, cu. ft. 176 with 250 gallon tank.





SPECIFICATIONS "DX" SPRAYER

STYLE: The famous "Friend" type low down, cut clear under, short turn, large wheel, easy draft, flexible sprayer. Single unit motor-pump. Beautiful in appearance, simple in construction.

WHEELS: Strong steel wheels. Diameter front 28", rear 48", with 5" tires. Wheelbase 60", tread 60".

BED: Connecting motor-pump and tank. Length 96".

CAB: Convenient cab for quick accessibility of all working parts. Light, neat, substantial, rigid support.

TANK: Celebrated "Friend" under-slung type cypress spray tank, 250 gallon capacity. Filling hole and drain plug easily accessible for filling and cleansing. Hoops easily tightened. Substantial angle iron binding.

AGITATOR: Direct propeller agitator, has two paddles. Complete and efficient agitation. See page 10.

Low Down: Top of tank 52" from ground; top of cab 57", motor-pump base 23" from ground. Very low center of gravity.

SUCTION: 1" high grade rubber suction hose with pipe connection. "Friend" type suction strainer, never clogs—always accessible. Suction well in bottom of tank permits of complete discharge of spray tank.

SEAT AND GUARD RAIL: Either guard rail for work from top of tank or seat may be furnished as specified.

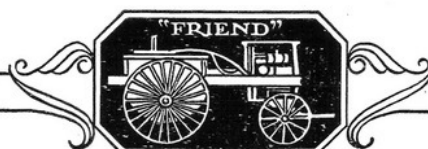
HOSE CONNECTION: Connection for two hose lines with shutoffs at rear of tank.

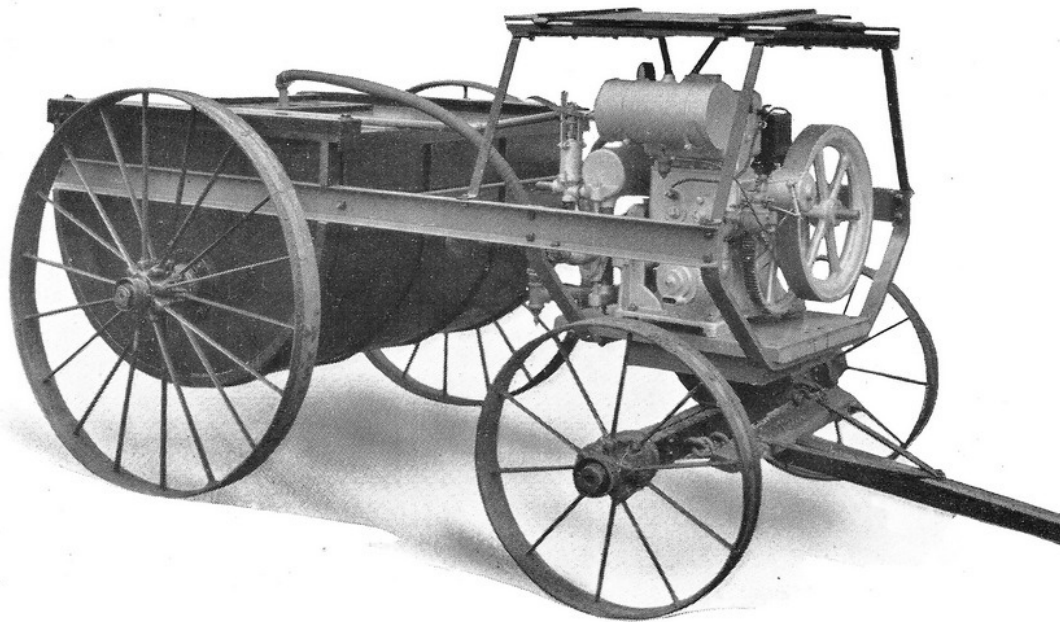
MOTOR: "Friend" 5 H. P. single cylinder auto-marine water cooled motor. See specifications page 20.

PUMP: "Friend" patent duplex high pressure plunger pump. 12 gal. per min. capacity. See specifications page 21.

EQUIPMENT: Whiffletrees and neck-yoke for two horses. Two 50 ft. lines braided spray hose and two "Friend" spraguns. Complete set of tools. Complete ready to operate. Shipping weight about 2300 lbs. For export, weight 2800, cu. ft. 185. Price, F. O. B. Gasport, code, dixie, \$.....

Automatic pressure controller which allows motor-pump to run idle when gun is closed, extra.





SPECIFICATIONS "BX" SPRAYER

STYLE: The famous "Friend" type low down, cut clear under, short turn, large wheel, flexible sprayer. Single unit motor-pump.

WHEELS: Strong steel wheels. Diameter front 28", rear 48" with 4" tires. Wheelbase 60", tread 58".

BED: Connecting motor-pump and tank. Length 96".

CAB: Convenient cab for quick accessibility of all working parts. Light, neat, substantial, rigid support.

TANK: Celebrated "Friend" under-slung type cypress spray tank. Two hundred gallon capacity. Filling hole and drain plug easily accessible for filling and cleansing. Hoops easily tightened. Substantial angle iron binding.

AGITATOR: Direct propeller agitator, has two paddles. Efficient agitation. See page 10.

LOW DOWN: Top of tank 46" from ground; motor-pump base 22". Very low center of gravity.

SUCTION: 1" high grade rubber suction hose with pipe extension. "Friend" type suction strainer never clogs—always accessible. Suction well in bottom of tank permits of complete discharge of spray tank.

GUARD RAIL: Substantial guard rail for work from top of tank furnished if desired.

HOSE CONNECTION: Connection for two hose lines with shutoff at rear of tank.

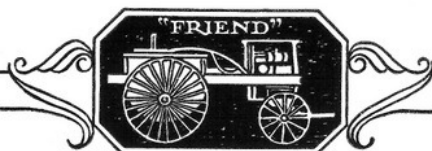
MOTOR: "Friend" 4 H. P. single cylinder auto-marine water cooled motor. See specifications page 20.

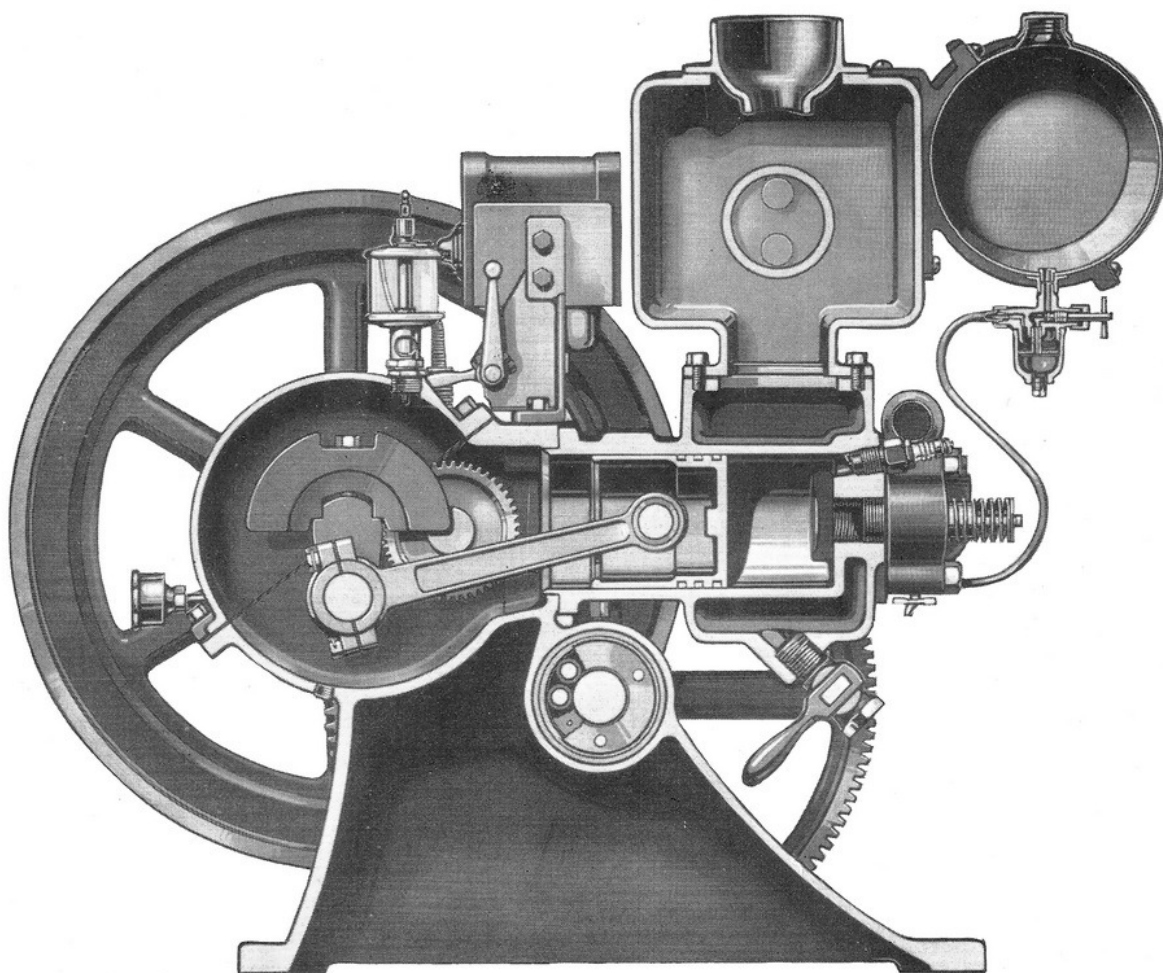
PUMP: "Friend" patent duplex high pressure plunger pump. 10 gal. per min. capacity. See specifications page 21.

EQUIPMENT: Whiffletrees and neck-yoke for two horses. One 50 ft. line braided spray hose and 1 "Friend" spragun. Complete set of tools. Complete ready to operate. Shipping weight about 2100 lbs. Price, F. O. B. Gasport, code, *banner*, \$.....

Automatic pressure controller which allows motor-pump to run idle when gun is closed, extra.

FOR EXPORT: Weight 2600, cu. ft. 176.





SPECIFICATIONS—DXA, DX AND BX ENGINES

TYPE: Single cylinder auto-marine, water cooled, horizontal gasoline engine.

CONSTRUCTION: Motor and pump mounted on same base. Pumps bolted to motor base. A single unit—stress self-contained. Pump drive shaft runs through motor base. Compact—light—sturdy.

COOLING: A separate chamber allows spray solution to circulate inside motor hopper cooler—keeping cooling water at an even temperature. Water never boils.

IGNITION: Jump spark. Wico magneto. Has hot starting spark turned slow or fast. As easy to start engine as on dry cells.

LUBRICATION: Dual (drip and splash). Oil from oil cup drips directly on crank shaft bearing. The surplus forms a pool in bottom of crank case and connecting rod splashes it to all bearings. Handy drain plug in crank case. Pump shaft bearings lubricated by grease cups. Thorough lubrication for all wearing parts.

GOVERNOR: Automatic throttle type. Works in oil bath. Speed regulated by means of small spring.

SHAFTING: Pump and crank shaft hardened and ground to finest precision. Hardened, ground wrist pin. Piston, rings and cylinder carefully made to precision.

BEARINGS: Big adjustable Babbitt bearings on crank shaft—easy to remove shims for taking up wear. Hyatt Roller Bearings on pump shaft—a "Friend" feature. Friction reduced to a minimum.

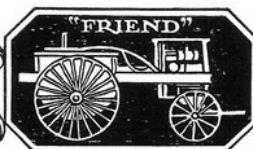
CARBURETOR: Schebler. Easy starting and economical. Mixture easily adjusted.

GASOLINE TANK: 2 gallon capacity. Galvanized sheet iron. Gravity feed to carburetor.

MUFFLER: Simple, quiet—deadens crack of motor to a mere puff.

ACTION: Motor is easy to start. Smooth and snappy in action.

PROTECTION FROM



BLOSSOM to BASKET

MOTOR PUMP SPECIFICATIONS

SIZE DXA

MOTOR: "Friend" 6 H. P. Wico magneto, 2 gallon gasoline tank.
Maximum speed 800 R. P. M.

PUMP: "Friend" duplex high pressure plunger pump. 15 gallon per minute capacity. 2½" plungers, 4" stroke. Automatic controller standard equipment.

Gear ratio on DXA motor-pump 8 to 1. Supplies two spraguns at high pressure.

Shipping weight motor-pump about 710 lbs.

PRICE, motor-pump only, code *dandy*, \$.....

F. O. B. Gasport, N. Y.

FOR EXPORT: Weight 850 lbs. Cu. ft. 30.

SIZE DX

MOTOR: "Friend" 5 H. P. Wico magneto, 2 gallon gasoline tank.
Maximum speed 800 R. P. M.

PUMP: "Friend" duplex high pressure plunger pump. 12 gallon per minute capacity. 2½" plungers. 3" pump stroke. Regular controller.

Gear ratio on DX motor-pump 8 to 1. Supplies two spraguns at good pressure.

Shipping weight motor-pump only about 710 lbs.

PRICE, motor-pump only, code *daisy*, \$.....

F. O. B. Gasport, N. Y.

Automatic pressure controller extra.

FOR EXPORT: Weight 850 lbs. Cu. ft. 30.

SIZE BX

MOTOR: "Friend" 4 H. P. Wico magneto. 2 gallon gasoline tank, Maximum speed 700 R. P. M.

PUMP: "Friend" duplex high pressure plunger pump. 10 gallon per minute capacity. 2" plungers, 3½" stroke. Regular pressure controller.

Gear ratio on BX motor-pump 7 to 1. Supplies one spragun at good pressure.

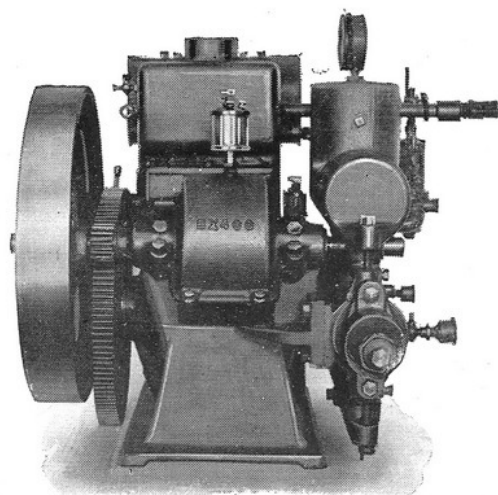
Shipping weight motor-pump only about 680 lbs.

PRICE, motor-pump only, code *bachelor*, \$.....

F. O. B. Gasport, N. Y.

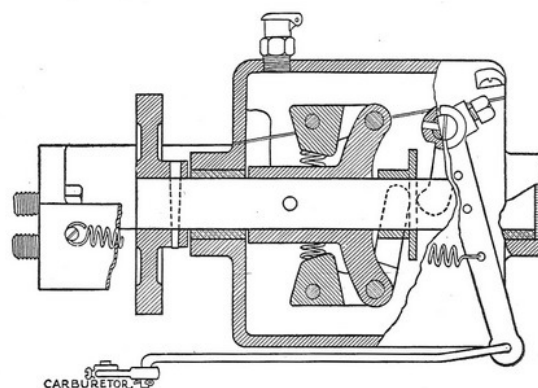
Automatic controller extra.

FOR EXPORT: Weight 725 lbs. Cu. ft. 30.



Motor-pump for DXA, DX and BX Sprayers

Note: DXA, DX, and BX are interchangeable on DXA, DX, and BX chassis.



"Friend" Governor Assembly

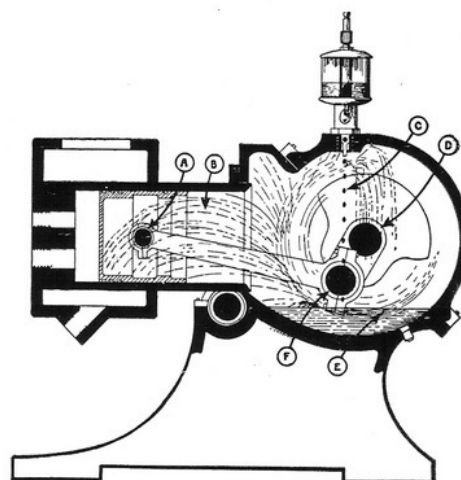
GOVERNOR

The throttle governor used on the "Friend" motor gives a very efficient speed control. When greater pressure is demanded of the pump the governor automatically speeds up the motor for more pressure.

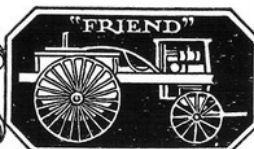
When automatic pressure controller is used, the motor is automatically slowed down when spraguns are closed and pump is not working under pressure. Any variation in amount of discharge is taken care of by the governor which slows or speeds up motor as the load decreases or increases.

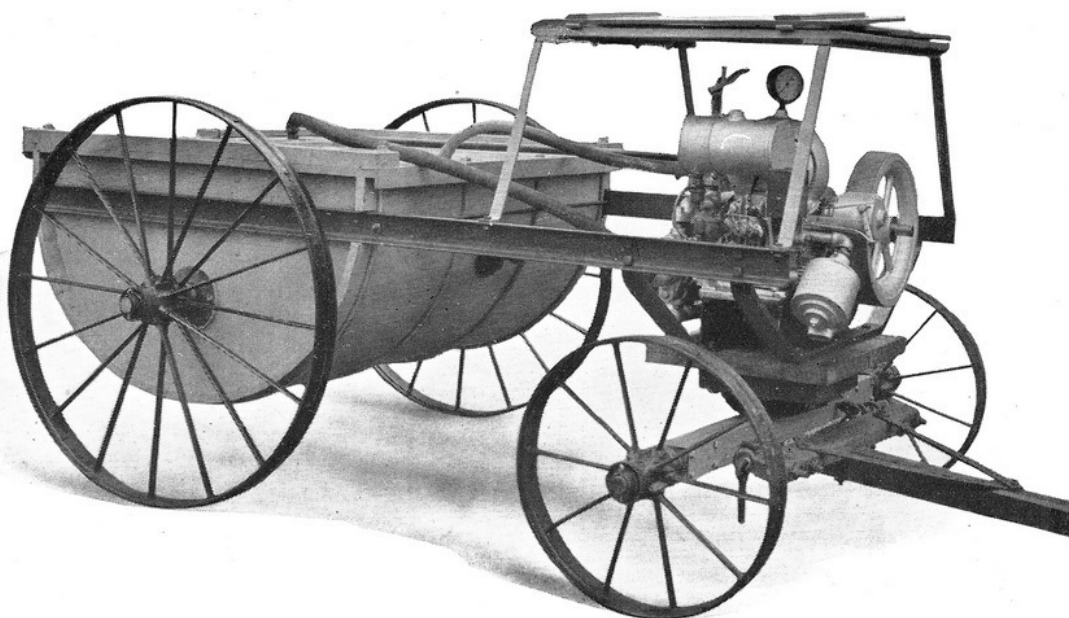
LUBRICATION

"Friend" motor-pumps have dual lubrication—dip and drip. The new fresh oil drips on the fast moving parts and is thrown into all bearings by the splash method. The surplus of oil forms a pool in the bottom of the crankcase where the connecting-rod dips into it, and thus insures continuous, perfect lubrication.



Motor Lubrication—"Friend" Motor-pumps





SPECIFICATIONS "EX" SPRAYER

STYLE: The famous "Friend" cut clear under, short turn, low center of gravity, large wheel, easy draft, flexible, easy accessible type sprayer.

WHEELS: Strong steel wheels. Diameter front 24", rear 42" with 3" tires. Wheelbase 56". Tread 56."

BED: Connecting motor-pump and tank. Length 90".

CAB: Convenient cab for quick accessibility of all working parts. Light, neat, substantial; rigid support. Top of cab 51" from ground.

TANK: Celebrated "Friend" under-slung type cypress spray tank. 150 gallon capacity. Filling hole and drain plug easily accessible for filling and cleansing. Hoops easily tightened. Substantial angle iron binding.

AGITATOR: Direct propeller agitator, has 1 paddle. Very efficient. See page 10.

LOW DOWN: Top of tank 38" from ground; motor-pump base 18½".

SUCTION: 1" high grade rubber suction hose with pipe extension. "Friend" type suction strainer, never clogs—always accessible. Suction well in bottom of tank permits of complete discharge of spray tank.

GUARD RAIL: Substantial guard rail for work from top of tank furnished if desired.

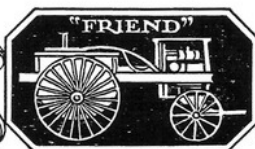
HOSE CONNECTION: Connection for two hose lines with shutoffs at rear of tank.

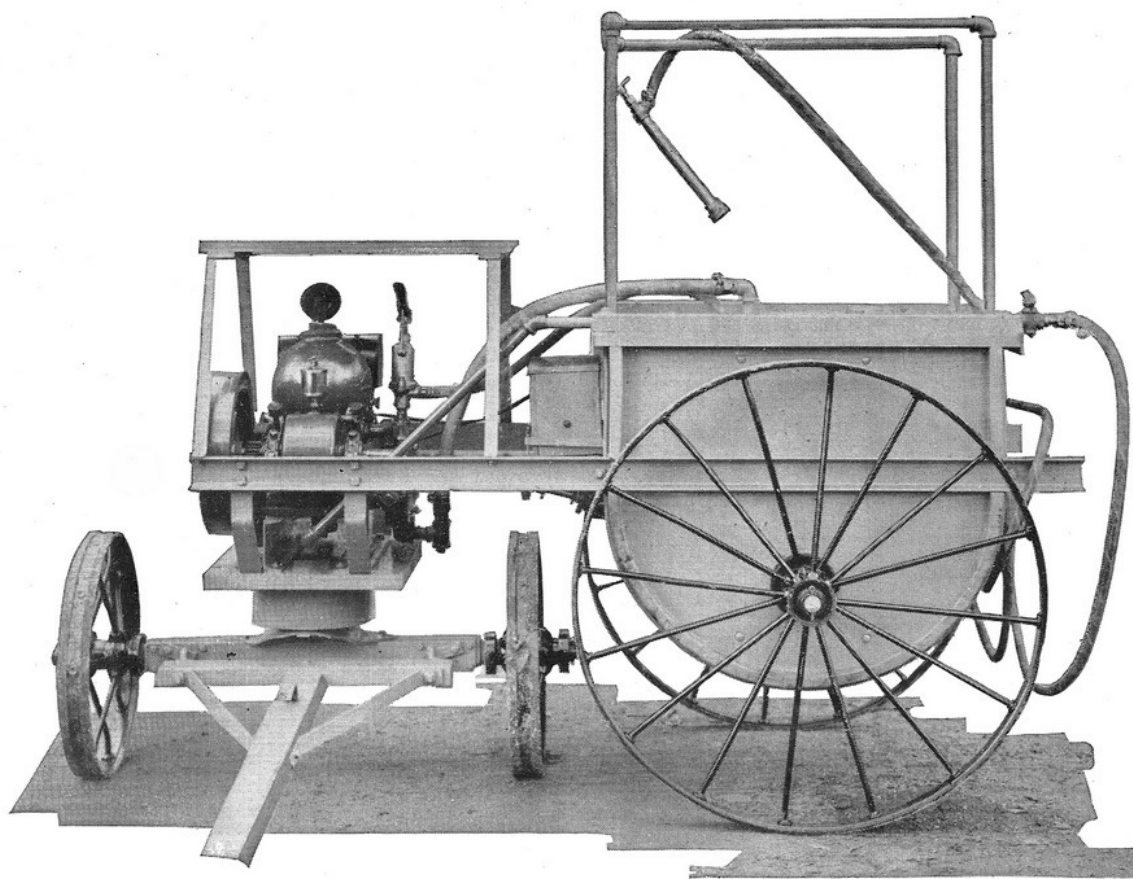
MOTOR: "Friend" 3 H. P. single cylinder auto-marine water cooled motor. See specifications next page.

PUMP: "Friend" patent duplex high pressure plunger pump. See specifications next page.

EQUIPMENT: Whiffletrees and neck-yoke for two horses. Furnished for one horse at same price. One 50 ft. line braided spray hose and 1 spragun. Complete set of tools. Complete ready to operate. Shipping weight about 1653 lbs. Price, F. O. B. Gasport, code *eagle*, \$.....

FOR EXPORT: Weight 2325, cu. ft 186.





SPECIFICATIONS "CX" SPRAYER

STYLE: The famous "Friend" cut clear under, short turn, low center of gravity, large wheel, easy draft, flexible, easy accessible type sprayer.

WHEELS: Strong steel wheels. Diameter front 24", rear 42" with 3" tires. Wheelbase 47". Tread 42".

BED: Connecting motor-pump and tank. Length 75".

CAB: Convenient cab for quick accessibility of all working parts. Light, neat, substantial, rigid support.

TANK: Celebrated "Friend" under-slung type cypress spray tank. 100 gallon capacity. Filling hole and drain plug easily accessible for filling and cleansing. Hoops easily tightened. Substantial angle iron binding.

AGITATOR: Direct propeller agitator, has 1 paddle. Very efficient. See page 10.

LOW DOWN: Top of tank 49" from ground; motor-pump base 20".

SUCTION: 1" high grade rubber suction hose with pipe extension. "Friend" type suction strainer, never clogs—always accessible. Suction well in bottom of tank permits of complete discharge of spray tank.

GUARD RAIL: Substantial guard rail for work from top of tank furnished if desired.

HOSE CONNECTION: Connection for two hose lines with shutoff at rear of tank.

MOTOR: "Friend" 2½ H. P. single cylinder auto-marine water cooled motor. See specifications page 24.

PUMP: "Friend" single cylinder high pressure plunger pump. 5 gallon per minute capacity. See specifications on page 25.

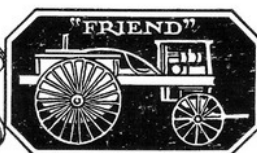
EQUIPMENT: Whiffletrees and neck-yoke for two horses. Furnished for one horse at same price. One 50 ft. line braided spray hose and 1 spragun. Complete set of tools. Complete ready to operate. Shipping weight about 1445 lbs.

PRICE, F. O. B. Gasport, code, *canary*, \$.....

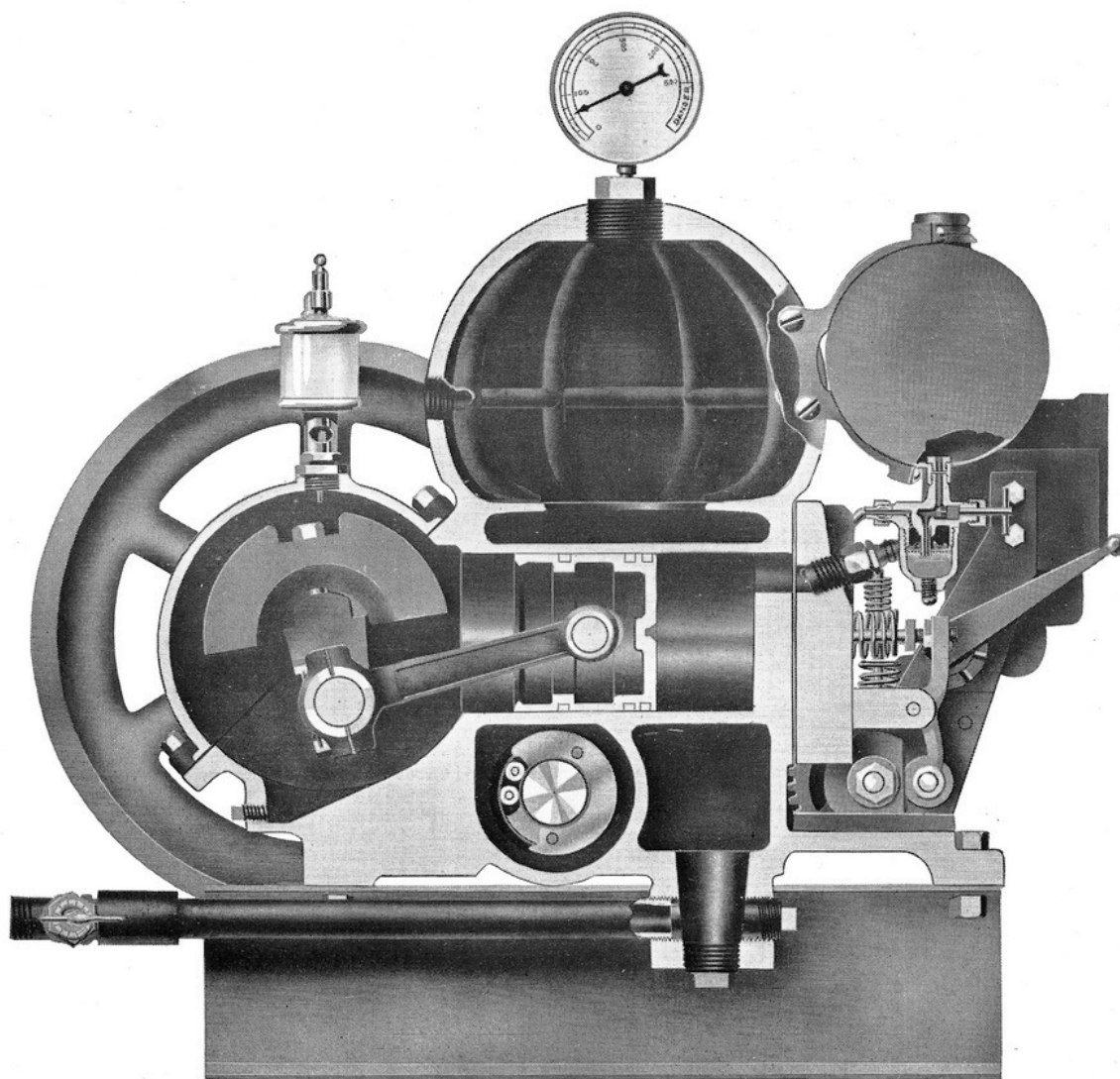
FOR EXPORT

Weight 1983
Cu. Feet 159

PROTECTION FROM



BLOSSOM to BASKET



SPECIFICATIONS—EX AND CX ENGINES

TYPE: Single cylinder auto-marine, water cooled, horizontal gasoline engine. Removable valve in head type.

CONSTRUCTION: Motor and pump mounted on same base. Pumps bolted to motor base. A single unit—stress self-contained. Pump drive shaft runs through motor base. Compact—light—sturdy.

COOLING: Motor cooling hopper and pump air chamber are one. Serves the dual purpose exceedingly well. The cold spray solution passing through this chamber on its course to discharge hose cools motor perfectly. The two in one feature makes a lighter, more compact unit.

IGNITION: Jump spark. Wico magneto. Has hot starting spark turned slow or fast. As easy to start engine as on dry cells.

LUBRICATION: Dual (drip and splash). Oil from oil cups drips directly on crank shaft bearing. The surplus forms a pool in bottom of crank case and connecting rod splashes it to all bearings. Handy drain plug in crank case. Pump shaft bearings lubricated by grease cups. Thorough lubrication for all wearing parts.

GOVERNOR: Automatic throttle type. Works in oil bath. Speed regulated by means of small spring.

SHAFTING: Pump and crank shaft hardened and ground to finest precision. Hardened, ground wrist pin. Piston, rings and cylinder carefully made to precision.

BEARINGS: Big adjustable Babbitt bearings on crank shaft—easy to remove shims for taking up wear. Hyatt Roller Bearings on pump shaft—a "Friend" feature. Friction reduced to a minimum.

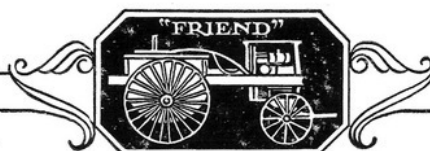
CARBURETOR: Schebler. Easy starting and economical. Mixture easily adjusted.

GASOLINE TANK: 1 gallon capacity. Galvanized sheet iron. Gravity feed to carburetor.

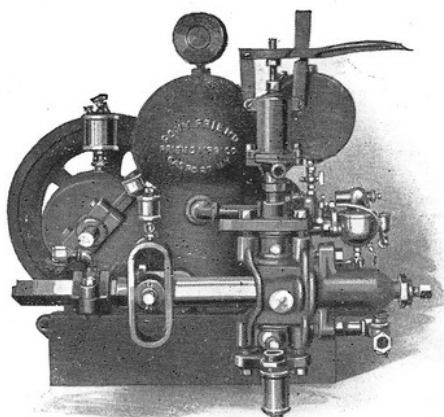
MUFFLER: Simple, quiet,—deadens crack of motor to mere puff.

ACTION: Motor is easy to start. Runs smoothly and lots of pep.

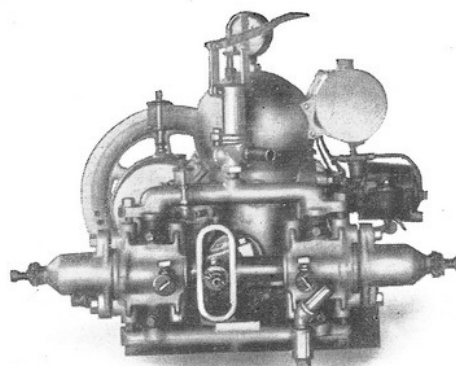
PROTECTION FROM



BLOSSOM to BASKET



SIZE CX—PUMP SIDE



SIZE EX—PUMP SIDE

THESE small size motor-pumps are real spray pumps with wonderful power and capacity. They are "Friend" quality construction throughout and are giving the same service and satisfaction as the larger "Friend" motor-pumps. They will do good fast high pressure spraying and have ample capacity for small acreage. They can easily be installed on any make of sprayer. Note: EX and CX are interchangeable on CX and EX chassis.

SPECIFICATIONS

SIZE CX

MOTOR: "Friend" $2\frac{1}{2}$ H. P. Wico magneto. 1 gallon gasoline tank. Maximum speed 600 R. P. M. Hyatt Roller Bearings on Pump Shaft.

PUMP: 5 gallon per minute capacity. 2" plungers. 6 ring packing. $3\frac{1}{2}$ " stroke. Regular controller.

Gear ratio on CX motor-pump 6 to 1. Supplies one spragun. Shipping weight about 480 lbs.

PRICE, motor-pump only, code *calf*, \$.....

For Export: Weight 580 lbs. Cu. feet 15.

SIZE EX

MOTOR: "Friend" 3 H. P. Wico magneto. 1 gallon gasoline tank. Maximum speed 600 R. P. M. Hyatt Roller Bearings on Pump Shaft.

PUMP: "Friend" duplex high pressure plunger pump. 8 gallon per minute capacity. 2" plungers. 6 ring packing. 3" stroke. Regular controller.

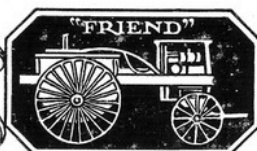
Gear ratio on EX motor-pump 6 to 1. Abundance of power for one spragun. Shipping weight EX motor-pump about 500 lbs.

PRICE, motor-pump only, code *empress*, \$.....

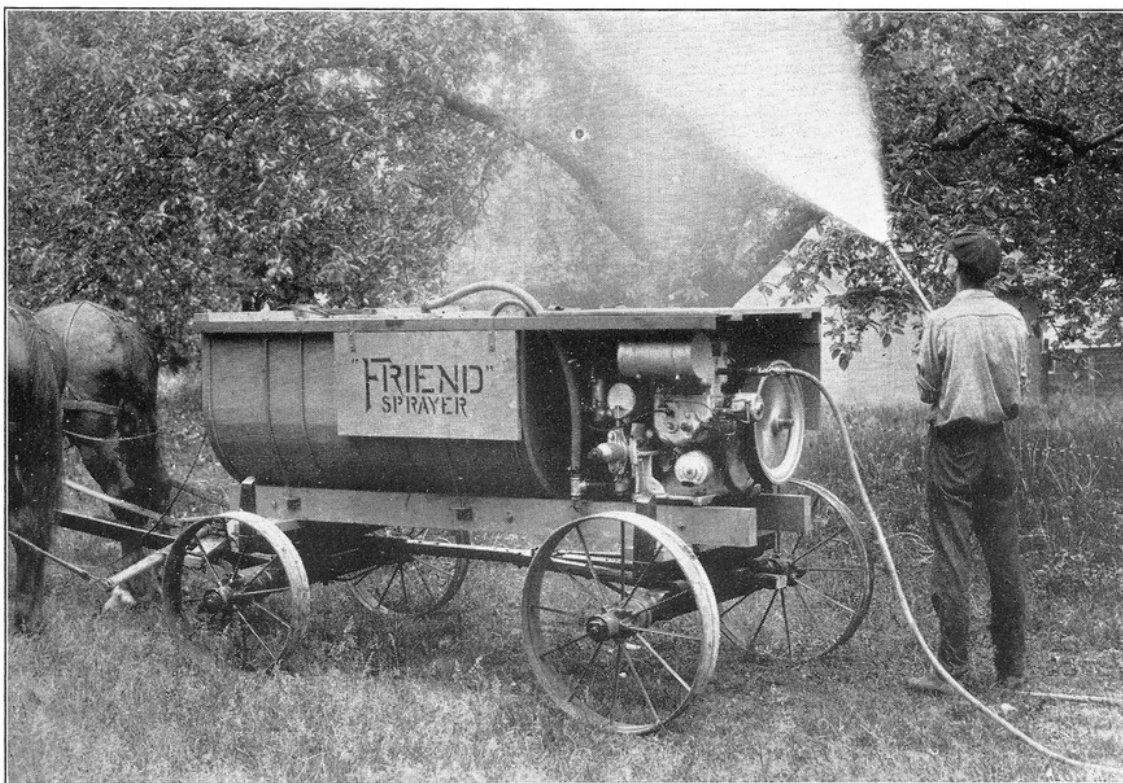
For Export: Weight 600 lbs. Cu. feet 15.

All prices F. O. B. Gasport, N. Y.

PROTECTION FROM



BLOSSOM to BASKET



BED STYLE SPRAYER

THESE outfits are very practical and quite popular where one desires to use his own wagon. The Bed style is equipped with bolsters and is easily placed on any farm wagon and can be quickly removed at end of spraying season, if wagon is needed for other purposes.

These are first class sprayers in every respect, equipped with the regular "Friend" motor-pump units. The very best materials and workmanship are employed throughout. Securely bound, well designed and constructed cypress spray tank, as shown. The bed is made of the best materials — strong and light. Convenient cab, easy access to motor-pump, direct propeller agitator. A first class sprayer in every detail at a moderate price. Gives the same satisfactory service as all "Friend" power sprayers.

SPECIFICATIONS

Suction hose with each outfit, suction strainer and overflow hose. Set of tools. Ready to operate.

Size DXA 6 H. P. 15 gallon per minute, duplex pump.

Two 50 ft. lines spray hose and two spraguns.

Shipping weight about 1370 lbs.

PRICE, 250 gallon tank, code *dragon*, \$.

Size DX 5 H. P. 12 gallon per minute, duplex pump.

Two 50 ft. lines spray hose and two spraguns.

Shipping weight about 1345 lbs.

PRICE, 250 gallon tank, code *diamond*, \$.

Size BX 4 H. P. 10 gallon per minute, duplex pump.

One 50 ft. line spray hose. One spragun. Shipping

weight about 1200 lbs. PRICE, 200 gallon tank, code *bear*, \$.

Low down truck for DX and BX bed, 28" front wheels and 32" rear. Width tire 5". PRICE, code *bedford*, \$.

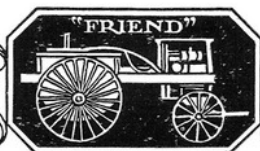
Size EX 3 H. P. 8 gallon per minute, duplex pump. One 50 ft. line spray hose. One spragun. Shipping weight about 1020 lbs. PRICE, 150 gallon tank, code *echo*, \$.

Size CX 2½ H. P. 5 gallon per minute, single cylinder pump. One 50 ft. line spray hose. One spragun. Shipping weight about 915 lbs. PRICE, 100 gallon tank, code *camel*, \$.

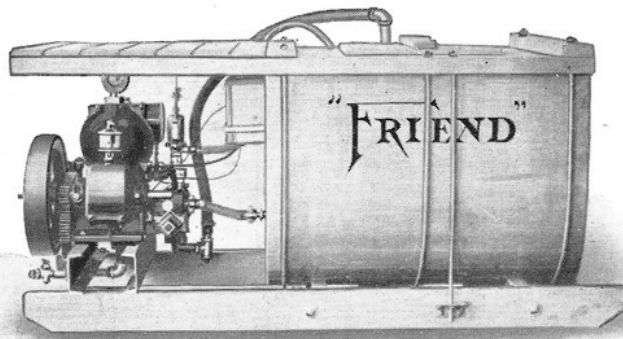
Low down truck for EX and CX bed, 24" front wheels and 26" rear. Width tire 4". PRICE, code *rockford*, \$.

NOTE: Whiffletrees and neck yoke not furnished with trucks for bed rigs.

PROTECTION FROM



BLOSSOM to BASKET



SKID STYLE SPRAYER

THIS little sprayer can be slipped into any wagon box or truck and requires no anchoring—a very complete and powerful sprayer. A handy all-around outfit for all spraying purposes, so very handy that it should be found on every farm.

The general farmer with a small orchard as a side line can slip this little outfit onto any farm wagon in a few minutes and he has a real sprayer, with plenty of pressure and capacity.

By attaching a vegetable boom it can be used for all field crops. It is also used for disinfecting dairy barns, etc.

Made in following sizes:

SPECIFICATIONS

SIZE EX 3 H. P. 8 gallon per minute, 150 gallon tank, duplex pump. Suction and overflow hose, tools ready to operate. One 50 ft. line spray hose and one spragun. Shipping weight about 825 lbs.

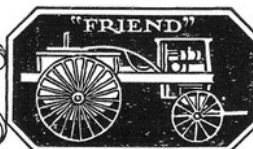
PRICE, code *elephant*, \$.....

SIZE CX 2½ H. P. 5 gallon per minute, 100 gallon tank, single cylinder pump. Suction and overflow hose. Set of tools. One 50 ft. line spray hose. One spragun. Complete ready to operate. Cab not equipped with side curtains on CX skid. Shipping weight about 790 lbs.

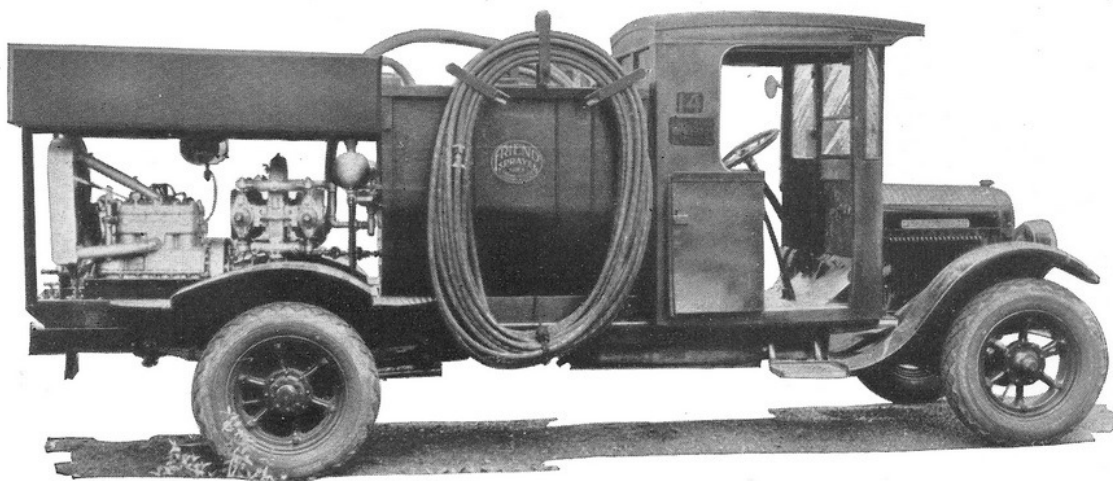
PRICE, code *cactus*, \$.....

Rods and nozzles may be furnished on all "Friend" power sprayers in place of guns if so ordered at same price.

PROTECTION FROM

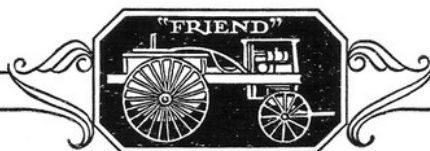


BLOSSOM to BASKET



PARK SPRAYERS

As the necessity of park spraying becomes more and more evident, the demand for high pressure big capacity sprayers has gradually increased and in response to this demand "Friend" is offering park sprayers in several sizes. "Friend" deep oil bath park sprayers are made in three sizes. The big quadruplex oil bath outfits are in general use for tall shade tree spraying and are very efficient outfits, as there is always an abundance of power with ample reserve. With a "Friend" quadruplex oil bath park sprayer and the "Friend" long park gun it is possible to reach the tops of the tallest shade trees and do a thorough, efficient job of spraying. "Friend" high pressure park sprayers are giving wonderful service and satisfaction wherever they are being used and they are rapidly growing in popularity as shown by the increased demand. Made in the famous cut-under model and also in skid type for use on motor truck.



ENDORSED BY FAMOUS TREE SURGEONS

"It is a pleasure, after a season's use of one of your 30 gallon per minute outfits, to advise you that this outfit has proved satisfactory in every way for our work. It delivers the volume required for high tree work at the ideal pressure and is one of the most efficient spraying units we know of.

Our work calls for us to get the maximum out of each and every outfit. The spraying season is short and we must apply the maximum number of gallons in the shortest time possible to break even on our investment. The "Friend" outfits we use have stood the test and we are glad to recommend them to anyone who must have a dependable unit always ready, simple to operate and efficient."

11-29-26

THE DAVEY TREE EXPERT Co., Kent, Ohio.

"It may interest you to know that we operated one of the large machines fifteen hours per day, working one squad of men from daylight to noon, another from noon to dark, for a period of about six weeks through our busiest season this year without either the motor or the pump ever missing a beat. The fine operation of the machine during this period was gratifying indeed."

9-17-26

ARMSTRONG TREE SERVICE, LTD., POUGHKEEPSIE, NEW YORK

SPECIFICATIONS

SIZE AXB: 15 H. P. Le Roi motor. Deep oil bath quadruplex pump, 2½" plungers, 4" stroke, 30 gallon per minute capacity. Can be furnished with 300, 350, or 400 gallon tank in the regular cut-under model or in skid type to be mounted on motor truck. Also furnished on skid without motor.

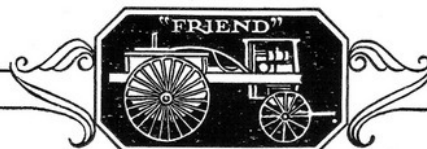
SIZE AXBA: This sprayer is the same as AXB in every respect except that the pump has 3½" stroke and a capacity of 25 gallons per minute.

SIZE AXA: 10 H. P. Universal motor. Deep oil bath quadruplex pump, 2" plungers, 4" stroke, 20 gallon per minute capacity. Can be furnished with 300, or 350 gallon tank in cut-under model or in skid type mounted on motor truck. Also furnished on skid without motor.

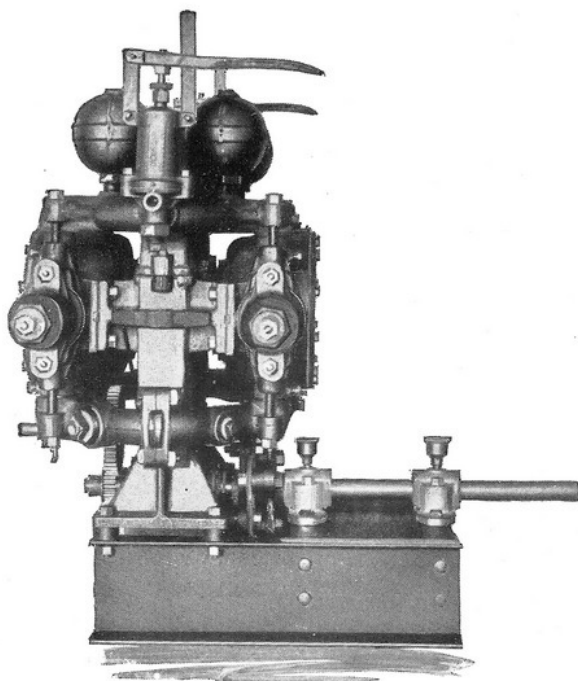
Our smaller sized orchard sprayers can also be furnished for park work where their capacity and power is sufficient.

Our regular price list does not show park sprayers, as practically all park outfits are of the skid type for mounting on motor truck and the prices vary according to the size of tank called for and equipment, etc. Prices will be given on application if you give an estimate of what size tank etc. you want.

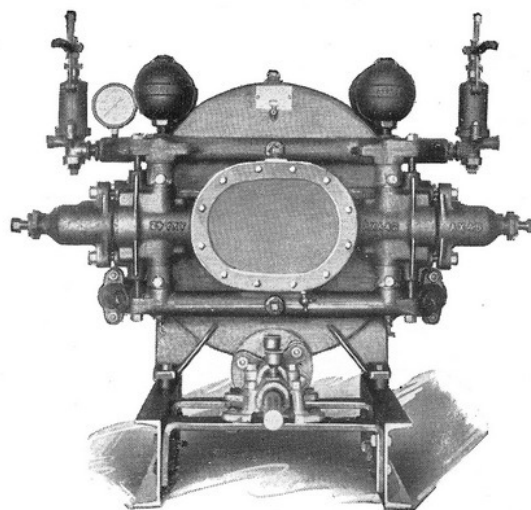
PROTECTION FROM



BLOSSOM to BASKET



End View



Side View

STATIONARY PUMPS

In some sections of the country the use of stationary outfits for spraying is becoming quite popular and has been found to assist the grower in the following ways:

Saving in labor; one man can spray as much as two with portable outfit. Spraying and irrigating can be done at the same time, where irrigation is used.

Avoids damage to soil and irrigating furrows by hauling sprayer through the orchard.

Lessens depreciation of spraying machinery.

In small or medium sized orchards it enables the grower to do his own spraying and assists him in producing clean fruit.

The stationary pumping plant should be located where it will be most convenient to farm buildings, water, power, etc., thus saving much time and a much larger tank can be used.

"Friend" stationary pumps are the famous deep oil bath type, all working parts deeply submerged.

SPECIFICATIONS

SIZE AXB: Quadruplex stationary pump, $2\frac{1}{2}$ " plungers, 30 gallon per minute capacity, with extension shaft. PRICE, code *abandon*, \$.....

SIZE AXBA: Quadruplex stationary pump, $2\frac{1}{2}$ " plungers, 25 gallon per minute capacity, with extension shaft. PRICE, code *abba*, \$.....

SIZE AXA: Quadruplex stationary pump, 2" plungers, 20 gallon per minute capacity, with extension shaft. PRICE, code *astor*, \$.....

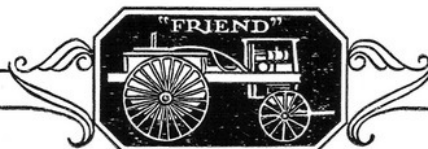
SIZE AXB: Duplex stationary pump, $2\frac{1}{2}$ " plungers, 15 gallon per minute capacity, with extension shaft. PRICE, code *abyss*, \$.....

SIZE AXA: Duplex stationary pump 2" plungers, 10 gallon per minute capacity, with extension shaft. PRICE, code *algebra*, \$.....

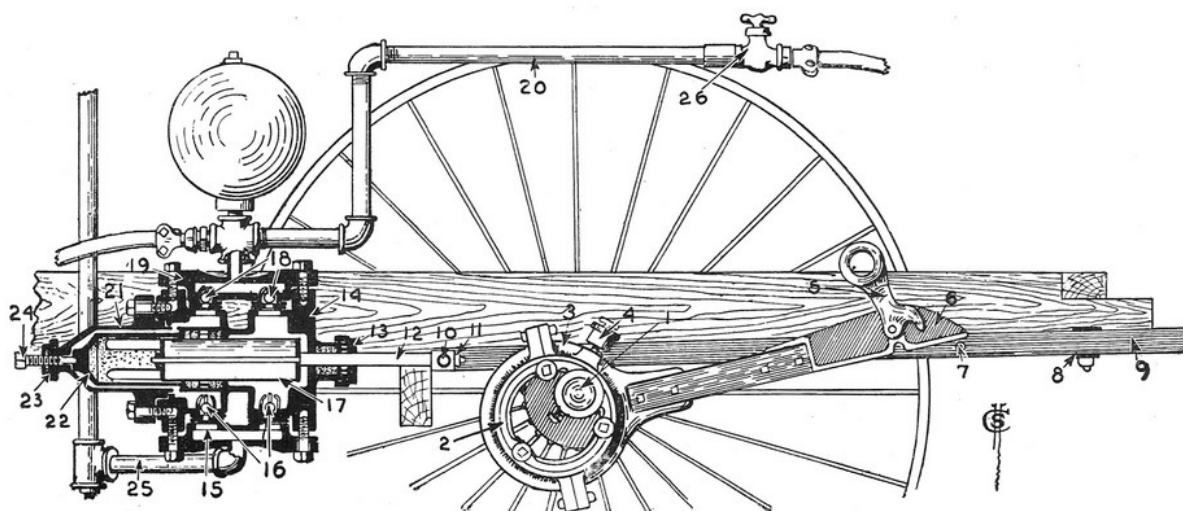
Above pumps can be furnished with gasoline engine, making the complete motor-pump unit if desired.

All stationary pumps are furnished with extension shaft to hook up with electric motor or gas engine.

PROTECTION FROM

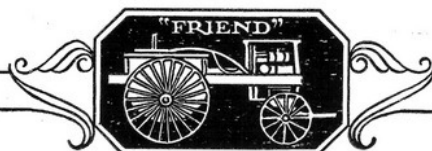


BLOSSOM to BASKET



Direct Eccentric Drive and Pump Construction of "FRIEND" TRACTION SPRAYERS

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Axle shaft. 2. Eccentric 3. Eccentric strap. 4. Eccentric strap grease cup. 5. Lock—pump easily thrown in and out of action. 6. Eccentric bar head. 7. Lock spacer bolt. 8. Slide rest plate. 9. Pump drive arm. 10. Plunger rod cross head. 11. Plunger rod nut. 12. Plunger rod. Brass cased where it works through packing. 13. Plunger rod packing nut. 14. Pump cylinder—designed to give duplex pump capacity. | <ol style="list-style-type: none"> 15. Suction manifold. By loosening 2 screws valves may be removed for cleaning or renewing. 16. Suction valve ball. Made of chemical proof metal. 17. Plunger. 18. Discharge valve balls. Made of chemical proof metal. 19. Pressure manifold. 20. Discharge pipe to nozzle boom. 21. Cylinder cup. May be removed by taking out 2 screws. Remove to pack pump. 22. Packing gland, tightening 24 forces gland 22 against packing to prevent pump from leaking. 23. Packing adjustment screw stuffing box. 24. Packing adjustment screw. 25. Suction pipe. 26. Discharge pipe cock. |
|--|---|



General Specifications

“FRIEND” TRACTION SPRAYERS

TRANSMISSION: In place of noisy gears and rapid moving counter shafts and cranks, a simple, plain, durable eccentric is keyed direct to the axle, a pitman transmits the power direct to the pump. In connection with this pitman, is a quick detachable lock, which by a simple turn of the wrist, throws the pump in and out of action. This transmission, if oiled occasionally, should last a lifetime; if cared for, these slow moving parts cannot wear out.

WHEELS: Durable, 42" x 3" wheels are used. They have ratchets in the hubs that cause the power to be applied from both wheels alike.

AXLE: Cold rolled steel, very stiff and strong, is used to carry the load, and constitutes the power shaft; this shaft has a key way which permits the wheels to be adjusted for varied conditions. Liberal adjustable bearings are provided.

TREAD: The standard width is supposed to straddle two rows and provision is made for adjustment for 30" to 36" rows.

FRAME: Special care has been exercised to make the frame substantial and rigid; the bed pieces are well bolted and braced.

POLE: A pole, for use with two horses, seems to meet the popular demand; it is of very carefully selected oak. Long whiffletrees and neck yoke are furnished.

PUMP: The most durable and simple double action pumps ever designed, are neatly and securely mounted to the frame along either side of the tank, thus giving the machine a quadruple action which delivers a very even flow and uniform pressure without vibration. Quick accessible and detachable valves and seats, quick accessible packing.

CAPACITY: Ten gallon per minute pump capacity and a 100 gallon tank.

SUCTION: Substantial hard rubber suction hose, which can be instantly removed for cleaning strainer, or placed in a pail of clear water for cleansing pump after using.

STRAINER: A substantial suction strainer, having woven brass wire, is securely attached to the suction hose.

AIR CHAMBER: Ample provision is made for an equalization of pressure by ball chambers in connection with the discharge pipe.

PRESSURE GAUGE: A 400-pound pressure gauge of high quality is furnished.

CONTROLLER: The development of an efficient pressure controller, to prevent the usual waste of solution, was no easy task. Years of experimenting and painstaking effort have at last developed a controller that is proving practically perfect. A hand lever, hook and adjustment nut are provided, to enable the operator to instantly obtain any desired pressure, or to release it instantly. Very few potato sprayers are equipped with a \$10.00 pressure controller, but it is a characteristic “Friend” feature.

OVERFLOW: The waste solution is discharged into the tank through a hose.

TANK: Attention is called to the neat, substantial tank used on this sprayer; and the very strong binding and by its special construction, the low center of gravity. Capacity 100 gallons.

AGITATOR: A quiet, efficient agitator is one chief essential; this agitator is operated direct from the pump pitman and keeps the solution well mixed. It may also be operated by hand when stopped in field or for filling.

FILLING HOLE: It is very gratifying to be able to reach all portions of the sprayer tank for cleaning and also to have provision for easy filling. In these connections, note the large, well designed filling hole and cover.

SEAT: A comfortable seat, placed where the operator can see where he is driving and at the same time operate the discharge and controller valves.

BOOM: Various nozzle booms are made for use with “Friend” Traction Sprayers. Model D having 3 nozzles to the row seems to have the preference. Other types, however, may be furnished. See page 38.

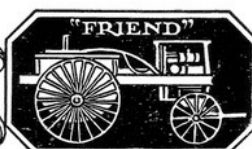
NOZZLES: “Friend” vegetable booms are equipped with powerful projective nozzles that throw a fine spray with great force on such an angle that the top and under side of the leaves are sure to get a thorough application of spray.

EQUIPMENT: Whiffletrees and neck yoke for two horses and complete set of tools. Complete ready to operate, except nozzle boom which is extra. See page 38 for various models of booms. Shipping weight about 1200 lbs.

PRICE, 10 gallon per minute “Friend” Traction Potato Sprayer, without boom, code *tadpole*, \$.....

PRICE, 5 gallon per minute single pump Traction Potato sprayers, without boom, code *tabby*, \$.....

For Export: Weight 1516. Cu. ft. 138.



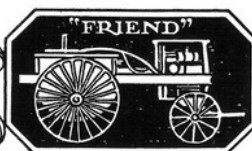


TRACTION POTATO SPRAYER

THE "Friend" traction sprayer fills the need for a high pressure outfit for potato spraying, but is priced much less than the gasoline power sprayers, thus making it possible for practically every potato grower to own a good spraying outfit. Successful potato growers have found through years of experience that it is absolutely essential to spray thoroughly and consistently, if the most gratifying results are to be obtained.

The small grower with only a few acres of potatoes, vegetables or other field crops will find a "Friend" traction sprayer worth many times its original cost, and up-keep amounts to almost nothing. Needless to say the large grower can not afford to be without one. Even when bugs and insects have been found only in limited numbers spraying has paid for itself many times over. The vines have got to be kept in a growing, vigorous state, with dark green, heavy foliage if a good potato crop is to be harvested. It is spraying that keeps the vines free from bugs and blight and a clean, healthy vine is constantly storing up energy in the form of the potato. How often do we see potato vines with the buds and blossoms eaten off completely and vines brown with blight? Such a vine cannot and does not produce a hill of good, large, uniform spuds. Spraying, if done properly and at the right time would prevent this weakened condition of the vines and a good crop and large profits would naturally follow. Knowing this, can you afford to throw away any more potato crops to bugs and blight, simply to save the slight cost of a good spraying outfit?

PROTECTION FROM



BLOSSOM to BASKET

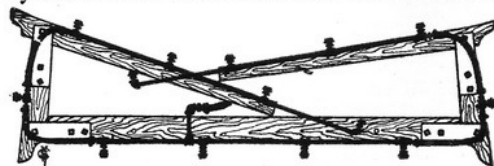


TRACTION ALFALFA SPRAYER

THE alfalfa weevil has become a real menace in certain alfalfa sections in the United States and in those infested areas it has become practically impossible to grow this important crop at a profit, unless a complete schedule of spraying is put into effect. It has been found that it costs only a few cents an acre to spray (cost of sprayer included) and that the returns from well sprayed fields have more than doubled.



Alfalfa Sprayer at Work



Improved Alfalfa Nozzle Boom—Folded

SPECIFICATIONS

SPECIFICATIONS: See general for specifications. Note: All "Friend" traction sprayers have the same mechanical construction.

FILLING PUMP: A durable tank filling pump with suction hose and suction strainer for filling the tank from irrigation ditches is securely attached to the top of the tank and enables the operator to fill the tank from any irrigation ditch in about five minutes. The pump operates very easily.

NOZZLE BOOM: A "Friend" model GA Alfalfa Nozzle Boom is the embodiment of adaptability and perfection. The most essential requirements of such a device are strength and light weight. The structure is strong, durable, rigid. When spread for operation it is self-supporting and its unique construction holds it squarely in position and when the arms are folded its

position is very satisfactory and its dimensions surprisingly small. Provision is made for vertical adjustment to any desired position. The boom has 14 fine spray nozzles spaced 14" apart. When in operation the spread of the spray is 25 ft. "Friend" fine spray projective nozzles are used, thus producing a perfect fog driven with great force, completely enveloping the area covered.

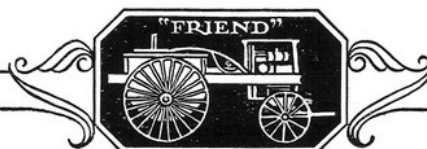
EQUIPMENT: Neck yoke and whiffletrees; set of tools. Shipping weight about 1200 lbs.

PRICE, without nozzle boom and filling pump, code *tamarack*, \$.....

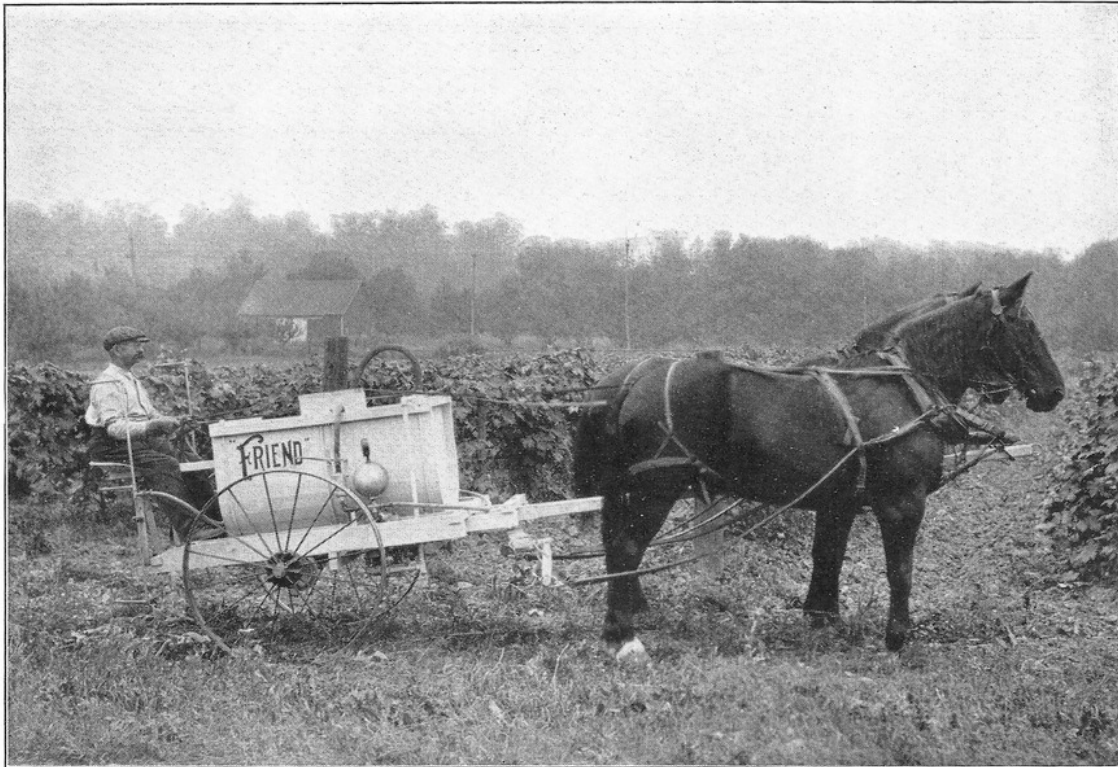
PRICE, model GA nozzle boom, code *boxer*, \$.....

PRICE, filling pump complete, hose and strainer, code *fife*, \$.....

PROTECTION FROM



BLOSSOM to BASKET



TRACTION VINEYARD SPRAYER

THE vineyard traction sprayer has the same desirable qualities as the traction potato sprayer and its mechanical construction is identically the same. This sprayer meets the demand for a cheaper outfit that will do good high pressure spraying at less cost than the power outfits. The smaller growers have been content to get along without a sprayer because the power outfits were the only machines that gave satisfaction, but these machines were too expensive for growers with small vineyards. Because of this condition many of the grape belt growers were forced to sacrifice their crops to the Grape Leaf Hopper and other insects. But this is no longer necessary. "Friend" is offering a traction sprayer with power sprayer capacity at a price that puts it within the reach of every grower. A "Friend" traction vineyard sprayer will do better and higher pressure spraying than many power sprayers. Use one and you'll be convinced it is the best.

SPECIFICATIONS

See page 32 For Detailed Specifications

PUMP: 10 gallon per minute capacity.

WHEELS: 42" x 3" wheels, spaced 47" apart.

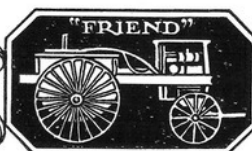
TANK AND AGITATION: The tank holds 100 gallons. Easily accessible for filling and cleaning. Substantially made throughout from strong, first-class tank lumber. The agitation is automatic or can be operated by hand. It is very efficient. See general detailed specifications.

EQUIPMENT: Whiffletrees and neck yoke. Set of necessary tools. Complete ready to operate, except nozzle boom, which is extra. Shipping weight about 1200 lbs.

PRICE, code *tavern*, \$.....

See Boom page 38.

PROTECTION FROM



BLOSSOM to BASKET



POWER VINEYARD SPRAYERS

MANY growers with larger vineyards prefer a power sprayer for faster and greater capacity spraying. "Friend" power vineyard sprayers fill every demand for a high pressure, fast, efficient, dependable and handy Vineyard Sprayer. The construction of this sprayer makes it the most adaptable vineyard sprayer on the market, as its short turn and low down features make it easy to turn at the end of the narrow vineyard rows and it will not tip over on steep hillsides, which are dangerous for ordinary sprayers.

SPECIFICATIONS

"Friend" power vineyard sprayers are equipped with the same motor-pump units as used on the famous line of "Friend" orchard sprayers, also the "Friend" combination sprayers. They are equipped with either duplex or single cylinder high pressure plunger pumps and

water cooled, auto type motor. The motor and pump are in one unit, which makes possible the neat appearance and light weight of the "Friend" Vineyard Sprayer. See orchard sprayer for motor-pump specifications.

EQUIPMENT

Whiffletrees and neck yoke for two horses. Suction hose and strainer, complete set of tools and fixed nozzle boom as shown. Complete ready to operate. Growers

can easily attach any choice boom or nozzle arrangements. See Boom page 38.

MADE IN FOLLOWING SIZES

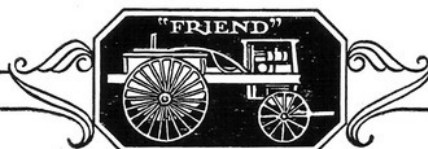
SIZE DX: 5 H. P., 12 gallon per minute, 200 gallon tank. Duplex pump. Shipping weight about 2000 lbs. This size can be furnished with 150 gallon tank at no extra cost. PRICE, code *deacon*, \$.....

SIZE EX: 3 H. P., 8 gallon per minute, 150 gallon tank. Duplex pump. Shipping weight about 1600 lbs. PRICE, code *elk*, \$.....

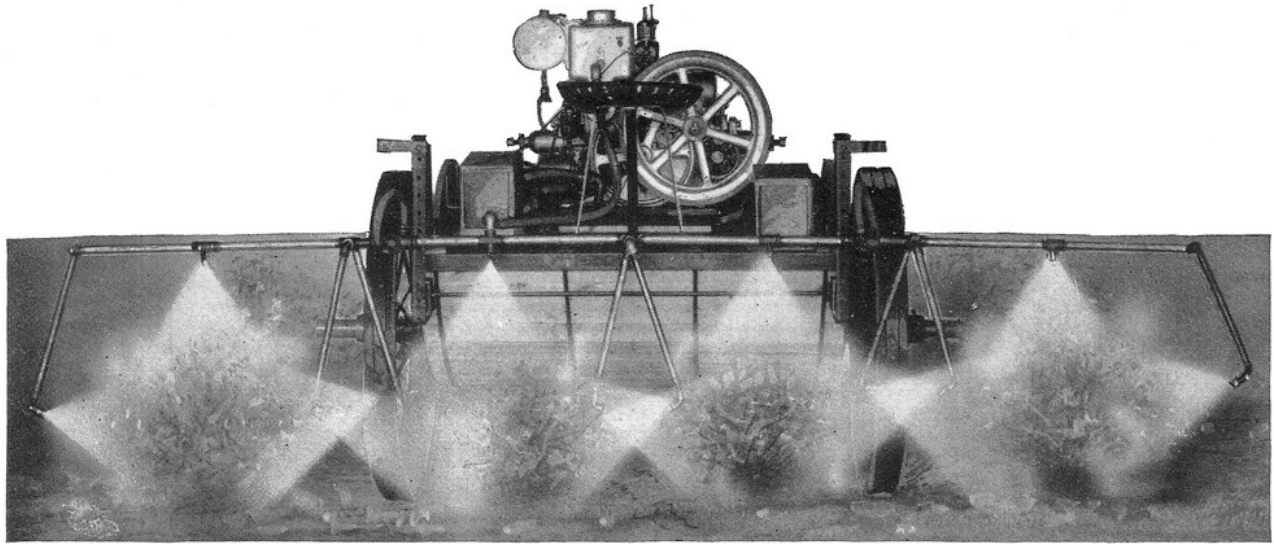
SIZE BX: 4 H. P., 10 gallon per minute, 150 gallon tank. Duplex pump. Shipping weight about 2000 lbs. This size can be furnished with 200 gallon tank for slight extra cost. PRICE, code *badger*, \$.....

SIZE CX: 2½ H. P., 5 gallon per minute, 100 gallon tank. Single cylinder pump. Shipping weight about 1450 lbs. PRICE, code *concord*, \$.....

PROTECTION FROM



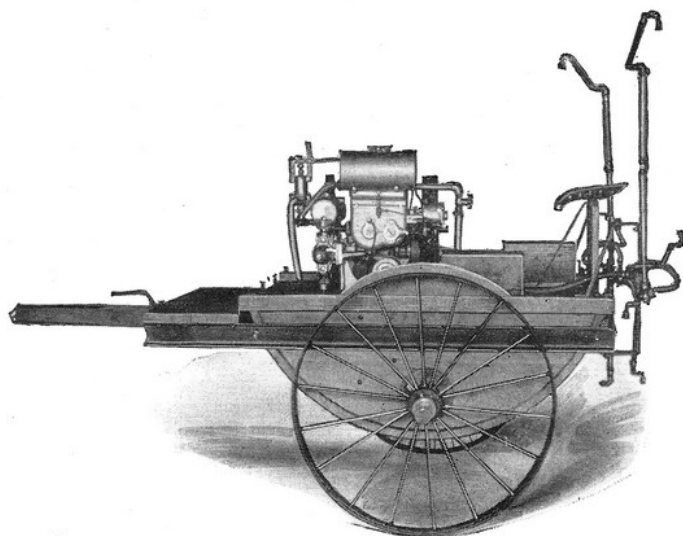
BLOSSOM to BASKET



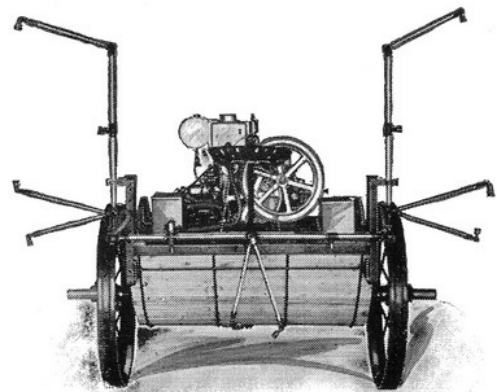
COMBINATION FIELD AND ORCHARD SPRAYERS

THIS sprayer fills the need of a dual purpose outfit, which is adaptable for both field and orchard spraying. It is a genuine "Friend" power sprayer outfit on two wheels instead of four, combining power and convenience for all field and vegetable spraying, and by simply attaching a "Friend" Spragun in place of nozzle boom it is ready for first class, high-pressure orchard spraying. The general farmer with fruit, potatoes, and other field and vegetable crops that need to be sprayed will find the combination sprayer very adaptable to his several spraying needs. Many of the larger potato and vegetable growers find that they can spray faster and better with the combination outfits than with the traction and for the very large vegetable grower the extra money invested in this outfit will never be regretted.

Made in four leading sizes. See specifications next page.

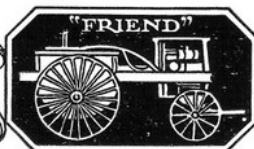


Side View



Showing Arms Raised

PROTECTION FROM



BLOSSOM to BASKET

SPECIFICATIONS

"FRIEND" high pressure motor-pump units, 150 gallon cypress tank, direct propeller agitation. Low center of gravity and perfect balance by under-slung tank—motor-pump on top. Removable seat; side hill boom shift; strainer; pole braces; grease cups on wheels; whiffletrees under pole. Large handy filling hole. Wheels 4" x 42", adjustable for 30" to 36" rows. The

most complete combination sprayer ever produced. For complete specifications of motor-pump see Orchard Sprayers.

EQUIPMENT: Whiffletrees; neck yoke; 50 ft. high pressure hose, "Friend" special spragun and complete set of tools. Nozzle boom extra.

FOLLOWING SIZES

SIZE DX: 5 H. P., 12 gallon per minute, Duplex pump. Shipping weight about 1775 lbs. PRICE, code *daffodil*, \$.....

SIZE BX: 4 H. P. 10 gallon per minute. Duplex pump. Shipping weight about 1750 lbs. PRICE, code *beaver*, \$.....

SIZE EX: 3 H. P., 8 gallon per minute. Duplex pump.

Shipping weight about 1555 lbs. PRICE, code *evergreen*, \$.....

SIZE CX: 2½ H. P., 5 gallon per minute, single cylinder pump. Shipping weight about 1500 lbs. PRICE, code *cedar*, \$.....

All have 150 gallon tank. 60" wheels for celery spraying, \$10 extra net.

VEGETABLE BOOMS

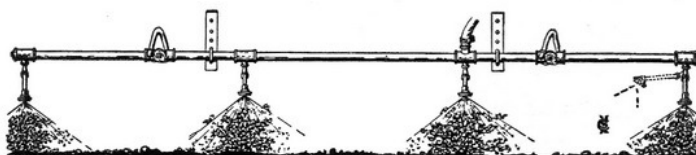


"Friend" Type D Nozzle Boom

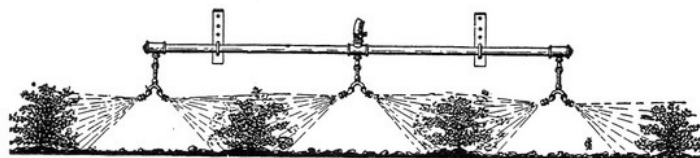
Type "C", made for one nozzle to the row. Has folding arms. Regularly equipped with 45 degree angle nozzles for backward and downward spray.

PRICE, 4 row, code *bonnet*, \$.....

PRICE, 6 row, code *bonus*, \$.....



"Friend" Type C Nozzle Boom



"Friend" Type F Nozzle Boom

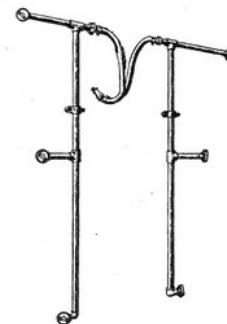
Type "F" sprays with 2 nozzles to each row and made to spray either 3 or 5 rows, as shown.

PRICE, 3 row, code *boot*, \$.....

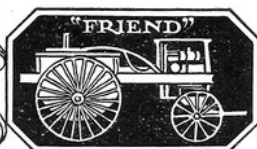
PRICE, 5 row, code *borax*, \$.....

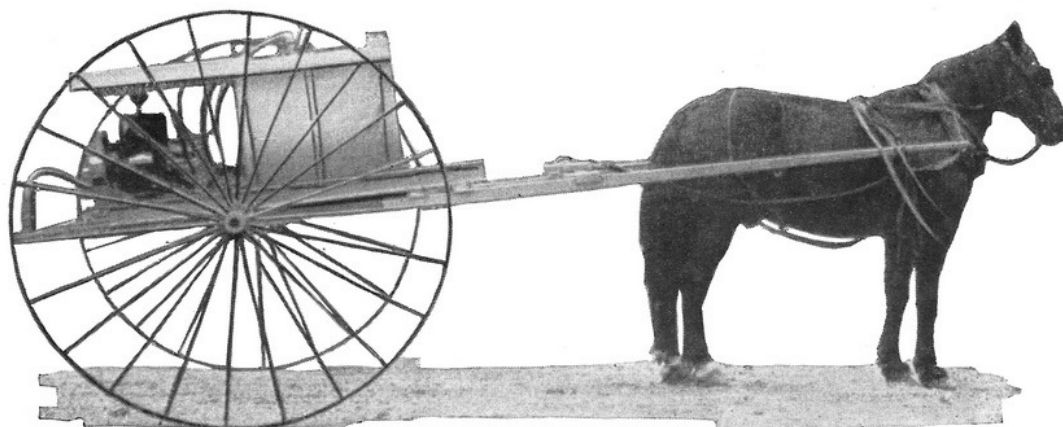
The "Friend" improved model "E" vineyard boom is a strong, well constructed boom, built for service. This boom is now made of much heavier material than formerly, which greatly adds to its durability.

Nozzles are adjustable for spraying up or down. PRICE, code *bony*, \$.....



"Friend" Type E Vineyard Boom





CELERY AND NURSERY SPRAYERS

THESE are very practical sprayers for celery or nursery work. The motor pumps are light, small and compact. The regular EX and CX size "Friend" motor-pump units are used on these sprayers.

The advantage of this type of power sprayer for celery and nursery spraying is seen in the fact that it is equally adaptable for spraying large fruit trees, where there is only a small acreage. Attach hose and spragun and it is converted into a regular orchard sprayer.

The motor-pump can be used for pumping water for irrigation purposes and is handy for hauling water when transplanting small plants.

The machine is sturdy, yet light weight and perfectly balanced—making it easily handled by one horse.

SPECIFICATIONS

For motor-pump see orchard. 100 gallon tank. For celery wheels have 4" tires and are 48" in diameter and can be adjusted from 48" to 72" apart. For nursery wheels

have 4" tires and are 78" in diameter and can be adjusted from 48" to 96" apart.

EQUIPMENT

Specify when ordering whether equipment is wanted for one or two horses. Set of tools. Nozzle boom is extra. Shipping weight about 1200 lbs.

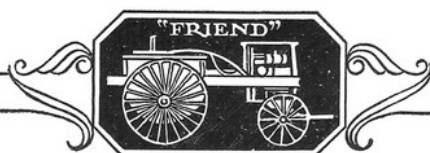
SIZE EX: For celery, 3 H. P., 8 gallon per minute. Duplex pump. PRICE, code *emperor*, \$.....

SIZE CX: For celery, 2½ H. P., 5 gallon per minute. Single cylinder pump. PRICE, code *colt*, \$.....

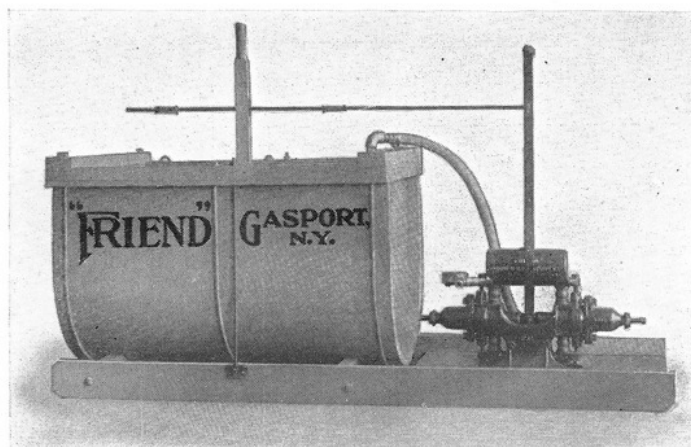
SIZE EX: For nursery. PRICE, code *elberta*, \$.....

SIZE CX: For nursery. PRICE, code *cortland*, \$.....

PROTECTION FROM



BLOSSOM to BASKET



HANDY "FRIEND"—THE LEADING HAND SPRAYER

THERE are a large number of fruit growers who have a small acreage which does not warrant the purchase of a power sprayer. However, these men find that their fruit must be sprayed if they are to get satisfactory results, and in the Handy "Friend" Sprayer they find the solution to their spraying problem. The first cost is considerable less than a power sprayer and the upkeep is very small. The Handy "Friend" is not only cheaper than power sprayers but it will do better and more satisfactory work than some of the cheap power sprayers, and with reasonable care will last almost indefinitely.

SKID TYPE

This is the outfit shown above, mounted on skid in place of truck. This is a very convenient outfit which can be placed in an ordinary wagon box and requires but little space for storage. It is a complete hand sprayer in every way, except the trucks, and is sure to give 100% satisfaction.

SPECIFICATIONS

100 gallon cypress tank mounted on skids. A mechanical agitator which works from pump handle. A strong, easy working double action hand pump—strong enough to work at power sprayer pressure.

EQUIPMENT: Suction hose and strainer. 25 ft. of $\frac{3}{8}$ " spray hose, "Friend" shutoff, and 8 ft. steel pole with "Friend" nozzle or Special Spragun. Shipping Weight about 400 lbs. PRICE, code fable, \$.....

For Export: Weight 650. Cu. Feet 39.

MOUNTED ON TRUCK

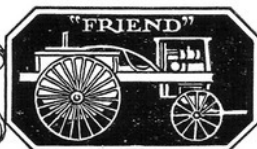
SPECIFICATIONS: 100 gallon cypress tank, mounted on a neat, strong, light weight truck. A mechanical agitator that works from pump handle—a very satisfactory arrangement. A strong, easy working double action hand pump—strong enough to work at power sprayer pressure.

EQUIPMENT: Truck regularly equipped for one horse. Suction hose and strainer. 25 ft. of $\frac{3}{8}$ " spray hose, "Friend" shutoff, 8 ft. steel pole with "Friend" nozzle or Special Spragun. Shipping weight about 1075 lbs. PRICE complete, ready to operate, code falcon, \$.....

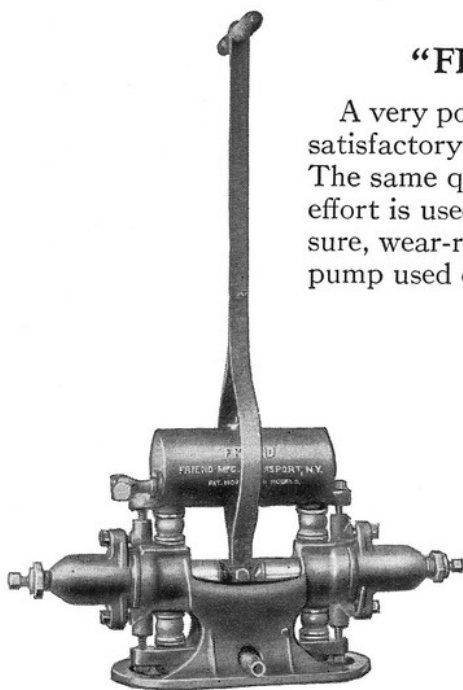
For Export: Weight 1300. Cu. Feet 47.



PROTECTION FROM



BLOSSOM to BASKET



"Friend" Hand Pump

"FRIEND" DOUBLE ACTION HAND PUMP

A very powerful light weight, easy working pump that has been rendering satisfactory and economical service to the small grower for many years. The same quality material, the same skilled workmanship and painstaking effort is used in making these pumps as in the famous "Friend" high pressure, wear-resisting power pumps. This is the "Friend" double action hand pump used on the handy and skid outfits described on preceding page.

SPECIFICATIONS

It has many power sprayer features such as accessible and adjustable packing, quick detachable valves and seats, positive alignment of pump plungers, etc. The pump handle is made of the best material and is strong and sturdy, equipped with grips that are smooth and easy on the hands. This pump is notable for its ease of operation and simplicity.

EQUIPMENT

Suction hose and strainer only. Shipping weight about 100 lbs.

PRICE, code *friendly*, \$.....

EXPORT WEIGHT: Box of 3; weight 410; cu. ft. 17

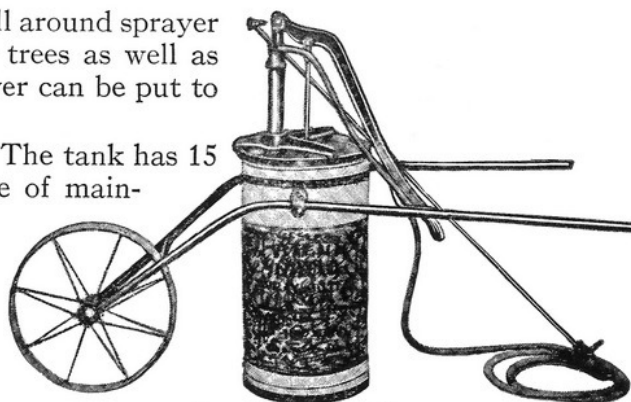
HANDIEST WHEELBARROW SPRAYER

This type of small hand sprayer is the handiest all around sprayer on the market, that has a capacity for spraying trees as well as vegetables, shrubs and buildings. This little sprayer can be put to many profitable uses.

It can be pushed anywhere like a wheelbarrow. The tank has 15 gallons capacity. The pump is powerful, capable of maintaining a remarkably high pressure, is easily operated and very durable.

EQUIPMENT

Furnished with 10 ft. of good spray hose, shutoff, 8 ft. jointed steel rod that can be used in 4 or 8 ft. lengths as desired, and nozzle. Shipping weight about 80 lbs. PRICE complete ready for service, code *fathom*, \$.....



An All-Around Sprayer



"FRIEND" ATOMIZER SPRAYER
One Quart Size

PRICE, code *feud*, \$.....

PRICE, doz., code *feast*, \$.....



"FRIEND" ATOMIZER SPRAYER
One Pint Size

PRICE, code *fern*, \$.....

PRICE, doz., code *festoon*, \$.....

"FRIEND" SEAMLESS, SAFETY SPRAYER

This sprayer fills a long felt want for a better portable compressed air sprayer.

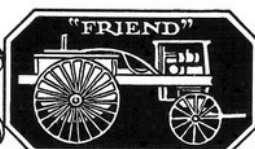
It is made of heavier metal, is welded and seamless, as one piece of metal and is heavily galvanized. The pump has a durable all brass barrel. There is but one opening to the tank which is quickly and securely closed by the insertion of the pump. The tank is so made that it can be drained completely.

Capacity three gals. Weight 12 lbs.

PRICE, code *farthing*, \$.....



PROTECTION FROM



BLOSSOM to BASKET

"FRIEND" BARREL SPRAYER



THIS is a good inexpensive sprayer that will meet the needs of anyone who desires the barrel type of sprayer and can be easily carried on a light wagon or truck. Also a handy outfit for the small truck grower. Like all "Friend" sprayers, this pump has the same powerful action and the same quick accessible and adjustable parts. And it's "on top" where you can see it.

SPECIFICATIONS

A strong, efficient outfit, built for service. Has quick detachable valves and seats, quick detachable brass plunger with liberal quick adjustable packing. Thorough lubrication. Simple and efficient agitator (as shown in cut). Pump easily removed from barrel. The strong 50 gallon wood barrel will give long service.

EQUIPMENT

10 ft. good spray hose, 8 ft. steel rod, shutoff, and angle nozzle. Shipping weight mounted on barrel about 150 lbs.

PRICE, mounted on barrel, code *fame*, \$.....

PRICE, mounted on 100 gallon tank, code *fabric*, \$.....

PRICE pump, with equipment, code *false*, \$.....

PRICE pump only, code *fagot*, \$.....

For Export—Weight 275 lbs., Cu. ft. 22.

"FRIEND" JR. GARDEN SPRAYER

THIS is a convenient type of sprayer made purposely for garden work but has power and capacity enough for trees as well. This sprayer is without equal for garden work and is large enough to meet the needs of small truck growers. It can be operated and moved from place to place with ease. The large wheels make it possible to go over obstructions such as lumps, stones, etc., with little difficulty.

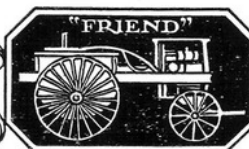
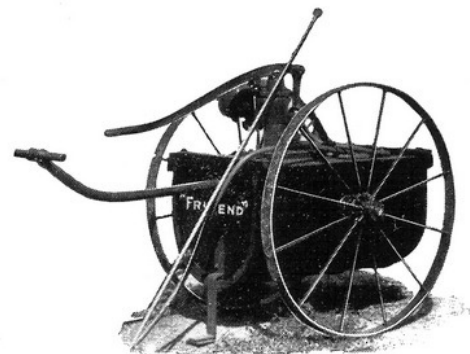
SPECIFICATIONS

25 gallon wood tank, same style as large tanks and made just as good. Drain plug located for complete drainage, strong removable hand pole for pushing the sprayer around, sturdy tank and foot rest for holding sprayer rigid when in operation, high easy running steel wheels, and powerful "Friend" Junior pump (described above) mounted as shown, with same method of agitation.

EQUIPMENT

10 ft. of best spray hose, shutoff, 8 ft. steel pole and "Friend" angle nozzle. Shipping weight about 300 lbs. PRICE complete ready for service, code *fat*, \$.....

For Export: Weight 400 lbs., Cu. Feet 30.





SPRAGUNS

THE "Friend" spragun is designed to handle the entire capacity of the largest power sprayer, thus enabling one man to do the work of two or three. Easy change to any desired capacity by using large or small gun discs, which are made in many sizes. A spray pole cannot be moved quickly and it is always catching in the branches, while the "Friend" gun can be held in one hand and never catches. It never clogs; the "Friend" is self-cleaning. The passages are large and the plunger valve which comes in contact with disc forces sediment through the discharge orifice—a distinctive "Friend" feature. You don't have to remove cap to remove sediment from disc. The controlling valve is quick acting, only a quarter turn of the wrist opens or closes at will—a "Friend" feature.

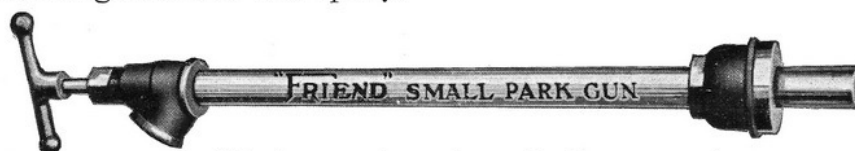
Any kind of spray, wide, medium or extremely high, is instantly obtained or instantaneously shut off, with absolutely no dripping—another distinctive "Friend" feature.

So very fine is the spray and carried so far and with such penetration through the dense foliage, yet instantly controlled, that hundreds of leading growers testify that the "Friend" gun actually saves 25% spray solution, as there is practically no drip from the trees from overspraying on the outside in order to thoroughly spray the center of the tree.

EASE OF OPERATION

While every other gun is a copy of the "Friend", still minor changes are made so as not to appear too much like the "Friend". With the "Friend" gun you have extreme ease of operation; it is faster. Its length and light weight enables the gun to be held in a natural position and moved quickly without tiring the back and arms; the angle hose connection permits the hose to hang straight down without kinking; the handle is the natural position for your hand and will prove less tiresome than any other handle, for at no time is the hand or wrist in a cramped position, as with other guns.

No leaking or hard working shutoffs are used, not a drop of solution can possibly leak out and a small child can operate the controlling valve which shuts off the solution as well as graduates the spray.

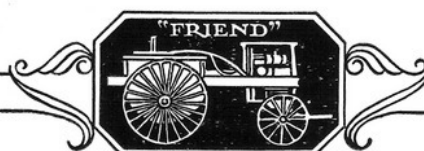


Small Park gun, price, code, *gumbo*, \$.....



Large Park gun, price, code, *gunner*, \$.....

PROTECTION FROM



BLOSSOM to BASKET

DURABILITY

ONLY two working and wearing parts are found in the "Friend" gun, viz.: The plunger valve which closes the hole in the discharge disc. The plunger valves usually last one season. The disc will discharge thousands of gallons of solution. Not only is the "Friend" gun more durable but the shutoff does not leak.

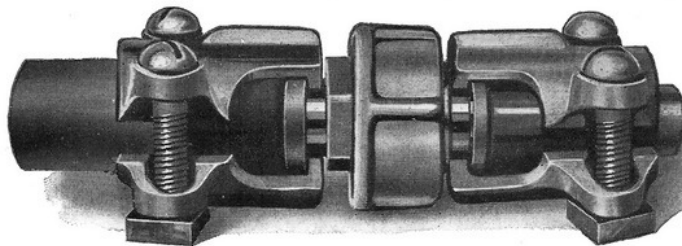
INSTRUCTIONS

In the "Friend" gun provision is made for the elimination of all friction, which permits the power sprayer pressure to pass to the discharge orifice of the gun unrestricted, preventing possibility of clogging—thus greatly increasing its efficiency. The spragun should not be used on smaller than half-inch hose, to avoid unnecessary resistance. Suitable discs are furnished to enable the gun to

operate with a power sprayer of any desired capacity. Be sure to give the gun 200 lbs. pressure or more and do not move too fast—do thorough work. Do not try to do good work with a spragun at less than 5 gallons per minute discharge at high pressure, the more the better.

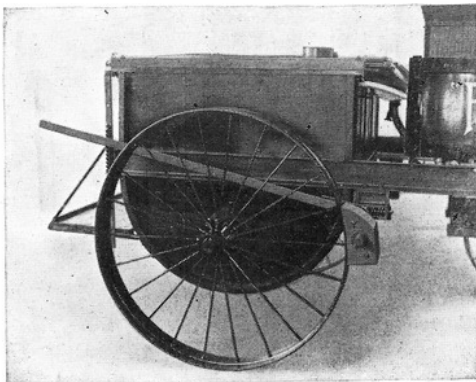
Price, code *gulf*, \$.....

ACCESSORIES AND EQUIPMENT



CLAMP TYPE COUPLING

The "Friend" clamp type coupling is simple, yet strong and durable. The clamps fit into small grooves which makes it absolutely impossible for them to slip off, thus you are assured of a reliable coupling that will hold under any and all conditions. Use the "Friend" clamp type coupling and avoid those aggravating delays caused by poor unreliable couplings.



Method of attaching brake on AXA, AXBA, and AXB.

BRAKES

Price, brake for DX, code *brat*, \$.....

Price, brake for BX, code *bramble*, \$.....

Price, brake for EX, code *bravado*, \$.....

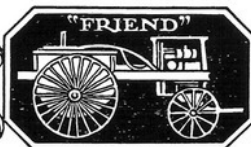
Price, brake for CX, code *bracelet*, \$.....

Substantial, efficient brake for hilly orchard work.

Price, brake for AXA, code *brazil*, \$.....



Method of attaching Brake on DX, BX, EX and CX.



"FRIEND" SHUTOFF



The "Friend" Leakless Angle Shutoff is the quickest and easiest acting shutoff on the market. It cannot leak and the seat is detachable. The hose hangs from it in a natural position, thus saving hours of time and annoyance from bursting and leaking. Use the "Friend" Leakless Angle Shutoff and have dry hands and clothing and enjoy spraying.

Price, code *shuto*, \$.....

GOOD SPRAY HOSE



"Friend" braided-cord spray hose is the best and the cheapest in the end. It handles more easily and does not kink. Made $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, and $\frac{3}{4}$ inch, in any desired length up to 500 feet. Made in both 2 and 3 ply braids. See current price list.

"FRIEND" SPRAY TANKS

A spray tank that is made by combining skilled workmanship with the very best tank lumber—"Cypress". The hoops may be tightened by simply turning down the nuts on top of tank, which are prevented from cutting into the wood by an angle iron placed along each side of tank.

Unless otherwise specified regular tanks will be furnished in same shape and style as the one shown here except bolsters and agitator. These are not furnished on larger sizes, unless so ordered.

100 gallon as shown, price, code *star*, \$.....

150 gallon as shown, price, code *stra*, \$.....

200 gallon tank only, price, code *stik*, \$.....

250 gallon tank only, price, code *step*, \$.....



"FRIEND" TANK FILLER

A simple durable tank filler that is worth many times its cost, in saving time and labor; in fact the successful growers find they cannot afford to be without one. When it is time to spray every minute counts. If used properly it counts for Fruit Profits but if foolishly spent, crop losses are sure to follow. Don't waste time on a pump handle; the bugs are making merry while you pump. Use the "Friend" tank filler; the proper, most efficient way to fill the spray tank. Tank can be filled in a few minutes from any pond, spring or ditch.

The first jet sprayer tank filler made was a "Friend" and they have proven a real friend to the farmer when time was short and spraying had to be done in a hurry. By pressure from the power sprayer the tank can be filled at about 25 to 40 gallons per minute, depending on the size filler used. Include a "Friend" tank filler in your spraying equipment.

Fillers are made in three sizes. No. 1 for large capacity sprayer; No. 2 for medium capacity sprayer and No. 3 for small capacity power sprayer.

No. 1 complete, both hose.

Price, code *fiddle*, \$.....

No. 1 filler only, without hose.

Price, code *fig*, \$.....

No. 2 filler, complete, both hose.

Price, code *finch*, \$.....

No. 2 filler only, no hose.

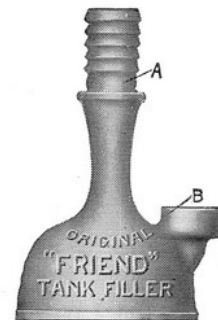
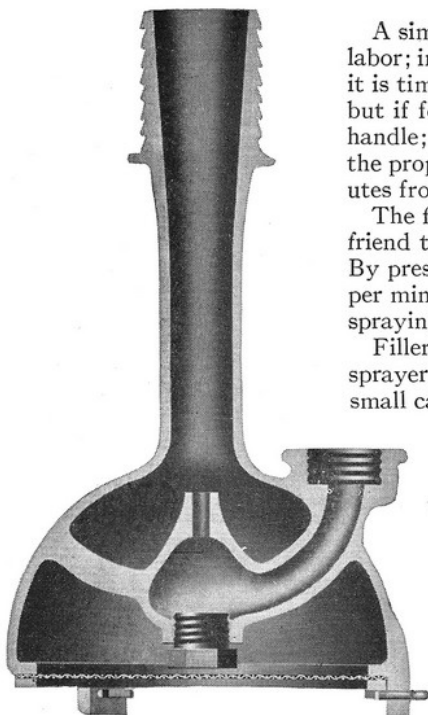
Price, code *firearm*, \$.....

No. 3 filler complete, both hose.

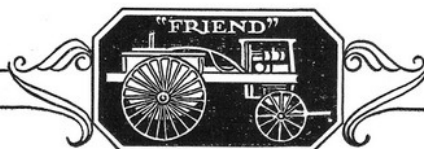
Price, code *fish*, \$.....

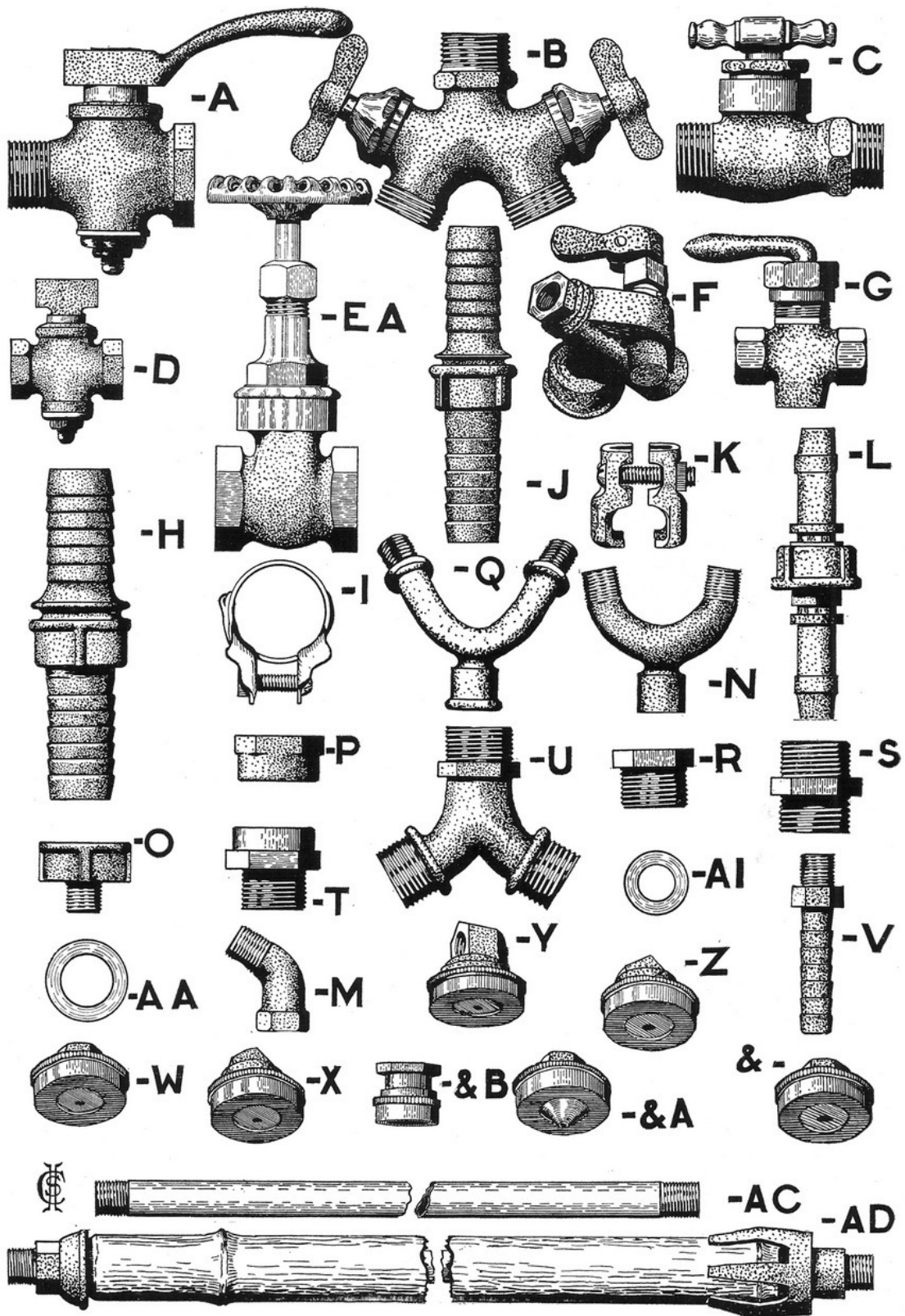
No. 3 filler only, no hose.

Price, code *firefly*, \$.....

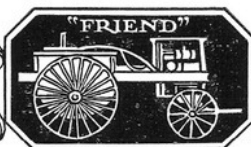


A. Attach large filler hose. B. Attach sprayer discharge hose.





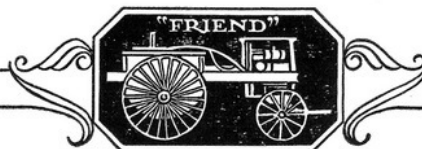
PROTECTION FROM

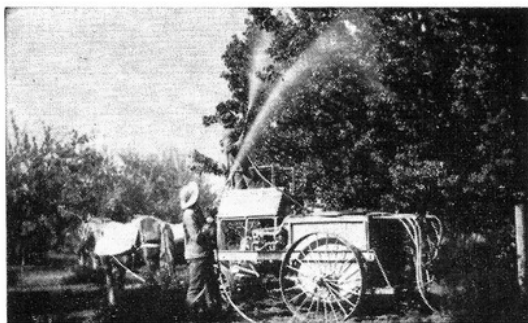


BLOSSOM to BASKET

"FRIEND" STANDARDIZED FITTINGS

A	$\frac{3}{4}$ " stop cock.....	scamp	\$1.50
B	$\frac{3}{4}$ " 2 way shutoff.....	shamrock	3.00
C	$\frac{3}{4}$ " single shutoff.....	shark	2.75
D	$\frac{1}{4}$ " stop cock.....	scat	.75
EA	$\frac{3}{4}$ " gate valve.....	shampoo	3.70
F	"Friend" angle leakless shutoff.....	shuto	2.50
G	$\frac{1}{4}$ " S. S. shutoff.....	shepherd	1.40
H	1" suction hose coupling only.....	lava	.70
I	$\frac{3}{8}$ " for 2 ply braided, 6 ply wrapped.....	mink	.08
I	$\frac{1}{2}$ " for 2 ply braided, 6 ply wrapped.....	mop	.08
I	$\frac{3}{4}$ " for 5 ply wrapped (overflow).....	moss	.10
I	1" Suction hose band.....	melon	.27
I	$1\frac{1}{4}$ " Suction and filler hose band.....	mulberry	.35
I	$1\frac{1}{2}$ " Suction and filler hose band.....	mule	.40
J	$\frac{3}{4}$ " female end only for overflow.....	lavender	.60
J	$\frac{1}{2}$ " double band coupling and bands.....	leopard	.90
J	$\frac{3}{8}$ " double band coupling and bands.....	lilac	.90
K	$\frac{3}{8}$ " for 2 ply braided, 6 ply wrapped.....	maggie	.40
K	$\frac{1}{2}$ " for 2 ply braided, 6 ply wrapped.....	mallard	.45
K	$\frac{1}{2}$ " for 3 ply braided, 7 ply wrapped.....	mango	.50
K	$\frac{5}{8}$ " for 3 ply braided.....	mascot	.55
K	$\frac{3}{4}$ " for 3 ply braided.....	mars	.60
L	$\frac{3}{8}$ " clamp type coupling.....	lamp	.75
L	$\frac{1}{2}$ " clamp type coupling.....	laymen	.75
L	$\frac{5}{8}$ " clamp type coupling.....	lark	1.00
L	$\frac{3}{4}$ " clamp type coupling.....	lass	1.25
M	$\frac{1}{4}$ " 45 degree nozzle crook.....	gravel	.25
N	$\frac{1}{4}$ " nozzle Y straight.....	greyhound	.35
O	$\frac{3}{4}$ " hose to $\frac{1}{4}$ " pipe connection.....	pansy	.40
P	$\frac{3}{4}$ " hose coupling cap.....	panther	.38
Q	$\frac{1}{4}$ " nozzle Y angle.....	grasshopper	.38
R	$\frac{3}{4}$ " x $\frac{1}{4}$ " brass bushing.....	peacock	.45
S	$\frac{3}{4}$ " transfer nipple.....	peanut	.40
T	$\frac{3}{4}$ " male and female connection.....	pearl	.55
U	$\frac{3}{4}$ " lead hose Y.....	pecan	.75
V	$\frac{1}{4}$ " thread, male coupling, $\frac{3}{8}$ " hose.....	pepper	.25
V	$\frac{1}{4}$ " thread, male coupling, $\frac{1}{2}$ " hose.....	pickle	.25
W	"Friend" original straight nozzle.....	nap	1.00
X	"Friend" original angle nozzle.....	navy	1.00
Y	"Friend" 90 degree angle nozzle.....	noble	1.00
Z	"Friend" angle calyx nozzle.....	nightcap	1.00
&	"Friend" straight calyx nozzle.....	nutmeg	1.00
&A	"Friend" straight drive spray nozzle.....	nightingale	1.00
&A	"Friend" angle drive spray nozzle.....	nosegay	1.00
&B	"Friend" potato nozzle.....	navigate	.75
AA	1" Suction hose gasket.....	gander	.01
A1	$\frac{3}{4}$ " lead hose gasket.....	gap	.01
AC	$\frac{1}{4}$ " steel spray pole, per ft.....	spar	.18
AD	"Friend" bamboo pole, 8 ft. or 10 ft.....	spot	4.50

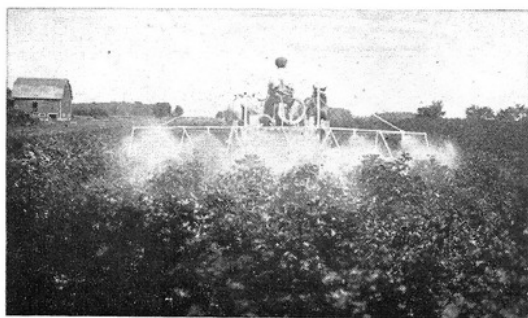




"I have just received my new AXA Sprayer. The machine came through in good condition and is surely a dandy. A number of men have been here to see it and several more have expressed a desire to see it in action in the orchard." 5/22/24
MERLE A. MILLER,
PAONIA, COLO.



Aug. 18, 1924.
"The combination sprayer which I bought from you is now doing service for the third season. The sprayer has worked fine from the beginning and is now working in field and orchard as well as ever. The photograph shows the machine in operation which speaks for itself."
Yours very truly,
J. CLAYTON BRUBAKER,
Lititz, Pa.



A 'Friend' Combination Sprayer in a potato field on the farm of Hickcox Rumnsey, Batavia, N. Y., growers of certified seed.



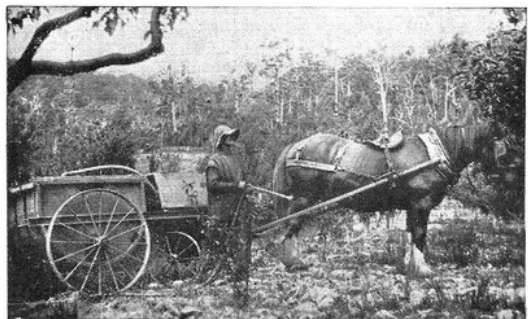
"Having used three makes of sprayers, I am convinced that the 'Friend' is the best. One don't have to stop for every little wind because it has the pressure to shoot against a strong breeze." 6/26/23
J. J. ANNOLA,
Hood River, Oregon.



"Your DX has been giving me splendid service. For example the last spray of about sixty tanks was discharged at a pressure of 300 pounds without one stop for trouble. I use two guns, also 'Friends' and I am very well pleased with the outfit. I consider the 'Friend' the last word in the way of spray equipment." 7/2/23
HARVEY E. JONES,
Hood River, Oregon.



Pear orchard in South Africa being sprayed with a "Friend".

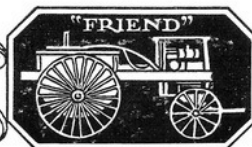


A "Friend" at the end of the World.
"I am very pleased with the EX outfit I got from you recently. It has been working for almost three months constantly without a hitch." 2/15/25
J. LINNELL,
Huonville, Tasmania.



"We bought a 'Friend' Sprayer from you three years ago this spring and it has never given us any trouble and today does its work even better than when first used. If I was in the market for another spray outfit, it would be a 'Friend'." 6/30/23
HARBRAKE LAND AND DEVELOPMENT CO.
Hood River, Oregon.

PROTECTION FROM



BLOSSOM to BASKET

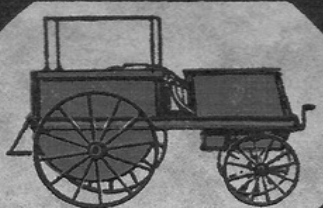
J. W. CLEMENT CO. BUFFALO AND NEW YORK



PROTECTION

FROM BLOSSOM TO BASKET

"FRIEND"



SPRAYERS