LOOKING AHEAD . . .

The fact that we sell castings for the units that the hobbyists and schools want to build is one of the principal reasons for our success. We enjoy and rely upon the advice of our customers when adding new projects to our line. Tell us what you want to build . . . the sizes you prefer . . . the features you want. When we add a new unit, we first make complete detail drawings . . . next discuss every point of design, making necessary changes . . . then produce the patterns and castings. After the first trial tool is built, it is tested in every possible way . . . overloaded . . . and worked under all normal and many abnormal conditions. Errors are corrected, patterns changed, new tests made . . . until the unit meets every requirement. Only then is it ready to offer to our customers.

We will greatly appreciate your writing us as often as you can, telling us the projects for which you would like to purchase castings. If you will take the time to write us at length on this subject, you will be doing us a very great favor. Correspondence from school executives is especially welcome.

Like a glimpse into some glowing inferno is the photograph above, showing the special alloy iron being poured into molds which make Lewis Machine Tool Castings.

In the second picture is a group of our molds waiting to be poured at the foundry. Each step in each heat is supervised with exceptional care.

LEWIS

1937 Edition

★

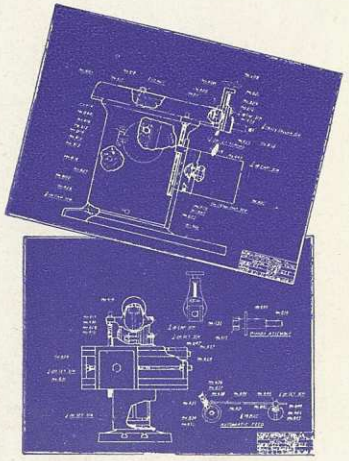
CASTINGS for the Tool-Builder

catalog

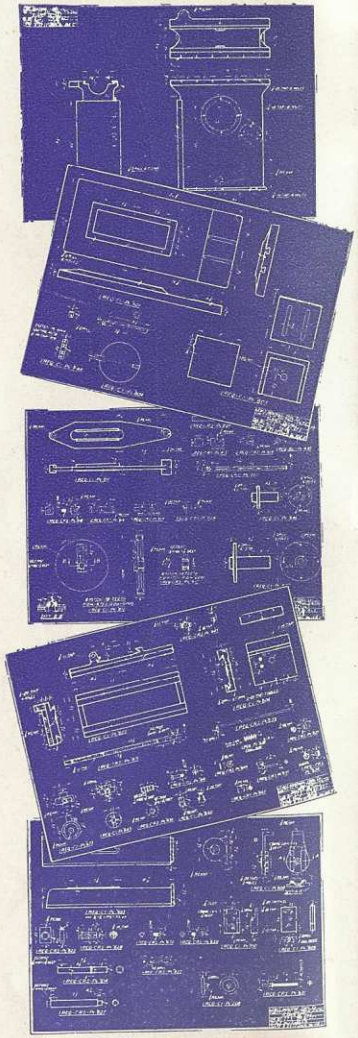
BLUEPRINT SERVICE

ENGINEERING EMPHASIZED

Castings—no matter how good—are nearly worthless unless they are backed up by blueprints which emphasize correct mechanical engineering principles. That is why we have taken exceptional precautions to prepare detail prints of absolute accuracy and clearness. When you purchase Lewis castings, you are buying not merely metal but an engineering service that guides you in every step of your work. Is it any wonder, therefore, that a California high school machine shop instructor remarked, "With Lewis castings and blueprints, failure is hardly possible"?



To prove to you the clearness with which all detailed prints are laid out, we have reduced the seven blueprints that go with the metal shaper down to the size shown on this page. In spite of this tremendous reduction you can still clearly see the castings and many of the dimensions.



AN IDEA GROWS

INTO A WORLD-WIDE BUSINESS

It gives us a deep sense of satisfaction to realize that what was once "just an idea" is now a firmly established, successful business. We believe this success is due to three things:

1. The original idea is basically sound.
2. The quality and design of our units are beyond question.
3. The prices which we have maintained are exceedingly reasonable.

It took all three of these factors working together to bring about the success which we now enjoy.

With the beginning of the year 1937 we are launching an entirely new system which will open up the way for thousands of hobbyists whose shop equipment is limited. You can now buy many of the Lewis projects with the more important castings machined. This has meant a tremendous amount of additional work for us, but we are positive that you, our customers, will utilize to the fullest this type of service.

The building of Lewis projects is highly practical from every viewpoint. In the first place, the experience received in building these projects is invaluable. In no other branch of the mechanical world are the machining and engineering standards as high as they are in the building of machine tools. Our designs, castings, and blueprints are comparable to those used by the greatest machine tool builders in the country. Secondly, when one finishes a Lewis project, he has something which is really valuable—something he can point to with a sincere and deeply-felt pride.

The rapid growth of this business is definite proof of everything said on this page. The people who have become our customers are our greatest business assets. They sell more tools for us than all of our extensive national advertising.

Can you blame us, therefore, for our sincere and earnest desire to add you to our ever-increasing list of LEWIS customers?

SEMI-MACHINING

At the beginning of our business activity we sold only rough castings and blueprints to schools, shops, and hobbyists with complete machine shop equipment. But almost from the day our first advertisement appeared in Popular Mechanics those hobbyists having only a small lathe and drill began to request a semi-machining service.

Our first step was to offer the milling machine with castings semi-machined and also as a finished unit. Sales increased so rapidly as a result that now we offer a service never before available to machine tool enthusiasts . . . we make tool-building easily possible for tens of thousands who never even hoped to build their own projects. This has been a real pioneering job in the field of mechanical engineering. Previously only those with complete shop equipment could build Lewis units. Now anyone with an elementary knowledge of machine shop practice and a small lathe and drill can build them.

Most of the projects in the Lewis line have one or two castings which, due to their shape or size, require finishing on a planer, shaper, mill, or a large lathe. All of the remaining work is of such a nature that it can easily be done on a small bench lathe and drill. In the information about our tools throughout this catalog we have listed machining operations which require the use of larger tools.

The way to get a Lewis project suitable for completion in your shop is to order the rough castings and, in addition, to order the semi-machining work done on the castings that you cannot finish on available equipment. As an example the following is the way a customer having only a 9″ lathe and a drill would order a 16″ band saw:

One set of rough castings and prints	$17.95
Turning and boring of wheels (2), at $1.95 each	3.90
Surfacing of table	2.85
Semi-machining of slide and bracket	2.90
	$27.60

A person buying the 16″ band saw castings plus this extra machining as shown above can go right ahead with his small lathe and drill and complete the saw quickly and easily, buying the steel, screws, ball bearings, etc., either from us or locally.

INFORMATION

The prices shown throughout the catalog for machining do not include the the castings, but represent the additional charge for various machining operations. These charges are always listed under the heading which reads, "MACHINING EXCLUSIVE OF CASTINGS." This machining on larger castings includes only work that must be done on large machines. *Drilling and tapping is not included,* except on a few castings where it is in such a position as to be inaccessible with an ordinary drill press. We guarantee our machining to be highly accurate and satisfactory in every way because it is all done in a high class machine shop on first class machinery. The prices for this extra machining will appeal to our customers as extremely reasonable.

The fact that you pay more by buying our units semi-machined does not make such a purchase impractical. Even if you do spend a few more dollars in getting certain castings machined to a point where you can complete them in your shop, you are still paying much less than if you were to buy a similar machine "finished." If you will check the price of rough castings plus machining on any unit against the following list, you will see the great saving involved in buying Lewis castings and finishing only a part of the work yourself. These figures show the cost of comparable finished tools on the market and were arrived at by consultation with our customers.

16″ Band Saw	$ 80.00	Bench Drill	35.00
24″ Band Saw	145.00	Floor Drill	55.00
8″ Circular Saw	40.00	7″ Vise	25.00
10″ Shaper	450.00	Dividing Centers	35.00
Turret Attachment	25.00	3½″ Vise	20.00
6″ Jointer	45.00	Wood Lathe	32.00
Chain Hoist	56.00	4″ Bench Vise	12.00
Centrifugal Pump	12.50	6″ Bench Grinder	12.00
14″ Wood Shaper	25.00	Bench Mill	225.00
		Power Hack Saw	50.00

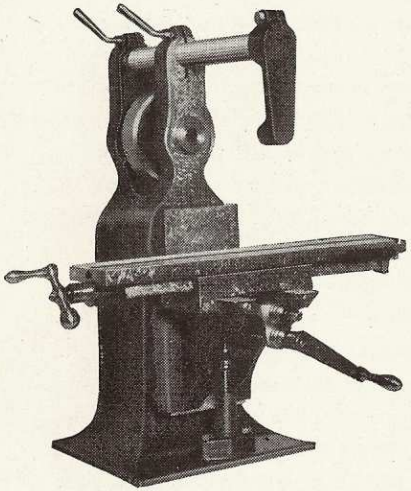
QUESTIONS AND ANSWERS

Many people who would like to build Lewis projects write in to us first regarding certain points they would like to have explained. If you have a question, perhaps you will find it answered below or on pages 27 or 28.

Q. I wish to purchase some castings, but am in doubt regarding the equipment required to finish building the units. What do you advise?

A. A careful study of the catalog specifications and of the dimensions shown in the photographs will answer this question in almost every case. If any doubt remains in your mind, we suggest that you order detailed blueprints (see page 26). These will completely answer your question.

LEWIS BENCH



FINISHED MILL No tool is more needed than a precision bench mill at a sensible price . . . and this need is ideally met by the Lewis Milling Machine. Both in design and in quality of materials, it sets new standards of perfection in its price range.

At first we offered only the rough castings for this machine, but requests from customers induced us to supply the mill in what we call "Semi-machined" form, with so much of the work done that the balance can be done on only a small lathe and drill. But even this was not enough. The demand for the finished mill became so insistent that we have had to meet it. And in meeting it we are safe in saying that this precision tool now becomes the *unchallenged leader in its field.*

Skill in its design, care in pouring its castings, and precision in its construction combine to make the Lewis Bench Milling Machine a unit that will prove ideally satisfactory for a great variety of uses.

No machine passes our thorough inspection until completely checked with precision instruments to see that it has met all our exacting requirements. All machined surfaces are accurately hand-scraped to insure perfect alignment. The machined castings are all heat treated between the rough cut and finish cut. Normalizing them at this point prevents warping and insures lasting accuracy.

The spindle is of high carbon steel, with a ¾" hole bored through it. This size is ample to allow the use of a collet attachment. A No. 3 Morse taper is used in the spindle. The front spindle bearing is tapered to allow for adjustment for wear. The vertical feed screw supports the knee and table assembly at all times on a ball thrust bearing. All sliding surfaces are gibbed for wear with convenient adjustment. All feed screws have micrometer dials graduated in thousandths of an inch.

As most customers prefer hand feed on a machine of this size, we do not make this bench mill with power feed. This machine can be purchased with either the three-step flat belt drive pulley, or with the four-step "V" belt pulley. We recommend the latter type.

You will find these mills in the shops of serious experimenters, inventors, model makers, schools, and commercial machinists . . . everywhere, in fact, where an accurate mill is needed. It proves especially useful in cutting key-ways and flats and in making spur gears, taps, reamers, and a vast variety of specialty products. In short, this is not a toy or a makeshift milling machine. It is a real "Honest to God" machine tool.

SPECIFICATIONS AND FEATURES

Overall Height	23"
Base Dimensions	10¾"x11¾"
Size of Table	3⅞"x18"
Vertical Travel	7"
Cross Feed	5½"
Table Travel	12"

No. 3 Morse taper in spindle.

¾" hole through spindle easily adaptable for collet attachment.

Large tapered bronze spindle bearing in front allows for instant take-up.

Drive is optional: 3-step flat belt or 4-step "V" belt pulleys.

Countershaft is horizontal and is included at no extra charge with the finished mill and semi-finished mill, but not with rough castings.

(Continued on next page)

MILLING MACHINE

All sliding ways thoroughly gibbed, with adjustment for take-up.

Over-arm is of 1-5/16" precision ground steel.

Castings are heat-treated or normalized to eliminate warps or strain.

The three feed screws on the finished mill are equipped with micrometer dials and are all ten pitch Acme standard thread.

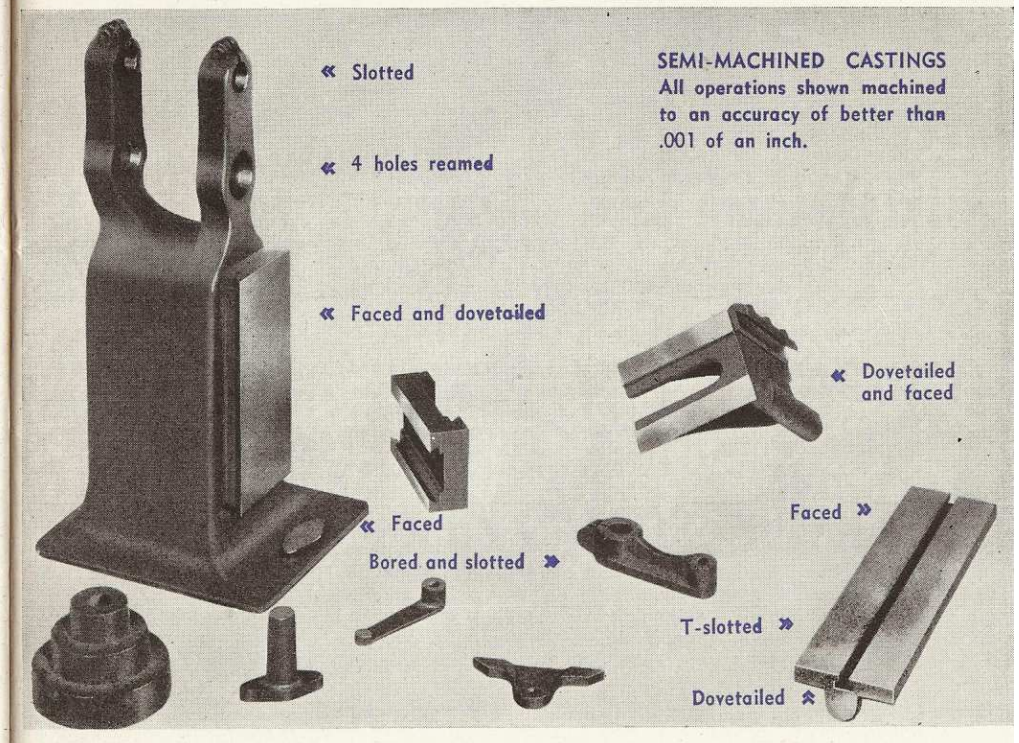
Shipping weight approximately 210 lbs.

No. 109 FINISHED MILL: Complete including countershaft, f. o. b. factory **$137.50**

SEMI-FINISHED MILL Those who own only a small lathe and drill will find our semi-machined castings, illustrated below, ideal for their purpose.

On these castings we have done all the major machining operations to a very high degree of accuracy—milling of knee, saddle, table, and body; boring of spindle and over-arm bearings in perfect alignment; dovetailing; slotting; and "T" slotting. All the rest of the work can be done on a small lathe and drill in a surprisingly short time. As a project this work is splendid experience, extremely enjoyable, and the result is an exceedingly valuable tool.

(Continued on page eight)



LEWIS BENCH

(Continued from page seven)

The price we have placed in this unit includes the semi-machined castings, the horizontal countershaft with pulleys and hanger, all steel, screws, nuts, bolts, cut gears, bronze bushings, and the thrust bearing—in fact, everything except paint. You won't have to go shopping for material in order to complete this job.

SPECIFICATIONS: As given on page six for the Finished Bench Mill.

No. 109 SEMI-MACHINED MILL:
Semi-machined castings, all material such as steel, screws, cut gears, bronze spindle bearings and over-arm bushings, ball thrust bearing, bronze feed nuts, countershaft castings, etc. **$87.50**

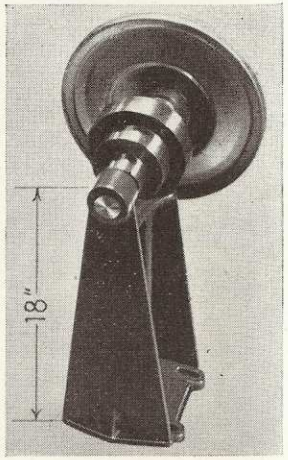
ROUGH CASTINGS

Those who own or have access to a fairly complete machine shop can do an intensely interesting tool building job by constructing this machine from the rough, unmachined castings.

We especially recommend this unit for high school shops, technical schools, trade schools, and universities because of its great value as a project and because the completed tool is an invaluable addition to their equipment. Our price for the material includes all additional parts such as steel, bronze nuts and bushings, finished gears, ball thrust bearing, etc. A customer may order and build several at one time and from the sale of extra machines purchase all the additional equipment he needs—cutters, end mills, reamers, and drills. The sale of the finished mill when built up from rough castings offers no problem. The detailed and assembly drawing blueprints are so complete and self-explanatory that the risk of making mistakes is reduced to a minimum.

SPECIFICATIONS: As given on page six for the Finished Bench Mill.

No. 109 BENCH MILL: Rough castings and prints only **$24.00**
Rough castings, prints, and all materials..... **29.50**



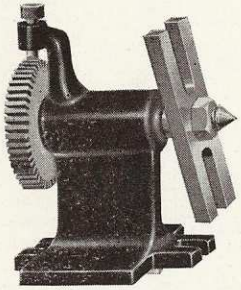
COUNTERSHAFT

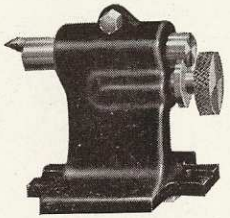
With the finished mill we provide a finished countershaft. When the semi-finished mill is ordered, rough castings and parts for the countershaft are included. The countershaft is considered an extra when rough castings for the mill are purchased.

No. 117 COUNTERSHAFT: Rough castings, steel parts, pulleys, and prints ..... **$ 6.00**
Countershaft complete and painted **11.00**

MILLING MACHINE

DIVIDING CENTERS



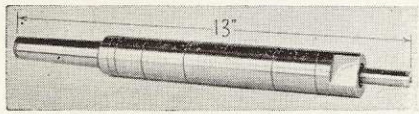


Our new 1937 dividing centers are designed for use on practically any milling machine. Dividing centers of this type are invaluable for use in cutting gears, squares, hexagons, hole locating, and all similar work. The more original plates that a person makes up, the more gears he can cut with this machine. With each set of castings for these dividing centers, we include one cut 48 divisional plate, as the purchasers of these dividing centers usually have no way of cutting their first gear. It is highly advisable for anyone purchasing one of our milling machines to purchase at the same time a set of our dividing center castings. *This is a unit for which you will find countless uses.* They are also ready for immediate shipment in a completely finished condition as listed below: Shipping weight approximately 8 lbs.

No. 125 DIVIDING CENTERS: Rough castings and material, with 48 division plate cut ..... **$ 4.95**
Dividing centers finished and ready for use **17.50**

7-8" ARBOR

This beautiful precision arbor is designed especially for our bench mill, is made of high grade steel, and has a No. 3 Morse taper. You take advantage of a real saving when you buy this finished arbor at our low list price. Shipping weight approx. 5 lbs.



No. 1109 7/8" ARBOR: Finished **$10.00**
Rough steel for arbor, and prints **1.75**
If you care to make this arbor yourself out of your own material, a blueprint covering our design is available at ..... **.50**

3 1-2" MACHINE VISE

This vise is identical in design and appearance with our 7" machine vise, shown on page 11. It was engineered particularly for use on our milling machine. The base of this vise can be turned on a small lathe. The body castings can be machined on a small shaper or small mill, which is likewise true of the jaw. The screw, of course, must be cut on a lathe or die.

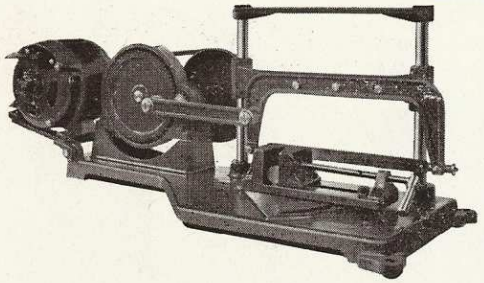
We strongly urge anyone buying our milling machine in any of its three forms to purchase this vise, either rough or completely finished. Shipping weight, approximately 10 lbs.

No. 120 3½" MACHINE VISE: Rough castings, steel, screws, etc., and prints ..... **$ 3.00**
3½" Machine Vise completely finished **12.00**

MACHINING EXCLUSIVE OF CASTINGS

Machining of movable jaw **1.75**
Milling and shaping of body casting **3.75**

POWER HACK SAW



Do not confuse this saw with some of the light, poorly designed saws on the market selling for thirty or forty dollars. This hack saw is a *real* tool!

We supply you with all required material, including vise. No milling machine, shaper, or other large tools required. We have cut and bored both gears, the slide requires no milling, the vise swivel slot is cast in, the vise castings require only filing. The detailed blueprints show clearly each simple operation. If you can drill and tap holes within reasonable limits, if you can pour a few ounces of babbit, if you can do some simple metal turning, then you can build this saw. The average beginner in a high school machine shop class can do this job easily. This is a job for a novice—but a tool for a professional.

SPECIFICATIONS AND FEATURES

Capacity	3½"	Length of stroke	4"	Length overall	29"
Blade	10"	Vise	swivel	Motor not included.	
Strokes per minute	97	Height over all	12"	Shipping wght. approx. 60 lbs.	

No. 124 POWER HACK SAW: Castings with gears cut, necessary material, and blue prints **$14.50**

No. 124 POWER HACK SAW: If you have a mill, you can do all the work yourself. Rough castings, necessary material, and blue prints **$10.50**

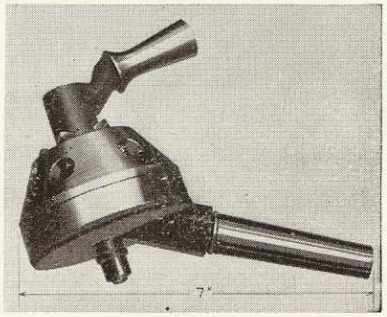
TURRET ATTACHMENT

Here again we have another new project which takes little time to complete but offers a great saving to the customer. If you have a lathe, you will want this turret attachment, for it makes duplication work not only identical, but very rapid. By machining it on your own lathe, you can be assured that it will be accurate for that lathe.

If you were to buy elsewhere a finished turret attachment, selling as it does, for $25, it might not be worth the investment. But if you buy Lewis castings and do the moderate amount of finishing work yourself, you will have an interesting project and a very useful, accurate, and time saving accessory. Include one of these in your next order for Lewis projects.

SPECIFICATIONS AND FEATURES

Turret holds six tools.
Can easily be adapted to fit any lathe simply by changing the taper on the shank.
Has positive locking handle, accurate spring and ball locking and locating arrangement.
Makes duplicate work positively identical.
Shipping weight approximately 6 lbs.

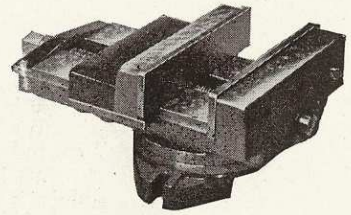


No. 122 TURRET ATTACHMENT: Rough castings, steel spring, ball, incidental parts, and blue prints ..... **$ 3.85**

No. 122 FINISHED TURRET **12.00**

VISES & GRINDERS

MACHINE VISE . . . 7"



Because there are 32 pounds of iron in this 7" vise, it is definitely a sturdy item, capable of handling anything within its generous capacity. The 7" jaws, 1½" deep and steel faced, open to 5¼". The fact that you cannot touch a vise like this on the market for less than $25 makes this a particularly desirable unit.

As it has a swivel base, it is ideal for use on a shaper or milling machine, as well as for general shop use. Base and screw for this vise can be turned on a small bench lathe successfully. The body casting requires finishing on either a mill, shaper, or planer. This is likewise true of the movable jaw.

If you haven't a mill, shaper, or planer in your shop, we advise you to purchase the base casting rough and the other two castings with this machine work completed, in which case you should have the vise working within a couple of hours of receiving it. Shipping weight approximately 40 pounds.

No. 112 7" MACHINE VISE: Rough castings, materials, and prints **$4.95**

MACHINING EXCLUSIVE OF CASTINGS

Milling of body casting ..... **$4.95** Milling of jaw casting **$2.45**

DRILL VISE

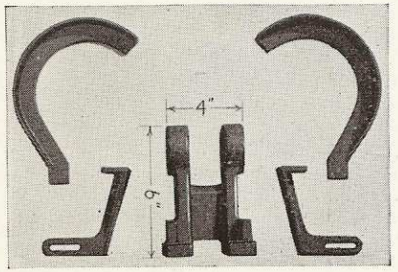
Because its first cost is so low, its construction so easy, and its uses so varied, you will certainly welcome this unit as an addition to your shop. The surfacing work can be easily and quickly done by any person having a fair knowledge of the use of a file. There is a little drilling and tapping. The screw may be turned on a lathe or cut with an ordinary die. You can't have too many vises of this type in your shop. The jaws are 2¾" wide, 1¾" deep, and open to 3¾". This unit is not available semi-machined or finished. Shipping weight approximately 8 lbs. (Not illustrated)

No. 114 DRILL VISE: Rough castings and prints **$1.45**
Steel, screws, etc. ..... **.40**

BENCH GRINDER . . . 6"

Here is a chance to get a real, honest-to-gosh ball bearing, double wheel grinder at a minimum cost. The frame of this unit is heavy semi-steel with large sections for retaining the bearings. The set includes guards, rests, and frame castings. It is designed to take two 6" grinding wheels or buffers.

This job can be built in a very short time and offers no machining problems whatsoever. The No. 203 ball bearings which we list for this and other units in our line can generally be picked up second hand at almost any automobile wrecker's for 25 or 30 cents in very good condition. We are glad to have you buy your bearings this way as we feel that the more money you save on these Lewis projects, the more projects you will be inclined to buy. If you buy the main body casting on this grinder from us already machined, there is no work remaining except drilling, tapping, and the turning of the spindle.



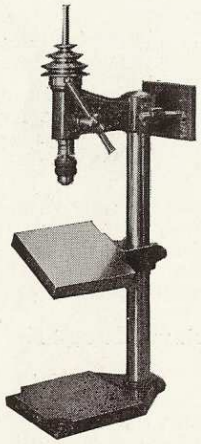
We wish to persuade our customers to buy all our smaller projects in conjunction with one of the larger units, in order to eliminate the additional freight charges that would be incurred if they order the small unit only. Shipping weight approx. 18 lbs.

No. 116 6" BENCH GRINDER: Rough castings and prints **$2.35**
Two No. 203 ball bearings, each **1.00**
2" "V" pulley ..... **.50**
Spindle steel, screws, bearing retainers, etc. ..... **.45**

MACHINING EXCLUSIVE OF CASTINGS

Machining on body casting **$2.95**

BENCH DRILL PRESS



This drill illustrates to perfection the great economy that can be yours if you build your own tools from our castings. For a very small amount you can own this truly fine drill press—one of the most popular tools in our entire line.

We have embodied improvements in this press which contribute to make it a high quality, high production tool. The pulley runs on an extension of the head, leaving the spindle free to float, relieving it of the usual stresses and greatly increasing the life and accuracy of the drill. Drilling thrust is taken by a ball thrust bearing on the lower end of the sturdy ⅝" floating spindle. With a little care in building, this can be a very sensitive and highly accurate drill press.

The motor mounts on an adjustable bracket on the back of the head casting, and drives the drill pulley with a single "V" belt.

We suggest that unless you have access to a milling machine or a lathe having a 16" swing, you purchase this set with the head casting already finished. The other castings are less difficult to machine.

A standard rack gear can be countersunk into the quill of this press, or those having access to a milling machine can cut the rack on the quill, thereby eliminating the necessity of purchasing a standard rack gear. The pinion gear is standard, and can either be purchased at your local hardware store, cut in your own shop, or obtained from us.

There is real satisfaction and economy in building this drill press as compared to buying something like it "ready-made." The man who makes the tools he uses is a real mechanical pioneer.

SPECIFICATIONS AND FEATURES

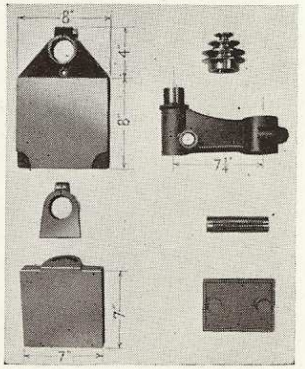
Spindle travel ..... 3"	Has tilting table.	Size of base ..... 8"x12"
Chuck to table ..... 17"	Drills to center of 12" circle.	Takes up to ½" drill.
Chuck to base ..... 19"	Size of table ..... 7"x7"	Shipping weight approx. 55 lbs.

No. 108 BENCH DRILL PRESS: Rough castings and prints **$6.25**

No. 817 ½" 3-jaw chuck	1.00
No. 806 3-step motor pulley blank	.75
No. 1003 thrust bearing	1.10
No. 808 2"x24" seamless steel tubing	1.00
Steel for spindle, handles, etc., plus all screws	1.25
No. 811 pinion gear	.50

MACHINING EXCLUSIVE OF CASTINGS

Turning and boring of head casting	$5.85
Planing and boring of base	2.95
Turning and boring of collar	1.80
Turning, boring, and cutting rack on quill	4.95
Surfacing of table	1.45
Surfacing of motor mount plate	1.35



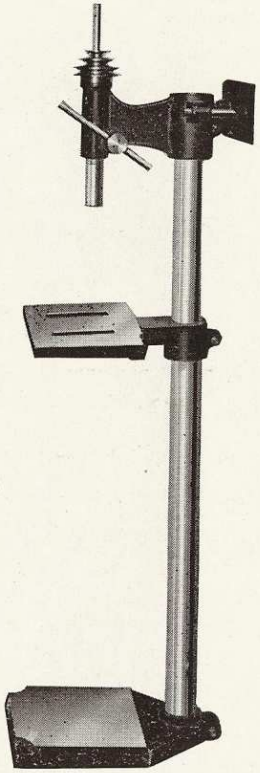
FLOOR DRILL PRESS

We have followed exactly the same design in this unit as that found in the bench drill. The difference between these presses is in size only.

The Lewis floor drill mounts on a 5' round column.

It drills to the center of a 14" circle and, like the bench model, has a tilting table. It is an ideal press to do the larger drilling in your shop.

There are over 110 lbs. of castings in this unit. The price we list for the castings is so small that you have every reason to enjoy the advantages of a large drill in your shop—one that compares favorably with drills selling at from $55.00 to $70.00. As in all other Lewis castings, you will be most favorably impressed by the heavy construction. The difference between a heavy, well-constructed tool and a light, flimsy one is so slight as far as cost of materials is concerned that we will never make the lighter type.

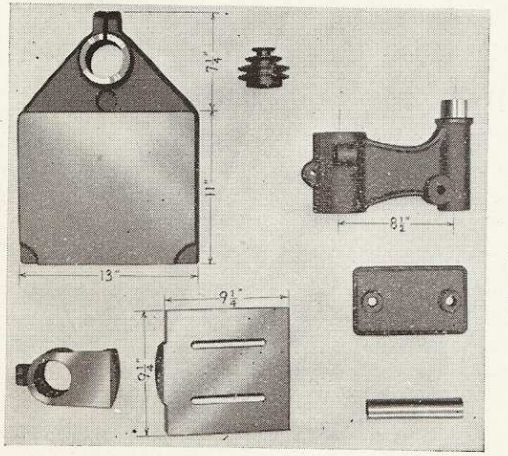


No. 108A FLOOR DRILL PRESS: Rough castings and prints **$12.50**

Steel for spindle, handles, all screws, etc.	1.40
No. 1005 ball thrust bearing	1.50
No. 806 3-step motor pulley blank	.75
Column 2¾"x5' seamless steel tubing	2.50

MACHINING EXCLUSIVE OF CASTINGS

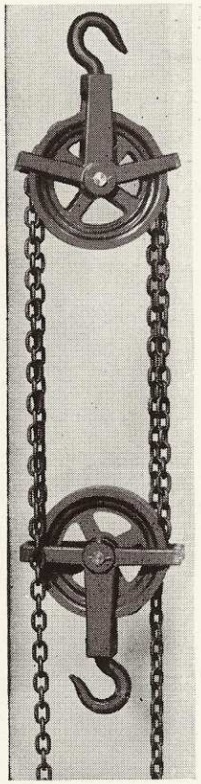
Turning and boring of head casting	$7.95
Planing and boring of base	4.95
Surfacing of table	2.45
Turning and boring of table collar	1.95
Turning, boring, and cutting of rack on quill	5.15



SPECIFICATIONS AND FEATURES

Drills to center of 14" circle.
Has tilting table.
Uses large ball thrust bearing.
Takes up to ⅝" drill.
Mounts on a 2¾"x5' column.
Shipping weight approx. 115 lbs.

CHAIN HOIST



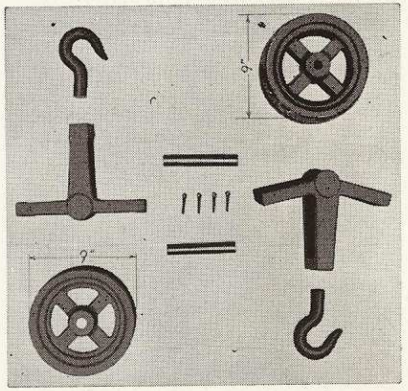
This new addition to the Lewis line offers one of the biggest savings in our entire group. You can build this complete unit in two or three hours on a small lathe and drill. The link recesses are all cast in smoothly so that no machine work is necessary to make your chain run evenly. The only machine work necessary to finish this job is to bore out each of the wheels, bore both hangers for axles and the top for the hooks. This is not a precision job and does not require a high degree of accuracy. The hangers and hooks are cast steel and are strong enough to lift many tons. The wheels are semi-steel castings. The chain may be purchased locally in any well-stocked hardware store.

The regular market price of chain hoists is high enough to allow our customers to build and sell them well under list prices and still make a high percentage of profit. Why not make two or three of these and sell them to your friends? The profit will more than pay for your own set.

No. 121 CHAIN HOIST: Rough castings for hooks, hangers, wheels, cold roll steel for axles, cotter pins, and blueprints **$9.50**

SPECIFICATIONS AND FEATURES

Diameter of wheels 9"
Links of chain per foot, 11; diameter of links 3/16"
Length of endless chain advised (not included with castings) 30'
Rated capacity 1½ tons
Shipping weight (approx.) 50 lbs.

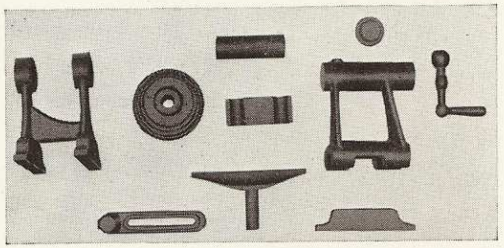


11" WOOD LATHE

The design of this ball bearing wood lathe makes it extremely valuable in meeting any shop conditions. Use of cold rolled steel shafting for the bed allows the builder to make this lathe any desired length.

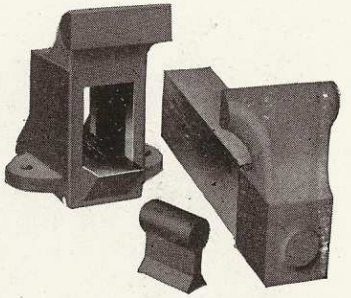
The head stock uses two No. 203 ball bearings and carries a 4-step "V" pulley which gives a variety of speeds.

(Continued on page fifteen)



VISE & PUMP

BENCH VISE . . . 4"



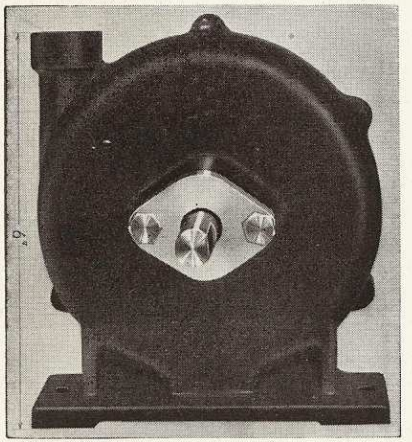
You will be particularly impressed by the sturdy design and heavy construction of this 4" bench vise. Even if you already have one, you will enjoy building this unit for it is a real vise! The castings are semi-steel, with steel jaws and bronze nut.

This vise is another of the simpler projects which offer no serious machining problem. A few hours of your spare time will build it into a tool which you will use constantly for many years. The screw for this vise may be cut on a lathe or with a die and the bronze nut can be either threaded on a lathe or tapped. The moving jaw can be milled, planed, shaped or even filed to fit the body casting. There is no machine work whatsoever on the body of this vise except smoothing of sliding surfaces with a file. This unit is not sold semi-machined except on special order. Shipping weight approximately 40 lbs.

No. 113 4" BENCH VISE: Rough castings and materials **$4.80**

CENTRIFUGAL PUMP

Here is one of our new projects that will be warmly welcomed by hundreds of hobbyists and machine-shop students. This pump is ideal for use in the home, on the farm, or on a boat. At 3,000 R. P. M. it delivers 20 gallons per minute. A ½ H. P. motor delivers maximum capacity.



A drill and lathe of small size are all the machinery required to complete this pump in a very short time. Two or three hours should see it finished and running.

As this unit has so many varied uses, we urge you to include a set of these castings and parts in your next order for castings. This pump is available in either cast iron or in cast bronze. Shipping weight approximately 10 lbs.

No. 122 CENTRIFUGAL PUMP: Rough iron castings, material, and prints **$3.25**

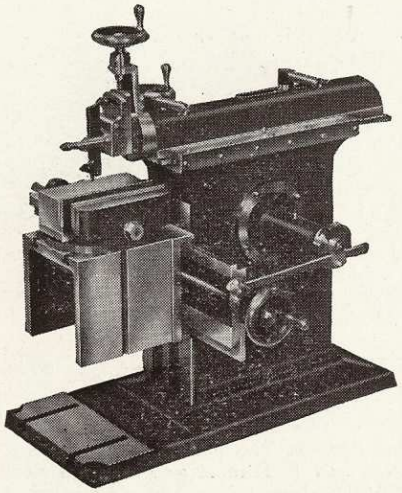
No. 122 CENTRIFUGAL PUMP: Rough bronze castings, material, and prints **$6.00**

(Continued from page fourteen)

The support holder is rigid, positive locking, and keeps the tool rest firmly fixed in whatever position placed. This lathe is not sold semi-machined. Shipping weight approximately 80 lbs.

No. 105 WOOD LATHE: castings and blueprints **$7.50**
Motor pulley ..... **.90**
Two pieces C. R. S. each 40" long for bed **2.65**
Two No. 203 ball bearings, each **1.00**

METAL SHAPER



It takes 300 pounds of the finest gray iron to pour the castings for our 10" metal shaper. With these heavy castings as a foundation you can, if you have a fair understanding of machine shop practice, build yourself a tool worthy of any shop in the country.

Our advice to anyone who wishes to build this shaper is first to purchase the detailed blueprints, so as to ascertain whether or not his equipment is satisfactory for finishing all of the castings. This is not a difficult project to build, but some of the larger castings require a planer, mill, or an 18" stroke shaper to be properly handled.

We recommend this shaper highly for project work in schools as it offers such wide opportunity for teaching varied machining operations. Small lots can be made to advantage by one school for use in other schools of the same system.

This unit, as with our milling machine, is also available as a semi-finished machine. In this semi-machined set we have done all the planing, milling, boring, and other machine work that cannot readily be done on a small lathe and drill. The machine work we do on these castings is highly accurate, and is guaranteed as such.

We have also listed each of the major castings separately with all of their surfaces machined. Thus castings requiring work you cannot handle with your own equipment, can be ordered with the difficult work all done. This enables you to purchase the metal shaper in the way that is most satisfactory to you.

The most important thing to remember in the building of this shaper is to be absolutely sure that the ram ways at the top are at right angles to the vertical table ways. This is not difficult to do, but requires real care on the part of the machinist. We believe it is advisable, if there is any doubt in your mind at all as to whether you can complete this body correctly, for you to purchase it from us machined. This is also true of the main bull gear and pinion gear, which we have listed finished.

The building of this metal shaper offers excellent money-making opportunities to a machinist who operates his shop either commercially or as a hobby. This machine will easily bring $300 if it has been finished with any degree of accuracy. In fact, this identical shaper is being sold "finished" for $325.00, and when we state being sold, we mean just that. Experienced machine men readily recognize this as being an excellent buy at that price.

You will find it profitable to build this shaper. A modest expenditure will supply you with every bit of material necessary to build a machine tool of exceedingly high value.

SPECIFICATIONS AND FEATURES

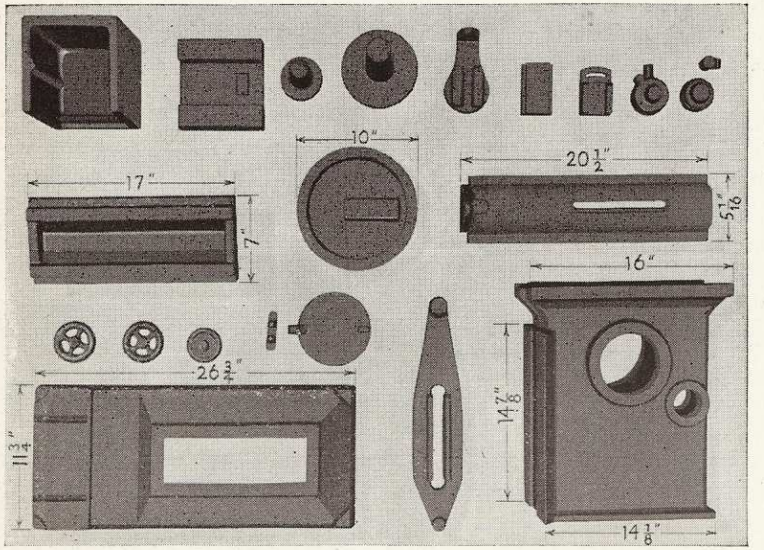
Stroke ..... 10"
Longitudinal feed ..... 10"
Vertical feed ..... 7"
All castings requiring precision work thoroughly heat treated to eliminate warp or strain.
Shaper is designed to stand severest service.
Overall height ..... 24"
Vise not included; see page 11.

Base dimensions ..... 11½"x27"
Stroke quickly and easily adjusted to length desired.
Cross feed automatic and easily adjustable.
Operates perfectly with 1/3 H. P. motor.
All sliding ways are gibbed to allow for take-up in case of wear.
Shipping weight, approximately 325 lbs.

No. 106 METAL SHAPER: Rough castings and prints only ..... **$ 42.00**
No. 106 METAL SHAPER: Rough castings, steel, and all incidental parts **55.00**
No. 106 METAL SHAPER: Semi-machined, including all parts **157.50**

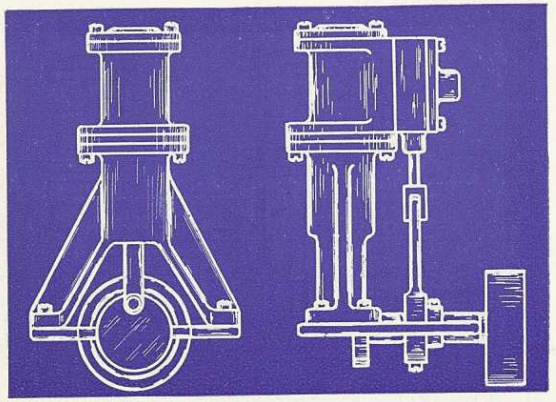
MACHINING EXCLUSIVE OF CASTINGS

Planing body casting No. 602 ..... **$28.30**
Machining table casting No. 607 ..... **15.10**
Planing and turning ram casting No. 603 ..... **15.15**
Cutting and slotting bull gear casting No. 612 ..... **12.60**
Cutting pinion gear No. 613 ..... **1.50**
Machining cross rail casting No. 605 ..... **14.35**
Machining cross rail slide casting No. 606 ..... **8.45**
Planing base casting No. 601 ..... **8.35**
Milling and boring sweep casting No. 611 ..... **7.20**



Rough castings shown above. Top row: Table, cross rail slide, pinion spindle housing, main spindle housing, head casting, clapper box slide plate, clapper box, ratchet housing, cross feed concentric, feed adjustment clamp (above). Second row: Cross rail, bull gear blank, ram. Third row: hand wheels (3), inspection door hinge, inspection door. Bottom row: Base, sweep, body.

STEAM ENGINE

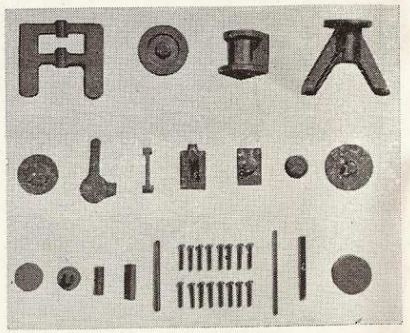


BORE 5-8"
STROKE 3-4"

The steam engine is the simplest and most dependable engine designed to date. This is especially true in the model engine field. In the Lewis steam engine you will find a model that will give trouble-free operation and you will find building this engine an immensely enjoyable project.

Although this engine has many uses, it is most popular as an installation for model boats.

It is of the vertical type, with ⅜" bore and ¾" stroke. The castings are of the finest bronze, while the piston, piston rod, and valve assembly are of high-quality, long wearing brass. The valve is of the double acting slide type, and the cross head guide is cylindrical, which greatly simplifies the machine work. On the drawings all parts are laid out clearly in order to facilitate machining.



Long before the internal combustion engine was thought of, the steam engine had brought about an industrial revolution throughout the civilized world. No engineering project is of more fundamental importance than work based on the elementary principles of steam engineering, which are perfectly illustrated in this project. Shipping weight 3 lbs.

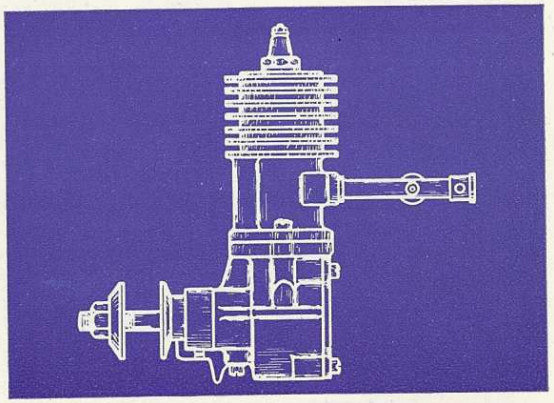
No. 118 STEAM ENGINE: Castings, brass, steel, screws, and prints **$3.45**

NO. 204 BALL BEARINGS SPECIALLY PRICED

We have on hand a quantity of No. 204 practically new ball bearings which are available at 40 cents each. These large guaranteed bearings can be adapted to the following Lewis projects in place of our regular No. 203 ball bearings: jointer, band saws, wood shaper, grinder, circular saw. At this price they are definitely a bargain.

GAS ENGINE

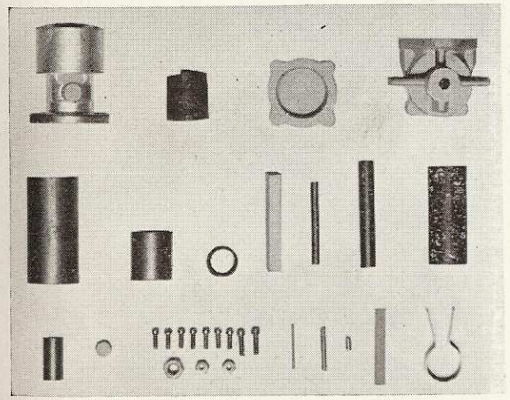
BORE 7-8"
STROKE 1"



Here is a unit that has proven the biggest seller of the entire Lewis line. This is a motor that will do a grand job of flying your model plane or accomplishing any of the many jobs model-workers find for this type of motor. As a project it can offer the builder an endless amount of pleasure, as well as considerable experience. We have simplified the construction of this beautiful little motor in every conceivable way.

This unit can be quickly and easily finished to make a powerful, light, and economical model airplane engine. If properly built, it will develop approximately 1/5 H. P. We believe we are the first company to establish such a low price for all of the material on engines of the type shown in the photograph below.

This kit includes every bit of material necessary for completion of the engine proper. Not included are accessories such as spark plugs, coil, batteries, and gas tank. We recommend a small tooth powder can to serve as the gas tank. The coil and spark plug can be picked up at your local hobby shop.

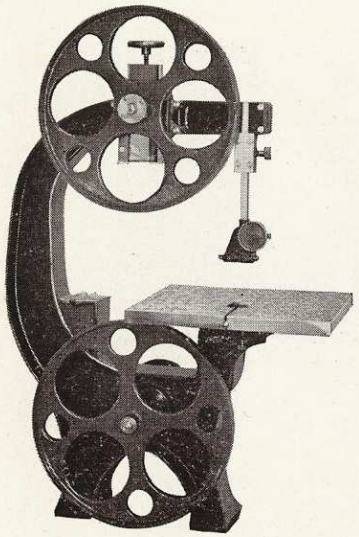


The cylinder block, crank-case, and crank-case cover are of sand-cast aluminum. The piston is iron, the cylinder liner is of steel. The crank-shaft bearing is bronze and the crank-shaft is steel. The dural rod adds greatly to lightness and strength.

The detailed blueprint on this unit is so clearly laid out in full scale that failure is hardly possible. Weight 3 lbs.

No. 119 GAS ENGINE: Aluminum castings, steel liner, tungsten ignition metal, dural rod, cast iron piston, incidental steel, nuts and screws, fiber insulator, flat spring wire, bronze for bearings, and prints **$3.45**

16" BAND SAW



There are almost 150 pounds of iron in the castings that make up this 16" band saw. The frame weighs 64 pounds and is of the "I" beam type which is recognized as one of the best designs to insure against vibration and warping.

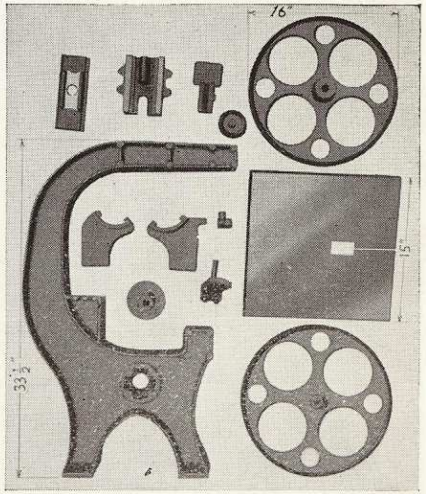
This large frame has been so designed that it requires no machine work other than the drilling and facing of a few bosses with a hand file. The upper wheel runs evenly and quietly on two large ball bearings. The upper wheel assembly is under spring tension at all times and keeps the blade always at the right tension. The lower axle housing is a separate casting and can easily be completed on a small bench lathe. We advise any customer whose shop is limited to a small lathe to purchase the castings for this set with the two wheels machined, the table machined, and the slide machined. The remaining work can quite readily be handled with a lathe, drill, and ordinary hand tools.

While perhaps not so "pretty" as some on the market, this band saw is thoroughly practical. Ruggedly designed to do its job all day long, year in and year out without trouble, it is a tool every pattern-maker, carpenter, or cabinet maker will be proud to have in his shop. Craftsmen will realize it is well worth $80 as compared with any finished saw similar to it in size and design.

SPECIFICATIONS AND FEATURES

Table 15"x15", heavily ribbed and arranged for tilting. A steel spring keeps the blade at correct tension at all times.
Cast iron wheels 16" in diameter. Idling wheel floats on two No. 203 ball bearings while power wheel rides in phosphor bronze bushings.
Auxiliary table bracket cast in frame.
Cuts to center of 32" circle and to depth of 6".
Makes ideal metal cutting band saw, if proper blade is used.
Overall height 40½".
Shipping weight approximately 150 lbs.

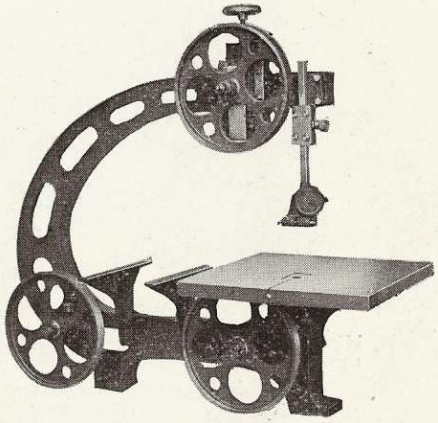
No. 102 16" BAND SAW: Rough castings and prints	**$17.95**
Two ball bearings for idling wheel and two bronze bearings for power wheel	**2.40**
Tires (2)	**1.35**
No. 1127 "V" pulley	**.90**
All necessary steel, spring wire, screws, etc.	**1.75**
100" Blade. (State width wanted: 3/16", ¼", 5/16", ⅜", ½", ⅝")	**1.50**



MACHINING EXCLUSIVE OF CASTINGS

Turning and boring of wheels (2), each	**$1.95**
Surfacing of table	**2.85**
Semi-machining of slide and bracket	**2.90**

24" BAND SAW



In the minds of some woodworkers, the 3-wheel band saw has an unfortunate reputation as a blade-snapper. However, "blade-busting" is not an inherent fault in this type of saw, but rests in faulty design or the use of wheels so small that the blade is bent at too short an angle. In the Lewis 3-wheel saw, the size (10") and position of the wheels on the large cast iron frame is absolutely correct. One of these saws has given satisfactory service for three years in a California high school woodworking shop. This, we believe, is conclusive proof that there are no "bugs" in this type of saw when it has been correctly engineered.

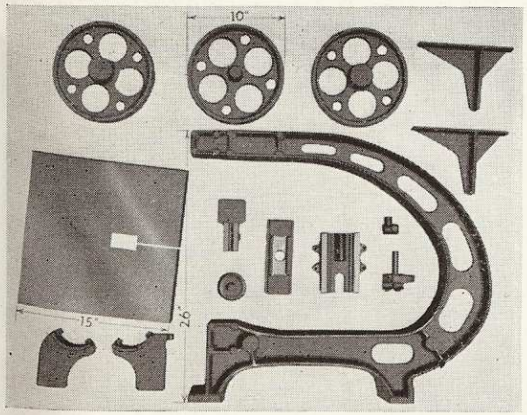
To insure maintaining correct alignment and long life, two ball bearings are used in each of the two idling wheels and the power wheel spindle has two bronze bushings.

While this is a bench tool, it is able to handle the work of a large cumbersome floor model 2-wheel band saw. We have never seen a 24" saw on the market before at less than several hundred dollars. When you consider what a large capacity the Lewis 3-wheel band saw will give your shop for an extremely low investment, you are bound to admit that we are offering you a really worth-while project.

Like the 16" band saw, the 24" saw is also available semi-machined.

SPECIFICATIONS AND FEATURES

155 lbs. of gray iron castings go to make up this fine saw.
Cuts to center of 48" circle.
Equipped with auxiliary table brackets.
Frame is channel type, weighs 68 lbs. 31" wide, 26" high. Height overall 33½".
Table: 15"x15", tilts, heavily ribbed, cast of very clean iron.
Saw tension adjustment and wheel alignment screw mounted on upper bracket. Blade always under spring tension.
Both idling wheels ride silently and smoothly on two No. 203 ball bearings.
Ideal for metal cutting when proper blade used.
Provides maximum capacity in minimum space.
Shipping weight approximately 160 lbs.

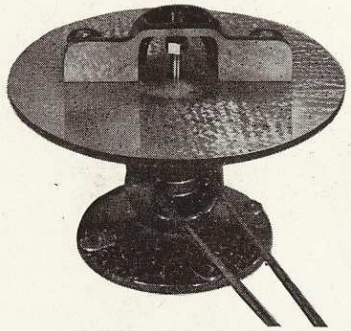


No. 103—24" BAND SAW: Rough castings and prints	**$18.75**
4 ball bearings and 2 bronze bearings	**4.50**
All necessary steel, spring, wire, screws	**1.75**
No. 1127 "V" pulley	**.90**
Tires (3)	**1.20**
100" Blade (state width wanted: 3/16", ¼", 5/16", ⅜", ½", ⅝"	**1.50**

MACHINING EXCLUSIVE OF CASTINGS

Turning and boring of three 10" wheels, each	**$1.10**
Surfacing of table	**2.85**
Semi-machining of slide and bracket	**2.90**
Boring of frame	**3.90**

WOOD SHAPER



Because a wood shaper will handle certain types of work that cannot be done on any other tool, it deserves a place in every well equipped shop. We are glad to offer you castings at a very low cost for this wood shaper, which is comparable to those selling finished on the market at $25 or more.

In this well-designed tool, the spindle, made oversize for increased rigidity, is carried noiselessly by two large ball bearings at approximately 9,000 R. P. M. The combination guard and guide guarantees an accurate cut at a minimum of danger. The clamp collar fit of the table to the column maintains table accuracy regardless of the depth of cut being taken.

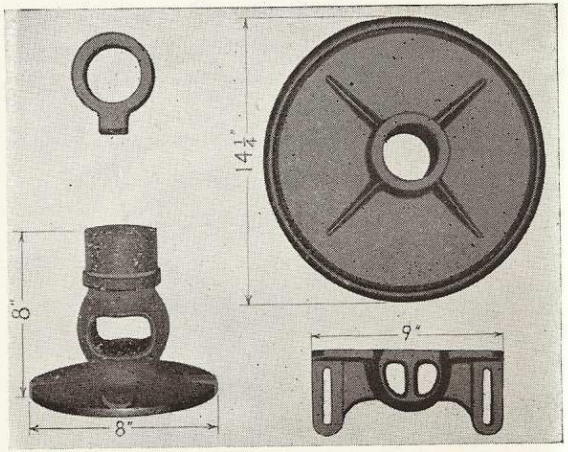
This study, large capacity wood shaper is one of the easiest projects in the entire Lewis line to complete. It is not unusual for an amateur to complete this wood shaper, from rough castings to a finished tool in a single day.

A small drill press and a lathe that will turn 14¼" are the only machine tools needed to make this machine. For the benefit of those who do not have a lathe of 14¼" swing, the table casting and the combination guard and guide casting are available already machined. The column and collar are small enough to be turned on a 9" lathe. Or if your lathe is not that large, all four castings may be purchased machined.

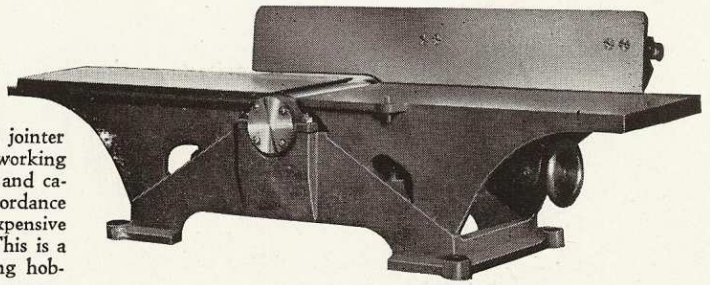
SPECIFICATIONS AND FEATURES

Spindle rides accurately at 9,000 R. P. M. in two large No. 203 ball bearings.
Large 14¼" diameter table is heavily cast and has positive locking device to prevent shifting or change of adjustment during operation.
Threaded depth adjustment collar gives accurate adjustment and holds at all times.
Uses standard ½" cutters which are available at woodworking equipment shops.
Combination guard and guide permits accurate cut at minimum danger.
Shipping weight approximately 65 lbs.

No. 104 WOOD SHAPER: Rough castings and prints	**$7.50**
Two No. 203 ball bearings, each	**1.00**
No. 1126 "V" pulley	**.50**
Steel for spindle, bearing retainers, screws, etc.	**.75**
MACHINING EXCLUSIVE OF CASTINGS	
Turning and boring of table	**$3.15**
Turning, boring and threading of body column	**5.90**
Boring and threading of collar	**1.55**
Facing of guide and guard	**1.75**



6" JOINTER



This superbly designed jointer will delight every woodworking enthusiast. Its appearance and capacity are strictly in accordance with the finest and most expensive machines on the market. This is a tool that every woodworking hobbyist will want in his shop.

The rugged frame is heavily ribbed and cross-sectioned in order to prevent twist or spring. The guide is long, steady, and tilts to whatever angle desired. Like all well-designed jointers, this Lewis unit is arranged for rabbeting. It has a 34" bed and is cast from the same close-grained alloy iron found in all Lewis projects.

We advise those who haven't access to a shaper, planer, or milling machine, to purchase this unit with the two tables and body machined. The cutter head, designed for three full 6" knives, can also be purchased machined. The remaining work is very simple and even when buying this set with these larger castings and cutter head machined, the purchaser realizes a saving of at least 50 per cent over any competitive machine on the market.

SPECIFICATIONS AND FEATURES

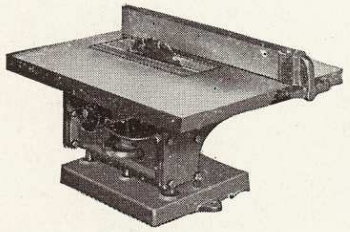
Cutter head 2½" diameter, holds three 6" knives.
Cutter head runs silently at approximately 5,000 R. P. M. on 2 large ball bearings.
Frame is heavy and throughly ribbed.
Overall length 34".
Has tilting guide and cast iron guard.
Convenient hand wheels quickly raise and lower tables to depth of cut desired.
Shipping weight approximately 85 lbs.

No. 107 6" JOINTER: Rough castings and prints	**$9.50**
Set of three 6" ground special steel knives	**2.75**
Steel screws and incidental parts necessary to complete jointer	**1.50**
Two No. 203 ball bearings, each	**1.00**
No. 1122 "V" pulley	**.30**
MACHINING EXCLUSIVE OF CASTINGS	
Machining of tables (two) each	**$3.65**
Machining of body casting	**5.65**
Turning and cutting of cutter head	**1.90**
Surfacing guide casting	**1.25**

CAUTION---TO INSURE SATISFACTION

Anyone attempting to build Lewis units from rough castings should have an elementary knowledge of machine shop practice and access to a certain amount of equipment. Otherwise he cannot hope to construct these projects with pleasure or profit to himself. We are giving this caution because we want only satisfied customers. If everybody could build machine tools with no experience or equipment, there would be no satisfaction in owning them. The fact that building Lewis projects adds so much to the builder's skill is one of the many reasons for their extraordinary popularity.

8" CIRCULAR SAW



There is no woodworking tool more used in any shop than a circular saw. For this reason we have developed one that meets all the requirements demanded, not only by hobbyists but in commercial woodworking shops. It is not only a very practical tool, but it is easy to build.

The only castings in this unit which offer any machining problem are the table and guide and they can be machined on a planer, mill, or shaper having a stroke of 14". If none of these tools is available, you can purchase these two castings machined by us. The base requires drilling only. The left and right hand cradles require drilling and filing only. The slide bearings for raising and lowering the table are poured with babbit, consequently no machining is required on this part. The axle housing on this saw has to be turned on a small lathe for the fitting of the two ball bearings. The guard castings all require a small amount of drilling only. This is really an excellent opportunity to buy a saw for your shop that has proven to be of the highest quality and at a minimum cost.

For those who desire more working surface than the regular 14"x18" table affords, we have an 18"x22" table at a slight additional cost. This larger table can be machined on any machine tool capable of surfacing an area 18"x22".

SPECIFICATIONS AND FEATURES

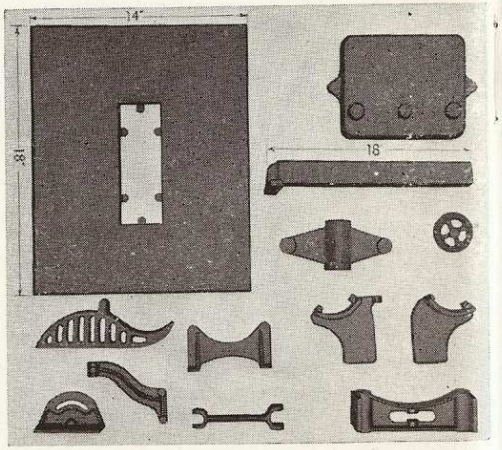
Table tops 18"x22" or 14"x18".
Table is arranged to tilt quickly to desired angle.
Spindle runs at approximately 3,000 R. P. M. on 2 large No. 203 ball bearings.
Saw cuts to depth of 2¾".
Base to table top ..... 9"
Base dimensions ..... 9"x11"
Raising and lowering of saw quickly accomplished by turning conveniently located hand wheel.
Shipping weight approximately 80 or 91 lbs.

No. 101 8" CIRCULAR SAW:

Rough castings and prints (14"x18" table)	$ 9.25
Rough castings and prints (18"x22" table)	10.85
Two No. 203 ball bearings, each	1.00
Steel for axle, screws, and incidental parts	.75
"V" drive pulley	.50

MACHINING EXCLUSIVE OF CASTINGS

Surfacing of small table top	$5.35
Surfacing of large table top	6.25
Machining of guide	2.25



DID YOU KNOW—that the Eighteenth Century pole lathe was operated by a cord from a foot pedal? The work revolved alternately forward and backward.

TOOLS AS PROJECTS

IN SCHOOL MACHINE SHOPS

America is waking up along educational lines. We are breaking the shackles of outworn theories and obsolete practices in the training of the younger generation. We no longer put a premium on a knowledge of Latin . . . no longer believe that a "cultural" education is more desirable than a knowledge of how to do things correctly.

This increasing trend toward training in craftsmanship has gained new impetus from the scarcity of apprentices in the skilled crafts. More and more our schools and colleges must face the problem of technical education. The expansion in this field and the decreasing emphasis on "book learning" prove that American educators are alert to their responsibilities.

Since wood and metal working are basic in so many of the skilled crafts, it naturally follows that the importance of instruction in these fields is winning new recognition. But because this instruction must be practical . . . must be useful . . . must show visible results, the problem of finding suitable and worth-while projects has become increasingly serious. Just to file a flat surface, to turn down a piece of cold rolled steel, or to machine a key-way for the practice alone is a lot like breaking rocks in a prison yard. But the same effort and intelligence devoted to the construction of a really fine tool will win enthusiastic cooperation from any student.

Since the day it started, this company has given particular attention to the needs of school and college shops. Close contact with many of the machine shops in the schools of California showed in the majority of cases that schools, for various reasons, did not own any variety of good patterns. It was usually found that every school machine shop had one or two sets of makeshift patterns from which their students could choose what they wanted to make during that school year.

The lack of patterns in schools is obviously due to the fact that patterns are very difficult to make and very expensive to buy. To eliminate this expense, we consulted several helpful college and high school machine shop instructors in order to find out the units which they would be interested in purchasing for construction in their classes. At the same time we made a thorough study of the usual equipment found in high school machine shops. With the generous help of these instructors, our own engineers have designed the tools which are most suitable for school conditions.

One of the most important things for an instructor to remember is the fact that he is not penalized for pattern costs in any appreciable amount over the cost of castings from his

(Continued on page twenty-six)

CLASS BUILDS SECOND SHAPER

"This kodak picture shows the class that made the Lewis metal shaper. We are now making the second shaper and will be interested in the milling machine when this is almost completed. These projects offer the best in Machine Shop practice and we have enjoyed making them." Homer H. Haisten, Instructor Paul Hayne School, Birmingham, Alabama.

BLUEPRINT SERVICE

NEW LOW PRICES FOR DETAILED PRINTS

Undoubtedly the finest way for you to get complete information and details on any particular Lewis project that you desire to build is to purchase the detailed blueprints. It is now possible to get the detailed prints of any unit in which you are interested at a minimum cost—a new low price of $.25 for a complete set on any unit . . . with the exception of the metal shaper and milling machine blueprint sets, which cost $.50. When detailed prints are purchased in advance, the price of the prints for the unit will be deducted when castings are ordered.

These detailed prints give the machining specifications of each and every piece of material used on the project, enabling you to ascertain the work you can handle in your shop and also to determine which pieces you will want to order already machined by us. They are laid out on 9"x12" sheets—amply large to be clearly read. We have found that this size is much more convenient to handle than the larger size; furthermore, it allows us to sell prints at this remarkably low price.

For the benefit of schools, machine shops, and hobbyists with more complete equipment, we have a special portfolio price covering the detailed blueprints on all of our twenty-two projects. There are over sixty prints in this group and the entire set is sold for $2.50. For those interested in metal-working projects only, we offer the detailed prints for thirteen metal-working projects for $1.50. For those interested in wood-working projects only, we offer the detailed prints for six wood-working projects for $1.00. If you are interested in a different assortment of projects, you can buy detailed prints for any six of the twenty-two projects for $1.00, including either mill or metal shaper but not both.

METAL-WORKING		WOOD-WORKING		MISCELLANEOUS	
1. Bench Mill	$ .50	9. Hack Saw	.25	16. 14" Wood Shaper	.25
2. 10" Metal Shaper	.50	10. Dividing Centers	.25	17. 11" Wood Lathe	.25
3. Floor size Drill Press	.25	11. Turret Attachment	.25	18. 6" Jointer	.25
4. Bench size Drill Press	.25	12. 6" Bench Grinder	.25		
5. 7" Machine Vise	.25			19. Steam Engine	.25
6. 3½" Machine Vise	.25	13. 8" Circular Saw	.25	20. Gas Engine	.25
7. 4" Bench Vise	.25	14. 16" Band Saw	.25	21. Centrifugal Pump	.25
8. Drill Vise	.25	15. 24" Band Saw	.25	22. Chain Hoist	.25

Remember—these scaled detailed specification prints will give you comprehensive information on the projects you wish to build.

TOOLS AS SCHOOL PROJECTS *(Continued from page 25)*

own patterns in a local foundry. Our large purchasing power secures us a price low enough to enable us to sell at practically foundry prices.

We hardly believe it necessary to go into any detail here concerning the educational value of building this type of equipment. Tool building is not only an interesting subject to a student, but contains enough detail and machine work to make him use his head in figuring out how to handle the job to the best advantage. Many machine shops in high schools build our projects for use in their woodworking classes, to sell to teachers or students in the school, for use in the machine shop, and for use in smaller schools in the same system.

The saving a school realizes by obtaining as much machinery as possible in this way is perfectly obvious, if one will take the time to compare our casting prices with the cost of comparable finished tools.

QUESTIONS & ANSWERS

Q. Are any of the castings on Lewis projects heat treated?

A. The castings for the units which are classed as precision tools are all heat treated to eliminate any warp or strain. Foremost among these are the metal shaper and milling machine castings.

Q. Are Lewis castings machinable and close-grained?

A. Yes, they are made of an alloy of gray-iron, steel, molybdenum, and nickel. They are easy to machine and have excellent wearing qualities. All iron castings in the Lewis line, from the smallest to the largest, are poured from this alloy.

Q. Is there any delay in shipment after an order has been placed?

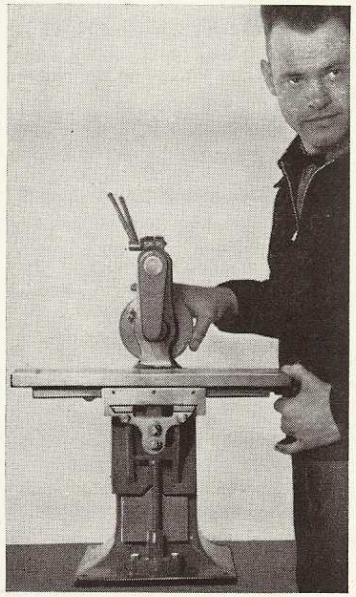
A. Large quantities of all units are now carried in stock ready for shipment immediately upon receipt of orders. Occasionally unusually large orders will deplete stock of some unit and cause a slight delay.

Q. Are three-wheeled band saws practical? Why aren't they used more?

A. Three-wheeled band saws are entirely practical and deliver a maximum capacity in a minimum of space. When this type of saw was first put on the market, it was poorly designed and employed wheels that were far too small for practical purposes. Consequently they developed a reputation as blade-snappers.

Q. Why are No. 203 ball bearings specified for use in Lewis projects?

A. We use this type of bearing wherever possible because this is a standard automobile bearing and can be picked up second-hand by the customer in almost any automobile wrecking shop. The general price is around 25 cents each. This allows the customer to have a ball-bearing machine at a minimum cost. We also list new bearings at $1.00 each.



WHO BUILDS LEWIS TOOLS?

Mr. DeMoss Park, high school student of Ponca City, Oklahoma, for instance. He writes: "I did a real job on my milling machine . . . did not make one mistake on the whole machine. The 'T' way in the table from one end to other is not off .003 of an inch—which is not bad!"

Q. I am a machine shop instructor and want to know if high-school boys are qualified to do the work on a metal shaper.

A. Yes. The photograph on page 25 shows a group of students in the Paul Hayne School at Birmingham, Alabama, who won a State Prize in 1936 for building one of these 10" metal shapers. Many other high schools and colleges have completed this job successfully.

Q. I have no machine shop knowledge, nor am I acquainted with anyone who has. I would, however, like to buy a few woodworking tools. Is it practical for me to buy Lewis castings?

A. Purchase of castings in this case would *only* be practical if you could arrange to have some school shop do the building for you or pay some machine shop which is willing to do the work reasonably.

QUESTIONS & ANSWERS

Q. I wish to build a Lewis project and desire to add certain features of my own, such as adding a power feed to the mill. Is it possible to deviate from Lewis blueprints?

A. Yes. Many of our customers employ their own ideas and inventions in building one of our projects. However, it is best for you not to do this unless you have a fair knowledge of machine design and machine shop practice.

Q. I would like to build two Lewis mills while attending a night class in machine shop course. After one of these mills is finished, I should like to take it to a local machinery dealer and trade it in on a lathe and some other equipment. How much should I expect to get for one of these mills if I trade it in? Has this ever been done before?

A. Yes. This is quite a common practice, not only with the mill, but with many other tools in the Lewis line. You should expect to get at least $125 by trading in the mill, if you have done a good job on it.

Q. I would like to purchase some Lewis castings, but hesitate to send money to a firm about which I know nothing. Do you have bank reference?

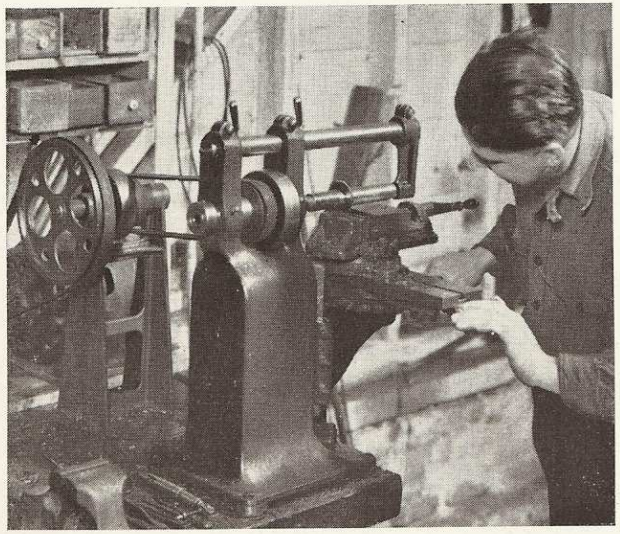
A. We offer the Wells Fargo Bank and Union Trust Co. of San Francisco for financial and integrity reference.

Q. I would like to buy Lewis castings, but am afraid the freight rate would be too high to make this purchase practical. Is this true?

A. Iron castings carry a very low freight rate to all parts of the U. S. and Canada. Regardless of freight costs, the prices of Lewis projects are low enough to make the purchase of our units highly practical.

Q. Are gibs used on the sliding surfaces of Lewis projects?

A. Yes. Sliding surfaces are protected for take-up with steel gibs.



WHO USES LEWIS MACHINE TOOLS?

Shop owners as well as hobbyists use Lewis tools. The picture shows a Lewis Bench Mill in actual operation in the shop of S. B. Moyer and his partner, A. L. Sunstrand, where they build nailing machines which they sell to hardwood floor contractors. In a few days of such commercial work the Lewis Mill will actually PAY FOR ITSELF!

WHAT CUSTOMERS SAY

What actual builders and users of Lewis tools say about them is far more important than our own opinion. That is why you will be interested in the comments quoted below:

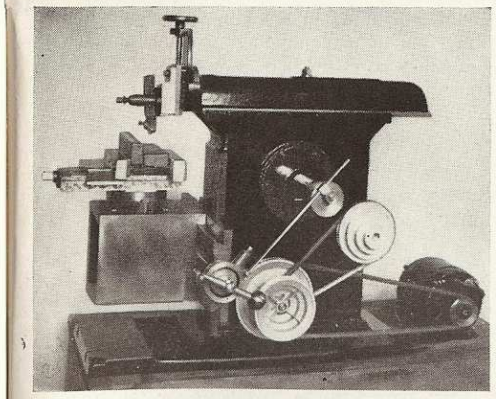
PLANS TO BUILD MORE: "Am well on my way to completion of my Lewis bench mill castings and have found the iron and materials of the highest quality. Am looking forward to building more projects such as the metal shaper when time permits." T. Deirup, Palo Alto, California.

BUILT IN THREE HOURS: "Built chain hoist in three hours. Worth $60.00." F. B. Kerr, General Service & Engineering Co., San Francisco, Calif.

SHAPER RUNS PERFECTLY: "I have just finished building a Lewis 10" Metal Shaper from the semi-finished set recently purchased from you. I did all the remaining work on my bench lathe and drill press in about two weeks' spare time. I now have this shaper running perfectly and want to congratulate you on your design and material. As you know I also have in my shop your power hack saw, milling machine, and turret attachment." E. Callahan, Los Altos, California.

SAVED $300: "I am delighted with my Lewis metal shaper which I recently built up from the semi-finished castings. The machining already done left very little work for me to do. I now have a shaper worth every bit of $500 and figure that I saved fully $300 on it . . . after making a fair allowance for my time. As soon as machine tool users learn what you are offering, I predict that your shaper and other tools will be in tremendous demand." H. R. McMillan, Instrument Maker, San Francisco, California.

When a man who makes the most delicate of precision instruments praises a Lewis Shaper, you know it must be good. Here we picture Mr. McMillan and his shaper. Read what he says above. Notice that he has designed his own multiple pulley drive as shown below.



BUILDING FOR PROFIT

There are many units in the Lewis line which offer excellent money-making opportunities for those who wish to manufacture tools for resale.

Following is a list of the projects which we believe offer the greatest possibilities: *Metal Shaper,* which has a material cost of not over $55 and a finished value of over $450. *Milling Machine,* which has a material cost of $29.50 and a finished value of $137.50. *Turret Attachment,* which costs you $3.85 and can be sold at $12.00, and requires little time to build. *Wood Shaper. 7" Machine Vise. 3½" Machine Vise. Dividing Centers. 6" Bench Grinder. Hack Saw. Chain Hoist. Centrifugal Pump.*

You will find it advisable to run these units through your shop in quantities of at least six. This greatly reduces your cost per finished unit because of the time it saves. We have found that one or two ads in the classified section of Sunday papers will always attract customers for any of the finished Lewis units.

It is also a general practice among our customers to finish up and sell these units to friends and associates. One in particular has received orders totaling over $3,000 in the last seven months for finished machines made from our castings. He is his own boss and now owns a completely equipped shop.

WHAT THEY SAY ABOUT LEWIS TOOLS

CASTINGS EXCELLENT: "A compliment is due you and your company. Your castings are excellent. With them, failure is hardly possible. A word into the future—I shall buy the castings for your steam engine as soon as I finish the model gasoline engine." Kenneth L. Abell, Coalinga, California.

MUCH BETTER THAN EXPECTED: "Have just finished the power hack saw. As equipment is quite limited and I am a slow worker anyway, it took 60 hours to complete. It functions perfectly and much more quietly than I expected. I took my time and tried to make all the parts fit precisely. It is all through a much superior job to what would be expected from your description and illustration." P. S. Spencer, Toronto, Canada.

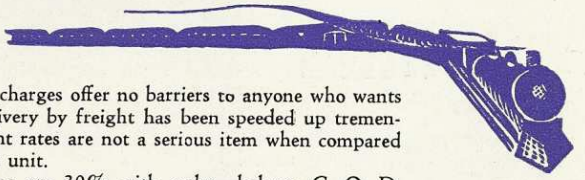
PAID FOR ITSELF MANY TIMES: "Your Lewis Mill which we recently purchased has proven to be the handiest tool we have ever owned. It is used daily for many different purposes and has paid for itself many times. At your list price of $137.50, it is the finest machinery buy we have ever made. The mill has been in constant use day and night for over five months and is still in as fine condition as the day it was received." Fred Hallet, Acme Electric Co., Oakland, Calif.

SIX WEEKS' PAY-OFF: "Finished mill paid for self in six weeks." S. B. Moyer, Home Elevator Co., San Francisco, California.

BLUEPRINTS PLEASE: "I have received the blueprints in perfect condition and they surely are made by skilled hands. I find them very satisfactory and I thank you very much." L. Genereux, Plumber, Lachine, Quebec, Canada.

GLAD TO ANSWER INQUIRIES: "I received the semi-machined bench mill two weeks ago and finished it today. I am very well pleased with it. I intend to have a shaper next and very soon, too. I also intend to get the 3½" machine vise and also the drill vise castings. If you have any inquiries from here regarding your bench mill, you may give them my name and address and I will be very glad to show them the machine and answer any questions I can. You may be sure I will boost your castings plenty, for I am more than satisfied with what I got and intend to get more." T. R. Jordan, ACMM, VP8, Fleet Air Base, Pearl Harbor, T. H.

ORDERING & SHIPPING



Distance and transportation charges offer no barriers to anyone who wants to purchase Lewis projects. Delivery by freight has been speeded up tremendously of recent years and freight rates are not a serious item when compared to the value of a finished Lewis unit.

TERMS OF SALE. Terms are 30% with order—balance C. O. D. We cannot carry time payment or installment contracts. School and college requisitions, however, are accepted without advance payment and shipments are made on straight bill of lading with payment to follow in due course. Inasmuch as freight rates are based on 100 lb. minimum, it is not practical to purchase Lewis projects broken down into piecemeal groups. The only exception is the metal shaper, which may be purchased in three different groups at $15.00 each. Please write for information on these three groups if you are interested in purchasing them separately in order to spread the cost over a period of time.

FREIGHT RATES. The freight rates on castings are very moderate. You will be surprised at the low cost of sending these castings from California to any point in the United States. The following listing shows freight rates per 100 pounds on castings to various points:

Seattle	$ .74*	New York	$3.37	Los Angeles	$ .50**
New Orleans	2.61	Boston	3.38	Birmingham	3.59
Chicago	2.61	Cleveland	3.07	Miami	4.28
* Min. charge	$1.00	St. Louis	3.03	**Min. charge	$1.25

We ship small units C. O. D. via parcel post or express when either of these methods is cheaper for you than if we ship by freight. Shipping weight may vary slightly. On smaller items parcel post provides economical transportation. For instance, the rate from California to New York on the following items is: Gas Engine and parts, 37 cents. Steam Engine and parts, 37 cents. 3½" Vise and parts, $1.03. Arbor, 59 cents. Centrifugal Pump, $1.25. Turret Attachment and parts, 81 cents. Dividing Centers, unfinished, $1.14.

PRICE PROTECTION UNTIL JUNE 15: In spite of rising costs of labor and material, our prices have not been advanced in this catalog over those previously quoted. We have purchased materials in advance of anticipated orders and have taken every precaution to protect our customers against higher prices. Therefore we guarantee prices in this catalog against advance up to and including June 15, 1937. After that date prices are subject to change without notice.

LEWIS MACHINE TOOL CO.

550 FIFTH STREET

SAN FRANCISCO, CALIFORNIA