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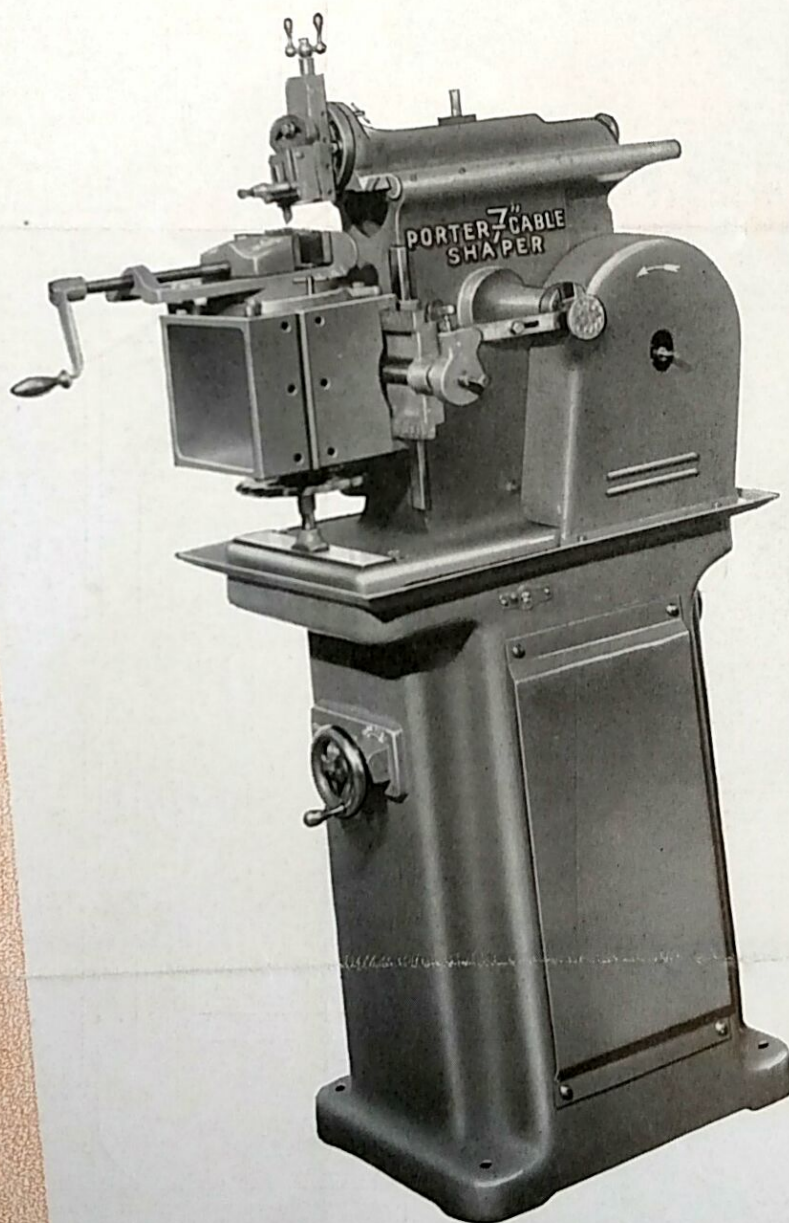
BRONX HARDWARE & SUPPLY CO. Inc.
2733 3rd Avenue, New York City

PORTER-CABLE 7" SHAPER

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REFERENCE

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7 $\frac{3}{8}$ " STROKE (MAX.)

**INFINITE SPEEDS
FROM 64 TO 175
STROKES PER MIN.**

NO BELT SHIFTING

**6 AUTOMATIC
CROSS FEEDS**

**LOCATING PINS ON
VISE AND TOOLHEAD**

**WRENCHLESS
ADJUSTMENTS**

STURDY CHAIN DRIVE

**OPERATES FROM $\frac{1}{2}$ -H. P.
1725 R.P.M. MOTOR IN BASE**

Type
AS-7

**MANY FEATURES FOUND
ONLY IN LARGER SHAPERS**

The PORTER-CABLE MACHINE COMPANY

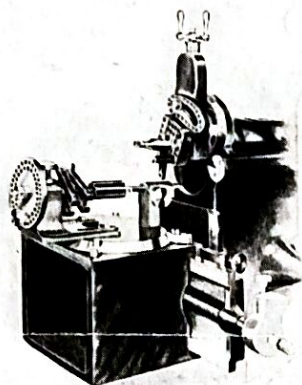
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PORTER-CABLE 7" SHAPER



FEATURES

- ★ P-C Shaper is made entirely of steel and cast iron parts—no die castings.
- ★ Length of stroke, maximum 7 $\frac{3}{8}$ ".
- ★ Micro-set ram; the ram can be set to start or stop at desired points by simply adjusting the screw (11). With ordinary shaper the operator must tap the ram to and from until he finds the spot.
- ★ Any number of reciprocations of the ram of the P-C Shaper are obtainable thru the "Any-speed" control in the base. Speed is changed without stopping the motor or shifting the belts, simply turning the convenient hand wheel in base.
- ★ The Ram has an extra wide width—5". Extra large bearing surface—35 sq. ins.
- ★ The ram in the P-C Shaper travels in dovetail ways; avoids inaccuracies.
- ★ The tool head and vise are equipped with tapered locating pins (this is an exclusive feature) that permit instant, accurate alignment. The tool head may be turned (360°) to any angle and be reset to center instantly by means of the locating pin. Therefore, the squaring of the ends of stock of almost any length is possible; the stock is laid horizontally and the head turned to present the tool in proper position.
- ★ Tool head travel, vertical, 2 $\frac{3}{8}$ ".
- ★ Tool head swivel, 360°.
- ★ A heavier crank pin plate provides greater momentum and avoids chattering, usually resulting in a light weight plate. The slide block on the crank is SAE 64 phosphor bronze. The crank pin is hardened steel.
- ★ The crank pin plate is driven thru a chain and sprocket. Positive, smooth drive, as several teeth in each sprocket are constantly engaged at all times. No slipping.
- ★ Exceptionally large table is provided.
- ★ Table more quickly raised and lowered by means of large, conveniently located hand wheel.
- ★ Table mounted in dovetailed ways in the frame of the machine. Take-up adjustment provided.
- ★ Greater table traverse in the P-C Shaper, 10 $\frac{1}{2}$ ".
- ★ Vertical travel, 5 $\frac{1}{2}$ ".
- ★ Table crossfeed nut made of SAE 64 phosphor bronze.
- ★ Vise larger, heavier ribbed and sturdier.
- ★ Safety factor: to prevent damage to the machine when overloaded, a small ratchet is designed to give way. An inexpensive replacement.

The Crank Pin Plate is unusually heavy and its weight is one of the important contributing factors to the almost effortless ease with which the Porter-Cable Shaper removes material.

The stroke scale (No. 18) is graduated up to 7", but a maximum stroke of 7 $\frac{3}{8}$ " is obtainable so that work 7" long may be machined.

The Jackshaft Pulley. This pulley is the proper one to use with the Porter-Cable variable speed drive or with a four step cone pulley that starts with a 2" diameter pulley and which has a large pulley not greater than 4" in diameter and which employs a standard 1750 RPM motor. Any change in the motor speed or in the size of the driving pulleys requires a corresponding change in the size of the jackshaft pulley.

The Feed Dials are graduated to read .001" and are connected to the shafts of their respective screws by means of a spring clutch arrangement that permits the dials to be reset at will, a P-C feature which permits the operator to figure from zero and avoid errors.

The Ram Clamp Screw is not an adjusting screw but is a locking screw used to lock the ram rigidly to the driving mechanism. It is unlocked only to permit the ram to be adjusted so that the oscillating stroke will be evenly distributed over the work.

GENERAL INFORMATION

The depth of cut that can be made is dependent on the material and the skill of the operator as much as it is of the Shaper. We have taken a cut of $\frac{3}{16}$ " with .004" feed at 80 strokes per minute with the Porter-Cable Shaper without any sign of chatter or laboring on the part of the machine. We do not believe that this represents the full capacity of the Shaper, but is considerably more than that which may ordinarily be required of a shaper of this size.

Speed. The machine may be used at higher than the recommended speed for cutting tools; therefore, its range is sufficiently beyond the highest required speeds that it will operate efficiently under practically all conditions. By use of the variable speed control, an infinite variety of speeds are obtainable between the maximum and the minimum.

Capacity. If a vise is employed to hold the work, a piece of work 5" x 5 $\frac{1}{2}$ " x 10 $\frac{1}{2}$ " may be machined. If, however, the work is clamped to the table, a piece of work 7" x 8" x 10 $\frac{1}{2}$ " may be machined.

On production work a group of shapers can be set up to handle a planing or surfacing job or to work up against a shoulder. If these machines were equipped with a Micro switch which can be set to stop a machine working as close as .001". One man could take care of a group of Porter-Cable Shapers so equipped and handle one operation or a number of operations. Each machine would stop itself automatically, he could reload it, and start it up again. The labor, equipment and operating costs on a group of machines would be much lower than milling and the quantity turned out would be greatly increased.

The Shaper is available only as a complete unit, including the Shaper, with vise, and the features as listed herein: Stand, with built-in "Any-speed" drive and $\frac{1}{2}$ HP, 110/220, AC, 60 cycle, single phase or three phase motor, toggle switch and belt guard, complete as shown in photograph.

ACCESSORIES AVAILABLE

- Index Centers and Index Plate as illustrated above.
- 7 $\frac{1}{2}$ " Rotary Table Unit.
- Angle Plate.
- Extension tool for cutting internal keyways, splines, grooves, shoulders, straight work, $\frac{7}{16}$ " or $\frac{9}{16}$ " bar.

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Details of Construction

PORTER-CABLE 7" SHAPER

The Ram is oscillated backward and forward by the driving mechanism contained in the base and column casting.

The Tool Bit is held in the tool holder and is clamped with a clamping screw against the clapper. The clapper in turn pivots on a shaft in the clapper box.

On the forward stroke of the ram the tool is forced thru the metal, but on the backward stroke the pivot of the clapper permits the tool to lift and slide over the surface of the work.

The cutting edge of the Tool Bit may be ground to various shapes, but a few general rules to be observed are:

- (a) Front clearance to be not more than 6° .
- (b) A negative front rake of 4° .
- (c) A side rake of not more than 15° .

The graduations on the tool head read 45° each way from 0° . This is not the total limit of tilt, however. The tool head may be revolved through 360° . Should a greater angle be desired than that obtained by loosening the two clamp screws, these screws may be removed and the tool head tilted to the angle desired. New clamp screw holes will have been uncovered and the clamp screws may then be inserted in the new holes.

The Clapper Box Assembly consists of the clapper box and the clapper, the tool holder and a spring assembly for reseating the clapper after each return stroke.

The clapper box assembly pivots on an axis pin and is adjusted to permit the tool bit to clear the work on the return stroke with the least possible interference.

The Clapper Spring Assembly. Because of the high speed of the Porter-Cable Shaper, it is necessary to provide means to reseat the clapper almost instantaneously. In ordinary slow speed machines, gravity is sufficiently rapid. It is necessary then that a spring be employed in the Porter-Cable machine to reseat the clapper instantly. This spring may be disengaged for slow speed operation if desired.

Crank Pin and the Crank Pin Lock Screw. This assembly, together with the crank slide block, gives the oscillating movement to the ram. By adjusting the crank pin toward the outer edge of the crank pin plate, a longer stroke of the ram is obtained.

To change stroke, first turn jackshaft (20A) in a counter-clockwise direction until the indicating finger on the ram indicates the extreme limit of the back stroke. Release the crank pin lock screw with a left hand twist, such as that used in removing a wood screw. Then release the crank pin with a right hand twist, such as that used in screwing a wood screw INTO a piece of wood. (The crank pin lock screw has a right hand thread, while the crank pin has a left hand thread). Push the ram manually until the stroke indicator shows the desired stroke on the stroke scale. Tighten the crank pin first, remembering that this is a left hand thread, then lock with the crank pin lock screw, which has a right hand thread.

Feed Handle Assembly. There are six automatic feeds in either direction. They are: .002", .004", .006", .008", .010", and .012". One-quarter of a turn of the feed handle will disengage the feed, while an additional quarter of a turn will again engage the feed but in the opposite direction; therefore, to reverse the feed when the handle is in the position shown, it would be necessary to turn the handle one-half turn in either direction.

The Feed Crank Pin is adjusted by unscrewing the feed crank pin about one-half turn, then moving it approximately $\frac{1}{2}$ " away from the center of the feed crank pin plate. By then giving the jackshaft a few turns until the ram has made a complete stroke forward and back, the feed handle will indicate by rising and falling, or by giving out a clicking noise, the number of teeth it has jumped over on the ratchet wheel. Each tooth of the ratchet

Details of Construction

wheel indicates a feed of .002" per stroke, so that it would be necessary to experimentally adjust the feed crank pin until the desired number of clicks were heard.

The Table Elevating Wheel raises or lowers the table. By first releasing the knurled jam nut located inside the table, then by releasing the two knurled studs located in the saddle and which lock the saddle to the vertical ways of the column, the elevating wheel may then be turned and the table thereby adjusted to the working height desired. It is then necessary to lock the table with the two studs, and the jam nut should be again tightened.

The Micro-Ram Setting Screw Wheel. When it is necessary to shape a piece of work 2" wide, but it is found that the tool will not reach the outside of the work when the ram is adjusted to a 2½" stroke, the ram may be adjusted so that the tool will shape the 2" piece of work without having to lengthen the stroke of the ram, by first releasing the square ended lock screw (21) projecting vertically from above the stroke indicating finger about one-half to one turn, the ram may be moved in relation to the oscillating movement so that the tool may be adjusted to oscillate centrally over the work.

The Tapered Vise Locating Pin is one of the exclusive features of the vise. By means of this the vise may be located accurately to 90° or 180° to the direction of the cutting stroke, and except where extreme precision is required, it will square up the work accurately without the use of an indicator on the vise jaws.

The Tool Head Locating Pin of this tool head is a special feature and in general serves the same principle of squaring the tool head as that served by the locating pin in squaring the vise. Each of these pins permits instant, accurate alignment, our exclusive feature.

The drive chain is roller type, and tested to 2,000 pounds. A take-up is provided in the housings for the jackshaft bearings supports for chain adjustments.

The conventional form is the use of a pinion and a bull gear. In the smaller machines, the wear on the pinion gear has been great enough to cause considerable experiment by companies using this form of drive. Many companies have tried various expedients such as composition gears, herringbone gears and various types of gear tooth shapes.

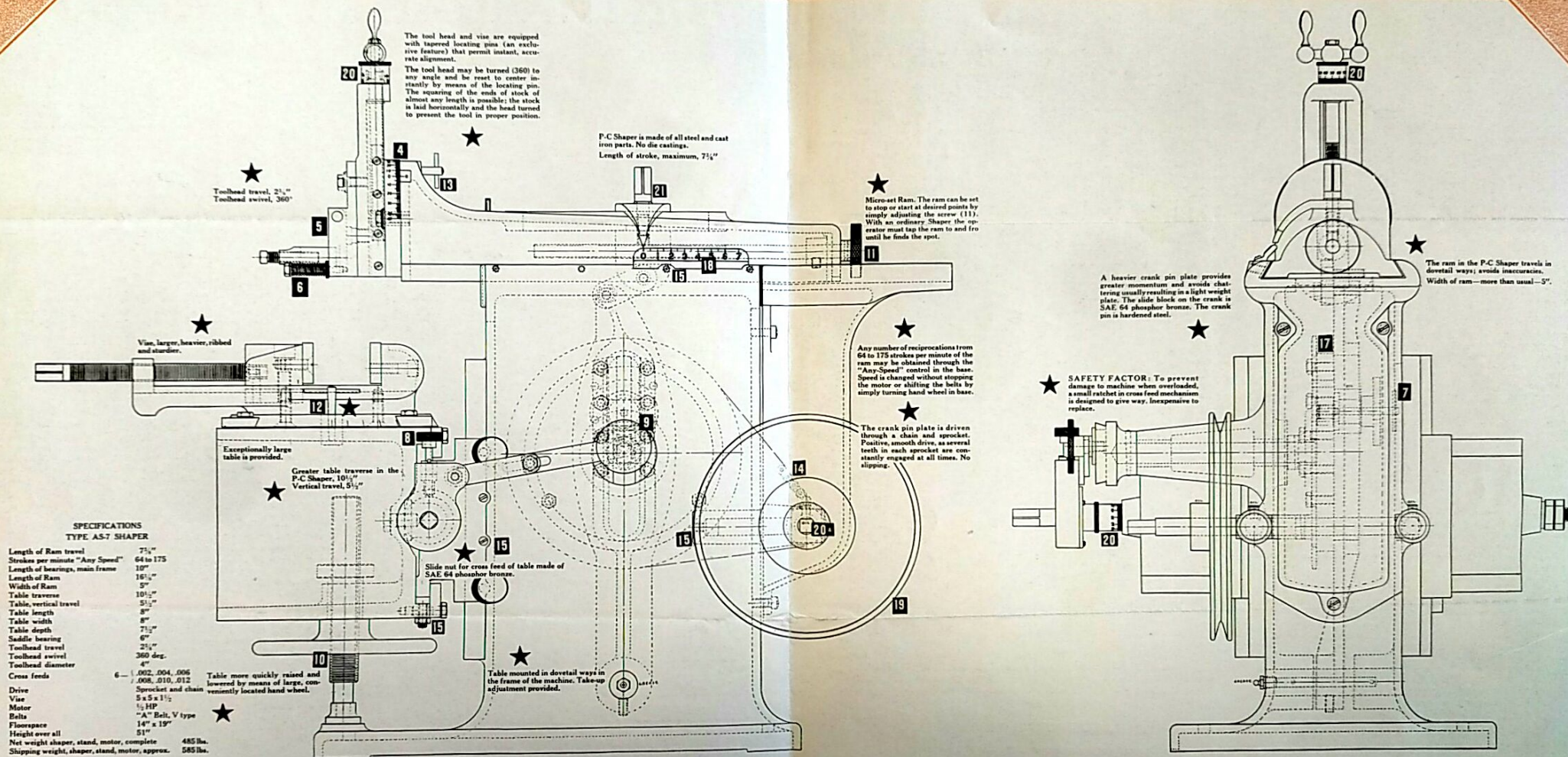
The Porter-Cable Shaper, in using the chain drive, has distributed the wear ordinarily concentrated on the pinion gear over a large surface in employing the use of a sprocket and a roller chain drive. It is not necessary that the crank pin plate be made of light compositions when using the chain drive, but instead the Porter-Cable Machine employs a heavy crank pin plate of solid cast iron in which the flywheel action tends to produce smooth, effortless cutting. This heavy drive plate also absorbs cutting shock and tool vibration, keeping it from traveling back thru the jackshaft and on to the motor. The roller chain drive also eliminates gear tooth marks in the work that show up as soon as the pinion gear of the conventional drive shows the slightest sign of wear. Instead of a single tooth drive, the chain drive of the Porter-Cable Shaper has never less than five driving teeth of the pinion sprocket in contact with the roller chain at all times. It will be noted that this drive permits higher cutting speeds than are usually employed in this type of machine.

Adjustable screws are provided to take up for wear on any of the slides or ways on the Porter-Cable 7" Shaper. Some of these screws are provided with a locking screw in back of the adjusting screw, others employ a lock nut.

There are 11 Oiling Points on the Shaper, and it should be oiled with a light machine oil at all points indicated at least once each day or each eight hours of use. Pressure fittings are employed at two points and cavities provided to retain a very light grease or hard oil. These points should be greased after each 1000 hours of running. The chain should be greased with stick graphite grease such as that used on motor-cycle drive chains.

Precision Machinery Builders Since 1906

The PORTER-CABLE 7-INCH SHAPER Is Sturdily Built for Quick Setup and Accurate Work



SPECIFICATIONS TYPE AS-7 SHAPER

Length of Ram travel	75"
Strokes per minute "Any Speed"	64 to 175
Length of bearings, main frame	18"
Length of Ram	16 1/2"
Width of Ram	5"
Table traverse	10 1/2"
Table, vertical travel	5 1/2"
Table length	8"
Table width	8"
Table depth	7 1/2"
Saddle bearing	6"
Toolhead travel	2 1/2"
Toolhead swivel	360 deg.
Toolhead diameter	4"
Cross feeds	6 — .002, .004, .006, .008, .010, .012
Drive	Sprocket and chain
Vise	5 x 5 x 1 1/2
Motor	1/2 HP
Belts	"A" Belt, V type
Floorspace	14" x 19"
Height over all	51"
Net weight shaper, stand, motor, complete	485 lbs.
Shipping weight, shaper, stand, motor, approx.	585 lbs.

1. THE RAM
4. GRADUATIONS ON MALE TOOL HEAD
6. CLAPPER BOX ASSEMBLY
6. CLAPPER SPRING ASSEMBLY
7. CRANK PIN & CRANK PIN LOCK SCREW
8. FEED HANDLE ASSEMBLY

9. FEED CRANK PIN
10. TABLE ELEVATING WHEEL
11. MICRO-RAM SETTING SCREW WHEEL
12. TAPERED VISE LOCATING PIN
13. TOOL HEAD LOCATING PIN
14. ROLLER DRIVE CHAIN

15. ADJUSTING SCREWS
17. CRANK PIN PLATE
18. STROKE SCALE
19. JACK SHAFT PULLEY
20. FEED DIALS
- 20A. JACK SHAFT

21. RAM CLAMP SCREW

Detailed Descriptions on Following Pages