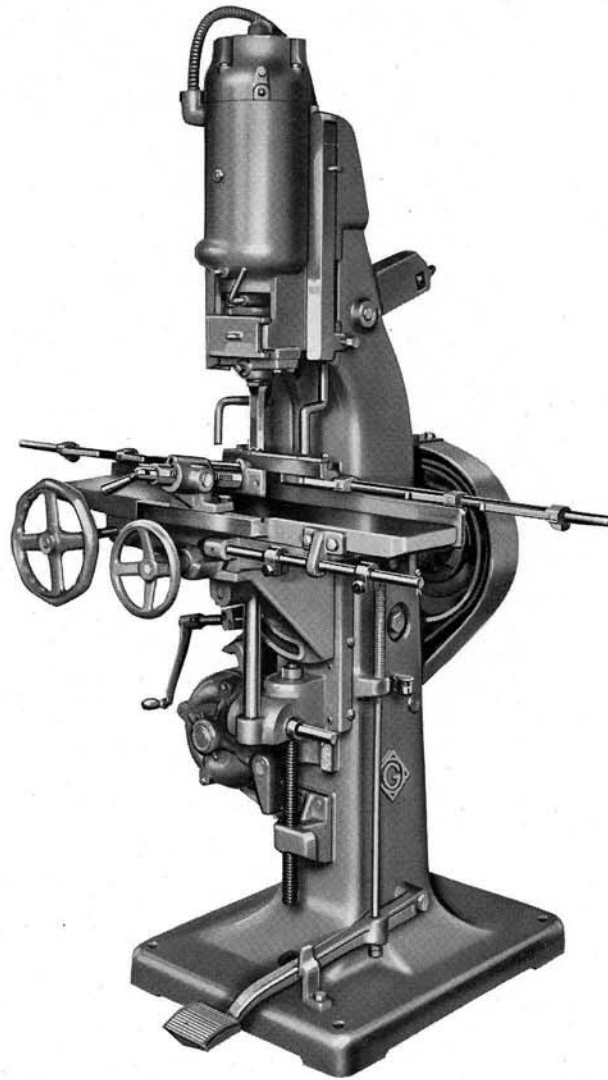


# Greenlee

**No. 227-BM ELECTRIC HOLLOW CHISEL MORTISER**

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**Greenlee**  
BROS. & CO.   
ROCKFORD, ILLINOIS, U.S.A.

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## No. 227-BM ELECTRIC HOLLOW CHISEL MORTISER

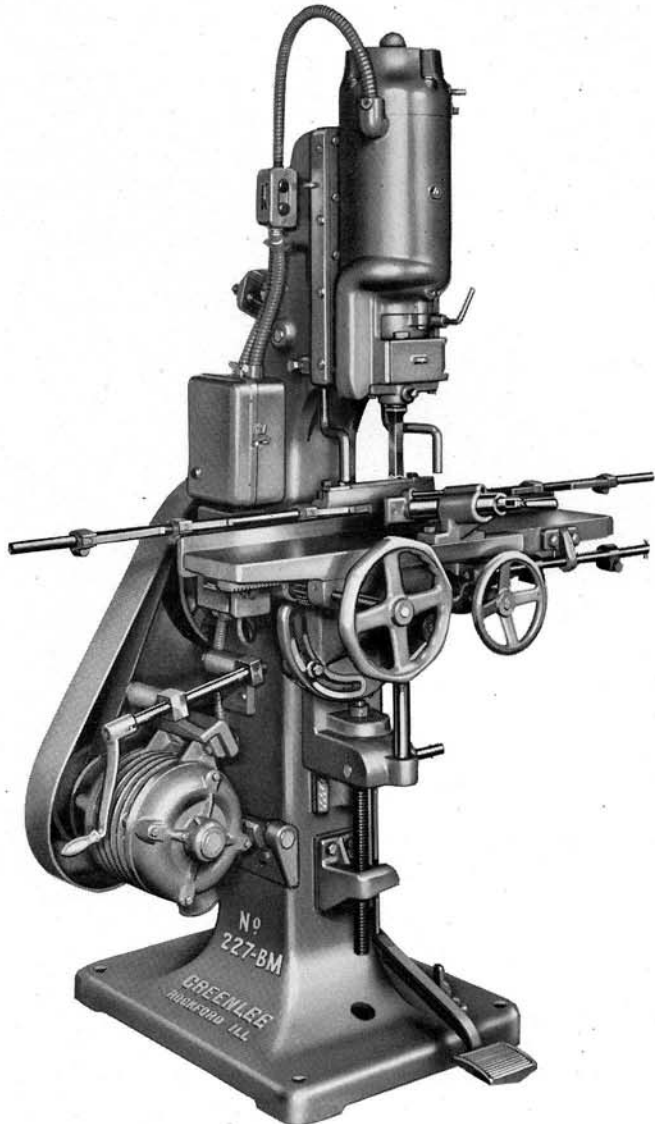
IN 1876 the first successful hollow chisel mortiser was developed by Greenlee Bros. & Co. The instant success of that machine marked the real starting point in the machinery manufacturing career of its builders, and it also introduced a method of making mortises that was to have a great influence on all future production in the woodworking field.

Since that time, Greenlee has made many different kinds of hollow chisel mortisers for many purposes, and far-reaching improvements have been made. Leadership in this field has been maintained throughout the years, both with respect to machines and tools, and Greenlee mortising equipment has always been known for its accuracy, speed, and economical operation.

The Greenlee line of hollow chisel mortisers is very complete, including sizes ranging from the lighter foot-feed types to the heavy timber machines, and also including gang machines for multiple mortising. However, for general work in furniture, sash, door, and similar manufacturing, the No. 227-BM power-feed machine described in this bulletin is ideal. It is regularly rated for chisels up to one inch square, but will readily handle  $1\frac{1}{4}$  or even  $1\frac{1}{2}$ -inch chisels when required and when the machine is so ordered.

This machine is of sturdy construction in every respect, and its design embodies many features which are important, because they increase its value as a production tool. The mortising tools are fed to the work by a flexible power stroke, which can be started or stopped instantly, and variable feed is provided, so that any number of strokes per minute from the minimum to the maximum can be selected to suit the work in hand. Antifriction bearings are furnished throughout, proper tool holders are provided, and an air blast blows away the chips and cools the mortising tools.

**Frame** The frame is a strong, one-piece casting with a heavy base and accurately machined ways for the chisel carriage and table knee. The ways are machined at one setting to insure correct alignment and permanent accuracy. With the exception of the drive pulley,



No. 227-BM Mortiser with Compound Table fitted with the Quick-Acting Work Clamp. Note the Feed Motor and Hand Crank for adjusting the Variable Feed.

which is belted from the feed motor, the entire feed mechanism is enclosed within the frame.

**Chisel Carriage** The chisel carriage is extra long and is reciprocated in gibbed ways by the power-feed mechanism. It fully encloses the ball-bearing bit spindle, which



has ball-bearing thrust and on which is mounted the built-in motor. The bit fastening at the lower end is covered by a cast-iron door, which swings open for ready access in changing tools. Adjustable thrust bit bushings are provided to maintain correct relation between the bit and chisel, and the spindle has a hand brake for quick stopping. The machine can be furnished with a bit extension for occasional boring jobs, or even with clusters for boring more than one hole at a time. A blower within the carriage provides forced ventilation for the built-in motor as well as an air blast for chip removal and cooling the mortising tools.

**Feed** The power-feed mechanism consists of an enclosed worm and worm-gear drive, mounted in ball bearings and running in oil, which operates the chisel carriage through a crank, a connecting link, and a lever. Instant starting and stopping is made possible by the use of a multiple disc clutch mounted in a roller-bearing pulley, which is belted from the feed motor through a variable-speed mechanism. When the clutch is disengaged, it acts as a brake to stop instantly the movement of the mortising chisel carriage at any point in its stroke.

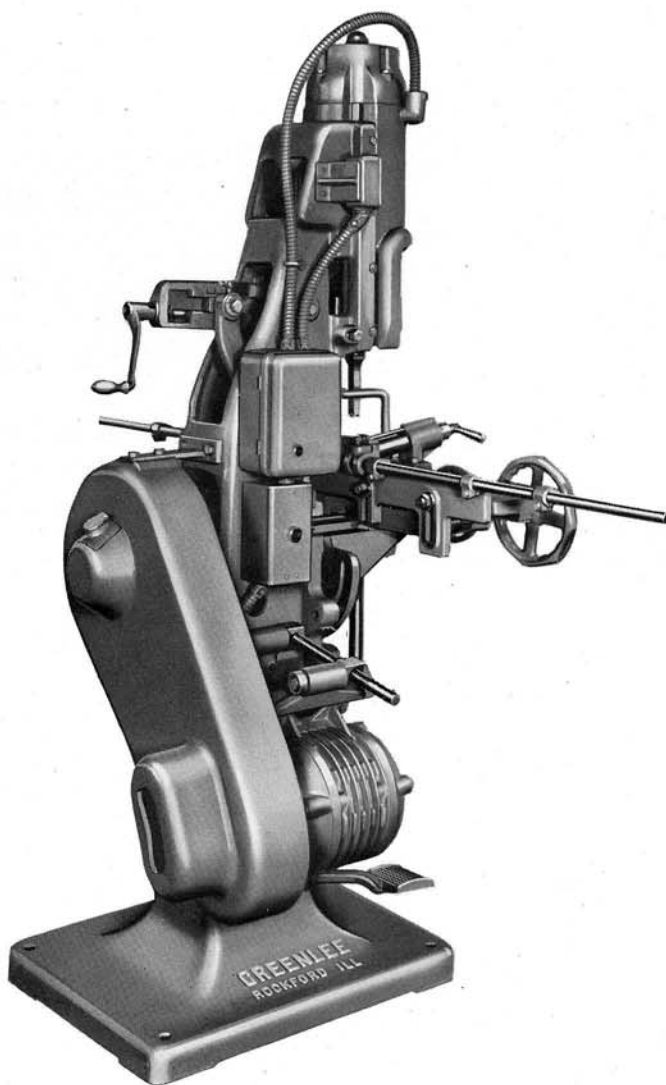
Wear is reduced to the absolute minimum in the feed mechanism. The clutch discs are of hardened steel and are without any kind of fabric facing. In addition, the design is such that when the clutch is running, the shifter lever is not in contact with the spider. This eliminates wear at that point.

The control is by a convenient foot lever, located close to the floor, so that the operator can rest his heel on the floor while working the lever with the ball of his foot. Jogging of the feed is thus possible for extremely difficult work. The foot lever has a hold-down lock for use when continuous mortising strokes are wanted.

The variable-feed mechanism provides for any number of chisel strokes from 15 to 52 per minute as a standard, but arrangements can be made to increase the number to 70 or more for softwood mortising. The mortising stroke adjusts from 2½ to 4-inch length by a screw arrangement on the feed lever, and graduations show the exact setting. A detachable crank is used for this adjustment and also for changing the rate of feed and the height of table. Chisels with 4-inch blade are standard in the ⅜-inch and larger sizes, but 2¾-inch blade is advised for ¼ and ⅝-inch sizes.

**Tables** Two styles of tables can be furnished, differing only in adjustment and fittings. Both styles have vertical, tilting, and cross adjustments, but only the compound table, designated by the letter "B," has lengthwise movement for making mortises by successive chisel strokes. Its movement is gauged by adjustable stops. The compound table also differs from the plain table in having a workholding clamp. This type of table is regularly recommended for usual requirements.

The table clamp furnished can be one of two styles. The screw clamp, shown only on the belted machine on the following page, is regular



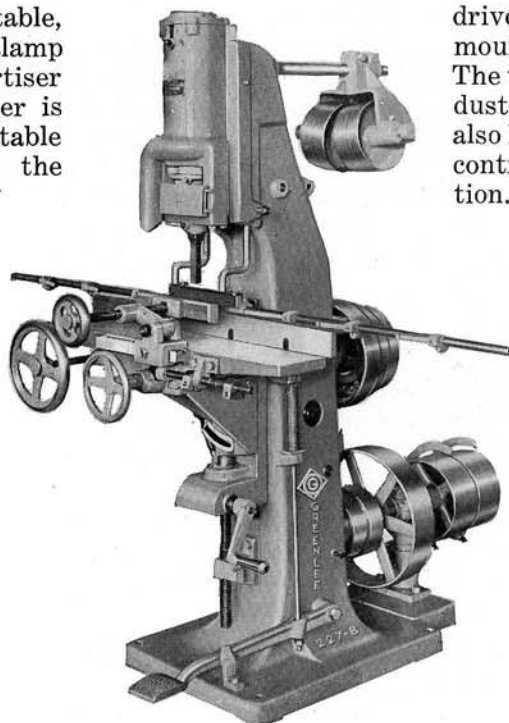
Rear View of No. 227-BM Mortiser showing the Guard over Feed Pulleys and Belt, also Hand Crank for Adjusting Length of Chisel Stroke.



equipment with the compound table, but the quick-acting lever clamp shown on the No. 227-BM mortiser can be substituted. The latter is very efficient, but is not as suitable for handling high stock as the standard screw clamp.

The standard back fence has vertical adjustment and is fitted with a lid hold-down. Two adjustable prong hold-downs are also carried from the machine frame. A special high back fence with adjustment for handling stock up to 14 inches high under the lip hold-down can also be furnished. If wanted, this can be fitted with a detachable screw clamp mounted on top of the fence for holding high stock.

**Drive** With the exception of the short feed belt, which is part of the variable-feed mechanism, the No. 227-BM Electric Mortiser is beltless. The bit spindle is driven by a built-in motor mounted on it, and the feed is



The Belt-Drive No. 227-B Mortiser with Compound Table and Standard Screw Clamp.

driven by the separate motor mounted on the machine column. The two motors are totally enclosed, dust-tight, and fan-cooled. They also have interlocked wiring and are controlled by one push-button station. The magnetic starter is always furnished with protective relays instead of ordinary fuses.

### **Belted Mortiser**

The occasional demands for a belted machine of this type are met by the No. 227-B Mortiser shown on this page. It differs from the electric machine in having an attached base drive shaft with tight and loose pulleys, a belted bit spindle, and three feeding speeds through cone pulleys. This machine is required only where alternating current is not available. If individual motor drive is wanted, it is arranged for by mounting the motor on an attached base bracket and coupling it to the drive shaft.

## **Specifications**

### **Equipment**

Each mortiser is regularly equipped with a  $\frac{1}{2}$  x 4-inch hollow chisel with bit, a set of chisel bushings, adjustable thrust and necessary wrenches.

Chisel capacity..... $\frac{1}{4}$ " to 1" or up to  $1\frac{1}{2}$ " if so ordered

Chisel stroke..... $2\frac{1}{2}$ " to 4"

Maximum distance from chisel socket to table.....19"

Maximum distance from back fence to chisel center with stop rod in place..... $5\frac{3}{8}$ "

Normal distance from back fence to chisel center with clearance for lengthwise table travel..... $4\frac{1}{8}$ "

Variable-speed feed for 15 to 52 strokes per minute. Slower or faster feeds can be provided.

Table size.....6" x 36"

Vertical adjustment of table.....13"

Cross adjustment of table:

With stop rod above ways on column..... $5\frac{3}{8}$ "

With stop rod against ways on column..... $4\frac{1}{2}$ "

Lengthwise adjustment of compound table.....14"

Angular adjustment of table.....45°

Clamping width with screw type clamp..... $5\frac{1}{2}$ "

Maximum height of stock that can be worked under a 4" chisel.....14"

This height can be increased on special order.

Totally enclosed spindle motor on electric machine regularly 4 H.P., 3600 R.P.M. but can furnish  $1\frac{1}{2}$  to 5 H.P.

Totally enclosed feed motor on electric machine 2 H.P., 1800 R.P.M.

Net weight in pounds of No. 227-BM.....1450

Net weight in pounds of No. 227-M.....1400

Weight boxed for export of No. 227-BM.....1900

Box measure in cubic feet of No. 227-BM......59

### **Codes:**

No. 227-BM electric machine with compound table.....CIMUV

No. 227-M electric machine with plain table.....CIMYX

Special high back fence substituted.....CINOV

Screw clamp for high back fence.....CINUX

**GREENLEE BROS. & CO., ROCKFORD, ILLINOIS, U. S. A.**

*Machinery for Planing, Shaping, Mortising, Tenoning, Boring and Sawing*  
*Tools for Mortising, Boring and Routing*