April 21, 1942. A. L. CUSHMAN 2,280,481

ROUTING MACHINE

Filed Nov. 6, 1940 3 Sheets-Sheet 1

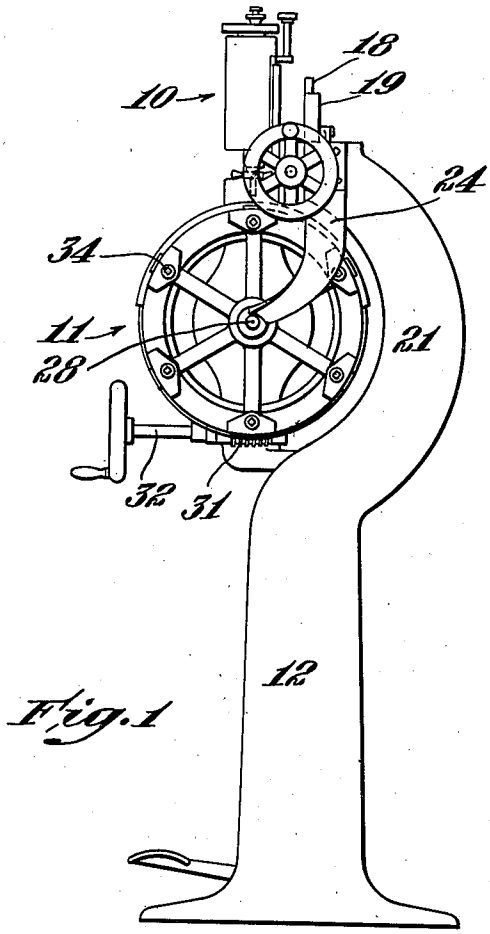



Fig. 1

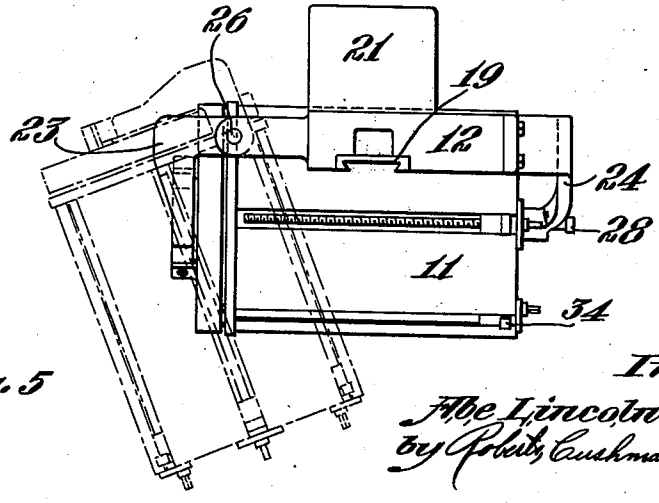



Fig. 5

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ROUTING MACHINE

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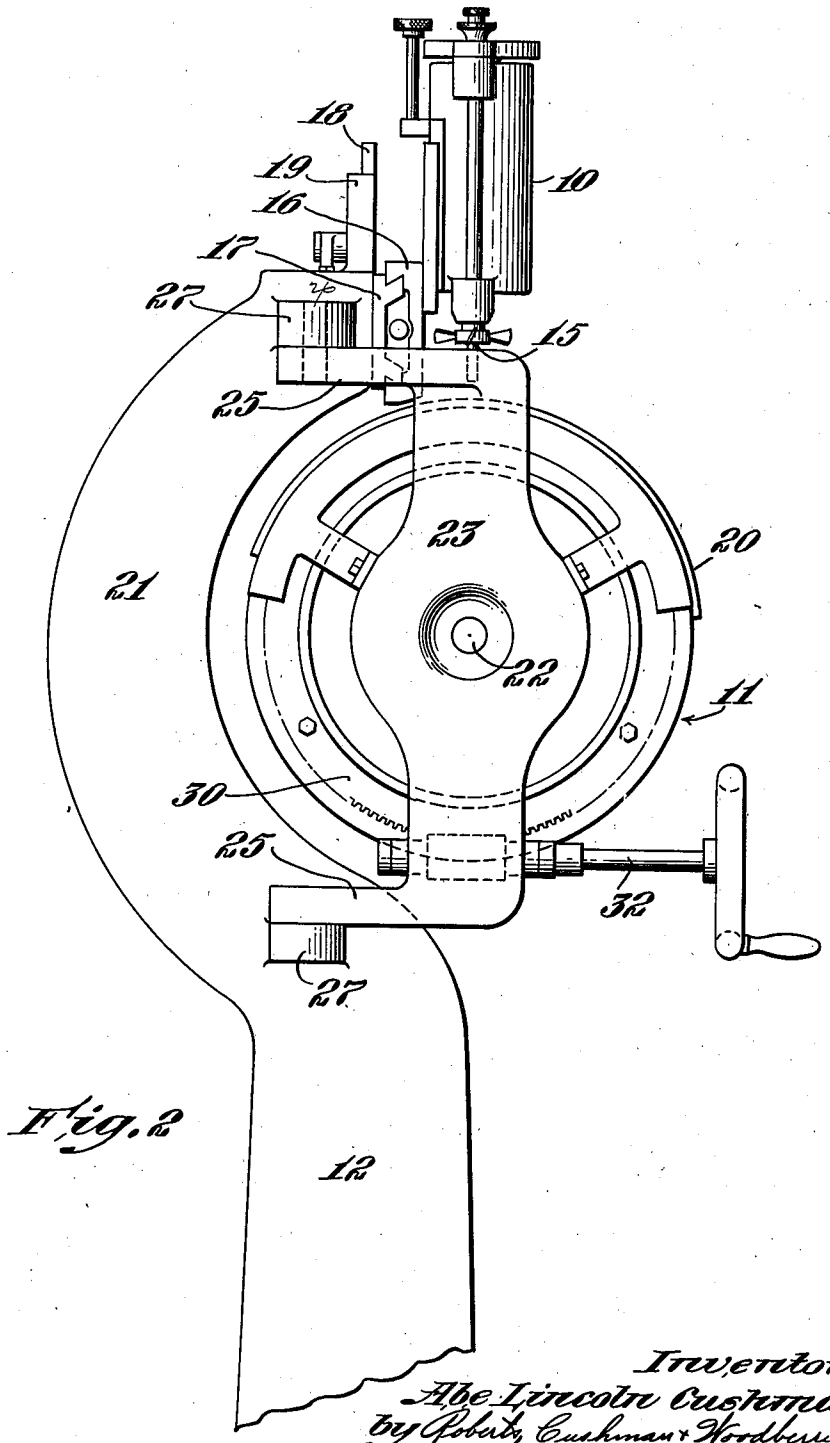



Fig. 2

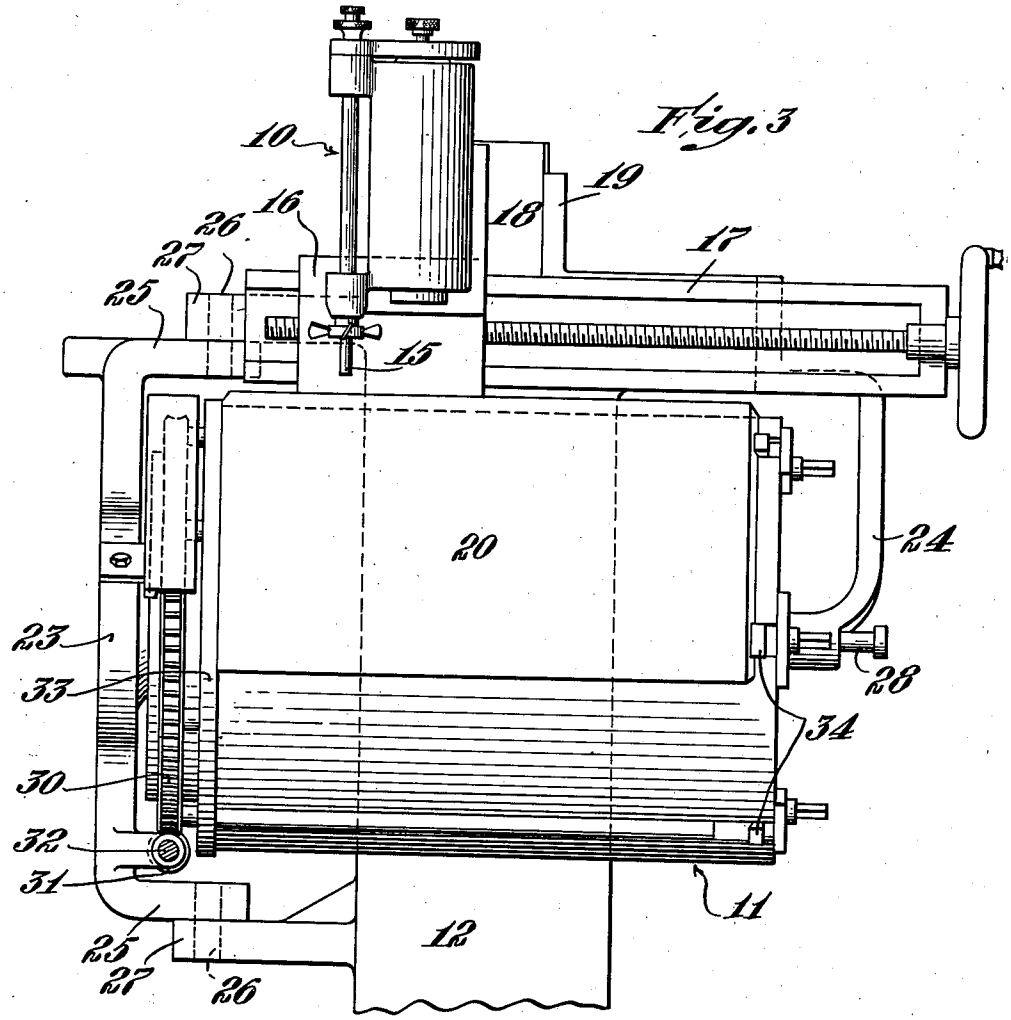
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ROUTING MACHINE

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Fig. 3



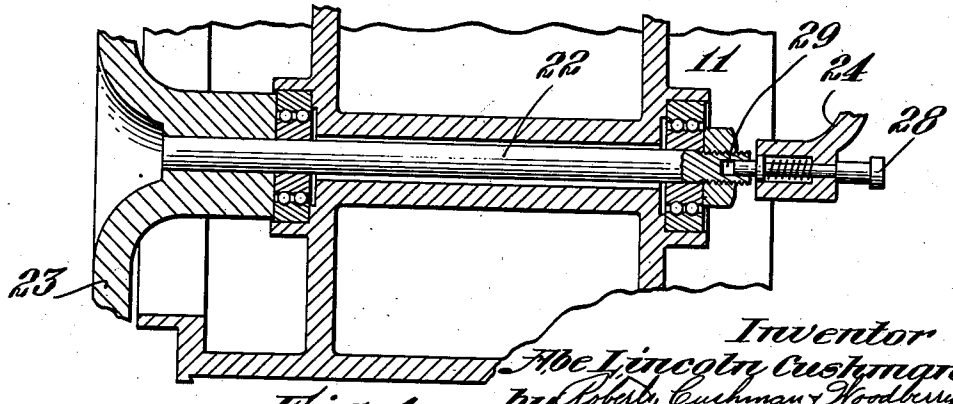




Fig. 4

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# UNITED STATES PATENT OFFICE

2,280,481

## ROUTING MACHINE

Abe Lincoln Cushman, Concord, N. H.

Application November 6, 1940, Serial No. 364,478

4 Claims. (Cl. 90—26)

This invention relates to an improvement in a routing machine and more particularly in such a machine adapted for routing curved stereotype plates.

The primary object of this invention is to reduce to a minimum the floor space required for the machine by mounting the plate supporting cylinder directly below the routing tool and providing means which permit the swinging of the cylinder in a horizontal plane to facilitate the receiving upon and removing from the cylinder of the curved plates.

A further object of this invention resides in the provision in the pedestal on which the routing unit is mounted of an arcuate portion below the routing unit in which the cylinder is received when the machine is in operating position.

Another object of the invention resides in the structure of the means by which the cylinder is mounted upon the pedestal.

These and other objects of the invention will appear from a consideration of the following description of a machine embodying this invention and of the accompanying drawings by which such a machine is illustrated and in which—

Fig. 1 is a view in side elevation of a routing machine embodying this invention;

Fig. 2 is an enlarged view of the upper part of the machine taken in elevation of the other side from that in which Fig. 1 is taken;

Fig. 3 is an enlarged front elevation of the portion of the machine shown in Fig. 2;

Fig. 4 is a sectional view of the plate-supporting cylinder; and

Fig. 5 is a plan view of the machine with the routing unit removed, showing the cylinder in full lines in the operating position and in dotted lines in the position in which the plate is received on or removed from the cylinder.

The machine illustrated in the drawings comprises a routing unit 10 and a cylinder 11 mounted upon a pedestal 12.

The unit 10 which rests upon the top of the pedestal may be of any well-known type and is here shown as of the type disclosed in my Patent No. 1,983,438, granted December 4, 1934. The unit 10 includes a routing tool 15 and a bracket 16 which engages a horizontally extending crossbar 17, and is reciprocable therealong. The bar 17 includes a block 18 which removably engages a post 19 at the top of the pedestal 12. Preferably the bracket 16 and bar 17 and the block 18 and post 19 are dove-tailed to permit transverse movement of the unit 10 and its assembly with and separation from the pedestal.

The cylinder 11 which carries the curved plate 20 is received within the space defined by an arcuate portion 21 of the pedestal 12 below the routing unit 10. The cylinder 11 is freely rotatable upon a spindle 22 supported by brackets 23 and 24 being fixed to the bracket 23 and detachably secured to the bracket 24. The bracket 23 is pivotally mounted upon the pedestal 12 having arms 25 which are connected by pins 26 to ears 27 on the pedestal. The ears 27 are arranged in vertical alignment and are preferably, but not necessarily, as here shown, integral with the pedestal at the beginning and end of the arcuate portion 21. The bracket 24 is secured at its upper end to a lateral extension of the pedestal and is connected to the cylinder by a latch pin 28 which is carried by the lower end of the bracket 24 and enters a socket 29 in the spindle 22 (see Fig. 4). The brackets 23 and 24 are so constructed and arranged that the ends of the cylinder 11 are equidistant from the center plane of the pedestal (see Figs. 3 and 5) and that the routing tool 15 is in the vertical plane of the axis of the cylinder (see Fig. 2).

The cylinder 12 is provided at one end with an annular rack 30 which meshes with a gear 31 fixed on a shaft 32 rotatable in bearings carried by the bracket 23. The machine shown in the drawings is adapted to handle curved stereotype plates and the cylinder 12 is provided with plate-locking means of any well-known type such as an annular band 33 fixed at one end, and a plurality of quoins 34 at the other end.

In using the machine the plate 20 to be operated upon is locked upon the cylinder 11 which has previously been swung away from the curved portion 21 of the pedestal and is supported by the bracket 23 alone, as shown in dotted lines in Fig. 5. The cylinder is then swung into the operative position, as shown in full lines in Fig. 5, and fixed therein by the latch pin 28 so that the cylinder is now supported by bracket 24 as well. The plate 20 is released from the machine by a reversal of the steps described above. The portions of the plate to be routed are determined by rotating the cylinder through the coaction of rack 30 and gear 31 and by moving the routing unit 10 laterally through the coaction of bracket 16 and crossbar 17.

It will be noted that the arrangement of the cylinder on the pedestal is such that it has a stabilizing effect upon the machine during the routing operations and the space required is held at a minimum and yet the cylinder may be swung

on the pedestal so that the plates may be received and removed without difficulty.

While one embodiment of the machine has been shown and described in detail it will be understood that the invention is not limited thereto and that other embodiments of the invention may be made without departing from the spirit and scope of the invention as set forth in the following claims.

I claim:

1. A machine adapted for routing curved plates comprising a router unit, a cylinder on which the plates to be operated upon are supported and a pedestal on which said unit and cylinder are mounted, brackets carried by said pedestal and between which said cylinder is supported, one of said brackets being pivotally mounted upon the pedestal whereby the bracket and cylinder may be swung relative to the pedestal to facilitate the receiving on and removing from the cylinder of the plates.

2. A machine adapted for routing curved plates comprising a router unit, a cylinder on which the plates to be operated upon are supported and a pedestal on which said unit and cylinder are mounted, said pedestal having a curved portion in which said cylinder is received, and said cylinder being supported between brackets carried by said pedestal, one of said brackets being pivotally mounted upon the pedestal whereby the bracket and cylinder may be swung relative to the pedestal to facilitate the receiving on and removing from the cylinder of the plates.

3. A machine adapted for routing curved plates comprising a router unit, a cylinder on which the plates to be operated upon are supported and a pedestal on which said unit and cylinder are mounted, said pedestal having a curved portion in which said cylinder is received and said cylinder being supported between brackets carried by said pedestal, one of said brackets being pivotally mounted upon the pedestal whereby the bracket and cylinder may be swung relative to the pedestal to facilitate the receiving on and removing from the cylinder of the plates and the other bracket being rigidly fixed to said pedestal and carrying a latch pin which engages the cylinder when in the working position.

4. A machine adapted for routing curved plates comprising a router unit, a cylinder on which the plates to be operated upon are supported, a pedestal on which said cylinder is mounted with its ends equidistant from the center plane of the pedestal and brackets carried by said pedestal and between which said cylinder is supported, one of said brackets being pivotally mounted upon the pedestal whereby the bracket and cylinder may be swung relative to the pedestal to facilitate the receiving on and removing from the cylinder of the plates.

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