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J. W. DIXON

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ROUTING MACHINE

Filed April 18, 1932

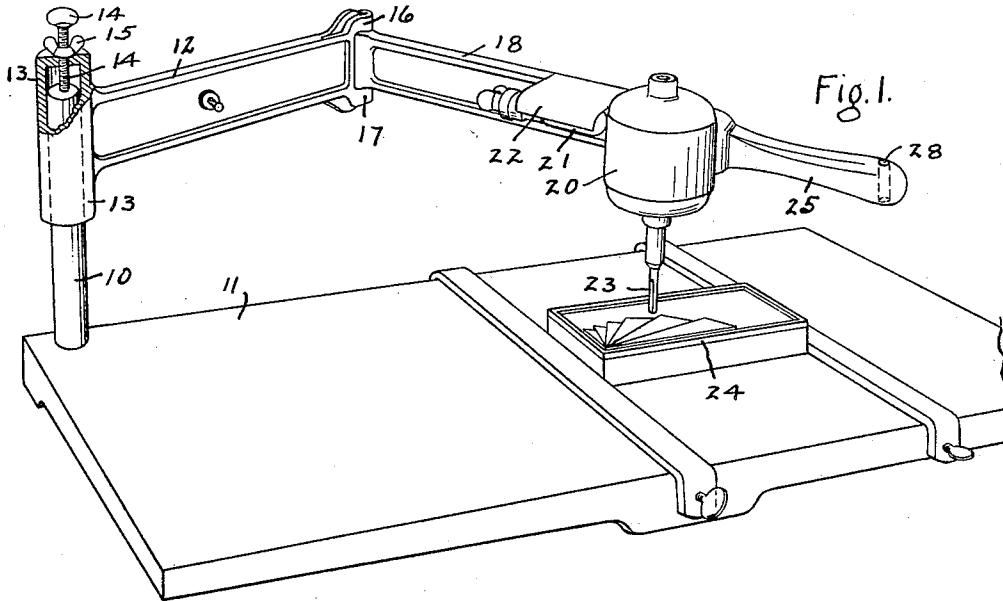


Fig. 1.

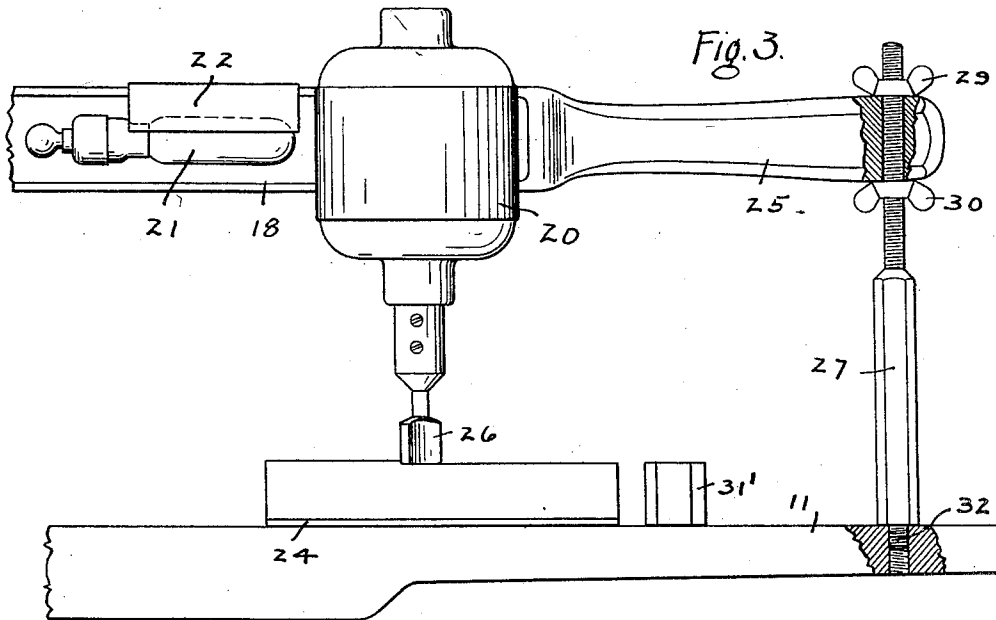


Fig. 3.

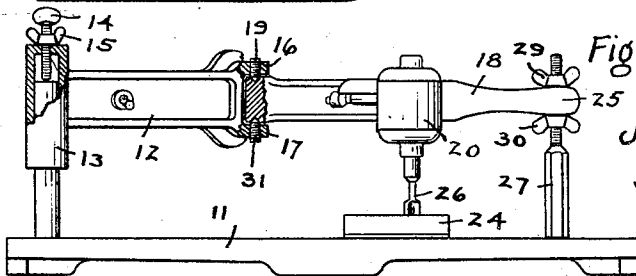


Fig. 2.

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UNITED STATES PATENT OFFICE

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ROUTING MACHINE

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This invention relates to the art of machines for routing and levelling engraved or etched printing plates and has for one of its principal objects the provision of a very simple mechanism that may be produced and sold at a low price and that may be employed to secure the necessary accuracy in levelling the blocks on which plates are mounted to exactly type-high dimensions.

The invention has numerous advantages among which are the particular adjustment for elevation of the rotary bit without interfering with the horizontal swinging of the bit to follow desired contours; the employment of a swinging motor support arm which may be supported by a post at a fixed elevation in levelling operations; and the combination of a hinged motor support arm which may be adjusted vertically at one end to permit free swinging of the other end and also which may be vertically adjusted and supported at the free end whereby a combination of operations may be performed by the single mechanism. These and other objects and advantages will become apparent to those versed in the art from the following description of the invention as illustrated in the preferred form in the accompanying drawing, in which

Fig. 1 is a front view in perspective of a device embodying my invention;

Fig. 2, a fragmentary front elevation; and

Fig. 3, a fragmentary front elevation on an enlarged scale of the outer arm bar.

Like characters of reference indicate like parts in the several views in the drawing.

I mount a post 10 on a table 11, preferably near the rear left hand corner thereof to extend vertically from the table in a fixed position. A bar 12 is formed to have a vertically disposed sleeve 13 formed integrally therewith at one end to have the internal bore of the sleeve open at the bottom and closed at the top and of a diameter which will permit the sleeve to be placed down over the upper end of the post 10 with a close sliding fit. A screw 14 is screw-threadedly passed down through the top closed end of the sleeve to bear against the upper end of the post 10 whereby the sleeve may be low-

ered or raised along the post by backing the screw out or turning it down through the sleeve end. A thumb nut 15 is screw-threadedly carried on the screw 14 above the sleeve to serve as a lock nut when turned up against the sleeve to hold the screw in any desired position of adjustment.

The other end of the bar 12 is bifurcated to form a yoke with the top and bottom ears 16 and 17 between which is rockably carried the inner end of an outer bar 18. A screw 19 having a sharpened end is passed vertically down through the ear 16 to enter a conical seat in the end of the bar 18, and a screw 31 is passed vertically up through the ear 17 to enter into a conical seat in the bar 18 whereby the bar 18 is carried rockably on the ends of these screws to swing horizontally. A small electric motor 20 is mounted on the arm 18 in a vertical position to permit tools to be attached to the lower end of the armature shaft and a lamp 21 is preferably mounted on the arm immediately back of the motor with a shield and reflector 22 over its upper side.

For routing purposes, a routing tool or bit 23 is fixed to the motor and the elevation of its lower end is adjusted by the screw 14. The entire hinged arm composed of the two bars 12 and 18 may be lifted up to carry the sleeve 13 off of the post 10 and the arm laid aside, if desired, until the mounted plate 24 is mounted on the table 11, or the screw 14 may be run down to lift the routing tool 23 to clear the plate as the tool may be swung horizontally around through the hinged joint between the bars 12 and 18 and the sleeve 13 on the post 10. Various depths may be cut on the plate by adjusting the screw 14, or a constant depth maintained by a fixed adjustment. By reason of the hinging of the arms 12 and 18 one to the other and swivelling the sleeve of the arm 12 on the post 10, the tool 23 may be shifted fore and aft, sideways or at any angle by gripping the handle end 25 of the bar 18 accordingly.

When it is desired to employ the device to level the plate block to bring it type high, the block is turned over, Figs. 2 and 3, the proper cutting tool 26 fixed to the motor, and

the under side of the tool gaged to be type high. A post 27 has an upper screw-threaded end passed through a vertical bore 28 in the outer end of the bar 18 and carries the thumb nuts 29 and 30 respectively above and below the bar. The lower end of the foot 27 is rested on the table 11 and has a stud 32 screw-threadedly engaged within a hole in the table. The screw 14 and the nut 30 are properly adjusted to space the end of the tool 26 from the table and when the type high clearance is obtained as determined by a gage 31, the nuts 15 and 29 are run down to secure that adjustment. The block is moved and shifted around under the tool until it is planed off as required.

While I have here shown and described my invention in the form as now best known to me it is obvious that structural changes may be made therein without departing from the spirit of the invention; and I, therefore, do not desire to be limited to that precise form beyond the limitations imposed by the following claims.

I claim:

1. In a routing and levelling device, a table, a post carried by the table, an arm, a sleeve closed at the top carried by the arm revolubly fitted over the post in a manner to be lifted freely off of the post, an adjusting screw screw-threadedly passed through the closed end of the sleeve to abut the end of the post, the contacting surfaces between the post and the sleeve being smooth, and an electric motor carried on the arm.

2. In a routing and levelling device, a table, a vertically disposed post fixed to the table, a sleeve revolubly fitted about said post and having an upper closed end, said sleeve being adapted to slip vertically off the post, the sides of the post and the bore of the sleeve being smooth, a screw screw-threadedly passed down through the upper closed end of said sleeve to abut the top end of said post whereby the sleeve may be raised and lowered along said post by rotation of the screw, an arm carried by the sleeve, and a motor mounted on the arm.

3. In a routing and levelling device, a table, a post carried by the table, an arm, a sleeve carried by the arm revolubly fitted over the post, and adjusting screw screw-threadedly passed through the sleeve to abut the end of the post, the contacting surfaces between the post and the sleeve being smooth, and an electric motor carried on the said arm having a vertical bore toward its outer end, a post adapted to rest on said table and having a screw-threaded end formed to fit through said arm bore, and adjusting nuts on said end above and below the arm.

4. In a routing and levelling device, a table, a post carried by the table, an arm, a sleeve carried by the arm revolubly fitted over the post, an adjusting screw screw-

threadedly passed through the sleeve to abut the end of the post, and an electric motor carried on the said arm having a vertical bore toward its outer end, a post adapted to rest on said table and having a screw-threaded end formed to fit through said arm bore, and adjusting nuts on said end, said arm comprising two bars hinged by their ends one to the other, one of said ends having a yoke receiving the end of the other bar, said last end having conical sockets and screws with sharpened ends screwed through the arms of the yoke into the respective sockets.

5. In a routing and levelling device, a table, a vertically disposed post fixed to the table, a sleeve revolubly fitted about said post and having an upper closed end, said sleeve being adapted to slip vertically off the post, a screw screw-threadedly passed down through the upper closed end of said sleeve to abut the top end of said post whereby the sleeve may be raised and lowered along said post by rotation of the screw, an arm carried by the sleeve, and a motor mounted on the arm, said arm comprising a bar fixed to said sleeve and a second bar hinged to the first bar and carrying said motor, said second bar having a vertical bore near its outer end, and a post having a screw-threaded upper end adapted to pass through said vertical bore and to be engaged by its lower end by said table, and a lock-nut on said screw-threaded end.

In testimony whereof I affix my signature.

JOHN W. DIXON.