May 9, 1933. J. F. MANDERNACK 1,907,846

SUPPORT FOR PRINTING PLATES AND THE LIKE

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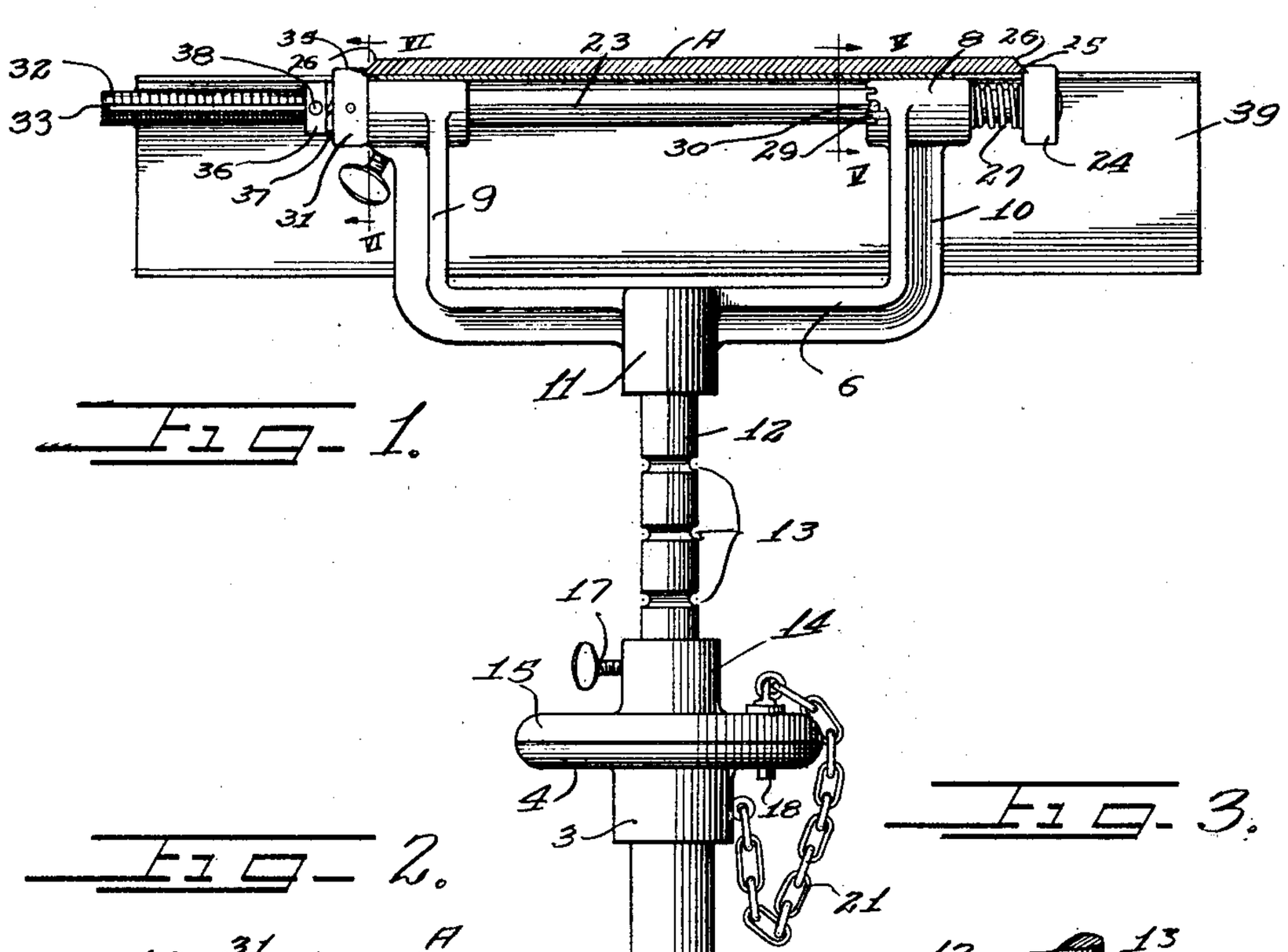


Fig. 1.

Fig. 2.

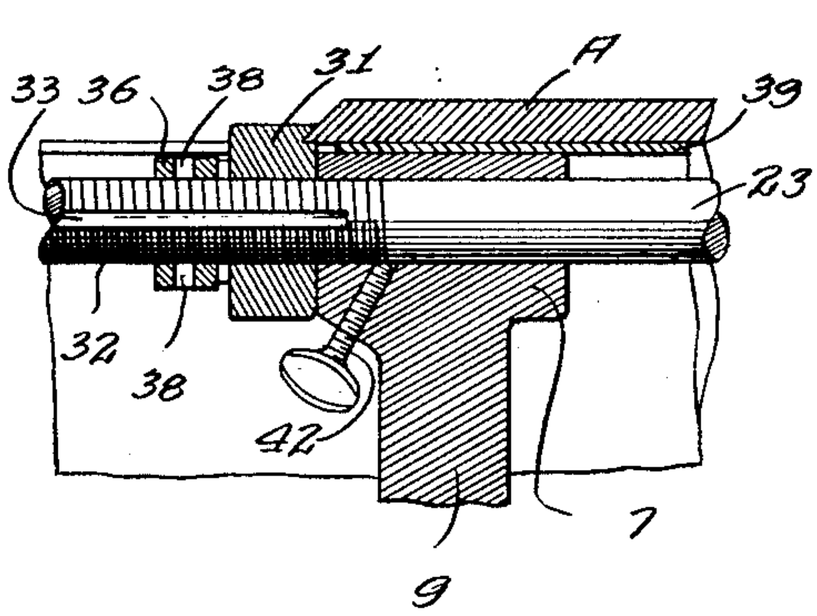
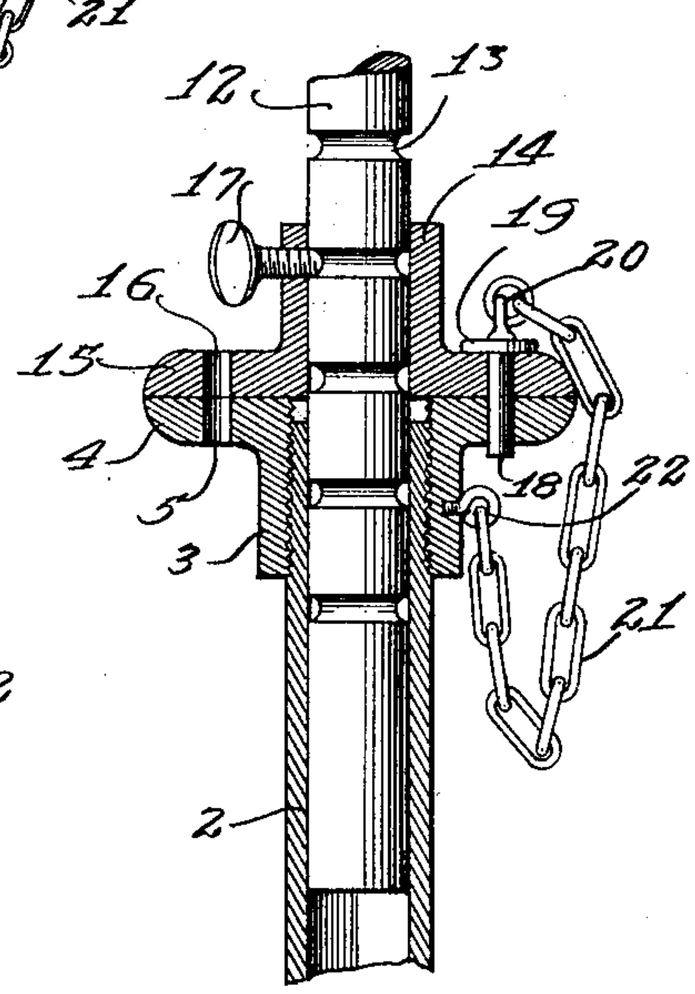


Fig. 3.



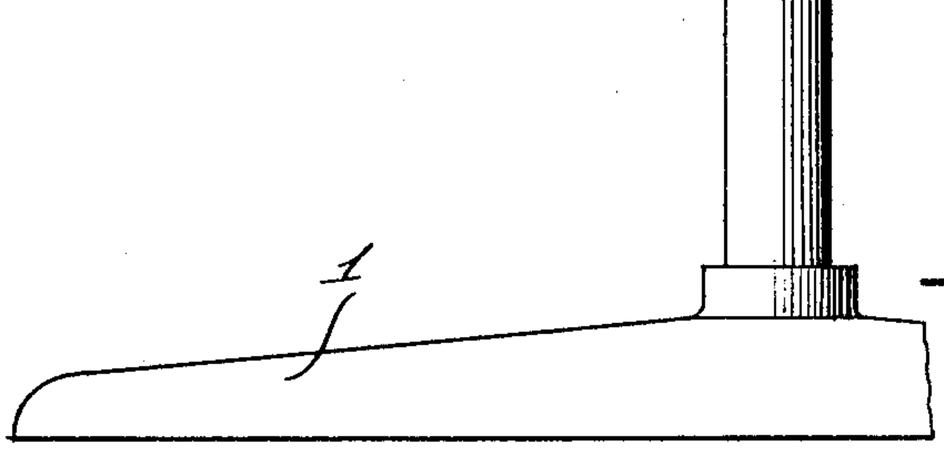


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Fig. 4.

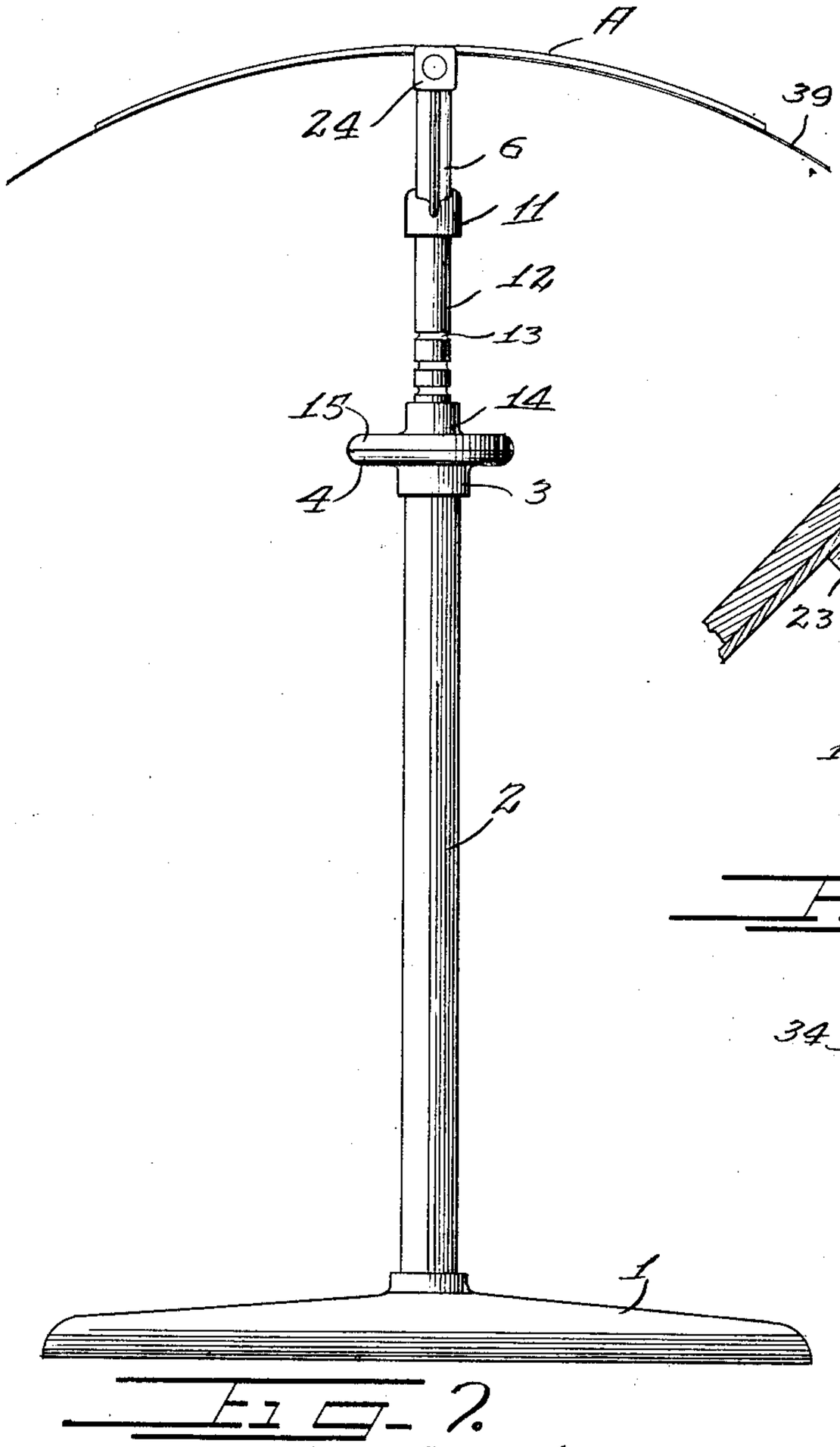


Fig. 5.

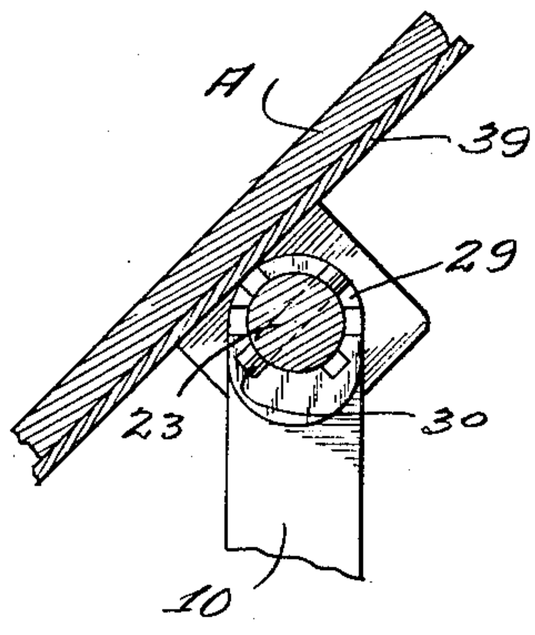


Fig. 6.

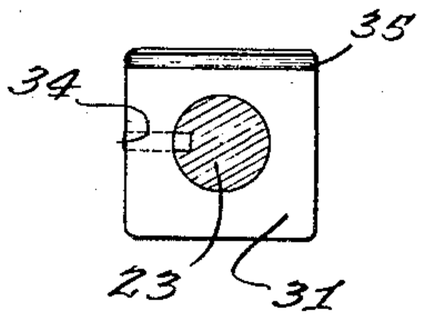
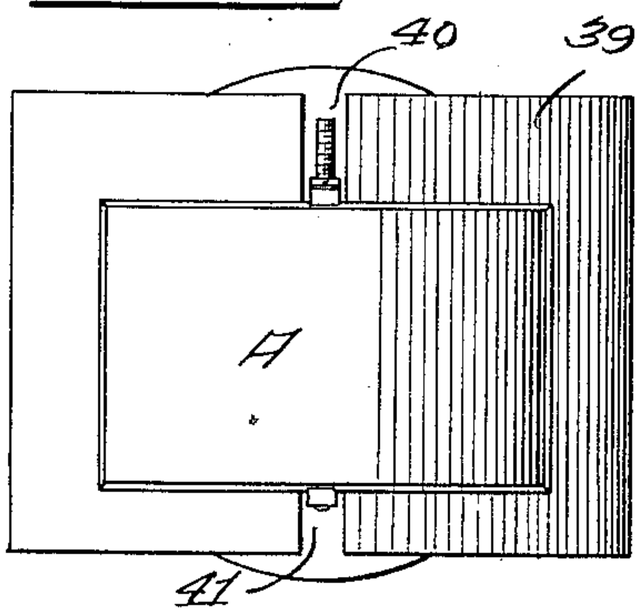


Fig. 7.



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UNITED STATES PATENT OFFICE

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SUPPORT FOR PRINTING PLATES AND THE LIKE

Application filed April 13, 1931. Serial No. 529,635.

This invention relates to a support for printing plates and the like and particularly to a support for holding a printing plate while being tooled for engraving purposes whereby such plate may be readily moved to any position convenient to the engraver for expediting tooling of the plate.

The term "printing" plate is herein used generally and not by way of limitation, and as so used contemplates all plates utilized in printing presses and like machines, such as plates for engraving, photo-engraving, stereotyping, and the like.

Printing plates, both flat and curved, are at the present time placed on a bench for tooling. Such plates have to be blocked in a position convenient for the engraver and oftentimes moved during the tooling operation. It is unhandy and inconvenient to have to move such a plate every few minutes and especially to move a curved plate and properly block the same so that the work surface thereof may be convenient to the engraver.

The present invention contemplates a support of such character that a printing plate may be clamped against bodily displacement and yet turned about horizontal and vertical axes so that the engraver may quickly and conveniently reach any part of the face of such plate for tooling purposes. Curved and flat plates are equally well supported in such device.

An object of the present invention is to provide a support for printing plates whereby the plate may be quickly secured in position and movable to readily present the face thereof for tooling purposes.

Another object of the invention is to provide a support for printing plates wherein the plate may be quickly clamped in position and moved about horizontal and vertical axes during the tooling operation for convenience in such tooling.

A further object of the invention is to provide a support for printing plates with clamping means for engaging the bevel edge of such printing plates and retaining the same in position for the tooling operation and so constructed that the plates may be moved in a plurality of directions for convenience in tooling.

A still further object of the invention is to provide a support for printing plates for holding the same during the engraving or tooling operation and wherein an auxiliary plate is utilized as a support for the arm of the engraver.

A still further object of the invention is to provide a support for printing plates which is readily adjustable to a plurality of positions for expediting tooling or engraving operations incidental to such plates.

Generally speaking the support contemplates a standard with a head so associated therewith as to be adjustable vertically as well as angularly, and which head in turn carries means for engaging a printing plate which engaging means is also adjustable with respect to the head.

The above, other and further objects of the invention will be apparent from the following description, accompanying drawings and appended claims.

A support illustrative of the present invention appears in the accompanying drawings and the views thereof as follows:

Figure 1 is a fragmental elevational view, with parts in section of a support embodying the present invention.

Figure 2 is a fragmental enlarged sectional view showing details of construction of the illustrated embodiment and illustrating one means for locking the plate clamping means against rotative movement about a horizontal axis.

Figure 3 is an enlarged fragmental sectional view of details of the standard and head connections showing one manner of making vertical adjustments as to height and also one manner of affording rotative movement between the head and the standard.

Figure 4 is an elevational view of the support of the present invention showing a curved printing plate supported thereby and with an auxiliary plate serving as a support for the arm of the engraver.

Figure 5 is an enlarged sectional view taken substantially in the plane of V—V of Figure 1.

Figure 6 is an elevational view of the inside face of the movable block and a section of the rod on which the same is carried taken substantially in the plane of line VI—VI of Figure 1.

Figure 7 is a top plan view of Figure 4.

The drawings will now be explained.

The apparatus herein illustrated includes a base plate 1 and a hollow upright member 2 fastened to the base 1. A collar 3 having a flange 4 is threaded onto the upper end of the member 2. The flange 4 is provided with a plurality of holes 5 in the same for a purpose to be later explained. The parts described constitute the standard.

The head of the illustrated apparatus consists of a yoke 6 of substantially U-shape having bored bearing members 7 and 8 at the ends of the upright arms 9 and 10. A central boss 11 is integrally formed with the yoke and is secured in any desirable manner such as by threading to the end of a shaft 12. The shaft is illustrated as being provided with a plurality of circumferential grooves 13. A collar 14 has a flange 15 which is in surface contact with the flange 4 of the collar 3. The flange 15 is provided with a plurality of holes 16 for registering with the holes 5 in the flange 4. A set screw 17 is threaded into the collar 14 and enters one of the grooves 13 for vertically adjusting the shaft 12 in the collar 14 to vertically position the head 6 with respect to the standard.

A pin 18 having a flange 19 thereon and a head 20 is provided for entering any of the registering holes 16 and 5 to lock together in relative angular adjustment the flanges 15 and 4 of the collars 14 and 3 respectively. The pin 18 is shown as secured to the collar 3 by means of a chain 21 which is fastened to the collar by a screw member 22.

A rod 23 is supported in the bearing members 7 and 8 of the yoke 6 and is horizontally disposed in said members. A block 24 is fastened to one end of the rod 23 and secured against rotative movement with respect to the rod. The block on its inner face is provided with an undercut groove 25 for receiving the beveled edge 26 of a printing plate A.

Printing plates A are provided with beveled edges 26 for engagement by suitable means in the printing presses for holding such plates in printing position in the presses.

The block 24 is illustrated as adjacent the bearing 8 of the yoke 6. A spring 27 is interposed between the block 24 and the bearing member 8 to normally urge the block away from such bearing member.

The other end of the bearing member 8 is provided with a plurality of teeth 29 and the rod 23 is provided with a pin 30 extending through the same to engage such teeth for securing the bar 23 against rotative movement with respect to the bearing member 8. Normally the rod 23 is held against rotative engagement by engagement of the pin 30 with certain of the teeth 29, such engagement being maintained by the spring 27.

Outwardly of the other bearing member 7 is a block 31 which is free to move along the end of the rod 23. This end of the rod 23 is threaded at 32 and is illustrated as provided with the groove 33 extending through the threaded portion lengthwise of the rod. The block 31 is provided with a pin 34 which engages the groove 33 to prevent rotation of the block 31 with respect to the rod 23 while allowing movement of the block axially along such rod.

The block 31 is provided with an undercut notch 35 for receiving the adjacent beveled edge 26 of the printing plate A.

The block 31 is held against the plate A by means of a nut 36 which is in threaded engagement with the threaded end 32 of the rod. A lock washer 37 is interposed between the block 31 and the nut 36. The nut 36 is provided with a hole 38 for the reception of a tool to tighten the nut against the block 31 for tightly clamping the plate A in the yoke or head 6.

The blocks 24 and 31 have the top surfaces thereof lying below the work surface of the plate A when the same is clamped in position so that the engraver may have unrestricted room with which to properly engrave the plate so retained in position.

It is desirable to provide some kind of a rest for the operator's or engraver's arm. Such rest is illustrated herein as comprising a zinc plate 39 which is provided with slots 40 and 41 on opposite sides to receive therebetween the blocks 24 and 31. The plate 39 underlies the printing plate A and where such printing plate A is curved the zinc plate 39 is curved to correspond. The rest or zinc plate 39 extends beyond the margins of the printing plate A a sufficient distance to provide suitable rest for the arm of the engraver.

The zinc plate 39 is thin so as not to interfere with the engagement of the blocks 24 and 31 with the beveled edges 26 of the printing plate A. The printing plate A and the rest plate 39 lie against the bearing members 7 and 8 of the yoke 6.

The provision of the teeth 29 on the yoke 6 and the pin 30 in the rod 23 for locking the rod 23 in adjusted angular position might be eliminated and a set screw 42 threaded into a portion of the yoke so that the end of the screw engages against the rod 23 for fastening the same in adjusted angular position.

The standard may be any desired height. Preferably the height of the standard is such as to bring the burnished plate A about 30″ above the floor. Of course, the height may be varied by raising or lowering the shaft 12 within the collar 14.

The engraver may stand as he works or

else sit, in which event the support is adjustable to some convenient height. It is within the contemplation of the invention to make the standard applicable for use on a bench as all of the elements would be the same except perhaps for the length of the member 2.

The operation of the support is as follows:

The height of the head 6 is adjusted by movement of the shaft 12 within the collar 14 where it is secured at adjusted heights by means of the set screw 17. The nut 36 is moved along the threaded end of the rod 23 to the left as viewed in Figures 1 and 2 so that the nut or block 31 may be moved to the left for application of the plate A to the head. First of all the rest plate 9 is applied with the recesses 40 and 41 overlying and receiving therebetween the blocks 24 and 31. The engraving plate or printing plate A is then next supplied with one of its beveled edges 26 inserted in the undercut groove 25 in the block 24. The block 31 is then moved against the opposite edge of the plate A with the notch 35 therein engaging the adjacent beveled edge of the plate. The provision of the pin 34 cooperating with the groove 33 in the rod 23 prevents rotation of the blocks 31 on the rod making application to the same convenient and certain to the beveled edge of the plate.

The nut 36 is then tightened so that the block 31 cooperating with the block 24 clamps the plate A between these blocks. Should the printing plate be curved as illustrated it is then arranged on the head as shown.

If the operator desires to have free rotative movement with respect to the standard he removes the pin 18 from the flanges 4 and 15 whereupon he may quickly rotate the head about the axis of the standard 2 and shaft 12. If he desires to swing the plate about the rod 23 in the horizontal axis, this he may do by disconnecting the pin 30 from engagement with the teeth 29. Such disengagement enables rocking of the printing plate A about the rod 23 as an axis.

It will be observed that the blocks 24 and 31 engage the edges of the plate A in the same manner as the attaching means on the printing press engage such plate, and with the same clamping action.

The plate A thereupon is presented to the engraver in a manner whereby he may readily turn the same to present such portion thereof to his tool as he wishes for engraving purposes. The provision of the rest plate 39 enables him to rest his arm on such plate, thus making engraving of the plate easier than possible were no such arm rest provided.

The pin 18 inserted in registering holes 16 and 5 of the flanges 15 and 4 respectively lock the head 6 against rotative movement with respect to the standard 2 when desired.

It will be observed that the support of the present invention is simple, economical to manufacture, easy to use and efficient for the purpose intended. A printing plate may be quickly applied to and removed from such support and also moved along a support so that the under side of the plate may bear against the bearing members 7 and 8 directly underneath the engraving tool if so desired. It requires but a slight movement of the nut 36 and the block 31 to release the plate from the head.

The size of the support is such as to take the largest printing plates in use which for certain kinds of engraving is approximately 10″ by 16″ and ¼″ thick. The support however is adapted to be quickly adjusted to accommodate printing plates of any size ordinarily used in commercial printing.

The invention has been described herein more or less precisely as to details, yet it is to be understood that the invention is not to be limited thereby as changes may be made in the arrangement and proportion of parts and equivalents may be substituted without departing from the spirit and scope of the invention.

The invention is claimed as follows:

1. A printing plate support, comprising a yoke having a pair of upstanding spaced opposed arms, a rod extending rotatably journaled in the upper ends of said arms, plate-clamping means slidably mounted on said rod and rotatable therewith, means to lock said rod against rotation, a support for said yoke, said yoke being mounted rotatable on said support.

2. A printing plate support, comprising a yoke having a pair of upstanding spaced opposed arms, an apertured boss on the upper end of each arm, a rod extending rotatably journaled in said bosses, plate-clamping means slidably mounted on said rod and rotatable therewith, said means comprising a collar on one end of said rod having a groove to receive an edge of a printing plate, and a collar on the other end of the rod having a groove to receive an edge of a printing plate, spring pressed means to lock said rod against rotation in an adjusted position, and an upstanding support for said yoke, said yoke being mounted rotatable on said support.

3. A printing plate support, comprising a yoke having a pair of upstanding spaced opposed arms, said arms having laterally extending end portions adapted to form a support for a table top positioned thereon, a rod extending rotatably journaled in the extending end portions of said arms, a table top positioned supported by the arms of said yoke, and plate-clamping means on said rod and rotatable therewith adapted to clamp a printing plate placed on said table.

4. A printing plate support comprising a yoke having a pair of upstanding spaced opposed arms, a rod extending rotatably journaled in the upper ends of said arms, a table

top positioned resting on the upper ends of said arms and extending transversely of said yoke to receive a printing plate and provide an arm rest for a person working on said plate, and clamping means on said rod and rotatable therewith adapted to clamp a printing plate positioned on said table top.

5. A printing plate support, comprising a table top to receive a printing plate thereon, a central support for said top provided with means for tiltably and rotatably supporting said table top thereon, and means on said plate support for removably clamping a printer's plate positioned overlying said table top.

In testimony whereof I have hereunto subscribed my name at Chicago, Cook County, Illinois.

JOHN F. MANDERNACK.