(No Model.)

I. N. ROBERTS.

WORK HOLDER.

No. 400,116. Patented Mar. 26, 1889.

Fig. 1.

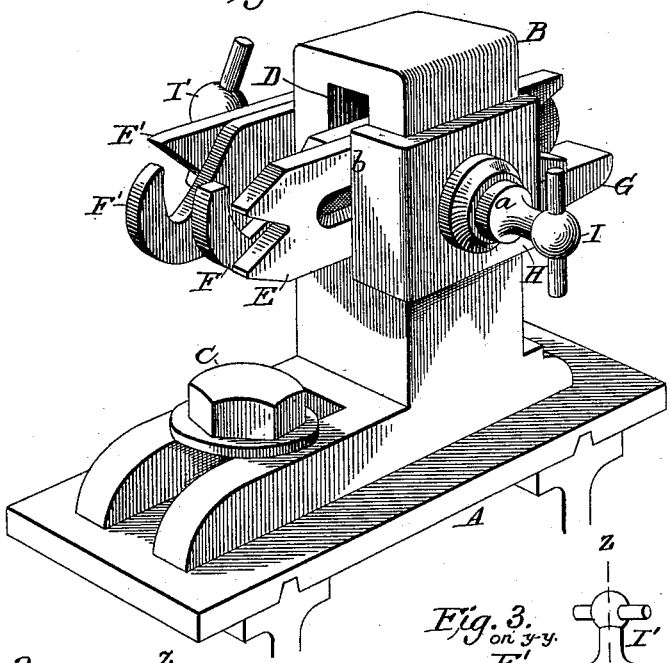


Fig. 2.
on x-x.

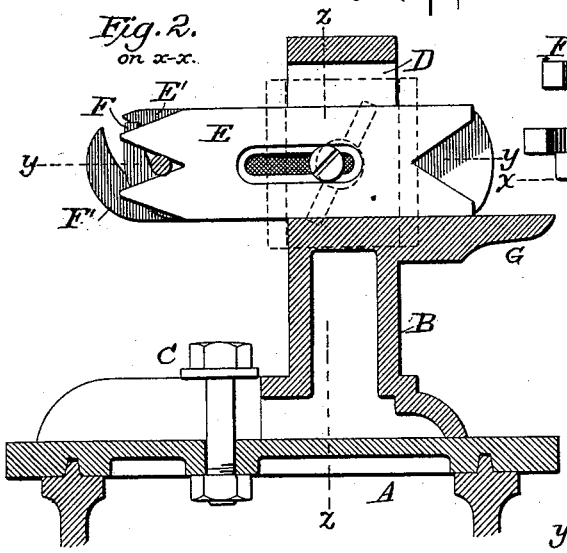


Fig. 3.
on y-y.

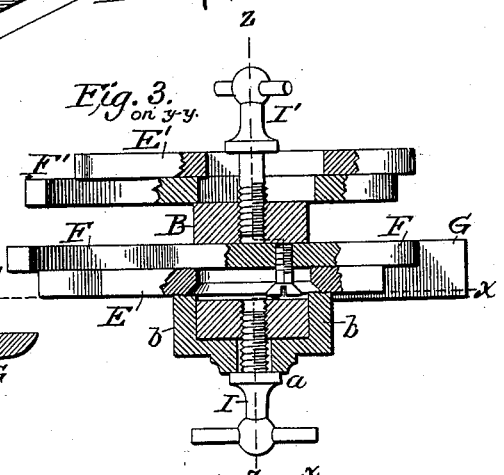
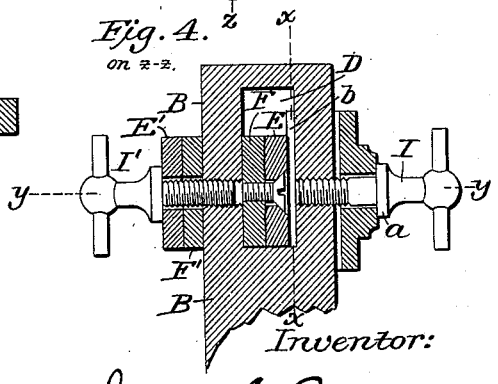


Fig. 4.
on z-z.



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UNITED STATES PATENT OFFICE.

ISAAC N. ROBERTS, OF NORRISTOWN, PENNSYLVANIA, ASSIGNOR TO MARY A. ROBERTS, OF SAME PLACE.

WORK-HOLDER.

SPECIFICATION forming part of Letters Patent No. 400,116, dated March 26, 1889.

Application filed July 20, 1888. Serial No. 280,554. (No model.)

To all whom it may concern:

Be it known that I, ISAAC N. ROBERTS, of Norristown, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Work Holders or Supports, of which the following is a specification.

My invention relates to work holders or supports adapted for use more particularly in turning wood, but equally applicable in turning metal.

In turning wood or metal difficulty is experienced in preventing it from springing away from the tool, as inevitably happens when the piece of material is long and of small diameter. As the material thus springs or bends, it is apt to slip off the lathe-centers or to cause the turning to be uneven, irregular, and rough, and in some cases even renders the turning impossible, as the cutting-tool cannot be kept in contact with the work. To overcome these objections and to provide a simple, cheap, and efficient guide or work-holder that will hold the work in proper position and prevent its bending or springing are the objects of the present invention.

Referring now to the drawings, Figure 1 is a perspective view of my improved work-holder; Fig. 2, a vertical sectional view of the same, taken on the line *x x*, Figs. 3 and 4; Fig. 3, a longitudinal sectional view on the line *y y*, Figs. 2 and 4; and Fig. 4, a vertical transverse sectional view on the line *z z*, Figs. 2 and 3.

A indicates a base block or slide grooved on its under face to receive the guiding ribs or ways of the lathe, as shown in Figs. 1 and 2, and B indicates the standard of the work-holder mounted upon the upper face of slide A, and pivotally connected therewith by a bolt, C, so as to permit of the adjustment of the work-holder relatively to the slide. The slide, *per se*, forms no part of the present invention, and may be varied as desired, or even omitted, without affecting my invention. The standard B is preferably L-shaped, and its upright portion is provided with a slot, D, extending from front to rear, as shown in all the figures, to receive the clamping-jaws E F, the number of which may be varied as desired.

The jaws E F are each made of a flat piece of wood or metal, or any other suitable material, and are provided, respectively, with a V-shaped notch and curved seat or opening at their outer ends, as shown in Figs. 1, 2, and 3. The jaws rest in the bottom of the slot D, and are supported by an arm or extension, G, of the standard, Figs. 1, 2, and 3, so that at all adjustments of the jaws back and forth through the standard they, or at least one of them, E, will maintain the same height relatively to the lathe-centers. In other words, the apex of the V-shaped notch in the jaw E is in the same horizontal plane as the lathe-centers and always remains so, as the arm or extension G prevents it from tipping. The seat in the jaw F is open on the upper side, so as to facilitate the application of the jaw to the material being operated upon; but it will be apparent that while the form of seat shown in the drawings is well adapted for the purposes of the invention, such form is not essential, and may be changed or varied, provided, however, that its form be such as to hold the material against the walls of the notch in jaw E. The jaws are of a width slightly less than that of the slot D, and are clamped and held in position by means of a block, H, and screw I applied to the side face of standard B, as shown in Figs. 1, 3, and 4, and by dotted lines in Fig. 2. The screw passes freely through the block and engages with a threaded hole tapped in the standard, a collar, *a*, formed upon the screw bearing against the outer face of the block and serving to force or draw the latter toward the standard and against the jaws as the screw is turned. The block H is formed with upright side wings, *b*, as shown in Figs. 1, 3, and 4, which project beyond one of the upright walls of the slot D, so as to bear against the side of the jaw E and force it, together with its companion jaw F, up against the opposite wall of slot D, thereby firmly clamping the jaws in position. Of course by loosening the block the jaws may be adjusted, as desired. The contiguous faces of the jaws, as well as the edges of the wings *b*, will advisably be roughened in any suitable manner to prevent their slipping after being adjusted. One of

the jaws will advisably, though not necessarily, be provided with a screw or pin to work in a slot in the other, as shown in Figs. 2, 3, and 4, so that while adjustment of the one relatively to the other is permitted they are prevented from being separated. In turning wood, the jaws will advisably be made of wood, as it is less liable to injure the material than is metal; but where the material being turned or operated upon is metal the metallic jaws will advisably be used.

The manner of using the device is as follows: After the stick is properly centered I turn a slight groove in the same, and before doing anything further apply the jaws E F to the groove in the stick, in the manner illustrated in Fig. 2, the curved seat in jaw F holding the stick in the V-shaped notch in jaw E. This groove will be made about the mid-length of the stick, and it will be seen that as it is supported at its middle any tendency to bend or spring is overcome. After the stick has been turned close up to the sides of the jaws, it will be found necessary to remove them, in order that the groove first made may be turned down and the stick finished; but if the jaws were removed and no support afforded for the stick the latter would spring or bend and prevent the finishing of the same. Now, while the jaws E F could, with a greater or less degree of certainty, be removed and applied to some other part of the stick, so as not to destroy its alignment, such a plan is open to objection and not recommended, as the chances of bending the stick are too great. In order to overcome this difficulty, I apply to the side of the standard a second pair of jaws, E′ F′, similar in construction to the jaws E F, the supplemental jaws E′ F′ being clamped in position by means of a screw, I′, bearing directly upon the jaws and screwing into the standard, as shown in Figs. 1, 3, and 4. When the jaws E F are first applied to the work, the jaws E′ F′ will advisably be thrown back out of the way or removed altogether; but when the stick is partly finished, and just before the jaws E F are removed, the jaws E′ F′ will be applied to the stick, thereby insuring the proper centering of the latter. As soon as the jaws E′ F′ are applied and it is found that the alignment of centering of the stick is the same as before, the jaws E F will be removed and the stick finished. If desired, two grooves may be cut in the stick in the first instance and both sets of jaws applied; but as these are matters that come within the scope of the operator and do not affect the invention they need not be further referred to herein.

In turning metal it will be found advisable to use three jaws instead of two; but as this involves merely a duplication of the jaws (which may obviously be carried to any desired extent) it is not deemed necessary to illustrate such plan.

I am aware that the jaws of pipe-vises have been provided with V-shaped recesses roughened or serrated to clamp and hold the pipe against movement, and to this class of devices I make no claim. My work-holder is designed for a wholly different purpose, and used in a different manner and in a way that the devices to which I have referred are incapable of being used.

The primary object of the invention is not to hold the article clamped against rotation or turning, but to merely support it and prevent its springing. Consequently the serrated jaws adapted to indent or take a firm hold upon the material are dispensed with, and in lieu thereof smooth-faced seats are employed, which permit the material to make a great number of revolutions per minute without any appreciable retardation by friction.

Having thus described my invention, what I claim is—

1. In a work-holder, the combination of an upright or standard, a pair of independently-adjustable jaws mounted therein side by side and each provided with a seat to receive and hold the work, and a set-screw or clamp adapted to hold the jaws in their adjusted positions.

2. In combination with the upright or standard, two separate and independent pairs of clamping-jaws arranged with their seats in approximately the same horizontal plane, and means for clamping them to the standard.

3. In combination with the slotted upright or standard, two or more jaws mounted therein, a set-screw for clamping the jaws to the standard, and an arm or extension projecting from the standard and arranged, substantially as shown, to maintain one of the jaws in the same horizontal plane with the lathe-centers.

4. In combination with an upright or standard, a jaw, E, provided with a V-shaped notch in its end, a jaw, F, also mounted in the standard by the side of the jaw E and provided with a curved seat, and a set-screw for clamping the jaws to the standard.

5. In combination with the slotted upright provided with a threaded hole, two or more jaws mounted in the slot, a block, H, applied to the standard and adapted to bear against the jaws, and a screw provided with a collar to bear upon the block.

6. In a work holder or support for use in turning, the combination, with an upright or standard, of two or more jaws mounted therein and projecting from the same face thereof, one of said jaws being adjustable relatively to the standard toward and from the material operated upon in the same horizontal plane therewith, and a set-screw or clamp.

7. In combination with an upright or standard, a pair of jaws mounted therein side by side and adjustable one upon the other and relatively to the standard, and a set-screw or clamp for holding the jaws in their adjusted positions.

8. In combination with the slotted upright or standard, a pair of jaws mounted within the slot, a set-screw for clamping the jaws in position, and a second pair of jaws mounted

upon the side face of the standard and provided with a clamp or set-screw.

9. In combination with an upright or standard, a jaw, E, mounted therein and provided with a V-shaped notch in its end, the apex of the notch being in the same horizontal plane with the lathe-centers, a jaw, F, also mounted in the standard by the side of the jaw E and provided with a seat to receive the material being operated upon and to hold the same in the V-shaped notch of jaw E, and a fastening device adapted to clamp the jaws in position.

10. In combination with an upright or standard provided with a slot, jaws mounted therein and of a thickness less than the width of the slot, a block, H, provided with wings *b b*, adapted to project beyond the wall of the slot and to bear against one of the jaws, and a screw, I, passing freely through the block and into the standard and provided with a collar to bear upon the block.

In witness whereof I hereunto set my hand in the presence of two witnesses.

ISAAC N. ROBERTS.

Witnesses:
BENJ. THOMAS,
EDWARD L. OWEN.