July 12, 1932. L. N. McCARTER 1,867,275

SLIDING SAW

Filed Feb. 25, 1928 2 Sheets-Sheet 1

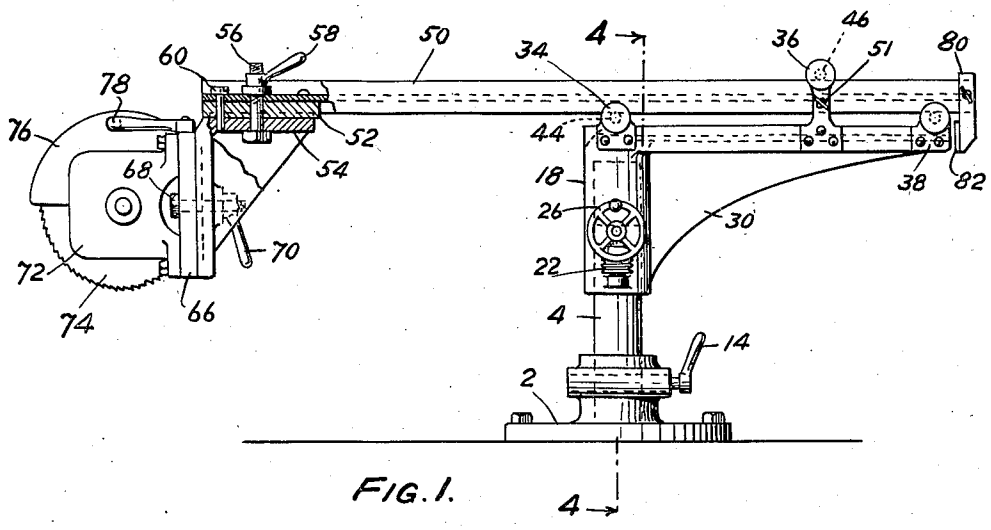


FIG. 1.

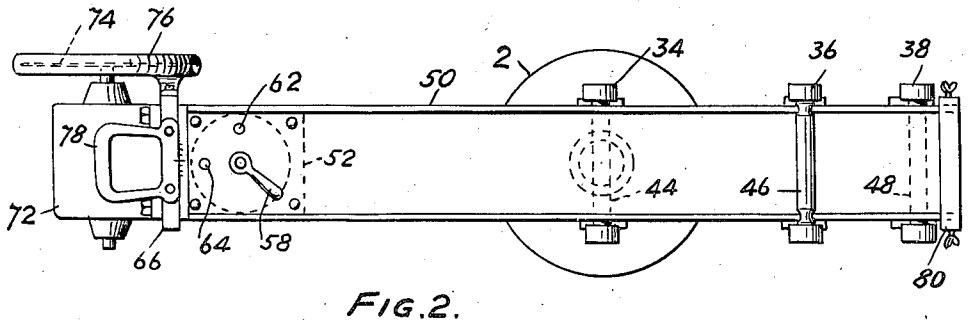


FIG. 2.

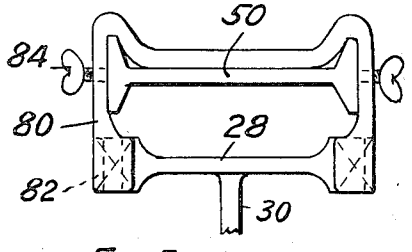


FIG. 3.

WITNESS:
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SLIDING SAW

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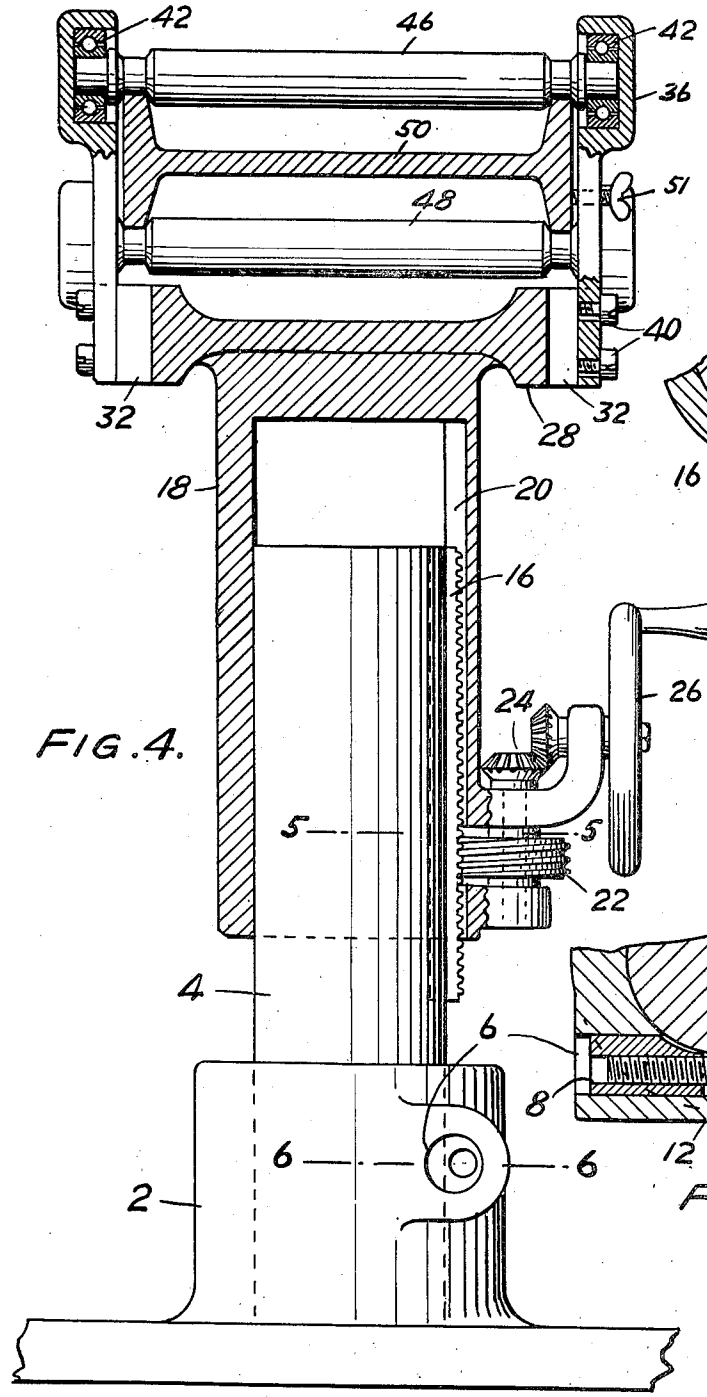
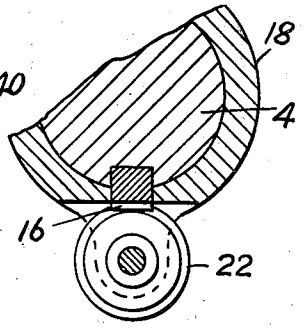


FIG. 4.

FIG. 5.



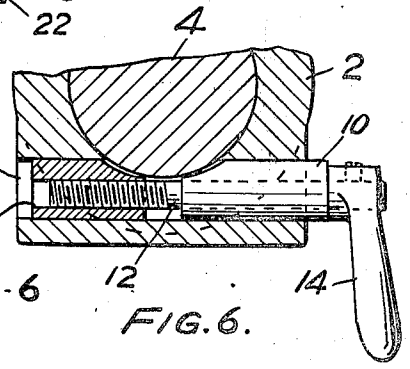


FIG. 6.

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UNITED STATES PATENT OFFICE

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SLIDING SAW

Application filed February 25, 1928. Serial No. 256,828.

This invention relates to a sliding saw of the type which may be moved by the operator to cross cut work or which may be secured in fixed position so that ripping may be done.

In the types of sliding saws heretofore constructed, it has been found that there is a tendency for the movable parts carrying the saw to stick or bind in the guideways of the support on which it is mounted. The adjustments are not readily made and cannot be made to obtain the maximum efficiency of work of the saw.

It is accordingly the object of the present invention to construct a saw of the character described which may be moved by the operator with a minimum of effort and without binding. A further object of the invention is a provision of a compact machine which may be used interchangeably with various supports and which may be readily moved about to positions in which it may be used most effectively to perform the work required. Another object is a provision of a machine of this character in which all necessary adjustments may be readily and efficiently made.

Other more specific objects will be apparent when the following description is read in connection with the accompanying drawings, in which:

Fig. 1 is a side elevation partly in section of the improved machine;

Fig. 2 is a plan view of the machine shown in Fig. 1;

Fig. 3 is a rear view of a portion of a machine looking at the right hand end of Fig. 1;

Fig. 4 is a section taken approximately as indicated by 4—4 in Fig. 1;

Fig. 5 is a section on line 5—5 of Fig. 4; and

Fig. 6 is a section on line 6—6 of Fig. 4.

The support for the slide carrying the saw consists of a pedestal 2 having a vertically extending circular recess therein in which is received a post 4 capable of rotary movement about a vertical axis. Pedestal 2 has a wide base and is provided with holes through which bolts may be passed to secure the pedestal to a suitable supporting bench, table, or the like. Post 4 is retained in a fixed position of adjustment by means of a clamping arrangement carried by the pedestal. This clamping arrangement is carried in a circular hole 6 formed in the pedestal and consists of two blocks 8 and 10 provided at their adjacent ends with cut-away or tapered faces arranged to engage about post 4, as shown in Fig. 6. In order to bring blocks 8 and 10 into tight engagement with post 4 to prevent its rotation, a threaded pin 12, provided with a handle 14, is provided which pin extends through a hole in block 10 and is threaded into a tapped hole in block 8. By turning handle 14 the blocks may be moved toward or from each other, thereby clamping or releasing post 4. Turning of the blocks is prevented by reason of the tapered post engaging faces.

Secured in a longitudinally extending slot in post 4 is a key 16 which is provided on its outwardly extending longitudinal edge with teeth to form a rack. This key is prevented from downward movement by abutment against the end of the slot in which it is located. A bracket 18 embraces the upper end of post 4 and is provided with a slot 20 which receives key 16 so that the bracket is prevented from rotary movement about the post 4. A worm 22 engaging the teeth of key 16 is mounted on a vertical shaft which is supported in lugs carried by bracket 18. The upper end of this shaft and the inner end of a short stub shaft suitably mounted on bracket 18 are provided with meshing bevel gears 24. The last named shaft is provided with a hand wheel 26, turning of which will, through the bevel gears, turn worm 22 and thus produce a vertical movement of bracket 18 along post 4.

The upper end of bracket 18 comprises a horizontally extending arm 28 which may be strengthened by a suitable web 30. This bracket may consist of a casting provided with three pads 32 on each side. These pads may be suitably machined to contact with the faces of upstanding bearing blocks 34, 36, and 38 which are secured thereto so as to be capable of vertical adjustment by means of machine screws 40 passing through slots in the bearing blocks and into the pads. As

shown most clearly in Fig. 1, bearing blocks 34 and 38 are relatively short, while bearing block 36 is relatively long, extending above the other bearing blocks. In the bearing blocks are secured ball bearings 42 in which are mounted rollers 44, 46, and 48 having grooves adjacent their ends, as shown in Fig. 4, arranged to receive the flanges of an I-beam 50. Rollers 44 and 48 are located in a horizontal plane and serve to support the I-beam, while roller 46 is located above the other rollers and serves to hold the I-beam down into engagement with the other rollers. A wing nut 51, passing through one of the bearing blocks 36 or some similar means, may be used for locking the I-beam 50 in fixed position against sliding movement.

I-beam 50 constitutes a slide on which a motor carrying a saw is mounted. As shown in Fig. 1, a block 52 is bolted or riveted to the web of the I-beam. A bracket 54 is secured to the lower face of block 52 by means of a pin 56 passing through one arm of the bracket and through block 52 and the web of the I-beam, the upper end of pin 56 being threaded and engaged by a handle 58 which may be screwed down to tightly clamp the bracket against the block or which may be operated to free the bracket so that it may swing about a vertical axis. Since bracket 54 is always, or at least generally, held in either of two positions at right angles to each other, a pin 60 is adapted to pass through either of holes 62 or 64 in the web into a hole provided in the bracket 54 to hold the bracket securely in exact adjusted positions.

To the vertically extending arm of bracket 54 there is secured a block 66 by means of a pin 68, which is threaded and provided with a handle 70 similarly to pin 56. Secured to block 66 is a motor 72 on the shaft of which is mounted a saw 74. A guard 76 may be carried by block 66 or the motor, and a handle 78 is provided which may be gripped by the hand of the operator to move the saw transversely of lumber which is being cut. Pin 68 provides for movement of motor 72 about a horizontal axis. In this manner, the plane in which saw 74 operates may be changed to any desirable degree for the cutting of bevelled edges or for bevelling, ripping or cross cutting. By the equipments described, a practically universal positioning of saw 74 is obtainable. By rotating post 4, cross cutting may be accomplished at various angles. Furthermore, provision for cutting varying thicknesses of wood may be made by the vertical adjustment of bracket 18. It will also be obvious that saw 74 might be replaced by, for example, either a dado-head or molding cutter, or the like. Furthermore, by adjusting the motor so that its shaft is in vertical position, the shaft may support a routing bit or the like.

Any suitable means may be provided for limiting the movement of the slide 50 as, for example, a yoke 80 provided with downwardly turned ends on which are applied resilient pads 82 of rubber, or the like, and which is adjustably secured to slide 50 by wing nuts 84. The lower ends of yoke 80 may be formed to engage any fixed part of the machine as, for example, the end of arm 28.

It will be observed from the foregoing description that all of the objects enumerated have been satisfied. A practically universal adjustment is obtained by the means above mentioned and furthermore, the slide is made of maximum strength by utilizing a standard I-beam for its construction. It will be noted that because of the weight at the left hand free end of the slide, as shown in Fig. 1, practically the whole weight of the slide and its associated parts is carried by roller 44. Roller 46 insures that the right hand end of the slide will be held down and roller 48 limits this downward movement, thus insuring that the slide moves in a fixed path with a maximum ease. It has been found that slide 50 moves most readily when roller 46 is located about two-thirds of the distance between roller 44 and roller 48, measuring horizontally.

While a preferred embodiment of the invention has been described, it will be obvious that various changes in parts can be made without sacrificing either all or some of the advantages resulting from the invention. For example, the motor, instead of being mounted as shown, might be mounted on the rear end of the slide and a belt provided to drive the saw therefrom, the saw being in this case mounted on suitable bearings on block 66. Motor 72, either in the position shown or as last described, might be provided with a pulley over which a belt might be drawn to drive other machinery if the saw is incorporated in a composite machine. Numerous other changes will be apparent to those skilled in the art.

What I claim and desire to protect by Letters Patent is:

1. In combination, supporting means, a slide mounted on the supporting means for longitudinal movement and having a bearing surface under its forward end, an angle member pivoted to the slide about a vertical axis and having the outer surface of one leg bearing on the said bearing surface, a tool including a rotary spindle, a tool carrying bracket supporting the tool pivoted about a horizontal axis to the other leg of the angle member and having a surface bearing on the outer surface of the last named leg, whereby the tool is mounted for adjustment about both horizontal and vertical axes, the rotary spindle being beyond the forward end of the slide, and means for driving the tool in all positions of adjustment.

2. In combination, supporting means, a slide mounted on the supporting means for

longitudinal movement and having a bearing surface under its forward end, an angle member pivoted to the slide about a vertical axis and having the outer surface of one leg bearing on the said bearing surface, a tool, a tool carrying bracket supporting the tool pivoted about a horizontal axis to the other leg of the angle member and having a surface bearing on the outer surface of the last named leg, whereby the tool is mounted for adjustment about both horizontal and vertical axes, means for clamping the bracket to said outer surface of the last named leg including a manually operable handle located rearwardly of the last named leg, and means for driving the tool in all positions of adjustment.

In testimony of which invention I have hereunto set my hand, at Norristown, Pennsylvania, on this 17th day of February, 1928.

LOUIS N. McCARTER.