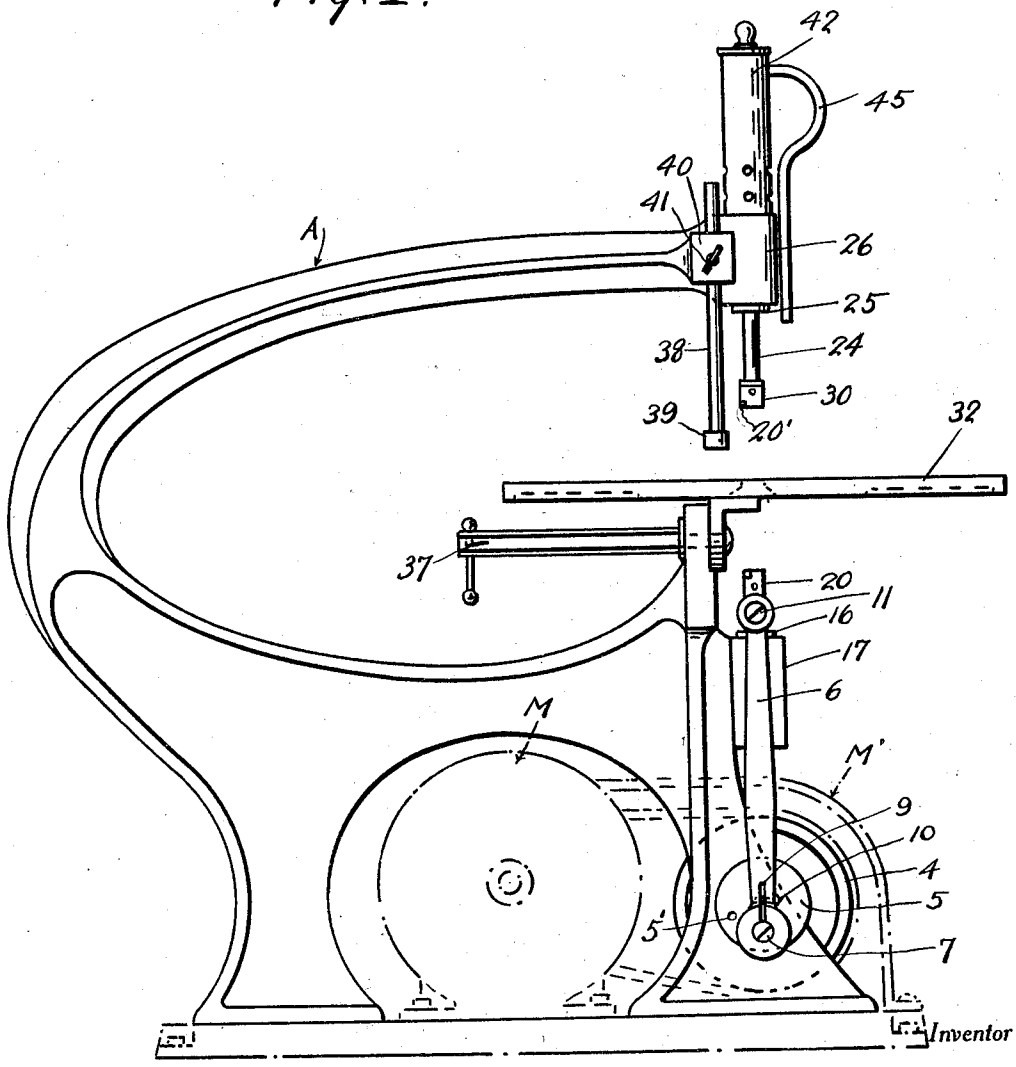
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JIG SAW

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Fig. 1.



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Fig. 2.

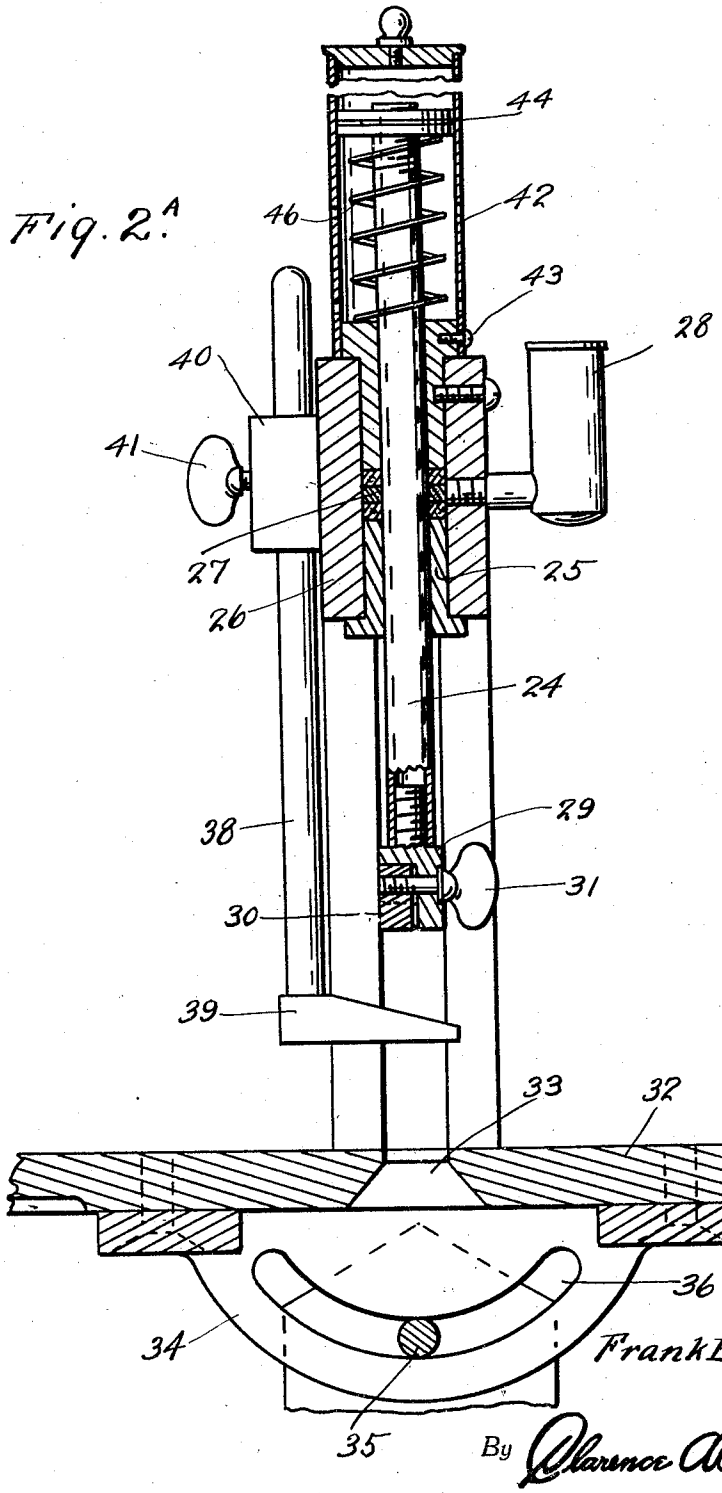
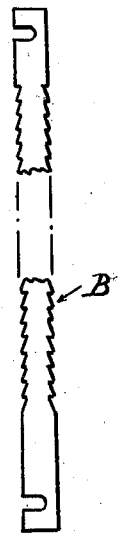


Fig. 3.



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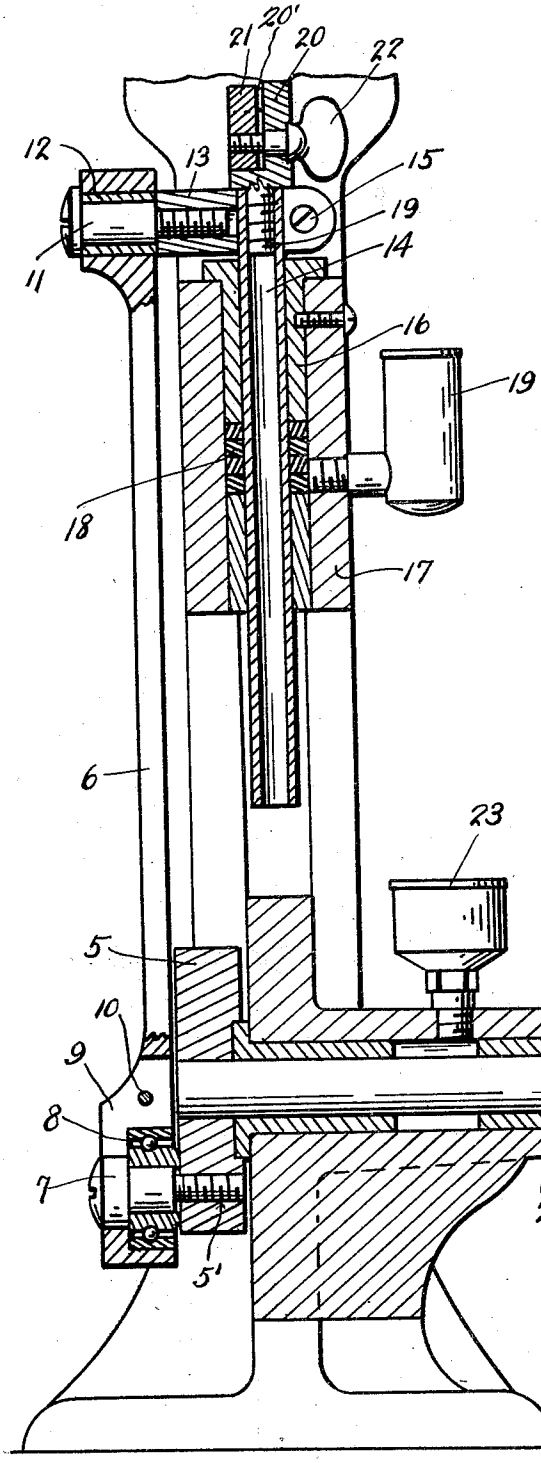


Fig. 2B.

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Patented Apr. 5, 1932 1,852,193

UNITED STATES PATENT OFFICE

FRANK E. SCHNEIDER, OF OSWEGO, NEW YORK

JIG SAW

Application filed August 21, 1931. Serial No. 558,610.

This invention relates to a jig saw, the general object of the invention being to provide a saw having upper and lower plungers vertically arranged with jaws on the adjacent ends of the plungers for receiving the ends of a saw blade and means for reciprocating the lower plunger thus actuating the saw blade, the upper end of which is guided by the upper plunger.

Another object of the invention is to make the connecting rod between the lower plunger and the drive means of considerable length and of light weight so as to transmit the power of the drive means very efficiently and wear of the plunger and bearings is greatly reduced.

Another object of the invention is to provide a pump which is operated by the upper plunger for producing an air blast which removes sawdust from the line being followed by the saw.

A still further object of the invention is to make the work table adjustable from a horizontal position to various inclined positions and also to provide means whereby the blade can be turned very easily and quickly.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is an elevation of the improved edge.

Figure 2*a* is a sectional view through the upper portion thereof and showing the plunger and its associated parts with a portion of the table.

Figure 2*b* is a sectional view showing the lower part of the device.

Figure 3 is a view of a blade used with the device.

In these views the letter A indicates the frame of the machine having a hose and the lower front part of which is formed with the tubular portion 1 which received the bearings 2 for the drive shaft 3 which may be driven from the motor M or any other power device by means of a belt passing over a pulley 4 fastened to the shaft. A crank disk 5 is connected to one end of the shaft and a long connecting rod 6 is eccentrically connected with the disk by the crank pin 7. The disk is provided with a number of threaded holes 5′ for receiving the pin 7 so that the stroke of the plungers may be readily changed. Anti-friction bearing means 8 are provided for the connecting rod 6. I prefer to split the lower end of the connecting rod as shown at 9 and pass a screw 10 through the split portion to properly confine the anti-friction bearing within the recess formed in the lower end of the connecting rod.

A wrist pin 11 passes through a bushing 12 in the upper end of the connecting rod and engages a threaded hole in a member 13 which has an opening therein for receiving the lower plunger 14, the member 13 being split and screw 15 clamps the split portion on the plunger and by releasing this screw 15, the plunger can be easily and quickly turned in the member.

The plunger passes through the bushings 16 located in the tubular part 17 of the frame and packing means 18 is located between the adjacent ends of the bushings. A lubricant cup 19 is connected with the part 17 for supplying lubricant to the packing means 18. The threaded shank 19 of a stationary jaw 20 is threaded in the upper end of the plunger, this jaw being of substantial angle shape so as to provide a space for the movable jaw 21, this jaw 21 being caused to clamp the end of the saw blade placed between the jaws by the thumb screw 22 which passes through the stationary jaw 20 into the jaw 21 when using the wider blades B the notches therein fit over the thumb screws 22 and 31.

A lubricant cup 23 supplies lubricant to the shaft 3. I prefer to use aluminum in the construction of the rod 6. The upper plunger 24 passes through the bushings 25 located in the tubular part 26 of the frame and packing means 27 are located between the adjacent ends of the bushing and is supplied with lu-

bricant from the cup 28. A stationary jaw 29 is carried by the lower end of the plunger 24 and a movable jaw 30 is also moved toward and away from the jaw 29 by the thumb screw 31.

The work table 32 has an opening 33 at its center for the passage of the saw blade and a quadrant 34 is connected to the bottom of the table and bears against part of the frame and is held in adjusted position by a bolt 35 passing through an arc shaped slot 36 in the quadrant and into a long nut 37 which projects beyond the table so as to facilitate securely fastening the table in the desired position. A hold down rod 38 having a head 39 at its lower end is slidably arranged in the boss 40 which is cast in the frame and is held in adjusted position by the thumb screw 41.

A cylinder 42 is connected with the upper end of the top bushing 25 by a screw 43 and a piston 44 is located in the cylinder and is connected with the upper end of the plunger 24 so that the piston will move with the plunger. This cylinder and piston acts as an air pump for forcing air through the tube 45 so that the air escaping from the tube will remove dust from the table and the work placed thereon.

It will of course be understood that the blade is held by the upper and lower sets of jaws with part of the blade passing through the hole 33 in the table and by loosening the screw 15, the lower plunger can be turned to set the blade as desired, it being understood that the movement of the blade will move the upper plunger and that the reciprocatory movement of the blade and lower plunger is communicated to the upper plunger by the blade. This spring 46 will be compressed when plunger is down and lifts up the plunger on the up stroke thus keeping the blade properly tensioned. Provision is made for changing tension of spring by screw piston down on plunger.

The plungers are made of very light material such as aluminum alloy and by having the stroke vertical the use of double edge blades may be very successfully used. The jaws are so formed that the blades can be easily and quickly changed, as is simply necessary to loosen or tighten the thumb screws 22 and 31.

When necessary the coil spring 46 may be placed on the upper plunger below the piston which will act to lift the upper plunger when very fine blades are used. This will permit the work being sawed to be drilled and placed over the saw blade after which it is only necessary to bring down the upper plunger and refasten the saw blade thereto by the upper jaws.

The pump cylinder 42 can be easily changed to direct the air to different parts of the work on the table by removing the screw 43 and after the cylinder has been turned replacing the screw in another hole.

By inserting a separate lower plunger which has a chuck for receiving die files in place of the regular one, the device can be used for filing such as filing art metal works and jewelry and die filing.

The location of the motor M, which is provided with a guard M′ for the pulley belt provides the weight for counteracting the tendency of the parts to vibrate and the mounting of the anti-friction means in the lower part of the connecting rod 6, which is very effective as the arrangement shows forms a grease seal for the anti-friction means. The screw 7 holds the inner race against the crank disk 5 with but slight clearance and properly alines the ball bearings. By loosening the screw 15, the plunger 14 is released from the clamping member 13 so that the plunger can be partly rotated for changing the set of the saw blade or the plunger can be removed and substituted by a new one formed with a chuck for receiving a different kind of tool from a saw blade. Of course if desired the jaws can be removed from the plungers and chucks substituted therefor. By providing a number of holes 5′ in the disk 5, the length of stroke of the plunger can be easily and quickly changed. The type of jaws used enables all kinds of saw blades to be used with the device. As will be seen each of the jaw members 20 and 29 has a projection 20′ at one of its free corners receivable in a recess in the companion jaw members. These projections form stops to engage upper and lower parts of the blade to insure the blade being in perfect vertical alignment before clamping the blade in position by tightening the thumb screws. As before stated when the notched blade shown at B in Figure 3 is used the notches therein fit over the thumb screws. This construction of the jaw members permits instant changing of the blades. The hold device 38 can be easily and quickly adjusted to prevent the work from raising from the table when the saw is in operation and the table can be easily and quickly adjusted to various positions.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts provided that such changes fall within the scope of the appended claims.

Having thus described my invention, what I claim as new is:

1. A device of the class described comprising a frame, upper and lower plungers mounted for reciprocatory movement in the frame, said plungers being in alinement with each other, two engaging members connected with the adjacent ends of the plungers, a drive shaft journalled in the frame, a clamp

member clamped to the lower plunger whereby said last plunger can be turned or removed by releasing the clamping means and a pitman for connecting the clamping member to the drive shaft.

2. A device of the class described comprising a frame, upper and lower plungers supported by the frame and in alinement with each other, means for connecting a tool to the adjacent ends of the plungers, a member rotatably arranged on one of the plungers, a screw for clamping said member in adjusted position to the plunger, and means connected to said member for reciprocating the plunger to which it is attached.

3. A device of the class described comprising a frame, upper and lower plungers mounted for reciprocatory movement in the frame, said plungers being in alinement with each other, a member having one of its ends split and formed with an opening for receiving a part of one of the plungers, and a clamping screw passing through the split end for clamping the member to the plunger, a pitman rotatably connected to the other end of said member, a drive shaft, means for connecting the other end of the pitman to the drive shaft to reciprocate the plunger, and means for detachably connecting the ends of a tool to the adjacent ends of the plungers.

In testimony whereof I affix my signature.

FRANK E. SCHNEIDER.