March 11, 1930. G. A. WALL 1,749,931

SUPPORT FOR ROTARY SLITTERS

Filed Aug. 27, 1928 2 Sheets-Sheet 1

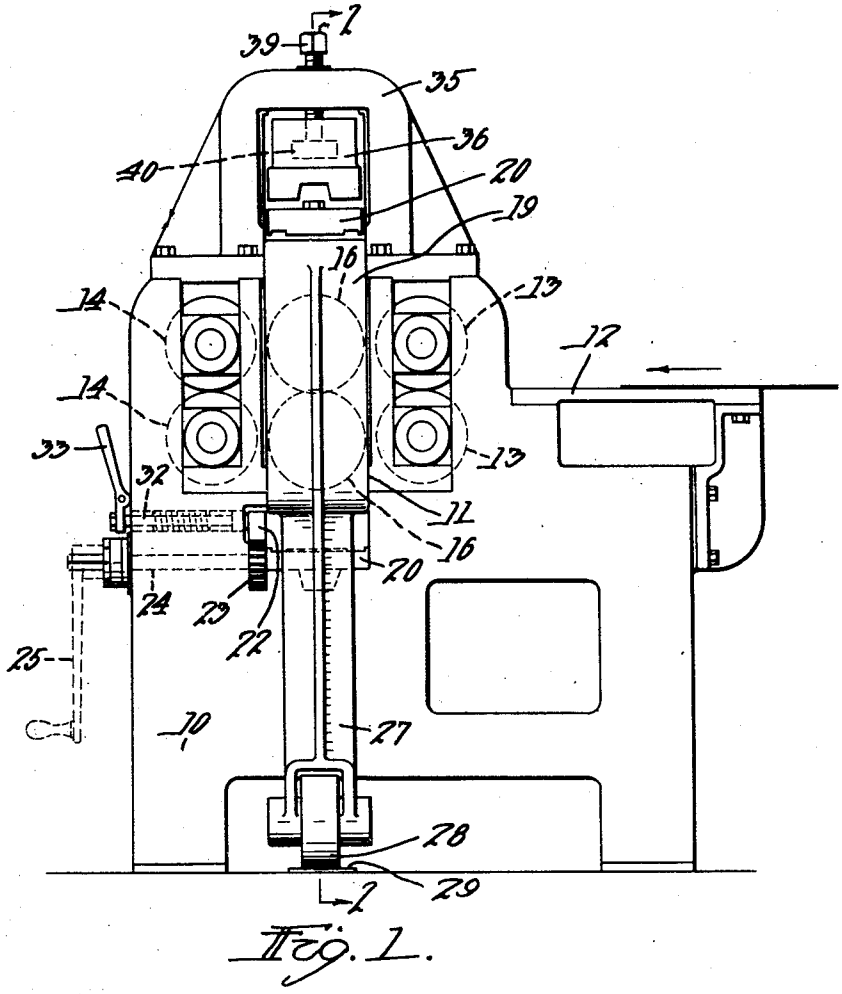


Fig. 1.

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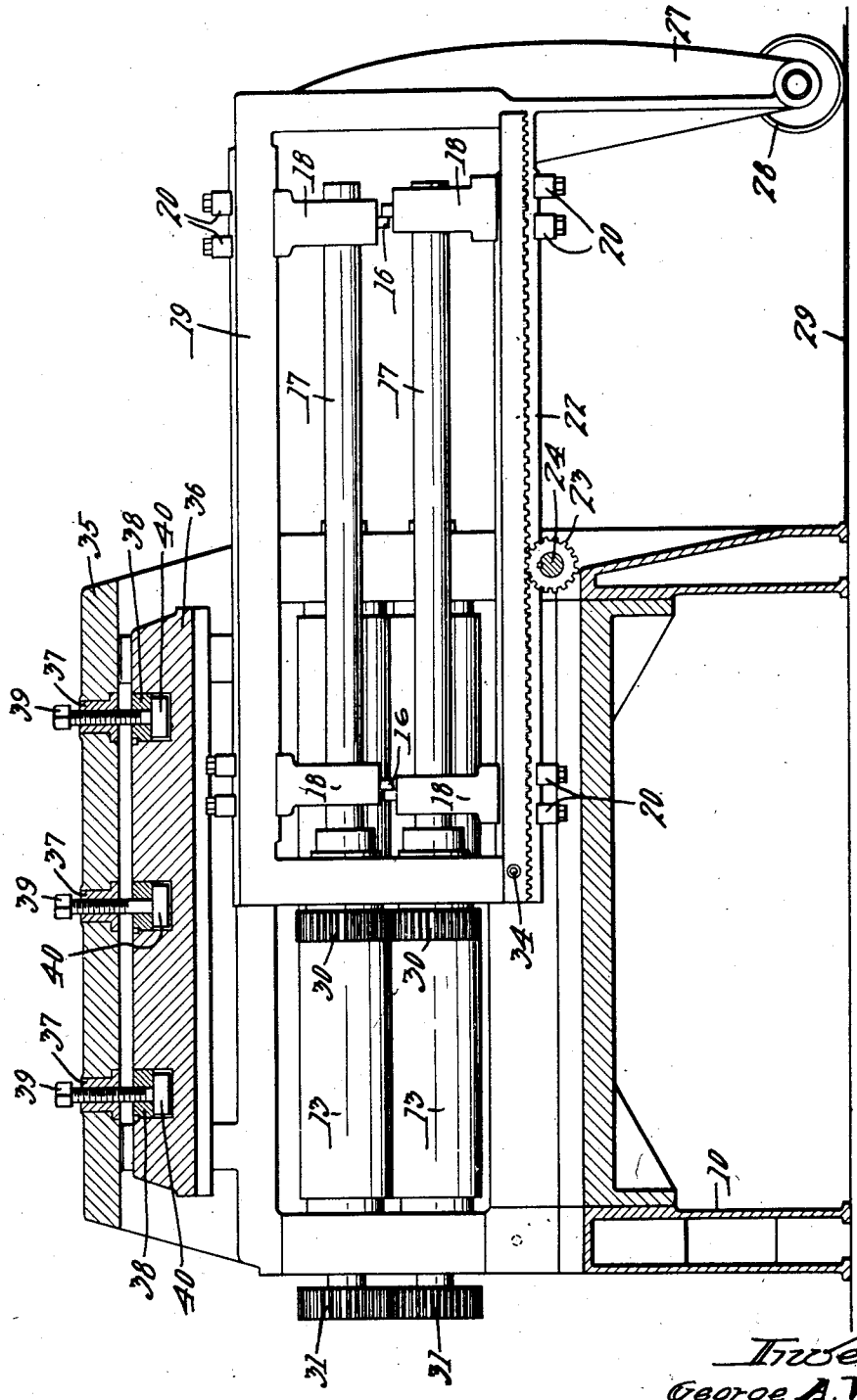


Fig. 2.

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Patented Mar. 11, 1930 1,749,931

UNITED STATES PATENT OFFICE

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SUPPORT FOR ROTARY SLITTERS

Application filed August 27, 1928. Serial No. 302,190.

This invention relates to a slitting machine particularly adapted for slitting metal sheets and of the rotary slitter type.

The principal objects of the invention are to provide means whereby the cutters or slitters with the frame on which they are carried can be removed from the machine horizontally in order to change or adjust the cutters and to provide an improved means for clamping the strong-back or bridge in the top truss down against the cuttter frame and employ the same means for lifting it therefrom when the cutter frame is to be drawn out. The invention also involves improvements in the means for supporting the cutter by a frame in its working position and also in its retracted position and other features of construction as will appear.

Reference is to be had to the accompanying drawings in which

Fig. 1 is an end view of a slitter or cutting machine constructed in accordance with this invention, and

Fig. 2 is a sectional view on the line 2—2 of Fig. 1 showing the cutter bar frame and associated features in side elevation.

The machine is formed with a frame 10 of generally the usual construction but provided with its end cut out to leave a rectangular space 11. The frame is provided with a table 12 for receiving the sheets to be inserted and with a pair of intake rolls 13 adjacent thereto for receiving the sheets and putting them through the machine into the discharge rolls 14 on the other side which discharge them from the machine.

The cutters 16 or slitters are mounted on two shafts 17 carried by chairs 18 which are provided with bearings for the shafts. These chairs are mounted in a frame 19 and clamped in position by clamps 20. This whole frame 19 with the shafts and cutters is intended to be movable into and out of the frame. For this purpose it is provided with a rack 22 along one side. A pinion 23 meshes with this rack carried by a shaft 24 adapted to be operated by a crank 25 or a wrench as may be desired. The frame 19 is also provided with a downwardly extended end 27 having a wheel 28 on the bottom which rests on a steel plate or track 29 located horizontally. This arrangement provides parallel motion for the frame.

On the ends of the shafts 17 are the cutter shaft gears 30 which move with them and at the end of the stationary frame 10 are roll gears 31 with which the gears 30 can be brought into mesh when the sliding frame is moved back to operating position. The roll gears receive their power from any desired source.

A spring pressed locking pin 32 operated by a lever 33 enters a hole or opening 34 in the frame 19 when the parts are in proper operating position.

Another feature of this invention consists in the means for clamping the cutter frame 19 in position when it is ready for operation. The frame 10 is provided with a top truss 35 which is shown as of inverted U-shape in cross section. This ties the roll housings rigidly together and forms a solid backing for a strong back 36 or bridge which extends along the machine at the top and is designed to be forced down against the frame 19 to hold it rigidly in position.

For the two purposes of holding the strong-back down to keep the parts rigidly in position during their operation and to lift the strong-back to release the frame 19, I have provided the truss with a series of steel bushings 37 fixed in position and also the strong-back with somewhat similar bushings 38 also fixed in position. Headed screws 39 pass downwardly into the bushings 38 and have swivelled heads 40 in the spaces under the bushings 38. These can be screwed down to force these heads down into the recesses in which the bushings 38 are located to force the strong-back down and hold the frame 19 in position. Also when it is desired to loosen this strong-back in order to take out the frame 19 the unscrewing of these screws will raise the strong-back and relieve the pressure on account of the fact that the heads 40 are swivelled to the bottoms of the screws.

In operation it will be seen that, with the parts in working position, if it is desired to change the cutters, sharpen them, or remove them for any reason, the first thing to do is to

unscrew the several screws 39 so as to release the frame 19 from pressure; second, the locking pin 32 is withdrawn by the handle 33, and third, the crank 25 is turned to move the frame 19 transversely as shown in Fig. 2, bringing the gears 30 out of mesh with the gears 31 and taking the cutter shafts and cutters with it. When out far enough, the cutters can be removed and replaced and then the whole frame set back in by a corresponding reverse operation, the gears brought into mesh and the strong-back 39 clamped down, when everything will be ready for operation as usual.

Although I have illustrated and described only one form of the invention, I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims.

Therefore, I do not wish to be limited to all the details of construction herein shown and described, but what I do claim is:—

1. In a slitting or cutting machine for metal sheets, the combination with a pair of shafts having slitting cutters thereon and means for driving them, of a frame carrying said shafts, a stationary frame on which the first-named frame is movably mounted, and means for moving the first-named frame outwardly in a horizontal direction parallel to the axes of the shaft to permit of access to the cutters.

2. In a sheet cutting or slitting machine, the combination with a stationary frame having a table thereon for receiving the sheets, a pair of in-take rolls and a pair of discharge rolls supported in bearings carried by said frame, said frame being provided with a recess therein, a second frame movably mounted in said recess, a pair of shafts carried by the second frame, a pair of slitting cutters on said shafts in position to operate on a sheet carried through the rolls, said last-named frame being removable in a horizontal direction transverse to the direction of feed of the sheets, and means for holding the frame in alignment with its original position when moved outwardly from the stationary frame.

3. In a sheet slitting machine, the combination with a main frame having a passage extending substantially from one end to the other, of a movable frame mounted to slide in said passage, shafts on the movable frame, slitting cutters on the shafts, a rack along the movable frame, and a pinion for operating the rack to move the frame into and out of position in the main frame.

4. In a sheet slitting machine, the combination with a main frame having a passage extending substantially from one end to the other, of a movable frame mounted to slide in said passage, shafts on the movable frame, slitting cutters on the shafts, a rack along the movable frame, a pinion for operating the rack to move the frame into and out of position in the main frame, a leg extending down from the movable frame, a wheel on the bottom of the leg, and a horizontal plate for the wheel to roll on, whereby the movable frame is supported at all times in horizontal position.

5. In a sheet slitting machine, the combination with a main frame having a passage, of a movable frame mounted to slide in said passage, shafts on the movable frame, slitting cutters on the shafts, means to move the frame into and out of position in the main frame, a leg extending down from the movable frame, a wheel on the bottom of the leg, and a horizontal plate for the wheel to roll on, whereby the movable frame is supported at all times in horizontal position.

6. In a sheet slitting machine, the combination with a main frame having a passage, of a frame mounted to slide therein, shafts on the movable frame, slitting cutters on the shafts, a truss extending upwardly from the main frame, a bridge located in said truss over the movable frame and a series of clamping bolts carried by the truss and having screw threads therein provided with heads located in recesses in the bridge, whereby said bolts can be used to lift the bridge down on the movable frame to hold it rigidly in position while the machine is being used.

7. In a sheet slitting machine, the combination with a main frame having a passage extending substantially from one end to the other, of a frame mounted to slide therein, shafts on the movable frame, slitting cutters on the shafts, a rack along the movable frame, a pinion for operating the rack to move the frame into and out of position in the main frame, a truss extending upwardly from the main frame, a bridge located in said truss over the movable frame and a series of clamping bolts carried by the truss and having screw threads therein provided with heads located in recesses in the bridge, whereby said bolts can be used to lift the bridge down on the movable frame to hold it rigidly in position while the machine is being used.

In testimony whereof I have hereunto affixed my signature.

GEORGE A. WALL.