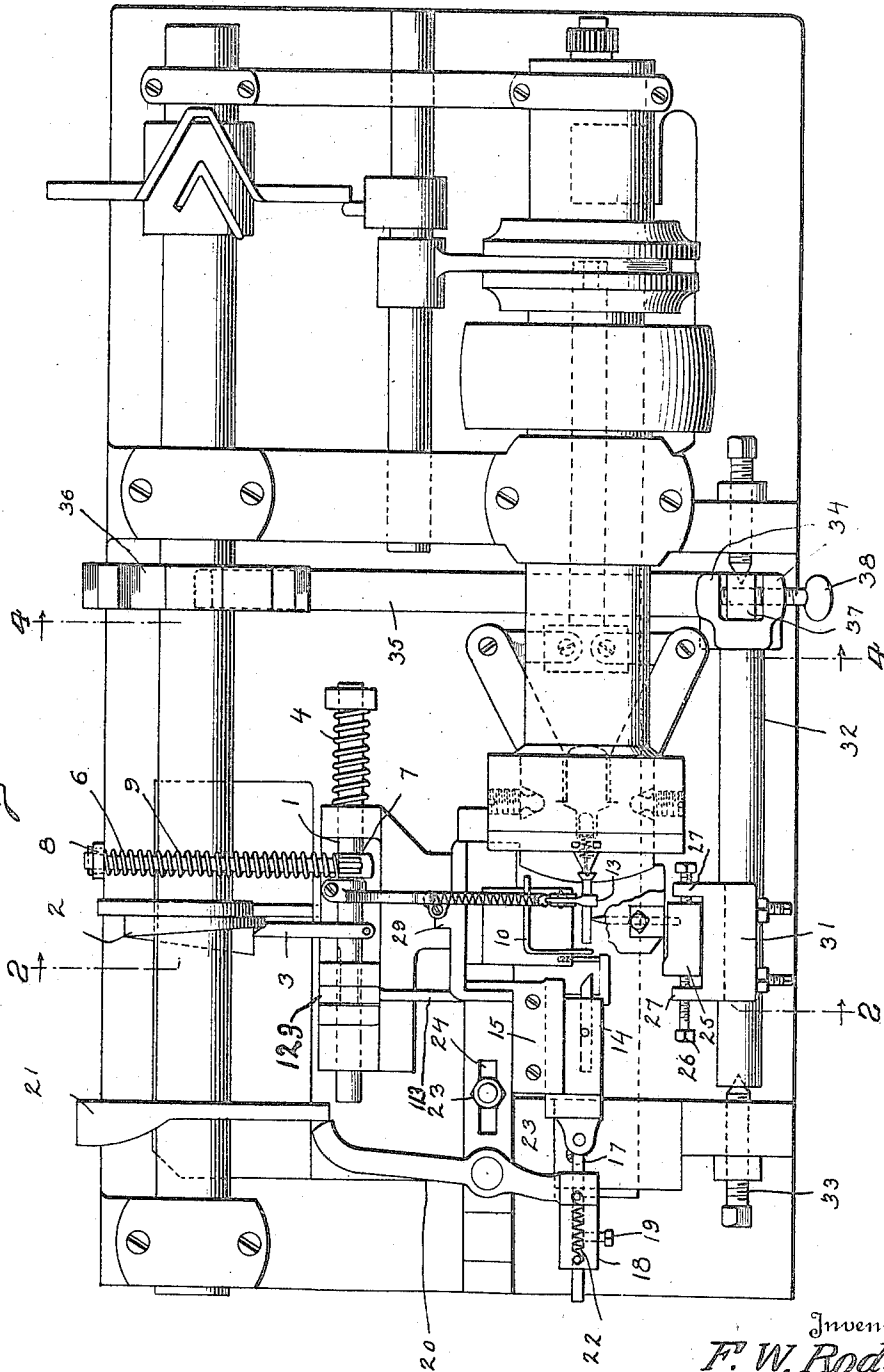


F. W. RODD.
MACHINE FOR THREADING SCREWS.
APPLICATION FILED AUG. 22, 1916.

1,253,631.

Patented Jan. 15, 1918.
3 SHEETS—SHEET 1.

Fig. 1.



Witness

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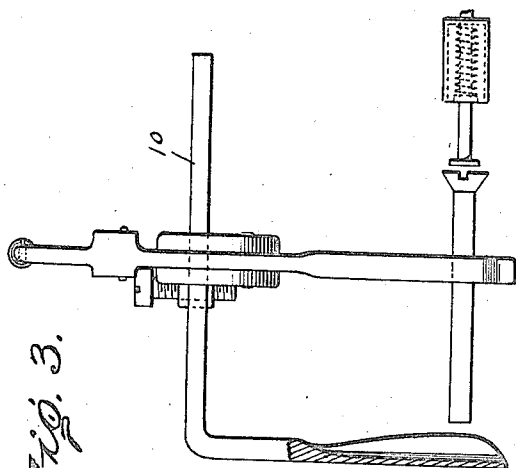


Fig. 3.

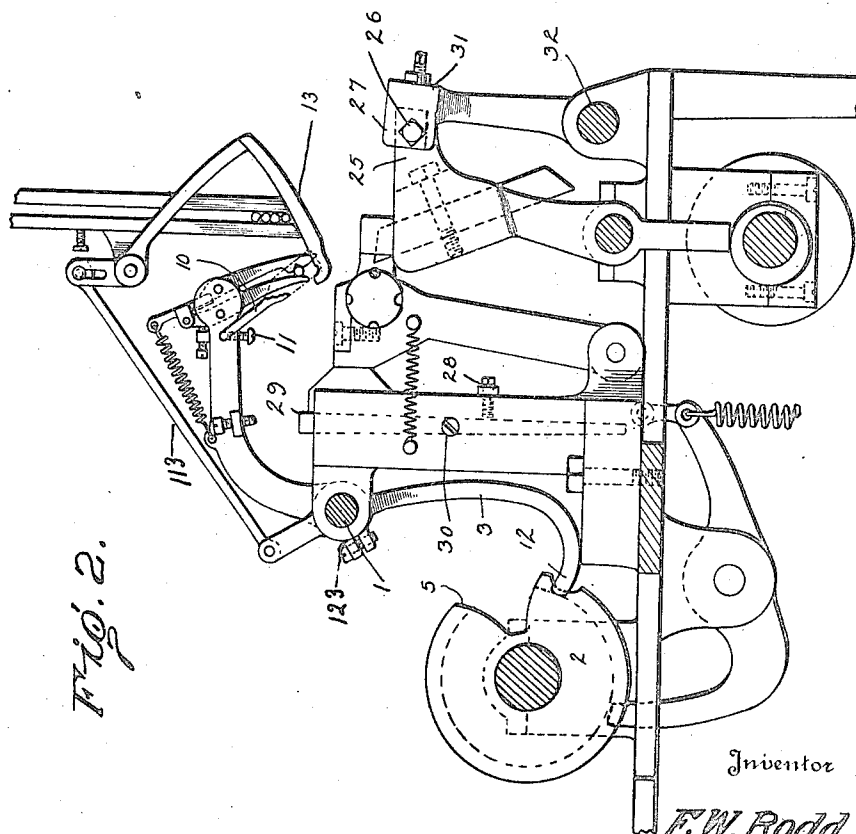


Fig. 2.

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Fig. 4.

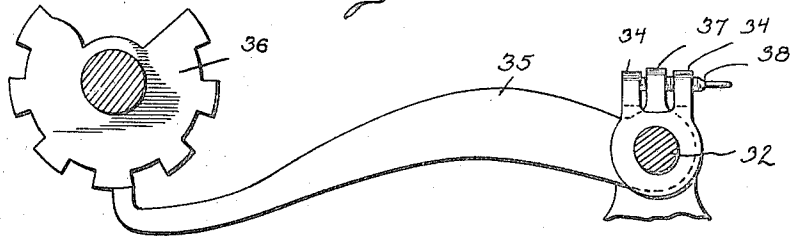


Fig. 5.

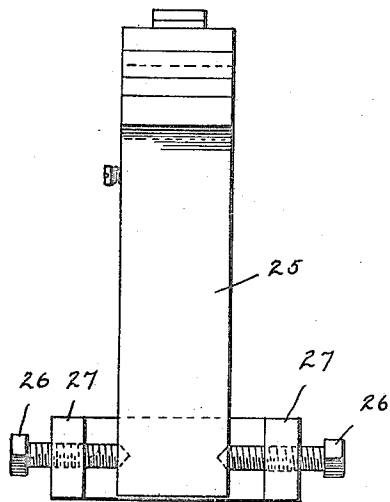


Fig. 6.

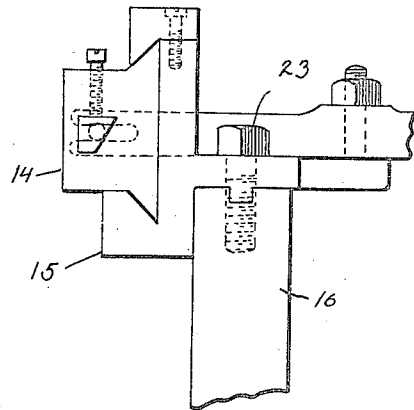
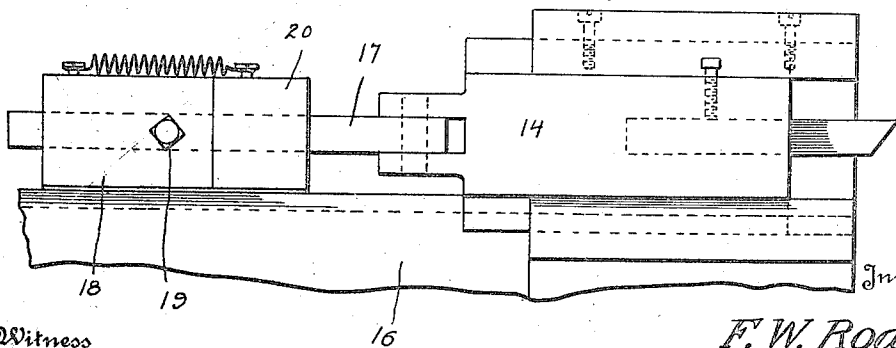


Fig. 7.



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UNITED STATES PATENT OFFICE.

FREDRICK W. RODD, OF CLEVELAND, OHIO.

MACHINE FOR THREADING SCREWS.

1,253,631.

Specification of Letters Patent.

Patented Jan. 15, 1918.

Application filed August 22, 1916. Serial No. 116,345.

To all whom it may concern:

Be it known that I, FREDRICK W. RODD, a citizen of the United States of America, residing at Cleveland, State of Ohio, United States of America, have invented new and useful Improvements in Machines for Threading Screws, of which the following is a specification.

The invention to be hereinafter described relates to machines for threading screws.

In order to more clearly disclose the construction, operation, and use of the invention, reference should be had to the accompanying drawings forming part of the present application. Throughout the several figures of the drawings like reference characters designate the same parts.

In the drawings:—

Figure 1 is a top plan view of the machine with hopper and feeding devices omitted;

Fig. 2 is a cross section on line 2—2 of Fig. 1, looking in the direction of the arrows;

Fig. 3 is an enlarged top plan view of the finger arm with back stop applied;

Fig. 4 is a cross section on line 4—4 of Fig. 1, looking in the direction of the arrows;

Fig. 5 is a front view of the back rest arm, showing its adjustment;

Fig. 6 is an end view showing the mounting of the pointing tool; and

Fig. 7 is a side elevation of the same.

The main objects of the invention are to make machines of this general type more efficient, and more economical; to render them less liable to get out of order; and to eliminate the waste due to imperfect or incomplete operation of one or more parts of the machine.

The general type of machine is, admittedly, well known. To accomplish the objects above stated several of the parts of the machine have been improved either individually, or in combination with cooperating parts, or both, and several totally new elements have been added. These all enter into the general mechanism of the machine and cooperate toward its final result.

The spindle with its blank clamping jaws and ejector, the means for driving the spindle and for operating the jaws, the threading tool post and its shaft, and the mechanism for operating it, the former plate and

its adjustment, the cam shaft, and the gearing train for transmitting the power from the spindle to the several driven shafts, at the desired ratios, are all as in well known machines of this class and it is not thought necessary to further describe them here.

Referring to the drawings in detail, 1 indicates the well known finger arm and cup or carrier arm shaft. Instead of having only a limited rocking movement in its bearings, as in the standard machines, it has, also, a limited sliding longitudinal movement, effected by means of a cam 2 on the regular cam shaft, cooperating with an arm 3 fixed to shaft 1. This cam is really a circular plate or disk, having one inclined or cam face which engages arm 3 and forces it, gradually, toward the hopper end of the machine. A coil spring 4 exerts a pulling action in the opposite direction. At a determined point in the edge of the cam is made the usual small notch to effect the picking up operation in the usual and well known way. This is followed by a deep broad gap 5. A tension rod 6 is loosely pivoted at one end to a short post 7 which is securely clamped to shaft 4. The loose pivot connection is adapted to permit relative twisting movement of the tension arm and post. The opposite end of rod 6 is slidably mounted in an opening in a supporting post 8 fixed to the frame of the machine. The diameter of the opening is slightly greater than the diameter of rod 6 to allow a certain amount of lateral and vertical movement of the tension rod relatively to the post 8. Between posts 7 and 8 on rod 6 is disposed a tension spring 9 which acts, always, to force the shaft 1 to turn toward picking position. The arm 3, as shown in Fig. 2 travels in contact with the edge of the cam 2, thus counteracting the tendency of the tension spring 9, until the picking notch is reached. Then the tension spring effects the picking. Then the arm 3 will drop into the gap 5. During this movement, spring 9 forces shaft 1 to rotate to bring the fingers to such position that the blank will be in direct line with the center of the spindle head. At the same time, the spring 4 will move the shaft lengthwise to place the screw blank between the jaws of the spindle head. Cup arm 13, is connected by a link 113 to the strap 123 which is slidably keyed to the shaft 1. After

the head of the blank engages the spring actuated ejector, it is necessary to provide means for overcoming the force of the ejector spring during the continued longitudinal movement of the finger arm. For this purpose a stop is provided—see Fig. 3. Preferably, it comprises a substantially L shaped rod or bar 10, having one branch slidably mounted in a bore through the head of the finger arm and the outer part of its other arm somewhat widened and, preferably, slightly dished or concaved, all as clearly shown in Figs. 2 and 3. A set screw 11 is used to bind it in any desired adjusted position. This adjustment adapts the stop for use with blanks of various lengths. If desired, the same form of stop may be rigidly secured to the finger arm. It will work equally well whether adjustable or not, when only one length of blanks is to be used, as will be evident. Now, as the arm 3 rides out of the gap 5, the fingers will be lifted to their highest position, and, at the same time, the tapered or incline cam face will start the return longitudinal movement of shaft 1. For these several operations it is necessary, of course, to have the arm 3 travel in continuous engagement both with the edge of the cam 2 and its incline face. Consequently, the arm 3 is provided with an ear or extension 12 which projects inwardly beyond the edge of the cam and engages the incline face.

Provision must be made for the sliding movement of shaft 1, relatively to the clamp or socket of the cup arm, of course, as the cup arm and its connected parts can not have such longitudinal movement. Accordingly, this clamp or socket is slidably keyed to the shaft 1, as indicated in dotted lines in Fig. 1.

In the present machine, the pointing tool is designed to do nothing but pointing work and, therefore, may be made simple and durable. It is simply a bar 13, properly ground and pointed and adjustably mounted in a tool holder 14 which is reciprocally mounted in a housing 15 bolted or otherwise removably secured to a vertical member 16 of the frame. The sliding connection between the tool block and its housing is a dove tail or mortise and tenon. To the rear of the tool block 14, is pivotally connected a rod 17 which slides freely through a sleeve or other guide 18 on the frame, a set screw 19 being used to lock the rod against movement, if desired. To this rod, between the sleeve and tool block, is connected one end of the usual lever 20 for actuating the pointing tool. The lever 20 is operated, in one direction by a cam 21, as usual, a spring 22 connected at its opposite ends, respectively, to the sleeve and lever, acting to maintain contact between the lever and cam, also, as usual. The tool block slide or housing may be adjusted on the member 16, toward or from the spindle, by

the bolt 23 which passes through an elongated slot 24 in the slide and is threaded into the member 16—see Figs. 1 and 6.

In order to accommodate blanks of varying lengths in the same back rest, arm 25 is made adjustable, longitudinally, with relation to the spindle. For this purpose, the lower or pivot end is mounted between two pivot bolts 26 threaded through ears 27 on the base of the back rest bracket and considerably spaced apart. By adjusting these pivots, the back rest may be moved toward or from the spindle, as desired, as will be evident. The back rest is moved toward and from operative position in the usual manner, by cooperating cam, lever, and sliding wedge. The wedge bar is mounted to have a limited amount of lateral movement in its bracket, toward or from the back rest arm, a small plate 28 removably secured across the bracket face serving to retain it in place. To take up wear on the wedge or to adjust it to properly position the back rest, an adjusting wedge plate 29 is used. This fits in the bracket channel behind the wedge bar and has a very gradual taper to permit a fine adjustment of the wedge bar, laterally. To move the wedge bar outwardly, it is only necessary to loosen the set screw 30 and tap the upper end of wedge plate 29, driving it down and crowding the wedge bar forward. Or to allow the wedge bar to drop farther into its bracket channel, it is only necessary to loosen the set screw, raise wedge plate 29 a bit, and again tighten the set screw 30. The former plate post 31 is carried by a rock shaft 32 at the front of the machine and mounted on pivot bolts 33 threaded through brackets or bearings of the machine frame. This permits longitudinal adjustment of the former plate post. One end of this rock shaft is reduced and near this reduced portion provided with two ears or lugs 34 extending substantially parallel with the reduced part. On this reduced end, and between lugs 34, is journaled the cut cam lever 35, cooperating in the usual way with the cut cam 36. The journal end of this lever is provided with a lug 37 which lies between but spaced from the lugs 34. A wing bolt 38 passed freely through one lug 34, threaded into and through the lug 37, and bearing against the other lug 34, serves to regulate the cut cam lever with regard to the cut cam and the rock shaft.

Except as above set forth, the general operation of the machine is well understood and it is not thought advisable to further extend the description to include it.

Changes may be made in the construction, arrangement, and disposition of the several parts of the invention, within the limits of the appended claims, without in any way departing from field and scope of the invention, and it is meant to include all such

within this application wherein only a preferred form has been disclosed.

Having thus described my invention, what I claim and desire to protect by Letters Patent is:—

1. In combination with a screw threading machine, a longitudinally slidably and rockably mounted cup arm and finger arm shaft, a finger arm fixed thereto, a cup arm slidably keyed thereto, cam and lever devices for sliding said shaft longitudinally, means for rocking said shaft, and spring means for returning said shaft longitudinally after the rocking movement.

2. In combination with a screw threading machine, a cup arm and finger shaft, a cup arm slidably keyed thereto, a finger arm fixed to said shaft, means for sliding said shaft longitudinally, and means for rocking said shaft.

3. In combination with a screw threading machine, a finger arm shaft, a finger arm fixed thereto, an arm fixed to said shaft and provided with an ear, an actuating cam engaging said arm and ear to effect both a rocking movement and a sliding movement of the aforesaid shaft in one direction, and means for effecting a sliding movement of said shaft in the opposite direction.

4. In combination with a screw threading machine a back rest bracket, a back rest arm mounted therein, and means for adjusting said arm relatively to said bracket longitudinally toward and from the spindle of the machine to accommodate blanks of varying lengths.

5. In combination with a screw threading machine, a back rest bracket, a back rest arm adjustably mounted therein and means for adjusting said back rest arm relatively to said bracket.

6. In combination with a screw threading machine, a back rest bracket, provided with ears, pivot bolts adjustably mounted in said ears, and a back rest arm pivotally supported by and between said pivot bolts.

7. In combination with a screw threading machine, a back rest bracket, a back rest arm pivotally mounted therein, a wedge bar vertically slidably and laterally adjustably

mounted in said bracket and adapted to actuate said back rest arm to operative position, means for adjusting said wedge bar laterally, and means for reciprocating said wedge bar vertically.

8. In combination with a screw threading machine, a back rest bracket, a back rest arm pivotally mounted therein, a wedge bar vertically slidably and laterally adjustably mounted in said bracket and adapted to actuate said back rest arm to operative position, means for adjusting said wedge bar laterally, a lever, connections between said lever and said wedge bar for actuating said bar, and a cam for actuating said lever.

9. In combination with a screw threading machine, a back rest bracket, a back rest arm pivotally mounted therein, a wedge bar vertically slidably and laterally adjustably mounted in said bracket and adapted to actuate said back rest arm to operative position, means for adjusting said wedge bar laterally, a lever, link connections between said lever and said wedge bar for actuating said bar, a cam for actuating said lever in one direction, and a spring for actuating said lever in the opposite direction.

10. In combination with a screw threading machine a tool post shaft, a rock shaft parallel with said tool post shaft and provided with a reduced end, a cut cam lever journaled on said reduced end, and means for adjusting said lever about said reduced end.

11. In combination with a screw threading machine a tool post shaft, a rock shaft parallel with said tool post shaft and provided with one reduced end and parallel spaced lugs adjacent to said reduced end, a cut cam lever journaled on said reduced end and provided with a lug extending between said parallel lugs; and an adjusting screw passed through one lug of said rock shaft, threaded through the lug of the cut cam lever, and setting against the other lug of the rock shaft.

Signed at Montreal, Quebec, Canada, this 17 day of August 1916.

FREDRICK W. RODD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."