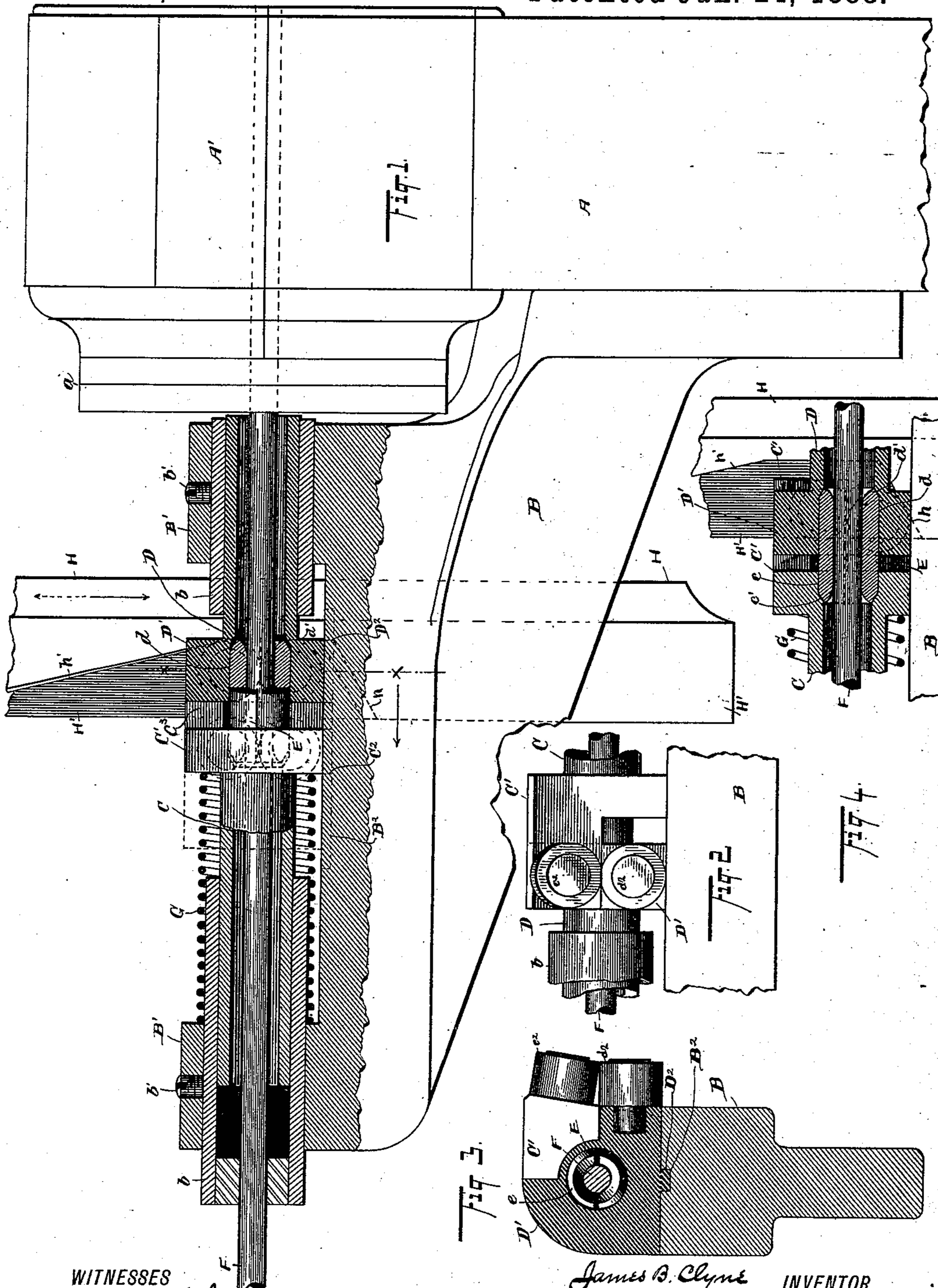


(No Model.)

J. B. CLYNE.
METAL SCREW MACHINE.

No. 376,942.

Patented Jan. 24, 1888.



WITNESSES
N. S. Amstutz
Geo. W. King

James B. Clyne INVENTOR
Seggett & Seggett Attorney

UNITED STATES PATENT OFFICE.

JAMES B. CLYNE, OF CLEVELAND, OHIO, ASSIGNOR TO THE WHITE SEWING MACHINE COMPANY, OF SAME PLACE.

METAL-SCREW MACHINE.

SPECIFICATION forming part of Letters Patent No. 376,942, dated January 24, 1888.

Application filed September 12, 1887. Serial No. 249,438. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. CLYNE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful
5 Improvements in Machines for Making Metal Screws; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use
10 the same.

My invention relates to improvements in machines for making metal screws, and more especially to the feed mechanism for such machines; and it consists in certain features of
15 construction and in combination of parts, hereinafter described, and pointed out in the claims.

My present invention is designed as an improvement on a screw-cutting machine for which Letters Patent No. 333,198 were granted
20 to me December 29, 1885, and to which reference is hereby made.

In the accompanying drawings, Figure 1 is a side elevation, partly in section. Fig. 2 is a side elevation showing the reverse side of the feed mechanism. Fig. 3 is an elevation in
25 transverse section on line *xx*, Fig. 1. Fig. 4 is an elevation in longitudinal section showing the feeding-clamp in its closed position for feeding the blank.

30 A represents the rear standard of the head-block of the machine, the same being provided with a suitable box, A', in which is journaled the rear end of the hollow spindle *a*, these parts, together with the balance of the machine except the feed mechanism, being substantially the same as shown and described in the aforesaid Letters Patent. To the rear side of standard A, and projecting rearward, is secured the bracket B, the latter having up-
40 wardly-projecting lugs B', in the bore of which are inserted long steel bushings *b*, the bores of the bushings being in line with the bore of the hollow spindle *a*. These bushings fit easily in their respective seats, so that they are adjustable endwise, and are held in their adjusted
45 positions by means of set-screws *b'*. Sleeves or tubes C and D fit easily in the bore of the respective bushings, each sleeve having an external head, respectively, C' and D'. These
50 heads have depending tongues C² and D², that fit easily in a groove, B², made longitudinally

in the upper face of the bracket, by means of which the sleeves are held from turning, but are left free to move a limited distance endwise. The bore of each sleeve is large enough
55 to admit the blank loosely; and the opposing ends of the sleeves are counterbored at *c* and *d* to receive the feeding-clamp E. The jaws of the clamp are alike, and in making the clamp first a hollow cylinder is prepared, having a
60 bore of suitable size to fit the blank F, the external diameter of the cylinder being such as to fit easily in the counterbores *c* and *d*. The ends of the cylinder are made conical externally at *e*, to fit corresponding conical seats, *e'*
65 and *d'*, at the inner end or bottom of the counterbores aforesaid. The cylinder is then milled apart—that is, divided longitudinally into two equal jaws.

When the jaws of clamp E are in the position in the counterbores *c* and *d*, by pressing the sleeves toward each other the conical seats *e'* and *d'*, engaging the conical ends *e* of the clamp, close the jaws of the clamp and grasp
75 the blank. When the sleeves are moved apart a trifle, the jaws of the clamp open slightly and leave the blank free to revolve between the jaws. A spiral spring, G, is coiled around the rear bushing, one end of the spring abutting the rear lug, B', and the other end of the
80 spring abutting head C', the tension of the spring serving to move the engaging head and sleeve forward.

For moving the two sleeves rearward against the action of spring G, I provide the following: A disk, H, having a rearwardly-over-
85 hanging rim, H', is mounted on a shaft marked "C" in the aforesaid patent, said shaft being geared to make one revolution for each screw cut in the machine. The rim H' has a notch
90 cut therein, the one side of the notch *h* being an abrupt incline, while the other side of the notch *h'* has a more gradual slope, as shown in Fig. 1.

Head D' has one corner cut away, as shown
95 in Fig. 3, and head C' has a forwardly-projecting arm, C³, that overlaps head D' and fits in the notch of the latter. Head D' and arm C³ have each, and on the same side, a laterally-projecting wrist, on which are respectively
100 the anti-friction rolls *c*² and *d*², for engaging the edge of disk H. The arrangement is

such that when the two rollers register vertically, as they would do when both rollers were engaging the flat edge of rim H' , the two sleeves are separated far enough to leave the
 5 clamp E loose on the blank, and consequently when the two sleeves engage the ends of the clamp, to cause the jaws of the latter to grasp the blank, the top roller, c^2 , will be in position slightly forward of the lower roller, d^2 . While
 10 disk H is making something more than three-quarters of a revolution, and during the time that the screw is being made in the machine, the two rollers are traveling on the flat surface of rim H' , and consequently the two sleeves C
 15 and D are held rearward and the spring G remains compressed, and the blank revolves loosely in the clamp.

As a completed screw falls from the machine, the chuck of the machine automatically
 20 opens to allow the blank to be moved forward for a new screw, all of which is fully shown and described in the aforesaid patent, and just as the chuck opens the abrupt incline h comes opposite the rollers c^2 and d^2 . The disk H ,
 25 moving in the direction indicated by the arrow, first brings the roller c^2 in engagement with incline h , and by the recoil of spring G this roller and the connected sleeve is moved forward before roller d^2 engages this incline,
 30 whereby the clamp is tightened on the blank and the latter is moved forward, not instantaneously, but as fast as roller d^2 , following after on the incline h , will admit. The blank is moved forward until the front end thereof
 35 strikes a stop had for the purpose in the machine and marked " h " in the patent aforesaid. Just after this occurs roller c^2 engages incline h' , and the roller is thereby moved rearward, thus releasing the clamp, after which
 40 the chuck of the machine grasps the blank. The incline h' moves the sleeves and clamp slowly rearward until the flat surface of rim H' is reached, after which the clamp remains rearward, open and idle, while the screw is
 45 being cut.

What I claim is—

1. In feed mechanism for machines for mak-

ing metal screws, the combination, with reciprocating sleeves having opposing ends counterbored, said sleeves being set in line with the
 50 hollow mandrel of the machine and yieldingly held together or in close proximity to each other, of clamping-jaws set in the counterbore of the sleeves, said clamping-jaws having conical ends and corresponding conical seats in
 55 the sleeves for closing the jaws by moving the sleeves toward each other, substantially as set forth.

2. The combination, with reciprocating sleeves and clamping-jaws held between the
 60 sleeves, substantially as indicated, of a spring made to engage the rear sleeve for moving the feed mechanism forward and cam-disk for moving the feed mechanism rearward against the action of the spring, substantially as set
 65 forth.

3. The combination, with a reciprocating sleeve, clamping-jaws held between the sleeves, and spring acting against the rear sleeve to move the feed mechanism forward, of cam-
 70 disk for moving the feed mechanism rearward, said cam-disk having inclines arranged, substantially as indicated, to close the clamps with the forward movement and open the
 75 clamps with the rearward movement of the feed mechanism, substantially as set forth.

4. The combination, with reciprocating sleeves, of clamping-jaws and a spring for normally holding the sleeves in contact with the clamping-jaws.
 80

5. The combination, with reciprocating sleeves having opposing ends counterbored and provided with conical seats, of clamping-jaws and a spring for normally holding the sleeves in contact with the clamping-jaws,
 85 substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this
 22d day of July, 1887.

JAMES B. CLYNE.

Witnesses:

CHAS. H. DORER,
 ALBERT E. LYNCH.