

No. 767,842.

PATENTED AUG. 16, 1904.

C. M. SMILLIE.

TURRET OR SCREW MACHINE RELEASING DIE.

APPLICATION FILED FEB. 8, 1904.

NO MODEL.

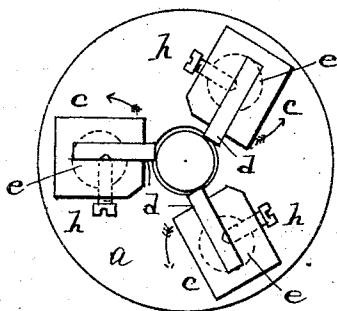


Fig. 1.

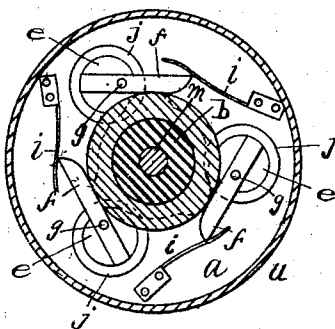


Fig. 2.

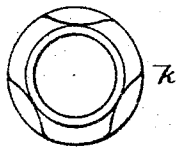


Fig. 3.

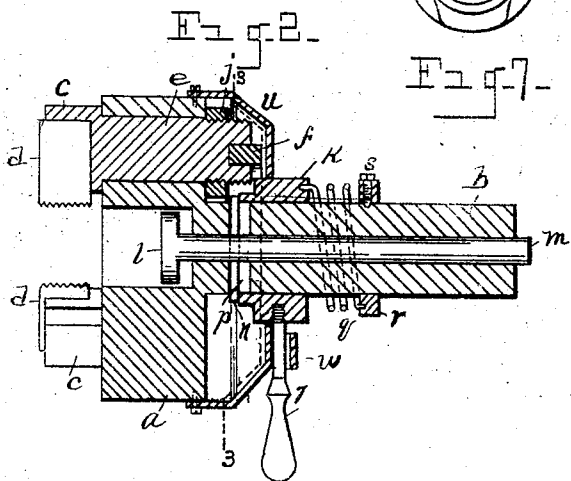


Fig. 4.

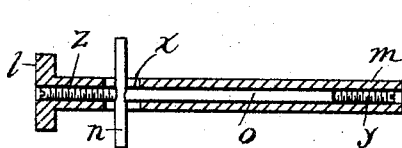
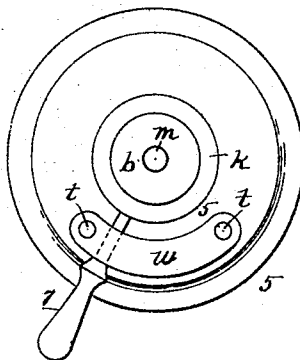


Fig. 6.

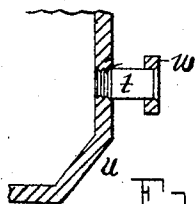


Fig. 7.

WITNESSES.

O. B. Baugher,
M. L. Simmons

INVENTOR

Charles M. Smillie
By Newell Wright
attorney.

UNITED STATES PATENT OFFICE.

CHARLES M. SMILLIE, OF DETROIT, MICHIGAN.

TURRET OR SCREW MACHINE RELEASING-DIE.

SPECIFICATION forming part of Letters Patent No. 767,842, dated August 16, 1904.

Application filed February 8, 1904. Serial No. 192,571. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. SMILLIE, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Turret or Screw Machine Releasing-Dies, of which the following is a specification, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object certain new and useful improvements in turret or screw releasing-dies; and my invention consists of the construction, combination, and arrangement of devices, as hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of the die. Fig. 2 is a longitudinal section therethrough. Fig. 3 is a view in section on the line 3 3, Fig. 2. Fig. 4 is a rear end view; Fig. 5, a detail view of certain portions of the mechanism. Fig. 6 is a detail view illustrating the construction of the gage and certain related parts. Fig. 7 is a detail view of the cam.

One important feature of my invention is to so construct and arrange the chasers that they may be swung away from the work in any novel manner to prevent the formation of a bur upon the work, commonly caused by other machines heretofore employed for analogous purposes.

My invention also contemplates novel means of holding the chasers to the work, as well as to release the chasers therefrom.

My invention is designed to provide turret or screw machine releasing-dies of superior construction and utility which shall be simple and efficient in their operation; and the invention contemplates the general construction, arrangement, and combination of parts and their novel functions, my invention being carried out as follows:

In the drawings, *a* represents any suitable head, the same being provided with a shaft *b*. It will be understood that said shaft is to be engaged upon the turret in any suitable or customary manner and that the implement is advanced to the work in any usual or desired way. The head *a* is provided with suitable

jaws *c*, each jaw carrying a chaser, (indicated at *d*,) the chasers being each let into the corresponding head of the jaw, so that the cutting edges of the chasers in operation are located on a line passing through the center of the jaw, as indicated more particularly in Fig. 1. The jaws are constructed with cylindrical shanks *e*, passed through the head, each cylindrical shaft or shank being provided at its end opposite the chaser with a bar *f*, preferably constructed of tool-steel and let into the shank of the corresponding jaw across the center thereof, the same being held in place by a screw *g*. Each of the chasers is held in place by a screw *h*. Bearing against each of the bars *f* is a corresponding spring *i*. The jaws are each held from endwise movement by a corresponding collar *j*, having a threaded engagement therewith at one end, the head of the jaw projecting from the opposite end of the head, as shown. It will be observed that the tension of each of the springs *i* is upon the corresponding bar *f* and that when the jaw is free to be moved the tension of the corresponding spring will give to the jaw a partial rotation, in consequence of which the chaser will swing away from the center of the head, the chaser turning on the axial center of the shank of the corresponding jaw, the cutting edge of the chaser thus swinging away from the work, this movement of the chaser constituting, as already observed above, an important feature of my invention.

To hold the jaws and chasers to the work, I preferably employ a cam *k*, sleeved upon the shank *b* of the head, said cam formed with cam-faces, as shown, to bear against the corresponding bars *f* of the jaws, thereby forcing the jaws into working position and effectually holding the jaws and their chasers in working position until the cam is released from the bars *f*. To effect this release by a shifting of the cam, I have shown a gage *l*, provided with a shank *m*, projecting through the stem or shank of the head, the shank *m* being provided with a pin (indicated at *n*) projecting through the elongated slot *p* in the shank *b* to bear against the inner faces of the cam *k*. The cam *k* is not only partially rota-

table, but is also movable longitudinally for a desired distance upon the shank *b*. It will be apparent that when the die has been advanced upon the work a required distance the work will press against the face of the gage *l*, causing the pin *n* to press against the cam *k* to move the cam backward upon the shank *b* and away from contact with the bars *f*. It will be observed that when the cam is thus moved back away from the bars *f* the springs *i*, as already observed, will cause the chasers to swing away from the work upon the arc of a circle. A spring *q* is employed to assist in holding the cam normally to its working position. This spring is suitably engaged between the cam and the collar *r*, which may be movable upon the shank *b*, so as to adjust the tension of the spring, the collar being held in the desired position by means of a screw *s*. When it is desired to restore the chasers to working position, the cam *k* is given a partial rotation, so as to cause its cam-surfaces to ride under the bars *f* or into working position, the spring *q* pressing the cam inward when free to move inward under the bars. To give a partial rotation to the cam *k* to advance it under the bars *f*, I have shown a handle 1 engaged with said cam. I prefer to so engage the spring in connection with the cam that when the cam is free to be moved out of working position the spring will automatically throw the cam out of operative position, the operator only needing to shift the cam by means of said handle to restore the chaser to working position. A cap *u* is preferably located over the bars *f* and springs *i* about the periphery of the cam. To limit the rotation of the cam, I prefer to locate stops *t t* upon the cap *u*, as shown. Upon said stops I also locate a plate *w*, placed a suitable distance from the normal position of the handle and giving to said handle a limited movement longitudinally of the shank *b*. To adjust the operation of the gage *l* for different kinds of work, I prefer to construct the shank of the catch with an interior longitudinal orifice (indicated at *x*) and to locate in said orifice on opposite sides of the pin *n*, projecting through said shank, set-screws *y z*, so that the position of the said pin in the elongated slot in the shank of the gage may be adjusted as may be desired. To avoid making one of said screws of a length required to contact with the rear surface of the pin, a push-rod *o* may be interposed between the inner end of the screw and the pin, as shown.

What I claim as my invention is—

1. In a releasing-die the combination of a head, swinging jaws located therein each pro-

vided with a chaser at one extremity, and with a spring-actuated bar or lever at the opposite extremity, and means to hold the jaws in working position and to release the dies from working position, the axes of the jaws being parallel to the axis of the head.

2. In a releasing-die the combination of a head, swinging arms located therein each provided with a chaser at one extremity and with a spring-actuated bar or lever at the opposite extremity, a rotatable cam movable longitudinally of the head to hold the jaws in working position, means to release the cam, and means to restore the cam to working position, the axes of the jaws being parallel to the axis of the head.

3. In a releasing-die the combination of a head, swinging jaws sleeved through said head each provided with a chaser at one end thereof having its cutting edges in operation located on a line passed through the center of the head and through the axis of the corresponding jaw, a rotatable cam at the opposite end of the jaws to hold the jaws in working position, means to release said cam from engaging with the jaws, and means to restore the cam into engagement with the jaws, the axes of the jaws being parallel to the axis of the head.

4. In a releasing-die the combination of a head, swinging jaws sleeved through said head each provided with a chaser at one end thereof having its cutting edge in operation located on a line passing through the center of the head and through the axis of the corresponding jaw, mechanism at the opposite end of the jaws to hold the jaws in working position, spring-actuated means to actuate the jaws when free to move, and means to release said mechanism, the axes of the jaws being parallel to the axis of the head.

5. In a releasing-die the combination of a head, rotatable jaws located therein each provided with a chaser having its cutting edge in operation, located on a line passing through the center of the head, a transverse bar engaged with the opposite end of each of the jaws, a spring to actuate said bar, a rotatable cam movable longitudinally of the head to hold the jaws in working position, a movable gage to release the cam, and means to restore the cam to working position, the axes of the jaws being parallel to the axis of the head.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES M. SMILLIE.

Witnesses:

N. S. WRIGHT,
C. F. BESANOR.