(No Model.) 2 Sheets—Sheet 1.

C. S. SHERMAN.

TURRET LATHE.

No. 423,088. Patented Mar. 11, 1890.

Fig. 1.

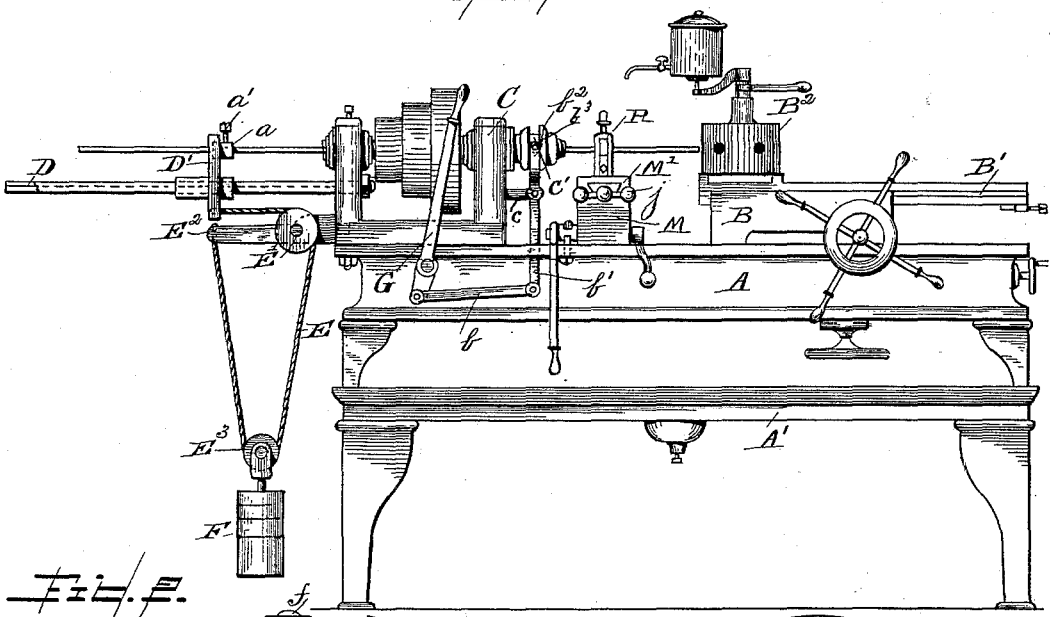


Fig. 2.

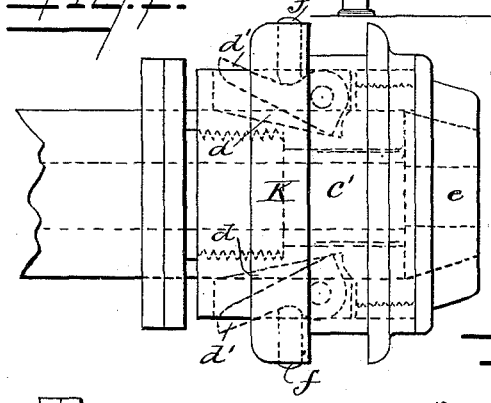


Fig. 3.

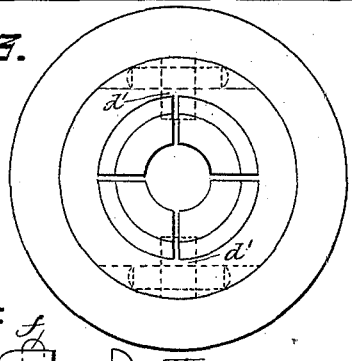
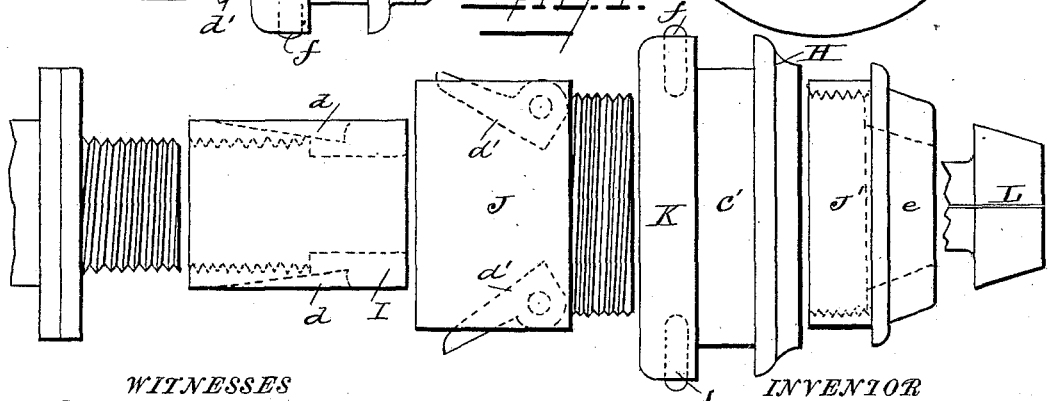


Fig. 4.



WITNESSES

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by

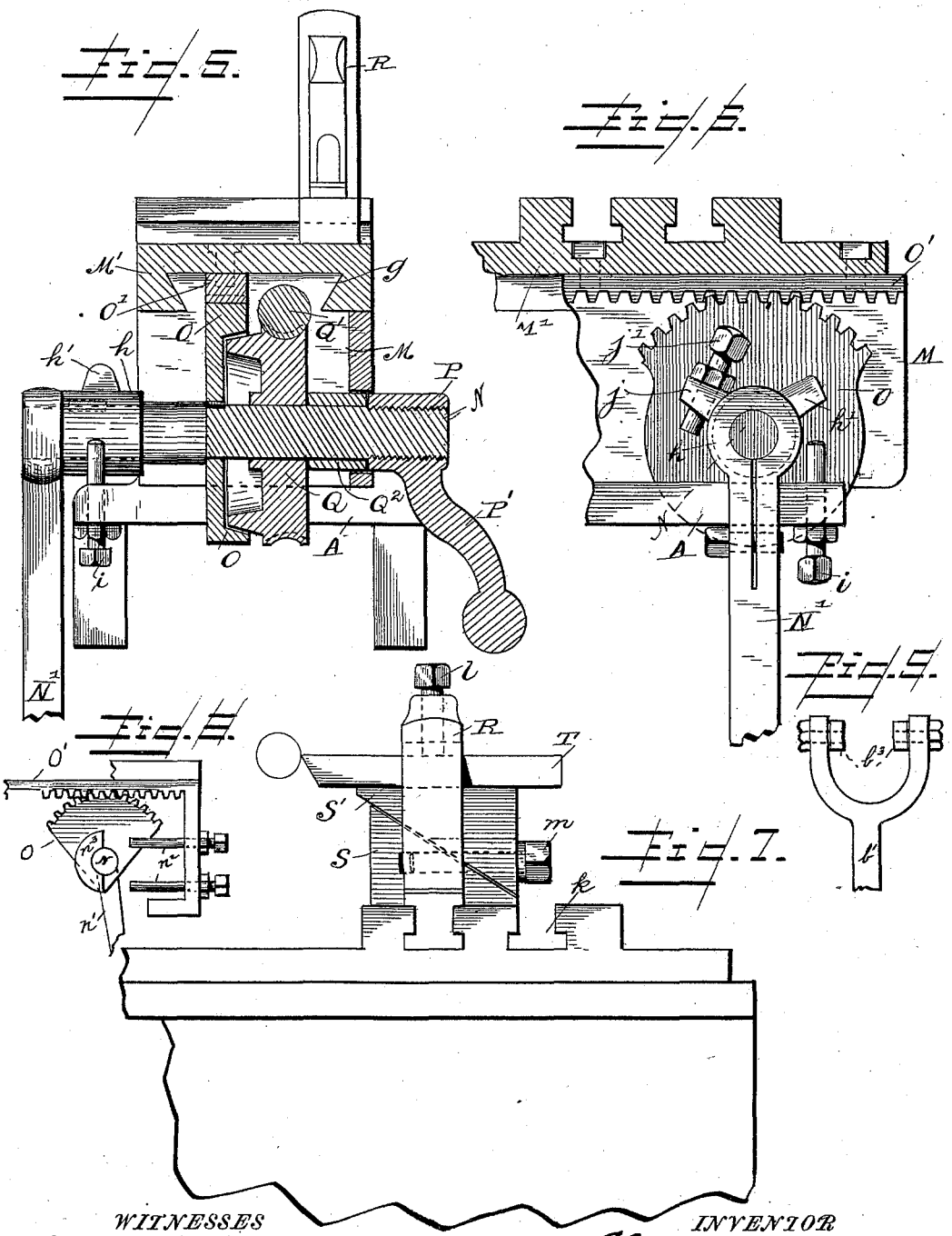
Attorney

(No Model.) 2 Sheets—Sheet 2.

C. S. SHERMAN.

TURRET LATHE.

No. 423,088. Patented Mar. 11, 1890.



WITNESSES

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Charles S. Sherman.

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UNITED STATES PATENT OFFICE.

CHARLES S. SHERMAN, OF WINDSOR, VERMONT, ASSIGNOR OF ONE-HALF TO THE WINDSOR MACHINE COMPANY, OF SAME PLACE.

TURRET-LATHE.

SPECIFICATION forming part of Letters Patent No. 423,088, dated March 11, 1890.

Application filed August 8, 1889. Serial No. 320,101. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. SHERMAN, a citizen of the United States, residing at Windsor, in the county of Windsor and State of Vermont, have invented certain new and useful Improvements in Turret Machines or Lathes; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in machines for making machine-made screws, sometimes known as "turret-machines," or "screw-machines."

The object of the invention is to provide a novel and simplified feeding mechanism for the wire that is to be operated upon; also to improve and simplify the construction of the chuck employed, and, further, to provide a cut-off which will be novel in construction, readily operated and adjustable horizontally and vertically, and to the accomplishment of the above the invention consists in certain novel features and combination of parts, as will be hereinafter fully described and specifically claimed, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation of a complete machine; Figs. 2, 3, and 4, details of the chuck as constructed by me, and Figs. 5, 6, and 7 detail sectional and elevation views of the cut-off mechanism and parts employed in connection therewith. Fig. 8 is a view in detail showing a modified form of the stop; and Fig. 9 a view in detail of the forked lever used in connection with the chuck.

In the drawings I have shown a stand of ordinary construction consisting of the upper bed-plate A, supported by suitable feet upon a lower bed-plate A′, the latter being also provided with suitable legs and forming a suitable oil-drip pan, as commonly used in this class of machines.

Mounted upon one end of the bed-plate A is a slide-bed B, on which is mounted a slide B′, which carries a revolving turret B^2, all such parts being of well-known construction and operated in the usual manner.

At the opposite end of the plate A a head-block C is mounted. At one end of such head-block is a grooved bar or guideway D, upon which is mounted a wire-feeding device D′, this device consisting of an upright provided at a point near its upper end with a suitable collar *a*, through which the wire is passed, such wire being secured to such collar by means of a suitable set-screw *a′*.

To the lower end of the upright forming the feeding device D′ there is secured one end of a rope or cord E, which is carried forward, where it passes over a roller E′, mounted in a suitable extension E^2, said cord or rope thence passing down and under a pulley E^3, which is secured to a suitable shank connecting with the weight F, the cord thence passing upward and being secured at its other end to the end of the extension-support E^2, hereinbefore referred to.

By the arrangement of parts as hereinbefore described it will be seen that the wire-feeding device will be carried forward and toward the chuck and tool-carrying turret by means of the weight F, unless a check to said feed is provided.

G represents a lever, which is pivoted to the bed-plate A and connected at its short end with an arm *b*, which in turn is connected to a lever *b′*, forked at its upper end, as indicated at b^2, Fig. 1, and pivoted in the arm *c*, secured to the head-block C. The forked upper end of the lever *b′* is arranged to enter a groove *c′*, formed in a ring H, now to be described, such ring forming part of the chuck.

The construction and arrangement of the chuck are shown clearly in Figs. 2, 3, and 4, and by reference to such figures it will be seen to consist of the base-piece I, provided with suitable inclined grooves *d*, the said base-piece being adapted to enter a ring J, in which said ring are pivoted two levers *d′*, each of which is adapted to fit into one of the grooves *d* of the base-piece I, and when acted upon by suitable pins, to be hereinafter described, to hold such parts firmly in position.

To the forward end of the ring J a piece J′

is secured by means of suitable screw-threads, such piece being provided at its forward end with an angle *e*, arranged to act upon a puppet, to be hereinafter referred to.

K represents a ring adapted to fit over all the parts hereinbefore named, such ring being provided with the groove *c'*, arranged to accommodate the forked end of the lever *b'*, as before described, and such ring carrying pins *f*, which are adapted to be screwed down upon the levers *d'*, which hold the parts K, J, and I securely together.

L represents a series of annular jaws, which are of well-known construction and are adapted to be operated upon by the angle of the piece J', the entire chuck, consisting of the parts described, being adapted to be moved in a horizontal plane by means of the levers described, one movement causing the closing of the series of annular jaws by causing the incline *e* to ride upon the inclined surfaces of the jaws, which will thereby be brought together to grasp the wires and the consequent holding of the wire, thus preventing it from being fed forward, and the reverse movement of such levers disengaging the parts—that is, freeing the jaws from the incline *e*—whereupon the pull upon the wire caused by the feed will force the jaws apart, thus allowing of the feed.

In Figs. 5, 6, and 7 I have shown the cutting mechanism and parts connected therewith, which will now be described.

M represents a base-plate suitably mounted upon the bed-plate A and provided on its upper face with a suitable dovetailed projection *g*, such projection being adapted to move in a dovetailed groove formed on the lower face of the plate M', which is adapted to carry the cutting mechanism.

Mounted in base-plate M is a shaft N, secured to one end of which is a lever N', by means of which said shaft may be revolved. The shaft N also carries a sleeve *h*, upon which is formed a projection *h'*, adapted to engage a set-screw *i*, which is mounted in the frame-work of the machine, such parts limiting the revolution of the shaft N and deciding the length of feed or movement of the table carrying the cutting mechanism. The sleeve *h* is also provided with a second stop *j*, in which is mounted a set-screw *j'*, this serving as an additional stop arranged to strike against the frame-work of the machine and limit the reverse movement of the shaft.

Mounted upon shaft N is a cog-wheel O, the teeth of which are arranged to engage the teeth of a rack O', formed upon the lower face of the table M, hereinbefore referred to, such mechanism providing for the movement of the table M when the shaft N is operated.

The mechanism thus far described is adapted for use when a quick movement of the cutting mechanism is desired, but where a slower movement is preferred the following mechanism is brought into play: One end of the shaft N is screw-threaded, as shown clearly in Fig. 5, and mounted upon such end is a screw-threaded nut P, which is provided with a handle P'. Loosely mounted upon the shaft N is a worm-wheel Q, which is arranged to engage a worm Q', and intermediate the nut and worm-wheel I place a sleeve Q^2, as shown. This worm-wheel Q is so arranged as to be operated upon by the sleeve Q^2, through the medium of the nut P, and when the handle of such nut is turned the worm-wheel is moved along the shaft N, by means of the nut being brought into contact with the hub of such wheel, until it engages the cog-wheel O, hereinbefore referred to, thus forming a friction-clutch, and which, upon the further operation of the handle P', will cause the revolution of such cog-wheel, and consequently the movement of the table M.

The table M is provided with a sufficient number of dovetailed slots to accommodate as many tool-holding devices as are employed, the arrangement shown in the drawings having two such, such slots being provided to allow of the transverse adjustment of such tool-holding devices.

The tool-holder consists of the following parts: A yoke-shaped upright R, which is provided on its lower end with a suitable dovetailed projection to enter a dovetailed slot *k*. Two wedge-blocks S S' are located within this upright R, and upon the upper face of the uppermost of such blocks a cutting-tool T is mounted, said tool being held in place by a suitable set-screw *l*, passing through the upper end of the yoke R and pressing upon the upper face of the tool. The wedge-blocks S S', hereinbefore referred to, are arranged, as shown in Fig. 7, to slide one upon the other, such blocks being wedge-shaped, and the vertical adjustment of the cutting-tool being provided for by the use of a suitable screw *m*, which is passed into openings formed in each of said blocks, the operation being such that when the screw is driven in the uppermost block S' will be elevated, and upon the loosening of such screw said block will be lowered.

In Fig. 8 I have shown an additional modification of the stop used in connection with the mechanism for operating the cutter-carrying table, the form shown in such view being adapted to use as what I call an "inside stop," and intended for use in connection with small machines, where it runs light and quick, and the screws are small and can be cut off with the lever. It consists, as shown, of two adjustable bolts passed through the downward extension of the frame-work and arranged to engage with a projection on the shaft *n*, the adjustable bolts being marked n^2 in such figure and the projection formed on the shaft n^3.

In Fig. 9 I have shown in detail the forked lever *b'*, each arm of the fork of such lever being shown as provided with a small fric-

tion-roller b^3, adapted to enter the groove c', hereinbefore referred to.

Having thus fully described my invention, what I claim as new therein, and that for which I desire to secure Letters Patent, is—

1. In a screw-threading machine, the combination, with a grooved guide, of an upright moving thereon, a ring and set-screw mounted in such upright, and a weighted cord connected therewith, as set forth.

2. In a chuck for a screw-threading machine, the combination, with a base-piece provided with inclined grooves, a ring surrounding the same, and levers pivoted therein, such ring provided with an angle, of a puppet, a grooved ring surrounding such parts, and a forked lever connected therewith, as set forth.

3. In a chuck for a screw-threading machine, the combination, with a base-piece provided with inclined grooves, a ring surrounding the same, and levers pivoted therein, such ring provided with an angle, of a series of annular jaws, a grooved ring surrounding such parts, and a forked lever connected therewith, such lever provided with rollers, as set forth.

4. In a screw-threading machine, the combination, with a cutter-carrying table provided with a rack, of a cog, a shaft, a worm-wheel, a worm engaging said wheel, and a screw-threaded nut mounted on the shaft, the nut provided with a suitable handle, as set forth.

5. In a screw-threading machine, the combination, with a cutter-carrying carriage, a shaft, and intermediate mechanism for operating the carriage from the shaft, of a projection mounted upon the shaft, and an adjustable stop suitably mounted, as set forth.

6. In a screw-threading machine, the combination, with a cutter-carrying carriage, and a shaft and intermediate mechanism for operating the carriage from the shaft, of a projection n^3, mounted on such shaft, and adjustable bolts n^2, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES S. SHERMAN.

Witnesses:
E. H. AUSTIN,
KARL W. PERKINS.