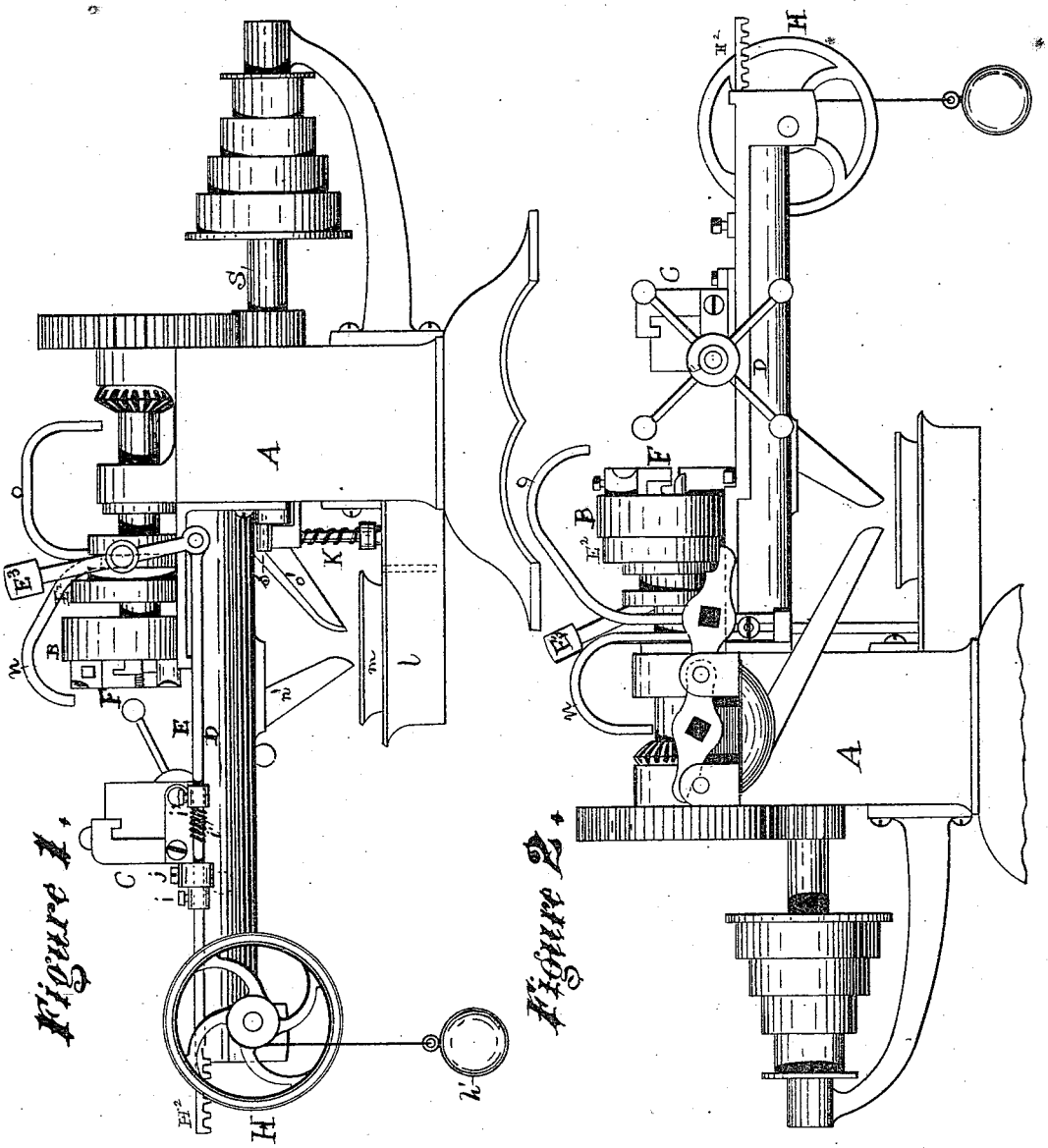
3 Sheets--Sheet 1.

E. SCHLENKER.

Bolt-Threading Machine.

No. 162,194. Patented April 20, 1875.



Witnesses, Erhard Schlenker Inventor.

S. O. Burtis

S. Finley

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E. SCHLENKER.

Bolt-Threading Machine.

No. 162,194. Patented April 20, 1875.

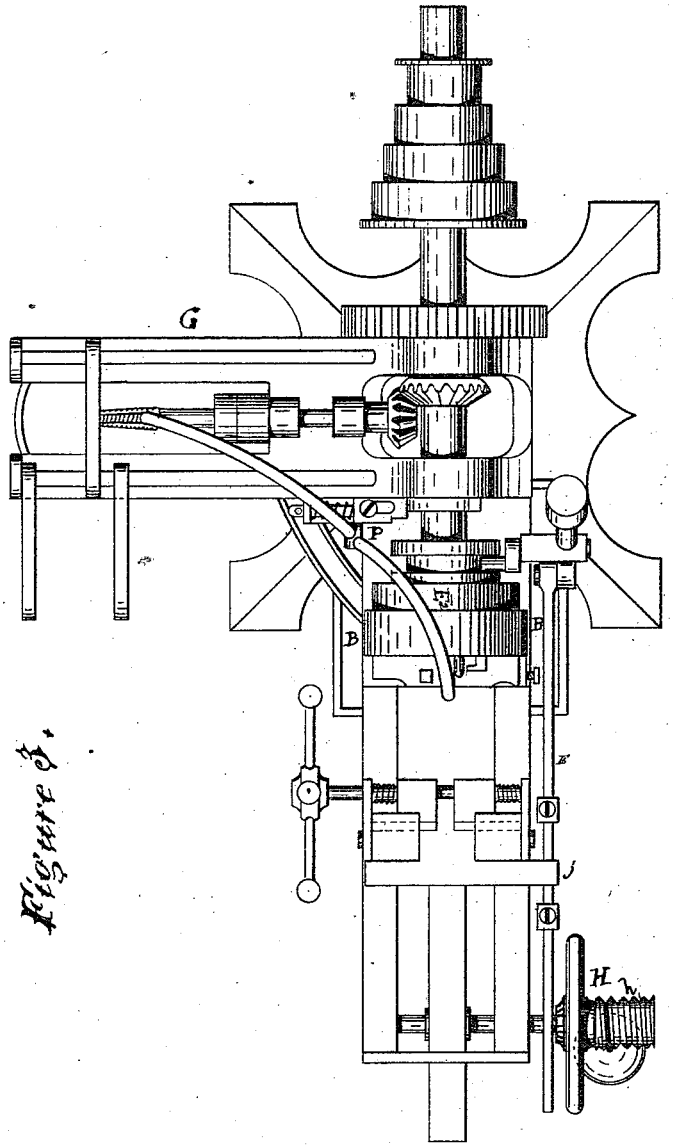

Figure 2.

Witnesses.
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3 Sheets--Sheet 3.

E. SCHLENKER.

Bolt-Threading Machine.

No. 162,194. Patented April 20, 1875.

Figure 4.

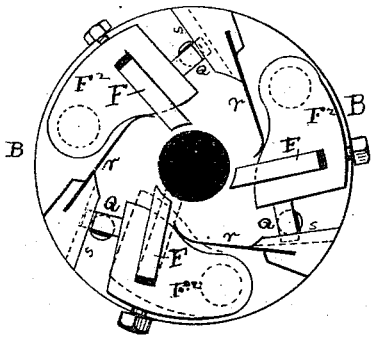


Figure 5.

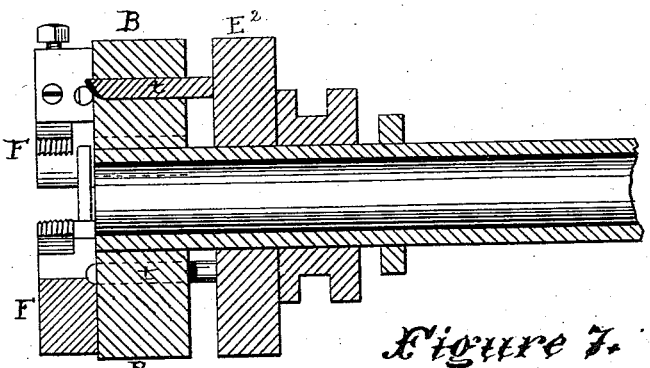


Figure 6.

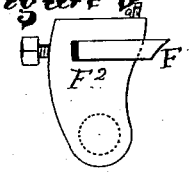
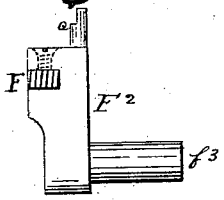


Figure 7.



Witnesses. Erhard Schlenker Inventor.

P. P. Burtis

S. Finley

UNITED STATES PATENT OFFICE.

ERHARD SCHLENKER, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO RUFUS L. HOWARD AND GIBSON F. HOWARD, OF SAME PLACE.

IMPROVEMENT IN BOLT-THREADING MACHINES.

Specification forming part of Letters Patent No. **162,194**, dated April 20, 1875; application filed October 19, 1874.

To all whom it may concern:

Be it known that I, ERHARD SCHLENKER, of the city of Buffalo, in the county of Erie or State of New York, have invented certain Improvements in Machines for Cutting or Threading Bolts, of which the following is a specification:

My invention relates to improvements in machinery for threading bolts or screws; and the invention consists in certain new and improved devices and combinations of devices, whereby such machines are rendered more effective and convenient in use, all as hereinafter more fully set forth.

Figures 1 and 2 are side elevations of the machine. Fig. 3 is a top view of the same. Fig. 4 is an end view of the die-plate. Fig. 5 is a sectional view of the die-plate, spindle, and sleeve. Fig. 6 is a view of one of the brackets, in which one of the dies is fastened. Fig. 7 is another view of said bracket, in which the pin is shown that holds the bracket in the die-heads.

Letter A represents the main frame, upon which the machine stands. Letter B represents the die-head or plate upon which the dies are adjusted. Letter C represents the carriage in which the bolt to be cut is placed. Letter D represents the bed upon which the carriage moves. Letter E is a rod, having a crank at one end, connected with the movable pin-head, E^2. Letter E^2 is the movable pin-head in which the pins *t* are fastened, which move backward and forward through the die-plate, and which, in part, form the locking-clutch for the brackets, in which the dies are fastened. Letter E^3 is the crank attached to rod E. Letter F represents the dies, and F^2 the bracket holding the dies F. Letter G represents the nut-tapping arrangement, placed at right angles with the machine. Letter H represents a hand wheel or pulley, attached to a pinion-shaft connected with the rack-bar H^2. The hub of the wheel has a screw-groove, *h*, cut upon it for a cord with a weight, *h'*, attached thereto, which serves to run the carriage back after the bolt is cut. Letters *i* i^2 represent two collars upon rod E, which are adjusted and held by means of set-screws, and are so adjusted as to accommodate the length of the bolt to be cut. Letter *j* represents a bracket attached to the carriage, with an eye, through which the rod E passes, and upon said rod, next to collar i^2, is placed a coiled spring, i^1, to assist in moving the carriage back after the bolt is cut. Letter K represents a pump, which is operated by an eccentric, *s*, upon the cone-shaft S and spring *t* on the pump-rod, and pumps the oil from the reservoir *l*, which is conveyed in tubes *n* and *o*, to lubricate the bolt to be cut. The oil is then conveyed in tubes or pipes *n'* and *o'* to the strainer *m*, from which it is discharged into the reservoir, to be again pumped up for lubricating. Letter P, Fig. 3, represents a movable slide, with a coiled-wire spring upon it, which slide, when drawn out, will allow the pin-head to be moved back, so as to withdraw the pins far enough to unlock the brackets holding the dies, which may then be readily removed. This slide, when in position, prevents the unlocking of the said brackets, but allows the pins to be moved back as the carriage holding the bolt advances toward the die head or plate, and opens the dies to receive the bolt, which is firmly held while in the process of being cut, and is then released by the action of the pins or movement of them back. Letter Q, Fig. 4, represents a pin in the die-bracket, which is inserted into an opening in a projecting piece or part of die-head or plate, to hold the die-bracket firmly to the face of the die head or plate. Letter *s*, Fig. 4, represents the projection on the face of the die-head, which has an opening or slit for the pin Q. Letter *r*, Fig. 4, represents steel plate-springs, which press the die-brackets against the pins in the pin-head. Letter f^3 represents the pin of the die-bracket, which is inserted into the die-head, and upon which the bracket moves in an arc of a circle.

Having described my invention, I will state more in detail its operation.

The machine is operated by power, and the required arrangements (fully shown in the drawings) for the application of steam or

other power by means of cone-pulleys, gearing, and shafting need not to be more specifically described.

The shaft upon which the die-head and pin-head are placed and connected with the gearing is hollow, and so arranged that long bolts may pass into the same.

The bolt to be cut is placed in the jaws of the carriage, which are opened and closed by means of the hand-lever wheel. The jaws have a right-hand and left-hand screw-cut, into which the shaft of the lever-wheel is placed, and the bolt will always be placed centrally to the hollow shaft and dies, and will be held by the jaws in a firm position for cutting the thread. It is placed centrally, as above, by means of the hand-lever wheel operating the shaft, which has a screw-thread cut thereon, and which fits into the right and left hand screw of the jaws of the carriage.

By turning the wheel H, the shaft of which has a pinion meshing into rack-bar H^2, the carriage, with the bolt to be cut placed in the jaws, will be moved forward, and the bolt entered between the dies and held fast, and the action of cutting the bolt will move the carriage forward until stopped by the spring and collar i^2, which has previously been adjusted at the proper place, according to the length of the thread to be cut upon the bolt, and as soon as the same is cut the carriage is moved back by means of the weight upon the hub of the wheel H, the dies are thrown open by moving the pin-head back and partially withdrawing the pins from the die-head, and the bolt released.

The die-head has three or more holes for the passage of the pins *t*, attached to the pin-head. These pins are beveled at the end, so that when the pins are moved through the die-head the bevel of the pin will strike the die-brackets and press them toward the center, and the die-brackets will be firmly held at any given point, and will be partly released as the pins are moved back, and the bolt when cut discharged from the dies. The die-bracket is also held against the face of the die-head by the pin Q in the recess on the projection *s*. There is also a flat steel spring attached to this projection at one end, to press the die-brackets against the pin; and when the brackets are released, partly by the movement of the pins backward, this steel spring will throw them away from the bolt. There is such an arrangement for each die-bracket.

In order to change or take out the dies for any purpose, the brackets holding the dies are removed by moving the slide P, Fig. 3, out from a collar upon the main shaft, and then, by means of lever or crank E^3, the pin-head is moved back against a collar upon the shaft, and the pins that lock the die-brackets will be moved back from the face of the die-head or plate, so as to unlock them, and they can be taken out without removing any screw, and, after inserting other dies, may be replaced. The pin-head is then moved back against the die-head, the slide P will resume its position and prevent the pin-head from being moved back any farther than to allow the dies to open to receive the bolt to be cut, and to release the same when cut, different sets of dies and brackets being used for different-sized bolts.

The pump K is located below the bed of the machine, and is operated by a cam connected with the cone-shaft. The reservoir for the oil has a movable strainer, and the oil is pumped up and conducted by separate pipes, so as to lubricate the bolt to be cut, and the oil is then conducted to the strainer, which strains it into the reservoir below, to be again pumped up and used for the same purpose.

The nut-tapping part of my machine is placed at right angles to the bolt-cutting part, by which arrangement I secure the most convenient location, both for obtaining power and for operating the same. The power is derived from bevel-gear connected with the shaft of the bolt-cutter, and one person can very easily operate and take care of both machines at the same time. It is shown in Fig. 3, letter G, and is sufficiently illustrated to show its practical operation.

Having described my invention, I claim as follows, viz:

1. The fixed die-head B, having the pivoted brackets F^2, carrying the dies F and springs *r*, operating in combination with the movable head E^2, having pins *t*, substantially as and for the purpose specified.

2. The combination of the heads B and E^2, crank-rod E, bolt-holder and carriage C, rack-bar H^2, and pinion shaft and wheel H, all operating substantially as and for the purpose specified.

3. The rod E, having the collars i i^2 and spring i^1, operating in combination with the bracket *j* on carriage C, and with the wheel H, having screw *h* and weight and cord *h'*, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand.

ERHARD SCHLENKER.

Witnesses:
P. P. BURTIS,
S. FINLEY.