

B. L. WALKER.

Improvement in Machines for Threading Metallic Screws and Bolts.

No. 124,645.

Patented March 12, 1872.

Fig. 1.

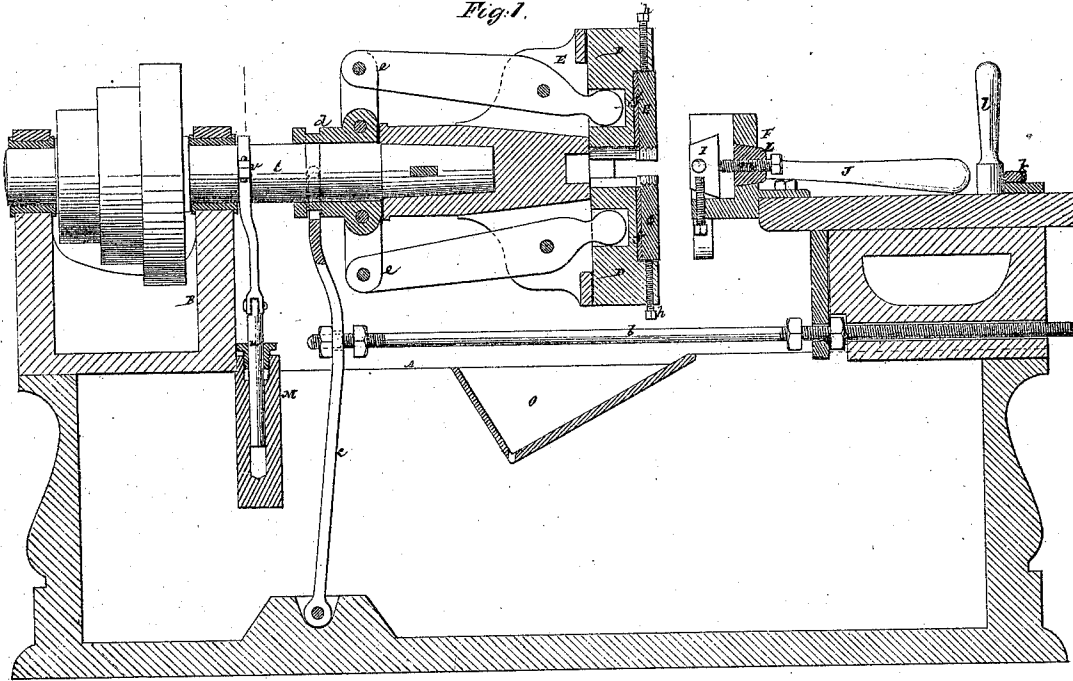
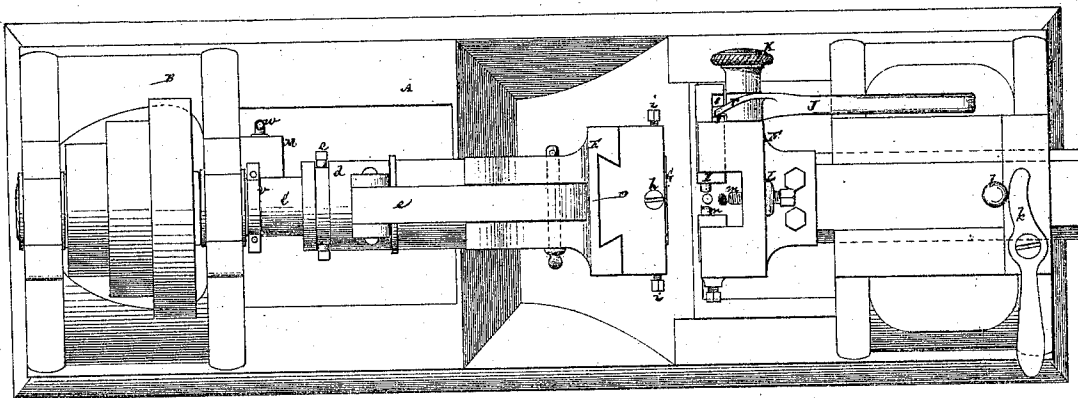


Fig. 2.



Witnesses:

Fred Humes
R. R. Rabeau

B. L. Walker

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Fig. 4.

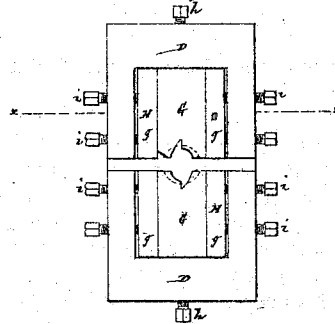


Fig. 5.

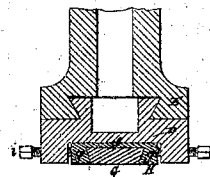


Fig. 3.

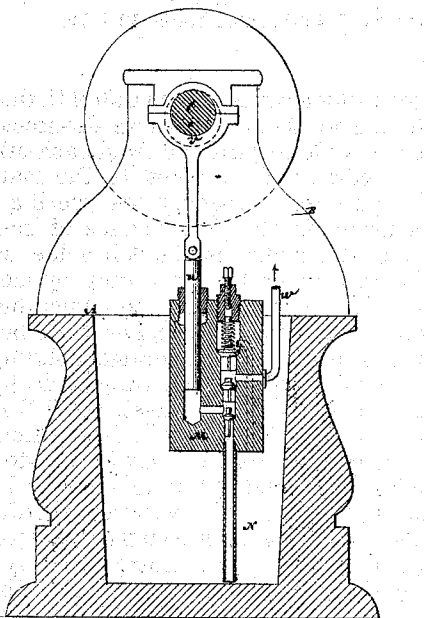
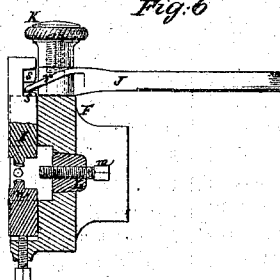


Fig. 6.



Witnesses:

Fred Hagner
R. R. Hagner

B. L. Walker

UNITED STATES PATENT OFFICE.

BENJAMIN L. WALKER, OF SING SING, NEW YORK.

IMPROVEMENT IN MACHINES FOR THREADING METALLIC SCREWS AND BOLTS.

Specification forming part of Letters Patent No. 124,645, dated March 12, 1872.

To all whom it may concern:

Be it known that I, BENJAMIN L. WALKER, of Sing Sing, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Screw-Cutting Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents a mainly-central longitudinal vertical section of a screw-cutting machine constructed in accordance with my invention; Fig. 2, a plan of the same. Fig. 3 is a transverse vertical section, in illustration of an oil-pump for lubricating the screw-cutting dies of the machine; Fig. 4, a face view of the stocks, die holders, and dies; Fig. 5, a section through the line *x x* of the same, with mandrel, in part, attached. Fig. 6 is a partly-sectional plan of the bolt-holder with its attachments.

Similar letters of reference indicate corresponding parts throughout the several figures.

My invention consists, firstly, in a novel construction of bolt-holder, including a sliding clamp, spiral or cam-shaped operating-lever, and an adjusting-screw for manipulating the holder with facility and dispatch, to establish its hold or release of the bolt, and for quickly adapting the holder to bolts of recognized different sizes, or of nominally the same diameter but varying slightly in size. Furthermore, I provide the die-holder with a removable cone in its back, through which the screw that adapts the holder to different thicknesses of bolt-heads is projected, and whereby, on taking out the cone, which is free from jamming or slipping, provision is made for introducing a bolt of any desired length through the holder to the dies. The invention also includes the arrangement of the dies in peculiarly-constructed die-holders within the stocks, whereby the dies may be utilized by recutting till worn out, or nearly so, and yet a fair and sufficient hold be obtained for them. Provision, likewise, is made for the lateral adjustment of the dies, whereby, if unequally tempered, the work may be thrown more on one side than the other, and the thread may be brought up on bolts of diminished size; likewise, whereby the dies are securely held in position.

Referring to the accompanying drawing, A is the shears of the machine, and B the head-

stock which carries the mandrel C, that rotates the die-stocks D D. These die-stocks are fitted to slide toward and from each other within a carrier, E, attached to the mandrel, for the purpose of opening and closing the dies, as usual, in the performance of their work, under the control of the bolt-holder F, as it is slid toward or from the dies, by means of a screw-rod, *b*, provided with adjustable nuts or stops, and arranged to connect the bolt-holder with a lever, *c*, that operates a sliding sleeve, *d*, on the mandrel, and, through it, by toggle-joint motions *e e*, the die-stocks D D in or out, as required. G G are the dies, which, instead of being inserted directly in the stocks D D, are fitted or slid within die-holders H H, that have a free fit or entry within the stocks. These die-holders are each constructed with a back, *f*, and sides *g g*, the latter preferably being of a V-shape, to hold and provide for the sliding of the die within them in the direction of its length, and the back *f* being made thinner than the sides, so that, on bringing pressure to bear on the latter to force them together, the back will be slightly flexed. This provides not merely for securely holding the dies, but for utilizing them by recutting till only a small portion of either die is left, and still maintaining a firm hold of the dies, which could not be done were they inserted directly in the stocks. The end-hold of the dies and adjustment of them in direction of their length is effected by end screws *h h*. There are also arranged side screws *i i* through the stocks, whereby the dies, in addition to being firmly held at their sides, may be adjusted laterally, so that, in case of a die being softer on one side than the other, owing to a want of uniformity in its "temper," provision is made for throwing the work more on the harder side of the die; likewise, in case of a bolt being somewhat small for the nut or screw-hole it is required to fit, the thread may be "brought up" on it. Applied to the die-holders H, the side screws *i i* become both lateral-adjusting and straining devices for the dies. The bolt-holder F, which is slid up to or from its work, as required, by means of a lever, *k*, and handle *l*, or otherwise, is of peculiar construction. Thus, the recess in it, which receives the head of the bolt to be secured, is not merely provided with a back-holding screw, *m*, and front clips or stops, the

one *n* of which at the one side may be adjustable by a screw, but the opposite stop or clip is in the form of a sliding clamp, *I*, which is capable of movement in or out relatively to the stop *n* to establish hold and release of the bolt, and with an adaptability of rapid adjustment and manipulation, both as applied to bolts of recognized different sizes and for holding bolts of nominally the same size, but accidentally of slightly-varying dimensions. To meet this twofold adaptability, the sliding clamp *I* is slid in or out by means of a lever, *J*, having its fulcrum free to slide, subject to the control of an adjusting-nut, *K*, on a screw-pin attached to the holder, and said lever being formed at its operating end with a spiral or cam, *r*, arranged to work between and against lips *s s* on or in the sliding clamp. By suitably turning the nut *K* the lever *J*, which, accordingly as it is thrown up or down, moves the clamp in or out, may be operated in closer or further proximity to or from the holder, and so vary the adjustment of the clamp as required. Both the adjusting-nut and lever may be operated simultaneously, if necessary. In this way, or by these means, the clamp *I* is made capable of both a positive and variable adjustment. The back screw *m*, which serves to bear up against the head of the bolt in line with its center, or thereabout, is fitted to screw through a cone, *L*, arranged to fit a like-shaped hole in the back of the holder. This forms a support for the screw that is free from shaking or slipping back, thrust by the bolt serving to tighten it; and yet said support or cone is exempt from jamming, and may readily be removed, together with its screw, by pressing inward on it from the back, when it is desired to introduce, through the holder, a long bolt or rod to be screwed. *M* is an oil-pump for lubricating

the dies. Said pump may draw its supply from a well or chamber, *N*, within the shears of the machine, and its plunger *u* is operated by an eccentric, *v*, on the mandrel *C*. The discharge-pipe *w* may have a small flexible tube attached to it to convey the oil to the dies; and, to better regulate the supply, I prefer to arrange a safety-valve above the eduction-valve of the pump, said safety-valve being controlled by a spring, and opening, subject to arrest by a screw-stop at top, to return surplus oil in the supply-pipe, by a suitable branch pipe, back into the well, whenever the pressure is sufficient to lift the safety-valve. The oil supplied to the dies and clippings or cuttings falling from the latter may be caught in a receptacle, *o*, from whence the oil passing through a strainer may be returned by pipe to the well *N*, to be used over again.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The die-holders *H*, constructed with sides *g g* united by a flexible back and forming a dovetail channel to receive the dies, in combination with the stocks *D* having means for holding, adjusting, and flexing said holder.

2. The combination, with the movable clamp *I* and adjustable clamp *n*, of the spiral or cam-shaped operating-lever *J* and the adjustable fulcrum or nut *K*, for operation in relation with the recess in the bolt-holder that receives the head of the bolt, essentially as described.

3. The removable cone *L* in the back of the bolt-holder, in combination with the head *F* and back screw *m*, substantially as specified.

BENJ. L. WALKER.

Witnesses:

G. B. HUBBELL,
EDGAR GREEN.