

UNITED STATES PATENT OFFICE.

GEORGE EMIG, OF CINCINNATI, OHIO.

IMPROVEMENT IN MACHINES FOR CUTTING SCREW-THREADS ON BOLTS AND NUTS.

Specification forming part of Letters Patent No. 133,574, dated December 3, 1872.

To all whom it may concern:

Be it known that I, GEORGE EMIG, of Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Machines for Cutting Bolts and Nuts, of which the following is a specification:

Nature and Objects of Invention.

My invention relates to the class of screw-cutting machines in which the dies are opened and closed automatically by the movement of the bolt-clamp; and consists, first, in the provision of a chuck in which the dies are fitted to slide to and from the center, the chuck being so constructed, and the dies arranged to operate, that they can be detached from the head in which the die-moving levers are pivoted, for the purpose of permitting the use of duplicate chucks and dies, and thus avoid the stoppage of the machine for the refitting or repairing of dies.

Heretofore the dies have always been prepared and recut while on the machine of which they formed a part, which was necessary in order to cut the threads of the respective dies so as to form a true spiral. The legitimate function of the machine had thus frequently to be suspended.

This objection is wholly obviated by my invention of a detachable die-chuck, which can be centered, after removal, upon a lathe or other machine suitable for the purpose, and the dies prepared as correctly as when attached to the screw-machine itself.

Description of the Accompanying Drawing.

Figure 1 is a vertical section of a machine embodying my invention. Fig. 2 is a plan of the same, illustrating the double-spindle feature of the machine. Fig. 3 is a detached view of the die-chuck.

General Description.

A is the frame of the machine; B B', the spindles; and C C' the driving-gear wheels. A pinion, D, operated by band-wheel E, gears into and operates both spindles simultaneously. Heads F F' are rigidly secured to the spindles B B' for carrying the die-levers and receiving the die-chucks. The levers are pivoted at g and designated by the letter G. They are so constructed and arranged that their outer

ends project beyond the faces of the heads F in the manner shown. H H' are the die-chucks, in which the dies I I' are fitted to slide to and from the center of the spindle in a direct line. J J' are slides in which the dies are fitted, and are adjustable. The slides J J' are dovetailed into the chucks, and the dies are dovetailed into the slides. The dies are fitted tightly to the slides and are adjusted by set-screws b b'. The slides are provided at the rear with jaws c c, into which the ends a of the levers G fit, in the manner shown in Fig. 1, so that the ends of the levers may operate the dies. Sleeves K K' are fitted to revolve with and slide upon the spindles B B' in such a way as to open the levers G when forced between them. The ends of the levers G are beveled off or chamfered to fit the conical end of the sleeve K or K', as shown in Fig. 1. The sleeves have a certain portion, d, of their outer periphery, which is cylindrical, upon which the ends of the levers rest when the dies are closed, the faces of the levers at this part being in line with the spindle, so that when the levers are in that position upon the sleeves no pressure outward upon the dies can force them open. L L' are the bolt-chucks, fitted with the jaws l for holding the bolt or nut, and right and left screws l' for operating the jaws. The jaws may have adjustable ends e to adjust the bolts properly with relation to the dies. The chucks L L' have lugs or ears f at the bottom, through which the sliding bars M pass, the bars resting at their opposite ends upon bearings i and fitting into grooves m in the sleeves K K'. The bars have collars N fitted to them, against which the lugs f strike to cause the bar to open or close the dies, the collars being adjustable to permit the machine to cut different lengths of screws, &c. Studs P are attached to levers G, which are connected together by spiral spring R, which serves to keep the levers G in contact with the conical sleeve K or K'. The power of the spring therefore suffices to open the dies, when the sleeve K or K' is drawn into the position shown in Fig. 1. A bell-crank lever, S, is attached to each bolt-chuck by pivoting to the frame A at n and connected by slot and pin with the bolt-chuck, as clearly shown in Fig. 1. The outer end of the lever is used as a handle for the operator, and designed to enable him to move out the

bolt-chuck, and by so doing close the dies, and also to enable him to press the bolt tightly into the closed dies for starting the thread. The die-chucks H H have grooves or shoulders *h* turned in their rear faces to fit exactly a corresponding form on either of the heads F F', so that duplicate chucks will fit concentrically the heads F F'. By this provision for the use of duplicate die-chucks, with the die-levers detachable therefrom in the manner described, the machine can be kept running, while a duplicate chuck is being fitted with different-sized dies, or having its dies repaired and reset. The chucks can be removed and replaced with but little loss of time by means of bolts T.

By the provision of the double spindles, chucks, &c., one operator can cut twice as many screws as can be done with a single

spindle, without inconvenience, as one chuck can be in operation cutting its thread upon a bolt or nut while the other is receiving a new bolt or nut; or, if the screws are sufficiently long, both can be cutting at the same time.

Claim.

In combination with the head F or F' and levers G G, operating as set forth or by equivalent means, I claim the detachable die-chuck H I, I', J J', connected and operating substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand:

GEO. EMIG.

Witnesses:

FRANK MILLWARD,

J. L. WARTMANN.