C. S. ADAMS.

Device for Cutting and Screw-Threading Metallic Wagon-Axles.

No. 219,193. Patented Sept. 2, 1879.

Fig. 4

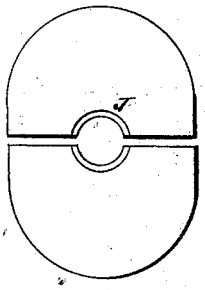


Fig. 1

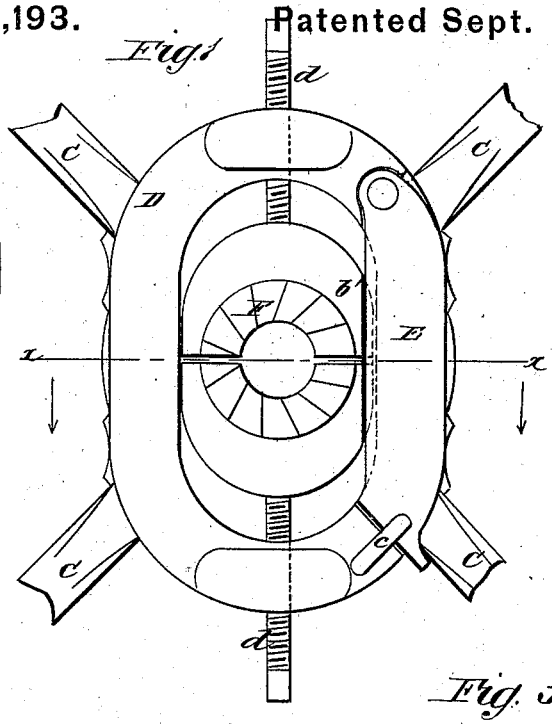


Fig. 5.

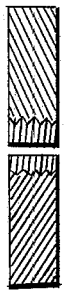


Fig. 2.

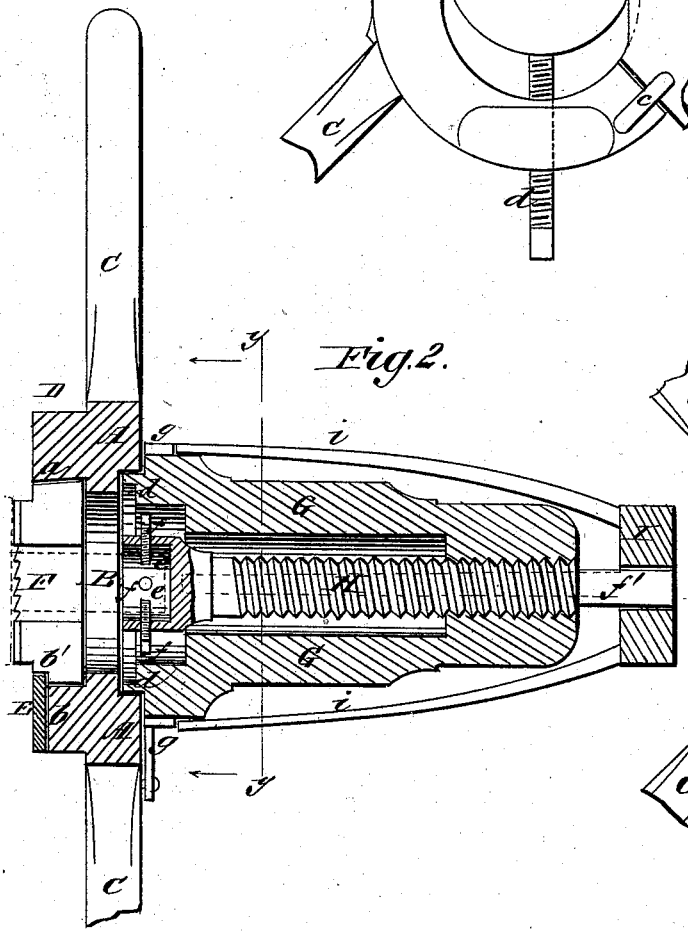
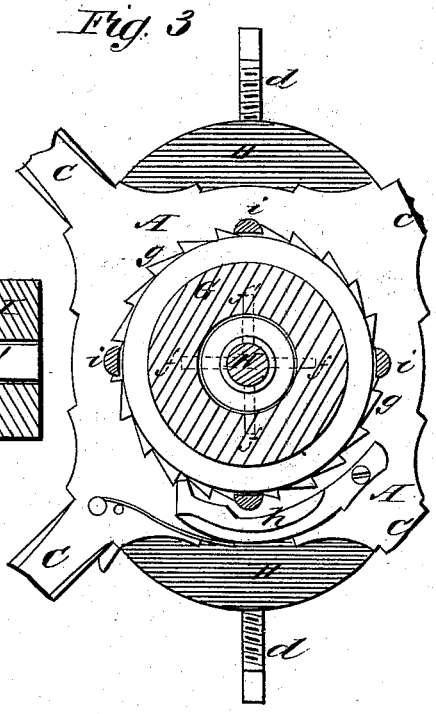


Fig. 3



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UNITED STATES PATENT OFFICE.

CHARLES S. ADAMS, OF MARSHFIELD, VERMONT.

IMPROVEMENT IN DEVICES FOR CUTTING AND SCREW-THREADING METALLIC WAGON-AXLES.

Specification forming part of Letters Patent No. **219,193**, dated September 2, 1879; application filed May 26, 1879.

To all whom it may concern:

Be it known that I, CHARLES S. ADAMS, of Marshfield, in the county of Washington and State of Vermont, have invented a new and Improved Device for Cutting and Screw-Threading Metallic Wagon-Axles, of which the following is a specification.

This invention relates to improvements in the construction and operation of machines for shortening axle-spindles to compensate for the wearing of the wheel-boxes.

The object of these improvements is to make the machine self-feeding, and to enable one burr and one screw-cutting die to be employed upon any sized spindle.

The invention consists of a holder adapted to receive the die and burr, and allow them to be set so as to operate upon spindles of various sizes, in combination with a feeder composed of a follower set in the die and burr holder, provided with a ratchet engaged by a pawl on the holder, so that as the latter is turned the follower is turned with it. The follower is placed over a screw-shaft, which is adapted to be fixed to the screw-stud of the axle, whereby as the follower is turned by the holder it is screwed toward the axle, and thus feeds the burr against the shoulder. The feed is regulated by a device that will be fully described farther on.

In the accompanying drawings, Figure 1 is a front view of the improvement. Fig. 2 is a longitudinal section on line *x x* of Fig. 1. Fig. 3 is a cross-section on line *y y* of Fig. 2. Figs. 4 and 5 represent the screw-cutting die.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a wheel-plate, having a hole, B, through its center and levers C radiating from its periphery. On one side of this plate is an elliptical frame, D, with an elliptical opening through it to the wheel-plate. One edge of this opening, on the long side and next to the hole B, is beveled inwardly, as shown at *a*, and opposite this the face of the frame is provided with a recess, *b*, in which is pivoted a lock, E, adapted to swing out from the frame, and when in line with it is held down by the finger *c* extending over it.

The burr F is made upon an elliptical plate, divided transversely through the burr. The burr-plate is placed between the sides of frame D, so as to rest on the wheel-plate beneath, and has one edge or side beveled to fit under the beveled side *a* of the frame, while on the opposite side is a recess, *b'*, into which the edge of lock E projects. By these two devices the burr-plate is held in the holder while the burr is adjusted to different diameters of axles by set-screws *d d*, passed through the ends of frame D and bearing against the ends of the burr-plate, as clearly shown in Fig. 1. By this arrangement the burr can be adapted to operate upon any axle up to the size of the hole B in the wheel-plate. The burr thus formed and held is designed to be placed against the shoulder of the spindle, (the screw-stud on the end of the spindle projecting through the hole B in the wheel-plate,) and to cut the shoulder by being turned against it by the arms C when fed forward by the mechanism which will now be described.

G is a follower, having a hollow center and with a threaded hole through its outer end or head, while the opposite end is counterbored, and has an annular projection, *d*, which fits into an annular rabbet in the wheel-plate on the side opposite the burr-seat.

H is a screw-shaft, having a recessed head, *e*, through which set-screws *f* are passed from the outside toward the axis of the shaft. The shaft is passed through the follower and screwed into the head until a rectangular projection, *f'*, projects through the head, as shown in Fig. 2, when the end of the recessed head is flush with the end of the follower. On the periphery of the end of the follower next to the wheel-plate is a circular ratchet, *g*, and to the wheel-plate, just over this ratchet, is placed a spring-pawl, *h*, in position to engage the said ratchet, as shown in Fig. 3.

The operation of this part of my invention is as follows: The burr being set to suit the diameter of the screw-stud on the end of the axle, the holder is placed over the stud with the burr against the shoulder of the spindle. The follower G is then placed in position, and the screw-stud of the axle entered in the recess in head *e*, and secured therein by screwing the set-screws against it, thus fastening the screw-shaft firmly to the end of the spindle. The follower is now screwed up toward

the wheel-plate until its projection *d* enters the annular rabbet in the said plate, at which time the ratchet *g* is under the pawl *h* and is engaged by it. Now, by turning the holder by means of the levers C, the pawl, engaging the ratchet *g*, turns the follower at the same time, and the screw-shaft leads it along toward the end of the axle, and causes it to force the holder and burr against the shoulder of the spindle, so that the burr is fed up by the follower, and kept in contact with the shoulder until it cuts away the proper amount of metal.

A regular feeding is kept up by a regulator composed of a head, I, held upon the projection *f'* of the screw-shaft H. From this head curved arms *i i i i* extend over the follower, and their ends rest against the ratchet *g*, so that as the follower revolves (the arms remaining stationary like shaft H) the arms lift the pawl, and thus make the feeding intermittent, but regular, so as to avoid crowding the burr too rapidly against the shoulder.

When the spindle has been sufficiently shortened the holder and follower are removed, the burr removed from the holder, and the screw-cutting die J inserted in the holder. The plate containing this die is made precisely like the burr-plate, and is placed in the holder and secured there in the same way, and adjusted by set-screws *d*. This screw-cutting die is now placed over the screw-stud of the spindle and turned by the holder for the purpose of cutting the screw-thread on the stud up to the new shoulder formed by the first operation.

This device enables me to cut the new shoulder on the end of the spindle evenly and rapidly, and thus adapt it to tighten up the worn box, so that the wheel will run as evenly and true as in the first instance.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In combination with the holder, the follower G, screwed over shaft H, with recessed head *e*, for the reception of the stud of the spindle, and having a ratchet, *g*, at the end next the holder in position to be engaged by the pawl *h* on the holder, whereby, when the holder is turned, the pawl, engaging the ratchet, turns the follower and screws it up on the shaft H against the holder, feeding the burr against the shoulder of the spindle, substantially as described.

2. The head I, passed over the projection *f'* of the screw-shaft H, and provided with arms *i*, having their ends resting against the ratchet *g*, in combination with the plate A, the pawl *h*, and follower G, for the purpose of maintaining a regular intermittent feed, substantially as described.

CHARLES S. ADAMS.

Witnesses:

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