A. D. GOODELL.

Machine for Re-Cutting Wagon-Axles.

No. 222,820. Patented Dec. 23, 1879.

Fig. 1.

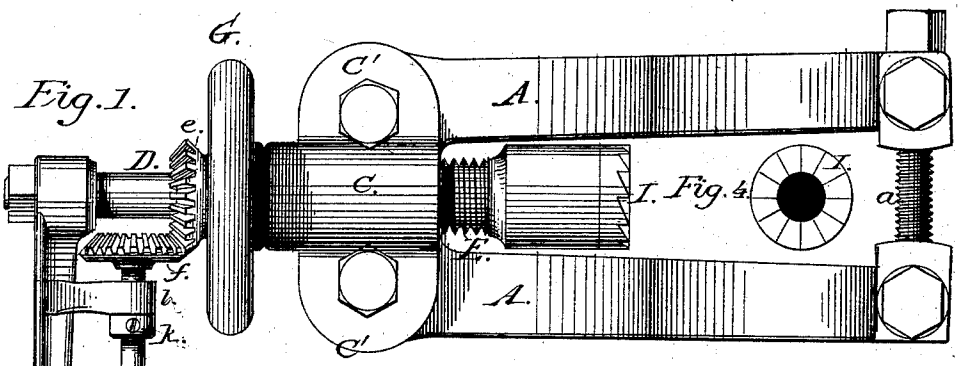


Fig. 2.

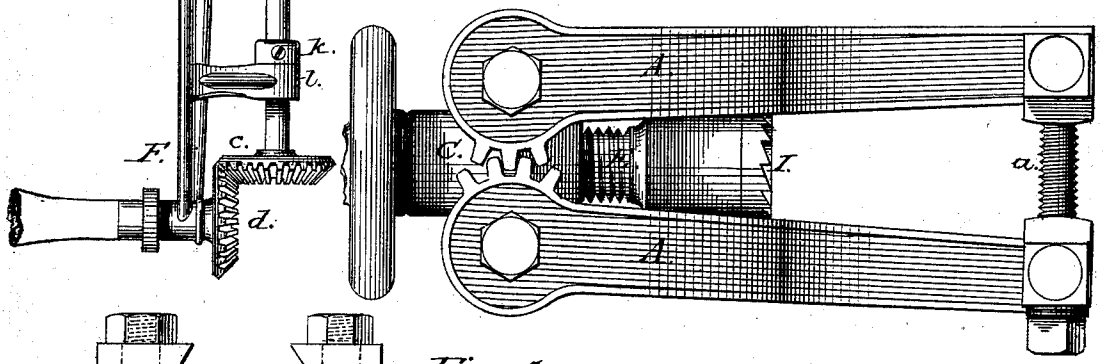


Fig. 5

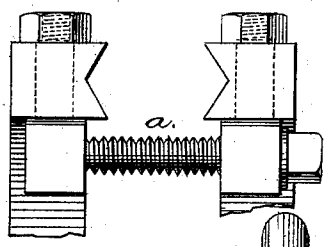
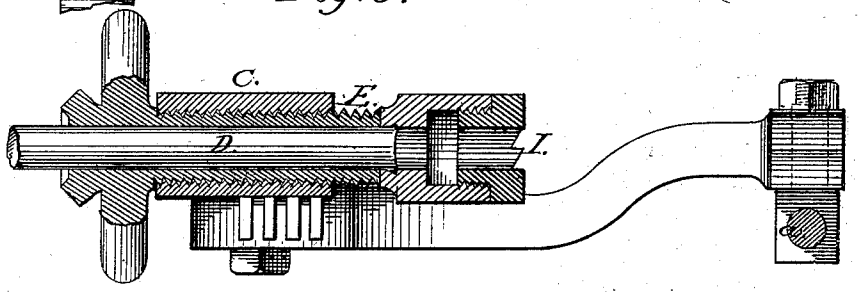


Fig. 3.



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UNITED STATES PATENT OFFICE.

ALBERT D. GOODELL, OF ERVING, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR RE-CUTTING WAGON-AXLES.

Specification forming part of Letters Patent No. **222,820**, dated December 23, 1879; application filed September 8, 1879.

To all whom it may concern:

Be it known that I, ALBERT D. GOODELL, of Erving, in the county of Franklin and Commonwealth of Massachusetts, have invented a new and useful Improvement in Machines for Cutting Wagon-Axles, of which the following is a true and full specification.

The invention relates to such machines as are used for cutting back the end of a wagon-axle that the hub of the wheel may be set back and secured against the shoulder of the axle when it is worn.

It is well known that most wagons, especially common single vehicles, and all carriages, after having been in use a long time, wear at the shoulder of the axle and on the inner end of the box till the wheel becomes quite loose and plays back and forth on the axle, making a disagreeable noise and increasing the draft of the wagon. This is often remedied temporarily by placing washers of leather or other material between the hub and the shoulder of the axle.

My invention is calculated to correct this evil in a permanent, effectual, and inexpensive manner; and it consists in securing, by suitable clamps, a cutter or milling-tool at the front end of the axle, so that while the thread on the axle enters the cutter or milling-tool, this, being turned by a crank and automatically fed up, cuts away the shoulder on the front end of the axle flush with the diameter of the threaded portion, which takes the nut intended to secure the wheel. The cutting is to the same extent as the wear has been from the shoulder. The thread on the end of the axle is then cut up to the same.

The drawings represent different views of the machine and its parts, the same letters in each figure applying to the same part of the machine.

Figure 1 is a plan or top view of the tool. Fig. 2 is a bottom view of same. Fig. 3 is a longitudinal section. Fig. 4 is an end view of cutting-tool. Fig. 5 is an end view, showing the clamping-jaws.

A A are two arms, opening uniformly from the center, having on their ends jaws so constructed as to close upon a wagon-axle to hold it securely by means of a screw, *a*, which, being turned, opens and closes said jaws. This tightening-screw *a* does not go directly through the jaws, but through studs, which pass vertically down through the jaws, having square heads, but with round shanks, which turn a little as the screw passing through them is loosened or tightened, thereby permitting the arms to be opened or closed without binding on the tightening-screw. These arms at their rear ends are enlarged for strength, and to admit through their centers bolts which secure them to the sleeve C by ears C′, cast upon its outer and upper side. These arms are also rounded at their back ends to allow them to open, and they also have on the inside of each a few teeth, which gear into each other, to preserve uniformity of action in opening and closing the arms.

C is a sleeve, having a screw cut on its inside, in which works another sleeve, E, having on its outside a corresponding thread, and through which passes the spindle D.

D is a spindle, having on its rear end a crank, F, by turning which the spindle is advanced or retracted through the operation of the threaded sleeve E, to be hereinafter described. The other or forward end of the spindle, having on it a shoulder, is enlarged to receive a cutting-tool, which, as the spindle advances, being revolved by the crank F and the sleeve E, cuts off so much of the axle back of the thread holding the nut, and of the same diameter, as shall allow, by another operation, the thread of the axle to be cut up sufficiently to compensate for the wearing off of the shoulder of the axle, and to allow the hub of the wagon-wheel to be set back closely to the shoulder; and the thread on the end of the axle being also afterward cut back, the nut may be turned farther on, to hold the wheel properly in place. The thread on the end of the axle, which is intended to take the nut which holds the wheel, enters the center of the cutting-tool, which is made hollow through its center to receive it.

E is a sleeve, having a thread cut on its outside, taking into a corresponding thread on the inside of the sleeve C, through which it passes. The forward end of this screw-sleeve E bears against a shoulder on the enlarged part of the spindle D, and, by the action of the

crank on it, forces the cutting-tool to its work, as previously stated.

H is an arbor hung on bearings to the crank F, having on its outer end a small mitered gear-wheel, *c*, which meshes into a small mitered gear-wheel, *d*, which is hung on the end of the handle of the crank, which passes loosely through the outer end of the crank F. The other end of the arbor H carries also on it a small mitered gear-wheel, which meshes into a corresponding gear on the end of the sleeve E.

It will be seen that by turning the crank to the right the arbor H is, by the two mitered wheels *c* and *d*, turned on its own center, as well as around the spindle D, and the mitered wheel on the lower end of the arbor H, engaging with the gear on the sleeve E, carries it forward, thereby crowding the forward end of the screw-sleeve E against the shoulder of the spindle D, and thereby holding the cutting-tool up to its work, as before described.

When the mitered wheel *d*, which is on the end of the handle of the crank, is made smaller, and the number of teeth reduced below the wheel on the arbor, the feed may be increased, and the feed is increased or diminished in the same proportion as the size of the wheels and number of teeth are increased or decreased.

The cutting-tool is withdrawn by simply giving a backward turn of the handle of the crank on its own center.

If desired, friction-wheels may be used in place of the geared wheels *c* and *d*. If preferred, a hand-wheel, G, may be used as the propelling power, and the crank and its appendages be detached.

I represents the cutting-tool, with teeth and hollowed center. This is screwed onto the end of the spindle D.

The mode of operating the machine is very simple. The axle of a wagon being supported at a convenient height, the jaws of the machine are placed upon it about one-third of its length out, and so that the screw on the end of the axle shall enter the hollow cutting-tool. They are then secured in place by the tightening-screw *a*. By turning the crank, the tool is brought to its place, and commences the cutting, which is rapidly accomplished. When as much has been cut off as has been worn from the shoulder of the axle a backward action of the crank retracts the cutting-tool, and the jaws are released. The thread on the end of the axle is then cut up by an ordinary screw-die to allow the nut to be turned up snug to the wheel.

It is sometimes important to give a more rapid feed-movement to the cutter, and in such cases the hand-wheel G may be employed without the use of the crank and the gear-feed mechanism to revolve the screw-threaded sleeve to accomplish the result.

What I claim, and desire to secure, is—

1. The arms A, having jaws formed at their ends, adapted to fit against a vehicle-axle and provided with gear-segments, in combination with sleeve C, provided with lugs C′ and screw *a*, as and for the purpose specified.

2. The arms A, having V-shaped jaws at their ends, pivoted in ears extending from sleeve C, and provided with toothed segments which mesh together to give a uniform or equal movement to said arms as they approach or recede from each other, in combination with the screw *a*, working in pivoted lugs extending from said arms, as and for the purpose set forth.

3. The crank feeding device for the cutter I, composed of the shaft D, sleeves C and E, crank F, bevel-gear wheels *e* and *d*, and shaft H, provided with bevel-gear wheels *c* and *f*, all arranged substantially as and for the purpose set forth.

4. The combination of the crank feeding device for cutters I, composed of the shaft D, sleeves C and E, crank F, bevel-gear wheels *e* and *d*, and shaft H, provided with bevel-gear wheels *c* and *f*, with the hand-wheel G, as and for the purpose set forth.

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