(No Model.)

D. E. REED & O. GURNEE.

AXLE CUTTER.

No. 477,268. Patented June 21, 1892.

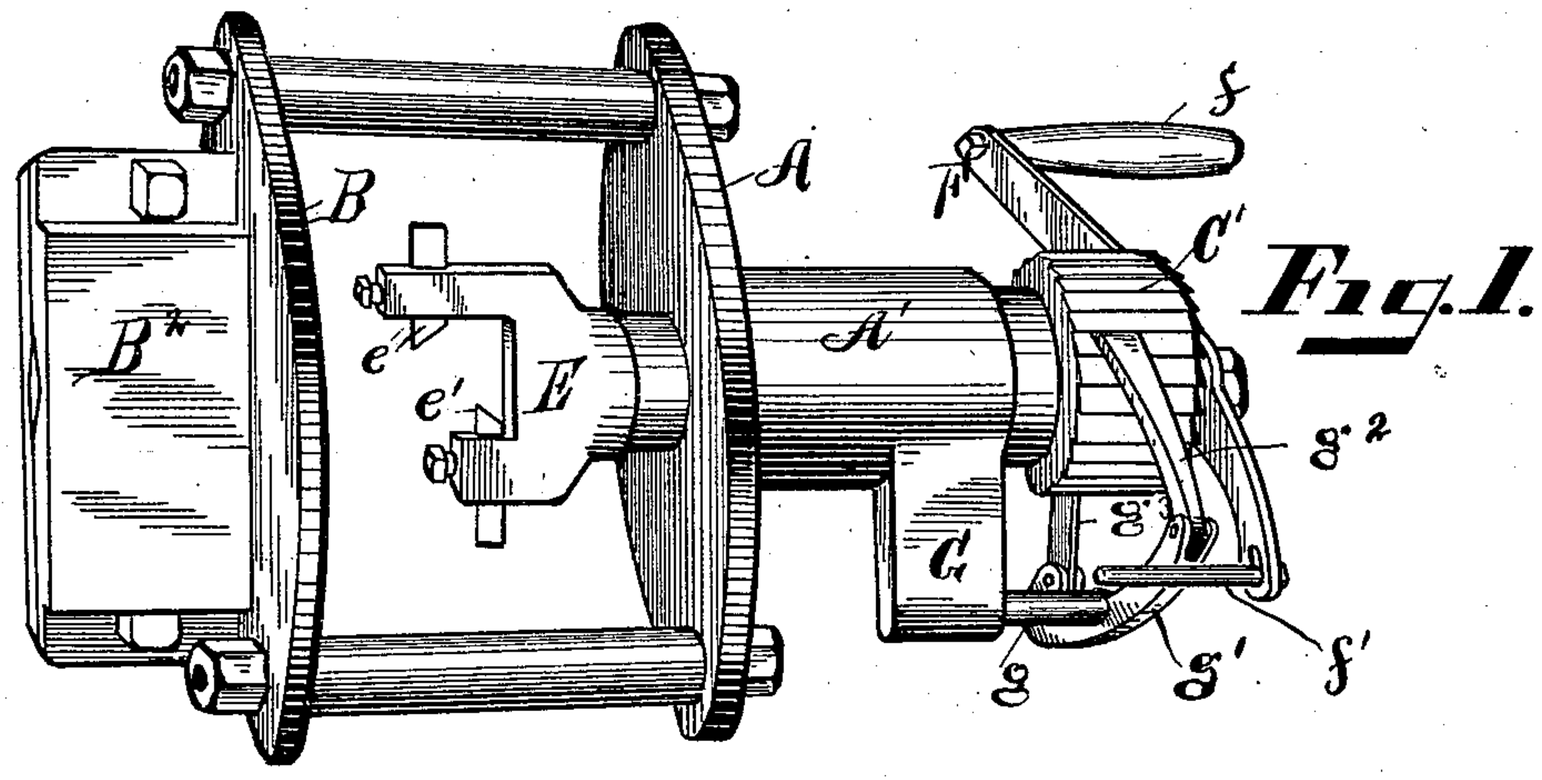

Fig. 1.

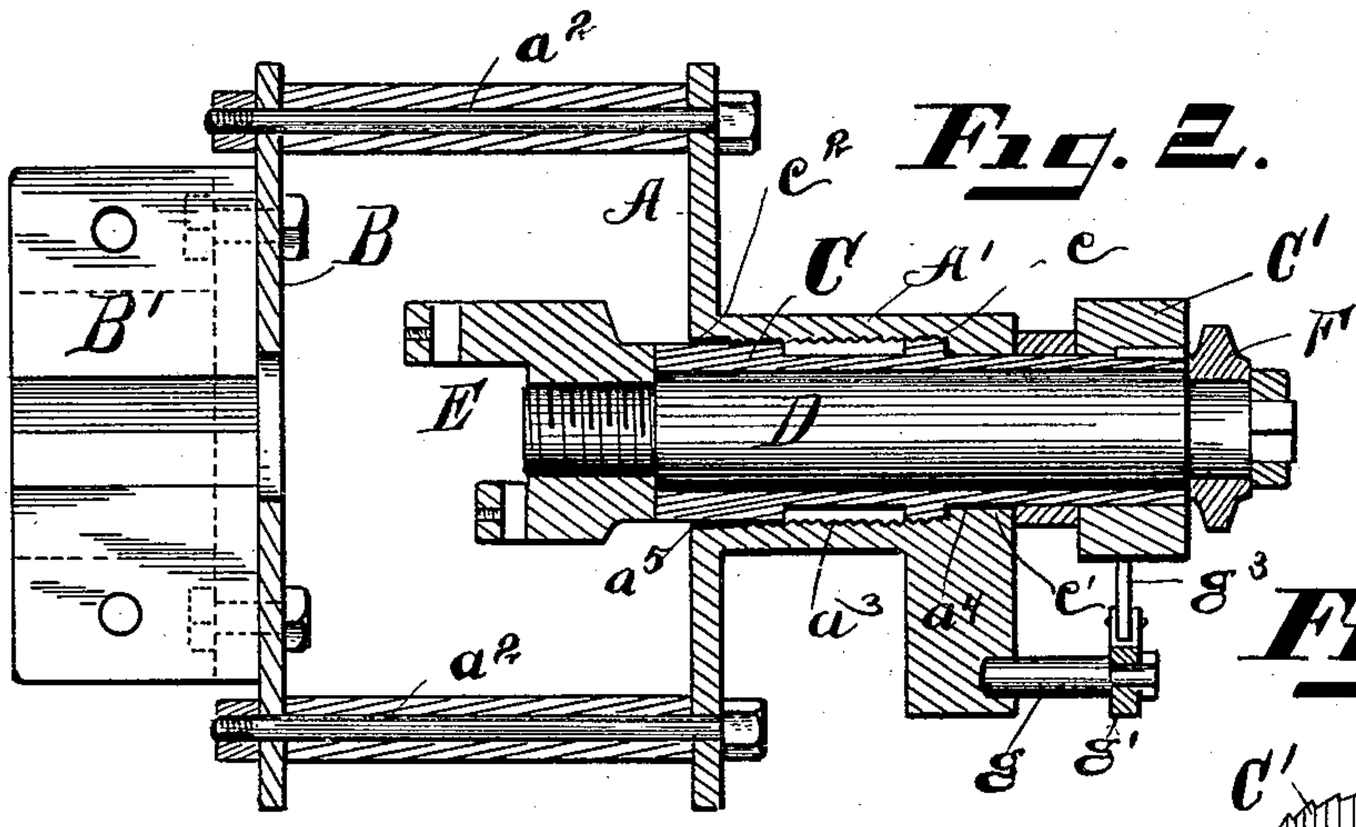

Fig. 2.

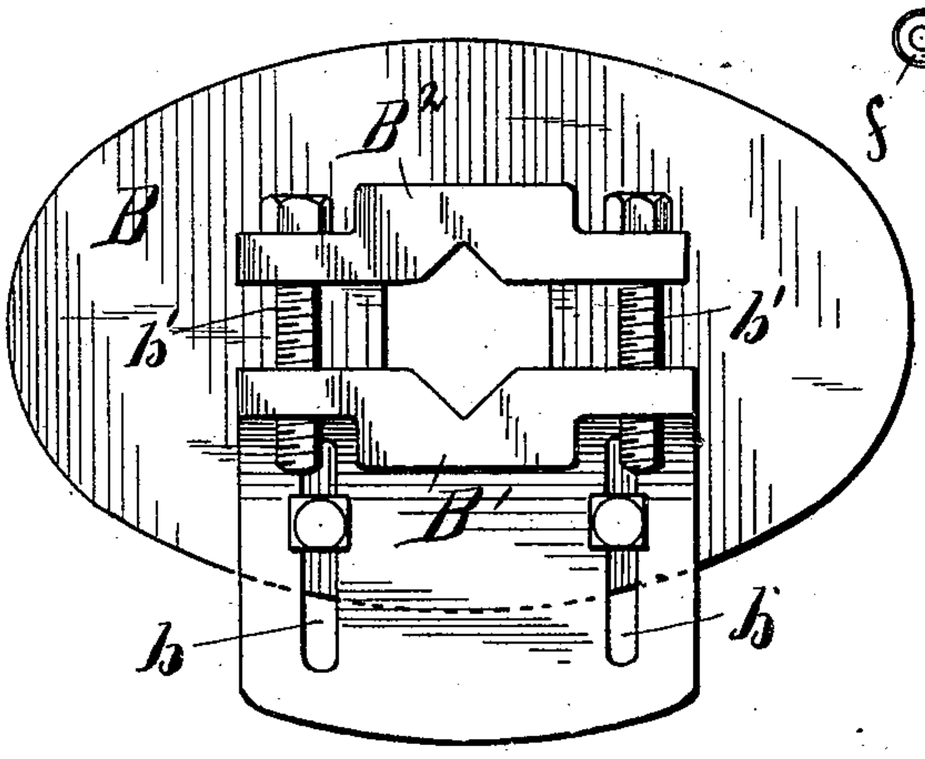

Fig. 3.

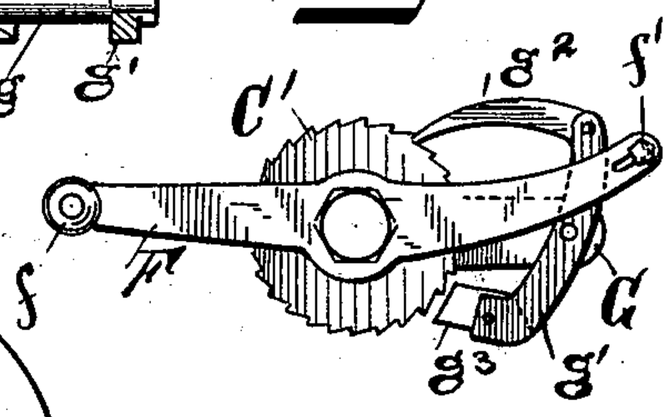

Fig. 4.

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UNITED STATES PATENT OFFICE.

DAVID E. REED AND ORLANDO GURNEE, OF NEW HUDSON, MICHIGAN.

AXLE-CUTTER.

SPECIFICATION forming part of Letters Patent No. 477,268, dated June 21, 1892.

Application filed August 31, 1891. Serial No. 404,203. (No model.)

To all whom it may concern:

Be it known that we, DAVID E. REED and ORLANDO GURNEE, citizens of the United States, residing at New Hudson, county of Oakland, State of Michigan, have invented a certain new and useful Improvement in Axle-Cutters; and we declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to axle-cutters for cutting back the end and shoulder of an axle for the purpose of readjusting the hub on the wheel; and it consists in certain improvements (hereinafter specifically described) for adjusting the axle relative to the tool and in improved methods of feeding the tool.

The special feeding mechanism used we also desire secured to us for use in other combinations than that shown on axle-cutters.

In the drawings, Figure 1 is a perspective of our device. Fig. 2 is a vertical section. Fig. 3 is an end elevation showing method of gripping the axle and means for adjusting it. Fig. 4 is a view showing details of the external portion of the feeding mechanism.

In the drawings, A is the plate, in which is sleeved the tool-shaft D and feeding-spindle C.

B is the plate, carrying the movable jaws for gripping and holding the axle. The plates A and B are connected by bolts or rods a^2. These bolts may be cut down at each end and provided with right and left screws, respectively, so as to screw the two plates A and B together to make them into one frame-work for supporting the working parts of the machine. On the outer plate B is bolted the lower jaw B′, and which is provided with slotted bolt-holes b for vertical adjustment. To the jaw B′ is attached the upper jaw B^2, the distance between the jaws being regulated by the set-screws b' b', thus providing for axles of different sizes. The vertical adjustment of the lower jaw B′ permits the axle to be centered with relation to the tool-holder. The sleeve A′ of the plate A is provided with an internal thread a^3. The sleeve or spindle C is provided with an external thread c to correspond and engage with the internal thread in the sleeve and has on each side of the thread c journal-bearings c' and c^2, working in corresponding bearings a^4 and a^5 of the sleeve A′.

On the outer end of the sleeve or spindle C is mounted the ratchet-wheel C′. Mounted in the sleeve or spindle C is the tool-shaft D, provided on its inner end with a thread to engage the tool-head E and on its outer end with a square end to receive the crank F. Rotary motion to the head E is given by the crank F, and an endwise movement is given to the tool-shaft D and the tool by rotating the sleeve or spindle C in the threaded portion of the plate A.

The tool is provided with an inner bearing which abuts against the inner end of the sleeve C, so that when the sleeve is moved inward by revolving it in the frame through the operation of the screw it forces the tool-head inward toward the axle held between the jaws on the plate B.

The means employed by us for automatically feeding the cutter are as follows: On the side of the sleeved portion A′ of the plate A, I provide a projection or lug G. In the outer end of this lug is the projecting pin g, on which is mounted a lever g', having a free movement thereon. On the outer end of the arm g' is the pawl g^2, engaging with the ratchet-wheel C′. On the opposite end of the lever g' is a rigid pawl or arm g^3, adapted to prevent backward revolution of the ratchet-wheel after it has been advanced by the pawl g^2. The crank F is provided on the end opposite the handle f with a pin f', projecting inward from the crank and adapted at each revolution of the crank to strike against the outer end of the lever g' and as it passes the end of the lever operate the pawl g^2 to move the ratchet-wheel one or more points. The pin f' has a slotted connection with the end of the crank-arm, so that it may be moved inward toward the pivot of the crank, and thus strike the lever g' nearer its pivot and give the pawl g^2 an increased throw, so as to move the ratchet-wheel C′ any number of points desired within a certain limit. This feeding mechanism just described, with its adjustable feed in the way of the pin having a slotted connection with the crank for adjusting the movement of the pawl, we believe

to be new, generally, as well as specifically, in a gear-cutter.

The operation of our device is as follows: The axle to be cut is fixed between the jaws B′ and B² and is centered relatively to the tool-holder by adjusting the jaw B′ on the face of the plate B. In the tool-holder are mounted tools *e* and *e′* in the usual manner, and which may be set the outer one to cut back the shoulder and the inner one to cut off the end of the axle. The ratchet-wheel may now be turned by hand until the tools engage with the axle, and on revolving the tool-holder by means of the crank the feeding mechanism will on each revolution of the crank feed the ratchet-wheel one or more points, and by reason of the threaded connection of the sleeve C with the sleeve portion of the plate A will force the tool-head inward and cause it to feed or cut away the end of the axle, as desired.

We are aware that it is not new to cut back axles in this manner or to feed the head by means of a sleeved shaft and spindle; but we are not aware that any means have been used for automatically feeding the tool while cutting back the axle.

We are not aware that the adjustment for the purpose of centering the axle relative to the tool-holder has ever been accomplished by adjusting the jaws on the outer end of the frame in the manner shown and described.

What we claim is—

1. In an axle-cutter, the combination of the plates A and B, the jaw B′, having a vertical adjustment on the plate B, and the jaw B², adjustably engaged with the jaw B′, substantially as described.

2. In an axle-cutter, the combination of a frame, a sleeve having a threaded connection with said frame and adapted to feed forward on being rotated therein, a spindle rotatably mounted in said sleeve and provided with a tool-head, a ratchet-wheel on said sleeve, a crank on said spindle provided with an adjustable pin, and a pawl operated by the pin and adapted to rotate said ratchet-wheel and sleeve one or more points on each revolution of said crank, substantially as described.

3. In an axle-cutter, a feeding mechanism consisting of lever *g′*, pivoted to the frame of said cutter, and pawl *g²* and pin *f′*, mounted in the crank of said axle-cutter, substantially as described.

4. In an axle-cutter, a feeding mechanism consisting of lever *g′* and pawl *g²*, in combination with crank F, and pin *f′*, having a slotted connection with said crank, whereby the throw of the lever *g′* may be increased or diminished, substantially as described.

5. In an axle-cutter, feeding mechanism consisting of threaded sleeve C, ratchet-wheel C′, lever *g′*, pawl *g²*, rigid pawl *g³*, and crank F, provided with pin *f′*, substantially as described.

In testimony whereof we sign this specification in the presence of two witnesses.

DAVID E. REED.
ORLANDO GURNEE.

Witnesses:
CHARLES H. FISK,
MARION A. REEVE.