

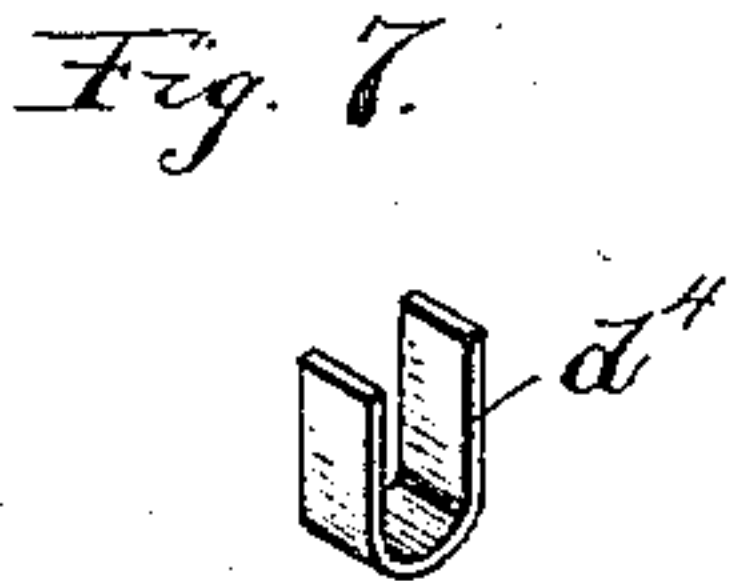
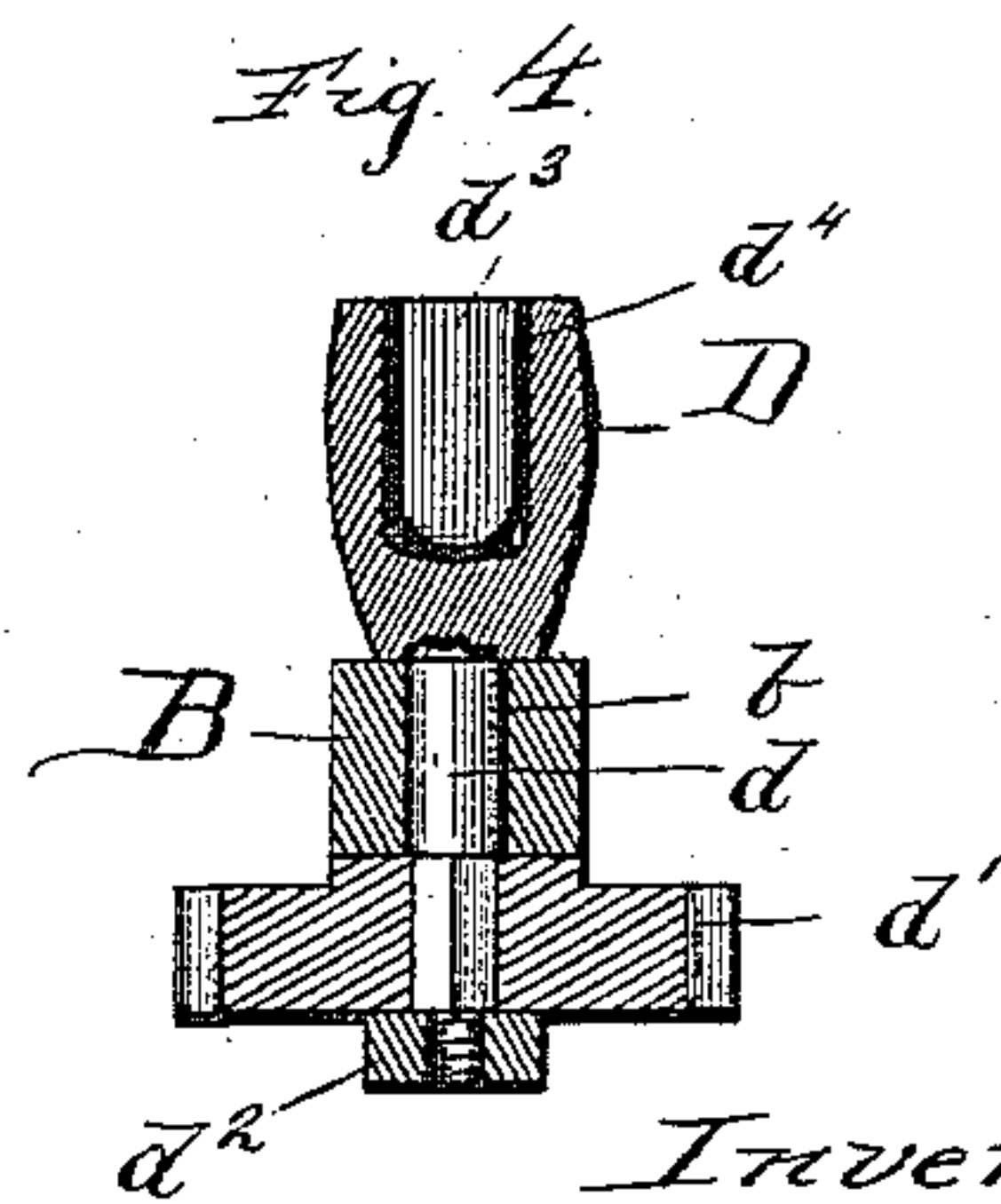
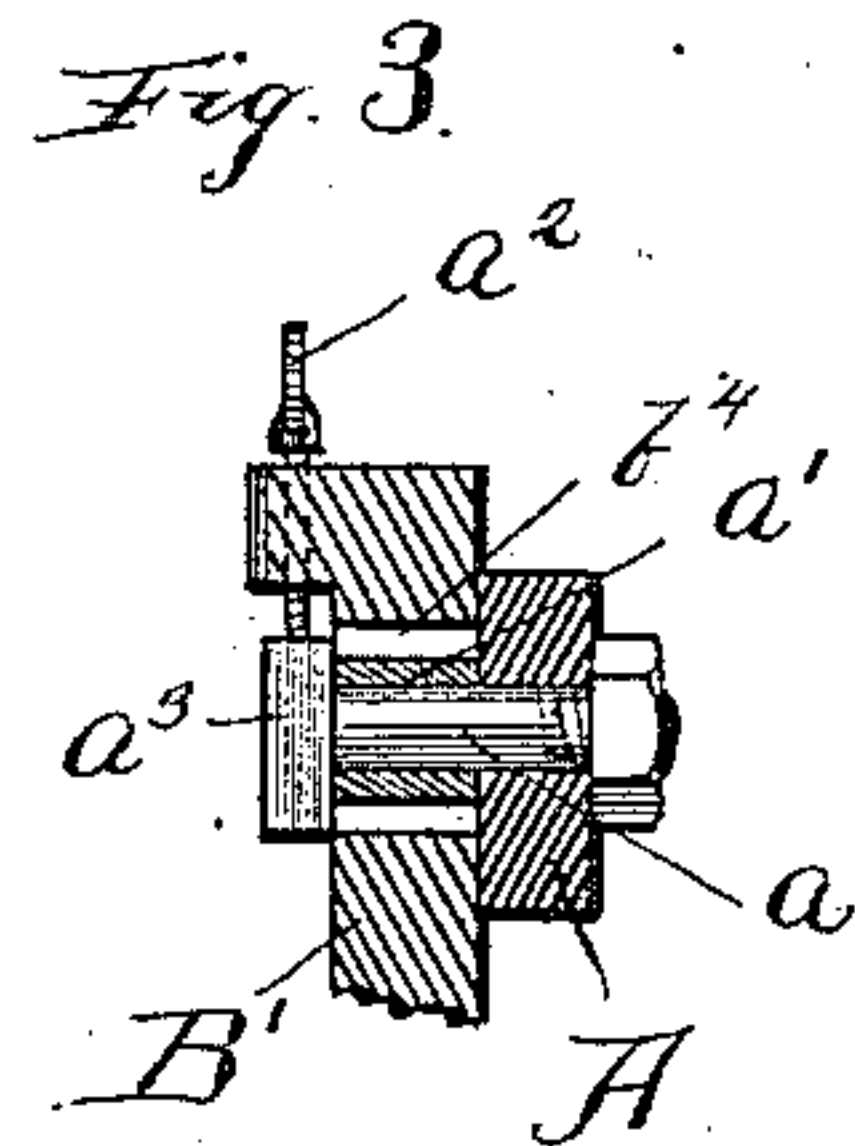
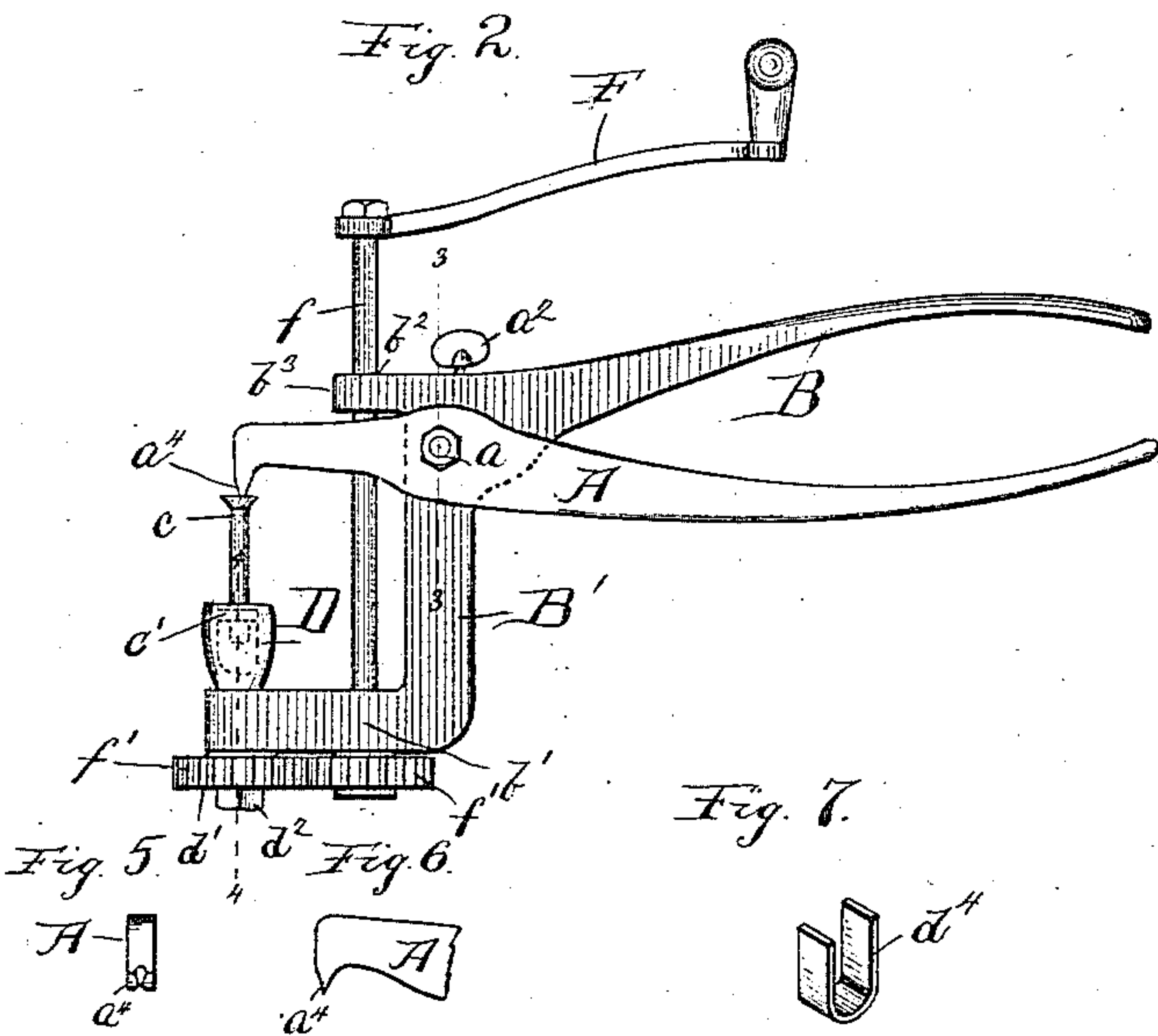
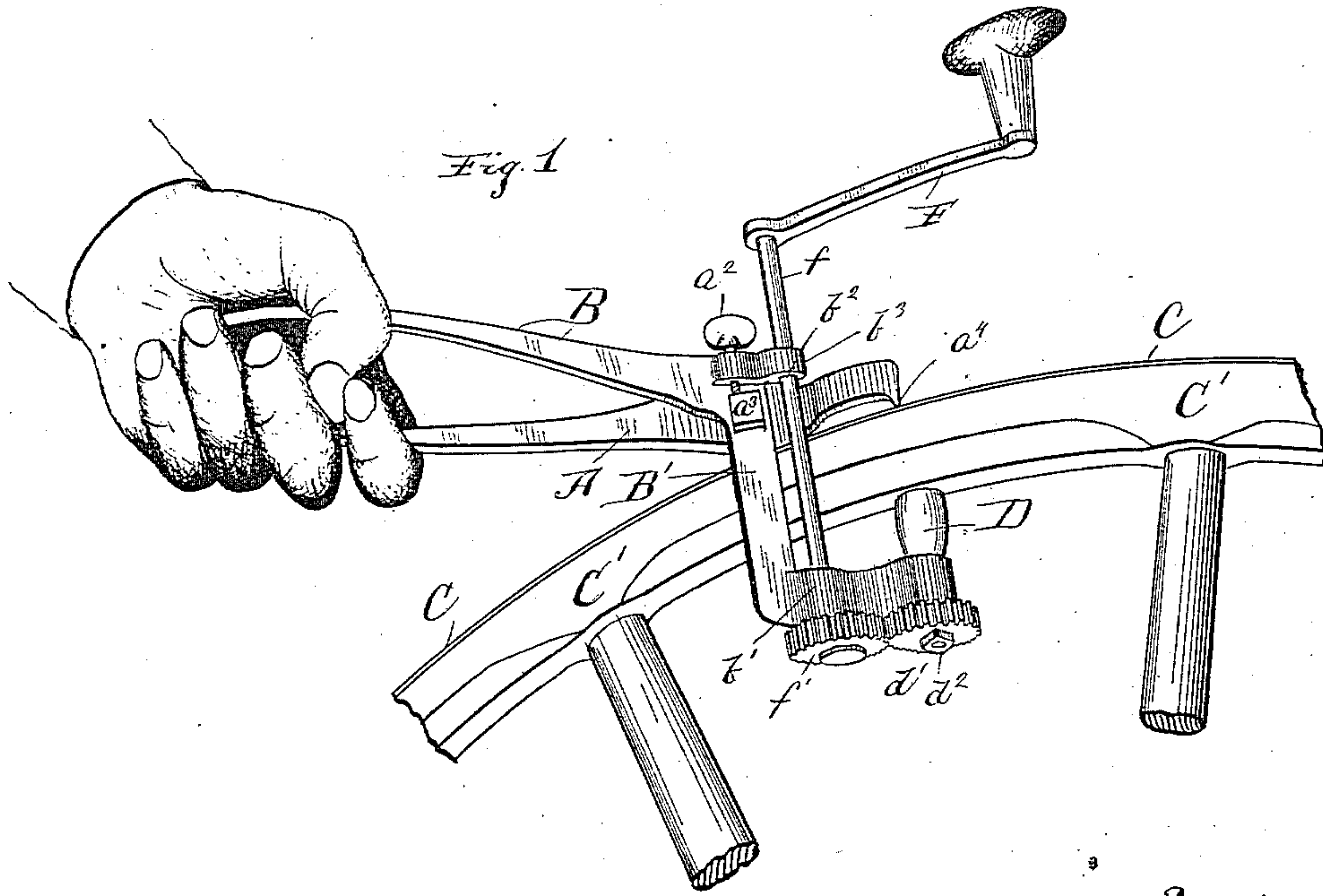
(No Model.)

J. BYRNE.

WRENCH.

No. 379,504.

Patented Mar. 13, 1888.



Witnesses:

Sam. C. Curtis.

M. Munday.

Inventor:

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UNITED STATES PATENT OFFICE.

JOHN BYRNE, OF SHARON, WISCONSIN, ASSIGNOR TO HIMSELF AND CHARLES
R. TREAT, OF SAME PLACE.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 379,504, dated March 13, 1888.

Application filed October 28, 1887. Serial No. 253,611. (No model.)

To all whom it may concern:

Be it known that I, JOHN BYRNE, a citizen of the United States, residing in Sharon, in the county of Walworth and State of Wisconsin, have invented a new and useful Improvement in a Combined Wrench and Clamp for Tire-Bolts, of which the following is a specification.

The object of my invention is to provide an improved tool or device for applying and removing tire-bolts to or from the wheels of vehicles, which shall be of a simple and cheap construction and operate efficiently both to clamp the bolt to hold it from turning and to revolve the nut for the purpose of threading it or unthreading it, and which shall also be readily adjustable to bolts of different lengths and sizes, so that the same tool may be used whatever the thickness or depth of the felly and tire of the wheel.

To this end my invention consists in a pair of pivotal clamping jaws having handles or levers for clamping and holding the bolt, and a revolving wrench journaled upon one of the jaws or arms of the clamp, whereby the nut may be screwed on or unscrewed at the same time the bolt is held from revolving.

It also consists, in combination with the clamp and wrench, of a crank and crank-shaft journaled on one of the clamp arms or levers, and having a gear which meshes with a gear on the revolving wrench, whereby the wrench is conveniently operated.

It further consists in the novel devices and novel combinations of devices herein shown and described, and more particularly pointed out in the claims.

In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a side elevation of a device embodying my invention. Fig. 2 is a similar view from the opposite side. Fig. 3 is a partial vertical section on line 3 3 of Fig. 2. Fig. 4 is a central longitudinal section of the wrench. Figs. 5 and 6 are detail front and side views of the holding point or claw of the upper clamp-arm, which engages the smooth head of the bolt, that is flush with the surface of the tire; and Fig. 7 is a perspective view showing the devices for varying the size of the wrench-socket which fits upon the nut.

In said drawings, A and B are a pair of clamp arms or levers pivoted together by a bolt, *a*. The clamp-arm A has a double holding point or claw, *a*¹, which engages the smooth head of the tire-bolt *c*. The clamp-arm B has an offset or right-angle middle portion, *B'*, so that the end of the clamping-jaw B will fit properly under the felly of the wheel.

D is a revolving wrench journaled in a suitable hole or bearing, *b*, near the end of the clamp-arm B. The shaft *d* of the wrench is furnished with a gear, *d'*, and also a nut, *d*², for securing the gear and wrench in place on the clamp-arm B. The wrench is revolved or operated by a crank, *F*, on the crank-shaft *f*, which is furnished at its lower end with a gear, *f'*, that meshes with the gear *d'* on the shaft of the wrench D. The crank-shaft *f* is journaled in suitable holes or bearings, *b'* *b*², on the clamp-arm B, the latter being in a projection, *b*³, near the upper right-angle bend of the clamp-arm B.

The pivot or bolt *a*, by which the clamp arms or levers A and B are pivoted together, fits in a suitable hole in the clamp-arm A and in a vertical slot, *b*⁴, in the offset portion *B'* of the clamp-arm B, so that the position of the pivot may be adjusted as required to enable the combined clamp and wrench to operate upon wheels whose tires and fellys are of different thicknesses. The bolt *a* is furnished with a bearing-block, *a'*, that fits in said slot *b*⁴. A set-screw, *a*², fits against the head *a*³ of the bolt *a* and serves to fix and adjust it in any desired position.

The socket *d*³ of the wrench is made deep enough to permit the nut *c'* of the tire-bolt to freely recede from the felly as it is unthreaded, while at the same time the end of the round cup-shaped wrench D bears against the under side of the felly. The wrench D, or its end which bears against the felly, should be round, so that it may easily revolve thereon when the clamp-arms are pressed together with sufficient force to cause the holding point or claw *a*¹ to properly hold the bolt from turning.

To adapt the socket or recess *d*³ of the wrench to fit nuts of different sizes, I provide the same with a number of U-shaped fillers, *d*⁴, one or more of which may be used, as required.

It will be observed that in my invention the

clamp not only holds the bolt from turning, but also holds the wrench from falling off or becoming displaced from the nut, which is a matter of great convenience and materially facilitates the operation of the device.

C represents the tire, and C' the felly, of any ordinary vehicle-wheel.

In operation the clamp arms or jaws A B, being first opened, are then closed with the clamp-point *a'* fitting against the round head of the tire-bolt, which is flush with the surface of the tire, and with the wrench D fitting upon the nut of the tire-bolt on the under side of the felly. The operator then, with one hand clasping the handles of the clamp-arms A B and exerting sufficient pressure thereon to hold the bolt from turning, revolves the wrench D by turning the crank F with his other hand, thereby threading or unthreading the nut from the bolt. The pivotal clamp arms or jaws A B adapt the device to fit upon various wheels without moving the adjustable pivot *a*. The pivot may, however, be adjusted when necessary.

I claim—

1. The combination of a pair of clamp arms or levers with a revolving wrench journaled on one of said clamp-arms, substantially as specified.

2. The combination of a pair of clamp arms or levers with a revolving wrench journaled on one of said clamp-arms, a crank and a crank-shaft, also journaled on one of said clamp arms or levers, said crank-shaft having a gear, and the shaft of said wrench being provided with a gear meshing with the gear on said crank-shaft, substantially as specified.

3. The combination, with clamp-arm A, having holding point or claw *a'*, of clamp-arm B, pivoted thereto and provided with offset or vertical portion B', wrench D, journaled on said clamp-arm B and provided with gear *d'*, crank F, and crank-shaft *f*, provided with gear *f'*, substantially as specified.

4. The combination of a pair of clamp arms or levers provided with an adjustable pivot, and one of said clamp-arms having an offset or middle portion, as B', with a revolving wrench journaled on one of said clamp-arms, substantially as specified.

Signed at Sharon, Wisconsin, this 25th day of October, 1887.

JOHN BYRNE.

Witnesses:

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