

(No Model.)

H. WILLIAMS.
BOLT CUTTER.

No. 547,101.

Patented Oct. 1, 1895.

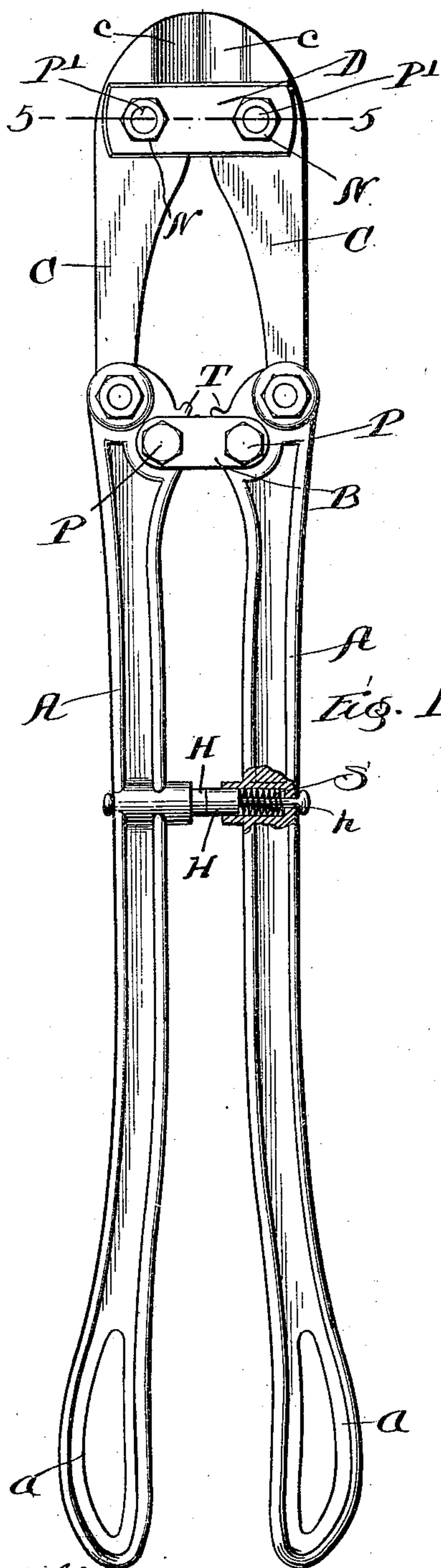


Fig. 1.

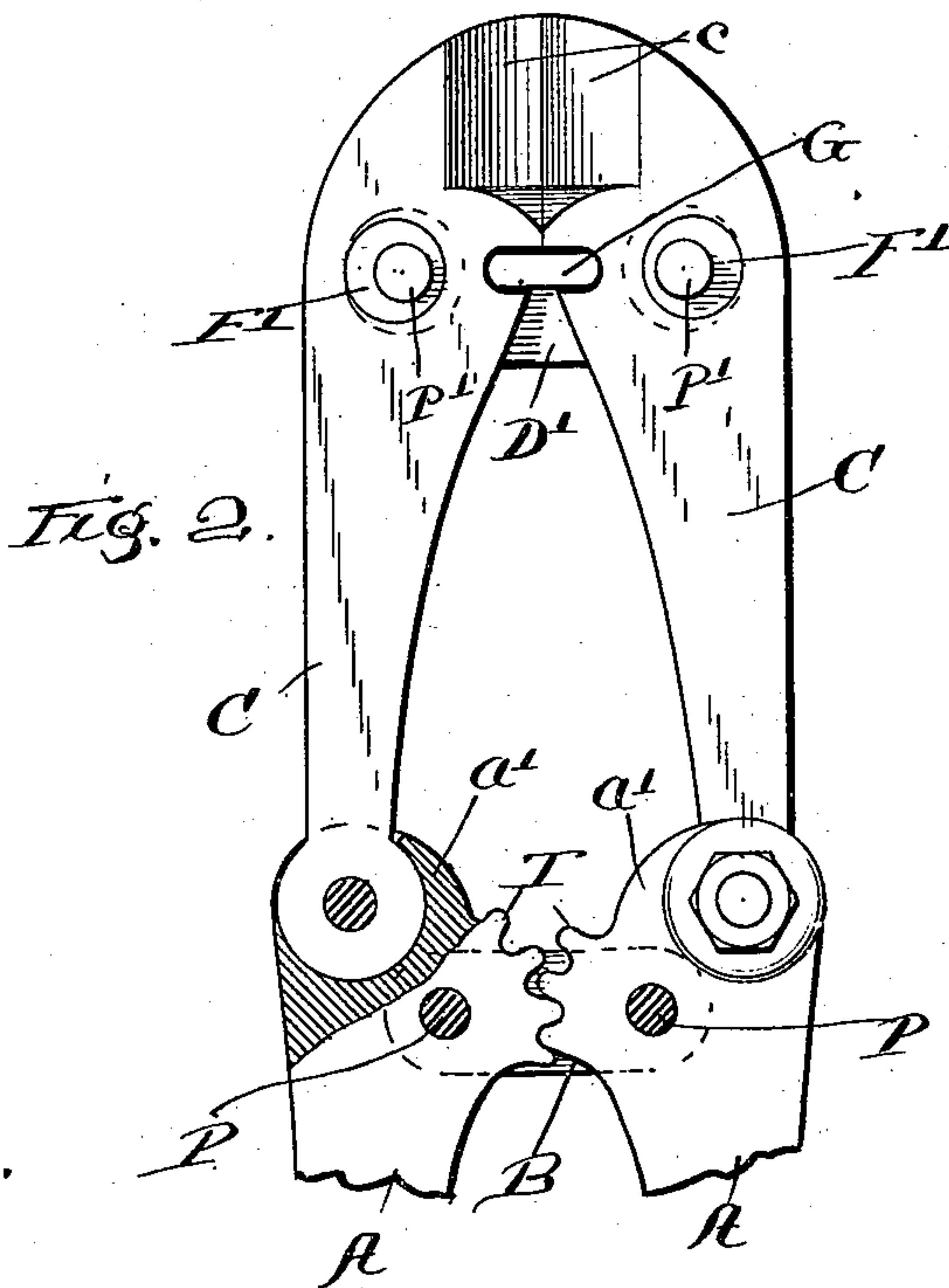


Fig. 2.

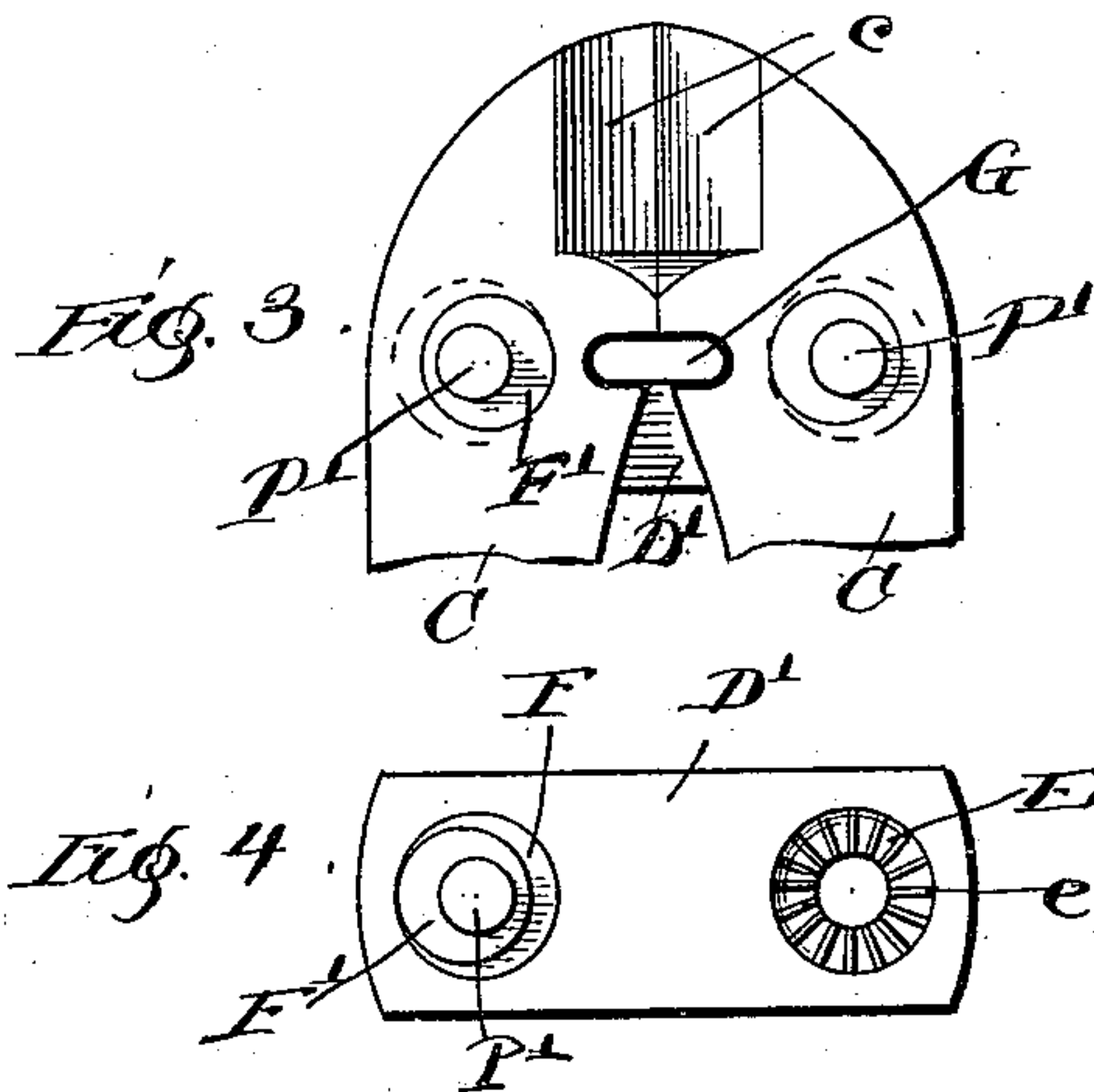


Fig. 3.

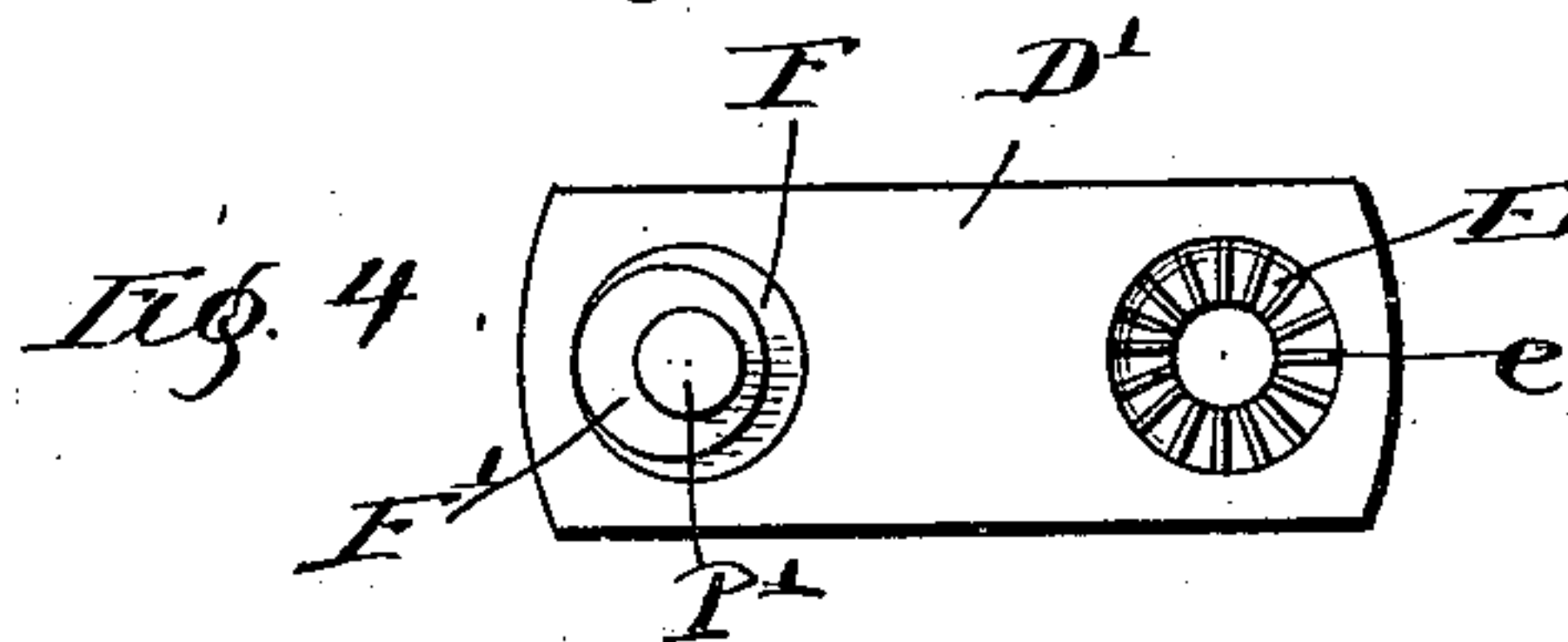


Fig. 4.

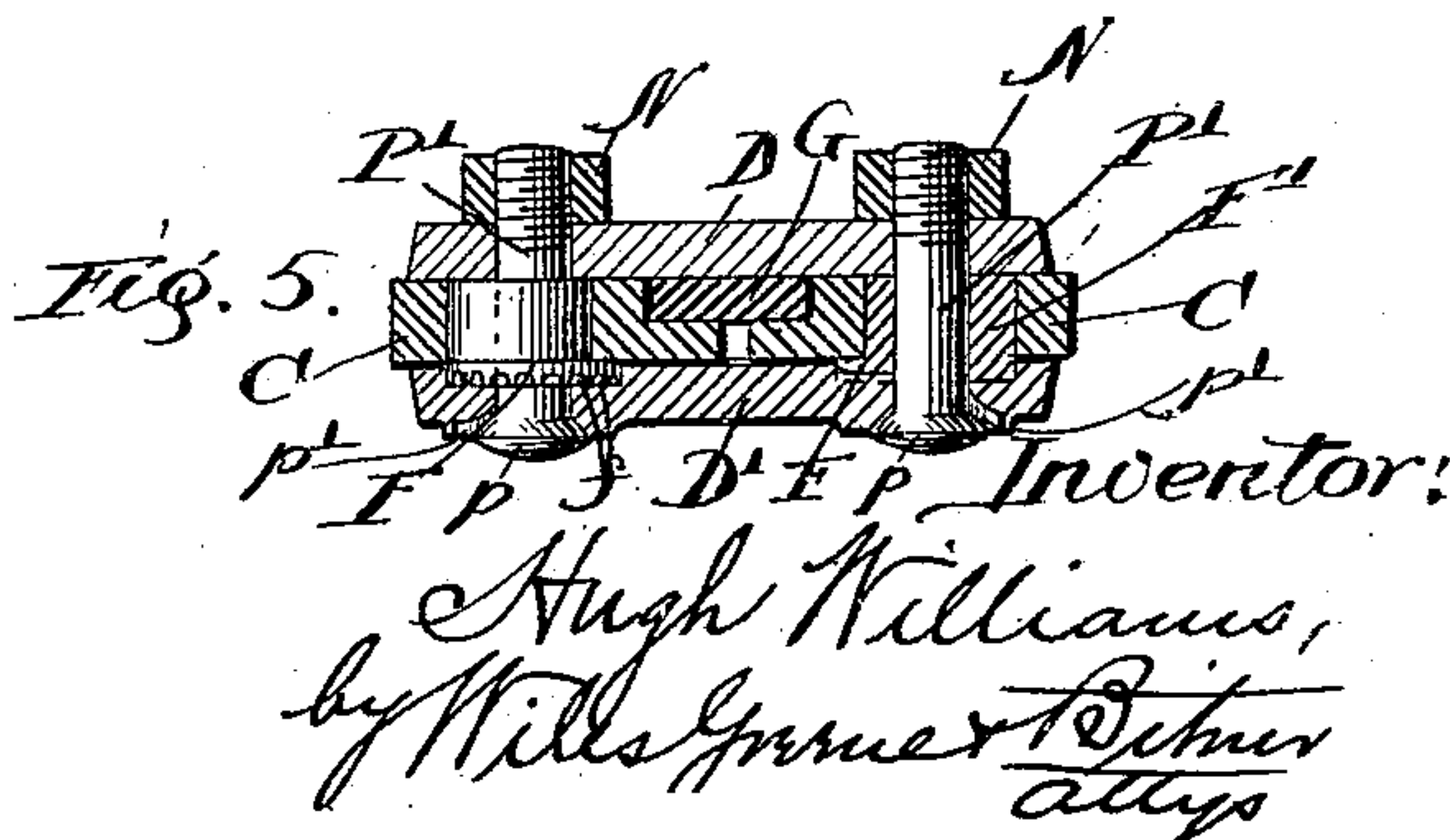


Fig. 5.

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UNITED STATES PATENT OFFICE

HUGH WILLIAMS, OF FREEPORT, ILLINOIS, ASSIGNOR OF ONE-HALF TO
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BOLT-CUTTER.

SPECIFICATION forming part of Letters Patent No. 547,101, dated October 1, 1895.

Application filed October 22, 1894. Serial No. 526,539. (No model.)

To all whom it may concern:

Be it known that I, HUGH WILLIAMS, a citizen of the United States of America, residing at Freeport, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Bolt-Cutters, of which the following is a specification.

My invention relates to improvements in bolt-cutters, its principal object being to provide a means for readily adjusting the cutting-blades in order to compensate for the wearing of their edges in use and in grinding, and a further object being to strengthen and otherwise improve the entire device.

The invention is fully described and explained in this specification and shown in the accompanying drawings, in which—

Figure 1 is a plan of a bolt-cutter embodying my improvements. Fig. 2 is a plan of the cutting-blades and the ends of the levers immediately connected therewith, certain parts being removed to show construction and other parts being shown in section. Fig. 3 is a similar view showing the blades adjusted to a different position. Fig. 4 is a plan of the inner face of one of the transverse bars carrying the pivots on which the blades are mounted. Fig. 5 is a transverse section through the line 5 5, Fig. 1.

In the views A A are two levers provided at one end with suitable handles *a a*, and connected at their opposite end by two transverse bars B B and pivots P P passing through the ends of the bars and the levers which lie between them. The inner faces of the connected ends of the levers are preferably formed with interlocking teeth T T, adapted to insure uniform movement of the two levers upon the pivots P P. In the ends of the levers A A, opposite the handles *a a*, are pivoted the ends of two cutting-blades C C, connected near their opposite ends by two transverse bars D D' and pivots P' P', passing through the blades and the transverse bars, as hereinafter set forth. It is evident that the separation of the free ends of the levers A A must draw the opposite ends of the levers together and separate the cutting-edges *c c* of the blades C C, and that the opposite

movement of the levers must press the cutting-edges of the blades together.

Bolt-cutters having a construction somewhat similar to the one thus described have been made heretofore, but one difficulty in their use has been that the cutting-edges of the blades soon become worn and the cutters must then be thrown aside although otherwise in good condition. To obviate this difficulty it has been proposed to provide means for adjusting the connections of the blades and the operating-levers, so as to vary the angle of separation of what may be called the "handle ends" of the blades, and thereby compensate in some degree for the wear of the cutting-edges. It is evident, however, that such an adjustment can have but little relative effect on the cutting-edges, for the reason that the distance from the ends of operating-levers to the pivots on which the blades swing is much greater than the length of the cutting-edges. I have found, therefore, that the proper place for the adjustment, in order to give it the greatest effectiveness, is at the pivots on which the blades swing, these pivots being immediately contiguous to the cutting-edges, and such an adjustment is shown in Figs. 2, 3, 4, and 5. As shown in these views, the transverse bar D', lying on one side of the blades, is formed with circular recesses E E in its inner face, each of the recesses being formed with a central hole and a series of radial grooves and ridges *e*. In each of the recesses E is seated a circular plate F, having on its base grooves and ridges *f*, Fig. 5, conforming to the grooves in the recess. Each of the plates is formed with a central opening and also with an eccentric cylindrical boss passing through and fitting in a circular opening in the corresponding blade. The pivots or bolts P' P' pass through the openings in the plate D' and the central openings in the circular plates F F and bosses F' F' and through corresponding openings in the plate D. Nuts N N, Fig. 5, engage the ends of the pivots P' P' and fasten all the parts together, the opposite ends of the pivots being provided with heads *p p*, preferably formed with feathers *p' p'*, entering corre-

sponding grooves in the outer face of the plate D'. It is evident that the circular plates F F may be adjusted at will in the recesses E E, thereby varying the positions of the eccen-
 5 trics and the relation of the blades to each other, thus providing a means of compensating for the wear of the cutting-edges of the blades. Fig. 2 shows the eccentrics set in such a way as to give the blades the greatest
 10 possible separation, and this adjustment is that which the blades should have when they are new and before their edges have been worn. Fig. 3 shows the eccentrics so placed
 15 as to give the blades the closest possible adjustment, and this is to be employed when the blades have been considerably worn in use.

In prior bolt-cutters, so far as my knowledge goes, it has been customary to connect the levers A A near their ends by a single pivot
 20 passing through both levers instead of two pivots P P passing through connecting-bars. The construction shown in Fig. 2 is preferred, for the reason that it separates the ends of the levers sufficiently to permit the addition
 25 of stock to the levers at $a' a'$, this stock being intended to support the ends of the blades as the latter are thrust apart, thereby relieving to some extent the pivots passing through the ends of the blades. It is evident from the
 30 drawings that the blades C C swing about the eccentrics F' F' and not directly upon the pivots P' P'. This construction is advantageous not only in saving wear upon the pivots, but
 also in removing the tendency of the friction
 35 of the blades to turn the pivots and thus tighten or loosen them in the nuts, as the case may be.

Figs. 2 and 3 show a short bar G set in recesses in the inner margins of the blades and
 40 adapted to prevent longitudinal movement of

the blades upon each other. This bar is not absolutely essential to the operation of the cutter, but adds somewhat to its completeness.

The levers A A are provided with coacting cushioned stops H H, each seated in the cor-
 45 responding lever and pressed outward by a spring S, as shown in Fig. 1, the outer movement of the stop being limited by means of a pin h , fastened to the stop and provided with a head lying outside the lever.
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Having now described and explained my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with the suitably connected levers, A, A, and blades, C, C, pivoted
 55 to their ends, of the transverse bars, D, D', lying on opposite sides of the blades near their cutting edges, the eccentrics seated adjustably in the bar, D', and passing through the blades and the pivots, P', P', passing through
 60 the eccentrics and the bars, D, D', and holding the parts together whereby the blades may be adjusted at points contiguous to their cutting edges.

2. The combination with the suitably connected levers, A, A, and the blades, C, C, pivoted to the ends thereof, of the plate, D', lying
 65 on one side of the blades and formed with recesses, E, E, the plates, F, F, seated in said recesses and adjustable therein, the eccen-
 70 trics, F', F', formed on the plates and passing through the blades, C, C, the plate, D, lying on the opposite side of the blades from the plate, D', and the pivots, P', P', passing through the plates and eccentrics and holding
 75 the parts together.

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Witnesses:

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