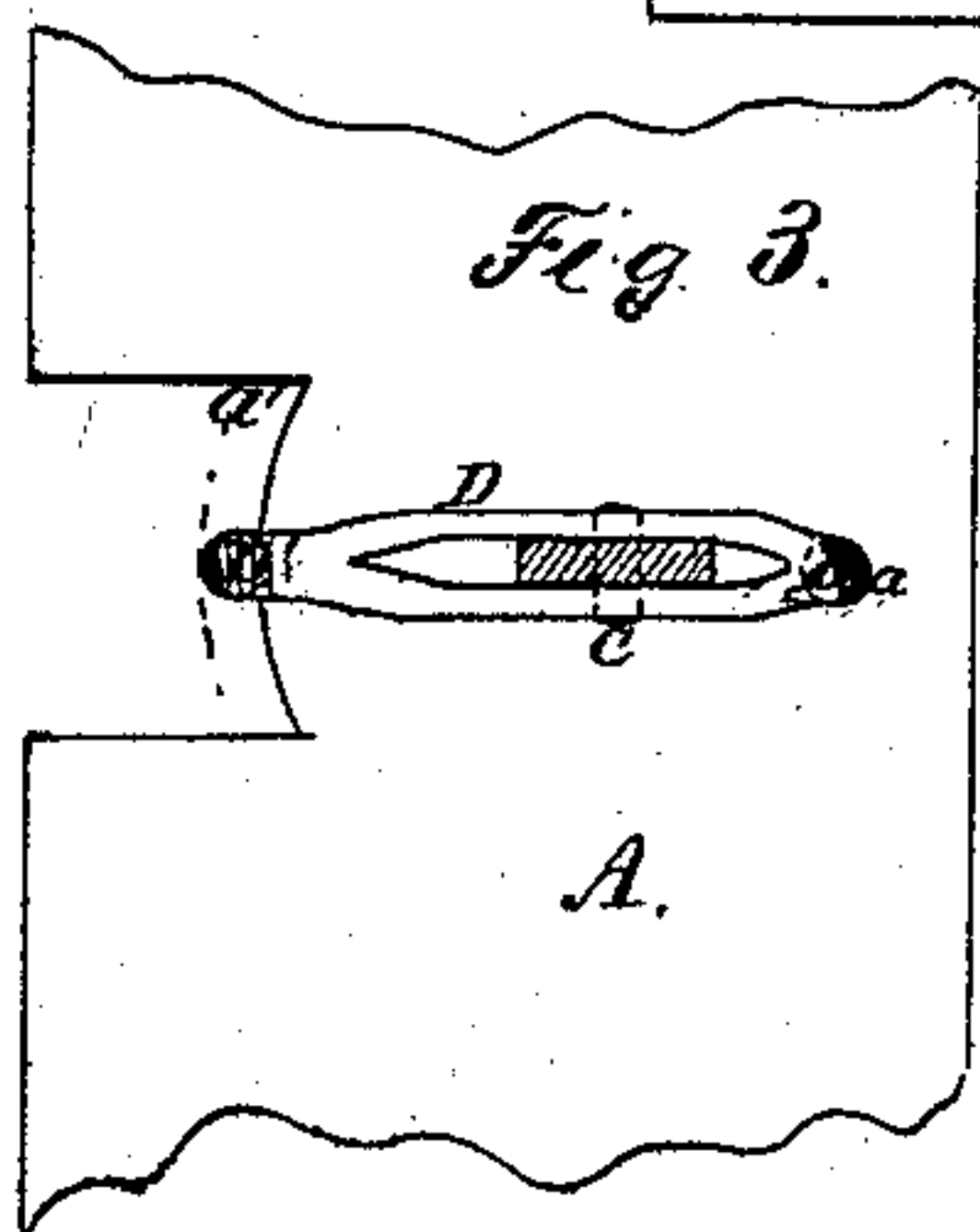
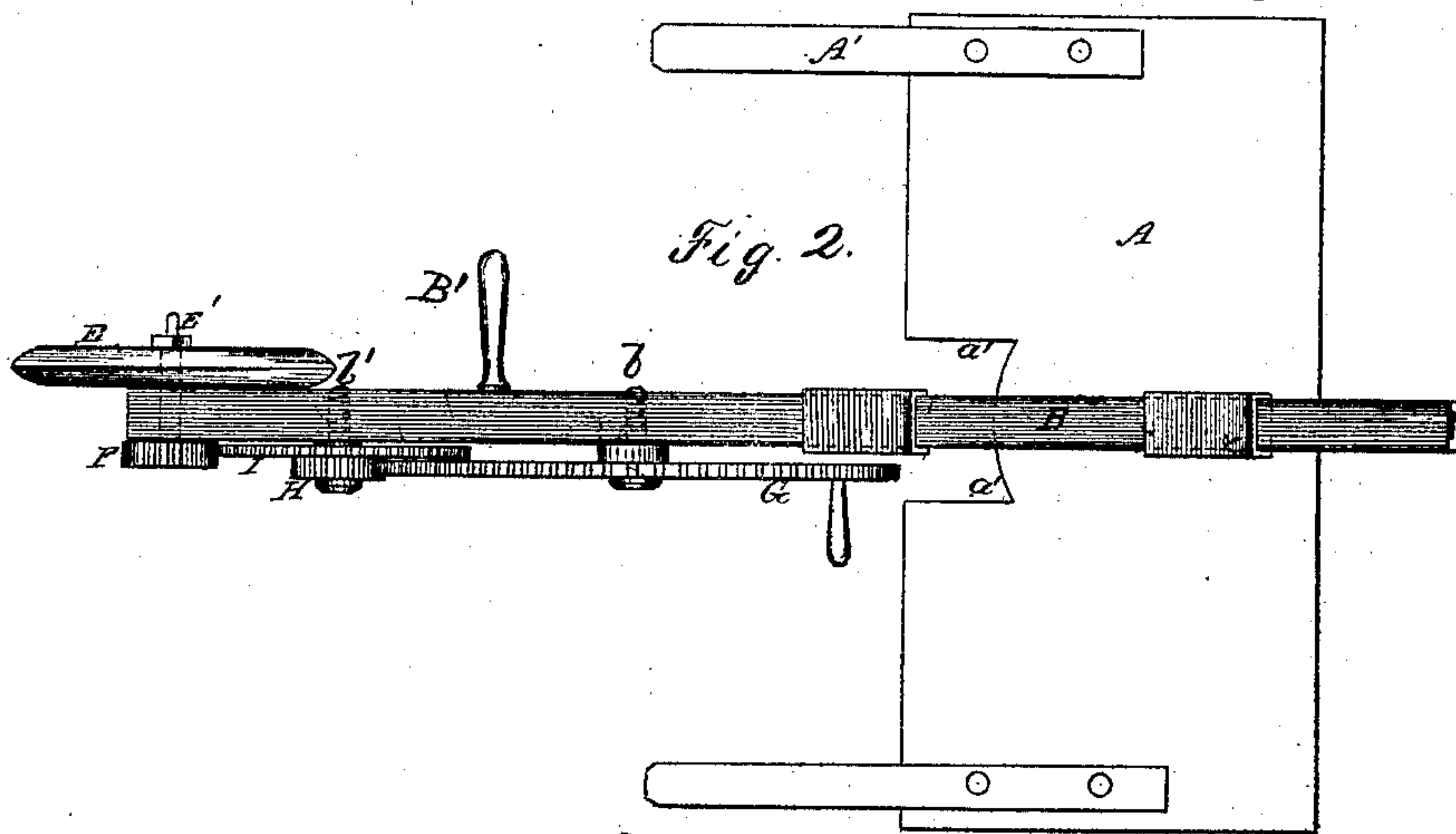
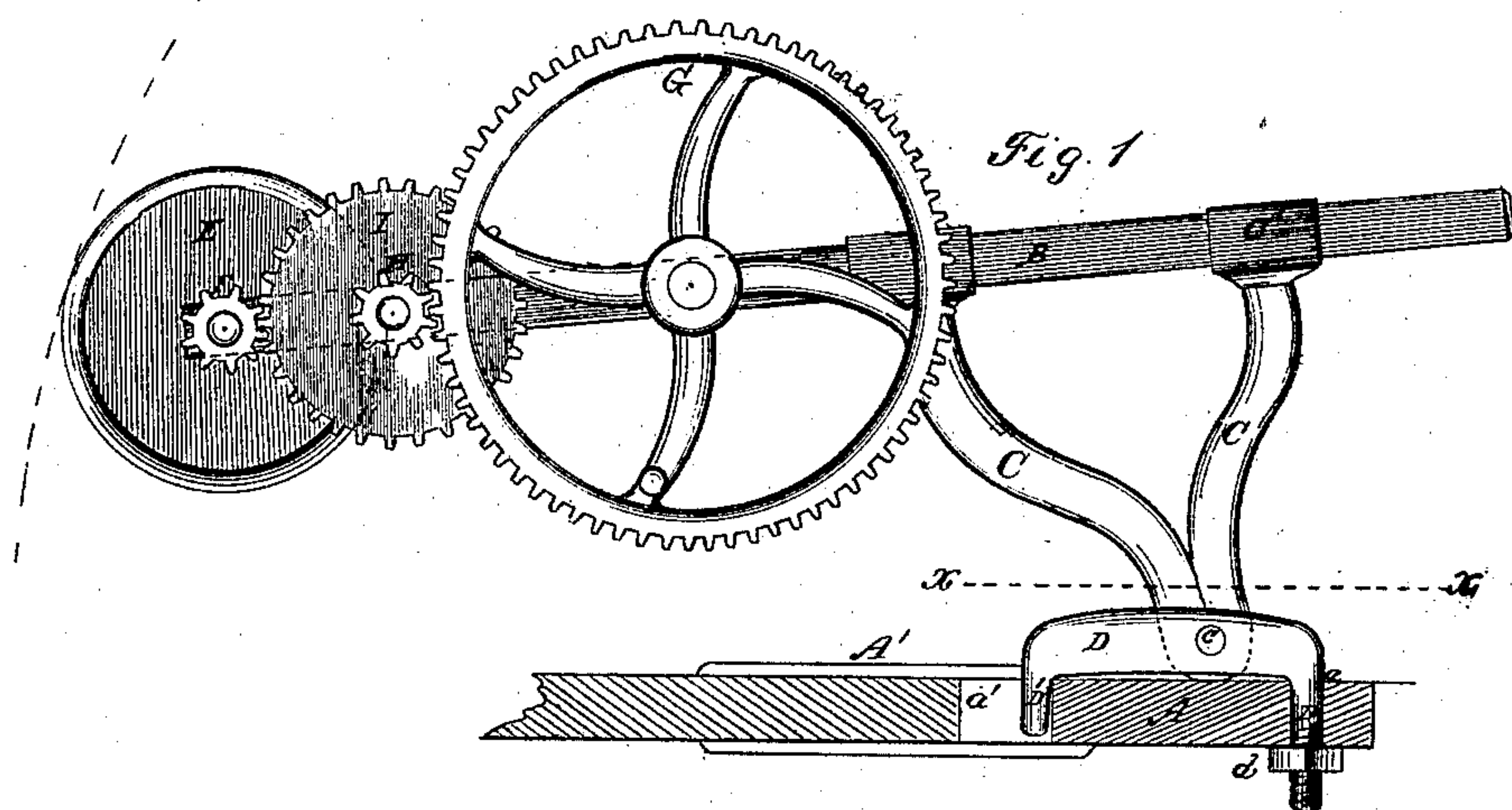


D. F. Welsh,

Grinding Harvester Knives.

No. 109162.

Patented Nov. 8. 1870.



Witnesses
C. F. Clausen
A. Ruppert

Inventor:
D. F. Welsh
per Edson Brothers
Attorneys

United States Patent Office.

DWIGHT F. WELSH, OF NEVADA, OHIO.

Letters Patent No. 109,162, dated November 8, 1870.

IMPROVEMENT IN APPARATUS FOR GRINDING THE KNIVES OF MOWING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, DWIGHT F. WELSH, of Nevada, in the county of Wyandot and State of Ohio, have invented a certain Improvement in Apparatus for Grinding the Knives of Mowing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawing making part of this specification, in which—

Figure 1 is a sectional elevation of my improved apparatus.

Figure 2 is a plan view.

Figure 3 is a horizontal section, on line *x x* of fig. 1.

The same letters are used in all the figures in the designation of identical parts.

The nature of this invention consists in providing a simple and efficient apparatus, by which the knives of mowing-machines may be ground without detaching the cutter-bar from the machine, consisting of a bed-plate with two pairs of jaws, by which it is attached to the back of the cutter-bar, and a slide-bar, arranged in a swiveling-rest mounted upon the bed-plate, and carrying upon a shaft, at its forward end, an emery-wheel or grindstone, which is revolved by means of a train of gearing on such slide-bar.

To enable those skilled in the art to make and use my invention I will now proceed to describe its construction and operation.

In the annexed drawing—

A represents the bed-plate, which is made of suitable length, and a thickness about equal to that of the back of common cutter-bars of mowing-machines.

It is provided with a pair of jaws, *A'*, near each end, to embrace the back of the cutter-bar in applying the apparatus, and set-screws may be used to firmly secure it thereto at any desired point.

The slide-bar B is supported in a bifurcated rest, C, the forks of which terminate at the upper end in suitable sleeves *C'*, for the reception of the slide-bar.

The rest is pivoted at *c*, to an oscillating arm, D, which is arranged transversely upon the bed-plate, and provided with a downwardly-projecting stud, *D'*, at each end.

One of these studs enters a bearing in the bed-plate at *a*, and is secured thereto by means of a nut, *d*; the other enters a notch, *a'*, cut in the forward edge of the bed-plate, and limits the oscillations of the arm.

The above-described arrangement of the rest and arm permits of a limited oscillation of the slide-bar in both horizontal and vertical planes, sufficient to bring the beveled face of the emery-wheel or grindstone E in line with the cutting-edges of two adjacent knives in a cutter-bar.

The wheel E, which has a double-beveled face to adapt it to the beveled cutting-edges of the knives, is hung upon a short shaft, *E'*, arranged in bearings in the forward end of the slide-bar.

The shaft projects through the slide-bar to receive a pinion, F, which, in using the apparatus, is revolved at a high velocity by the driving-wheel G, through the intermediate pinion H and wheel I.

Studs *b* and *b'* are secured in the side of the slide-bar to serve as axis, the former for the driving-wheel, and the latter for the pinion H and wheel I, which are secured together.

The slide-bar carrying the grinding-wheel and driving mechanism is of sufficient length to permit of such a longitudinal movement in the rest as is necessary to bring the wheel in contact successively with all the points of a knife.

It is provided with a handle, *B'*, toward its forward end, by which the operator may take hold with one hand to adjust it so as to bring the face of the grinding-wheel to bear upon the cutting-edge of a knife, and also to exert the required pressure, while he moves the train of wheels with the other hand.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the bed-plate A, slide-bar B, adjustably attached thereto by intermediate mechanism, grinding-wheel or stone E, and a train of wheels for driving the latter, substantially as set forth.

2. The combination of the bed-plate A, oscillating arm D, rest C, slide-bar B, grinding-wheel E, and train of wheels F G H I, substantially as set forth.

In testimony whereof, I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

DWIGHT F. WELSH.

Witnesses:

J. J. FISHER,

D. J. MINICH.