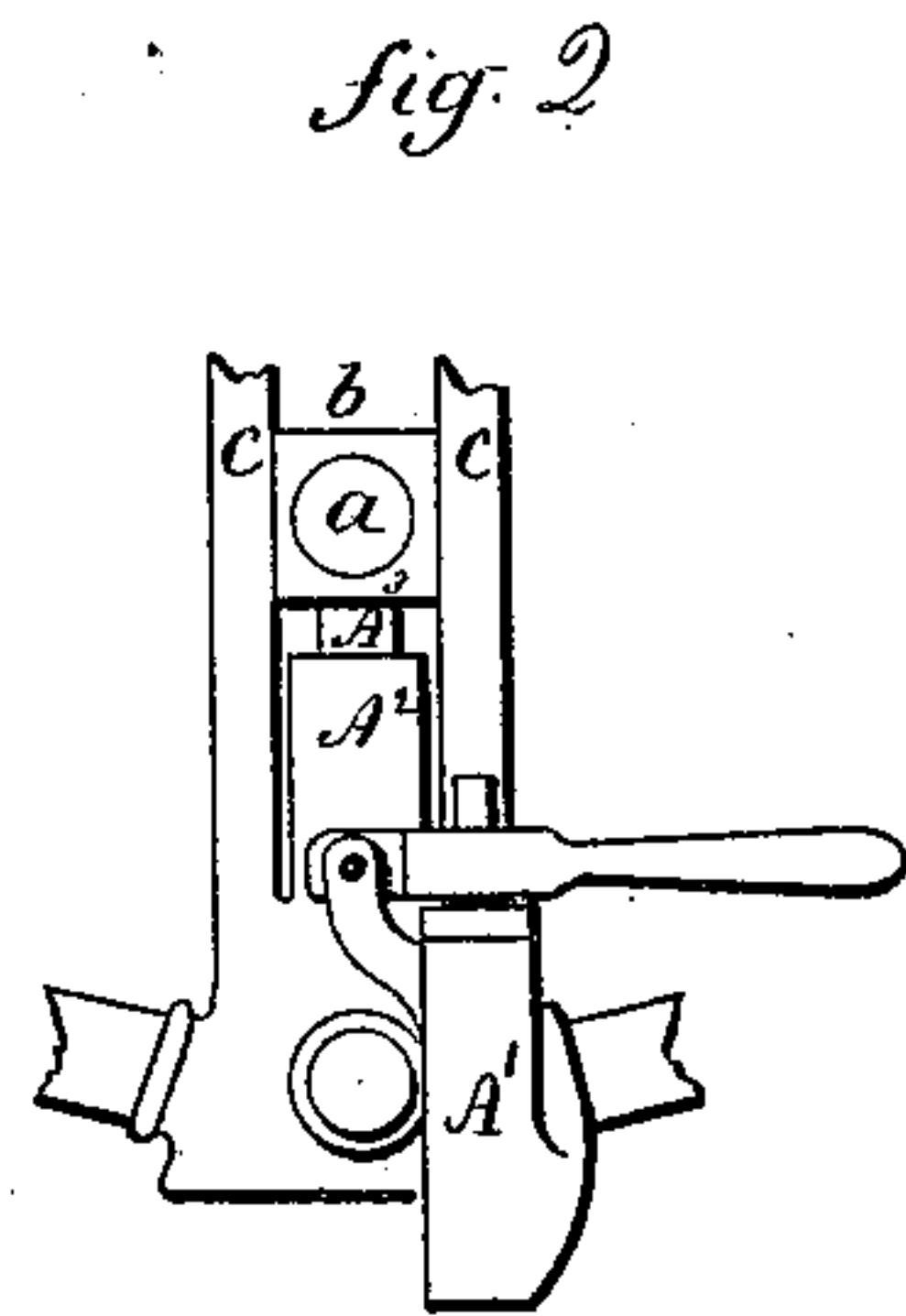
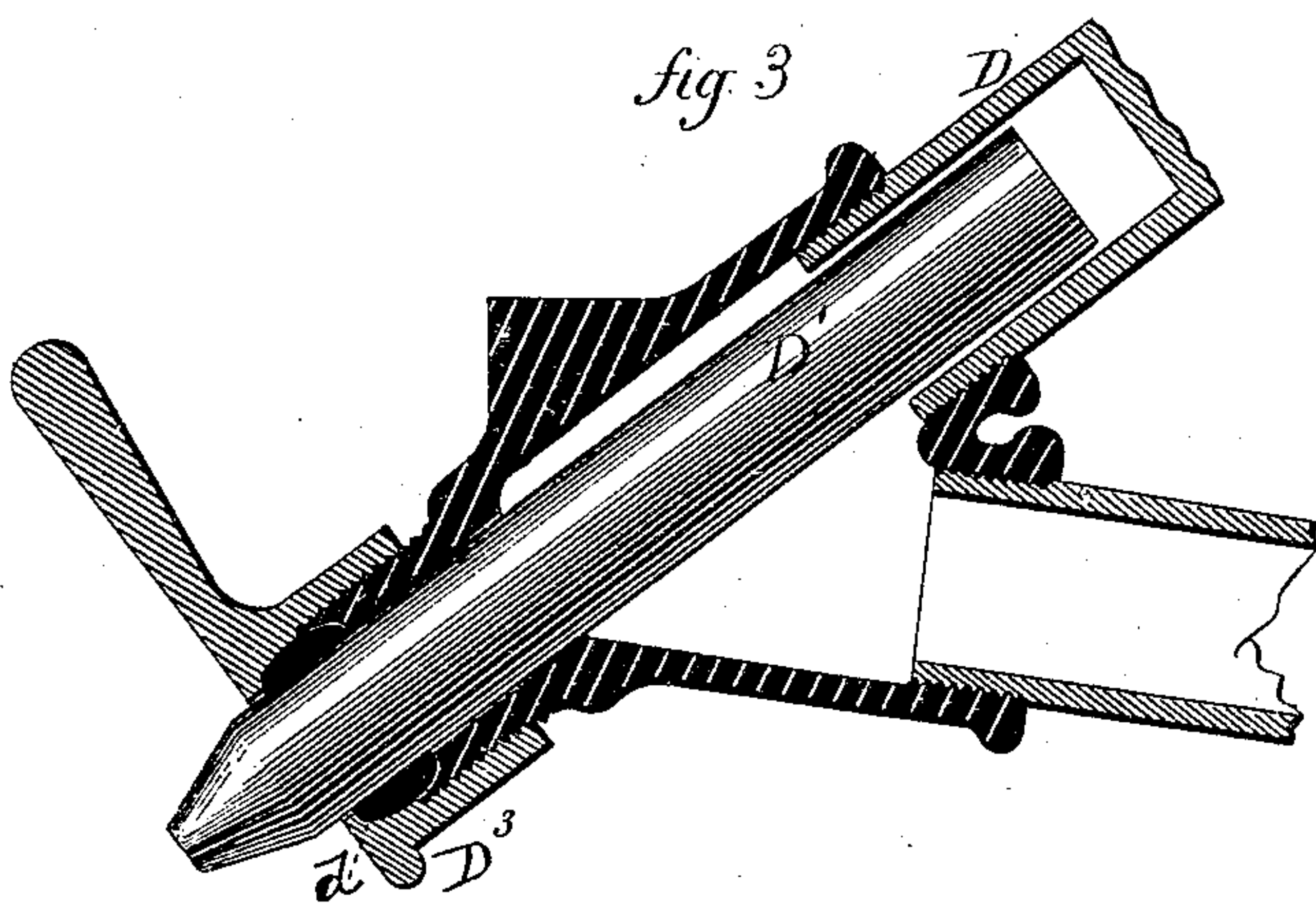
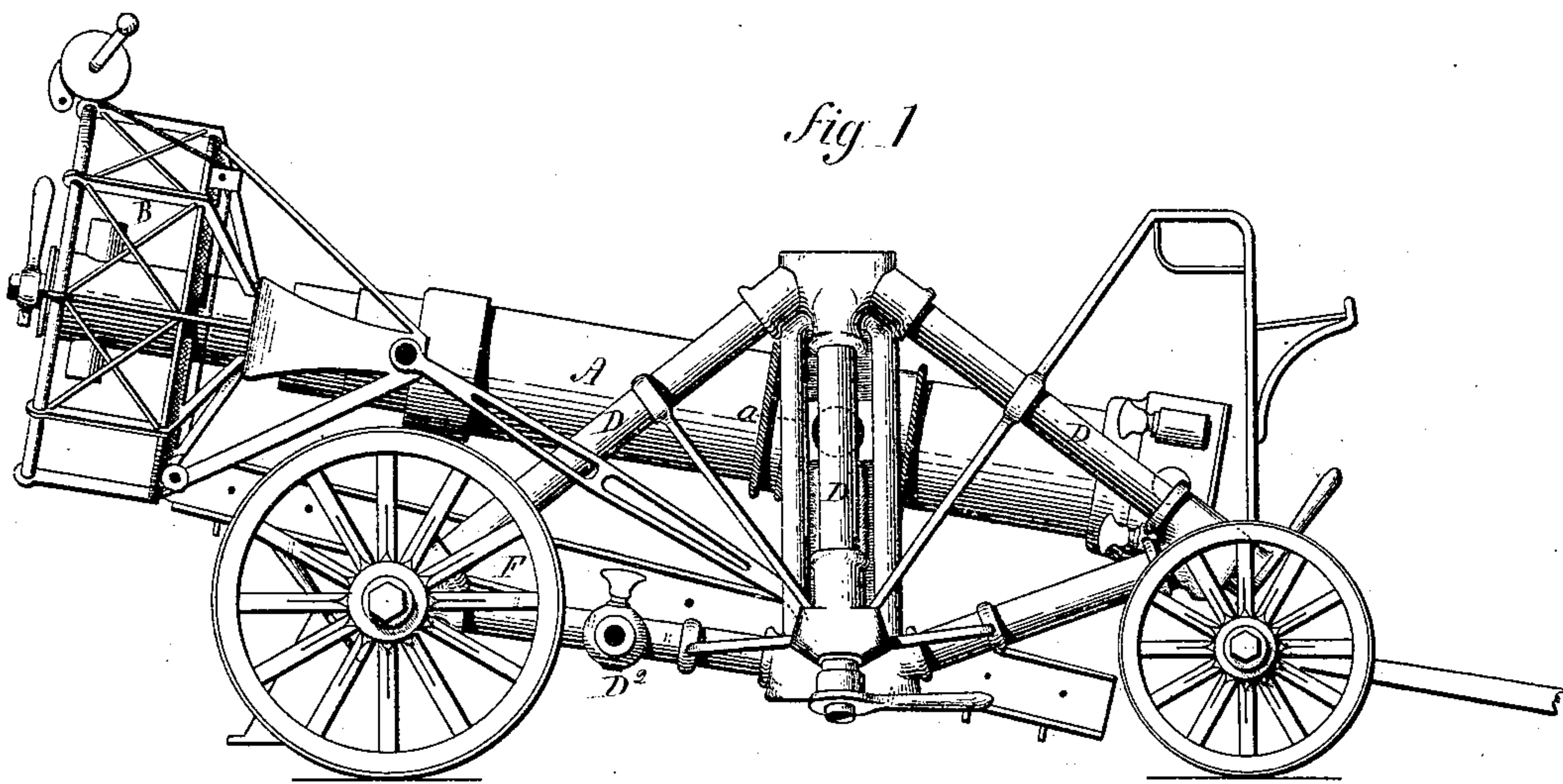


J. GÉRARD & A. TURNBULL.

FIRE-ESCAPE. (HYDRAULIC.)

No. 190,573.

Patented May 8, 1877.



Witnesses.

*J. H. Chumney*  
*Clara Broughton.*

*John Gérard & Andrew Turnbull*  
*Inventor,*  
*By Atty.*  
*John E. Earle.*

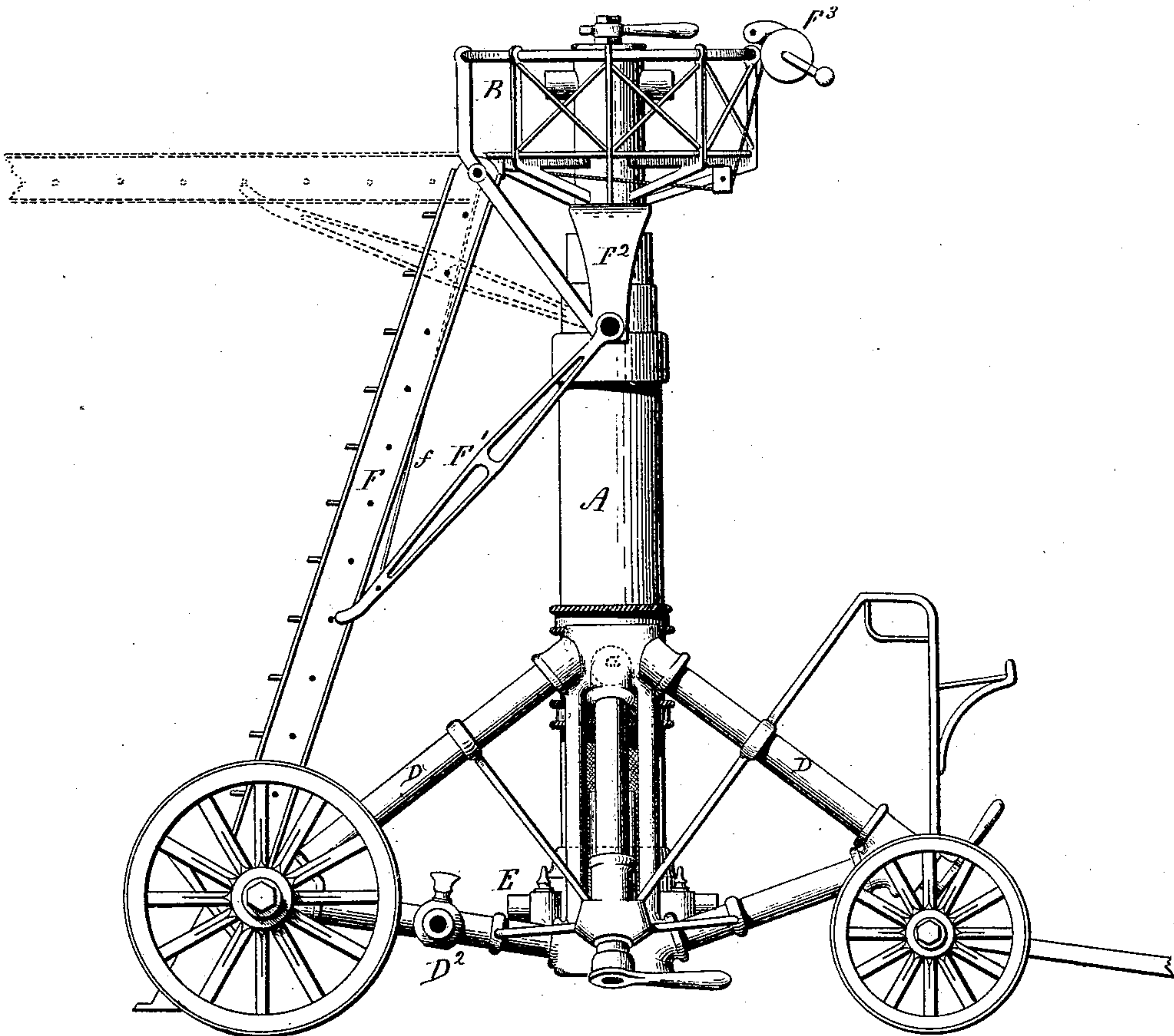
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*Fig. 4.*



*Witnesses*

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*By Atty. Inventor*

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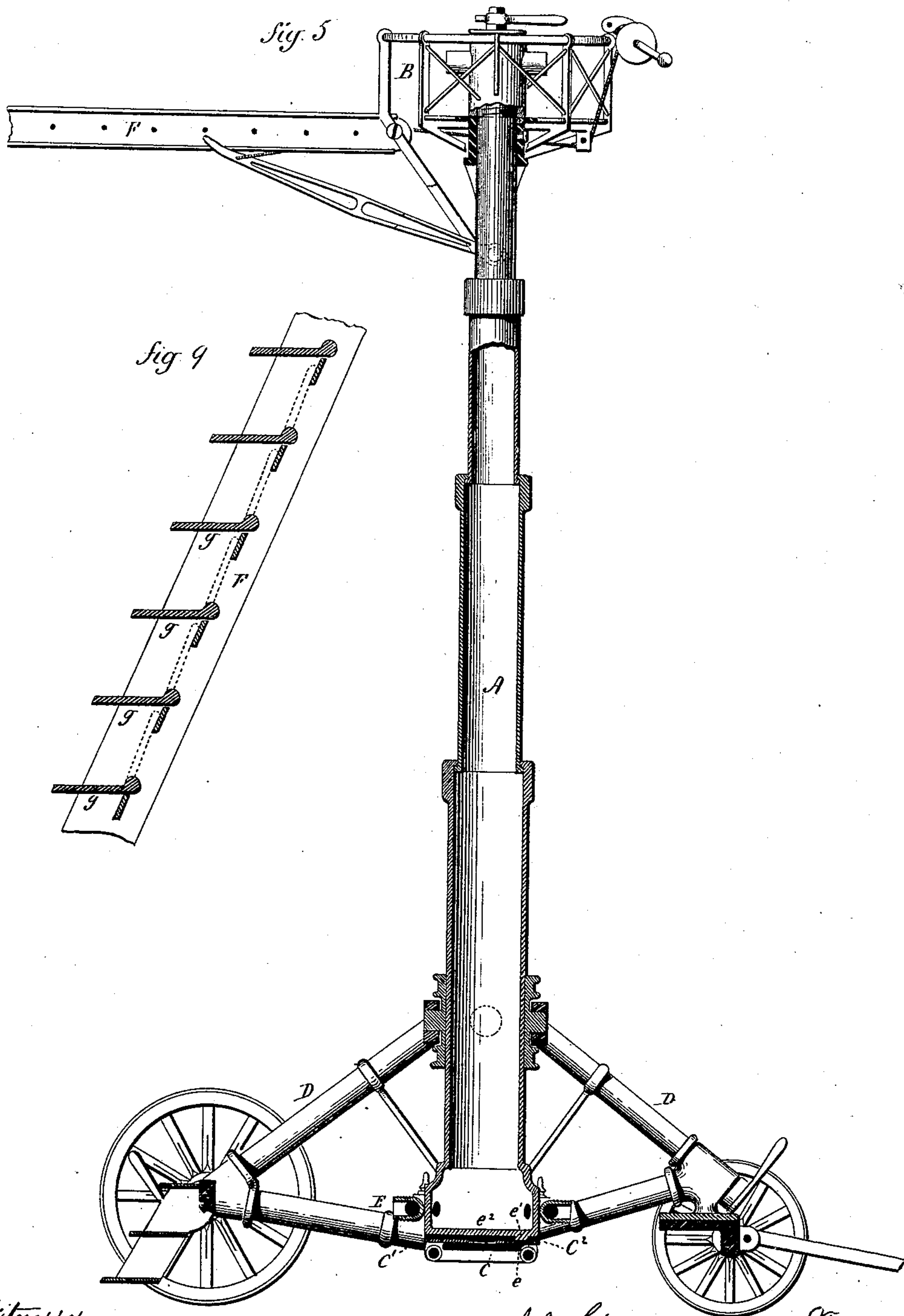


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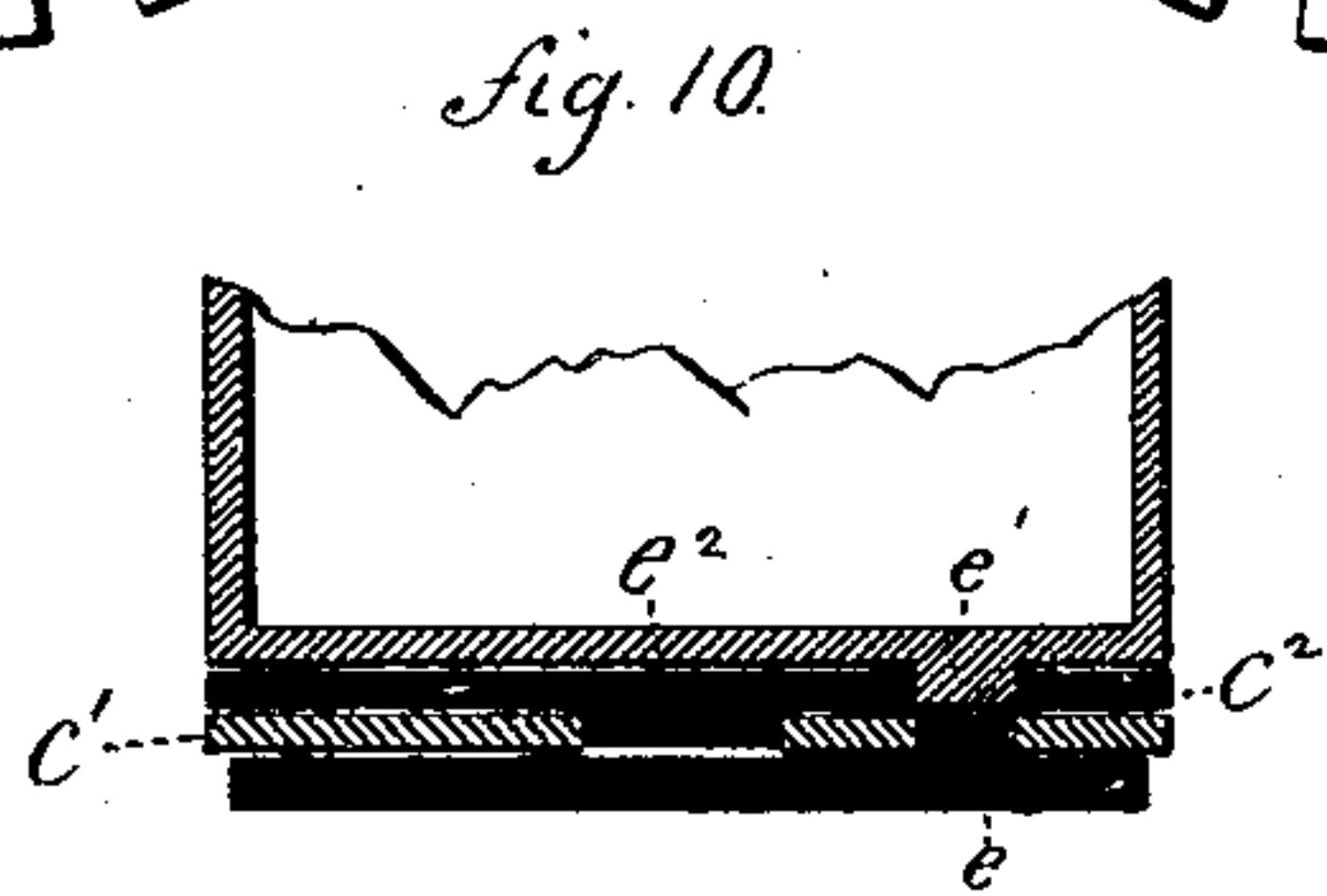
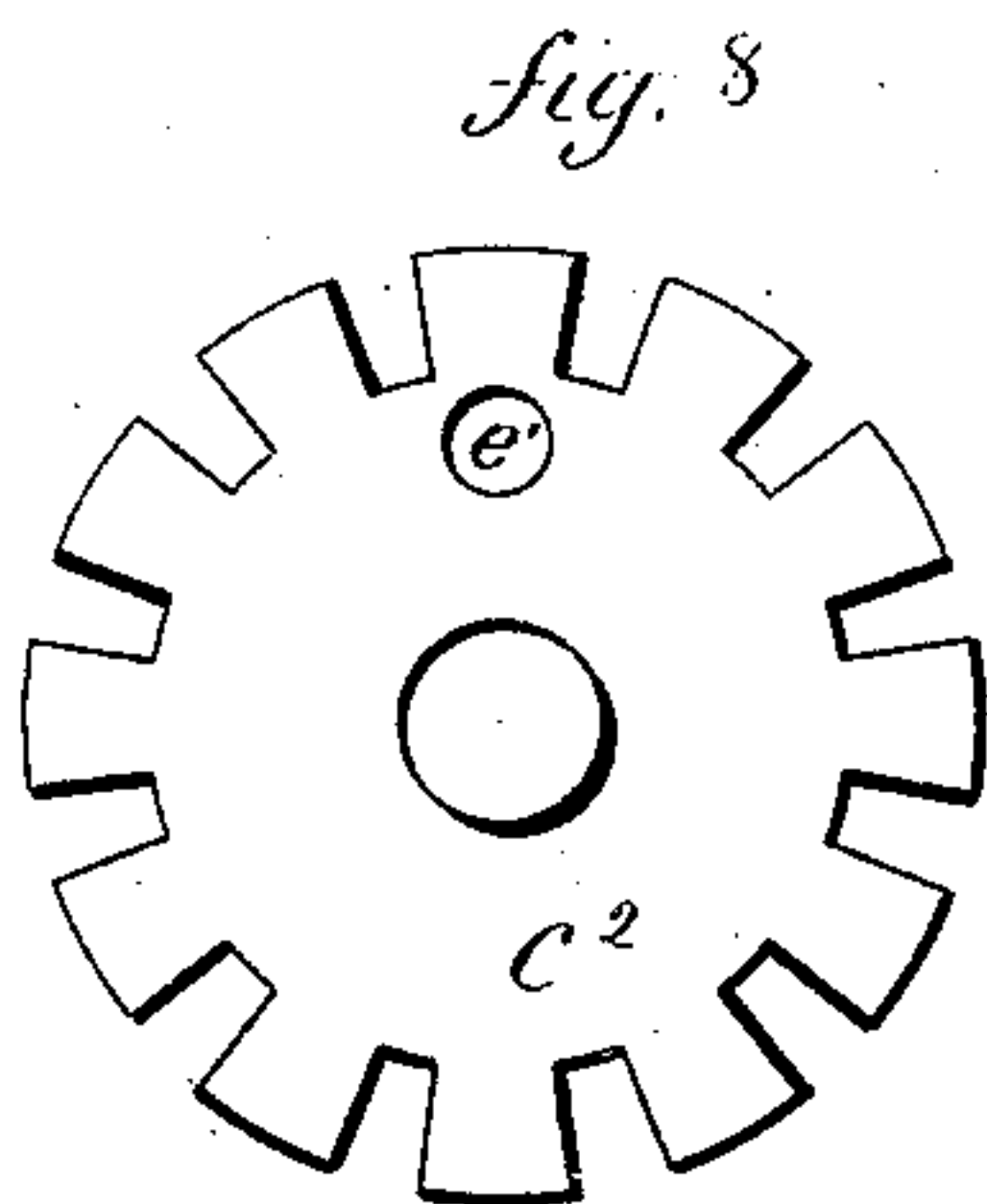
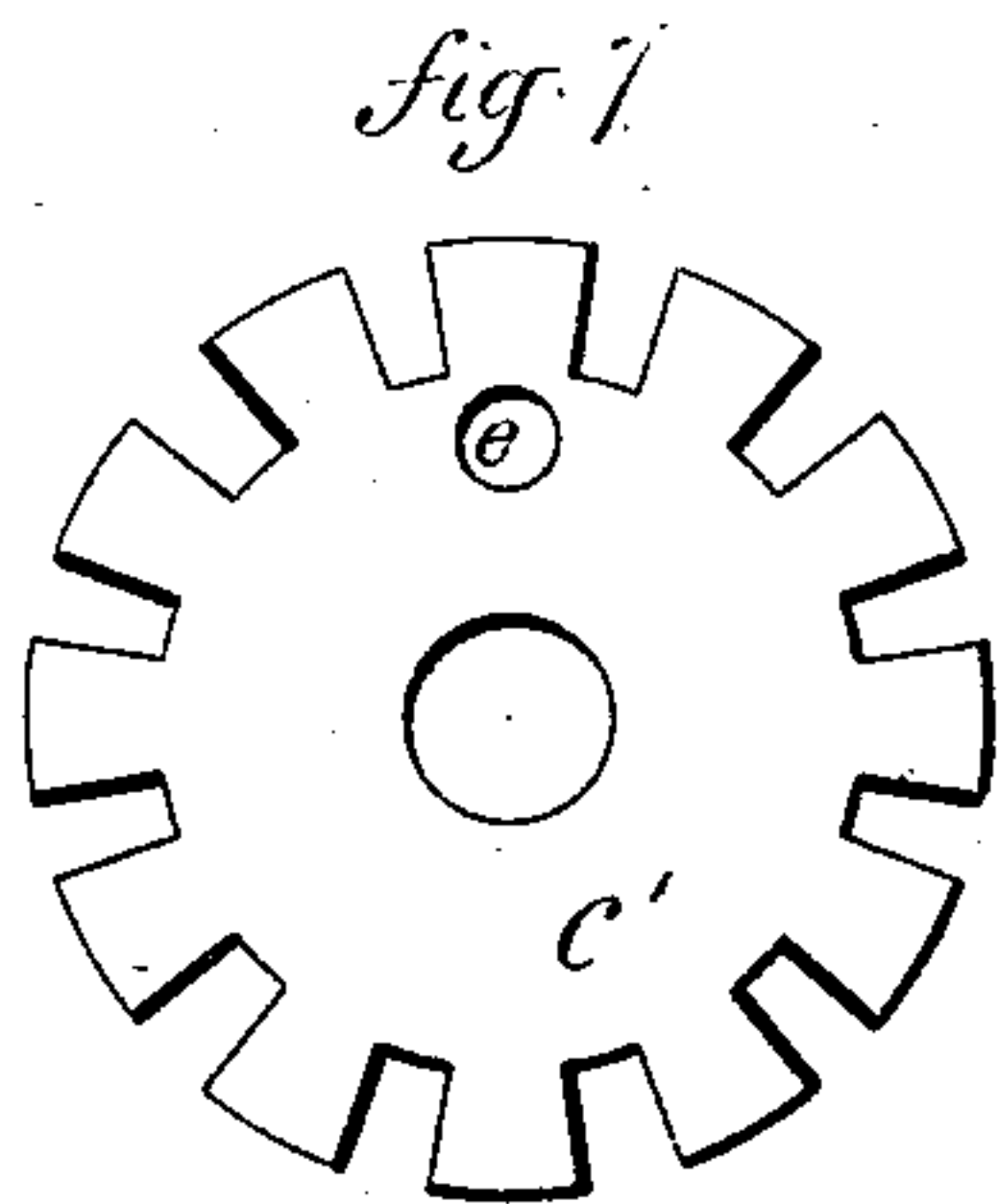
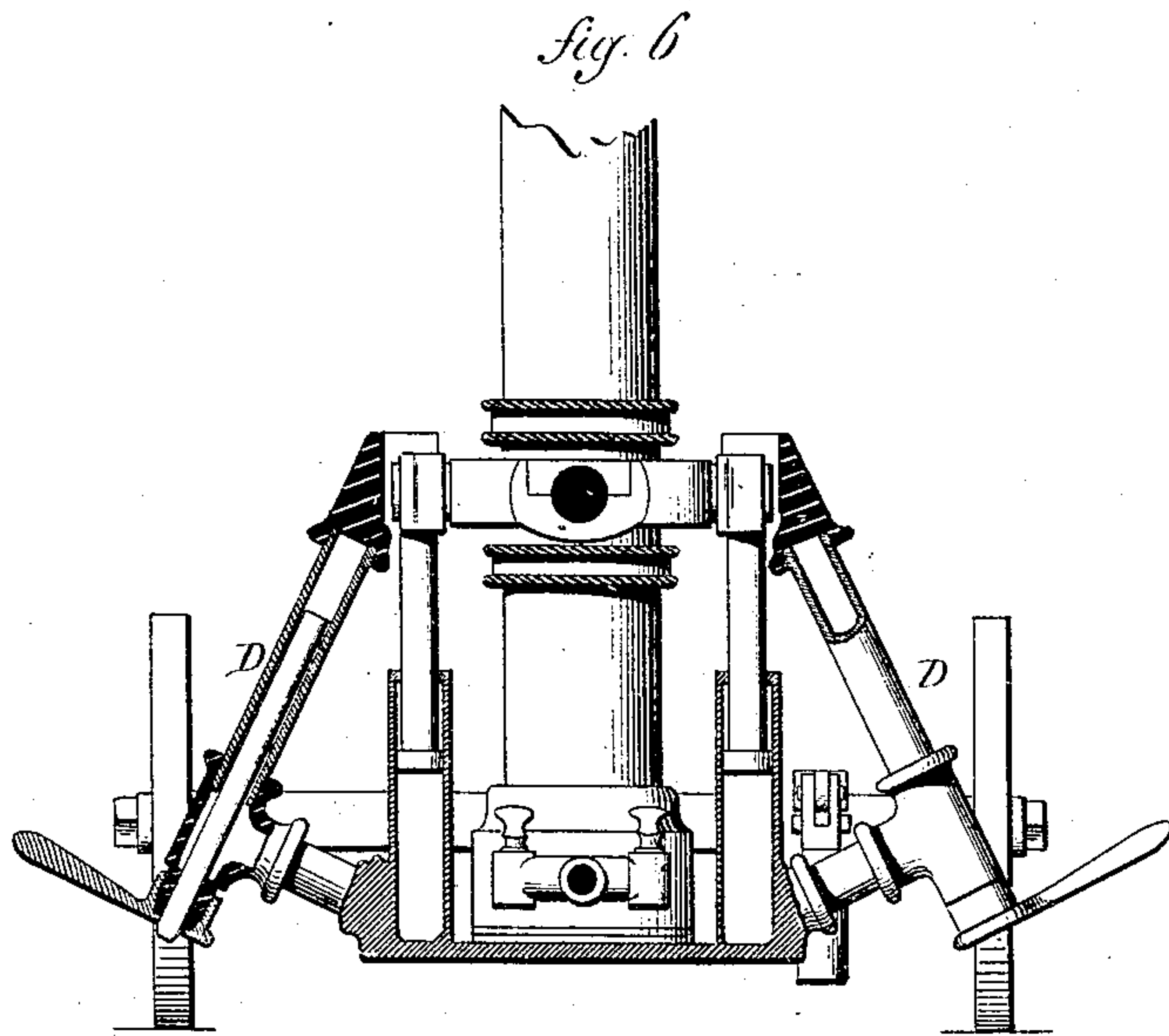
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# UNITED STATES PATENT OFFICE

JOHN GÉRARD AND ANDREW TURNBULL, OF NEW BRITAIN, CONNECTICUT.

## IMPROVEMENT IN FIRE-ESCAPES, (HYDRAULIC.)

Specification forming part of Letters Patent No. 190,573, dated May 8, 1877; application filed March 17, 1877.

*To all whom it may concern:*

Be it known that we, JOHN GÉRARD and ANDREW TURNBULL, both of New Britain, in the county of Hartford and State of Connecticut, have invented a new Improvement in Fire-Escapes; and we do hereby declare the following, when taken in connection with the accompanying four sheets of drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of the apparatus in the contracted state; Fig. 4, a side view with the column raised; Fig. 5, a vertical section with the column extended; Fig. 6, a transverse sectional view; and in Figs. 2, 3, 7, 8, and 9, detached views.

This invention relates to an improvement in the fire apparatus for which Letters Patent were granted to these applicants May 16, 1876, the object being to improve the apparatus in details of construction, and to facilitate its operation.

The apparatus consists, essentially, of a telescopic column mounted on a truck, the column extensible by the force of water admitted therein, and carrying a gallery upon the top for the convenience of the hoseman, and also to serve as a means for fire-escape; and the invention consists in the construction and combination of parts, as hereinafter described, and more particularly recited in the claims.

As in our original patent, the column A consists of several parts arranged telescopically, and supported on a truck by trunnions *a*. The truck is provided with wheels or equivalent means for transportation. The column also has a gallery, B, substantially as in our original patent, and when the apparatus is not in use the column is turned down into a substantially horizontal position, as seen in Fig. 1.

The trunnions are mounted in bearings *b*, vertically adjustable between guides *c c*, as seen in Fig. 2. These bearings are made movable, in order to allow the column, when turned down, to assume as low a position as possible. When so turned down, the distance between the trunnions and the seat C of the column is less than the distance between the

trunnions and the bottom of the column. Therefore, before the column is raised or seated, it is necessary to raise the trunnions, and this is done by means of a force-pump, A<sup>1</sup>, which forces water into a cylinder, A<sup>2</sup>, below the bearings *b*, and within the cylinder A<sup>2</sup> is a follower, A<sup>3</sup>, upon which the bearings *b* rest, or are made a part of, so that, thus forcing water into the cylinders A<sup>2</sup>, the trunnions will be raised the required distance, and when so raised the column may be turned up into the vertical position seen in Fig. 4. A communication is made from the pump to the cylinder under both trunnions, so that they rise accordingly.

In order to brace or support the truck to make a firm foundation for the column, the truck-frame is provided with several inclined tubes, D—may be more or less in number—the inclination being downward from the carriage. One of these is shown enlarged in Fig. 3. In each of these tubes a brace, D<sup>1</sup>, is arranged to slide freely within the tube. The tubes are all connected to a hose coupling, D<sup>2</sup>, so that a hose applied to that coupling will force water into all the tubes D around and above the end of the braces D<sup>1</sup>. At the lower end these braces fit closely the tube, and may be packed, if desirable, and the lower end of each tube is provided with a nut, D<sup>3</sup>, which will contract a clamping-ring, *d*, upon the braces D<sup>1</sup>, so as to hold them firmly in any desired position.

When it is desired to brace the carriage, these clamping devices are loosened, and the water admitted to the several tubes, which will force out the braces firmly against the earth, and when they have come to a bearing they are clamped, so as to hold them in that position, and thus firmly and securely brace the truck.

In some cases it will be impossible to set the truck perfectly level; hence the column would incline accordingly, were it not for an adjustable seat. To provide this adjustable seat, a disk, C<sup>1</sup>, is arranged on the seat C, and attached thereto by an eccentric stud, *e*, and on the bottom of the column a corresponding disk, C<sup>2</sup>, is attached to the column by a corresponding stud, *e*<sup>1</sup>. The two disks have a central or concentric connection, *e*<sup>2</sup>,



when set together, as seen in Figs. 5, 6, 7, and 8. When the column is first raised and seated, as in Fig. 4, the disks  $C^1$  and  $C^2$  are turned until the column is brought into a vertical position.

Connection is made with the supply-hose at the bottom, as through a coupling, E, and water admitted to raise the column, as in our original patent, or otherwise, and when raised to the desired elevation the supply to the inside is cut off. This is best done by an invention made by Andrew Turnbull, one of these applicants, which admits the supply through a vertical telescopic tube within the column to a valve arrangement in the gallery, by the turning of which the water may be thrown into the column to raise it, or outward for discharge, or to allow the water to pass from the column to lower the gallery, or to stop the flow in either direction.

As a convenience for mounting the column, and also to form the bridge as a fire-escape, the ladder F is hung to the gallery, (shown enlarged in Fig. 9,) the steps of which, when the column is first raised, as in Fig. 4, serve as a convenient means for mounting the gallery; and for the purpose of throwing up the bridge, as for a fire-escape, arms  $F^1$  are hung to a downward projection,  $F^2$ , from the gallery, and from the outer ends of these arms chains or cords  $f$  extend up around carrying-pulleys to a drum or windlass,  $F^3$ , so that the men in the gallery, by turning the windlass, may raise the ladder to a horizontal position, as seen in Figs. 4 and 5, or to any desirable angle of elevation.

To make a floor for the bridge, the steps  $g$  are each hinged to the sides F of the ladder, as seen in Fig. 9, and so that, when the ladder is used to mount the column, the steps will fall against a stop into a horizontal position; but when raised for the bridge they are turned toward the gallery, as indicated in broken lines, Fig. 9, and as seen in Fig. 5.

In order that the bridge may be turned to any point in a horizontal plane, the gallery is hung on the top of the column, as seen in Fig. 5, the column forming a central bearing, around which the gallery may turn, and with it carry the ladder.

We claim—

1. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top,

and mounted on a truck, the brace-tubes D, combined with the adjustable braces  $D^1$ , substantially as and for the purpose described.

2. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on a truck, the brace-tubes D, combined with the adjustable braces  $D^1$ , and a clamping device to secure the braces, substantially as described.

3. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on trunnions, so that the said column may be turned into a substantially horizontal position, the combination, with the said trunnions, of vertically-movable bearings, with a follower arranged in vertical cylinders beneath, and means, substantially such as described, for forcing water into the said cylinders, substantially as and for the purpose specified.

4. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on a truck, the combination, with the said column and truck, of the two disks  $C^1$   $C^2$ , eccentrically hung respectively to the base and to the bottom of the column, and concentrically connected for the vertical adjustment of the column, substantially as described.

5. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on a truck, the combination of the gallery and a ladder hinged thereto, and means, substantially such as described, for adjusting the elevation of the ladder relative to the plane of the gallery, substantially as described.

6. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on a truck, the combination of the gallery and a ladder hinged thereto, and means, substantially such as described, for adjusting the elevation of the ladder relative to the plane of the gallery, and the steps of the said ladder hinged between the sides of the ladder, substantially as and for the purpose described.

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CLARA BROUGHTON.