

# UNITED STATES PATENT OFFICE.

MAXIMILIAN F. BONZANO, OF PHILADELPHIA, PENNSYLVANIA.

## DEVICE FOR ARRESTING LOCOMOTIVES OR CARS.

SPECIFICATION forming part of Letters Patent No. 306,574, dated October 14, 1884.

Application filed May 24, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, MAXIMILIAN F. BONZANO, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Devices for Arresting Locomotives or Cars, of which the following is a specification.

My invention consists of an improvement, fully described and claimed hereinafter, in the device for arresting locomotives and cars for which Letters Patent No. 293,846 were granted to me February 19, 1884.

In the accompanying drawings, Figure 1 is a sectional elevation of the device for which the aforesaid Letters Patent were granted to me February 19, 1884; Fig. 2, a sectional elevation of the device with my improvement; Fig. 3, an end view of Fig. 2, looking in the direction of the arrow 1; and Fig. 4, a vertical section on the line 1 2, Fig. 2.

Referring, in the first instance, to Fig. 1, which, as before remarked, illustrates my patented invention, A is one of the rails of a track, and B a shoe, which has on the under side a groove adapted to the rail, so that while the shoe is at liberty to be moved freely on the rail it can have no other movement independently of the said rail. To lugs on the shoe is pivoted a lever, D, one arm, *d*, of which extends upward, the other arm, *e*, of the lever being above a block, *i*, resting on the rail and being arranged to slide thereon with the shoe. When the wheel or any other part of a locomotive or car strikes the arm *d* of the lever D, the latter, together with the shoe and block *i*, will yield and slide along the rail; but at the same time such pressure will be exerted on the rail, through the medium of the block, as will cause friction enough to absorb the momentum of the locomotive or car.

The object of my present invention is to so restrict this friction that it cannot be in excess of that required for the gradual stoppage of the locomotive or car, and this object I prefer to carry into effect by the devices illustrated in Figs. 2, 3, 4. There is the same shoe, B, adapted to the rail A as in my former patent, and there are lugs *bb* on the shoe, to which the lever D' is pivoted. The arm *e'* of the lever,

however, instead of being arranged to bear directly on the block, is arranged to bear on a spring, W, interposed between the arm and the block.

In connection with the spring and lever there must be a device for restricting the downward movement of the arm *e'* and the compression of the spring, and different appliances for this purpose will readily suggest themselves to skilled mechanics. In the present instance the arresting device consists of a substantial screw, Y, passing freely through an extension of the arm *e'* of the lever, and secured thereto by nuts *t t*. If, when a locomotive or car comes into contact with the arm *d* of the lever D', the shock is a comparatively slight one, the spring may be sufficient to resist that shock before the lever is arrested by the contact of the screw Y with the shoe B, and the friction of the block on the rail, tending to retard the movement of the shoe, and, finally, to arrest the locomotive or car, will be proportionate to the force exerted on the arm *d* of the lever. Should the shock be a violent one, however, the spring will be compressed only so far as the screw will permit, and hence the friction will be restricted by the screw, and cannot, if a proper spring is used, be so excessive as to arrest the locomotive or car too abruptly. It will be understood that the spring must be such, as regards its rigidity and resiliency, that it will be the medium, under all circumstances, through which a proper friction of the block against the rail will be assured.

I claim as my invention—

The combination of a shoe, B, adapted to a rail, a lever, D', pivoted to the shoe, a spring interposed between an arm on the lever and a block on the rail, and a device for restricting the movement of the lever, all substantially as set forth.

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

MAXIMILIAN F. BONZANO.

Witnesses:

HARRY SMITH,  
HENRY HOWSON, Jr.



F. W. BROWN.

STANDING PIPE FOR THE EXTINGUISHMENT OF FIRES.

No. 306,575.

Patented Oct. 14, 1884.

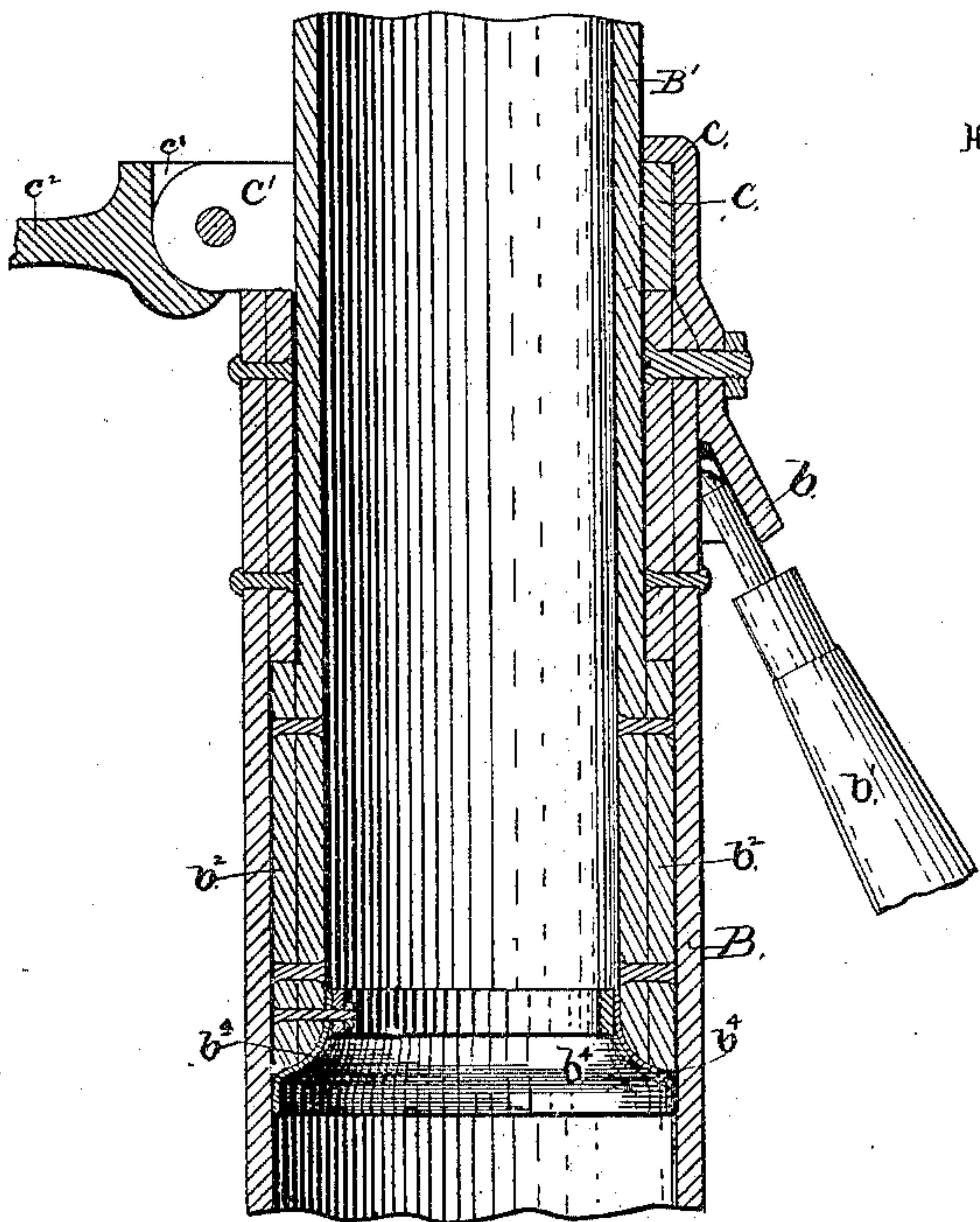


Fig. 4.

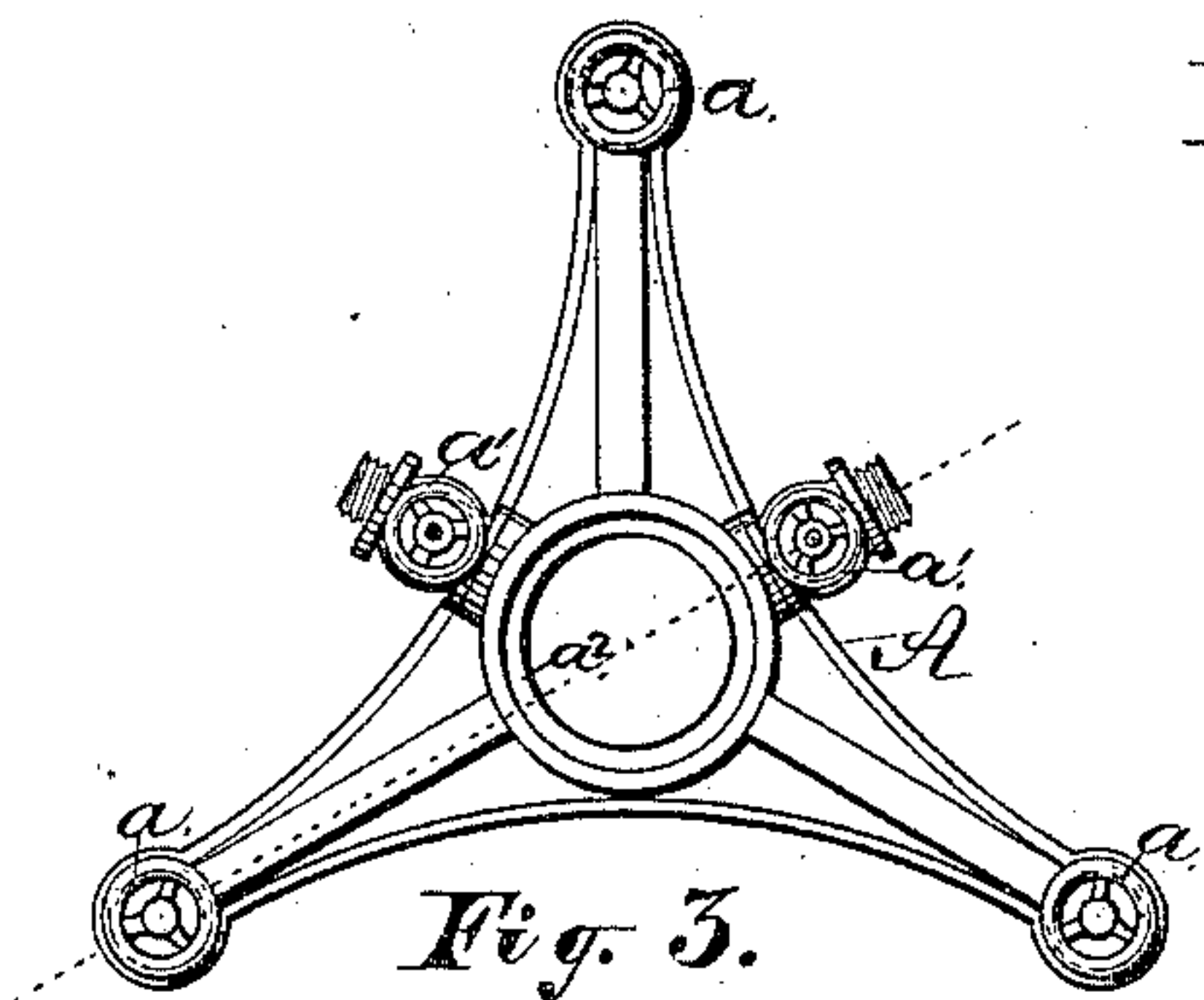


Fig. 3.

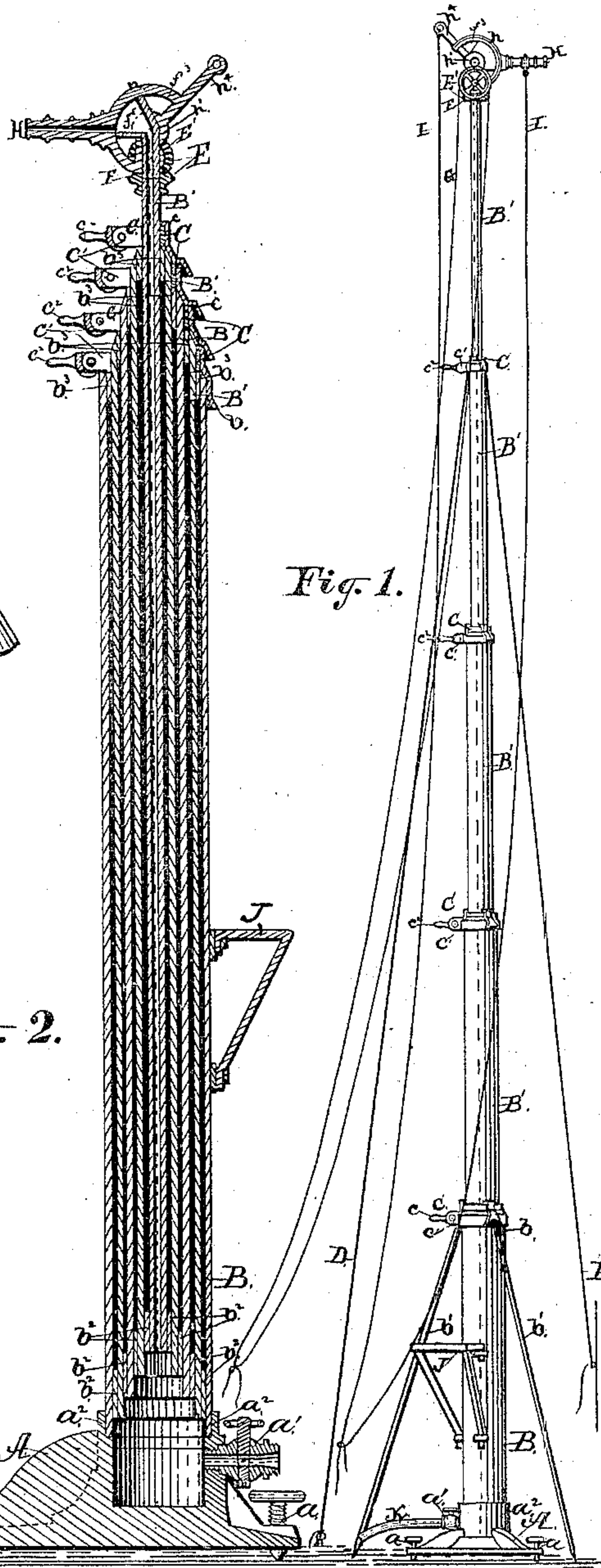


Fig. 1.

Fig. 2.

Witnesses:

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Inventor:

F. W. Brown,

By William H. Low,  
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(No Model.)

2 Sheets—Sheet 2.

F. W. BROWN.

## STANDING PIPE FOR THE EXTINGUISHMENT OF FIRES.

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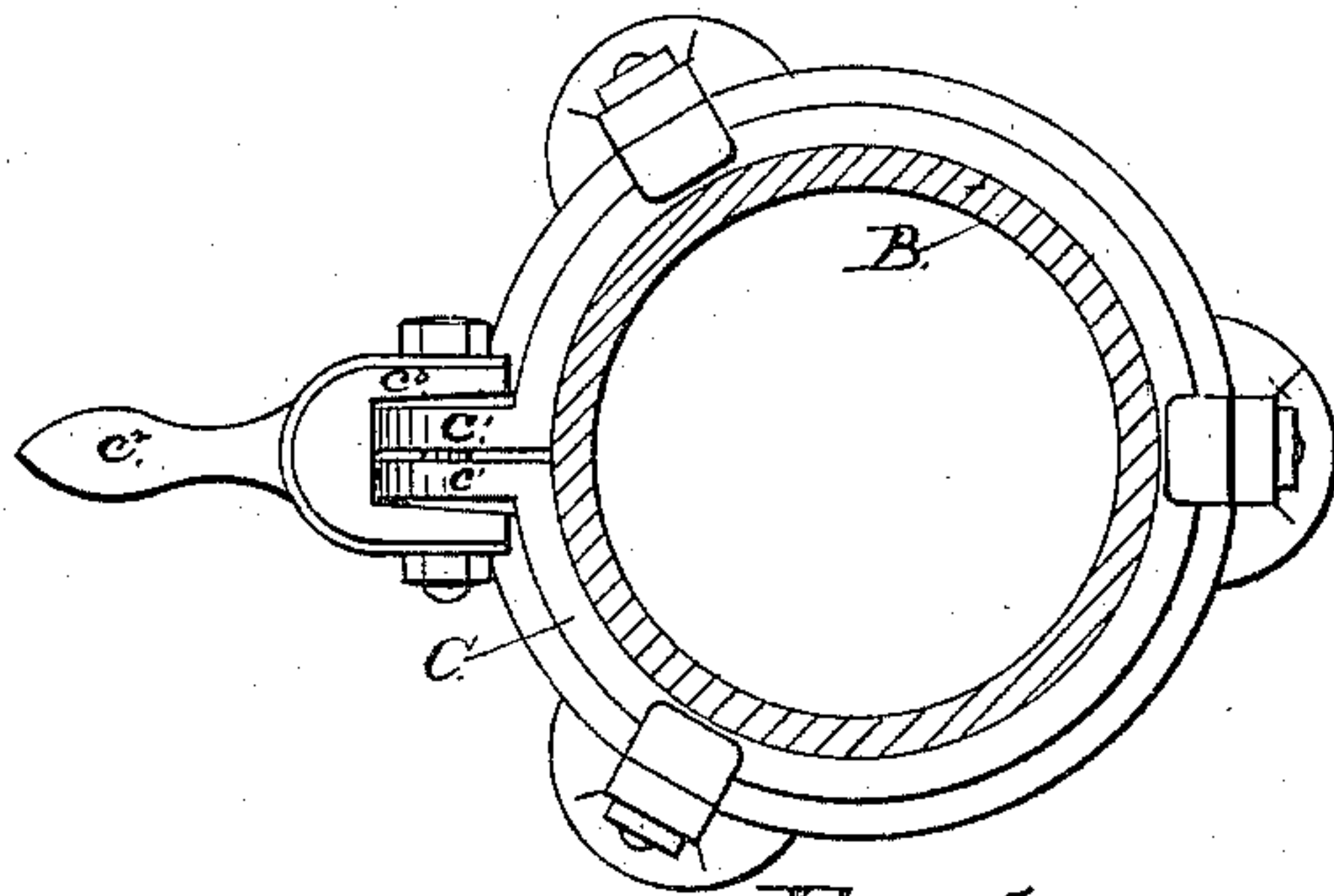
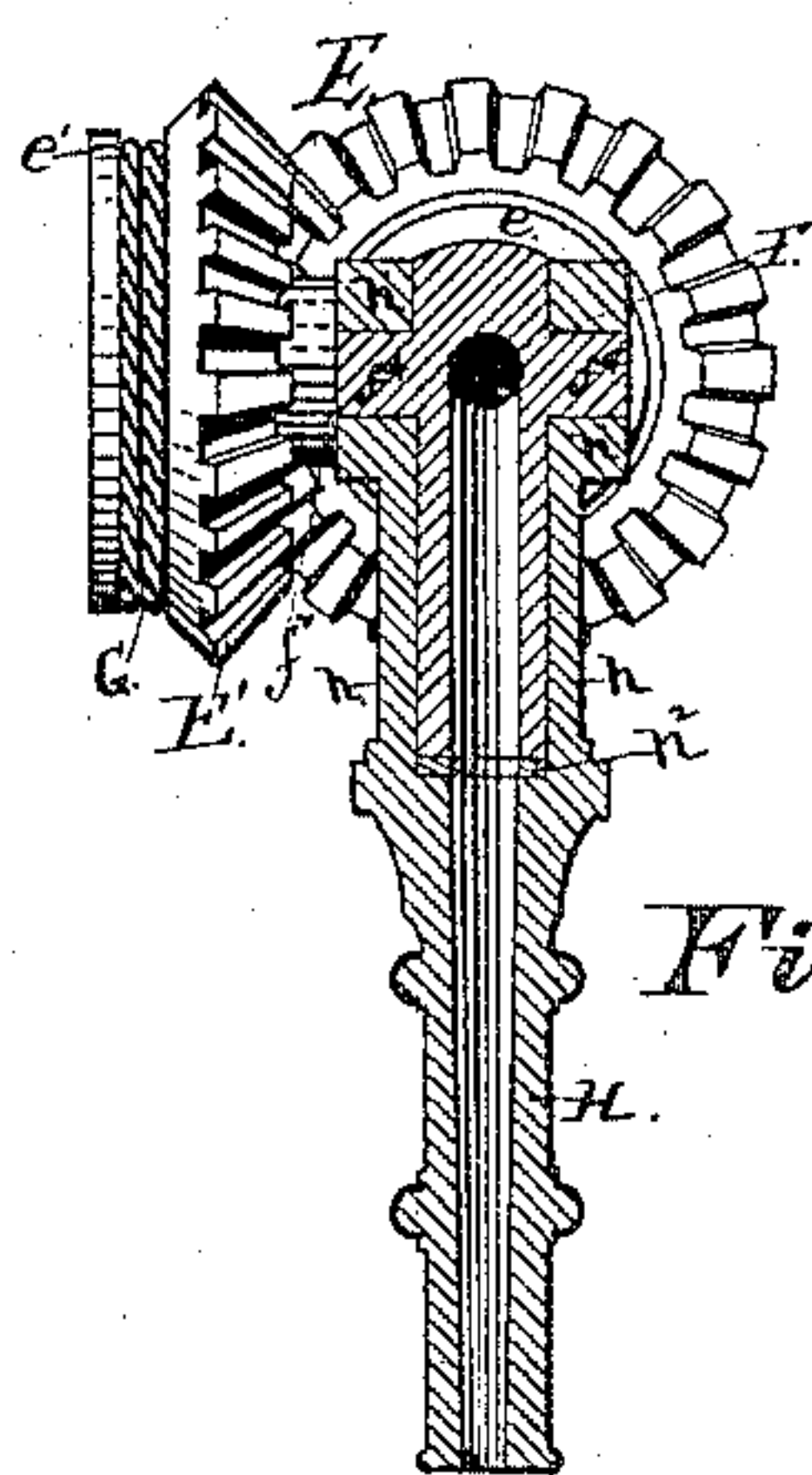
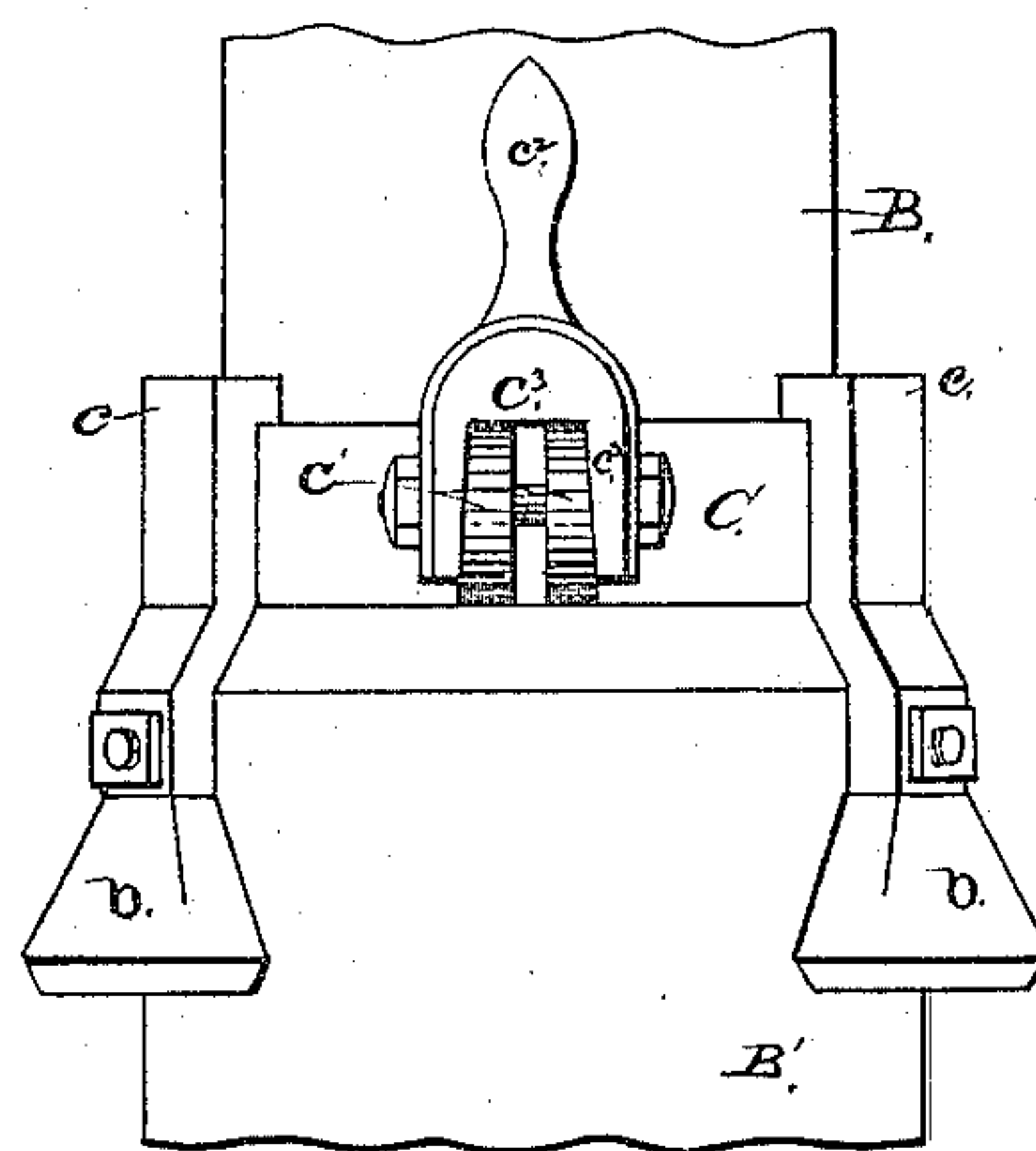
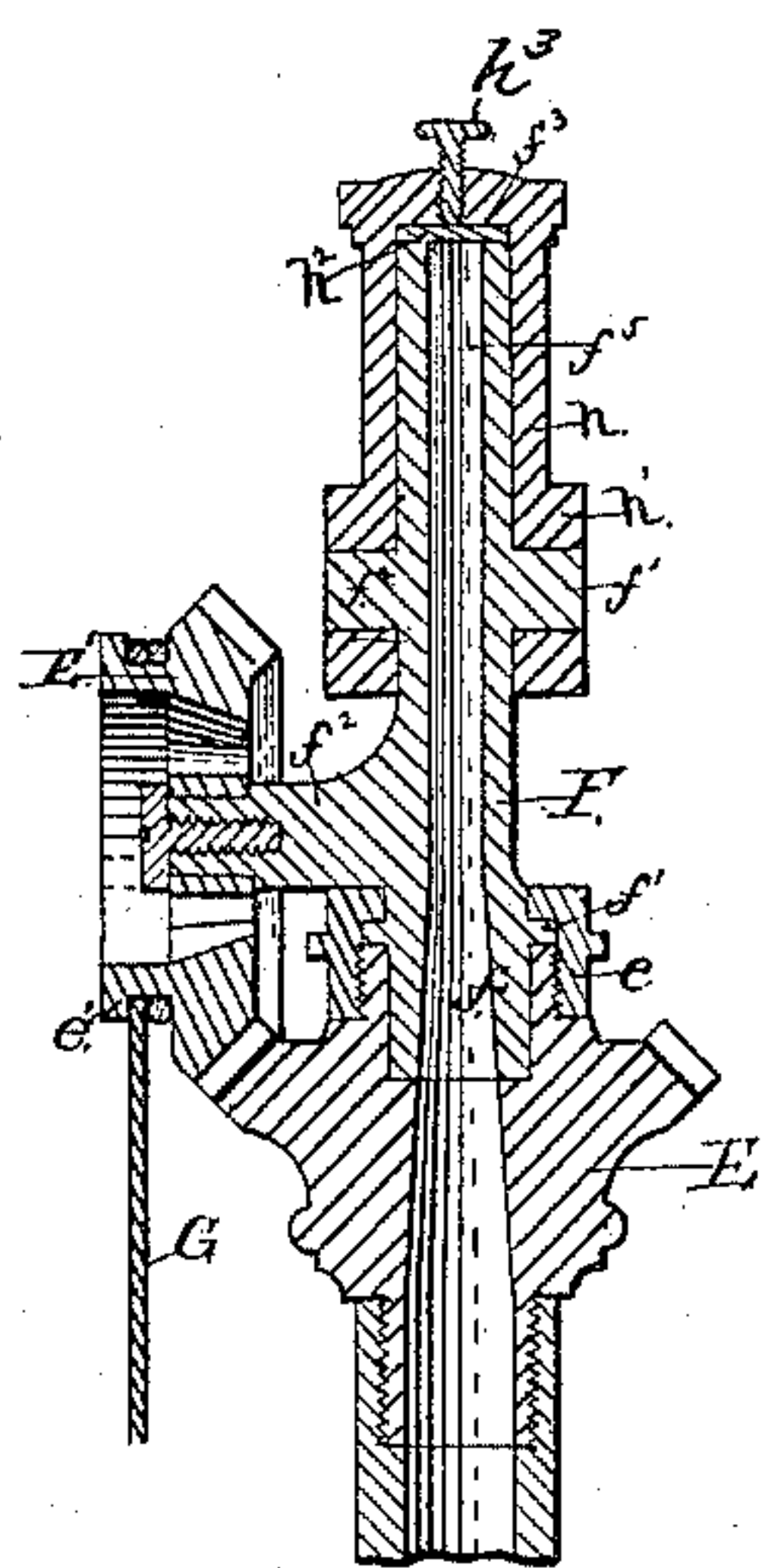


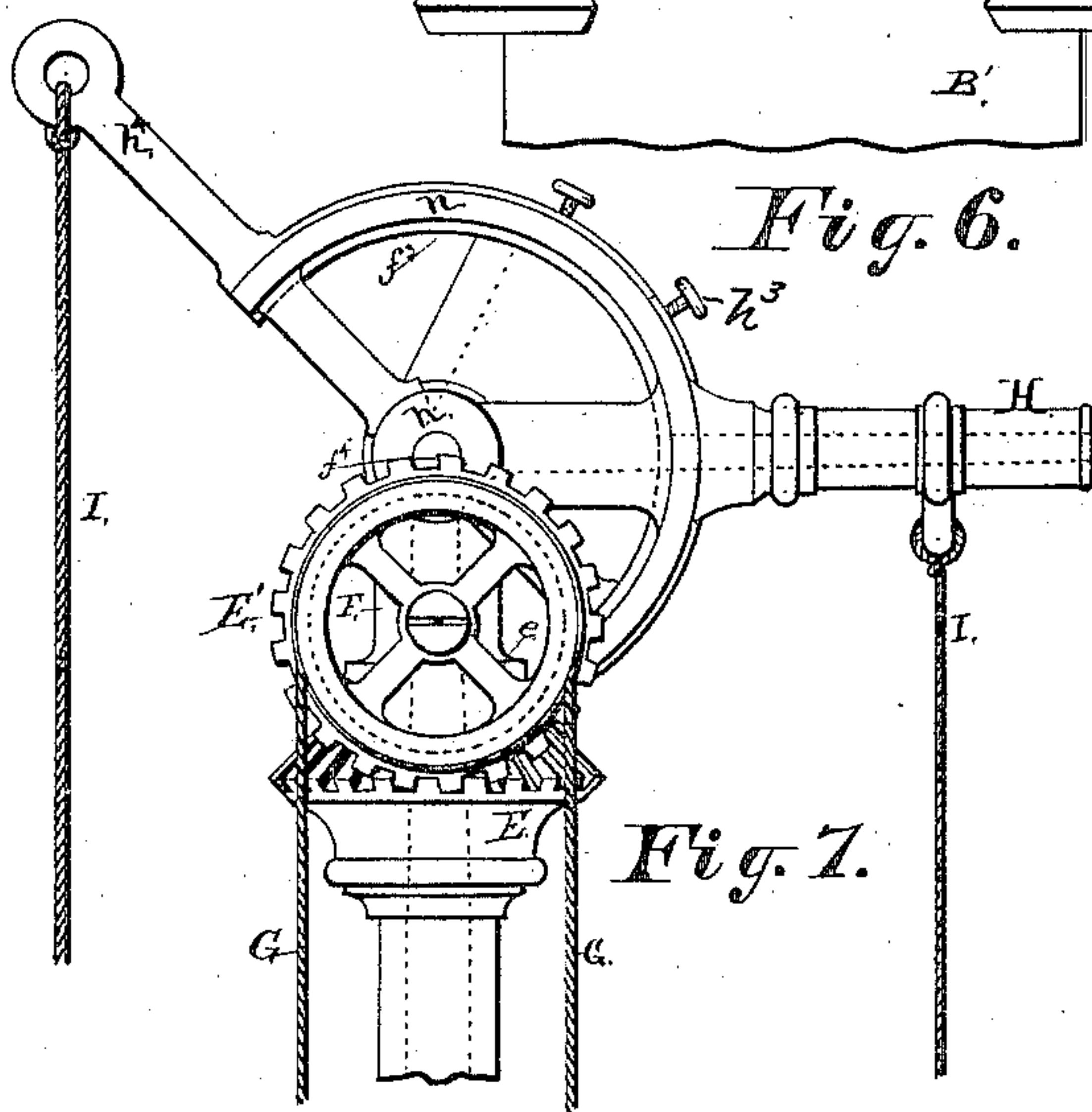
Fig. 5.

*Fig. 9.*

*Fig. 6.*



*Fig. 8.*



*Fig. 7.*

*Witnesses:*

S. B. Brewer.

C. A. Hann

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