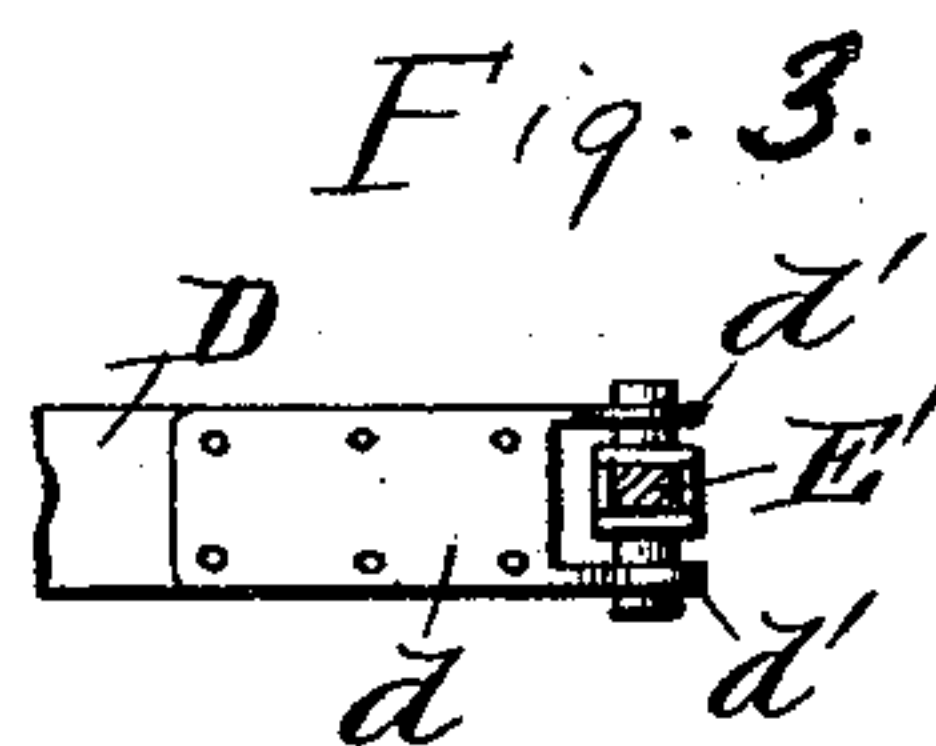
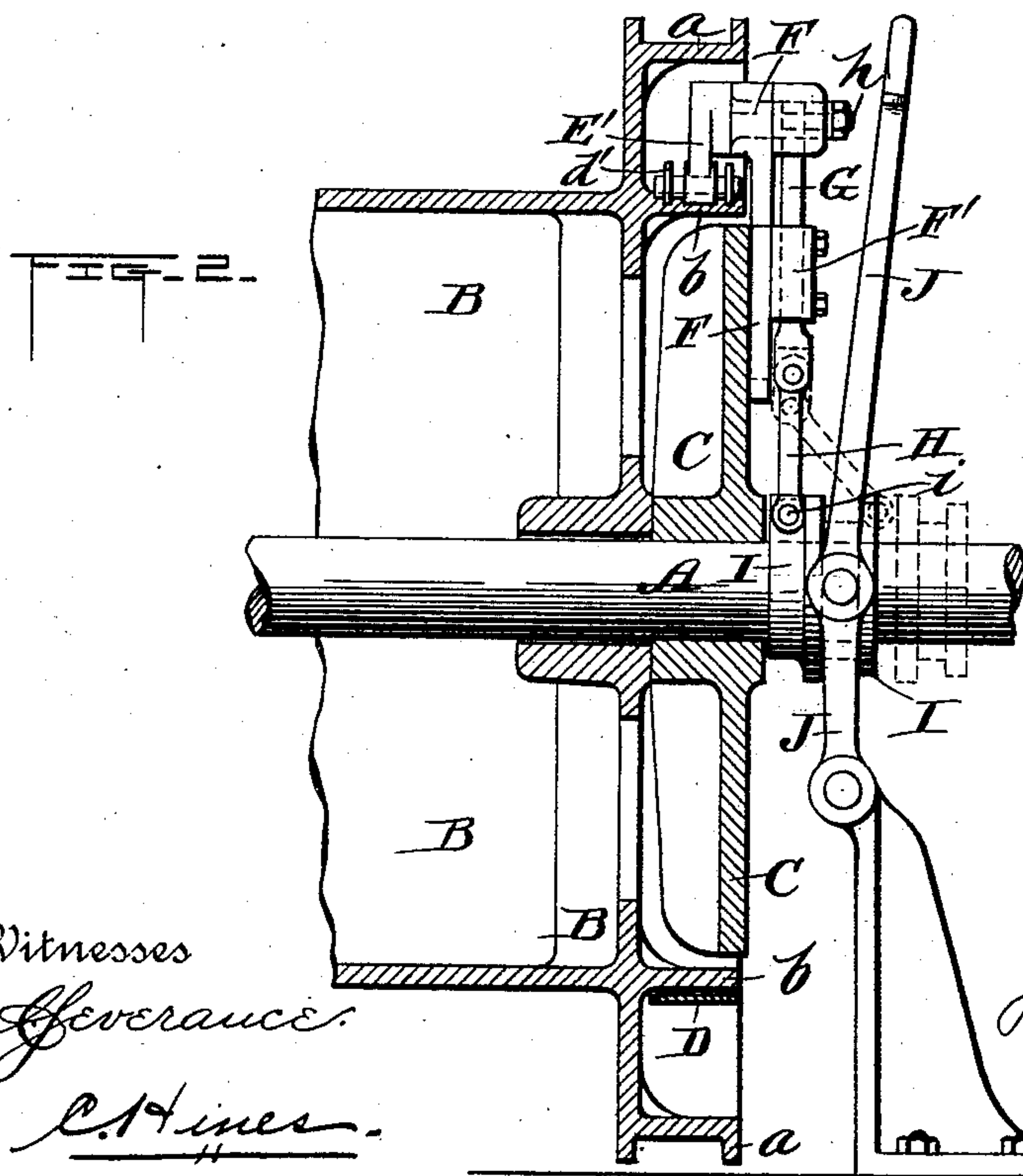
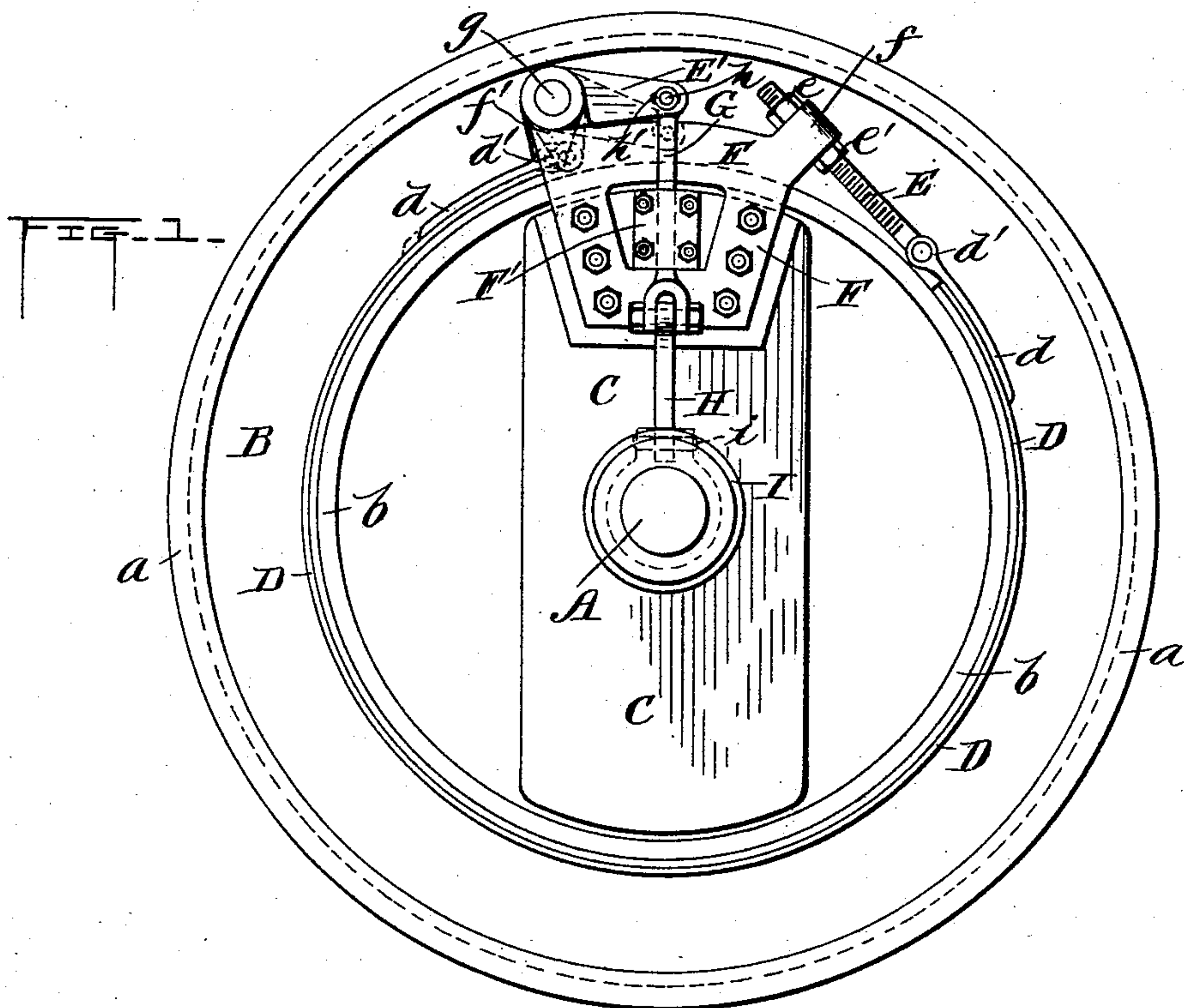


(No Model.)

J. FITZGERALD.
CLUTCH.

No. 484,308.

Patented Oct. 11, 1892.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES FITZGERALD, OF DULUTH, MINNESOTA.

CLUTCH.

SPECIFICATION forming part of Letters Patent No. 484,308, dated October 11, 1892.

Application filed June 3, 1892. Serial No. 435,444. (No model.)

To all whom it may concern:

Be it known that I, JAMES FITZGERALD, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Friction-Clutches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of friction-clutches which are applied especially for use in connection with hoisting mechanism and wherein an encircling adjustable gripping-band of metal is employed, so as to grip upon a cylindrical rim or flange of a revolving drum or pulley; and my invention consists in the combination, with a pulley or drum having a cylindrical flange or rim and with a suitable sliding sleeve, both applied on a driving-shaft, of a novel mechanism interposed between the sleeve and the gripping-band, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is an end view of a flanged drum, the clutch-supporting spider or plate, and the improved clutching mechanism, the sliding-sleeve and its operating-lever not being shown. Fig. 2 is a central section of the flanged drum and clutch-supporting plate or spider and an elevation of the driving-shaft, clutching mechanism, and sliding sleeve and its operating-lever, said sleeve being shown in full lines in its operating position and by dotted lines ready to be operated. Fig. 3 is a detail elevation or face view of one end of the gripping-band with the elbow-lever connected to it.

A in the drawings indicates a driving-shaft; B, the flanged drum fitted loosely on said shaft.

C is a fixed clutch-supporting spider or plate applied, also, on the shaft and fastened by a suitable key. The gripping-flange *b* of the drum or pulley encircles and almost completely overhangs the said spider and is of a diameter a little greater than the length of the spider. The drum or pulley has the usual brake-flange *a*, and this flange, as well as the gripping-flange, may either be cast solid with the pulley or drum or be constructed with bolting portions, so that they may be bolted to the pulley or drum.

D is a flat metallic strap fitted around and nearly encircling the gripping-flange *b* of the drum or pulley. This strap at each end is provided with a strong metal plate *d*, at the upper end of which eyes *d'* are formed. To one of these plates an adjusting screw E is pivoted by means of a pin passed through an eye *d'*. To the other plate *d* the short arm of an elbow-lever E' is pivoted by a pin passed through an eye of plate *d*.

F is a bracket-plate firmly bolted to the spider C, and F' is a guide applied to the spider. On the bracket are short projections *f f'*, and through the projection *f* the adjusting-screw of the gripping-strap is passed and confined by nuts *e e'*, and on the projection *f'* the elbow-lever E' is pivoted by means of a strong pin *g*.

G is a vertical sliding link-rod pivoted at its upper end to the long arm of the elbow-lever E' by means of a pin *h*, which passes through a slightly-elongated hole *h'*, which permits a straight up-and-down movement without bind of the rod G. This rod extends down through the guide F' and occupies a position very close to the face of the bracket-plate F, and its lower end is bifurcated, and by said end it is pivoted to a thrust-link H, which is pivoted by its lower end to a sliding sleeve I by means of a pin *i*, as shown.

From the foregoing description it be seen that the gripping-band can be drawn closely around the rim by means of the adjusting-screw E and that when adjusted it can be made to grip upon the flange with a holding contact by sliding the clutch by means of a lever J or any other equivalent device from the position shown in dotted lines to the position shown in full lines. The leverage-power of the elbow-lever is brought into action by a straight up-and-down force of the link-rod upon its long arm, which force is derived from the fellow link of said rod assuming a vertical position when the sliding clutch-sleeve is moved laterally on the driving-shaft.

In the drawings I have shown the vertical lever for operating the sliding sleeve; but it is obvious that the sleeve might be operated by a lever arranged in a horizontal position or that any other means for operating the sleeve might be employed without departing from the spirit of my invention.

My clutch is exceedingly simple, compact, powerful, and is located directly on the spider of clutch-supporting plate.

What I claim as my invention is—

5 1. The combination, with a pulley or drum having a cylindrical flange or rim and with a sliding sleeve, of a link connected to the sliding sleeve, the sliding link-rod connected to the link, a suitable guide for said rod, an elbow-lever connected by its long arm to the sliding link-rod, a gripping-strap connected by one end to the short arm of the elbow-lever and by its other end to an adjusting means, and a supporting spider or plate having a bracket attached to it for supporting the elbow-lever and the adjusting means, substantially as described.

2. In a friction-clutch, the combination, with a pulley or drum having a cylindrical flange or rim, of a flat metal gripping-strap nearly encircling the flat edge or rim of the pulley and formed of a single band and attached by one of its ends to an elbow-lever and by its other end to an adjusting means, 25 a suitable bracket supporting the said adjusting

ing means, and means intermediate of the elbow-lever and sliding sleeve, consisting of a sliding rod and link, for tightening and releasing the gripping-strap from the drum, substantially as described.

3. In a friction-clutch, the combination, with a pulley or drum having a cylindrical flange and a sliding sleeve, of a shaft, a spider keyed on said shaft, a double-armed supporting-bracket attached to the spider, an elbow-lever pivoted to one arm of the bracket, a gripping-strap formed of a single band and connected by one of its ends to another arm of said bracket and by its other end to the short arm of said elbow-lever, a sliding rod pivoted to the long arm of the bell-crank lever, and a link connected to it and to the sliding sleeve, substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JAMES FITZGERALD.

Witnesses:

HENRY H. CHASE,
C. O. BALDWIN.