

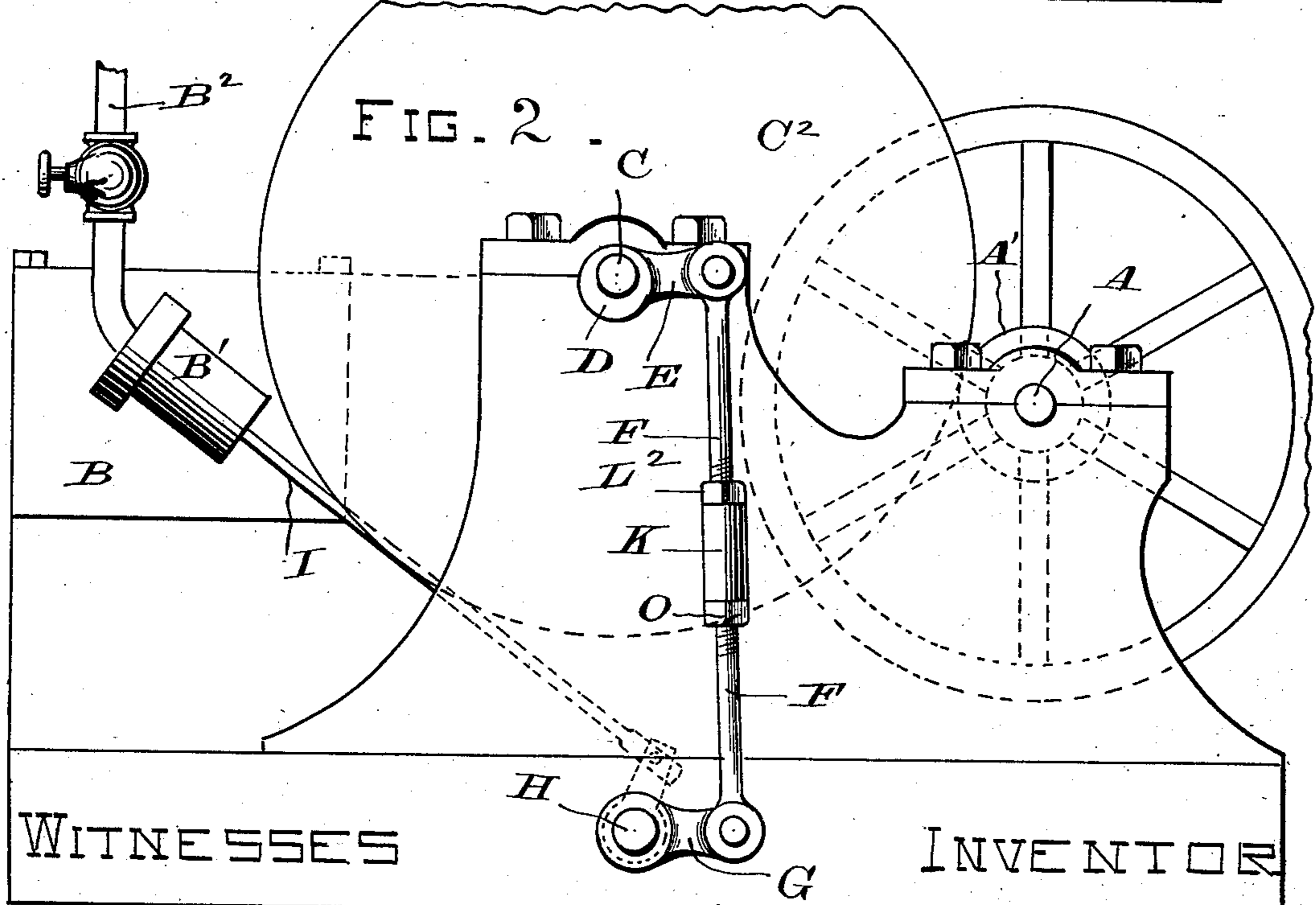
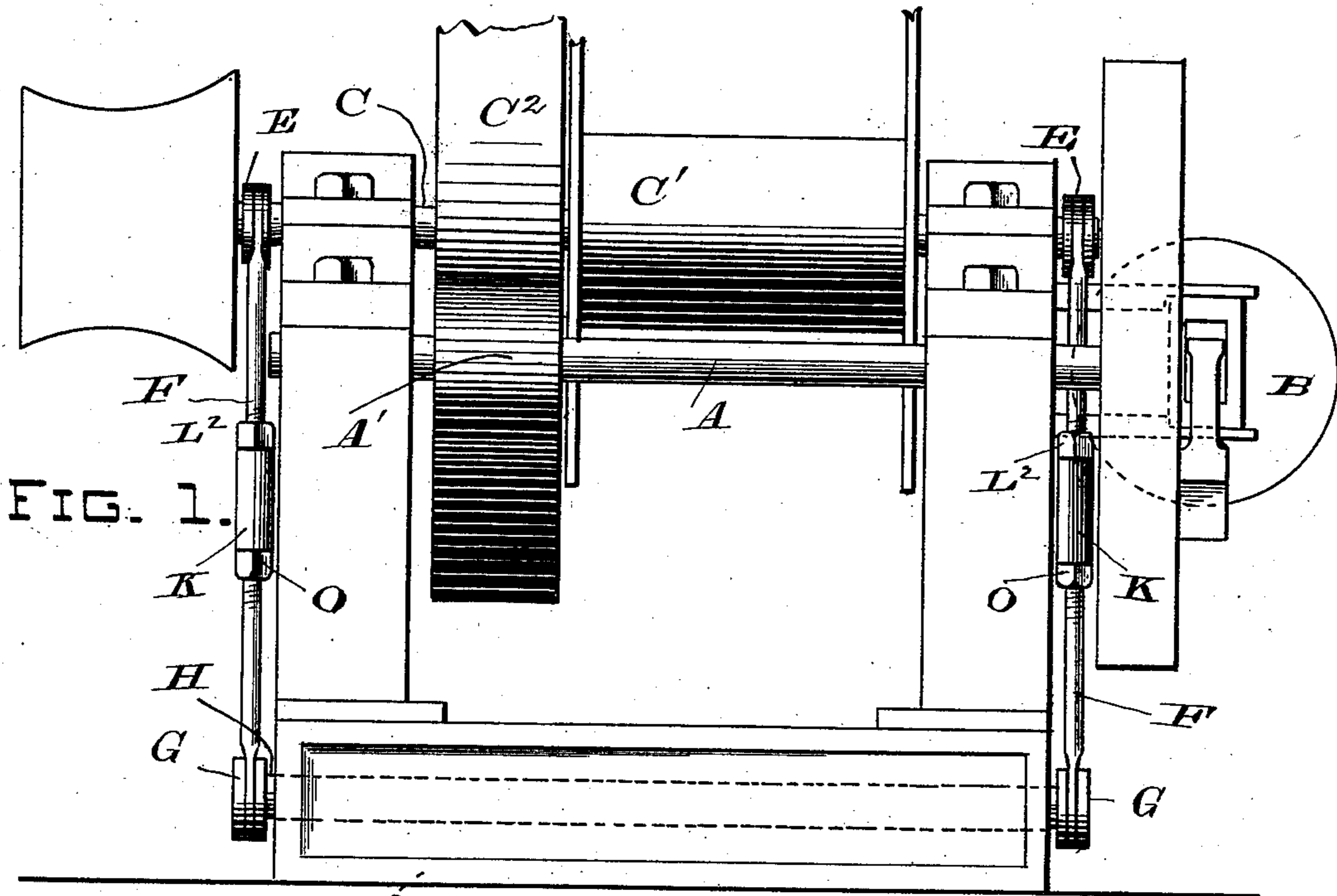
(No Model.)

3 Sheets—Sheet 1.

T. A. BYLER.
HOISTING MACHINE.

No. 362,489.

Patented May 10, 1887.



WITNESSES

INVENTOR

Wilmer Bradford
M. B. Woodworth

Type A. Byler
By L. W. M. Smith,
Attorney—

(No Model.)

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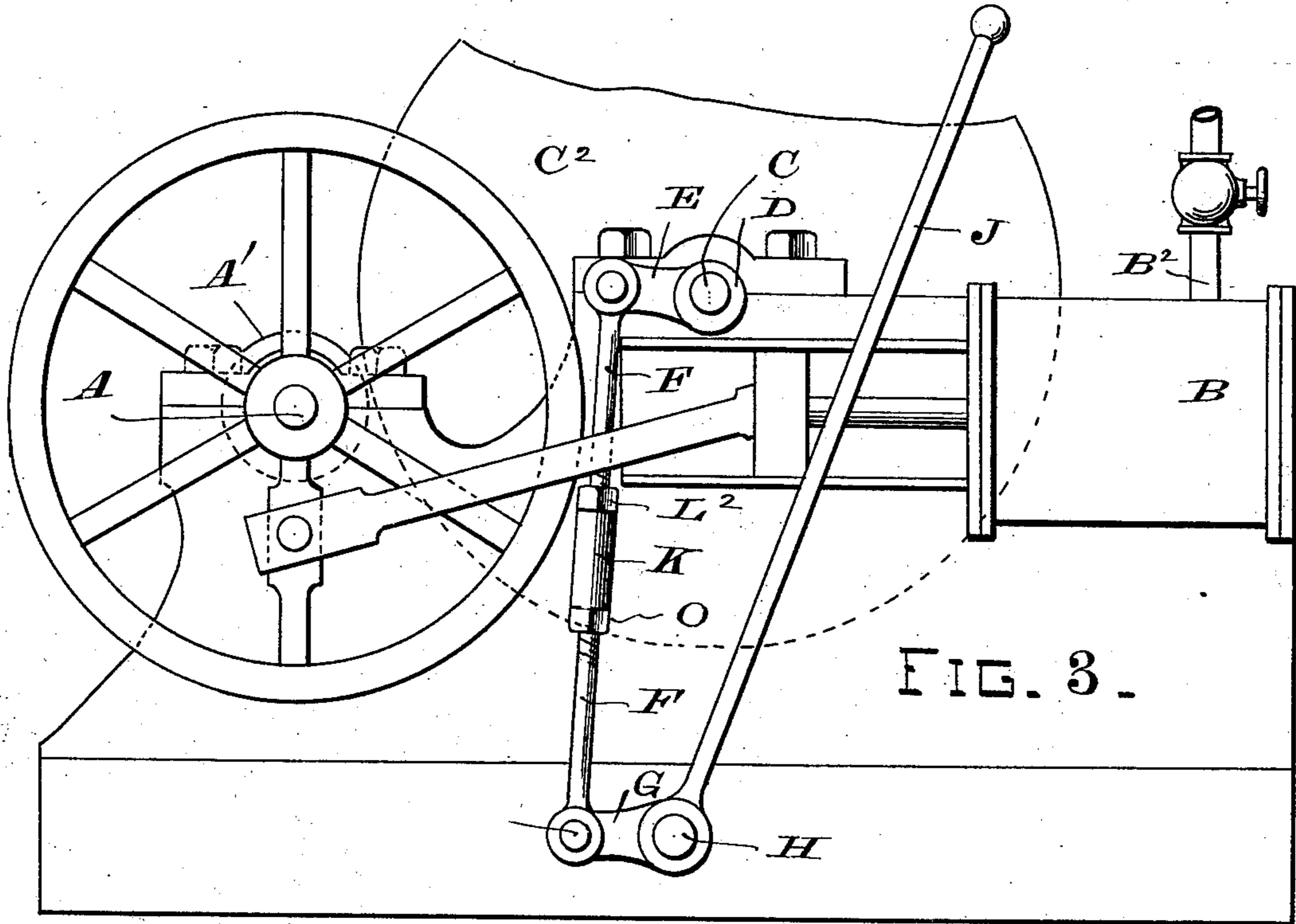


FIG. 3.

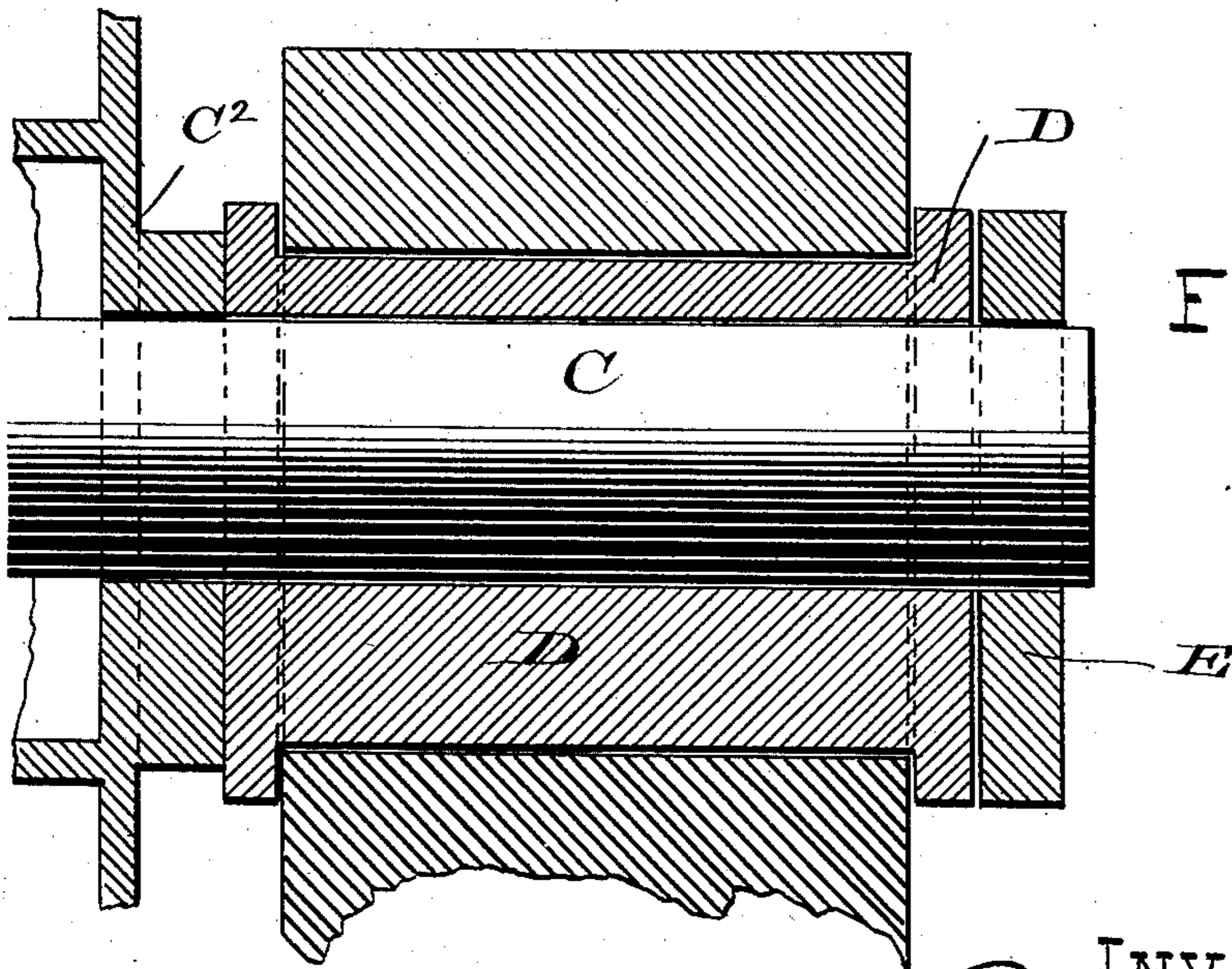


FIG. 4.

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(No Model.)

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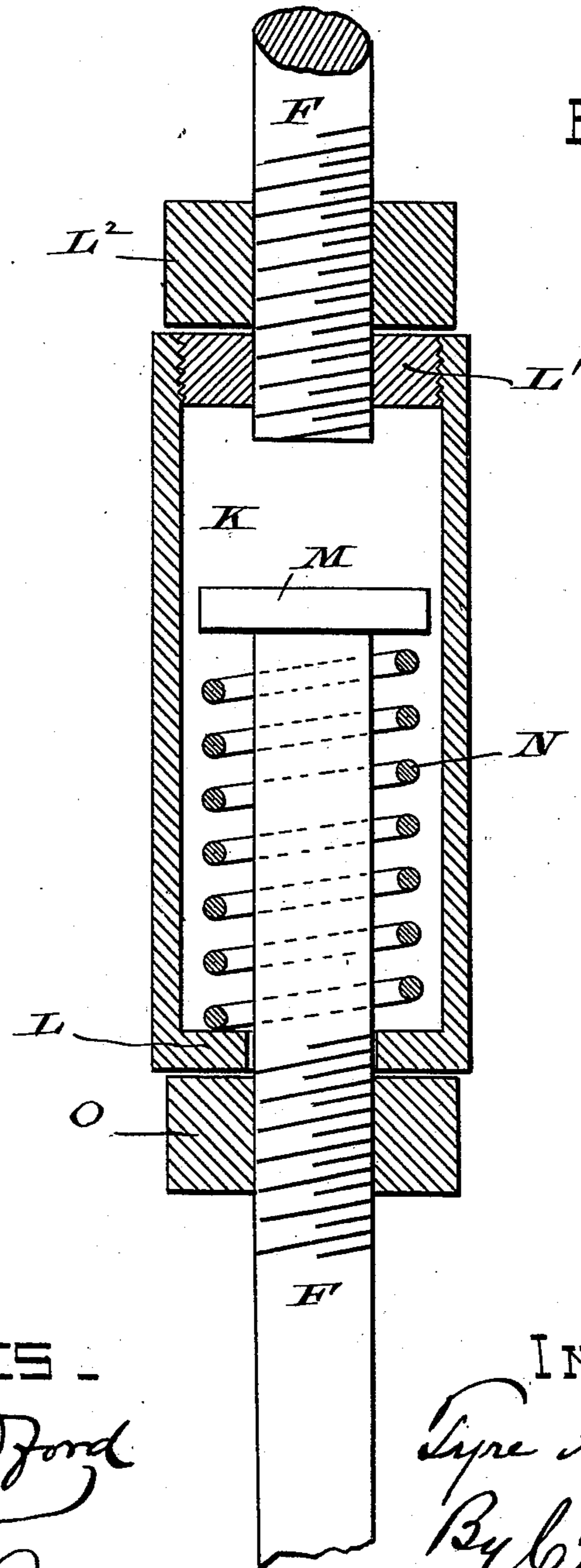


FIG. 5 .

WITNESSES .

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UNITED STATES PATENT OFFICE.

TYRE A. BYLER, OF SAN FRANCISCO, CALIFORNIA.

HOISTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 362,489, dated May 10, 1887.

Application filed November 23, 1884. Serial No. 149,073. (No model.)

To all whom it may concern:

Be it known that I, TYRE A. BYLER, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Hoisting-Machines, of which the following is a specification.

My invention relates to steam-winch which have a hand-lever to operate them, which connects through intermediate shafts and rods with the mechanism which throws the friction-wheel on the reel-shaft into engagement with the friction-pinion on the driving-shaft, and at the same time, by being attached to the stem of the regulating-valve of the steam-cylinder, is used to simultaneously open or close this valve while throwing the friction-wheels in or out of contact. An illustration of a steam-winch of this character is found in the patents of W. C. Williamson, December 29, 1868, No. 85,415; August 23, 1870, No. 106,642; June 11, 1872, No. 127,726.

The invention consists in providing elastic connections between the hand-lever and the mechanism which throws the friction-gears together, while still maintaining a rigid connection between the hand-lever and the stem of the regulating-valve of the steam-cylinder.

The object of the invention is to cure a defect heretofore existing in the machines referred to, which may be thus stated: When the friction-wheels were hard in contact, so that no further movement of the hand-lever could be had to affect the regulating-valve, it often happened that, while there was ample grip between the wheels to hoist the load, there could not be given any more steam to the steam-cylinder, and hence the winch worked sluggish, except with light loads, and, indeed, the machine would stop entirely much below the point of its ultimate capacity, owing to the fact that the operator was estopped from giving a little more steam after the friction-gears were once brought "hard up" to bearing.

Another difficulty with these winches of a very important character has also been obviated by the use of these elastic connections—viz., whereas when the friction-wheels were held rigidly against each other the slightest inequalities in their surfaces caused very rapid wear, and seldom would a set of wheels last

but a few months if the service required of them was constant; whereas with these elastic connections, which prevent the wheels from being held rigidly against each other, the wear and tear is sensibly decreased and the life of both wheels increased threefold, more or less, according to the conditions under which they operate.

In the accompanying drawings, forming part of this specification, Figure 1 is a front elevation of a steam-winch, showing elastic connections between the arms of the rocking shaft and the arms of the eccentric bearings of the reel-shaft. Fig. 2 is a side elevation of the same machine, taken on the left-hand side. Fig. 3 is a similar view on the right-hand side. Fig. 4 is a longitudinal section through the eccentric-box of the drum-shaft. Fig. 5 is a vertical sectional view of one of the elastic connections before named.

In all the figures the same letters of reference are used to represent the same parts.

A is the main shaft, rotated in the usual way through connections by the steam-engine B.

B' is the steam-admission valve of the engine, which is opened and closed to regulate the supply of steam.

B² is the steam-supply pipe.

C is the shaft of the winding-drum.

C' is the winding-drum.

C² is the friction-gear-wheel.

D D are cylindrical sleeves, which rest in the usual bearing-boxes on each side of the winding-drum. In these sleeves the shaft C is set eccentrically with the bearing-boxes, as shown.

E E are the arms of the eccentric-sleeves D, to the ends of which the rods F F are connected, which rods also connect with the projecting arms of the rocking shaft H. Projecting from this rocking shaft H there is another arm, (shown in dotted lines, Fig. 2,) to which is connected the valve-stem I of the valve B'.

J is the hand-lever, which moves the rocking shaft to simultaneously open and close the valve B' and throw the friction-wheels in and out of gear.

The rods F F are in two parts, united by a sleeve, K. The lower end of this sleeve has an inwardly-turned rim, L. The upper end, as shown, has a screw-thread cut internally,

and a nut, L', is screwed therein. The upper end of the lower half of each rod terminates in a collar, M, and spiral springs N are held between these collars and the bottom of the sleeve. The upper half of the rods screw into the upper heads, L', and a jam-nut, L², screws up tightly against the end of the sleeve. A similar jam-nut, O, also screws on the lower half of the rod against the under side of the sleeve. The mere details of construction may be changed with reference to these rods. The only essential feature is that by suitable means they shall be made elastic.

The operation is simple, and has been above suggested. The hand lever is drawn back, and simultaneously the two friction-gears are thrown in contact and the supply-valve of the steam-cylinder is opened. The adjustment is such that the friction-gears are brought hard in contact, so that no slipping is possible, while yet the valve is but slightly open. If the load is light, nothing more is necessary to hoist it; but should the load be heavy a further movement of the hand-lever is permissible, so that, although the friction-gears are not affected, the supply-valve may be opened wider and "full" steam be given the engine. By this method of operation the machine is greatly improved and is rendered more durable as to the life of the friction-wheels, and much more powerful and vigorous in action.

The elastic connection, *per se*, is not new in hoisting-machines; nor is any part of the

herein-described machine, taken separately, of my invention. I confine myself entirely to the combination of the said elastic connections, arranged in the particular manner shown and described, with the parts of machines of the particular class mentioned, by which an entirely new effect is produced, not heretofore attributable to these elastic connections when otherwise combined.

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

In steam hoisting-winch having friction driving-gears, the herein-described means for simultaneously operating the friction-gears and the steam-supply valve, consisting, essentially, of the following parts in combination: the rocking shaft H, an arm extending radially to connect with the stem of the steam-supply valve, two other arms, also extending radially to connect with the rods transmitting motion to the eccentric bearings of the reel-shaft, two elastic rods, F F, connecting the arms of the rocking shaft and the arms of the eccentrics, bearings for the reel-shaft, and an operating-lever, J, the whole being arranged and operating substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

TYRE A. BYLER. [L. S.]

Witnesses:

C. W. M. SMITH,
WILMER BRADFORD.