

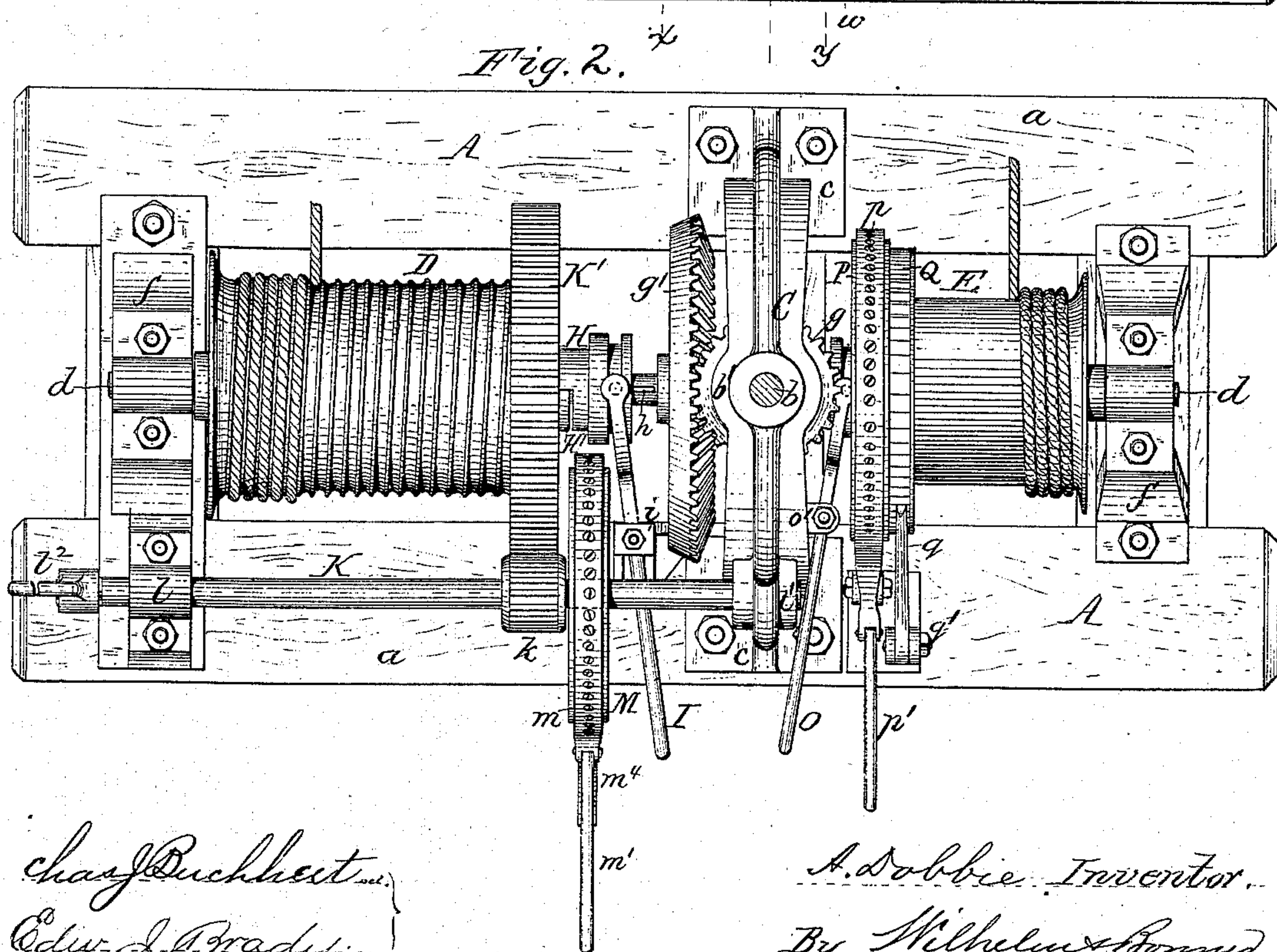
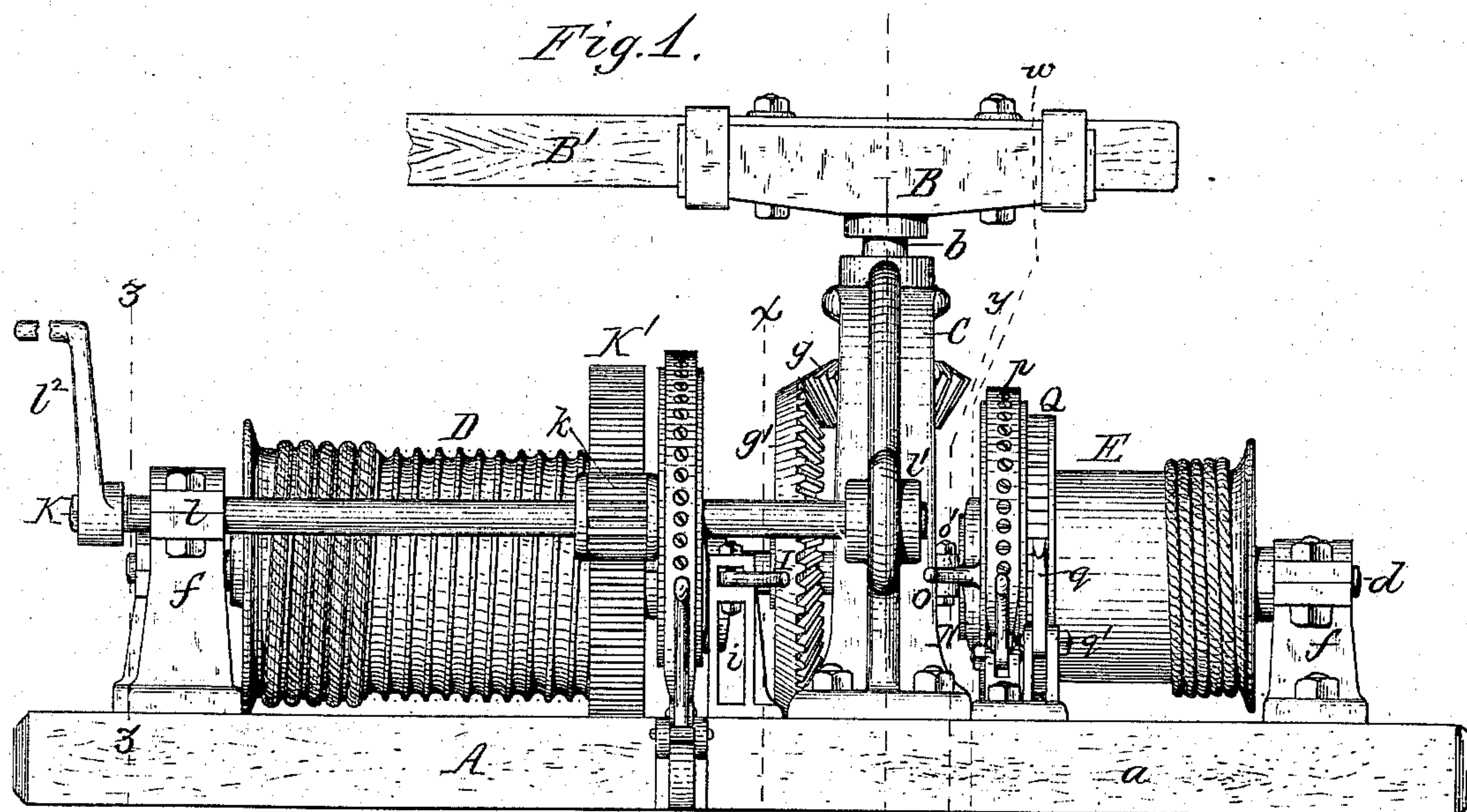
(No Model.)

3 Sheets—Sheet 1.

A. DOBBIE.
HOISTING MACHINE.

No. 255,844.

Patented Apr. 4, 1882.



Chas. Buchheit
Edw. J. Brady

Witnesses.

A. Dobbie, Inventor.
By Wilhelmus Bonner
Attorneys.

(No Model.)

3 Sheets—Sheet 2.

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Fig. 3.

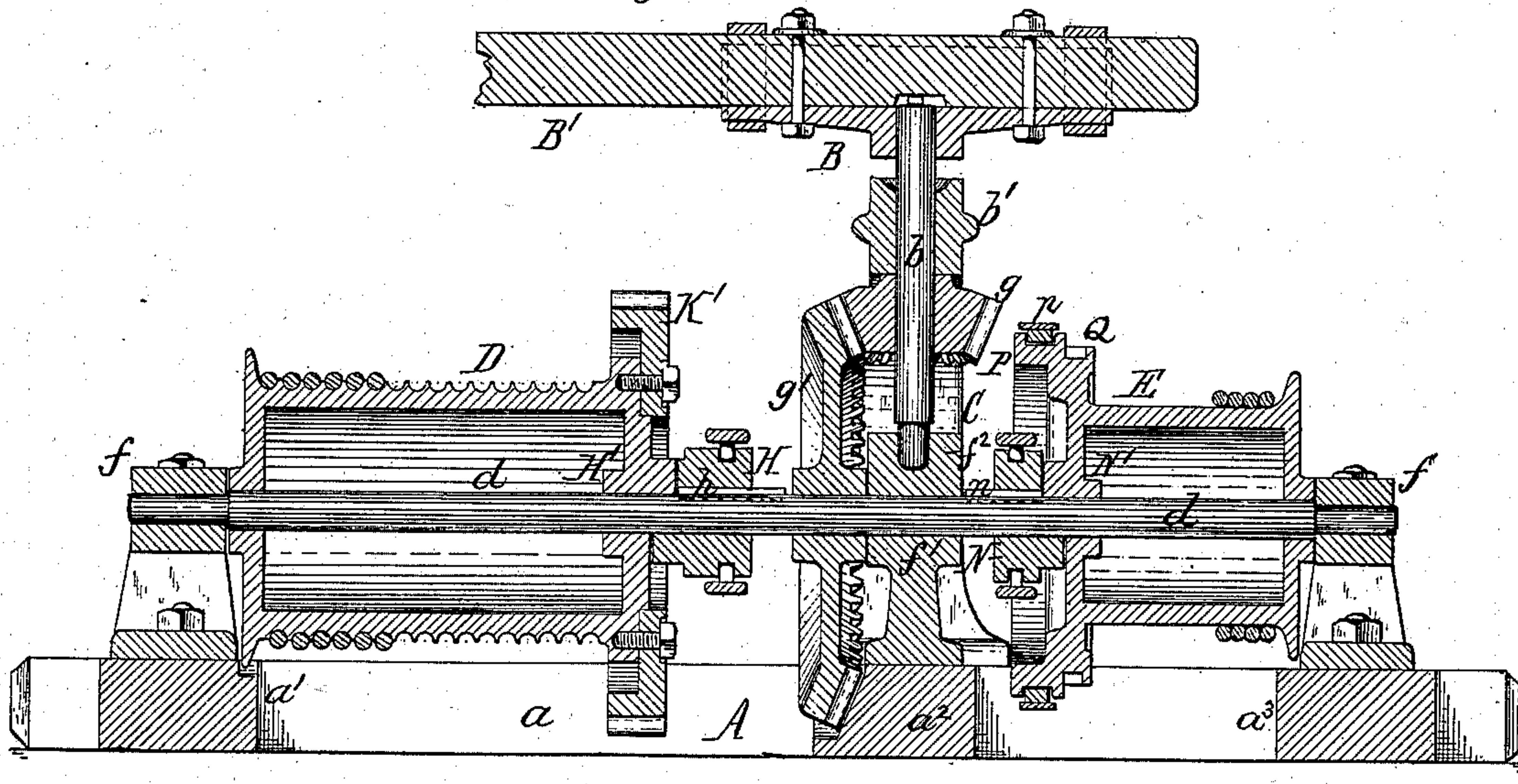


Fig. 5.

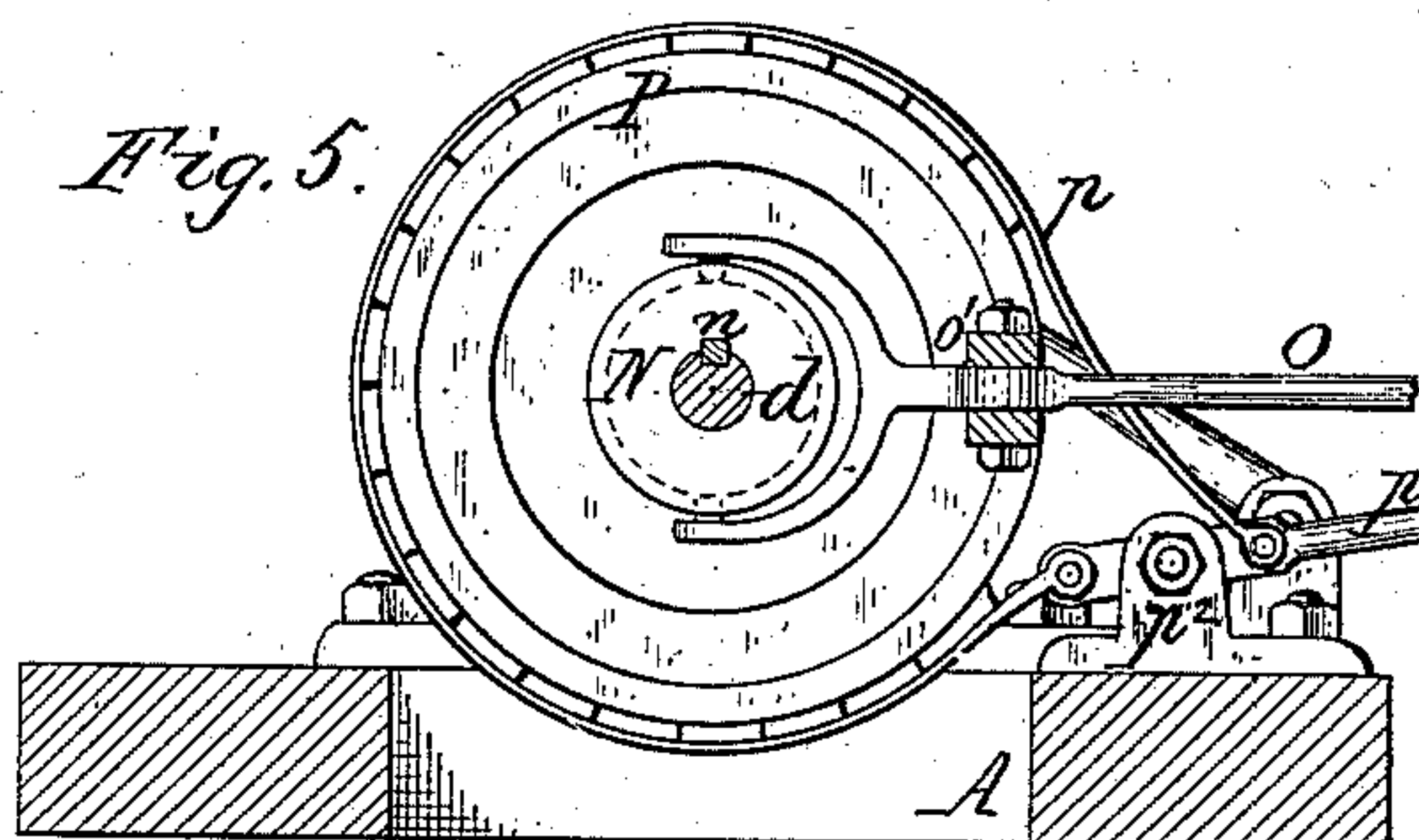


Fig. 4.

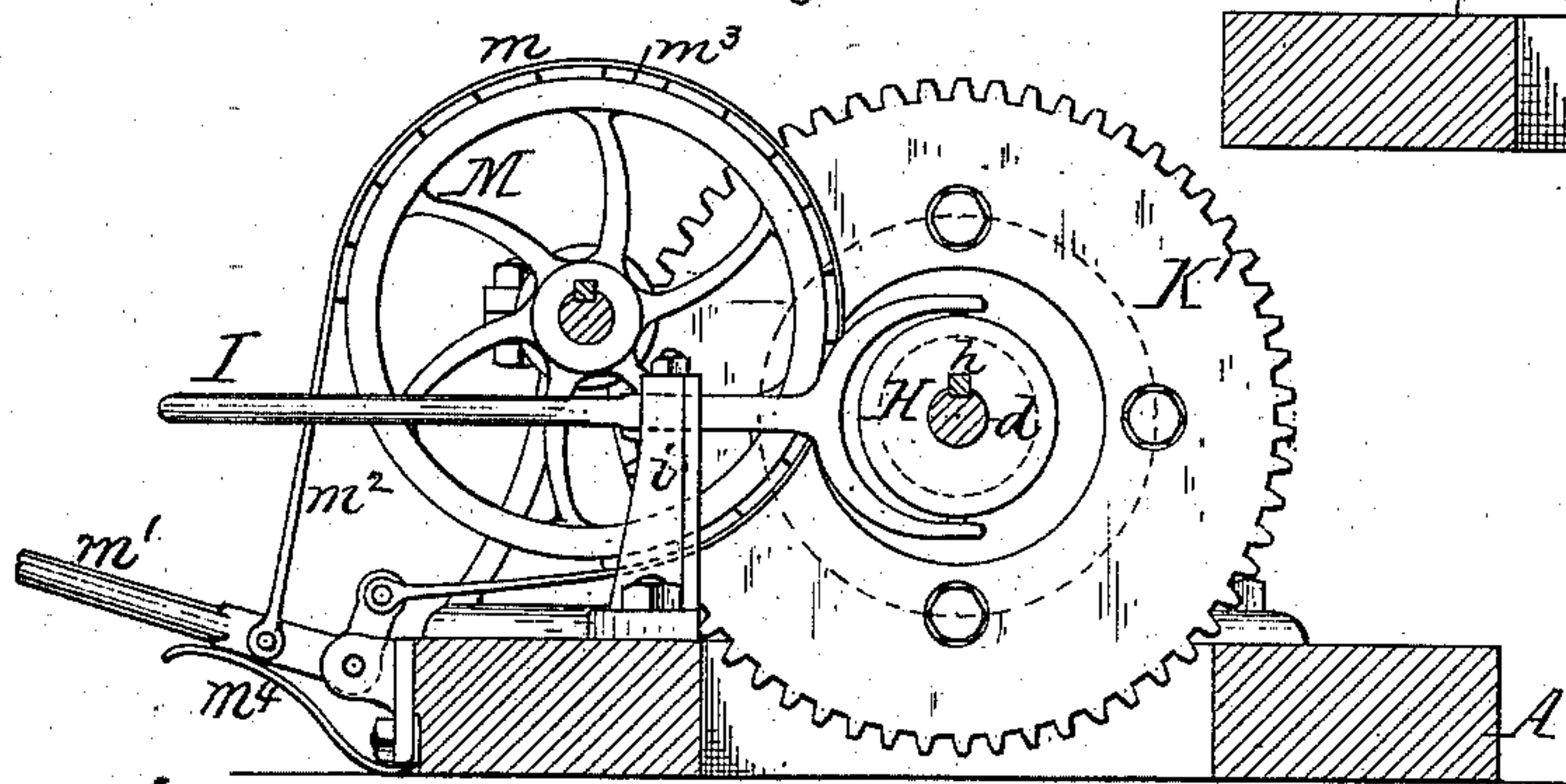
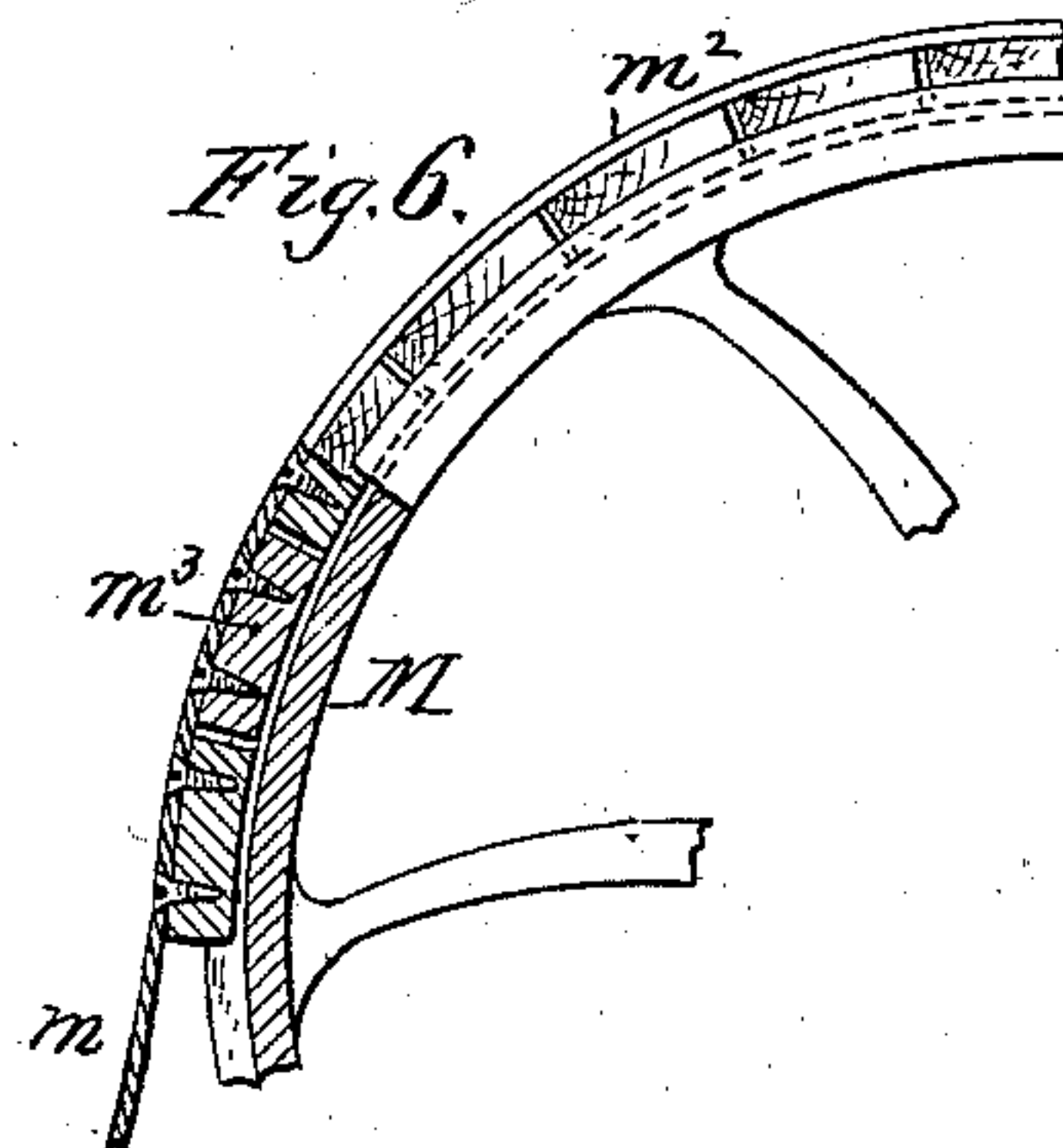


Fig. 6.



Chas. J. Buckheit
Edw. J. Brady... Witnesses.

A. Dobbie... Inventor.
By Wilhelm H. Bonner
Attorneys.

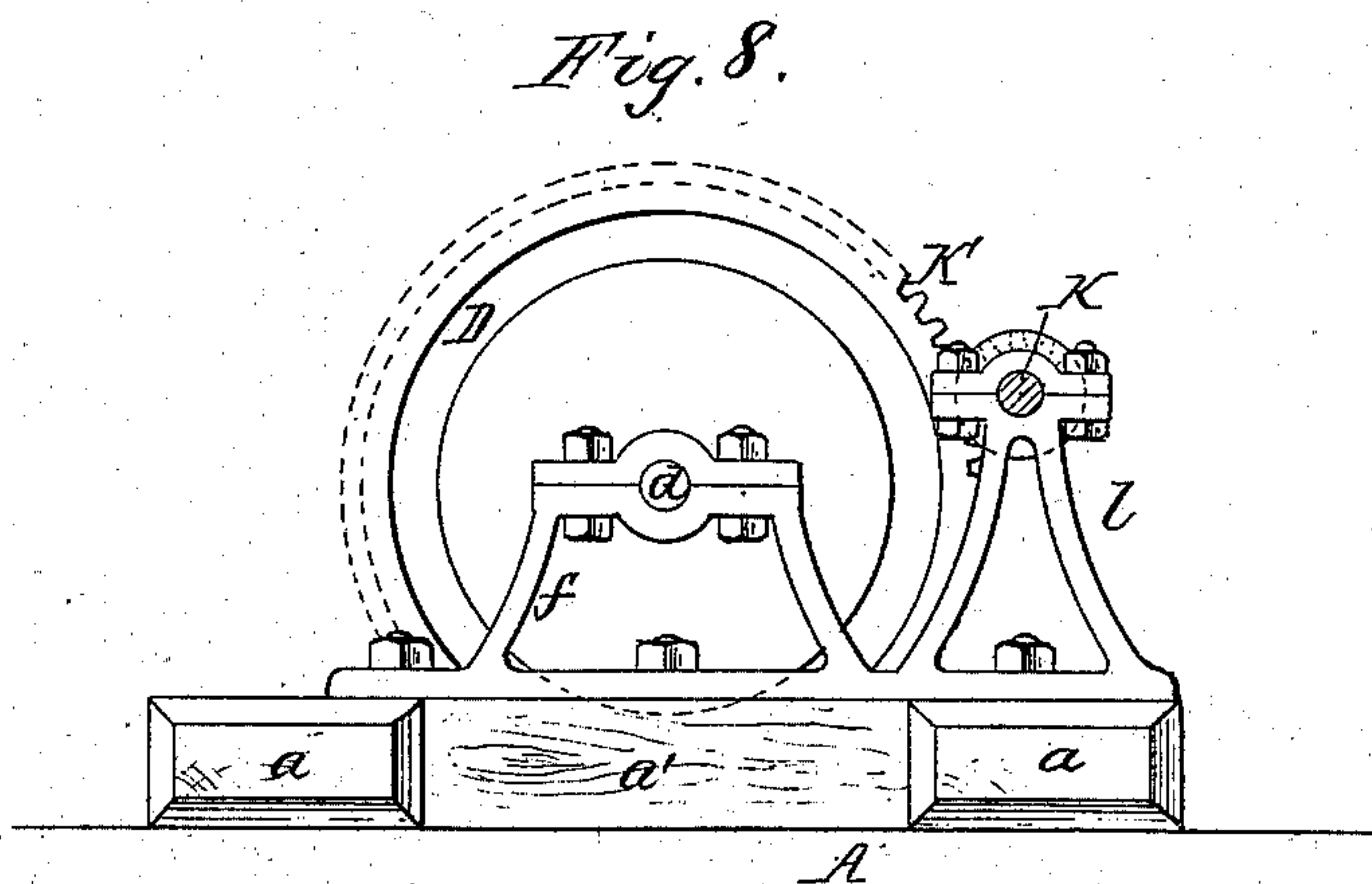
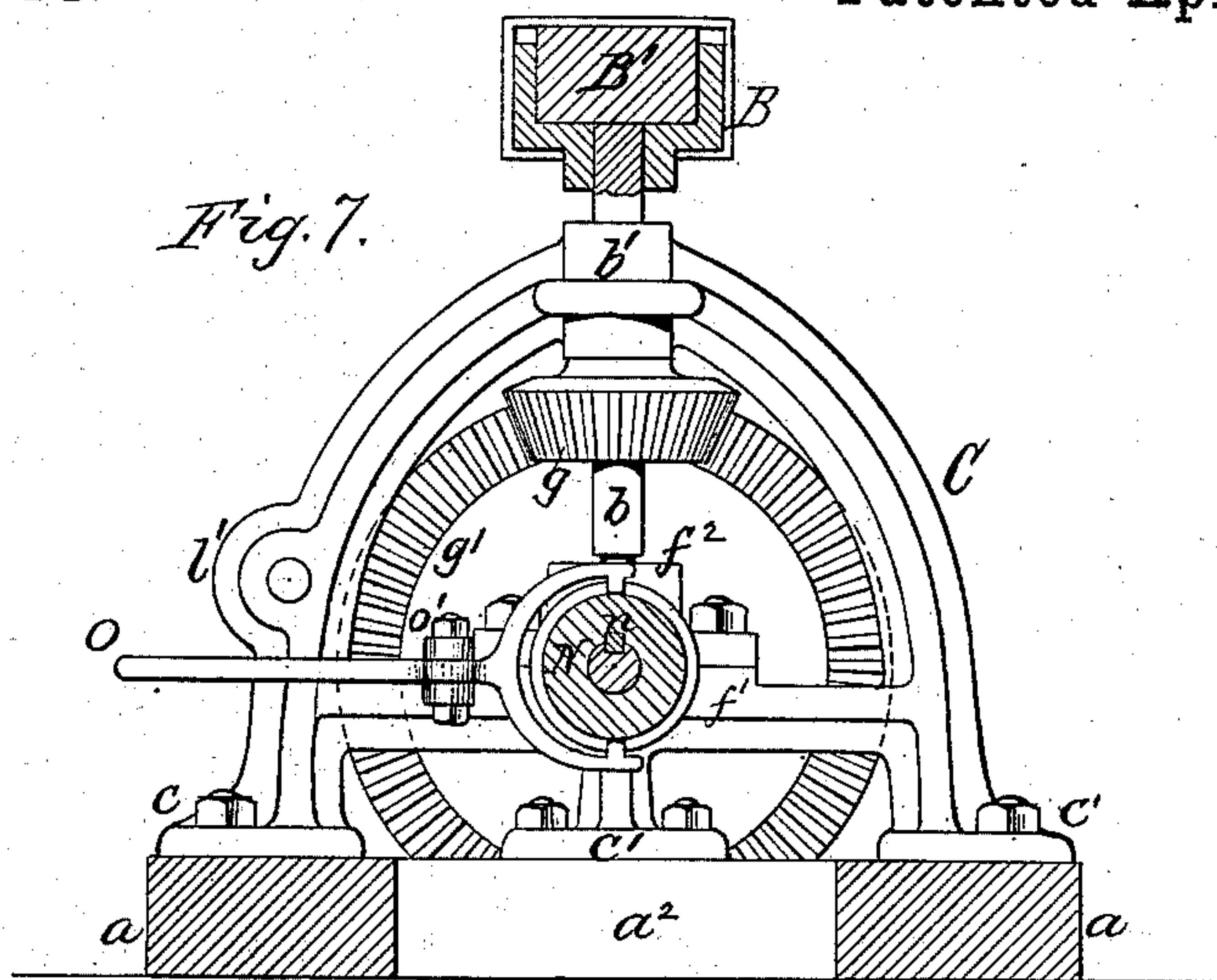
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3 Sheets—Sheet 3.

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HOISTING MACHINE.

No. 255,844.

Patented Apr. 4, 1882.



Chas. Buchheit.
Edw. J. Brady.

Witnesses.

A. Dobbie, Inventor.
By Melhem Adonis
Attorneys.

UNITED STATES PATENT OFFICE.

ARCHIBALD DOBBIE, OF THOROLD, ONTARIO, CANADA.

HOISTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 255,844, dated April 4, 1882.

Application filed December 20, 1881. (No model.)

To all whom it may concern:

Be it known that I, ARCHIBALD DOBBIE, of Thorold, in the county of Welland, in the Province of Ontario, Canada, have invented new and useful Improvements in Hoisting-Machines, of which the following is a specification.

This invention relates more especially to improvements in that class of hoisting-machines which are provided with two separate drums, upon one of which is wound the rope by which the load is raised, and upon the other of which is wound to rope by which the end of the boom of the derrick is raised, to which the tackle supporting the load is attached.

The object of this invention is to simplify the construction of this class of hoisting-machines and to render such machines more convenient and reliable in operation; and my invention consists, to that end, of the particular construction hereinafter described, and pointed out in the claims.

In the accompanying drawings, consisting of three sheets, Figure 1 is an elevation of my improved hoisting-machine. Fig. 2 is a top plan view, and Fig. 3 a longitudinal vertical section, thereof. Figs. 4 and 5 are vertical sections in lines $x x$ and $y y$, Fig. 1, respectively. Fig. 6 is a fragmentary sectional view of the friction-brake. Fig. 7 is a vertical cross-section in line $w w$, Fig. 1, looking toward the left. Fig. 8 is a vertical cross-section in line $z z$, Fig. 1.

Like letters of reference refer to like parts in the several figures.

A represents the bed-frame of the machine, composed of sills a and cross-pieces $a^1 a^2 a^3$.

b represents the vertical driving-shaft, and B the cross-head, secured to the upper end thereof for the reception of the sweeps B^1 , to which the horses are attached when the machine is driven by horse-power.

C represents an arched standard, in which the vertical driving-shaft b is supported. The standard C rests at both ends on the sills a and at the middle on the cross-piece a^2 by feet or legs $c c'$.

D represents the drum upon which the rope is wound by which the load is suspended, and E represents the drum upon which the rope is

wound whereby the boom of the derrick is raised and lowered. d represents the horizontal shaft whereby both drums are rotated. The shaft d is supported at its ends in standard-bearings f , and between the drums in a bearing, f' , which is formed in the arched standard C. The upper portion of the bearing f' is provided with a step-bearing, f^2 , in which the lower end of the vertical shaft b turns, the upper end of the shaft b turning in a bearing, b' , formed in the standard C.

g represents a bevel-pinion secured to the vertical shaft b , and g' a bevel-wheel secured to the horizontal shaft d , and gearing with the pinion g , whereby the shaft d is rotated from the shaft b .

H represents the movable part of a clutch-coupling, which slides on a feather, h , in the shaft d , and engages with a corresponding part, H' , formed at or secured to the inner end of the drum D, which latter turns loosely on the shaft d .

I represents the shifting-lever, which engages with the movable part H of the clutch, and which is pivoted in a standard-bearing, i .

The drum D is preferably constructed with a spiral groove for the reception of the rope which is wound upon the drum.

K is a horizontal counter-shaft provided with a pinion, k , which meshes with a gear-wheel, K' , formed with or secured to the drum D. The counter-shaft K is supported near its outer end in a standard-bearing, l , and at its inner end in a bearing, l' , cast with the arched standard C.

M is a friction-wheel secured to the counter-shaft K near its inner end; and m is a band-brake, which surrounds the wheel M, and is tightened by a lever, m' . The brake consists of a band of wrought-iron, m^2 , to the inner side of which are secured blocks of wood m^3 , which bear against the face of the friction-wheel M. The band is held away from the wheel by a spring, m^4 , which presses the outer end of the lever m' upward. Upon disconnecting the drum D from the shaft d by shifting the clutch H the descent of the load is controlled by the brake. The outer end of the counter-shaft K is provided with a hand-crank, l^2 , whereby the shaft K and the drum D can be turned by hand,

when the latter is disconnected from the shaft *d*, for the purpose of taking up the slack of the rope.

5 *N* represents the movable part of a clutch-coupling, which slides on a feather, *n*, secured in the shaft *d*, and engages with a corresponding part, *N'*, formed at or secured to the inner end of the drum *E*, which latter also turns loosely on the shaft *d*.

10 *o* represents the shifting-lever, which engages with the part *N* of the clutch, and which is pivoted at *o'* to the arched standard *C*. The drum *E* is preferably constructed with a smooth cylindrical surface.

15 *P* represents a friction-rim cast on or secured to the inner end of the drum *E*, and *p* a band-brake, which surrounds the rim *P*, and which is attached to a lever, *p'*, pivoted at *p²*, whereby the brake is applied when required. The band-
20 brake *p* is constructed of a band of wrought-iron and blocks of wood attached thereto, as hereinbefore described with reference to the brake *m*.

Q represents a ratchet-wheel cast with or se-
25 cured to the inner end of the drum *E*, adjacent to the friction-wheel; and *q* represents the pawl, which is pivoted at *q'*, and which engages with the ratchet-wheel and prevents the drum *E* from rotating in the direction in which the
30 rope runs off.

The levers which control the clutches and

friction-brakes are all located in close proximity near the center of the machine, where they can be conveniently operated by one attendant. Either drum may be rotated independent of 35 the other, and either or both can be instantly stopped and held in any desired position by the attendant, thereby giving full control over the movements of the load and derrick-boom.

It is obvious that the shaft *d* may be rotated 40 by steam-power, if preferred.

I claim as my invention—

1. The combination, with the drums *D* and *E*, mounted loosely upon a shaft, *d*, of the driving-shaft *b*, gear-wheels *g g'*, clutch-couplings 45 *H N*, counter-shaft *K*, pinion *k*, and brakes *M m* and *P p*, substantially as set forth.

2. The combination, with the drum *D*, mounted loosely on the shaft *d* and provided with gear-wheel *K'*, clutch *H*, driving-shaft *b*, and 50 gear-wheels *g g'*, of the counter-shaft *K*, provided with pinions *k* and hand-crank *l²*, substantially as set forth.

3. The combination, with the drums *D E* and shafts *b d*, of the arched standard *C*, provided 55 with bearings *b' f' f²*, arranged between the drums and end bearings, *f*, substantially as set forth.

A. DOBBIE.

Witnesses:

JNO. J. BONNER,
EDW. J. BRADY.