

No. 652,839.

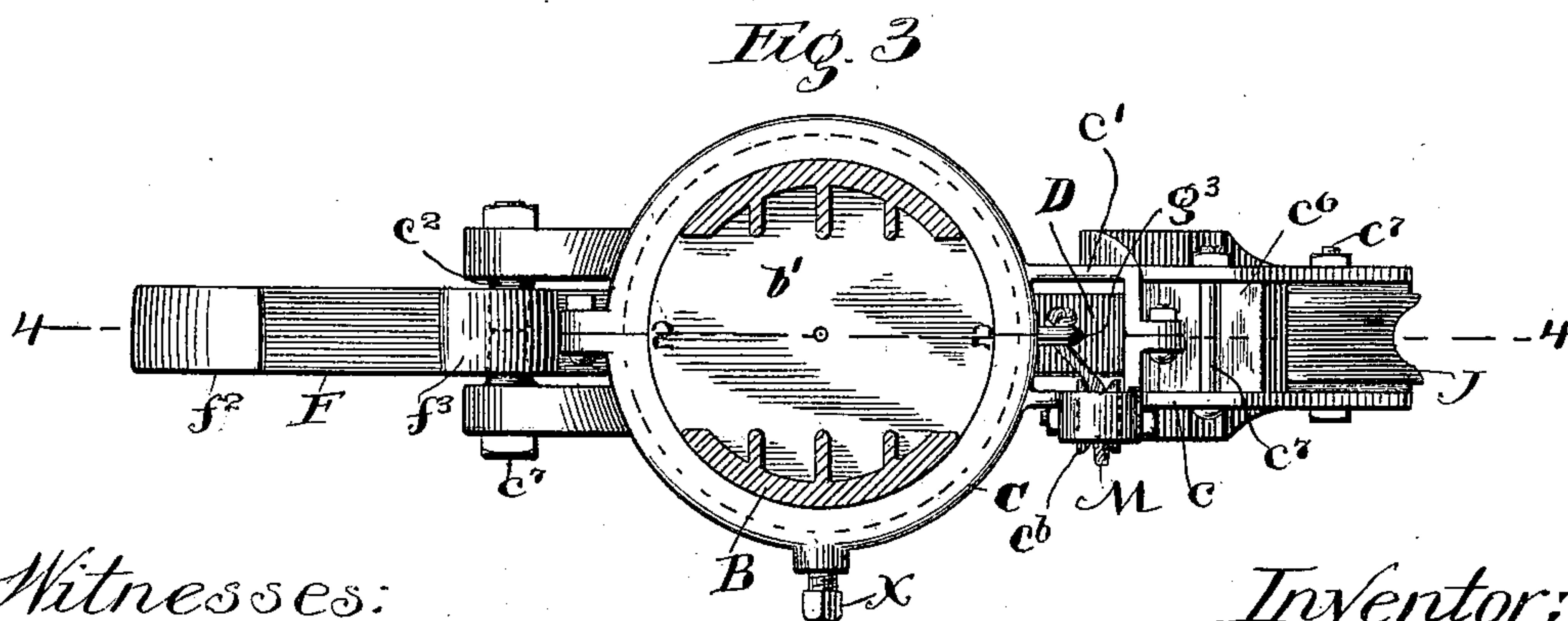
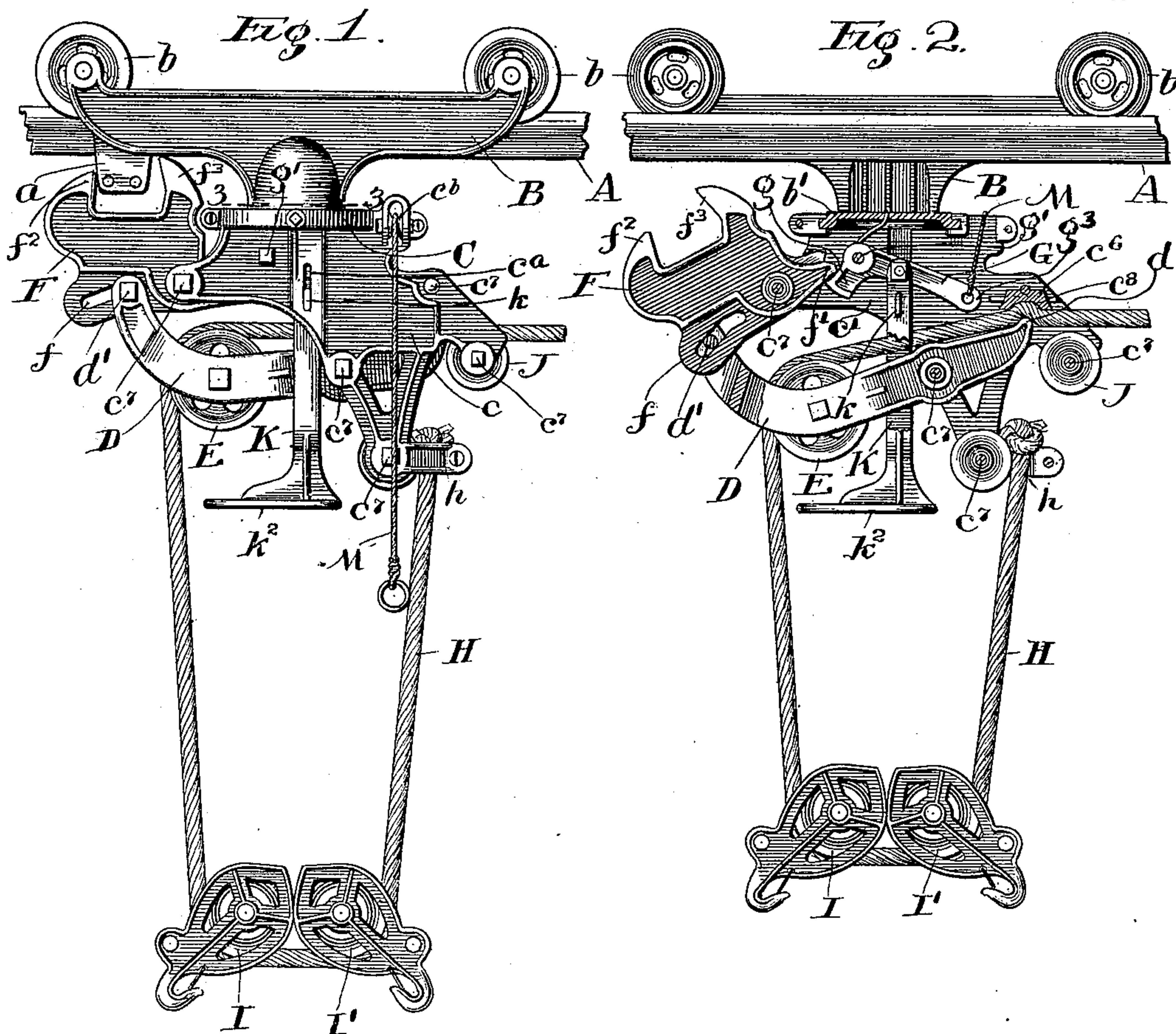
Patented July 3, 1900.

H. L. FERRIS.
HAY CARRIER.

(Application filed Dec. 18, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
Chas. O. Sherway
S. Bliss.

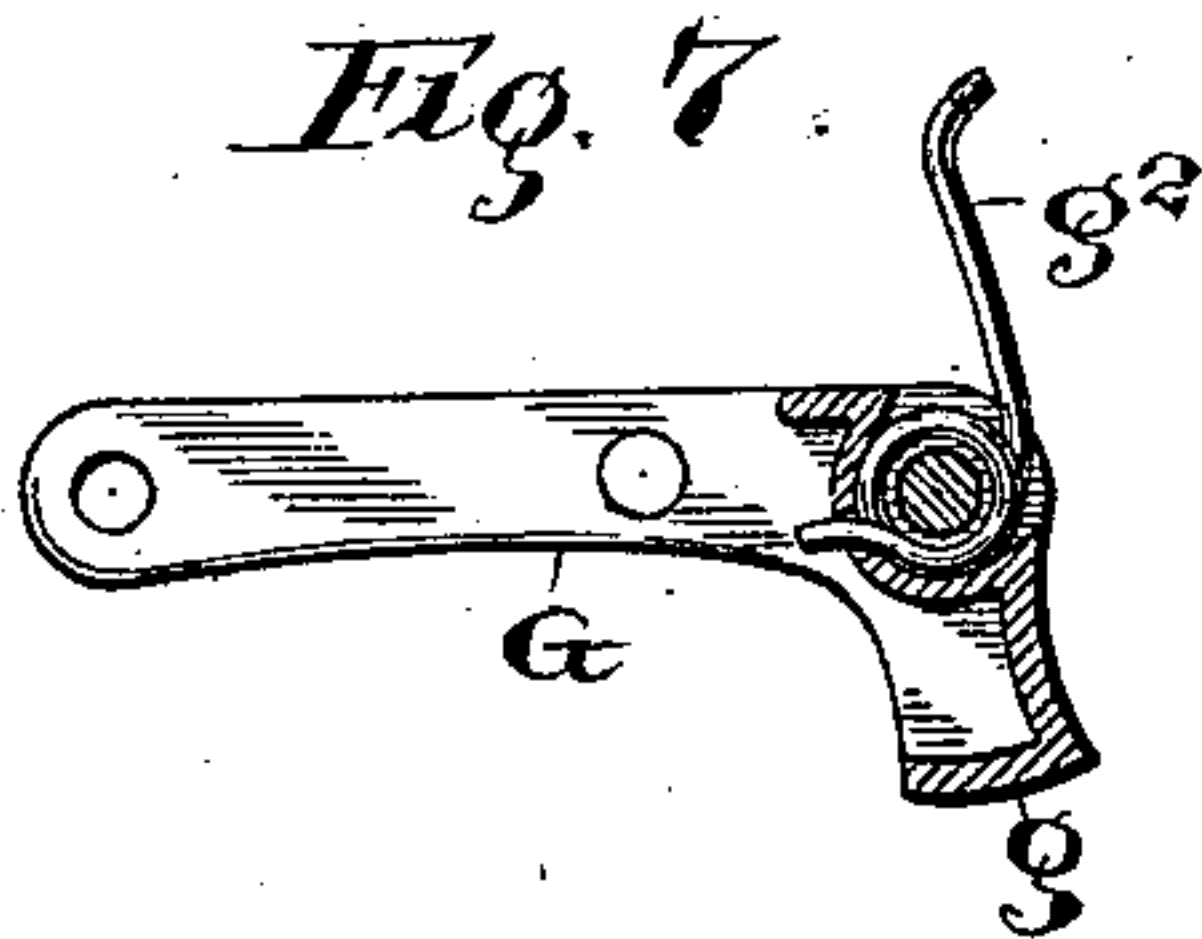
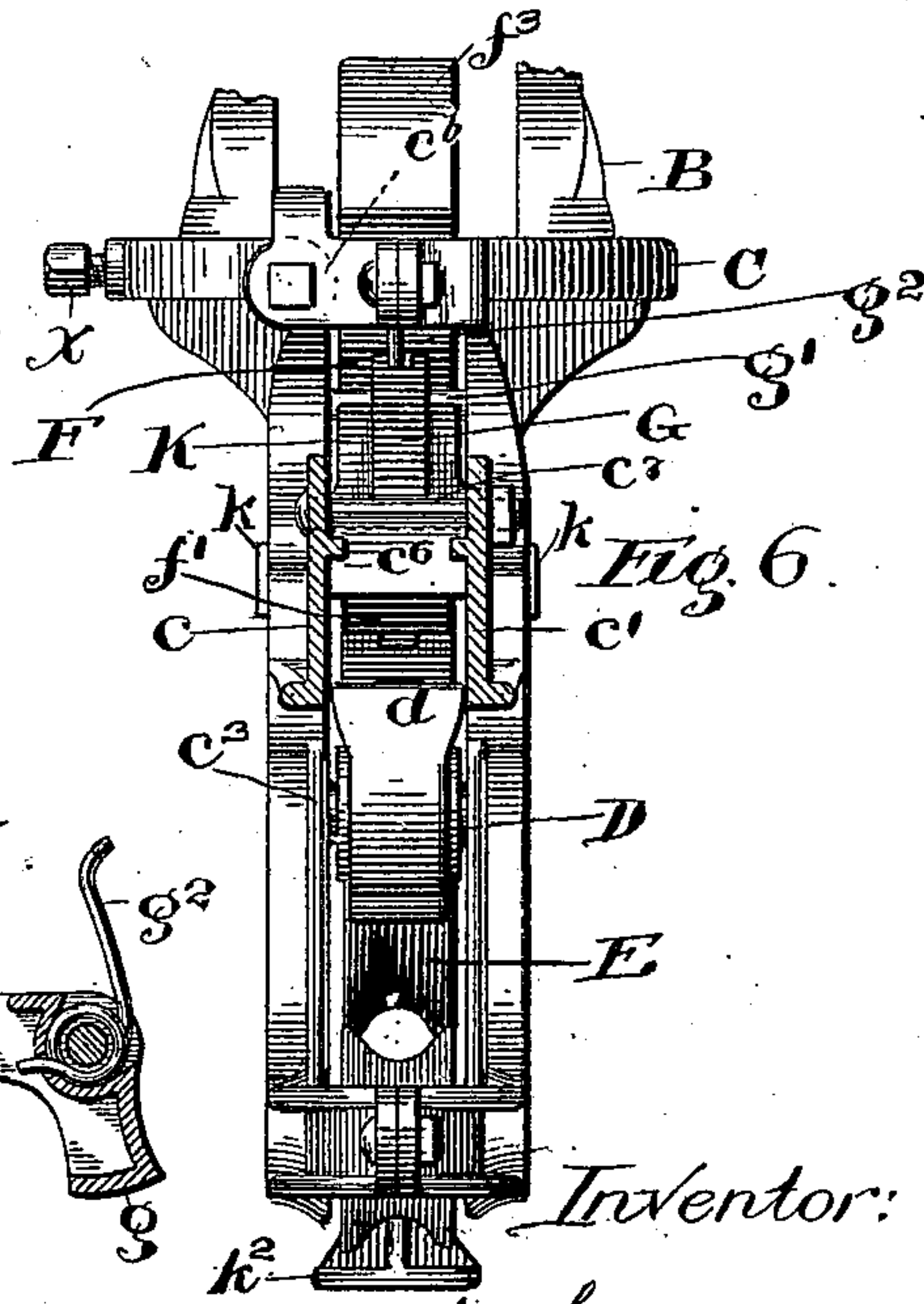
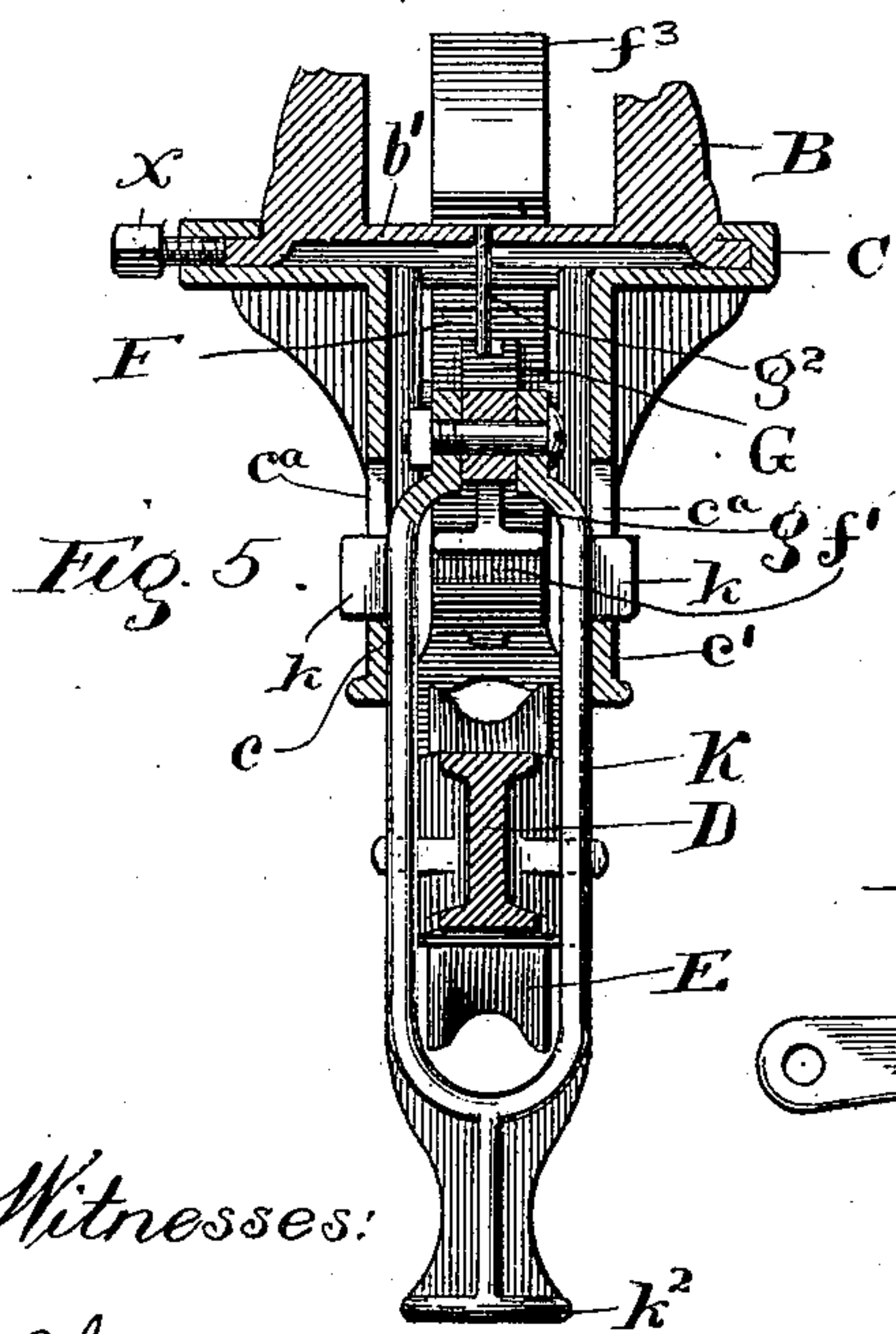
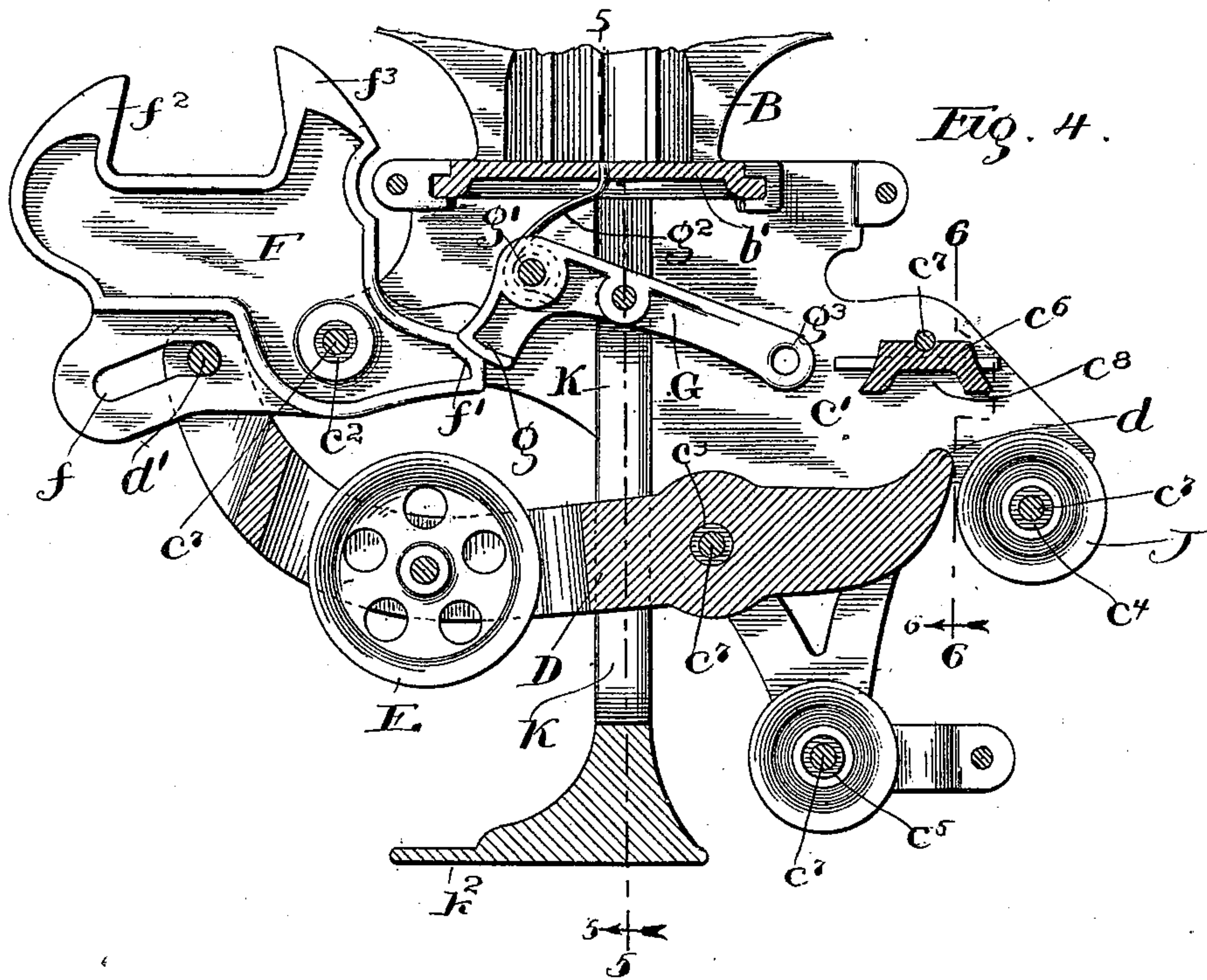
Inventor:
Henry L. Ferris
by *Wm. M. & P. S. S. Attys.*

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2 Sheets—Sheet 2.



Witnesses:

Chas. O. Sherway.
S. Bliss.

Inventor:

Henry L. Ferris
by Miles M. Titus
Atty.

UNITED STATES PATENT OFFICE.

HENRY L. FERRIS, OF HARVARD, ILLINOIS.

HAY-CARRIER.

SPECIFICATION forming part of Letters Patent No. 652,839, dated July 3, 1900.

Application filed December 18, 1899. Serial No. 740,639. (No model.)

To all whom it may concern:

Be it known that I, HENRY L. FERRIS, a citizen of the United States of America, residing at Harvard, in the county of McHenry and State of Illinois, have invented certain new and useful Improvements in Hay-Carriers, of which the following is a specification.

My invention relates to certain improvements in hay-carriers of the class in which a track and traveler thereon are used in connection with a carrying device suspended from the traveler by means of a rope or its equivalent, the rope being utilized both to lift the carrying device and to move the traveler along the track. More particularly it belongs to the class of carriers in which means are provided for locking the rope to the traveler at any desired point, so that the load need not be lifted any farther than is necessary to clear obstructions in its path.

The main object of the invention is to provide a simple and effective clamping device for the main rope operated by the rope itself, so that the clamping action may be proportional to the load. In this way the rope will be gripped lightly with a light load and more strongly with a heavy load, and the wear and tear upon the rope and operating devices will be only such as is necessary at all times.

To this end the invention consists in a certain novel gripping device arranged in proper relation to the rope and in certain minor and incidental features of novelty used in combination therewith for the more effective accomplishment of the purpose desired.

In the drawings, Figure 1 is a side elevation of a complete carrier. Fig. 2 is a similar view with one of the side plates removed and the central carrying-plate cut in the line 2 2 of Fig. 3. Fig. 3 is a horizontal section looking downward from the plane 3 3 of Fig. 1. Fig. 4 is an enlarged vertical section in line 4 4 of Fig. 3. Fig. 5 is a transverse vertical section in line 5 5 of Fig. 4. Fig. 6 is a transverse vertical section in line 6 6 of Fig. 4 looking in the direction of the arrow 6; and Fig. 7 is a longitudinal vertical section of a trigger and operating-spring, the location and use of which will be hereinafter fully set forth.

Referring to the drawings, the track is shown at A and the carrier-frame at B, the

latter being provided with wheels *b*, running upon the track A. The traveler is provided with a circular plate *b'* below the track, about which is secured a turn-table C, carrying two downwardly-extending side plates *c c'*, spaced apart by means of perforated gudgeons *c² c³ c⁴ c⁵* and by a strut *c⁶*. Bolts *c⁷* clamp the two side plates together at all of these places, and the gudgeons are used as bearings for the various working parts between the two plates. The strut *c⁶* is notched at *c⁸* upon its under side, and a locking-lever D, pivoted upon the gudgeon *c³*, is provided with an end *d*, adapted to swing upward toward the notch and bind the main rope between said end and the strut. Said lever carries between its pivot and its opposite end a pulley E and beyond said pulley is provided with a bolt *d'*, working in a slot *f* in a dog F, pivoted upon the gudgeon *c²*. Said dog is provided with a lug *f'*, in position for engagement with the short end *g* of a trigger G, pivoted at *g'* between the plates and provided with a spring *g²*, bearing upon the plate *b'* and tending to hold the trigger in the position seen in Fig. 4. In this position it will be noticed that the end *d* of the locking-lever D is held away from the strut *c⁶*. The parts are shown in the same position in Fig. 1, which also shows the rope H secured to the traveler at *h* and extending downward therefrom in the form of a loop, upon which are shown a pair of pulleys I I', adapted for use with an ordinary hay-sling. The rope also passes over the pulley E upon the locking-lever and a guide-pulley J, journaled upon the gudgeon *c⁴*. When the parts are in the position shown in said Figs. 1 and 4, the rope is free to pass over the pulleys E J to lower and raise the carrying-pulleys I I'; as is done whenever a load is to be picked up. A stop *a* upon the track holds the traveler stationary at this time, so that the rope may have no tendency to move the latter upon the track. For this purpose the dog F extends upward from the pivot and is provided with two fingers *f² f³*, adapted to engage the opposite sides of the stop. It should be noticed that the weight of the load is sustained by the pulley E through the medium of the rope H and that said load pulls downward upon the left-hand side of the dog F, tending to draw the fingers *f² f³* away from the stop and at the

same time to crowd the end d of the locking member toward the strut c^6 to grip the rope between the two. This tendency is resisted by the tripping-lever G while the load is picked up and raised to the desired elevation. Two independent devices are shown for actuating the tripping-lever G to release the dog F . One of these is a vertically-sliding yoke K , guided in the side plates by means of laterally-extending lugs k , working in slots c^a and provided at the bottom with a shoe k^2 , arranged in such position as to be engaged by the frames of the pulleys I I' when the load is drawn up to the carrier. The second device consists of a rope M , secured to the end g^3 of the tripping-lever, passing upward therefrom over a pulley c^b upon one of the side plates, and then downward to a sufficient extent to enable it to be easily reached by the person who attends to the loading of the carrier. The yoke K acts automatically to release the traveler and grip the rope when the load is drawn upward as far as the parts will permit. The hand-rope M provides means for manually tripping the carrier to release it from the track-stop and to grip the rope at any point desired. The tightness of the grip upon the rope is directly proportional to the load, inasmuch as it is the weight of the load which presses the gripping-lever against the rope.

In the operation of the device, starting with the position shown in Fig. 1, the rope is given sufficient slack to enable the sheaves I I' to pick up the load, after which said load is drawn upward by means of the rope H until sufficiently elevated to clear all obstructions. If this point is reached short of the limit fixed by the parts, the carrier is tripped by means of the hand-rope M , releasing the dog F from the track-stop a and permitting the traveler to be drawn by the rope in the direction desired. After the load is discharged the carrier is returned to the position shown, and as it reaches this position the track-stop a engages the finger f^3 , tilting the dog until the trigger G engages the lug f' , locking the parts again until released, as before. Whenever it is necessary to raise the load to the limit the hand-rope is not operated, but the tripping of the carrier is accomplished by the contact of the sheaves I I' with the shoe k^2 .

Looking at Figs. 2, 4, and 5 it will be seen that the dog F is the only obstruction to the movement of the traveler beyond the track-stop. As it is often desirable to work the traveler alternately upon opposite sides of this stop, I have provided the turn-table C and the set-screw X , clamping the turn-table to the plate b' . By releasing the set-screw

the lower part of the traveler may be turned to remove the dog F from the path of the track-stop and also to reverse the position of said dog and bring it upon the opposite side of said traveler.

I believe the invention in its broadest construction is independent of the exact form or combinations of devices by means of which it is attained, and for that reason I do not limit myself to the specific construction above shown and described.

I claim as new and desire to secure by Letters Patent—

1. The combination, in a carrier of the class described, and with a traveler and draft-rope, of a lever pivoted between its ends to the carrier, a bearing upon the carrier opposite to one end of said lever and adapted to coact with said end to clamp the rope between the two, a pulley over which the draft-rope runs, journaled upon said lever, upon the opposite side of the pivot from the clamping end, means for raising and locking said pulley in its raised position and means for tripping the lock to release the lever; substantially as described.

2. The combination, in a carrier of the class described of a traveler, a draft-rope, a bearing upon the carrier, a lever pivoted between its ends to the carrier and having one of its ends arranged to grip the rope between it and the bearing, a pulley upon the lever upon the opposite side of the pivot and arranged to carry the draft-rope, devices for oscillating the lever upon its pivot, a trigger adapted to lock the lever away from the draft-rope and means for pulling said trigger and releasing the lever; substantially as described.

3. In a carrier of the class described, the combination with a suitable traveler and a framework suspended therefrom, of a lever pivoted between its ends to the carrier, adapted to grip the rope between one of its ends and a portion of the frame, and having a pulley upon its opposite end, a draft-rope running over said pulley, a track-operated dog connected with the pulley end of the lever and adapted to raise it, a trigger arranged to engage the dog, when the lever is raised and means for actuating the trigger to release the dog and the lever; substantially as described.

In witness whereof I have hereunto set my hand at Harvard, in the county of McHenry and State of Illinois, this 9th day of December, A. D. 1899.

HENRY L. FERRIS.

Witnesses:

FRANK WHAPLE,
FRANK HOGAN.