

(No Model.)

3 Sheets—Sheet 1.

F. F. MARSH.

APPLIANCE FOR THE SUPPORT OF INVALIDS.

No. 319,283.

Patented June 2, 1885.

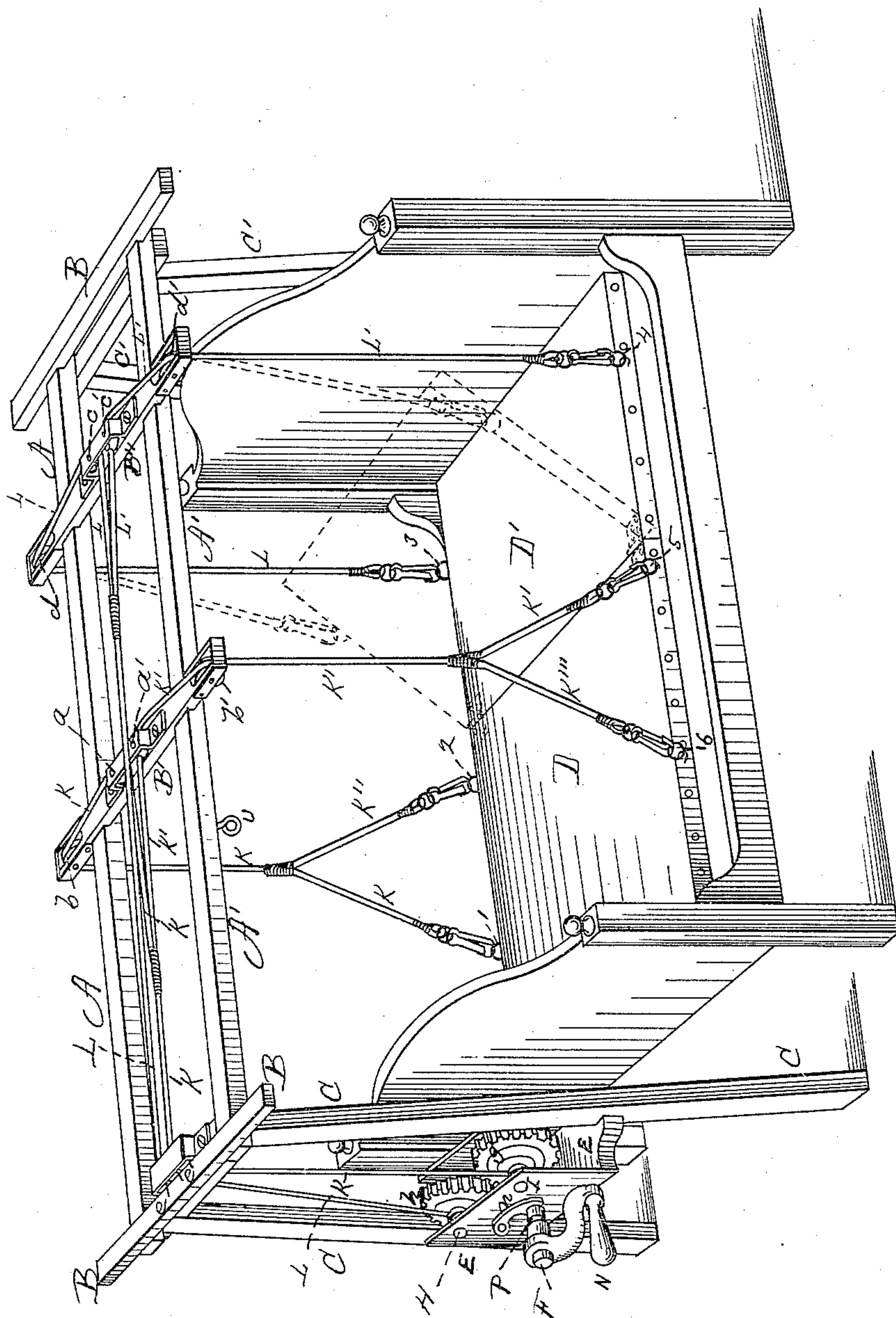


Fig. 1-

WITNESSES

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J. M. Hartnett.

INVENTOR

Franklin F. Marsh.

By his Atty.

Henry Williams

(No Model.)

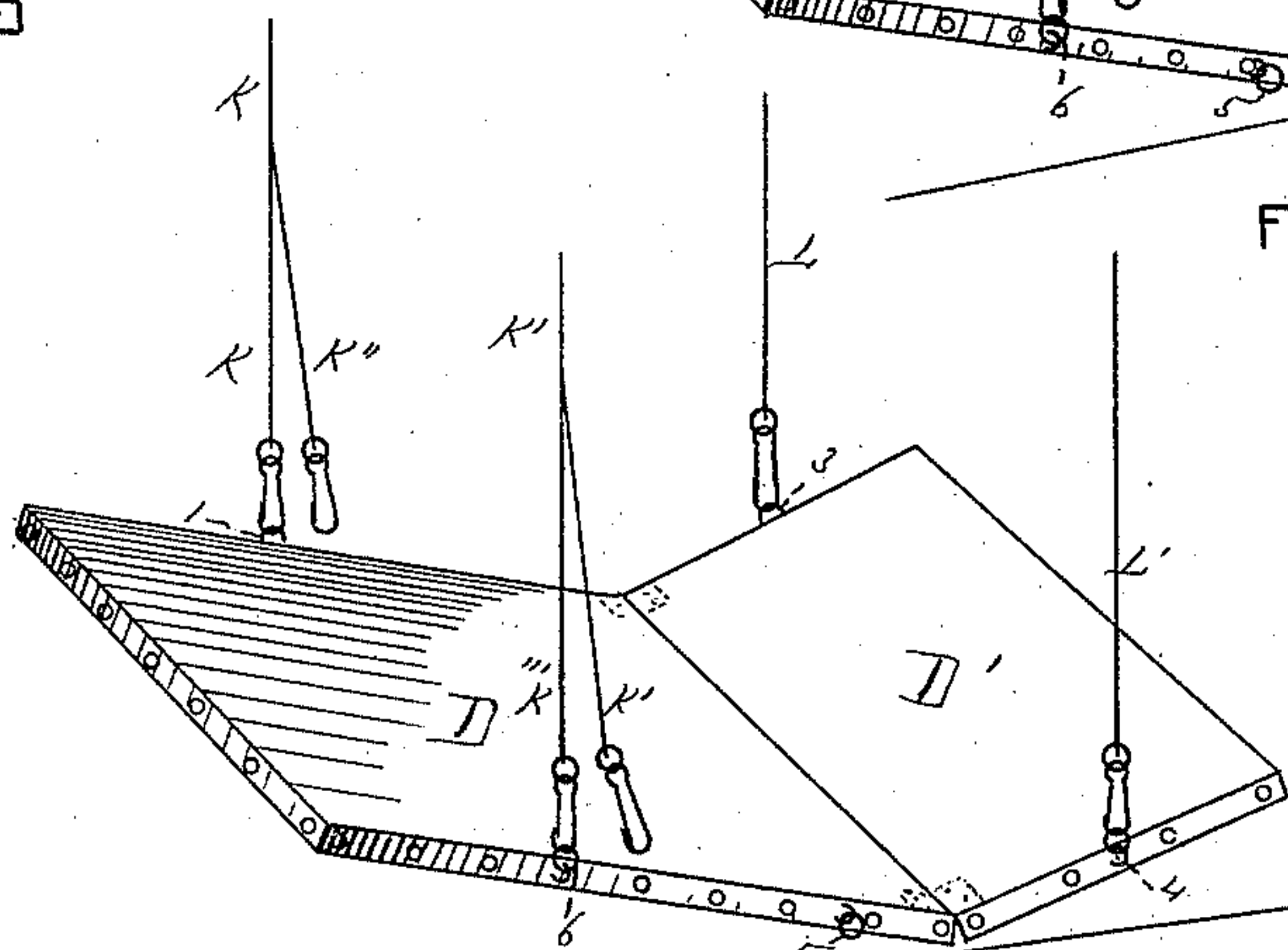
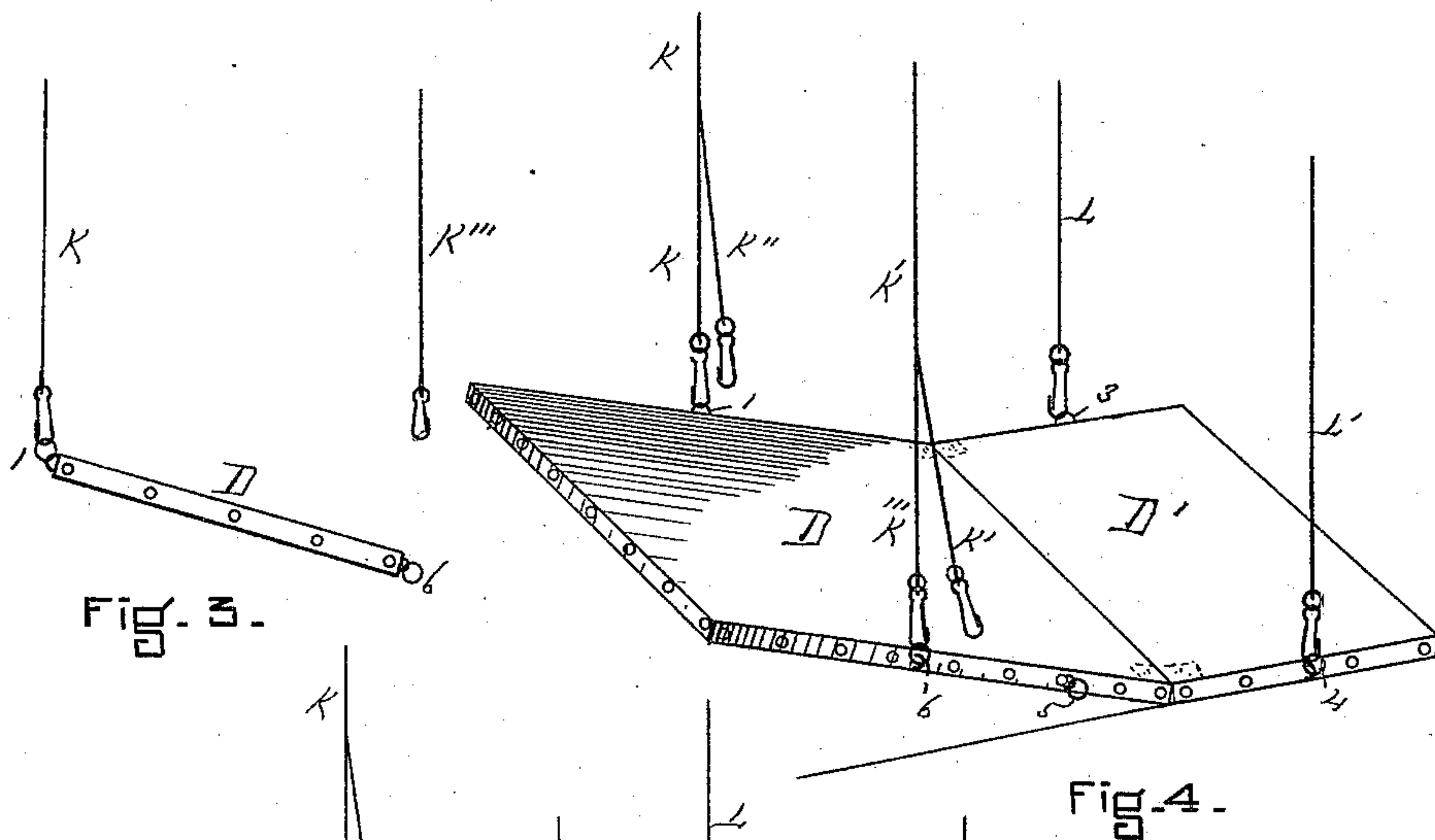
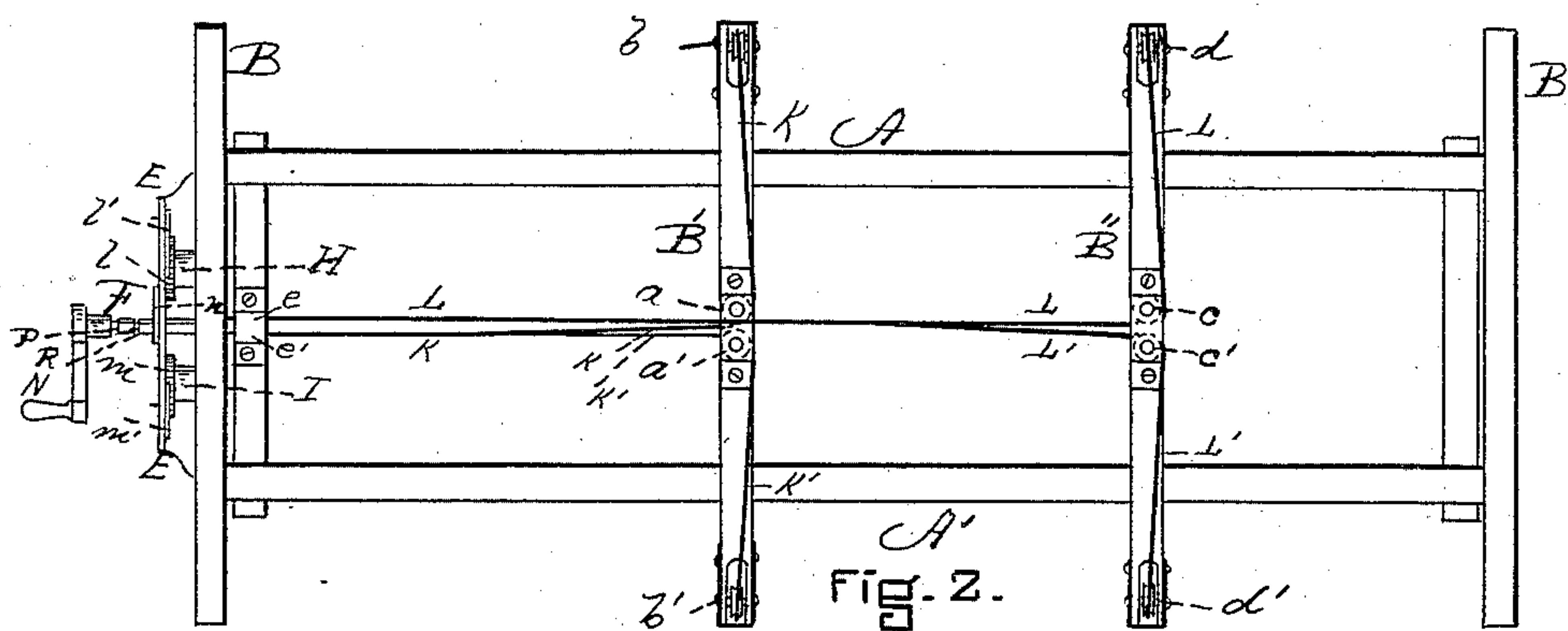
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Fig. 5. INVENTOR
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(No Model.)

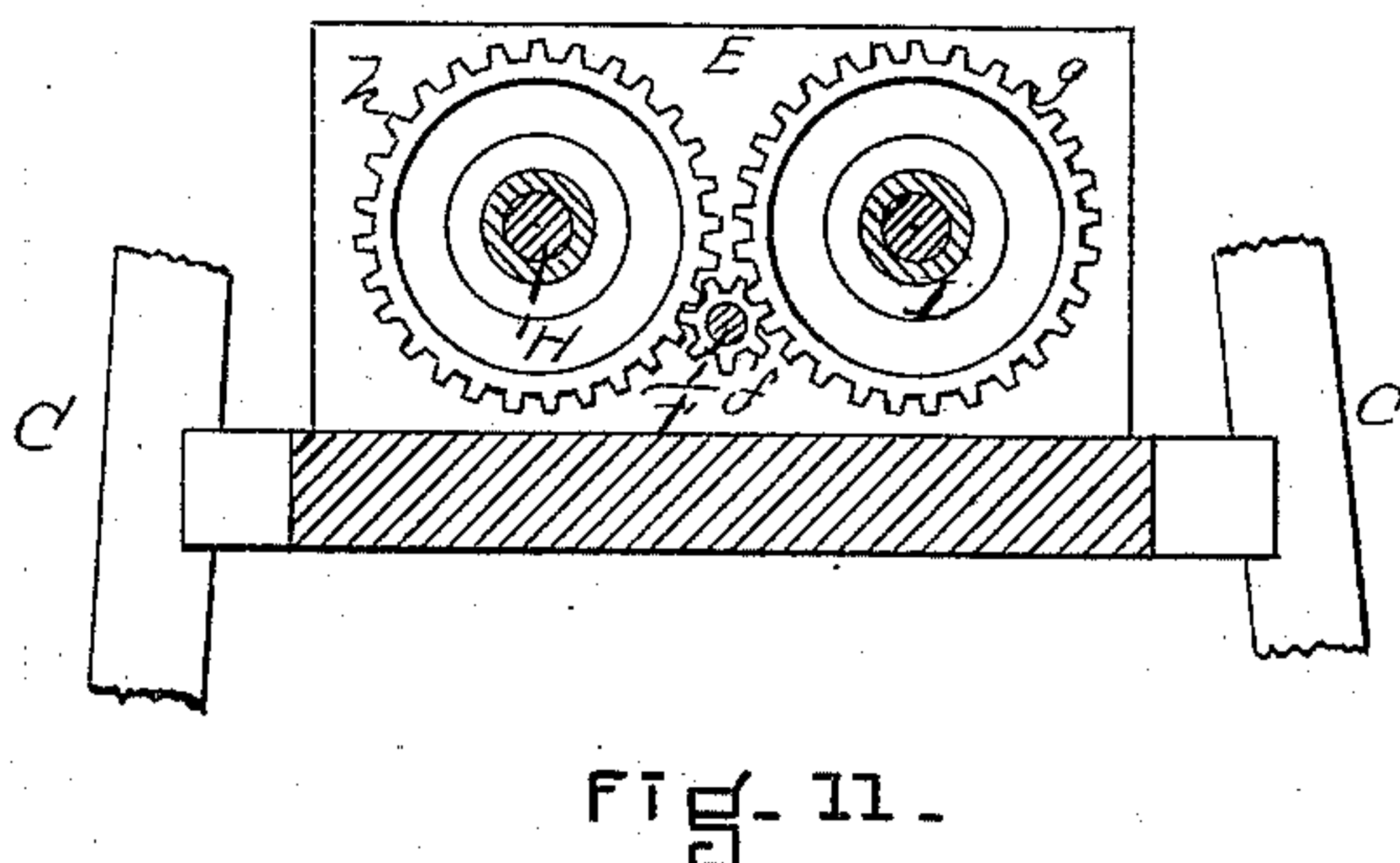
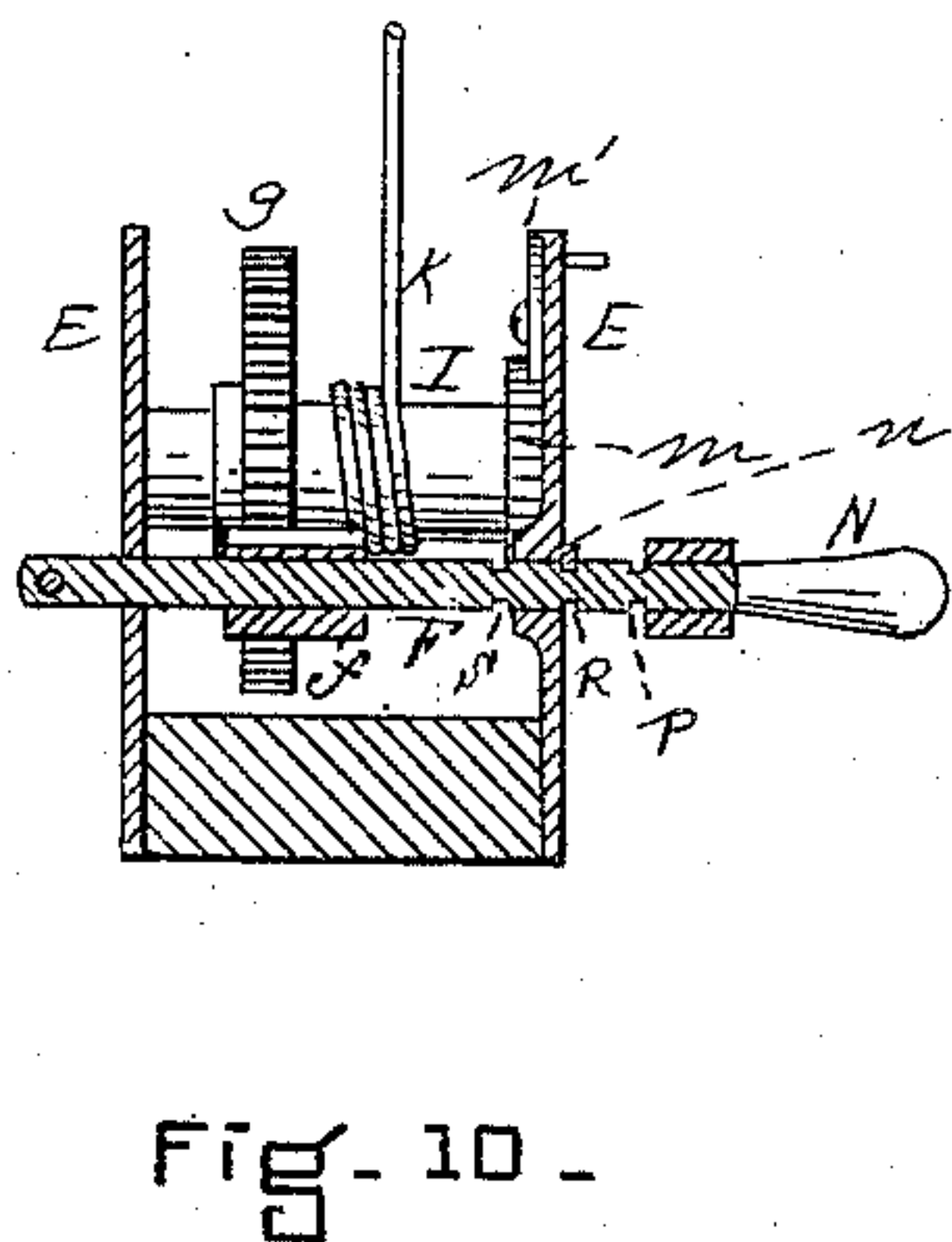
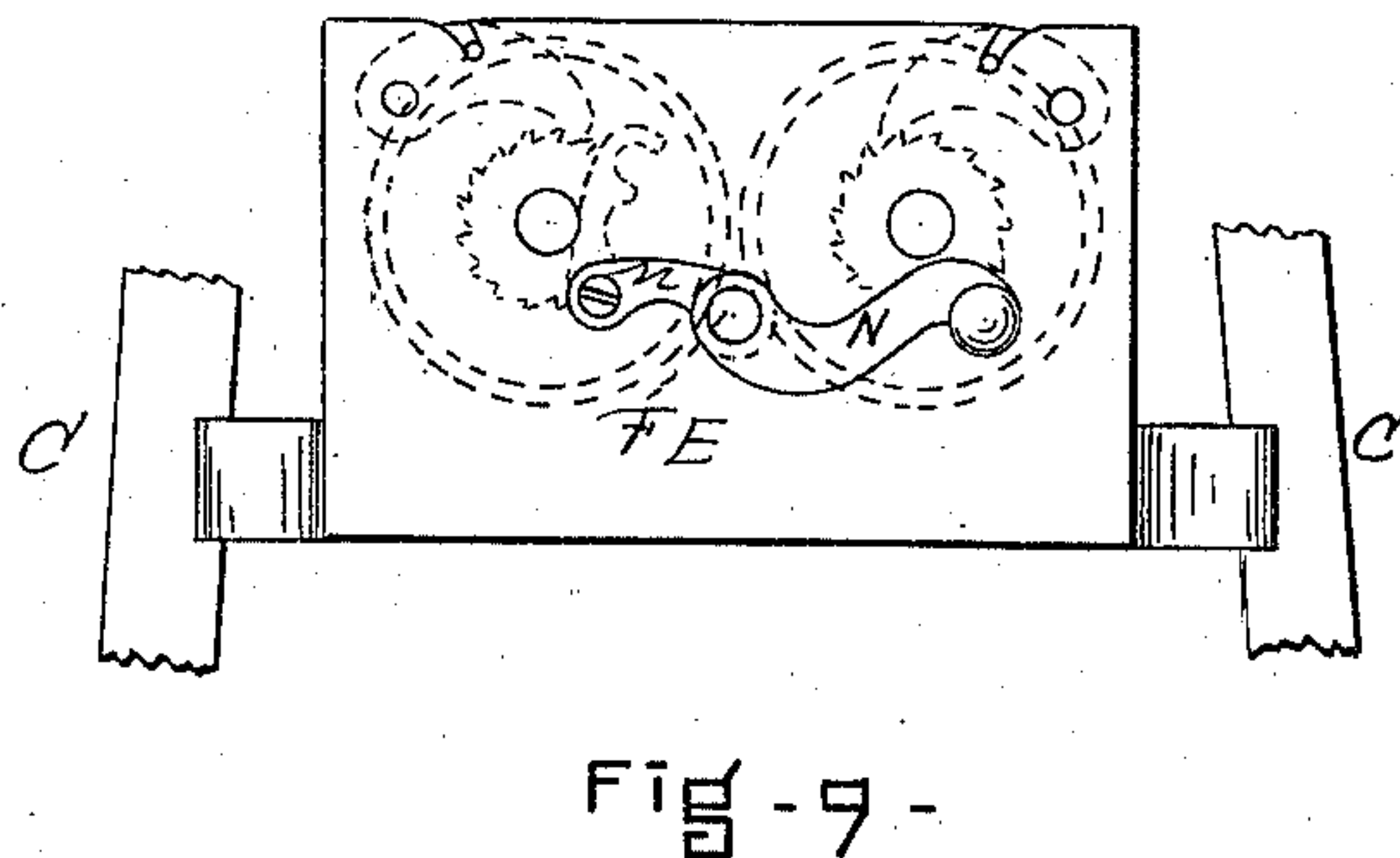
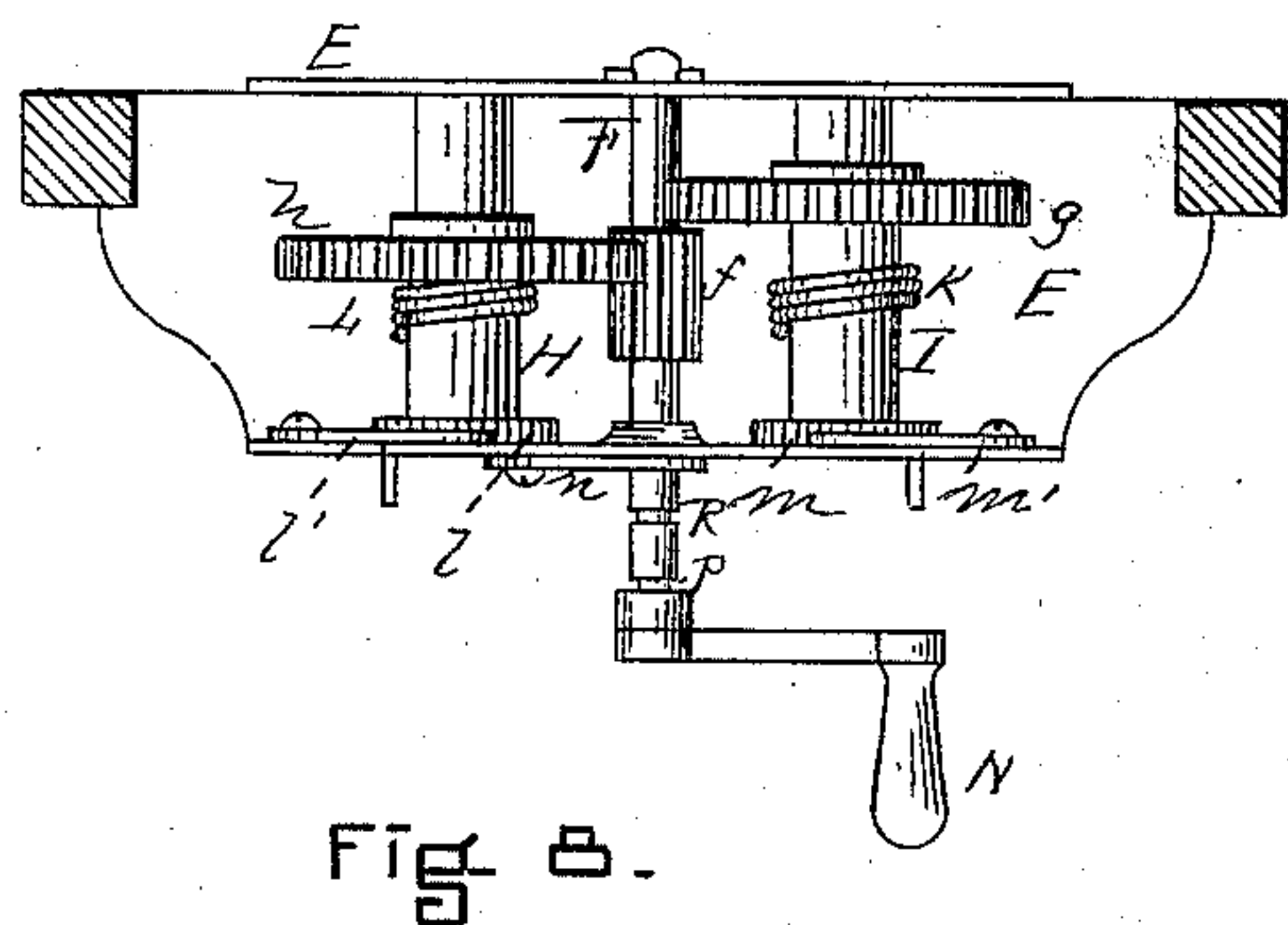
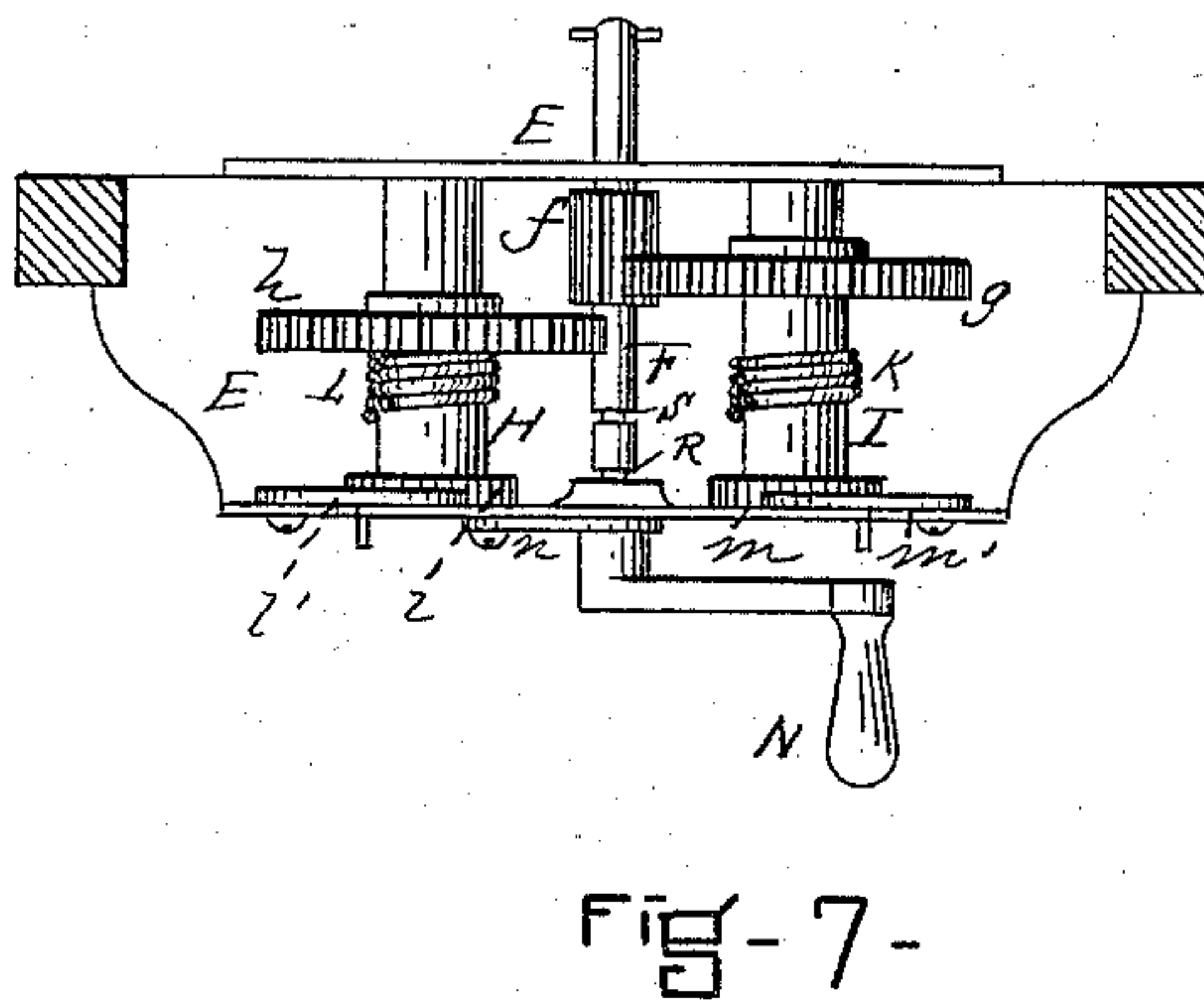
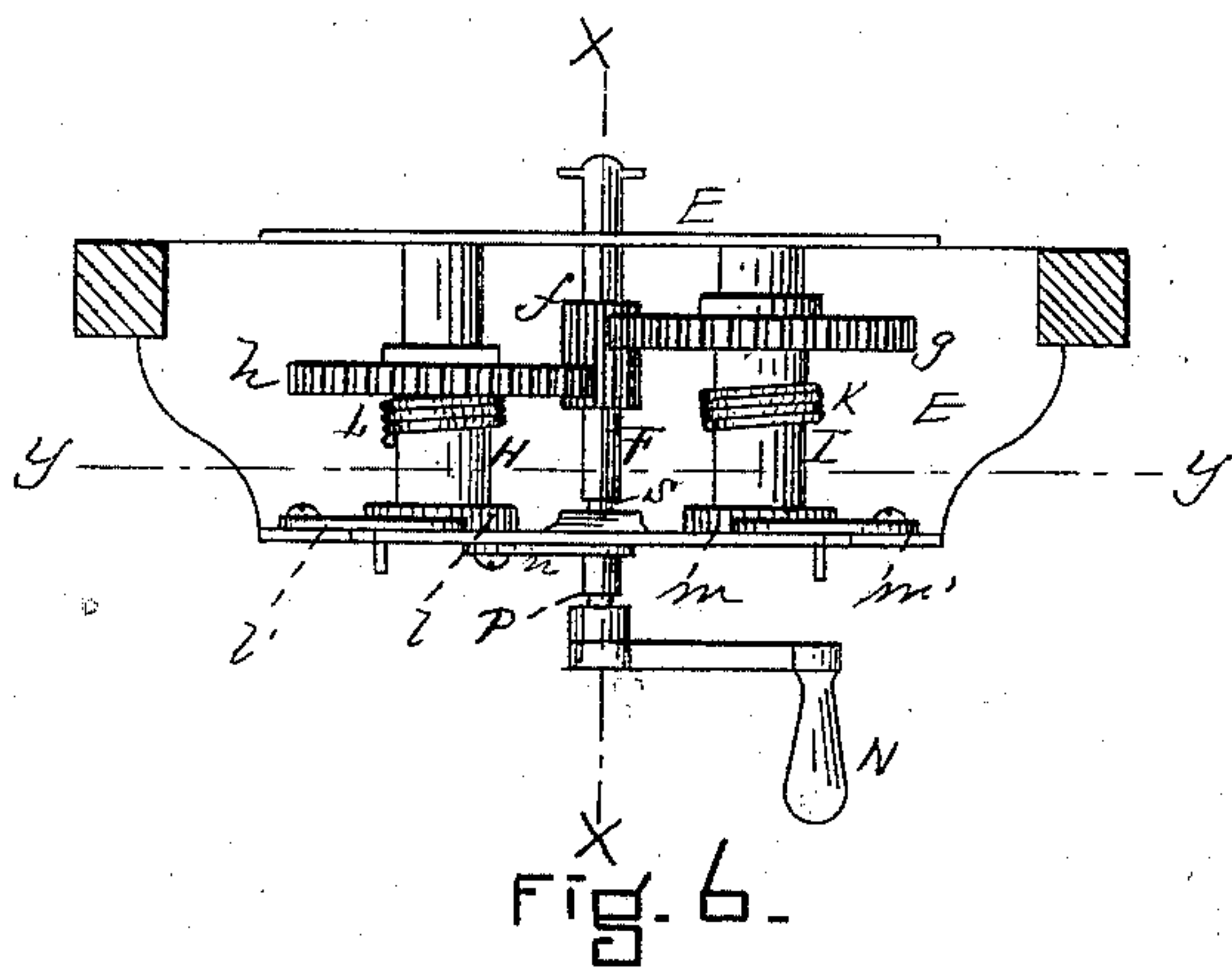
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UNITED STATES PATENT OFFICE.

FRANKLIN F. MARSH, OF WAREHAM, MASSACHUSETTS.

APPLIANCE FOR THE SUPPORT OF INVALIDS.

SPECIFICATION forming part of Letters Patent No. 319,283, dated June 2, 1885.

Application filed February 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN F. MARSH, of Wareham, in the county of Plymouth and State of Massachusetts, have invented new and useful Improvements in Appliances for the Support of Invalids, of which the following is a specification.

This is an improved appliance adapted to be used in connection with but making no part of any bedstead, whereby the invalid or patient may be raised, lowered, placed at various angles and in different positions, for the purposes of resting or benefiting him, changing the bed-clothing, &c., and doing the various necessary acts common to a sick-room with the least possible annoyance or injury to the patient.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a view in perspective of my improved device applied to an ordinary bedstead. Fig. 2 is a plan view of the same. Figs. 3, 4, and 5 are views, the first in end elevation and the last two in perspective, of the stretcher in different positions, fully described below. Figs. 6, 7, and 8 are views of the actuating mechanism in three different positions, below described. Fig. 9 is an end elevation of the actuating mechanism. Fig. 10 is a transverse vertical section on line *x*, Fig. 6. Fig. 11 is a vertical section on line *y*, Fig. 6.

The appliance consists of three parts—viz., the frame, the stretcher, and the mechanism for actuating the stretcher.

The frame-work consists, essentially, of the longitudinal bars *A A'*, the transverse bars *B B'*, and the supporting-legs *C C'*. The bar *B'* is provided with two central horizontal pulleys, *a* and *a'*, and the two end vertically-placed pulleys, *b* and *b'*. The bar *B''* is provided with two central horizontal pulleys, *c c'*, and two end vertical pulleys, *d d'*.

The stretcher consists of the two portions *D* and *D'*, the latter being the head portion, said stretcher being a canvas sheet secured in the ordinary manner to a frame, and adapted to fit into a bed, preferably between the side rails. This stretcher is supplied with rings 1 2 3 4 5 6, or other suitable devices, secured to its sides, as shown, into which hooks can be caught.

The actuating mechanism is as follows: A frame, *F*, is secured to the legs *C*, said frame containing a central horizontal shaft, *F*, to which is rigidly secured the pinion *f*, and two rollers, *H* and *I*, to which are rigidly secured, respectively, the gear-wheels *h* and *g*. A cord, *K*, extends from the roller *I* up over a pulley, *e'*, at the top of the legs *C*; thence, splitting into two cords, *K* and *K'*, the former passes over pulley *a* and pulley *b*; thence down and, again splitting into two cords, *K* and *K''*, catches by means of hooks in the rings 1 and 2. The latter, *K''*, passes over pulleys *a'* and *b'*, and, splitting into cords *K'* and *K'''*, catches by means of hooks in the rings 5 and 6. A cord, *L*, extends from the roller *H* over the pulley *e*; thence, splitting into two cords, *L* and *L'*, the former passes over pulleys *c* and *d*, and is secured to the ring 3, and the latter passes over pulleys *c'* and *d'*, and is secured to the ring 4, as shown. The rollers *H* and *I* are provided respectively with ratchet-wheels *l m* and their pawls *l' m'*, whereby the rollers may be prevented from turning but one way, if desired.

The shaft *F* is loose in its bearings, so as to be capable of endwise movement, is adapted to be operated by the crank *N*, and is provided with the three annular grooves *P R S*, into which the locking-pawl *n*, hinged to the frame *E*, may be dropped, thus holding said shaft in any desired position.

The operation is as follows: The stretcher *D D'* being level and in the position shown in Fig. 1, or resting upon the mattress, to raise it equally all the cords are secured to the rings, as in Fig. 1. The shaft *F* is placed in the position shown in Fig. 6—i. e., with the pinion, which is long enough for the purpose, meshing into both gears *h g*, and the pawl *n* in the groove *R*—and the crank *N* is turned, thus winding the cords *L K* on both rollers *H I*. The pawls *l' m'* hold the stretcher in any position, and the bed beneath may be arranged, &c., or removed entirely without affecting the patient who lies upon the stretcher.

If it is desired to raise one side of the stretcher into the position shown in Fig. 3, for the purpose of more readily moving the patient to one side to change the bed-linen, &c., all the cords are detached from the rings on one side—say the cords *K''' K' L'* from the rings 6 5 4—and

the mechanism placed in the position shown in Fig. 6.

To raise the head portion D' only of the stretcher, as shown in broken lines in Fig. 1, the shaft F is drawn out until the pawl *n* drops into the groove S and the gear *f* meshes in the gear-wheel *h* only, all as shown in Fig. 8. The gear *g* being then inoperative, the only cords that are drawn up are the cords L L', attached to the rings 3 4. The other cords of course may or may not be attached to their rings.

To raise the foot portion D only, as shown in Fig. 4, the cords K'' K' are detached from the rings 2 5, the cords K and K''' are attached to the rings 1 and 6, and the cords L L', if the stretcher lies upon the mattress, may be attached or not, as desired. The shaft F is moved until the pawl *n* drops into the groove P, causing the pinion *f* to engage the gear-wheel *g*, leaving the gear-wheel *h* inoperative, as shown in Fig. 7, and the crank N is operated.

To raise the head and foot portions of the stretcher, leaving the joining edges to sag with the weight of the body, as shown in Fig. 5, all the cords are attached to their rings, save the cords K'' and K', and the mechanism is placed in the position shown in Figs. 6, 10, 11, both the gear-wheels *g h* being engaged by the pinion *f*.

It will readily be seen that the head portion of the stretcher may be first raised by engaging one gear-wheel, and then by engaging both

gear-wheels the whole stretcher may be raised, with the head portion at an angle; also, that any angles, longitudinal or transverse, may be assumed.

By attaching a cord to the eye U, secured to the under side of the frame A A', swinging a limb for the treatment of surgical diseases and injuries may be accomplished.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the frame-work A A' B B' B'', provided with the horizontal pulleys *a a' c c'* and the vertical pulleys *b b' d d' e e'*, the supporting-legs C C', the jointed stretcher D D', and detachable supporting-cords extending from said stretcher over said pulleys, all constructed and arranged substantially as and for the purpose set forth.

2. The combination, with the frame-work A A' B B' B'' C C', provided with the pulleys *e' a a' b b'*, of the cord K, split into the cords K K' between the pulleys *e'* and *a a'*, and again split into the cords K K'' between the pulley *b* and the stretcher, and into the cords K' K''' between the pulley *b'* and the stretcher on the other side, substantially as and for the purpose described.

FRANKLIN F. MARSH.

Witnesses:

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JOSEPH ISHBAUGH.