

No. 607,450.

Patented July 19, 1898.

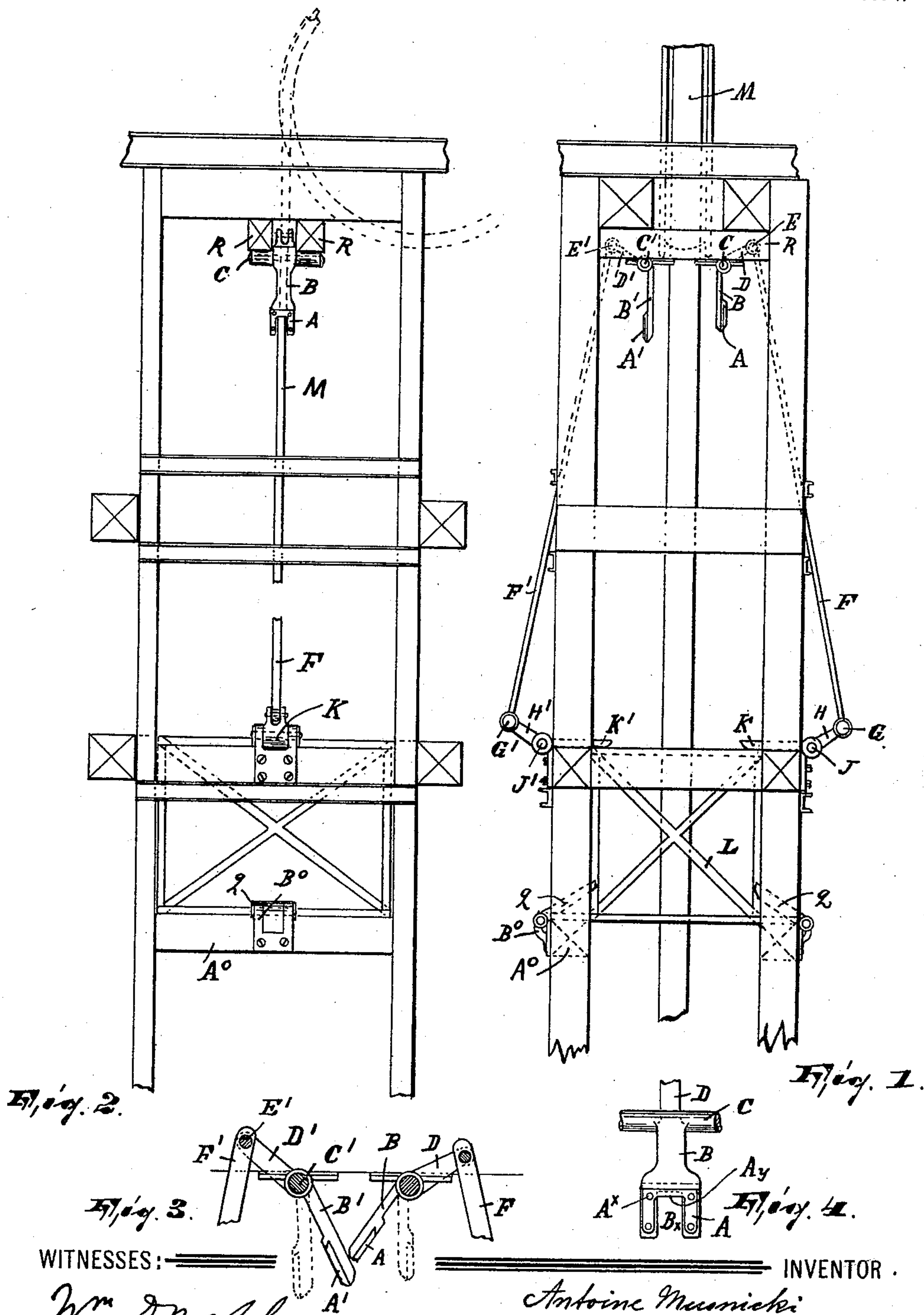
A. MUSNICKI.

AUTOMATIC SAFETY DEVICE FOR LIFTS, HOISTS, &c.

(Application filed Nov. 29, 1897.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

Wm. Drell.
Louise Snyder.

INVENTOR .

Antoine Musnicki

BY *Sartner & Co*
ATTORNEYS.

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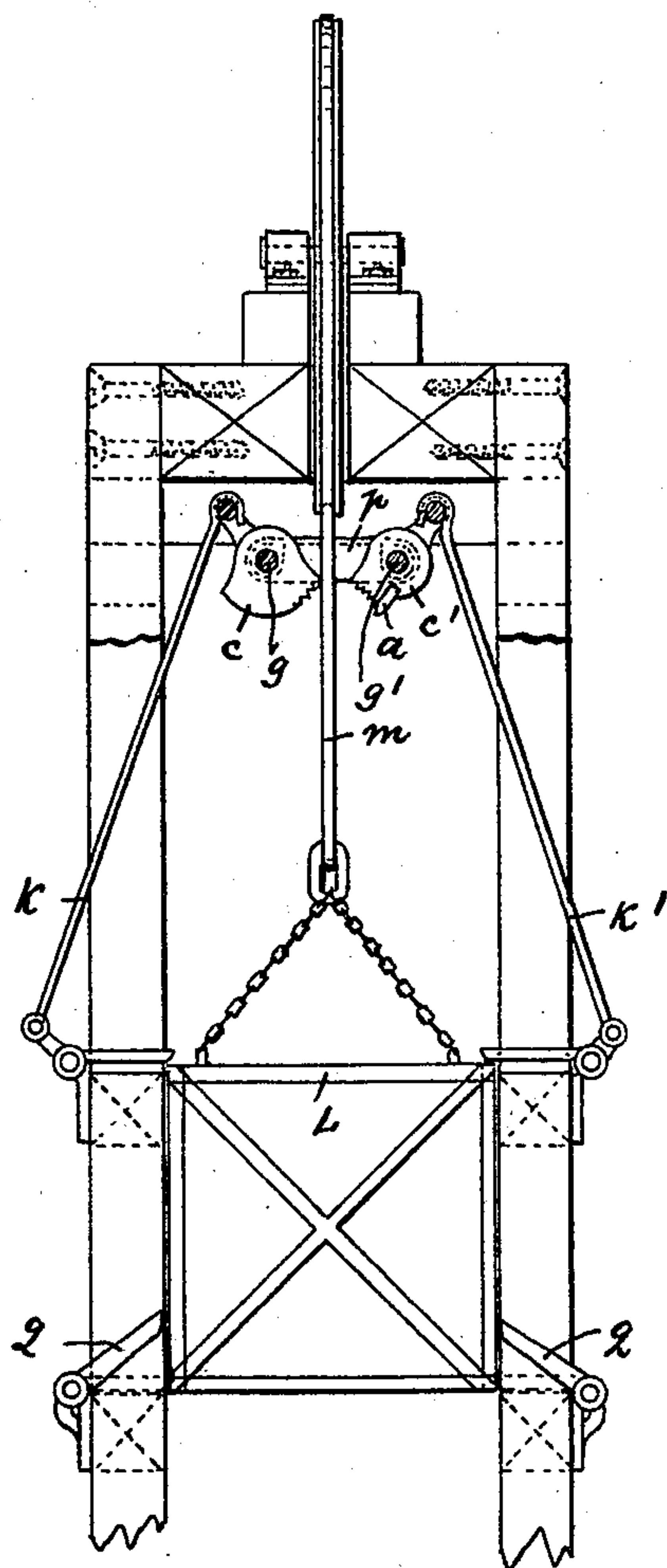


Fig. 5.

WITNESSES:

INVENTOR

Wm. J. Bell.
Louise Snyder.

Antoine Musnicki

BY *Partner & Co*
ATTORNEYS

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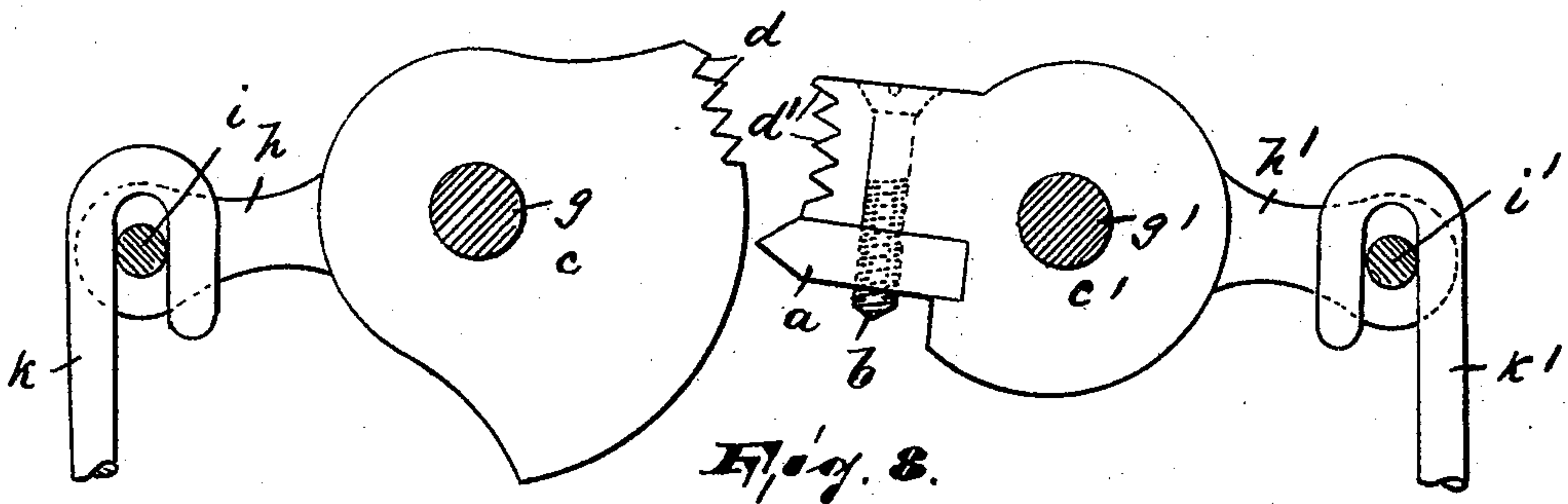
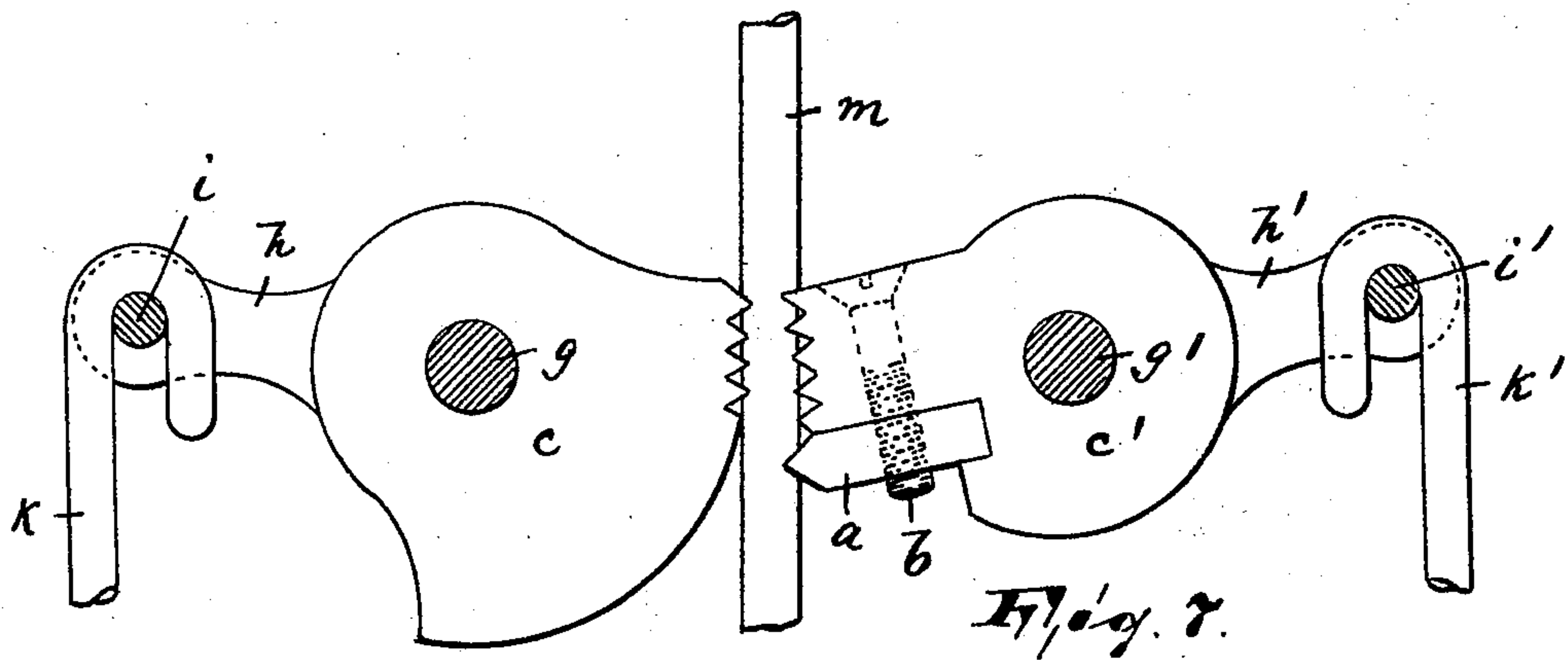
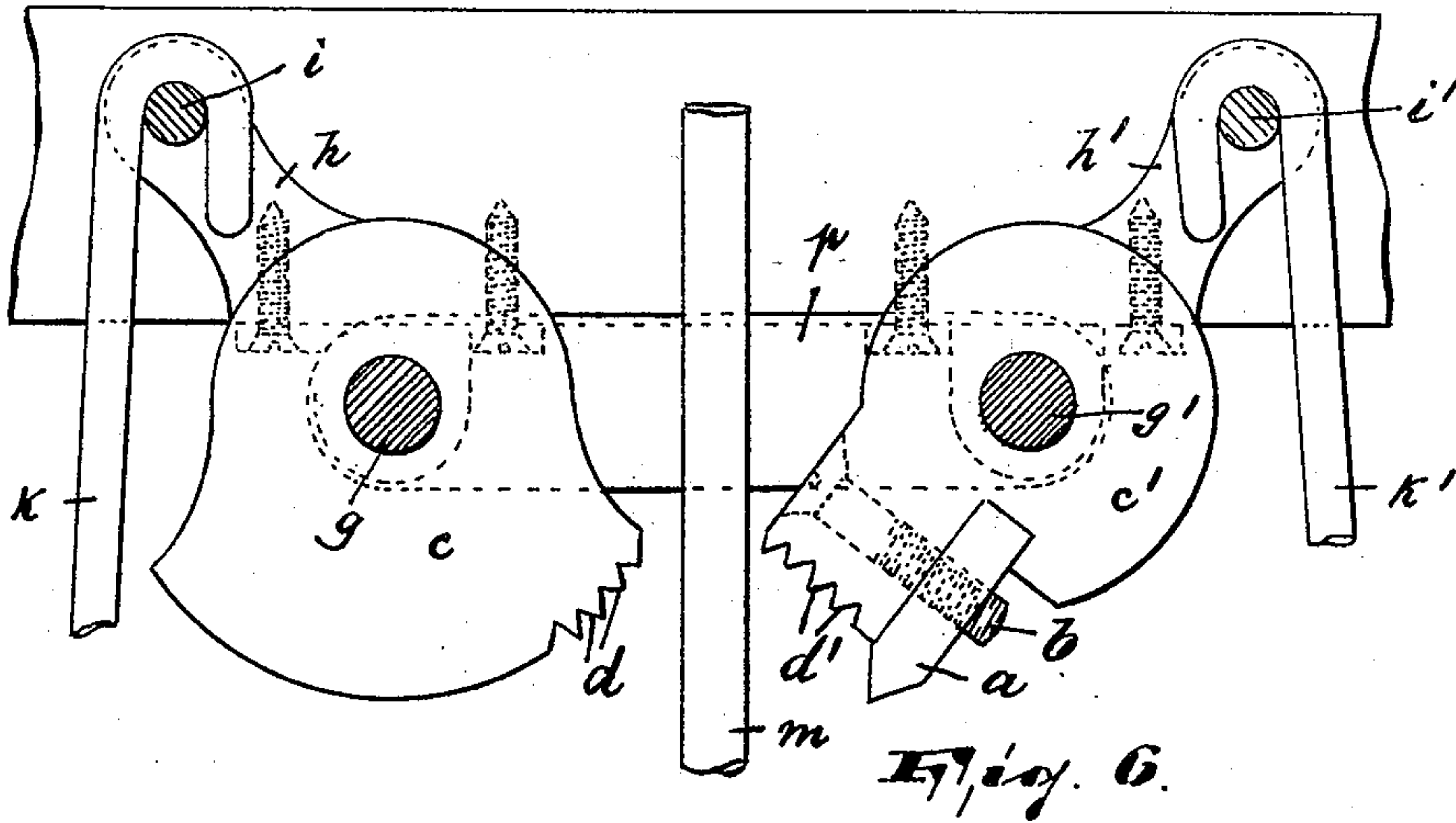
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3 Sheets—Sheet 3.



WITNESSES:

Wm. D. Bell.
Louise Snyder.

INVENTOR:

Antoine Musnicki

BY Partner & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

ANTOINE MUSNICKI, OF BRUSSELS, BELGIUM.

AUTOMATIC SAFETY DEVICE FOR LIFTS, HOISTS, &c.

SPECIFICATION forming part of Letters Patent No. 607,450, dated July 19, 1898.

Application filed November 29, 1897. Serial No. 660,061. (No model.)

To all whom it may concern:

Be it known that I, ANTOINE MUSNICKI, a citizen of Russia, residing at 7 Rue Pasteur, in the city of Brussels, Kingdom of Belgium, have invented certain new and useful Improvements in Automatic Safety Devices for Lifts, Hoists, and the Like, of which the following is a specification.

The object of this invention is to provide simple and effective means for automatically cutting the cable of the cage in a shaft when said cage in its ascent passes beyond a certain designated point to prevent said cage from striking with its top against the frame at the entrance to the shaft and to thus avoid accidents.

The invention consists in the improved automatic safety device and in the combination and arrangement of the various parts thereof, substantially as will be hereinafter more fully described, and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several views, Figure 1 is an elevation of the upper portion of the framework of a shaft and of the cage and provided with my improved safety device, the cable illustrated in said figure being a flat cable made of hemp or the like; Fig. 2, a side elevation of Fig. 1 with certain parts broken away; Fig. 3, an enlarged detail view of the cable-cutting knives, more clearly illustrating their relative position; Fig. 4, a detail rear elevation of one of the knives and its holder as shown in Fig. 3; Fig. 5, a view similar to Fig. 1 embodying a slight modification of my improvements; Fig. 6, an enlarged detail front elevation of the cable-cutting means illustrated in Fig. 5, and Figs. 7 and 8 detail views showing the position of said cutters in two successive stages of operation.

In said drawings, Figs. 1 to 4, inclusive, A A' represent two knives or blades arranged, in a manner hereinafter described, in holders B B', pivotally secured, as at C C', to the cross-bars R R of the framework of the shaft and at a place below the entrance to the latter.

The holders B B' are arranged opposite each other and on each side of the cable M and are provided with arms D D', having their free ends pivotally connected, as at E E', with the

upper portions of the downwardly-extending rods F F'. The lower portions of said rods F F' are pivotally connected, as at G G', to the shorter arms H H' of angle-levers K K', suitably fulcrumed, as at J J', to one of the bars constituting the framework of the shaft and having their longer arms arranged in the path of the cage L. Below each of the last-mentioned angle-levers and pivotally secured to the outer portion of a cross-bar A° is a stop or arm q, controlled by a flat spring B° and normally in the path of the cage L. Said stops or arms q q are adapted to form a rest for the cage when the latter is descending after the cable has been cut.

The holder B is fork-shaped at its lower portion, as at B^x, and the knife or blade A is substantially U-shaped and is secured to the fork-shaped portion B^x by means of bolts A^x or in any desired manner. The inner cutting edge A^y of the knife A projects downward beyond the inner edge of the center part of the fork-shaped portion B^x, all as clearly illustrated in Fig. 4 of the drawings.

The holder B' and its knife A' are of similar construction, except that the said holder is longer than the holder B to thus give the latter clearance when the knives are in operation—that is to say, the holders B and B' and their knives A and A' engage and cut the cable at two different but adjacent places. (See Fig. 3.)

When the cage in its ascent engages the longer arms of the angle-levers K K', the said angle-levers are operated—that is to say, their shorter arms H H' are swung downward—whereby, through the connecting-rods F F', the knives A A' are moved into the position illustrated in full lines in Fig. 3—that is to say, the forked portions of the holders B B' surround the cable M, while the knives or blades A A' are forced into the said cable and the latter is thus cut, as will be manifest. The cage by its own weight will descend until its bottom portion rests upon the stops q q. The cage is thus prevented from striking with its top against the framing constituting the entrance to the shaft, which otherwise would occur in case the cable would not have been cut through and the machine for winding up the cable would not have been stopped in time.

In the modification illustrated in Figs. 5 to 8, inclusive, two disks $c c'$ are fulcrumed on the respective axles $g g'$, which latter are parallel with each other and are carried by cross-bars $p p$, secured to and connected with the framework of the shaft in any desired manner. The disks are provided with arms $h h'$, carrying at or near their free ends pins $i i'$, in engagement with the hook-shaped upper portions of the downwardly-extending rods $k k'$. The lower portions of said rods $k k'$ are connected to fulcrumed angle-levers (operated by the cage L) in precisely the same manner as described in connection with the lower portions of the rods F F' in Fig. 1. The disks $c c'$ are provided at their inner edges with a series of teeth $d d'$, respectively adapted to engage the round wire cable m , whenever said disks $c c'$ are being operated through the downward pulling of the rods $k k'$. One of the disks (in the drawings c') carries a knife-blade a , secured to said disk by means of a bolt b or in any desired manner, and is adapted to cut the cable m whenever the toothed portions of the disks $c c'$ have engaged the said cable and are turned or pulled upward by the latter. This position is illustrated in Fig. 7, while in Fig. 8 is shown the position of the disks after the cable has been cut. On account of the hook-shaped connection of the rods $k k'$ with the horizontally-projecting pins $i i'$ the latter have a certain play or independent movement, (see Fig. 8,) which is necessary to prevent the bending of said rods $k k'$ while the disks $c c'$ are moved up, by means of the cable m , to their uppermost position.

The operation of the device illustrated in Figs. 5 to 8, inclusive, is identical with that described in connection with Figs. 1 to 4.

I do not intend to limit myself to the precise constructions shown and described, as various alterations can be made without changing the scope of my invention; but

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

1. In a safety device for lifts, hoists and the like, the combination with the framework, the cage and with the cable carrying said cage, of angle-levers fulcrumed to the framework at opposite sides of the cage and having their longer arms in the path of the latter, upwardly-extending rods pivotally connected with their lower portions to the shorter arms of the respective angle-levers, cutting means on each side of the cable and fulcrumed on the framework, and an arm projecting from each cutting means and pivotally connected with the upper portion of its respective rod, substantially as and for the purposes described.

2. In a safety device for lifts, hoists and the like, the combination with the framework, the cage and with the cable carrying said cage, of angle-levers fulcrumed to the framework at opposite sides of the cage and having their longer arms in the path of the latter, upwardly-extending rods pivotally connected with their lower portions to the shorter arms of the respective angle-levers, cutting means on each side of the cable and fulcrumed on the framework, an arm projecting from each cutting means and pivotally connected with the upper portion of its respective rod, and spring-controlled stops fulcrumed on the framework and below the angle-levers and extending into the path of the cage, substantially as and for the purposes described.

3. In a safety device for lifts, hoists and the like, the combination with the framework, the cage and with the cable carrying said cage, of angle-levers fulcrumed on the framework at opposite sides of the cage and having their longer arms in the path of the latter, upwardly-extending rods pivotally connected with their lower portions to the shorter arms of the respective angle-levers, disks on opposite sides of the cable and fulcrumed on the framework and provided at their inner portions with series of teeth, a cutting-knife carried by one of said disks, and an arm projecting from each of said disks and pivotally connected with the upper portion of its respective rod, substantially as and for the purposes described.

4. In a safety device for lifts, hoists and the like, the combination with the framework, the cage and with the cable carrying said cage, of angle-levers fulcrumed to the framework at opposite sides of the cage and having their longer arms in the path of the latter, upwardly-extending rods pivotally connected with their lower portions to the shorter arms of the respective angle-levers, disks on opposite sides of the cable and fulcrumed on the framework and provided at their inner portions with series of teeth, a cutting-knife carried by one of said disks, an arm projecting from each of said disks and pivotally connected with the upper portion of its respective rod, and spring-controlled stops fulcrumed on the framework and below the angle-levers and extending into the path of the cage, substantially as and for the purposes described.

In testimony whereof I have hereto set my hand in the presence of the two undersigned witnesses.

ANTOINE MUSNICKI.

Witnesses:

ALFRED WUNDERLICH,
GREGORY PHELAN.