

(No Model.)

2 Sheets—Sheet 1.

R. J. WILSON.
AUTOMATIC ELEVATOR STOP.

No. 559,879.

Patented May 12, 1896.

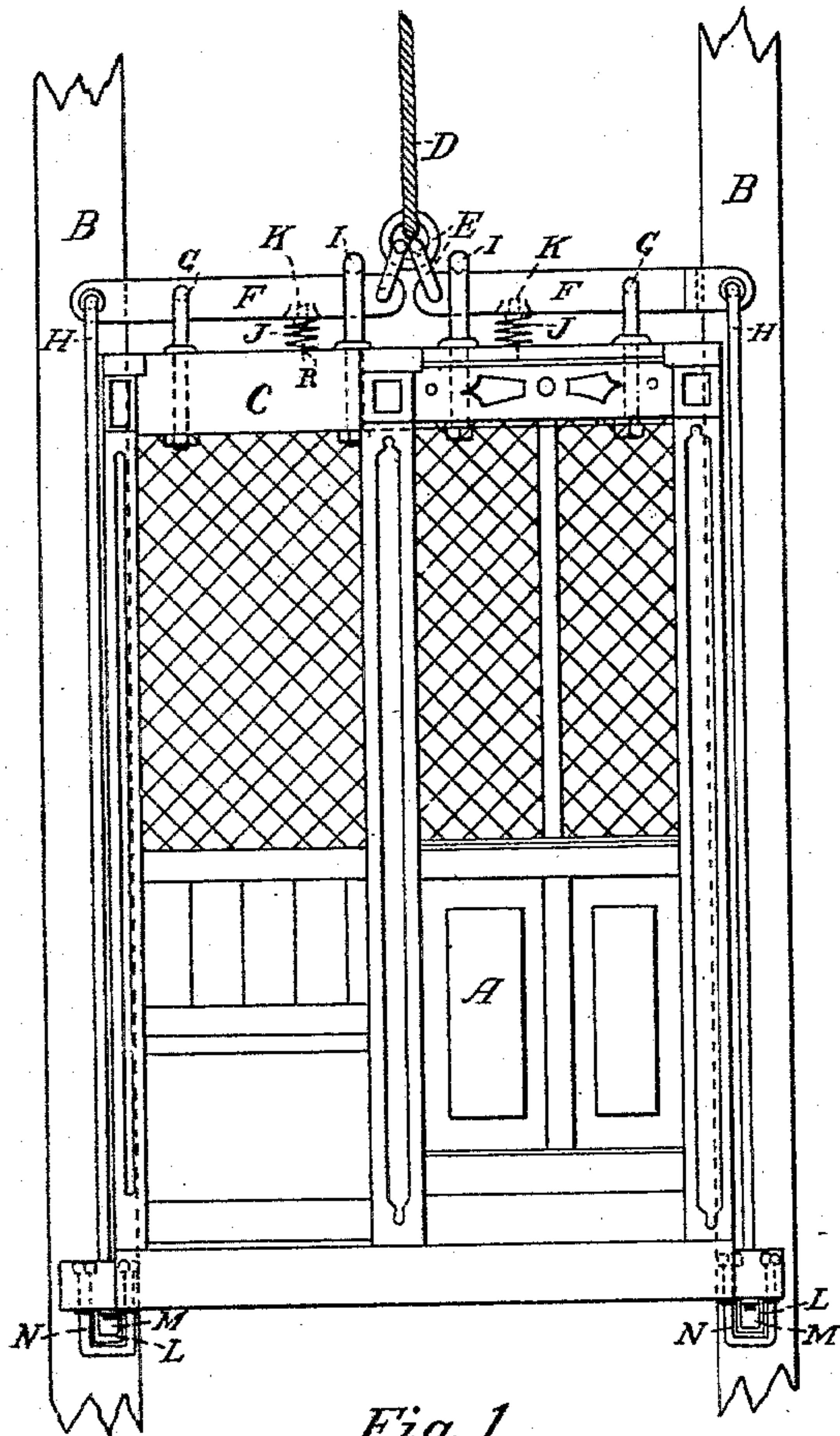


Fig. 1

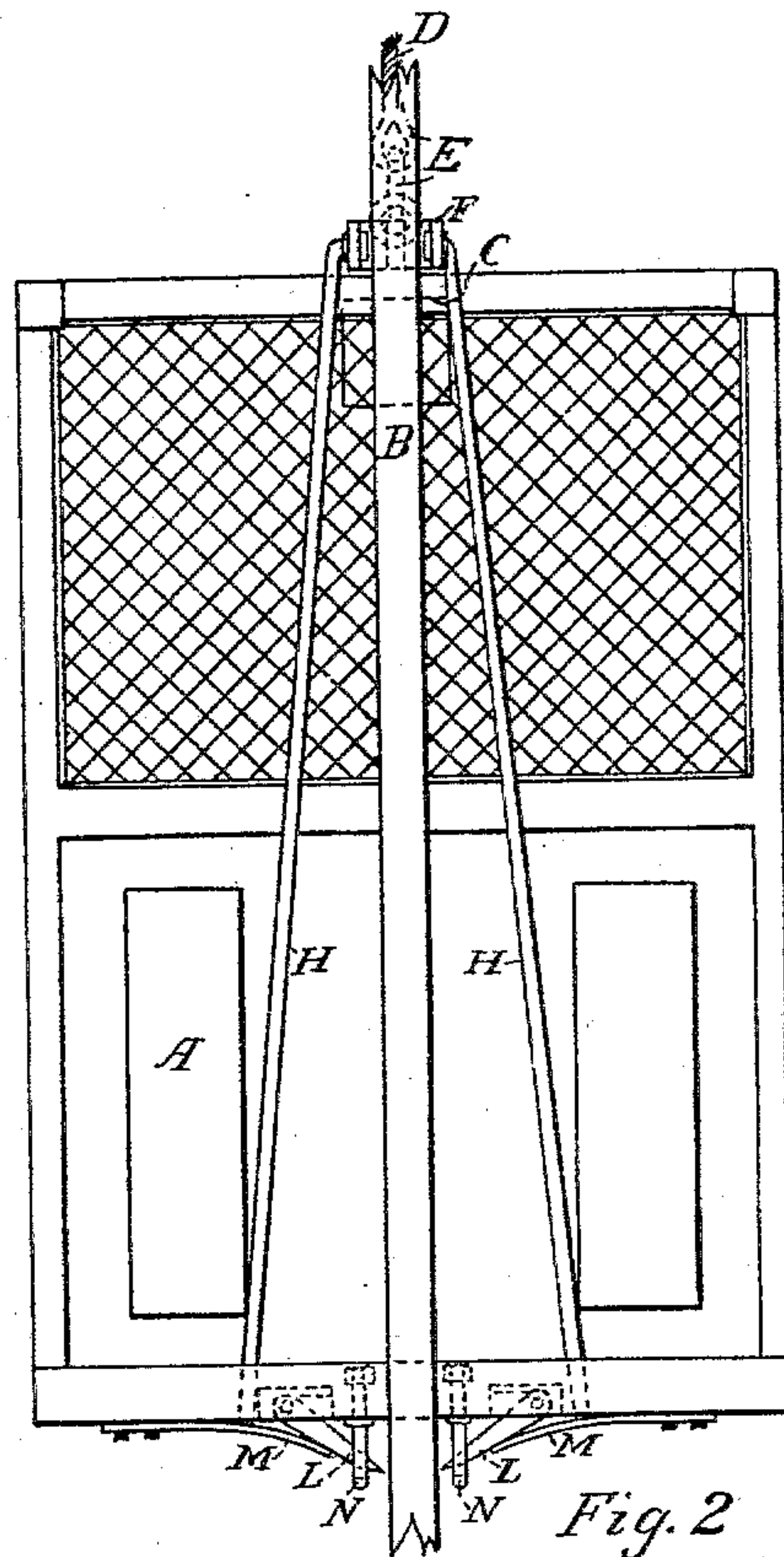


Fig. 2

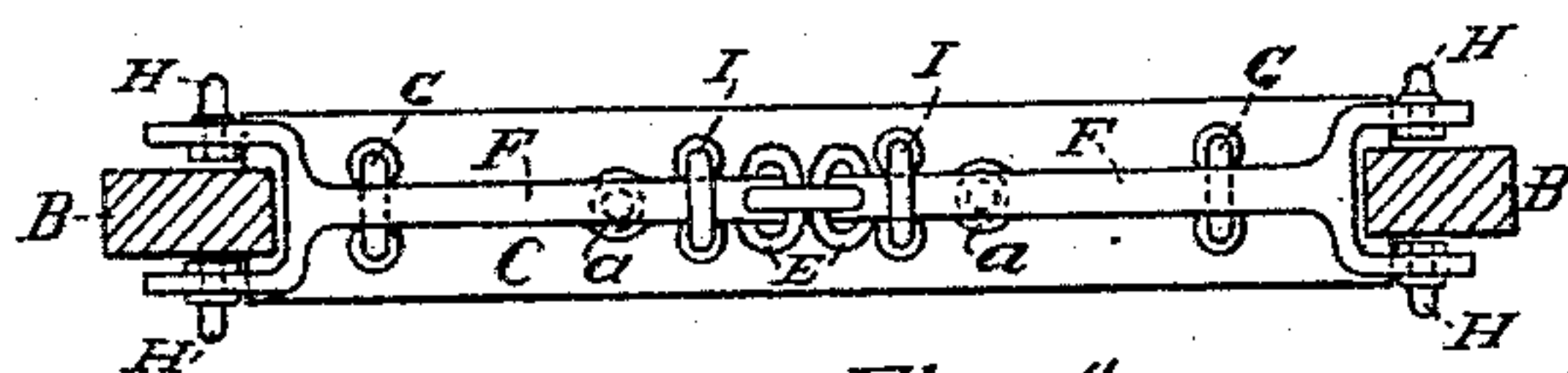


Fig. 4

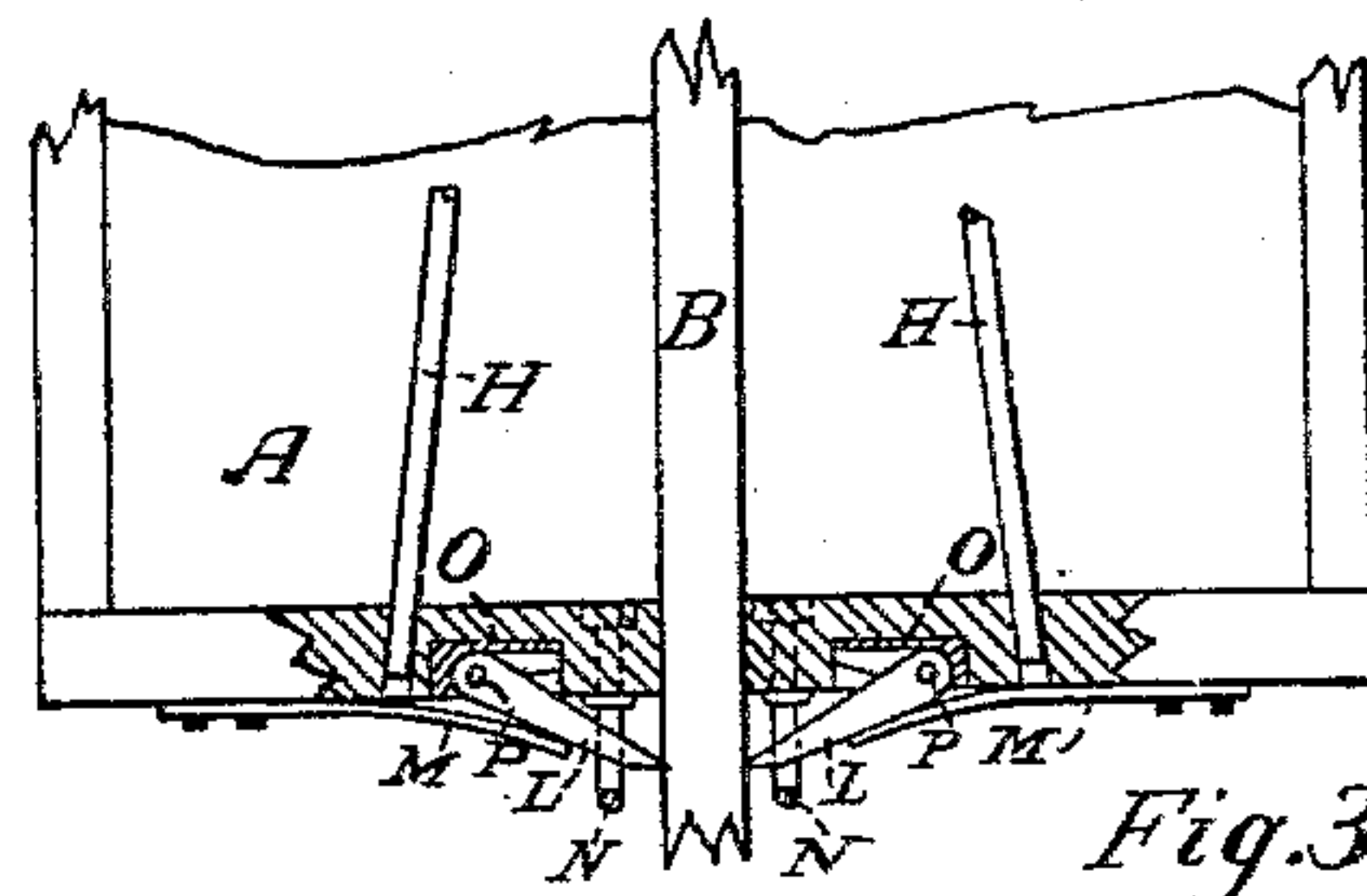


Fig. 3

Witnesses
Frank E. Adams
Erik Frisch

Inventor
Robert J. Wilson

(No Model.)

2 Sheets—Sheet 2.

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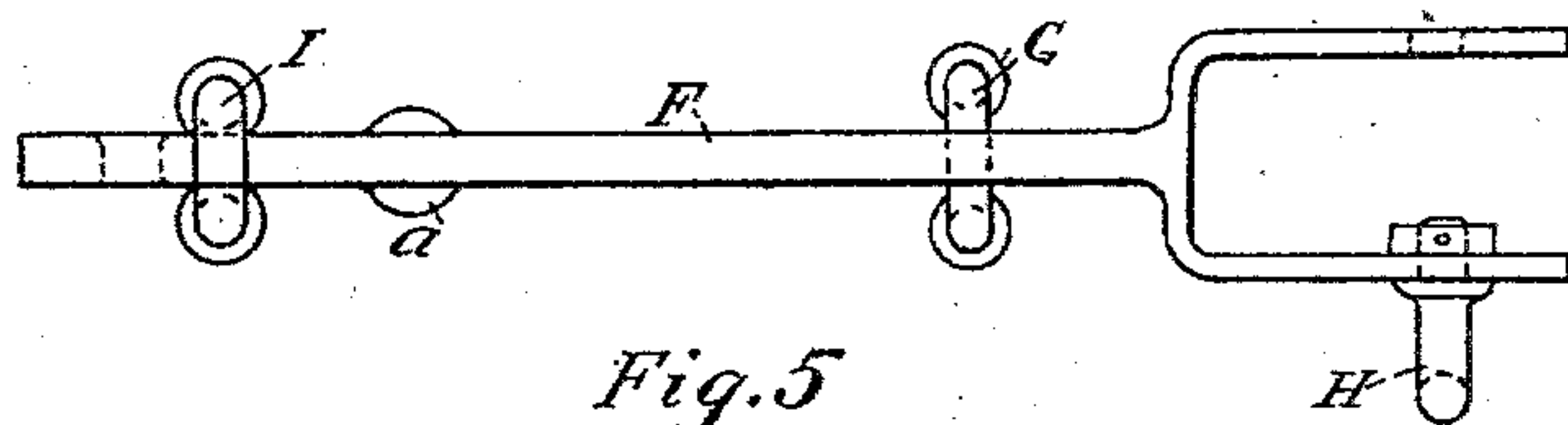


Fig. 5

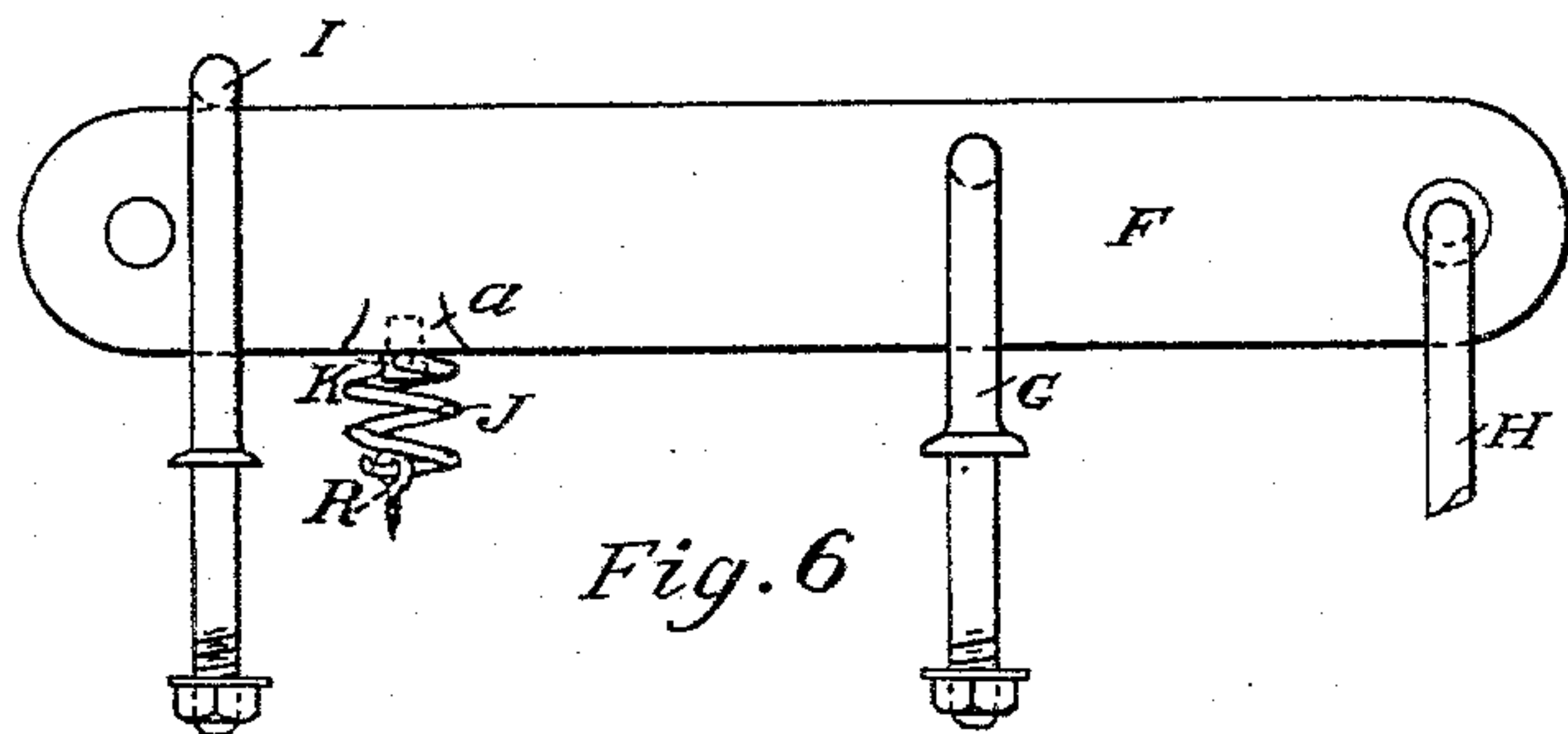


Fig. 6

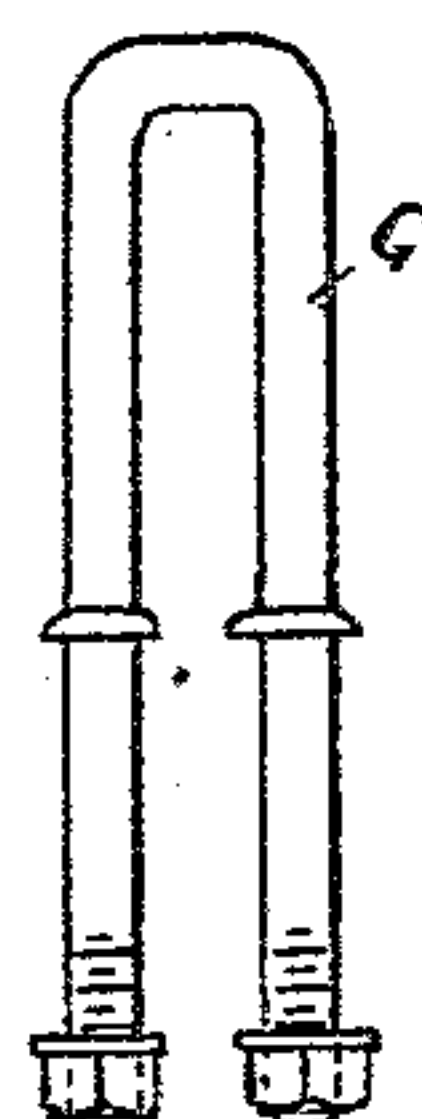


Fig. 10

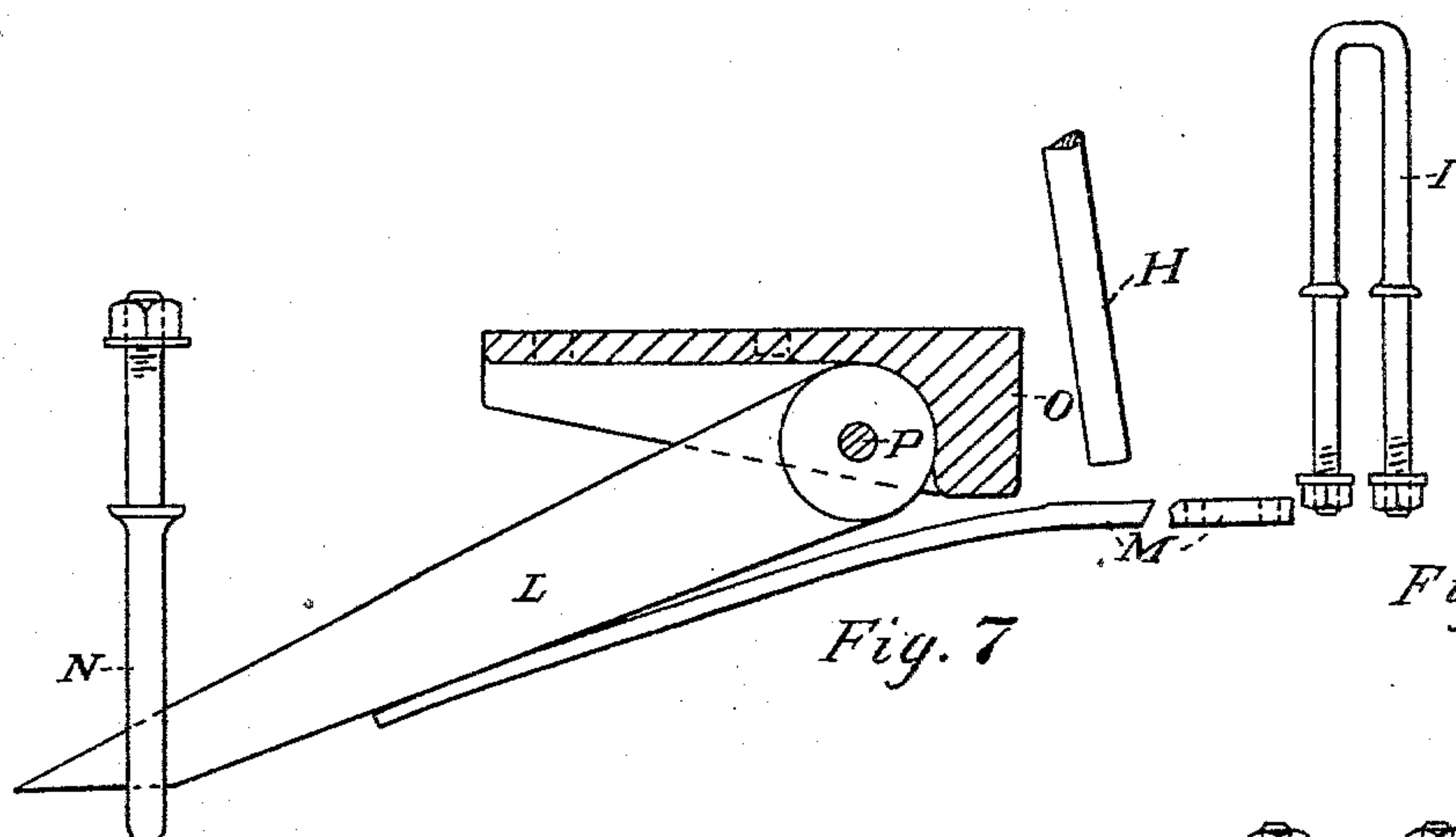


Fig. 7

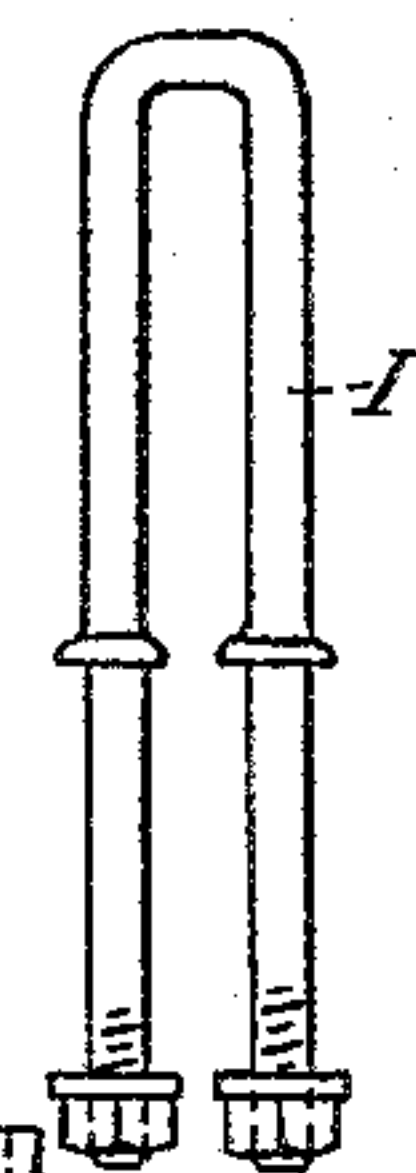


Fig. 11

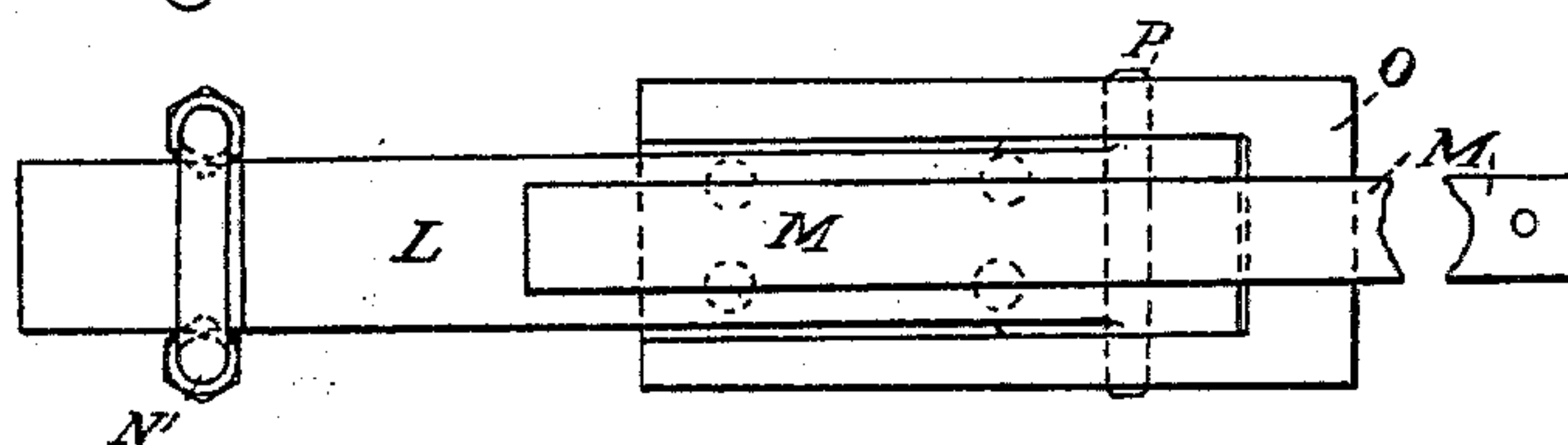


Fig. 8

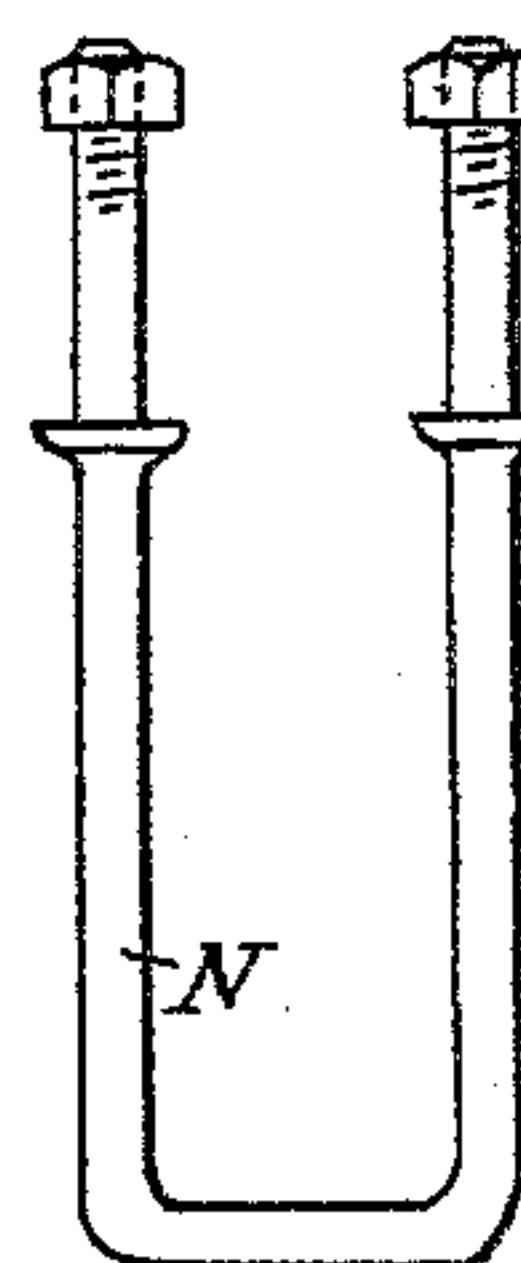


Fig. 12



Fig. 9

Witnesses
Frank E. Adams
Erik Frisch

Inventor
Robert J. Wilson

UNITED STATES PATENT OFFICE.

ROBERT J. WILSON, OF SEATTLE, WASHINGTON.

AUTOMATIC ELEVATOR-STOP.

SPECIFICATION forming part of Letters Patent No. 559,879, dated May 12, 1896.

Application filed March 20, 1895. Serial No. 542,491. (No model.)

To all whom it may concern:

Be it known that I, ROBERT J. WILSON, a citizen of the United States, residing in the city of Seattle, in the county of King and State of Washington, have invented an automatic elevator-stop for checking, stopping, and preventing the car in elevators from falling in case the rope or cable or any of the appliances by which the car is operated should break; and I do hereby declare that the following is a full, clear, and exact description of my invention, which will enable others skilled in the art to which it pertains to make use of the same.

My invention is intended to prevent the falling or dropping of the car in elevators by the breaking of the cable or rope lifting the car or by the breaking or other accident to any of the machinery of the elevator.

My invention is illustrated by the accompanying drawings, consisting of two sheets and twelve figures.

Figure 1 is a front elevation of the car and the elevator-shaft. Fig. 2 is a side elevation of the car. Fig. 3 is a side elevation, partly in section, of the lower end of the car, showing the position of the parts when the hoisting-rope has broken. Fig. 4 is a plan view of the upper beam of the car and the parts connected therewith. Figs. 5 to 12, inclusive, are views of the details hereinafter referred to.

In the foregoing figures the various parts are designated by letters, as already intimated.

The same letters represent similar parts in the various figures.

In this invention the elevator cable or rope D is fastened to a ring, which is connected by two links E E, Figs. 1 and 4, with the two levers F F, Figs. 1, 4, and 6. These levers are forked at the outer end, and to each of the two fingers of each of the two levers are attached iron rods H H, Figs. 1, 2, 5, and 6. These rods H H, four in number, extend downward at an incline at the sides of the car and through the beams on each side of the car, Figs. 1, 2, 3, and 6. The lower ends of the rods H H rest on steel springs M M, Figs. 2, 3, and 7, and when the inner ends of levers are raised by rope or cable D (when elevator is in operation) the rods H H are forced down and act directly on the steel springs M M,

which are forced down, allowing the dogs L L to fall clear of the guides B B, Fig. 2.

The levers F F, Figs. 1, 4, 5, and 6, work on the fulcrum-staples G G, Figs. 1, 4, 5, 6, and 10, which may be either ordinary staples or staples made in two parts, so that after the fulcrum-pinion has been run through the hole in the lever it can be screwed or fastened to the other portion of the staple. The inner ends of the levers, or the ends to which rings and links are attached, rest in lift-staples I I, Figs. 1, 4, 5, 6, and 11. On these lift-staples rests nearly the whole weight of the car with load. When the inner ends of the levers are pulled upward by rope or cable, when elevator is in operation, the top of the levers will rest against the under side of the cross-piece of the lift-staples.

Between the bottom side of the levers F F and top of car, near the lift-staples I I, are spiral springs J J, Figs. 1 and 6, the lower ends of which are securely fastened to cross-beam C at top of car and the upper ends of which are securely fastened to lower side of levers F F. In case of the release of strain on levers by the breaking of the rope or on account of any other accident to the lifting apparatus the springs J J will pull the inner ends of levers down toward the top of the car. When the inner ends of the levers are thus pulled down, the outer ends of the levers are raised, thereby lifting the rods H H from the springs M M, Fig. 3. The springs M M, being thus released, will instantly press the dogs L L upward, and the points of the dogs will catch in the car-guides B B, Fig. 3. The weight of the car resting on the sockets O O, Figs. 2, 3, 7, and 8, upon the pins P P of the dogs, Figs. 2, 3, and 7, will force the points of the dogs into elevator-guides B B, thus stopping and holding the car, Fig. 3. The points of the dogs are guided and held in position by means of staples N N, Figs. 2, 3, 7, 8, and 12.

When car is again started, the cable D, Figs. 1 and 2, fastened to the levers F F, Figs. 1 and 2, by means of the ring and links E E, Figs. 1 and 4, will lift the inner ends of levers F F upward until the same rest against the top of lift-staples I I, Figs. 1, 4, and 6, and the levers, working on their fulcrum-staples G G, Figs. 1, 4, 5, and 6, will force rods H H, connected with levers, downward, press-

ing the same against steel springs M M, Figs. 2, 3, 7, and 8, and thus forcing the steel springs down, thereby releasing the dogs L L, Figs. 2, 3, 7, and 8. As the car is lifted the dogs L L, being released from the pressure, will be pulled out of the elevator-guides B B, Figs. 1, 2, and 3, and, by gravity, drop down and rest on steel springs M M, as shown in Figs. 2 and 7.

10 In Fig. 9 is shown a modified form of dog used in elevators having iron guides, in which case the dog is formed, as shown, with a wedge-shaped point instead of with a chisel-shaped point.

15 I claim—

1. An automatic elevator-stop, consisting of the combination of the car, the hoisting cable or rope D, a ring and links E E, levers F F, spiral springs J J, rods H H, steel springs M M and dogs L L, constructed and operated substantially as set forth.

2. The combination of the car A, and car-guides B B, the hoisting cable or rope D, with two levers F F over top of the elevator-car, used as lifting-bars for the car, with fulcrum-staples G G upon which said two levers work, and such levers, working through their respective lift-staples, I I, for the purpose of lifting the car and with spiral springs J J, attached to the bottom side of the levers at a suitable distance from the inner ends of such levers, and such spiral springs firmly fastened by means of a bolt or screw to the top of the car, for the purpose of pulling the levers down toward the top beam C of elevator-car when the strain upon the cable or rope lifting the car, is for some cause released, and with four rods, one each connected with the two forked outer ends of each of the two levers F F, and extending downward at an incline, at the side of the car, and through the beams on each side of the car, the steel springs M M at the bottom of the car on which the lower ends of said rods H H rest, which springs when the car is in operation, are held down by the rods H H pressing thereon, and dogs

L L which normally are inactive, but which when the strain on the hoisting-rope is slackened, will be pressed by springs M M into engagement with the car-guides B B.

3. The combination of the elevator-car A, car-guides B B, hoisting-rope D, levers F F pivoted on staples G G, lifting-staples I I, rods H H connected with the outer ends of levers F F and extending at an incline downward, steel springs M M on which rods H H rest and press them downward when the car is in operation, dogs L L pivoted in sockets O O in the lower beam of the car, and which are made of suitable length with their outer ends chisel-shaped, and which, when strain on hoisting-rope is slackened, are forced by springs M M into engagement with the car-guides B B.

4. The combination of elevator-car A, car-guides B B, hoisting cable or rope D, two levers F F pivoted on staples on top of the car near the outer ends of the levers, ring and links E E connecting rope D, and levers F F, lift-staples I I guiding the inner ends of levers F F, and against which the inner ends of the levers rest when the elevator is in operation, spiral springs J J each fastened at one end to one of the levers, and at the other end to the top beam of the car so as to pull the inner ends of the levers down toward the car whenever the strain on the hoisting rope or cable is slackened, and rods H H attached to each side of the outer ends of the levers and extending downward, steel springs M M attached to the bottom or under side of the lower beam of the car, and to each side of the same, and against which springs rods H H rest, and chisel-pointed dogs L L pivoted in sockets at the bottom of the car, and against which said springs M M act to force said dogs into engagement with guides B B when the strain on the hoisting-rope is slackened.

ROBERT J. WILSON.

Witnesses:

L. HULSETH,
JAMES LANE.