

(No Model.)

E. NELSON.
CAR SIGNAL.

No. 551,398.

Patented Dec. 17, 1895.

Fig. 1.

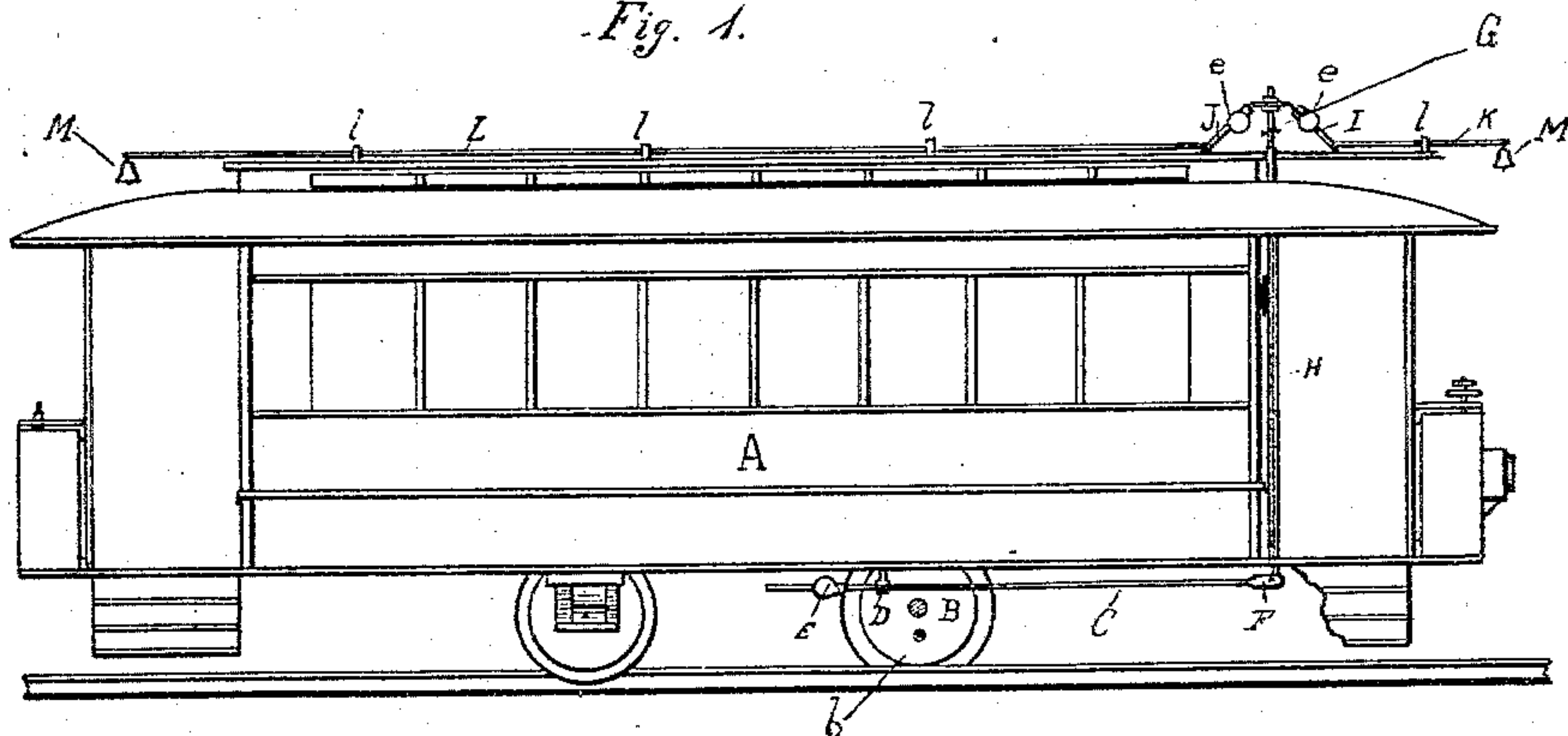


Fig. 2.

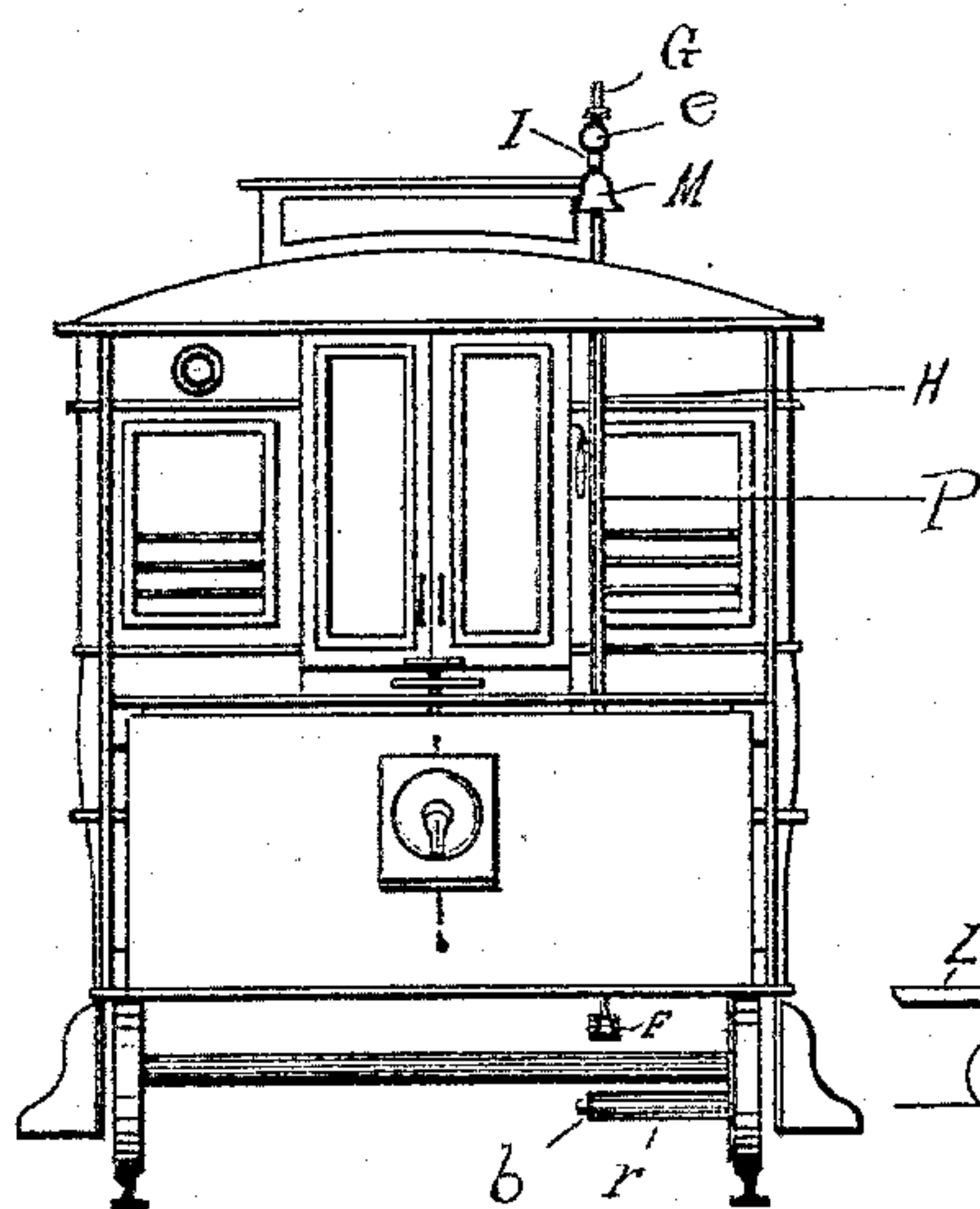


Fig. 3.

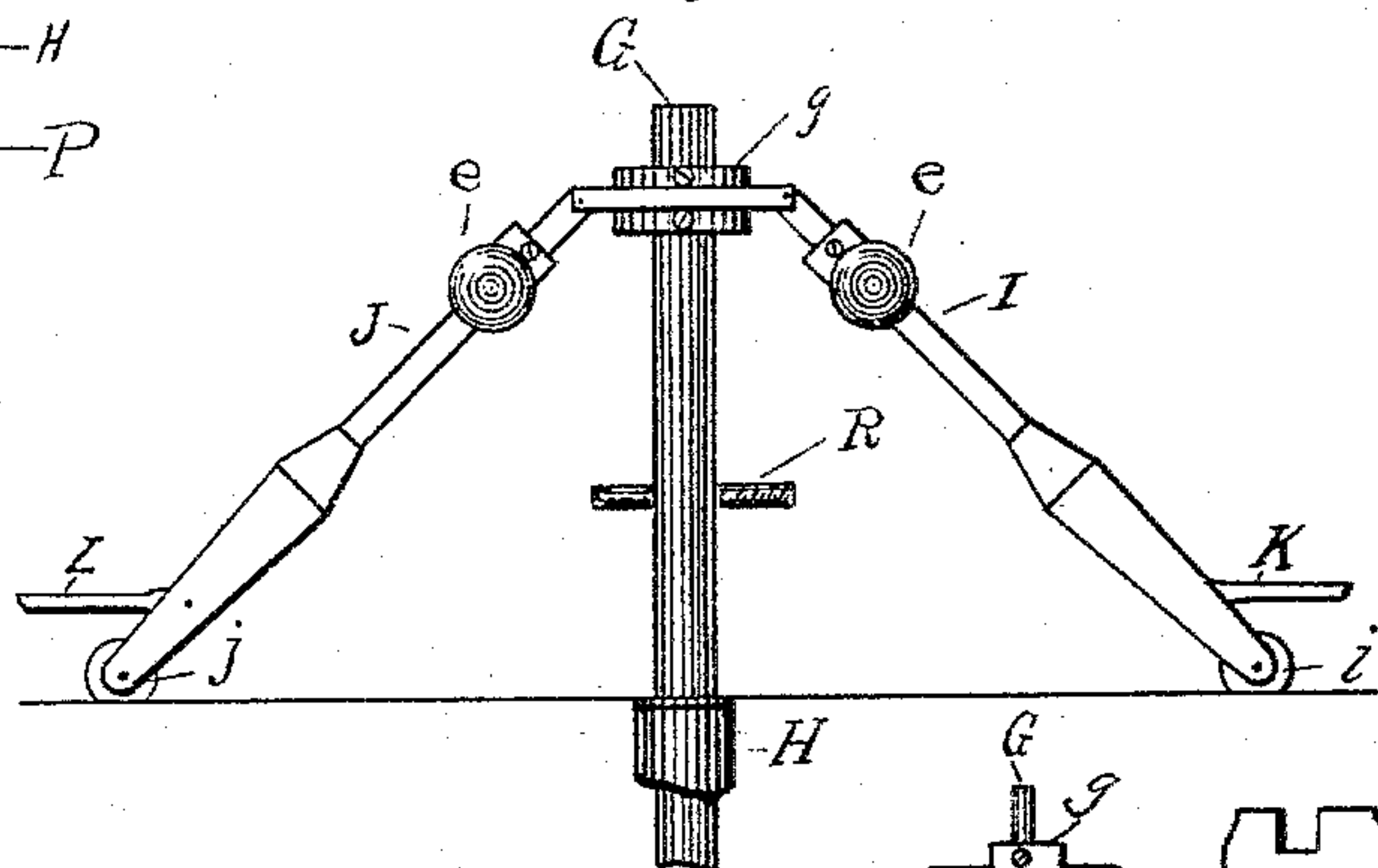


Fig. 5.

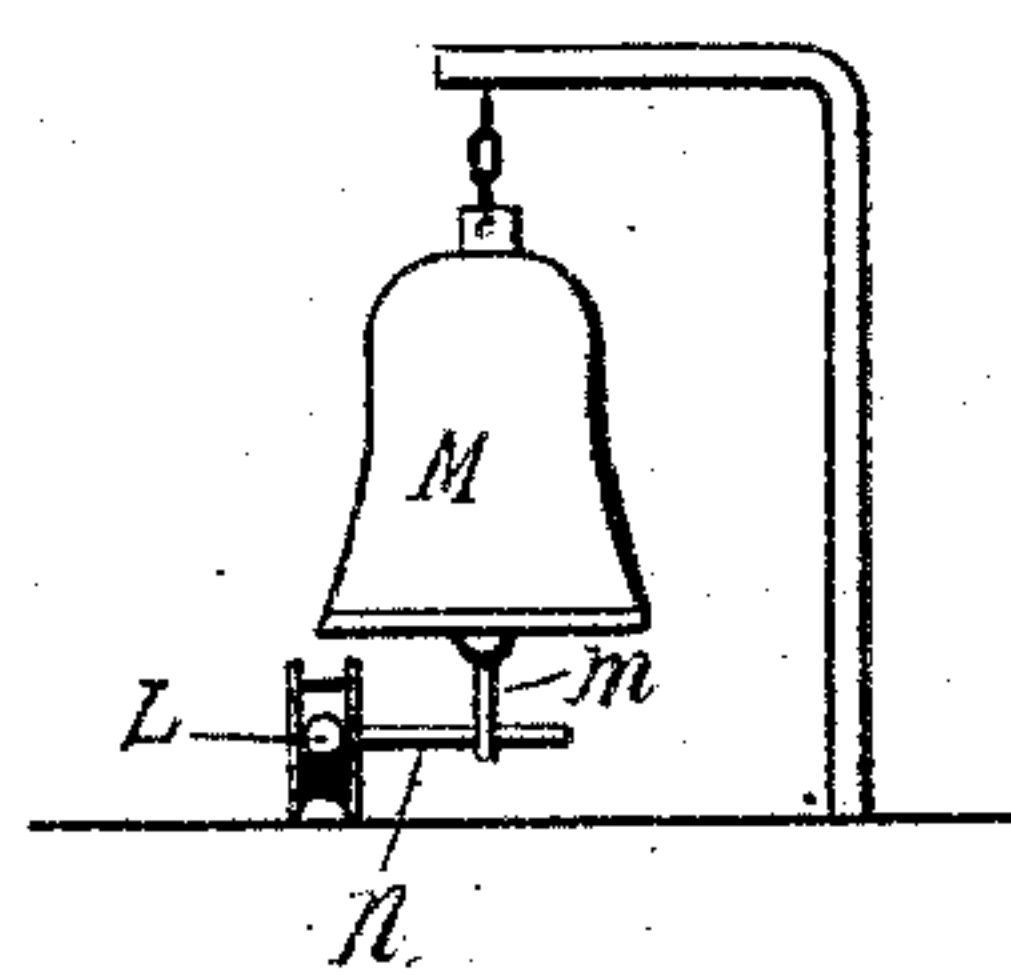


Fig. 4.

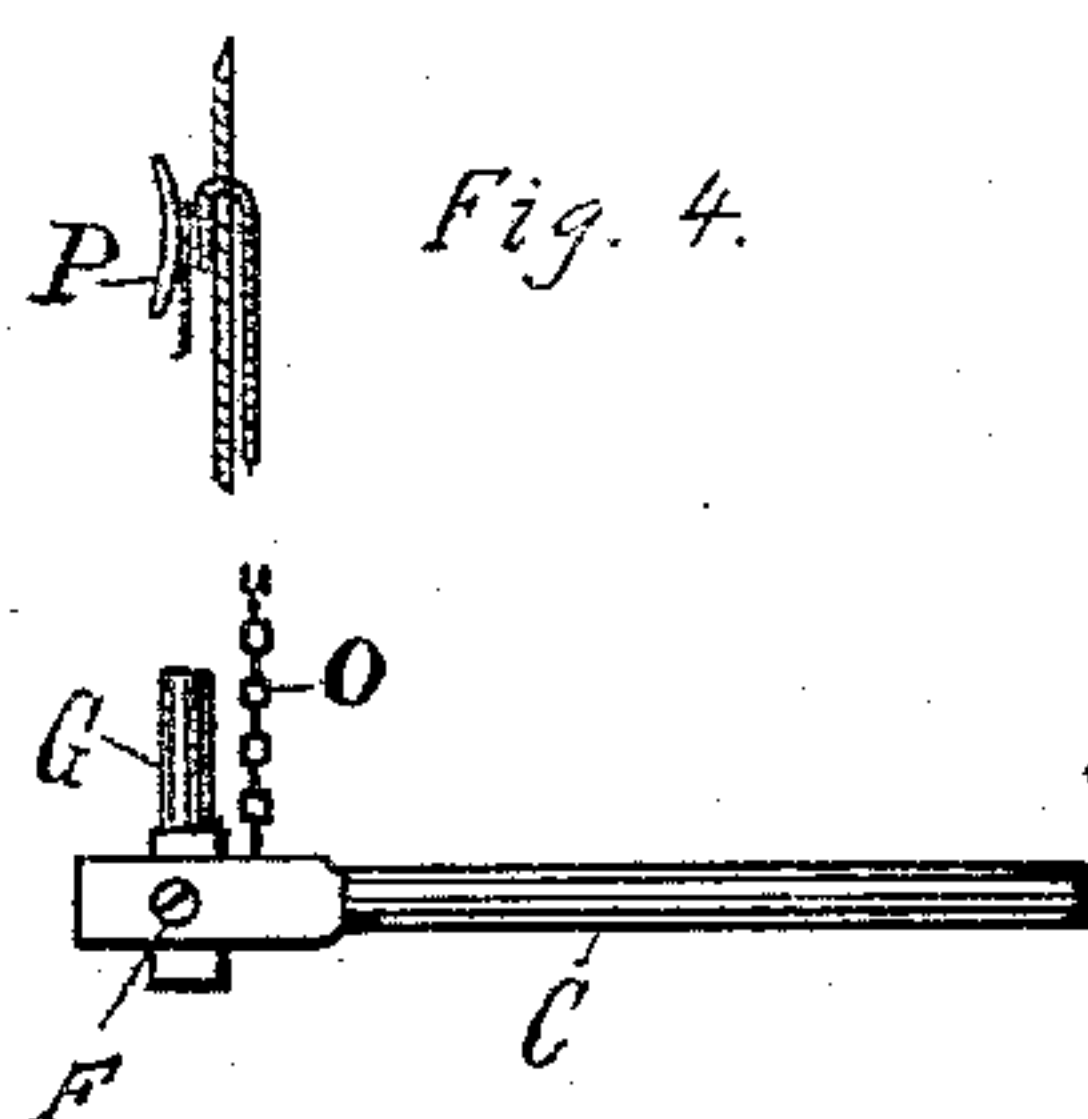
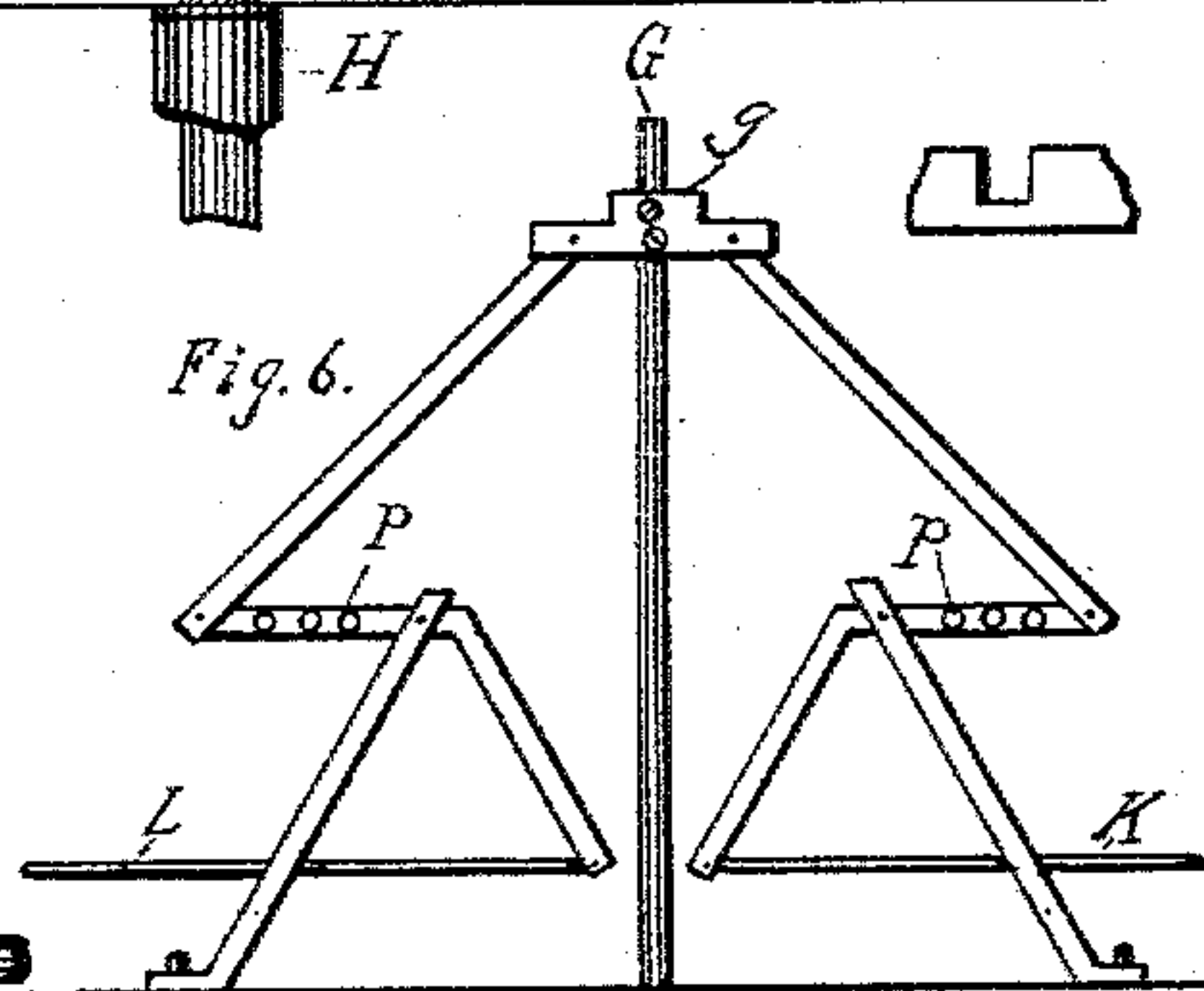


Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

ELIHU NELSON, OF NEW YORK, N. Y.

CAR-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 551,398, dated December 17, 1895.

Application filed December 21, 1893. Serial No. 494,303. (No model.)

To all whom it may concern:

Be it known that I, ELIHU NELSON, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Warning-Signals for Street-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

I have invented a new warning-signal for street-cars, the same being designed to take the place of the heavy gongs now often employed upon cable and trolley roads.

The special object of my invention is to provide a signaling apparatus for attachment to street-cars, which apparatus shall operate to give a signal which shall be free from unpleasant loudness and at the same time shall be distinctive, so that people upon the street will soon come to recognize it as belonging to a moving car. I believe that in this way many lives may be saved by reason of the fact that so soon as the sound became associated with surface cars in the streets people would instinctively step out of the way and escape all danger. The sound would, as I have said, be recognized as characteristic of a moving car, since the apparatus is so arranged as not to operate when the car is stationary. The arrangement is to have the signaling device or devices upon the top of the car and let them be operated by suitable levers which are themselves actuated from the car-axle.

In another application filed by me in the United States Patent Office I have shown signaling devices under the the car-body; but for some cases it may be preferable to have the bells or other signaling devices upon the top of the car, where the sound will not be muffled or obstructed in any way.

The details of my invention are illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a car having my signaling apparatus attached thereto. Fig. 2 is an end elevation of the same. Figs. 3 and 4 illustrate details of the apparatus, and Figs. 5 and 6 show modifications.

Referring to the drawings by letter, A is a street-car supported upon wheels B B. From

one of the wheels a pin *b* projects inward underneath the car and rotates with the wheel. In the range of movement of the pin *b* is a lever C pivoted at D and carrying near one end an adjustable counterbalance E. The lever C is ordinarily nearly or quite horizontal and is swiveled at F to a vertical rod G which moves up and down or is adapted to move within a tube H. The tube H runs up through the car-platform and close to the end of the car, as shown clearly in Figs. 1 and 2. The rod G projects above the upper end of the tube and carries at its upper end a collar *g*, to which the weighted levers I and J are pivoted. The collar *g* is attached to the rod G by means of set-screws. The arms I and J are adapted to fall by gravity, so that their free ends rest upon the top of the car, or rather so that the rollers *i* and *j*, which are attached respectively to the ends of the levers I and J, drop into a groove or guide on the top of the car. What I mean to say is that the rollers *i* and *j* are kept constantly within the groove or guide on the car-top by reason of the weight of the arms or levers I and J. I have shown at *ee* a pair of weights for adjusting the tendency of the arms I and J to keep their position by gravity on the car-top.

Pivoted respectively to the arms or levers I and J are two sliding rods K and L, one of which runs forward and the other backward along the car-top. The said rods are supported by standards *llll*, the said standards forming guides and being provided with rollers to prevent friction as the rods reciprocate. As illustrated in Fig. 1, the rods K and L carry upon their outer ends bells N M for giving warning-signals while the car moves along.

The operation is as follows: When the car begins to move the rotation of the wheels B causes the pin *b* to strike against the lever C and lifts the forward end of the said lever, carrying the rod G upward. A still further rotation of the wheel causes the pin *b* to pass beyond the point where the lever C can touch it, whereupon the lever C and rod G both fall under the influence of gravity. Now the upward movement of the rod G lifts the collar *g* and also raises the upper ends of the weighted arms or levers I and J. The lower ends of the said levers are never lifted from the groove in which the rollers *i* and *j* run. The said

lower ends do, however, move inward toward the rod G by reason of gravity, and thereby cause the rods K and L on the top of the car to reciprocate. Now the reciprocation of the rods K and L operates the bells M M, thus producing a practically continuous signal which will soon become recognized as distinguishing street-cars from other vehicles in the street.

The length of the reciprocating movement of the rods K and L can be regulated by means of the apparatus illustrated in Fig. 4. Here a cord or chain O runs inside the end partition of the car and down through the bottom thereof and is attached to the lever C. Outside the car the cord is within reach of the motorman and by pulling up or letting out the cord he can regulate the length of movement in a manner that will be well understood. At P, I show a cleat for holding the free end of the cord. Another means for accomplishing the same object is provided at the top of the car where a screw-bolt R passes through the rod G and may be adjusted therein up or down to limit the movement of the rod G in a downward direction.

Referring to Fig. 5, the bell M there shown is hung upon a standard and has a pin *m* projecting from its clapper and standing in the path of movement of a pin *n* extending from the rod L.

Fig. 6 shows a toggle arrangement connected with the collar *g*, the same consisting of a series of arms connected with the rods K and L and having means for adjusting their points of connection with each other, such means being the pins *p p*. The operation is obvious. The wearing-surface of the part which I have called the "pin" *b* is preferably a roller *r*, as shown in Fig. 2.

What I claim is—

1. A warning signal for street cars, consisting of sound producing devices upon the car top, one or more horizontally reciprocating rods on the car top and operatively connected with the sound producing devices, and devices moving with the car axle and adapted to operate the said reciprocating device or devices through suitable connections.

2. A warning signal for street cars, consisting of the following elements, to wit, one or more sound producing devices, one or more reciprocating horizontal rods connected therewith, a vertical rod linked to the said horizontal rod or rods and actuated by a horizontal lever underneath the car together with devices moving with the car axle and adapted to strike said horizontal lever.

3. In a warning signal for street cars, a vertical reciprocating rod having toggle connection with one or more horizontal reciprocating rods operatively connected with sound producing devices.

4. A warning signal for street cars, consisting of sound producing devices upon the car top, one or more horizontally reciprocating rods on the car top and operatively connected with the sound producing devices, devices moving with the car axle and adapted to operate the said reciprocating rod through suitable connections, and means for adjusting the throw or length of movement of the said rod.

In testimony whereof I have signed my name, in the presence of two witnesses, this 20th day of December, A. D. 1893.

ELIHU NELSON.

Witnesses:

C. L. BELCHER,
G. H. STOCKBRIDGE.