

(No Model.)

4 Sheets—Sheet 1.

G. D. BURTON.  
RAILWAY SIGNAL.

No. 354,460.

Patented Dec. 14, 1886.

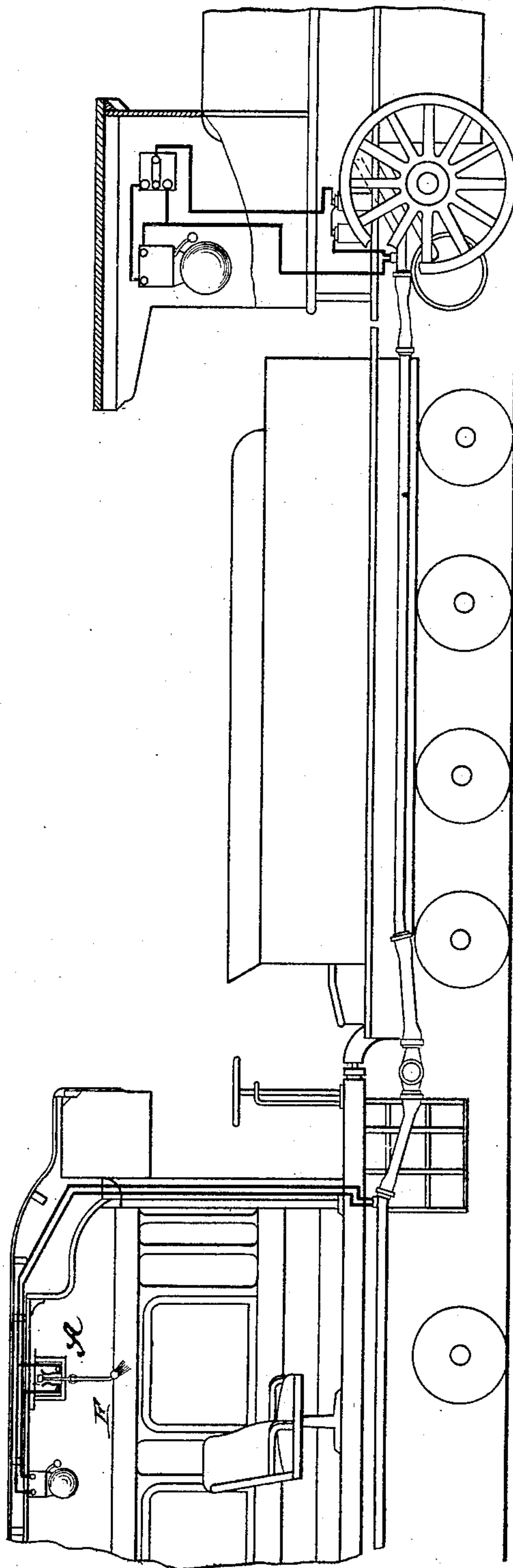


Fig. 1.

WITNESSES

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*G. M. Carpenter*

INVENTOR

*John E. Burton* *G. D. Burton*

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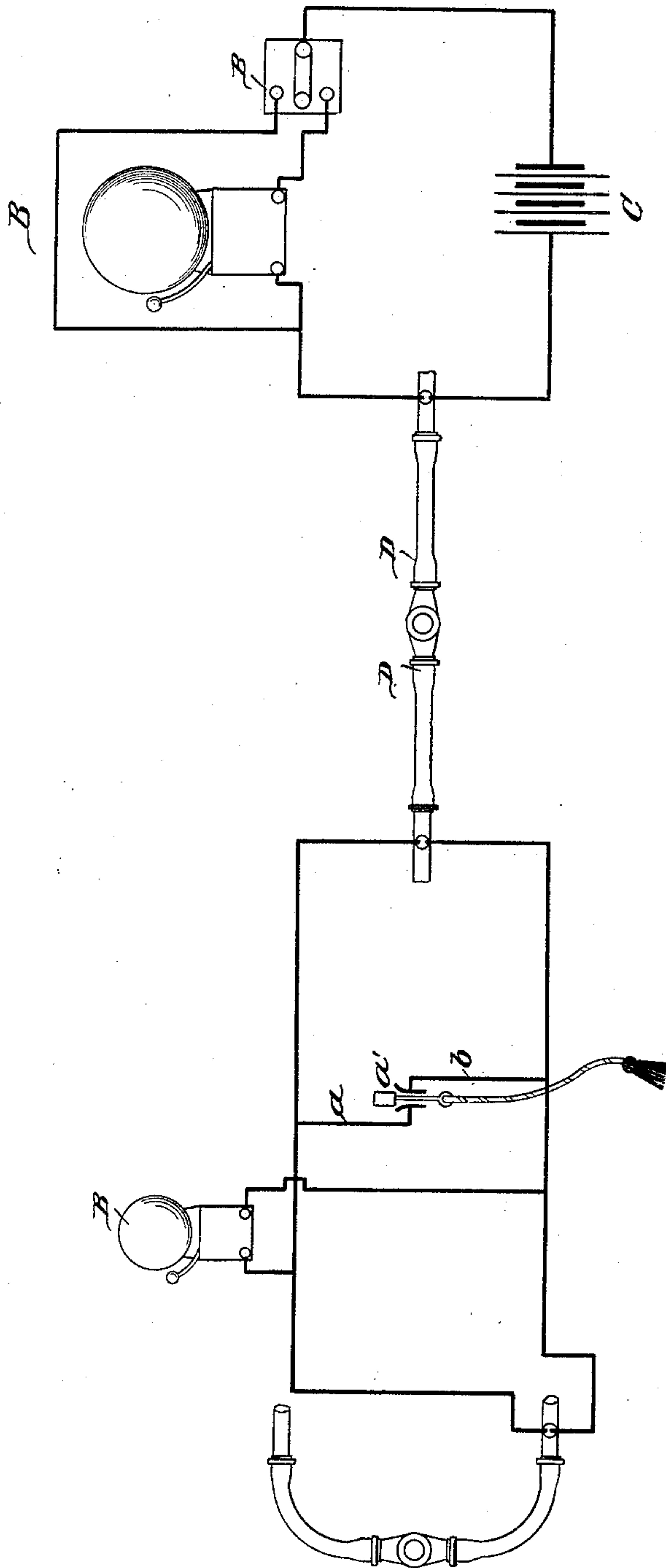


FIG. 2.

WITNESSES  
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*G. M. Carpenter*

INVENTOR  
*G. D. Burton*  
*Chas. E. Barker Attorney*

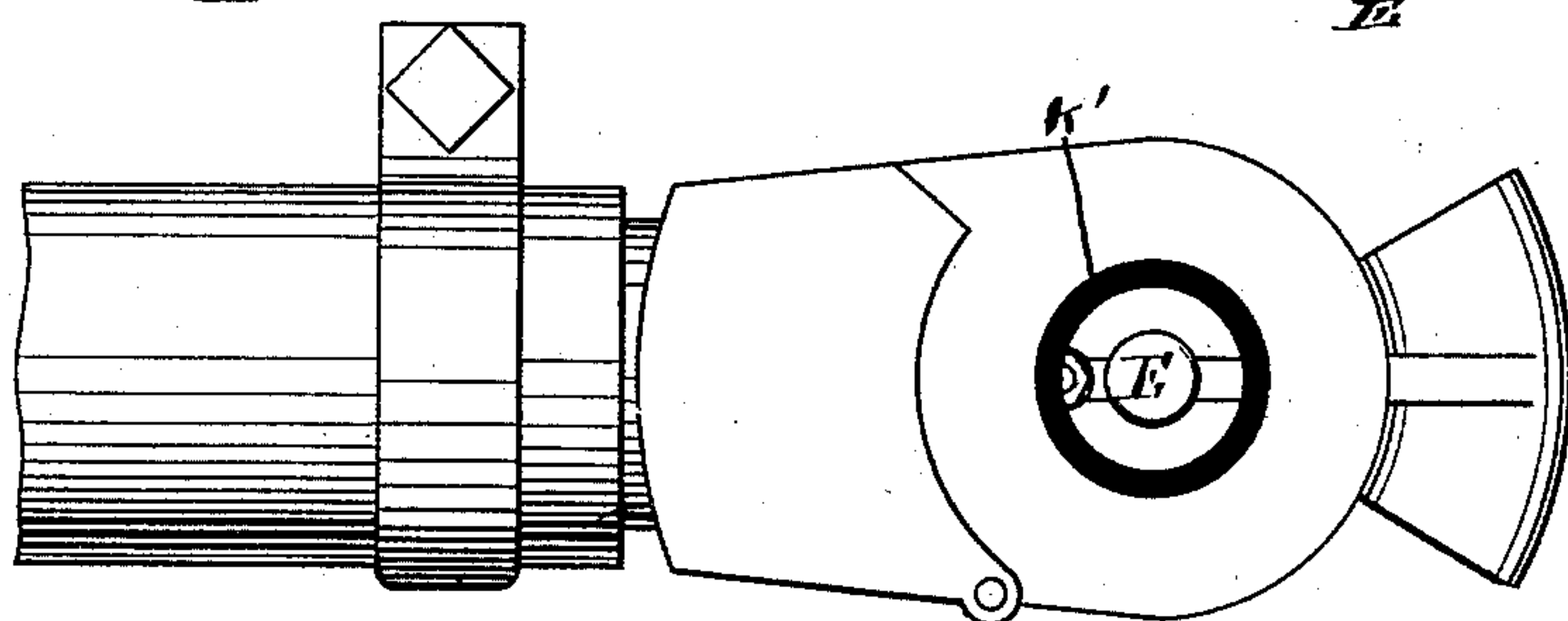
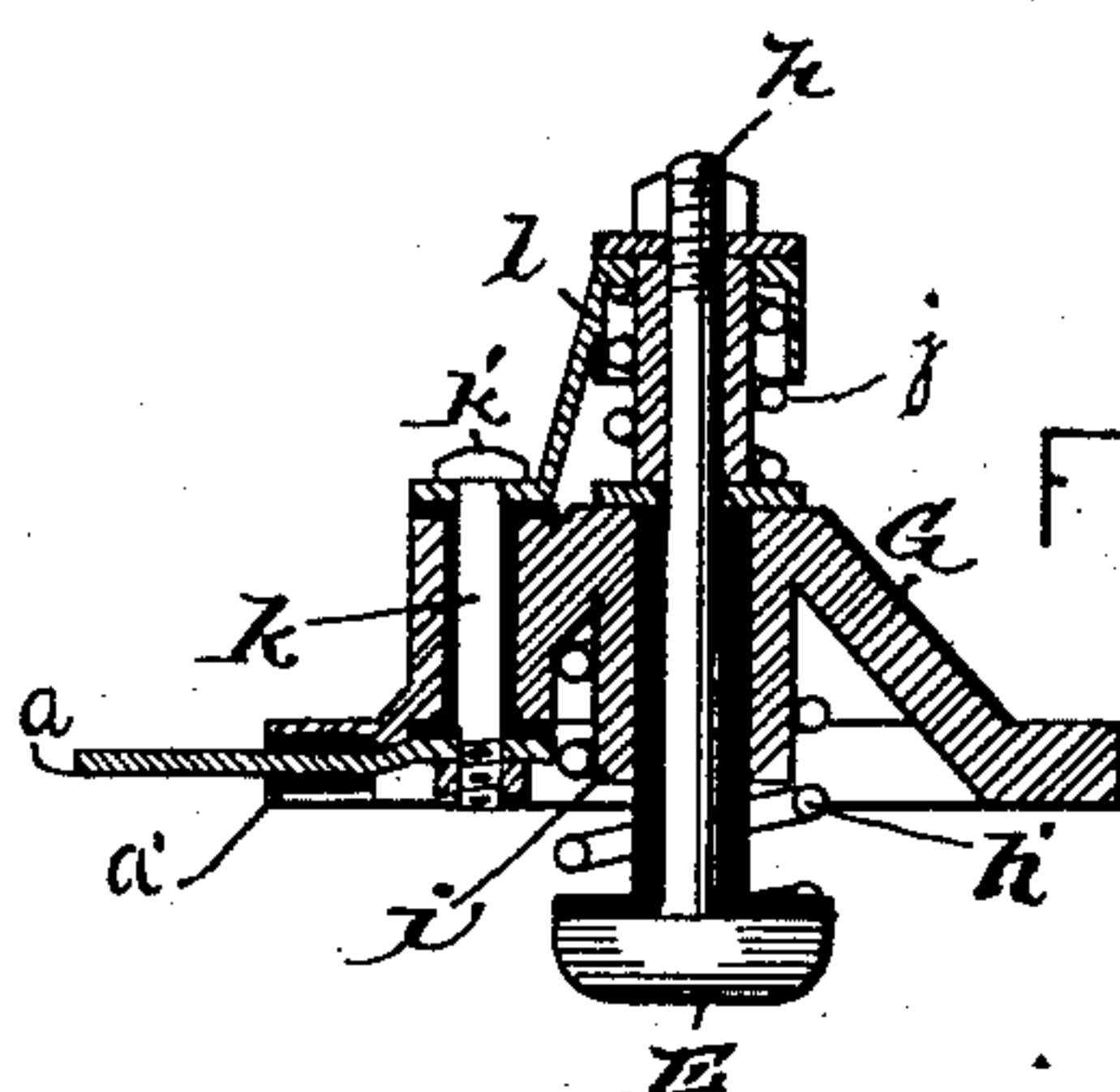
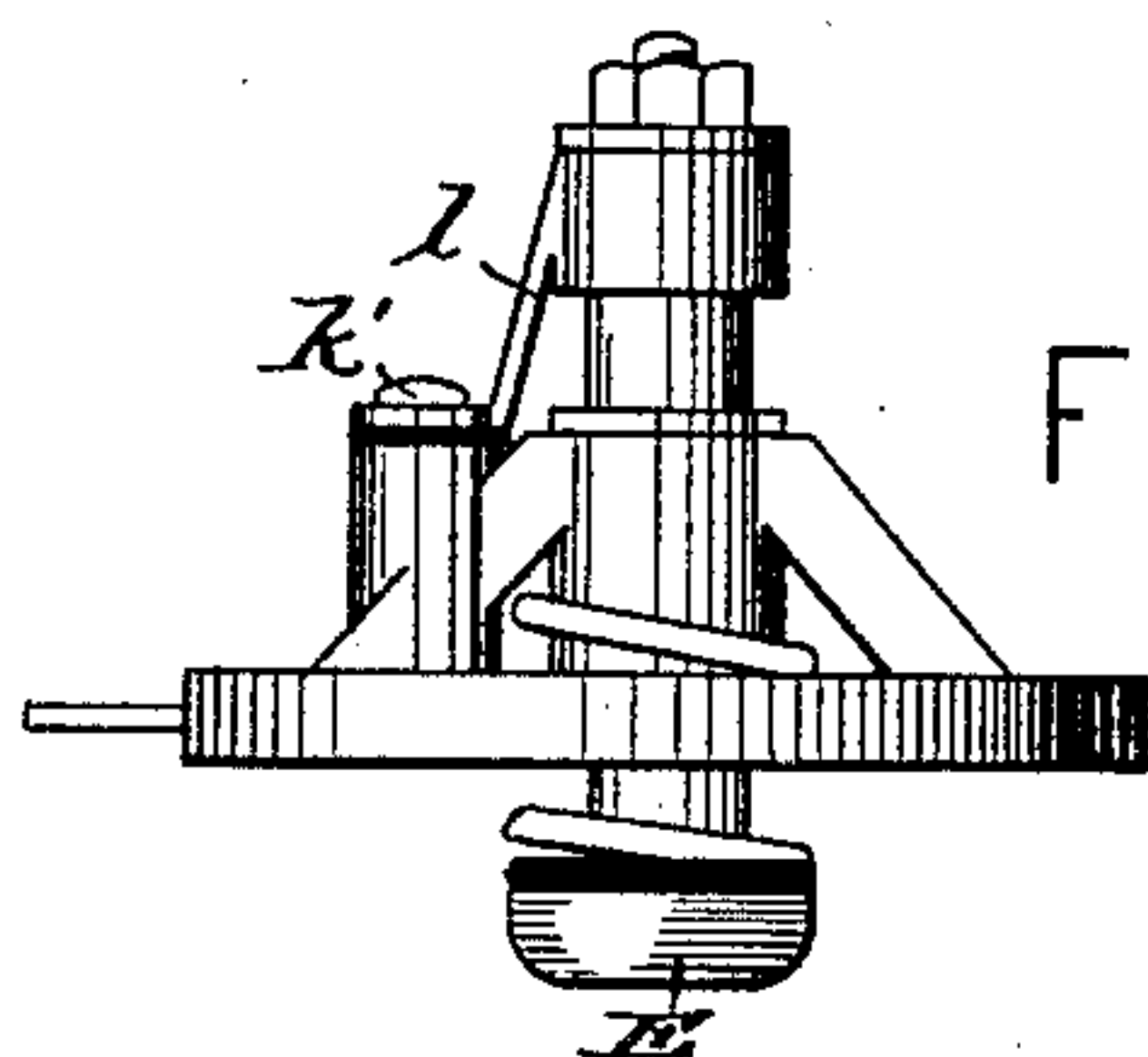
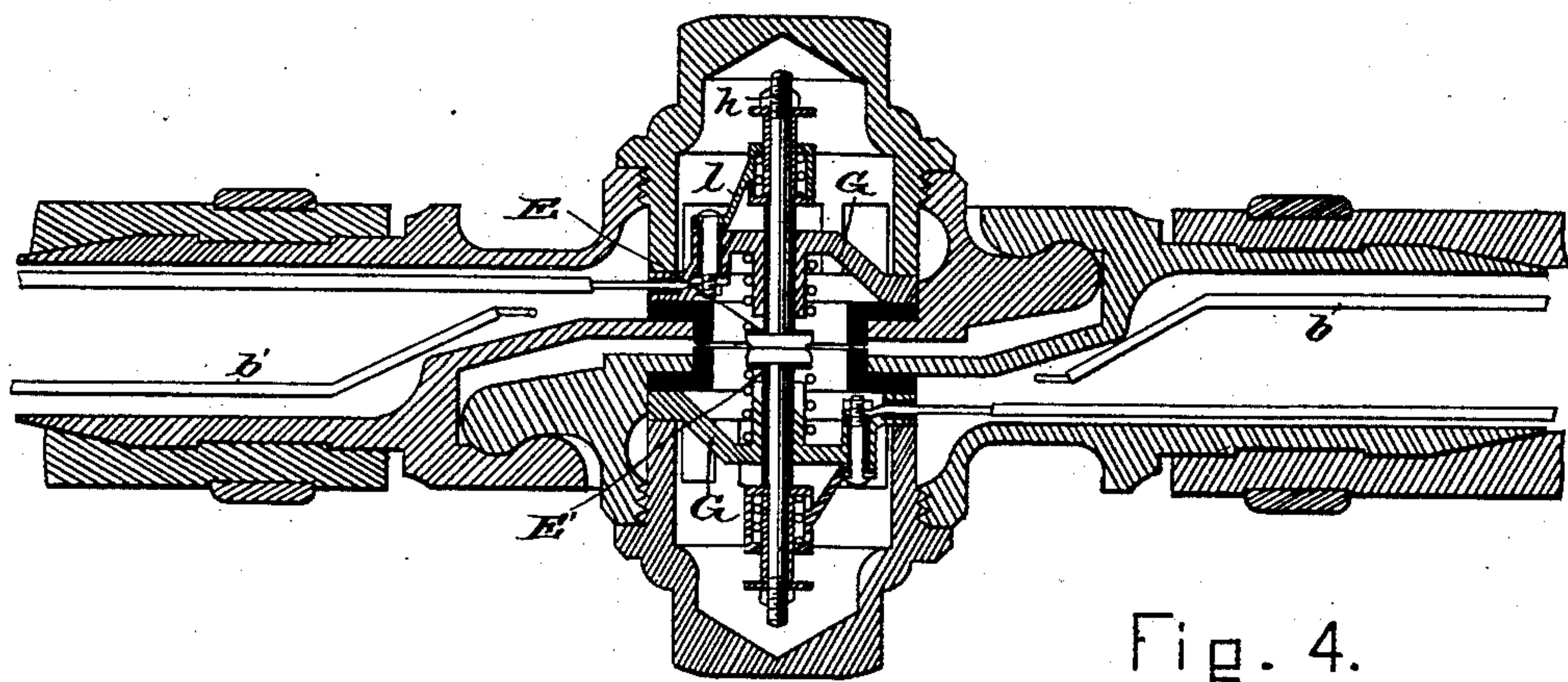
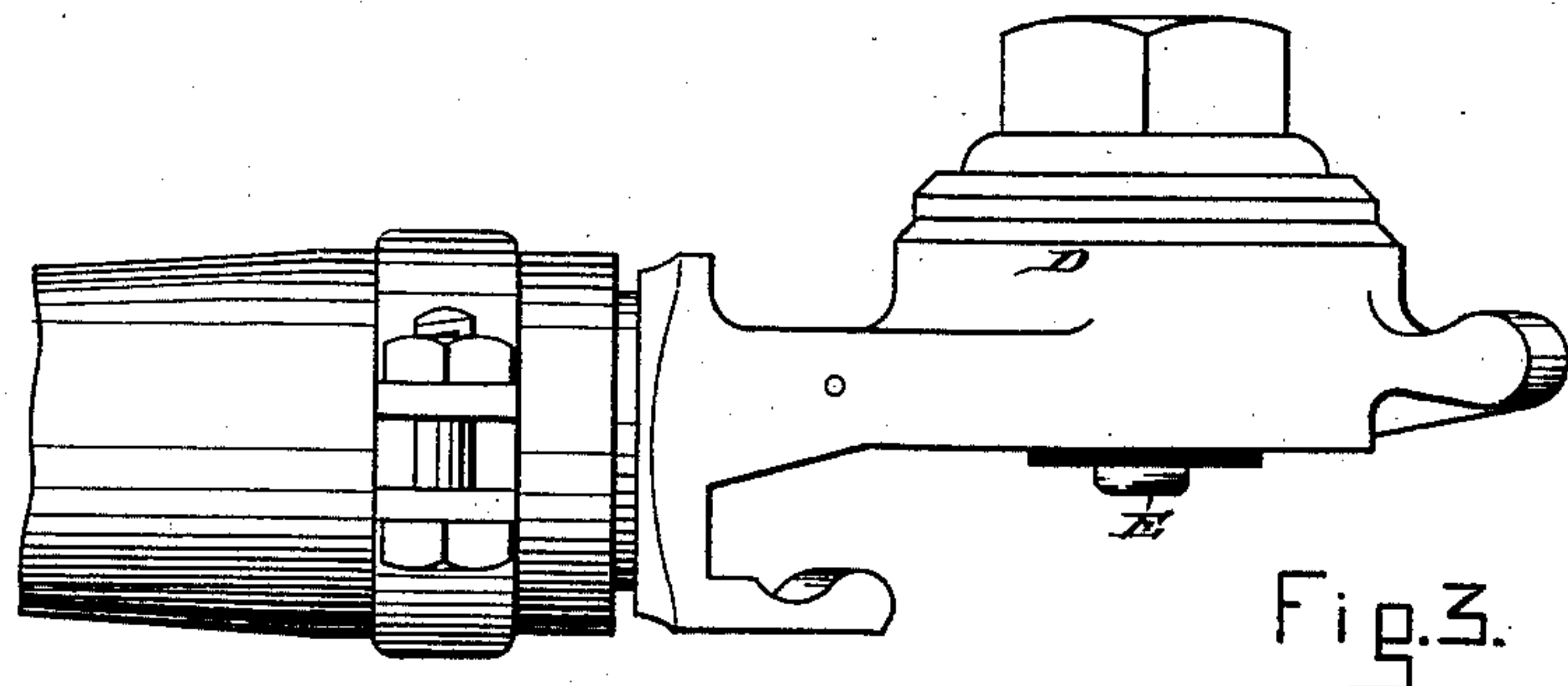
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WITNESSES  
*L. E. Lewis.*  
*Geo M. Carpenter*

INVENTOR

*G. D. Burton*  
*Chas. E. Barber* attornes

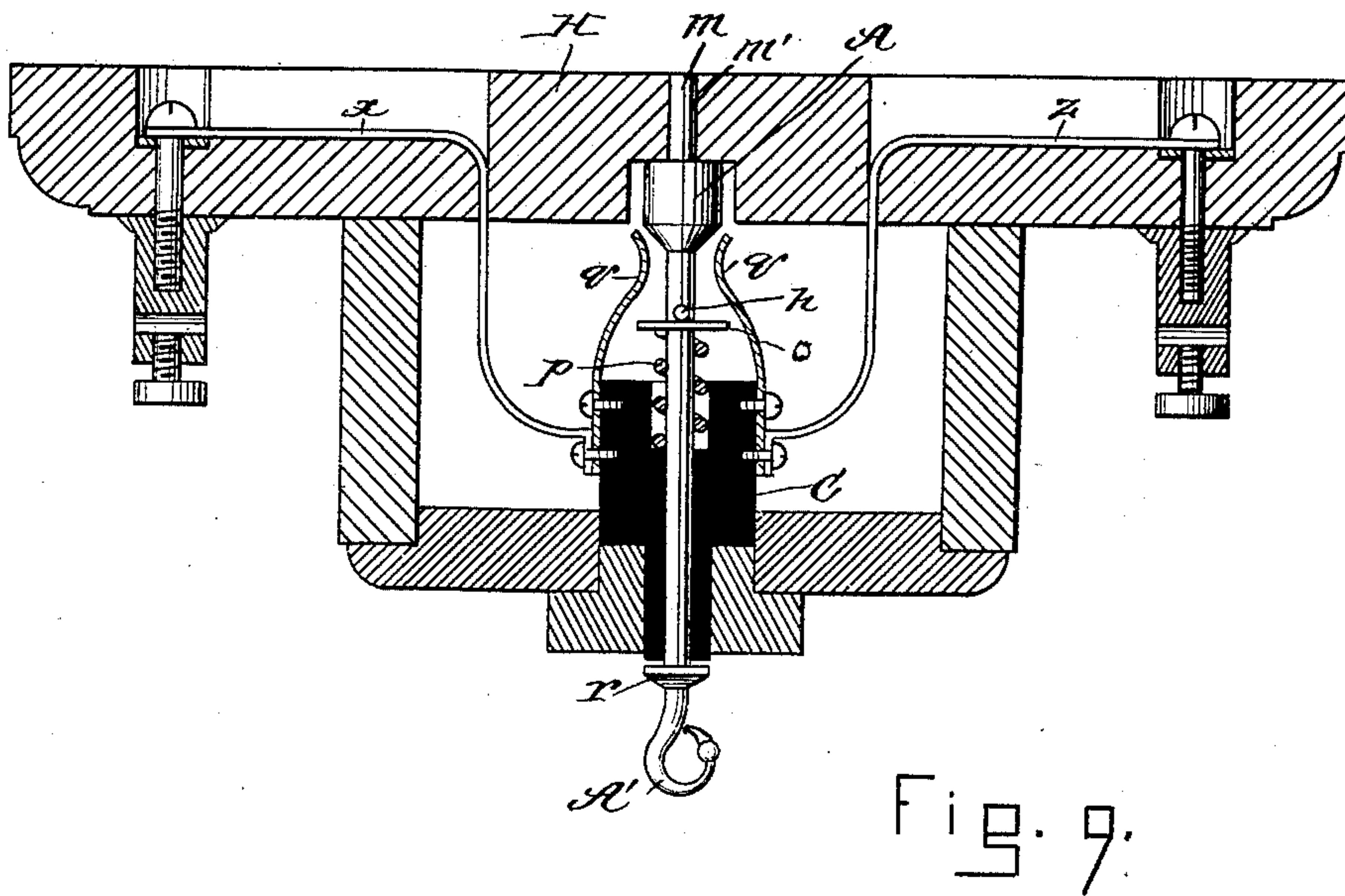
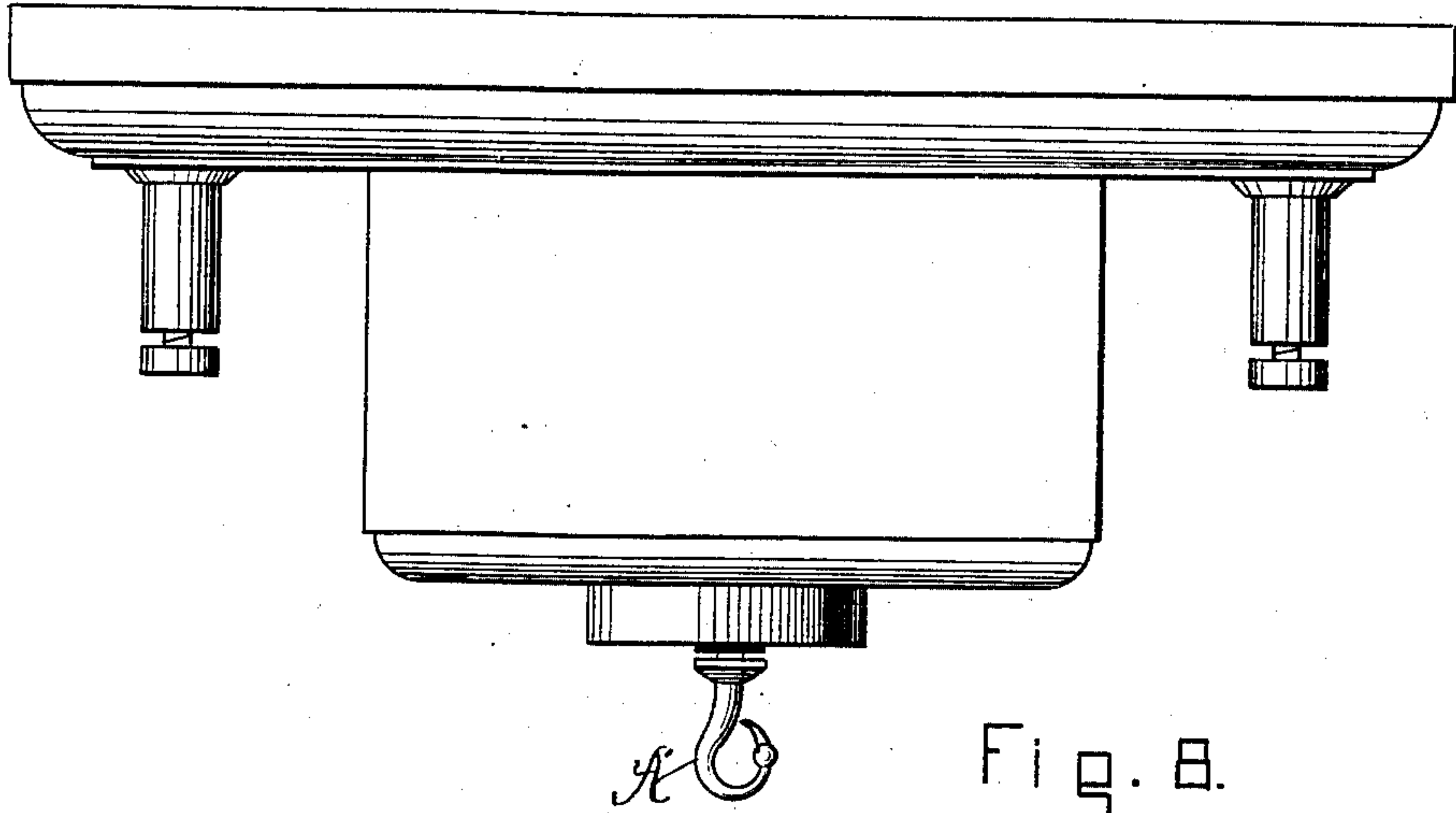
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WITNESSES  
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*G. M. Carpenter*

INVENTOR  
*G. D. Burton*  
*Chas. E. Barber Attorney*



# UNITED STATES PATENT OFFICE.

GEORGE D. BURTON, OF NEW IPSWICH, NEW HAMPSHIRE.

## RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 354,460, dated December 14, 1886.

Application filed April 6, 1886. Serial No. 197,938. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE D. BURTON, a citizen of the United States, residing at New Ipswich, in the county of Hillsborough, in the State of New Hampshire, have invented a certain new and useful Improvement in Signaling Apparatus for Railway-Trains and for Use in other Places where such Signals are Desirable, of which the following is so full, clear, and exact a description as will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a car and locomotive with my electrical signaling devices. Fig. 2 is an outline view of my apparatus, showing its general construction and mode of operation. Fig. 3 is a side view of the hose-coupling provided with an electrical conductor and button. Fig. 4 is a longitudinal sectional view of the hose-coupling provided with my improved electrical conductors and connectors. Fig. 5 is a top plan view of the coupling. Fig. 6 is a detail perspective view of the electrical conductor and button and the framework for holding the button in place. Fig. 7 is a vertical sectional view of the same. Fig. 8 is a perspective view of my circuit-closing device. Fig. 9 is a longitudinal sectional view of the same.

The object of my invention is to provide a means of signaling between the engineer and the train-men or between the engineer and the passengers on a train of cars.

Another object of my invention is to provide a means whereby any signal may be given from any portion of the train by simply pulling a cord or tassel which shall hang in a convenient place in all of the cars and in the locomotive.

Another object of my invention is to provide a means of signaling which shall not be liable to be moved accidentally, thus giving a signal at a wrong time, as is so often the case with the ordinary push-button.

Another object of my invention is to provide a means which shall virtually prevent mischievous people from tampering with the electrical signaling devices without being discovered, and which shall prevent people from giving false signals without being discovered in the act.

By reference to Fig. 2 it will be observed that the electrical conductors *a b* are to be connected by the circuit-closing device A, which will ring the bells B as soon as the circuit is closed.

C designates an ordinary battery to be used in this connection.

D designates the hose-coupling, which is of the usual construction.

By reference to Fig. 1 it will be observed that the circuit-closing device A is in the top of one of the passenger-coaches. The bell is just to the left of the same, while the bell in the locomotive is in the usual place at the side of the portion generally occupied by the engineer. Thus it will be seen that when it is desired to signal the engineer or to give a general-alarm signal to the people on the train, from one end of the train to the other, it is simply necessary to pull the rope F, which will give the signal.

Ordinary push-buttons may be used, if preferred; but it is found that there is too great a tendency on the part of passengers to trifle with push-buttons and to experiment with this new system, which is becoming so popular.

When it is found desirable, push-buttons may be provided for the employes of the road on the outside of the car, under the hood, which can be reached from the platform; but in most instances it will be found preferable to have this signal-operating device inside the car.

In Fig. 4 I show my improved means of connecting the circuit over the electrical conductors in the hose-coupling.

The skeleton frame or rack G is perforated in its central portion to receive the post *h*, which in turn is provided with a spring, *h'*, which encircles the portion near its head, and which also encircles the outer portion of the hollow central stud, *i*, on the skeleton frame G. This spring tends to always keep the button in an extended position. At the other end of this same button or rod is a spring, *j*, which serves as an electrical conductor, and which, by its elasticity, always keeps the button and its post in metal contact with the skeleton frame G. The skeleton frame or rack G serves the double purpose of a packing-ring washer and a guide for the button-post of the electrical conductor. The skeleton frame is also perforated at *k*, to receive a pin, *k'*, which



pin holds a yoke, *l*, through which slides the post of the button *E*. By this means, in making the hose-coupling—*i. e.*, when the sections are coupled together—the button *E* is forced back by the abutment of said button against a corresponding button, *E'*, in the opposite section of the coupling, all of which will be readily understood by reference to Fig. 3.

The spring *j* serves to always keep the button *E* electrically connected with the pin *k'*, which in turn is connected with the electrical conductor *a*. Thus it will be seen that there is no liability on the part of this skeleton frame and buttons to ever become electrically disconnected, and thus break the circuit, even for an instant, as would be liable to be the case were it not for the springs, which tend to always keep the buttons in metal contact with the electrical conductors.

The electrical conductors *b b'* are secured directly to the outer metal casting of the hose-coupling, as is clearly shown in Fig. 3, and which feature has been the subject-matter of another invention.

The operation of my device is as follows: Electricity being supplied from a battery in any convenient place in each or any car, or in the locomotive alone, and the hose-couplings all secured together between the cars in the usual manner, the system then is in readiness to be operated at will for signaling the train in either direction, either from the engineer backward or from the train-men in the rear of the train to the engineer in front, by simply pulling the rope *F* at any point throughout the train.

By reference to Fig. 9 it will be observed that the circuit-closing device *A* is mounted on a frame, *H*, which is provided with a central opening, *m*, which receives a post, *m'*, which is on the circuit-closer, and which slides freely through this opening. On the lower portion of this circuit-closer is a ring, *A'*, to which is secured the rope or tassel which is used to operate this signal. Any other similar device might be substituted for this tassel without departing from the spirit of my invention.

Just below the circuit-closing head *A* is a pin, *n*, which abuts against a plate, *o*, which is secured to the rod, and which is held in contact with the pin *n* by a spring, *p*, which has a tendency to always keep the circuit-closer up against the frame *H* and away from the electrical conductors.

The terminals of the electrical conductors are insulated from each other by insulating material *C*, and each terminal is provided with an elastic arm, *q q*. These arms extend up

each side of the conical circuit-closing head in such a manner that by bringing the head down by overcoming the tension-spring *p* the circuit will be completed and the signal given throughout the train.

The devices shown in Figs. 1, 2, 8, and 9 are made the subject-matter of another application, and are therefore disclaimed in this application; but as it is necessary to show the electric conductors and the apparatus for use therewith, in order that applicant may disclose some new and useful invention, it is deemed necessary that these figures be made, in order to give those skilled in the art to which this invention appertains an intelligent understanding of its construction and operation.

Having now described a preferred means of carrying out my invention, what I desire to secure by Letters Patent, and what I therefore claim, is—

1. In an air-brake hose-coupling, the skeleton *G*, provided with a double perforation—one for the button and a second for one of the terminals of an electric circuit—in combination with the electric conductors and the hose-couplings, substantially as described.

2. An air-brake hose-coupling containing the skeleton frame *G*, provided with a shoulder, *i*, in combination with the button *E* and spring *k'*, one end of which encircles the hollow central shoulder, *i*, and the other end bears against the head of the button *E*, and the perforation *a'*, substantially as described.

3. In an air-brake hose-coupling, the skeleton frame *G*, provided with the button *E*, the spring *j*, and yoke *l*, which encircles the rod *k'* of the button *E*, substantially as described.

4. In an air-brake hose-coupling, the combination of the skeleton frame *G*, provided with a perforation, *a'*, in its upper periphery, and also provided with a central perforation, with means for connecting the central post with the electric conductor, which extends through the perforation *a'*, substantially as described.

5. In an air-brake hose-coupling, the combination of the skeleton frame *G*, having perforations *a'* and *k*, the pins *k'*, and spring *j*, which electrically connects the yoke *l* and the button *E* with the conductor *a*, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 3d day of April, 1886.

GEO. D. BURTON.

Witnesses:

E. F. PERKINS,  
CHAS. F. ADAMS.