

(No Model.)

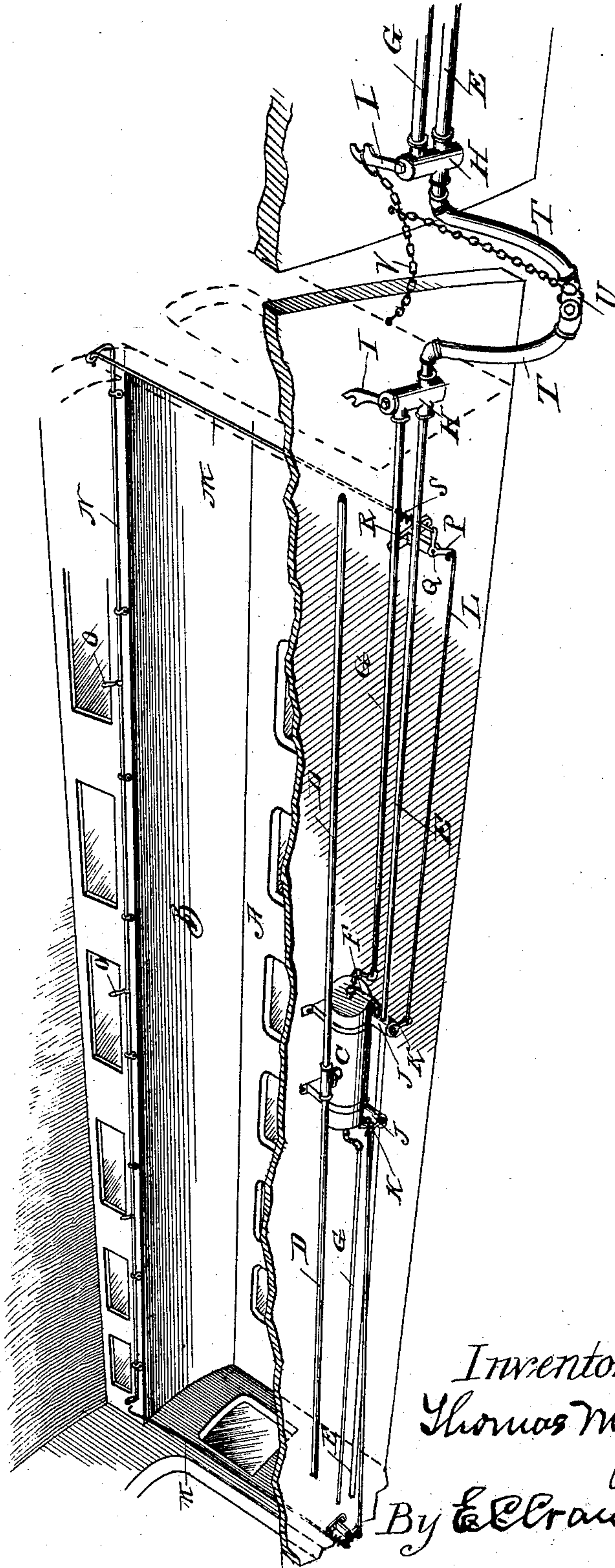
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T. M. JENKS.
RAILWAY CAR SIGNAL.

No. 362,088.

Patented May 3, 1887.

Fig. 1.



Witnesses.

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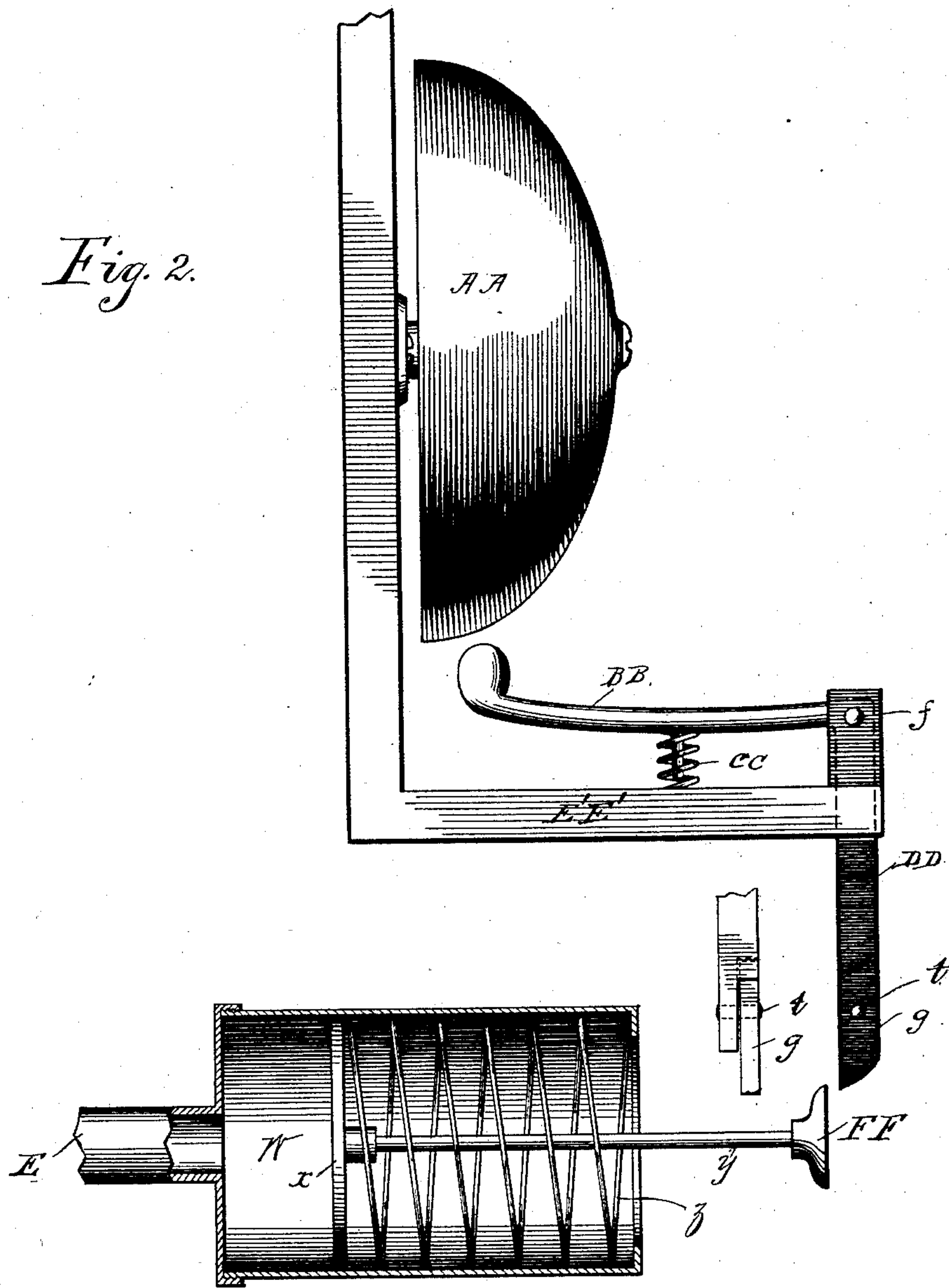
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(No Model.)

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Fig. 3.

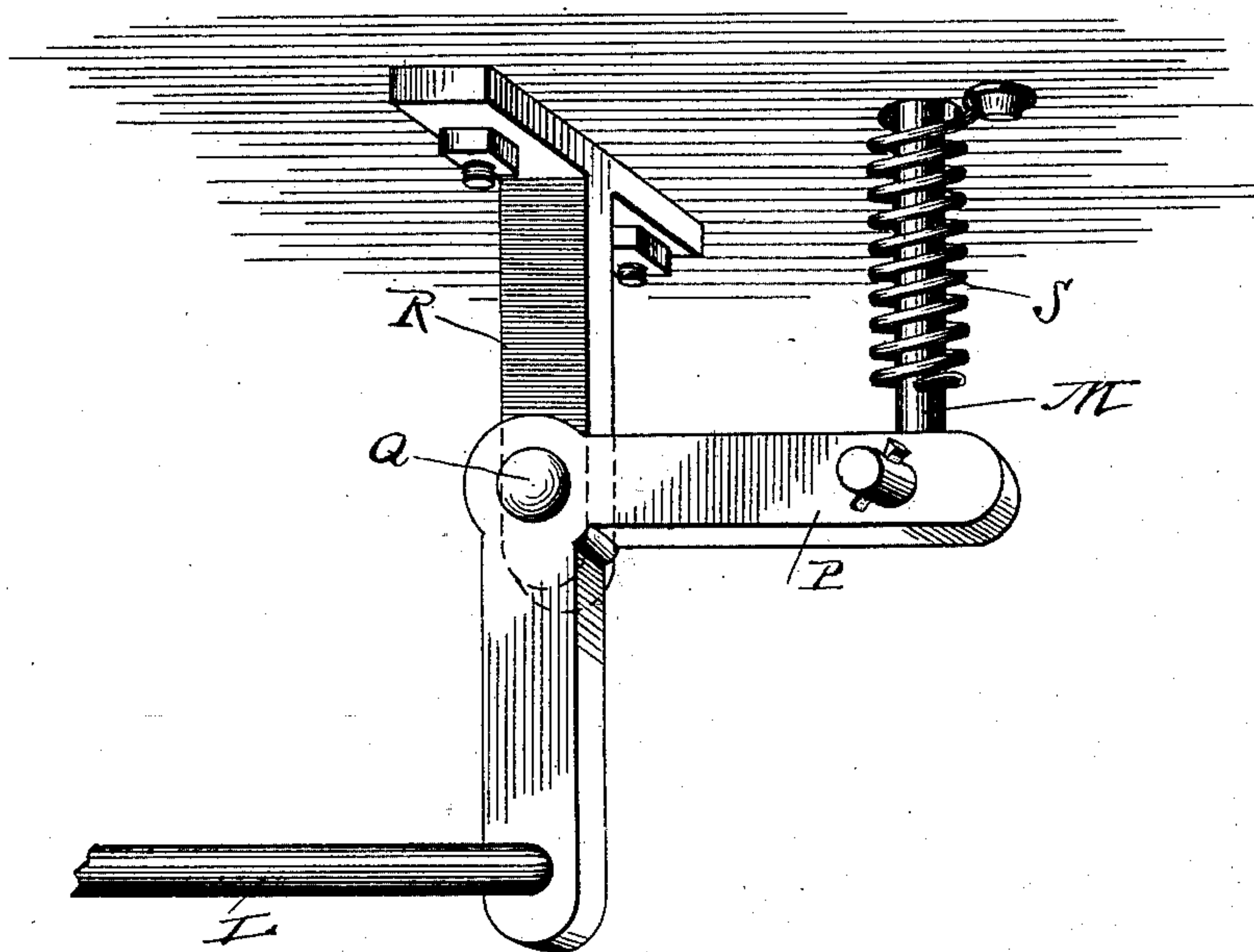
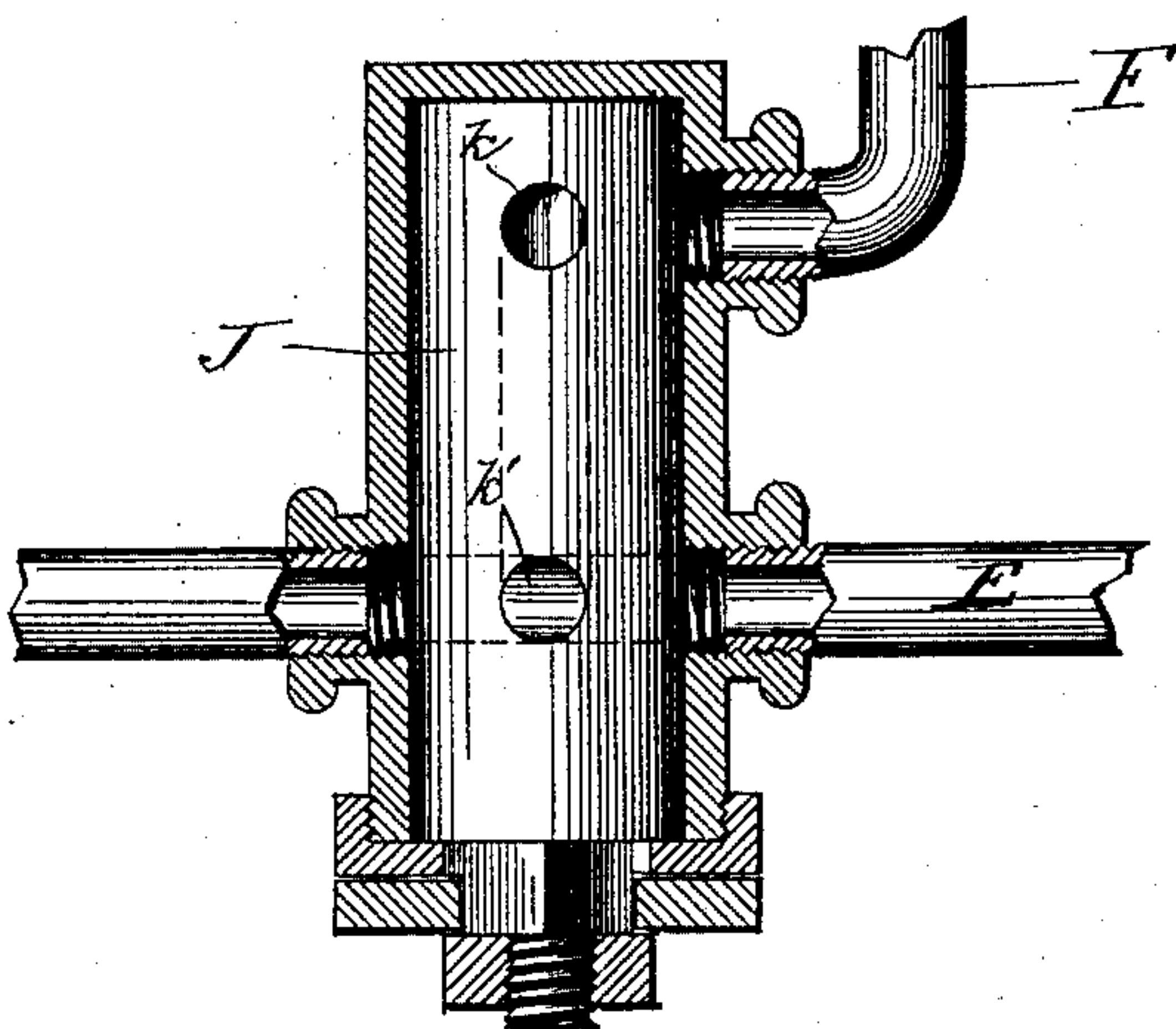


Fig. 4.



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UNITED STATES PATENT OFFICE.

THOMAS M. JENKS, OF CHICAGO, ILLINOIS.

RAILWAY-CAR SIGNAL.

SPECIFICATION forming part of Letters Patent No. 362,088, dated May 3, 1887.

Application filed January 27, 1887. Serial No. 225,623. (No model.)

To all whom it may concern:

Be it known that I, THOMAS M. JENKS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Railway-Signal, of which the following is a specification.

My invention relates to improvements in railway-signals; and its object is to use compressed air to sound a gong or bell in the cab of a railway-engine as a signal from the conductor to the engineer of the railway-train. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents parts of two cars lying on their sides, with a portion of their interiors and bottoms exposed to view. Fig. 2 is a gong or bell fastened to the inside of a cab of an engine, together with the mechanism whereby this bell or gong is sounded. Figs. 3 and 4 are parts of Fig. 1, worked out in detail.

The same letters refer to similar parts in the different figures.

In Fig. 1, A is one side of a car, and B the curved surface of the part of the car between the side and the top. C is a receiver for compressed air, screwed or otherwise fastened to the bottom of the car. D is a pipe passing from the air drum or receiver fixed beneath the engine. E is a pipe communicating with C and extending forward beneath the cab; F, a pipe furnishing communication between C and E; G, a pipe communicating with C and E; I, a key that turns a cock in H, which (the cock) opens and shuts off communication between G and E; J, a pipe connecting E and C; K, a key turning a cock in J, which opens and cuts off communication between C and E; L, a horizontal rod connected with the rod M, which passes through the floor and up in a corner of the car to and connecting with the rod N; O, a handle on N; P, a knee; Q, a pin on which P turns; R, a stanchion screwed to the bottom of the car, and S a spring. (P, Q, R, and S are shown more plainly in Figs. 3 and 4.) In Fig. 1, again, T are sections of rubber pipe connecting (in any usual way) the sections of E; V, a chain fastened at one end to the car-bottom.

In Fig. 2, E is a continuation (or another section) of E in Fig. 1; W, an air-chamber; X,

a piston-head fitting in the same, air-tight; Y, a piston; Z, a spring; A A, a gong or bell fastened to the frame E' E', which is fastened to the side of the cab; B B, a hammer to strike the gong or bell; C C, a spring; D D, a continuation of the hammer; f, a pin on which the hammer turns; g, a section of D D made to turn in one direction on the pin h, and F F a plate on one end of the piston.

Under the engine there is an air-drum, into which D opens. An air-pump operated by the engine keeps this drum full of compressed air. D conducts this to the air-drum C under each car. J contains a cock, with one hole passing through it, so as to be continuous with the pipe E when the mechanism is set, as shown in Fig. 1—that is, while the train is running and no signals are being given. This cock has two other holes, one to open into the short pipe F, the other into the pipe E. These holes are at right angles with the first hole, and extend only half-way through the cock. The key K turns this cock.

When the conductor wants to give a signal, he pulls down on the handle O. This turns the rod N, which forces downward the rod M. This, by the turning of the knee Z on its pin Q, forces the rod L toward the opposite end of the car, and thus, by means of the key K, turns the cock in J, so that its holes k and k', Fig. 4, open, respectively, into the pipes F and E. Thus the air escapes from C into E, and, passing through the rubber pipe-connections T, rushes forward through E and enters the chamber W, Fig. 2, where it forces the piston Y forward. F F is thus made to strike g, forcing it forward. The lower part of the hammer D D is thus moved forward (g being a part of it) in the slot, into which it is let in E E, and, turning on the pin f, it thus depresses the striking end of the hammer B B. When X has reached the front end of W, F F will have passed beyond g, and the spring C C, having been compressed, will throw the hammer up, and it will strike the gong or bell, giving the required signal, and g will have turned on its pin t and thus resumed its original position in front of F F. When a car has made its trip and is to be sent back, the rod M is ungeared from N at the end of the car where it has been in use, and the corre-

sponding rod at the other end of the car is fastened to N, and the corresponding mechanism under this half of the car is then ready for use, as above shown, while the car goes back to the station whence it started.

The drawings show also a contrivance for giving signals automatically in case cars become uncoupled, as follows:

In Fig. 1, G and E communicate through the pipe H. H contains a cock exactly like that in J, described above—that is, providing for continuous communication between T and E when the cock is arranged in a certain way, and for cutting off such communication and establishing, instead, communication between G and E when the cock is arranged in another way. I is a key that will turn this cock. The chain V of the car toward the rear of the train is hooked into the key of the forward car. Before the train starts the key is set so that the cock permits communication between E and T; but if the cars become uncoupled the chain jerks the key back, and thus brings the other two holes of the cock into connection with G and E, respectively, (and shuts off connection with T,) thus permitting the air to rush back from C through H into E, and forward through E, till it sounds the bell or gong, as above described.

I am aware that prior to my invention a mechanism has been made whereby compressed air has been used to operate a railway-signal. I therefore do not claim such a combination, broadly; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The compressed-air receiver C, fastened beneath a railway-car, the pipe D, connecting the said receiver with an air-pump beneath and operated by a railway-engine, the pipe E, communicating with the said receiver and with the air-chamber W, located in the cab of a railway-locomotive and containing the piston Y, which moves forward under pressure of compressed air let into the chamber and backward under the force of the spring Z, when the compressed air is let out of the chamber, the plate F F on the outer end of said piston, which, when the piston is forced forward, strikes the lower part of the hammer D D, causing its upper end in turn to strike the bell or gong A A, by means of the reaction of the spring C C, all in combination with the rods N, M, and L, the knee P, and the key K, which, all moving together when the handle O is pulled downward, turn the three-way cock in the pipe J, the key K being fastened to said cock, so as to open communication between C and E, and which, when O is released, are forced back into their original position and there

held by the action of the spring S, all substantially as and for the purpose hereinbefore set forth.

2. The compressed-air receiver C, fastened beneath a railway-car, the pipe D, connecting said receiver with an air-pump beneath and operated by a railway-engine, the pipe E, communicating with said receiver and with the air-chamber W, located in the cab of a railway-locomotive and containing the piston Y, whose head X fits air-tight in said chamber, said piston being moved forward under pressure of compressed air let into the chamber, and backward under the force of the spring Z, when the compressed air is let out of the chamber, the plate F F on the outer end of said piston (when the piston is forced forward) striking the lower part of the hammer D D and driving it forward and upward, as the hammer turns on the pin f, till the plate F F passes beyond D D, thus releasing the hammer and permitting the spring C C to react and cause the upper end of the hammer to strike the bell or gong A A, the piston meanwhile resuming its place by the yielding of the section g, as it turns upon its pin h, when the plate F F comes in contact with it in returning, all in combination with the rods N, M, and L, the knee P, the key K, and the three-way cock in J, to which the key is fastened, which, all moving together when the handle O is pulled downward, open communication between C and E, letting compressed air rush forward into W, and which, when O is released, return to their original position and there remain by the action of the spring S, thus letting the compressed air escape backward from W, through and out of E, all substantially as and for the purpose hereinbefore set forth.

3. In a compressed-air railway-signal mechanism at the rear end of and beneath a car, the pipe H, furnishing communication between the pipes G and E, and a three-way cock in H, provided with the key I, which will turn said cock, and thus open and close communication between G and E, all in combination with the chain V, fastened at one end to the lower front part of the next rear car and at the other hooked upon the key I, for the purpose of automatically turning said key, and with it the said three-way cock, when the front car parts from the rear car while the train is advancing, and by said turning of the key opening communication between G and E, and thus causing the gong to sound in the cab, substantially as herein set forth.

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Witnesses:

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