

(No Model.)

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T. M. JENKS.
RAILWAY FREIGHT TRAIN SIGNAL.

No. 383,813.

Patented May 29, 1888.

Fig. 3.

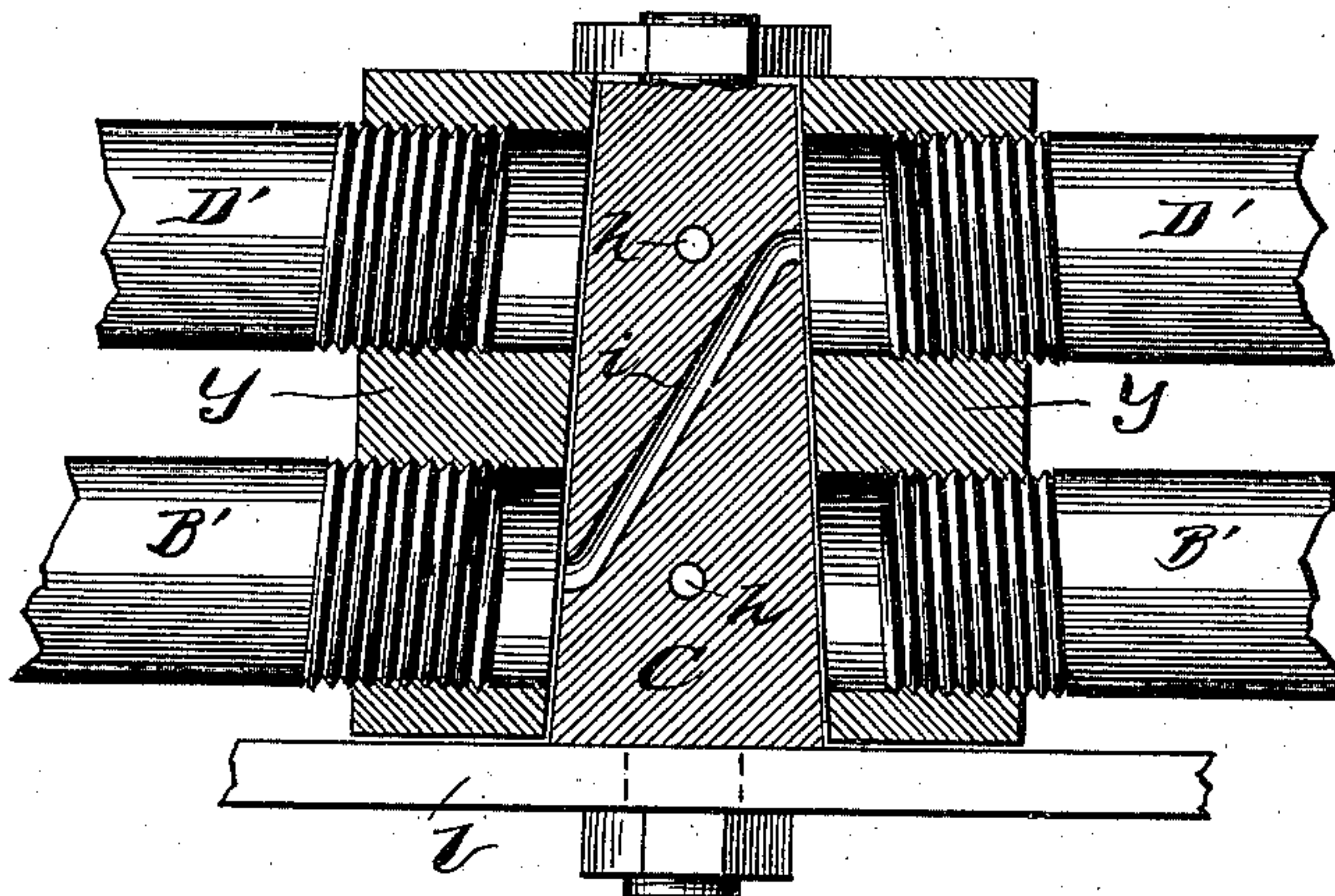


Fig. 2.

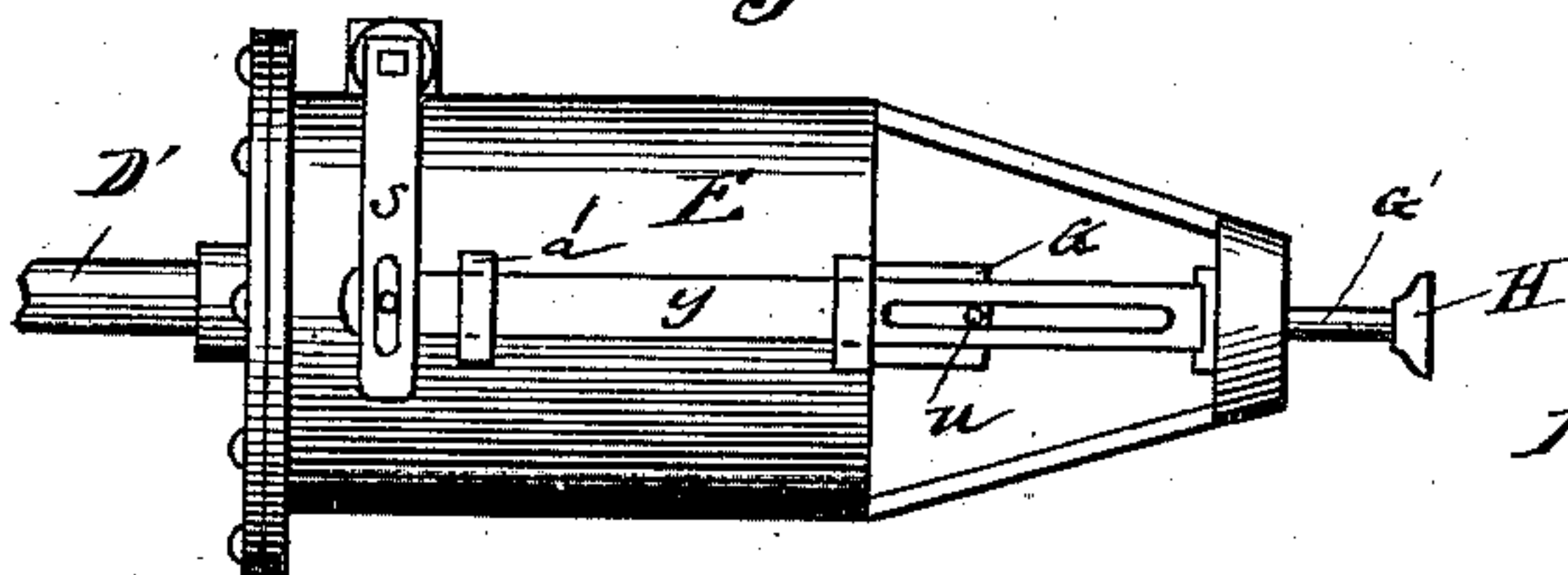
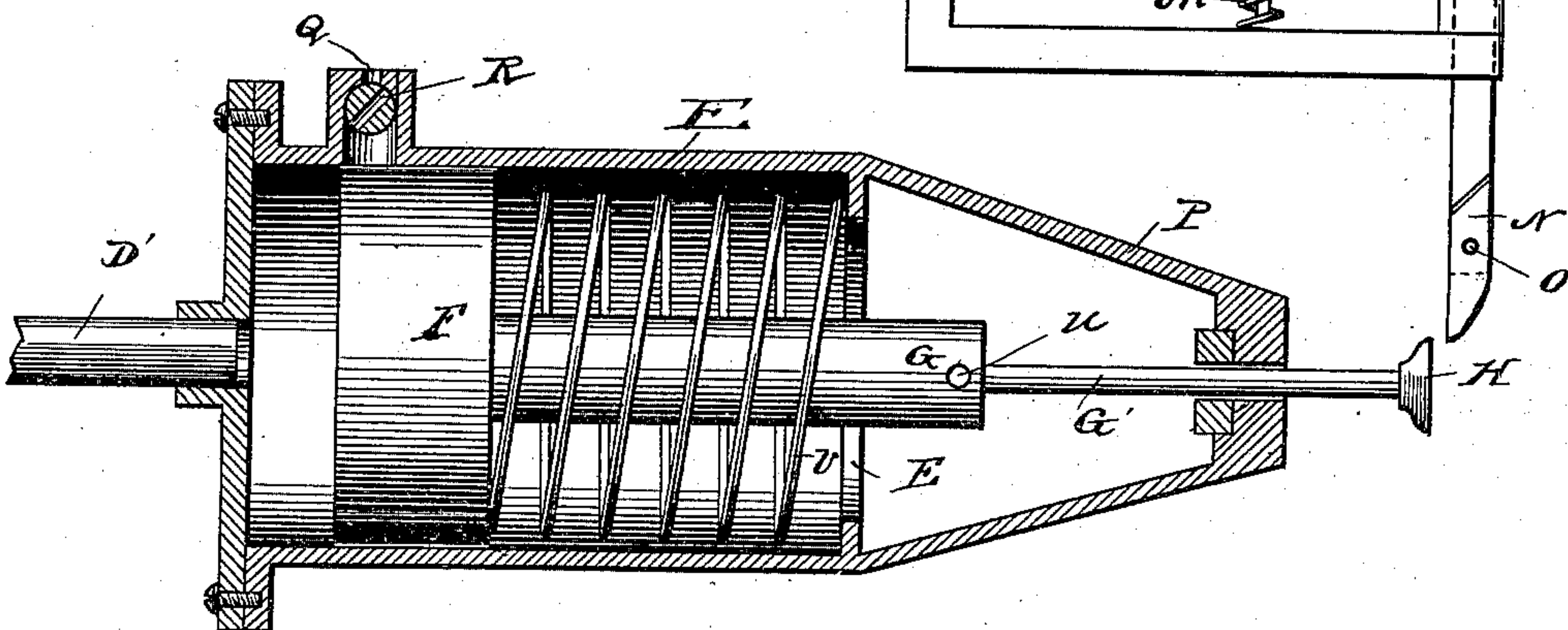


Fig. 1.



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By E. Crawford, Atty

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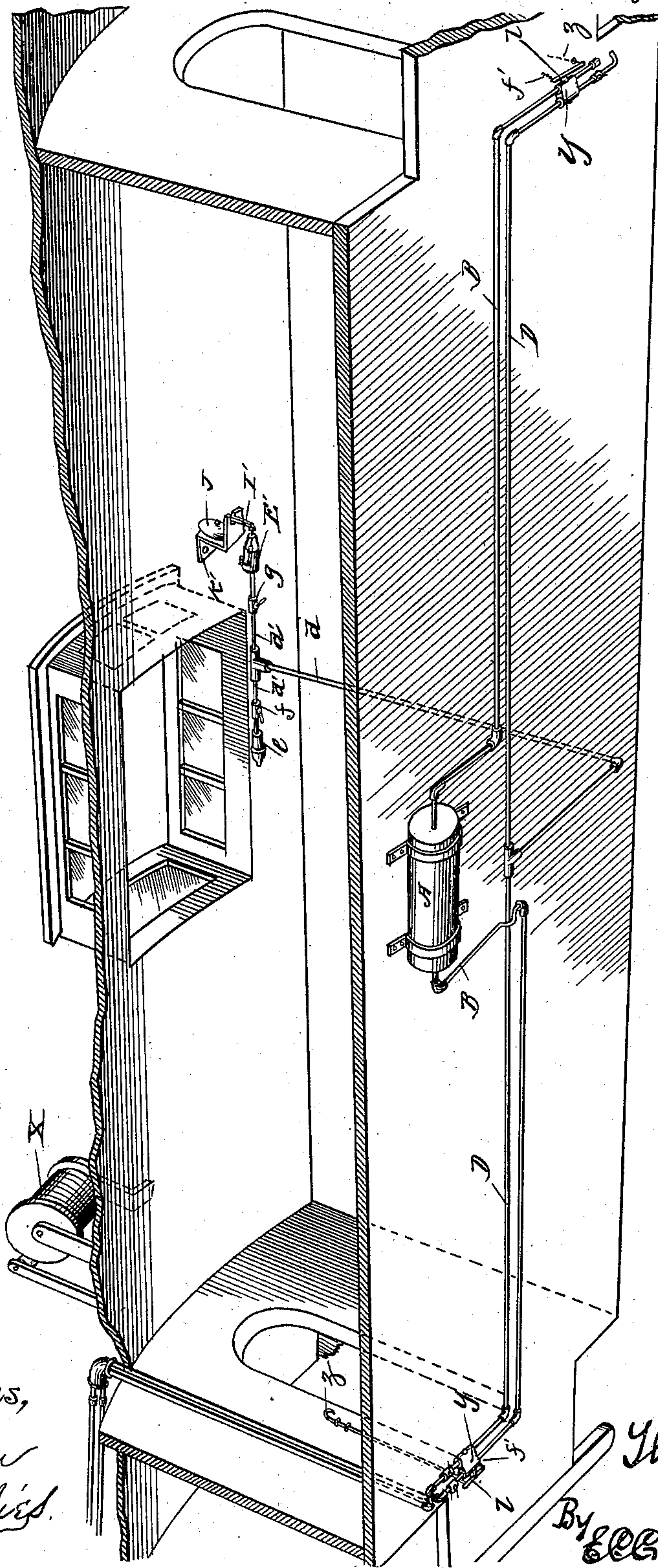
2 Sheets—Sheet 2.

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Fig. 4.



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UNITED STATES PATENT OFFICE.

THOMAS M. JENKS, OF CHICAGO, ILLINOIS.

RAILWAY-FREIGHT-TRAIN SIGNAL.

SPECIFICATION forming part of Letters Patent No. 383,813, dated May 29, 1888.

Application filed October 15, 1887. Serial No. 252,483. (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 certain new and useful Railway-Freight-Train Signals, of which the following is a specification.

My invention relates to improvements in railway-freight-train signals, and its object is to enable the engineer from his cab to sound a gong or bell or blow a whistle located in the caboose at the rear of the train, and to enable the conductor, from the caboose, to sound a gong or bell located in the cab of the locomotive, all to be done by the use of compressed air. I attain these objects by the machinery illustrated in the accompanying drawings, in which—

Figure 1 represents a gong or bell in the cab of the locomotive, together with machinery whereby such gong or bell is sounded. Figs. 2 and 3 represent parts of said machinery worked out in detail. Fig. 4 represents the caboose of a freight-train with one side removed and lying upon the other side and fitted with machinery for sounding a bell or gong or blowing a whistle in the caboose.

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

In Fig. 1, E is an air-chamber located in the cab of the locomotive, cylindrical in form, and it appears with a side removed, so as to show its structure and contents. F is a piston-head fitting air-tight in the air-chamber E; G, a piston; G', a piston-rod; H, a cap on the piston-rod; V, a spring in the air-chamber E; I, a hammer; L, a pivot on which the hammer I may revolve; J, a gong (only a part of it being shown in the drawings); K, a frame on which the gong and hammer are fastened; M, a spring fastened to the hammer I and the frame K; N, a section of the hammer I made to turn on the pivot O; P, an open frame fastened to the end of the air-chamber E; Q, a vent in the air-chamber E, and R, a cock in this vent. D' is a section of a pipe leading into the chamber E from an air-chamber under the locomotive. (Not shown in the drawings.)

In Fig. 2 is shown an outside lateral view of the chamber E. In this figure, S is a lever having a pin fastening its upper end to the

cock R. In the lower end of the lever S is a slot. T is a slide-bar held in the strap a' and connected at one end with the lever S by a pin passing through the slot in the lever S. Near its other end it has a slot running parallel with the piston G. A pin, U, fixed in the piston G passes through this slot, having been made small enough to slide in the slot.

In Fig. 3 a section of the pipe D' is shown; also a section of the pipe B' which leads from the air-chamber under the locomotive and connected by hose with the pipe B, Fig. 4. Y is a four-way cock, into which the pipes D' and B' are screwed. C is the key of this cock. h h are holes running straight through it. H is a cored-out hole running diagonally through it, and l is a section of a lever fitted to the key C, so as to turn it about the cock. Y is fastened to the pipes near the air-chamber located beneath the locomotive. A corresponding cock is placed in connection in like manner with the pipes under each end of the caboose.

In Fig. 4, A is an air-chamber fastened to the bottom of the caboose. B B are pipes opening into this chamber and into the cocks y y, (the construction of which has been shown in detail in Fig. 3.) As shown in Fig. 3, these cocks are provided with an air-passage, so that they may be made to furnish communication between the pipes B, B, and D. D is a pipe beneath the caboose. There is (as heretofore shown) beneath the locomotive and leading up to the air-chamber E in the cab a corresponding pipe, D'. This pipe D' at its other end is connected with the pipe D by hose passing up from each pipe and over the roofs of the freight-cars. d and d' are pipes communicating with each other and with the pipe D. The pipe d' opens at one end into the air-chamber E', which is a duplicate of the air-chamber E, and is fitted out and connected with machinery exactly like that shown in Figs. 1 and 2. At its other end the pipe d' opens into a whistle, e. I' and J' are, respectively, a hammer and a gong, like the same in Fig. 1. f and g are one-way cocks in the pipe d. X is a reel fixed upon the top of the caboose, and designed to carry hose to furnish connection between the pipes D' and D.

A small engine, placed conveniently on the

locomotive and furnished with steam from the boiler of the locomotive, operates an air-pump to fill with compressed air the air-chambers under the locomotive and under the caboose; or the air-pump may be operated by the railway-engine by appropriate appliances. The pipe B' opens out of the air-chamber under the locomotive and is connected by rubber hose with the pipe B under the caboose. The keys of the cocks are set so that at all times when signals are not being given the holes *h* permit the air to pass through the whole length of the pipes B' B and their connecting-hose. Thus the receiver A has communication with the chamber under the locomotive, and is thus kept filled with compressed air.

One end of the lever *l* of the key in the cock under the locomotive has attached to it a wire (corresponding to the wire Z in Fig. 4) that passes up into the cab. To the other end of the lever is fixed a spring, (corresponding to the spring *f'* in Fig. 4,) which spring is also attached to the floor or any convenient part of the locomotive, (as spring *f'* is fastened at its upper end to the bottom of the caboose.) When this wire is pulled upward, the key is partly turned around and communication between the pipes B' and D' is established through the hole *i*. Air rushes through the pipe D' and its connecting-hose into the pipe D, thence through the pipes *d* and *d'*, and (the cock *g* being open and the cock *f* closed) into the air-chamber E', where it forces the piston in the air-chamber E' forward and thus causes the gong in the caboose to sound, and the air then escapes from the air-chamber E' by means of a vent corresponding to the vent Q in the air-chamber E, as set forth below, and the piston returns to its original place. When the wire corresponding to the wire Z, above mentioned, is released, the spring corresponding to the spring *f'* draws the key C back to its original position and communication is reopened between the pipes B' and B through the holes *h* and the air-chambers under the locomotive and the caboose begin to be refilled.

Instead of sounding the gong in the caboose, the whistle *e* may be blown by closing the cock *g* and opening the cock *f*.

The cocks and their keys under the caboose are constructed and operated as are the same shown in Fig. 3. When the conductor wishes to signal the engineer, he pulls the wire Z—that is, the wire communicating with the cock in the forward end of the caboose. Thus communication is opened between the pipes B and D through the cock Y, and the air rushes from the receiver A through the pipes B and D and the hose connecting the pipe D with D' into the chamber E, where it drives the piston F forward until the cap H strikes the section N of the hammer and passes beyond it. At the same time the pin U will strike the end of the slot in the bar T and thus force the bar T forward and with it the lower end of the lever S. Thus the cock R will be turned, bringing its

opening into line with the vent Q. The compressed air will escape from the chamber E, the pipes D and D' through the vent Q, and the spring V will force the bar T back to the end of the chamber next to the pipe D'. When the section N is forced forward by the cap H, the upper part of the hammer I is depressed, and when the cap H has passed beyond the section N the spring M will throw the upper end of the hammer I against the gong J. When the cap H, returning, meets the section N, it turns on its pivot O, and thus allows the cap H to pass back to its original position.

I am aware that prior to this invention of mine machinery has been made by which compressed air has been made to operate a railway-signal; therefore I do not claim such a combination, broadly; but

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

1. In a railway signal mechanism, the combination of the two-way cock R, fitting air-tight in the vent Q, made in a side of the air-chamber E, near the end into which the pipe D' opens, the lever S, secured at one end to said cock and normally placed at right angles to the axis of said chamber and curved to conform to the curved side of said chamber, the pin U, rigidly secured in the piston G in said chamber, near the outer end of said piston, and extending at right angles to said lever in its normal position, and the slide-bar T, supported in brackets secured to the side of said chamber in a line parallel to the piston G, and having a pin through it at one end passing into a slot in the lever S near the end opposite to the cock R, and having next to its other end a slot made in the plane of the pin U, and of such length that the pin U, extending through said slot, will strike the ends of it as the piston moves forth and back, so as to alternately open and close the vent Q, as and for the purpose stated.

2. In a railway signal mechanism, the cock Y, embracing its key C, pierced at right angles by the parallel holes *h h* and diagonally by the hole *i*, and having the lever *l* secured to it at one end, in combination with the pipes B' and D', secured beneath the cab of a locomotive and connected by hose with the pipes B and D, secured beneath the caboose of a railway freight-train, and opening, respectively, into the air-chamber A and into the pipe *d*, leading to the air-chamber E' and to the whistle *e*, substantially as and for the purposes specified.

3. In a railway signal mechanism, the pipes B and D, in combination with the air-chamber A, secured beneath the caboose of a railway freight-train, and the cock Y, embracing the key C, which is operated by its lever *l*, connected at one end with the chain Z, extending up into the caboose, and at the other with the spring *j'*, secured to the under part of the caboose, said pipe D being connected by hose with the pipe D', leading into the air-chamber E, which contains the piston G, designed to

throw the hammer I against the gong J in the cab of the locomotive, as stated.

4. In a railway signal mechanism, the pipe D beneath the caboose of a freight-train, communicating with the pipe B through the cock Y beneath such caboose, and in combination with the pipe d, communicating through the pipe d' with the air-chamber E' and the whistle e in such caboose, and communicating by

means of connecting-hose with the pipe D', to which opens into the air-chamber E on the locomotive, substantially as and for the purposes specified.

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Witnesses:

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