

No. 669,488.

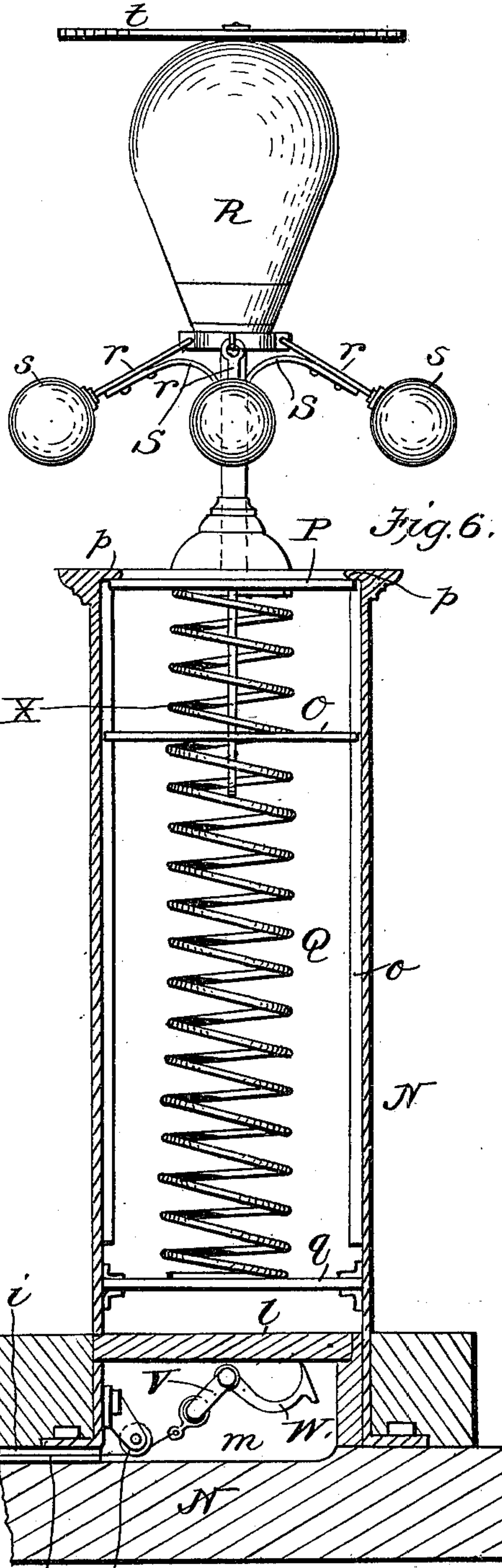
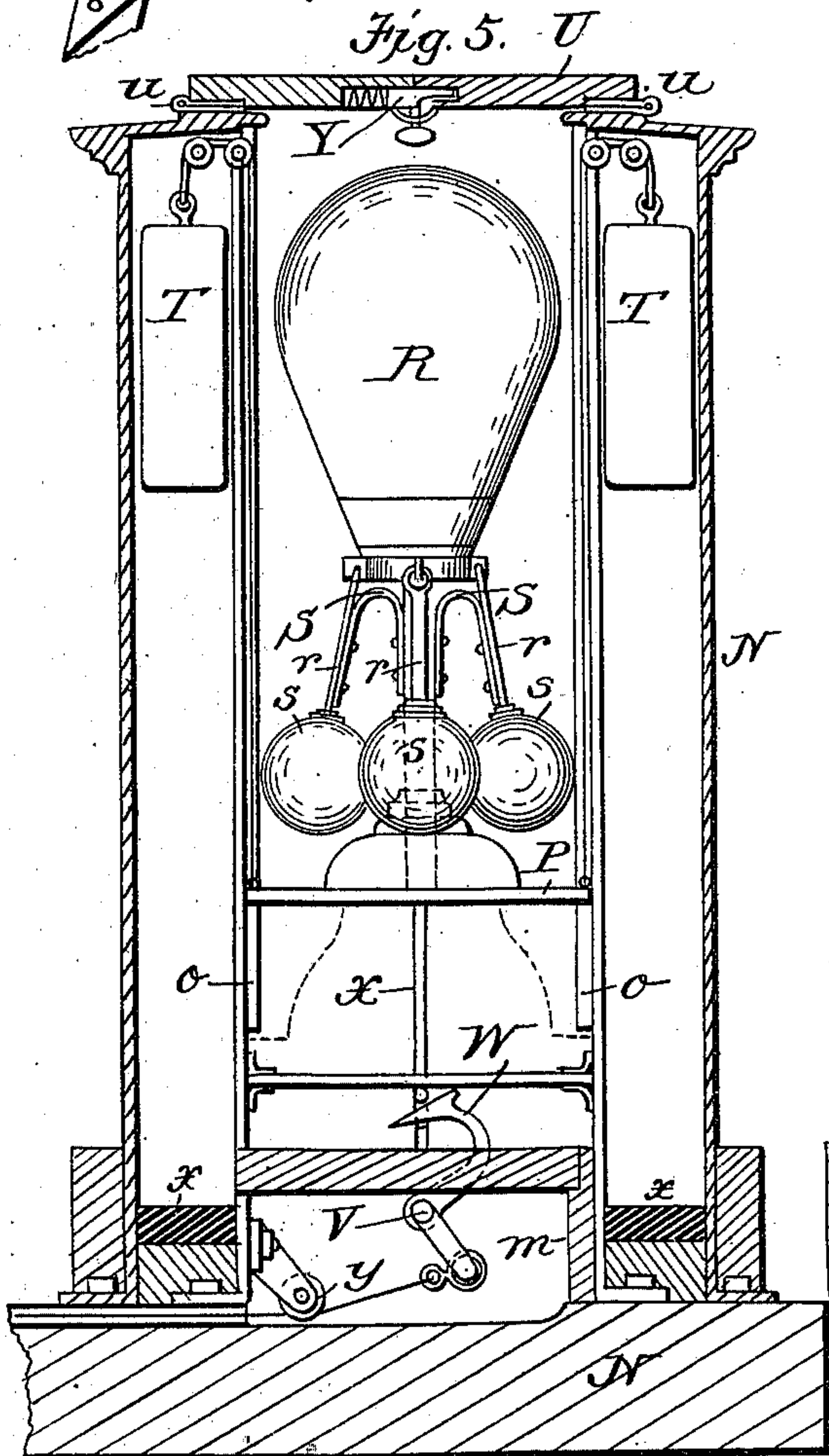
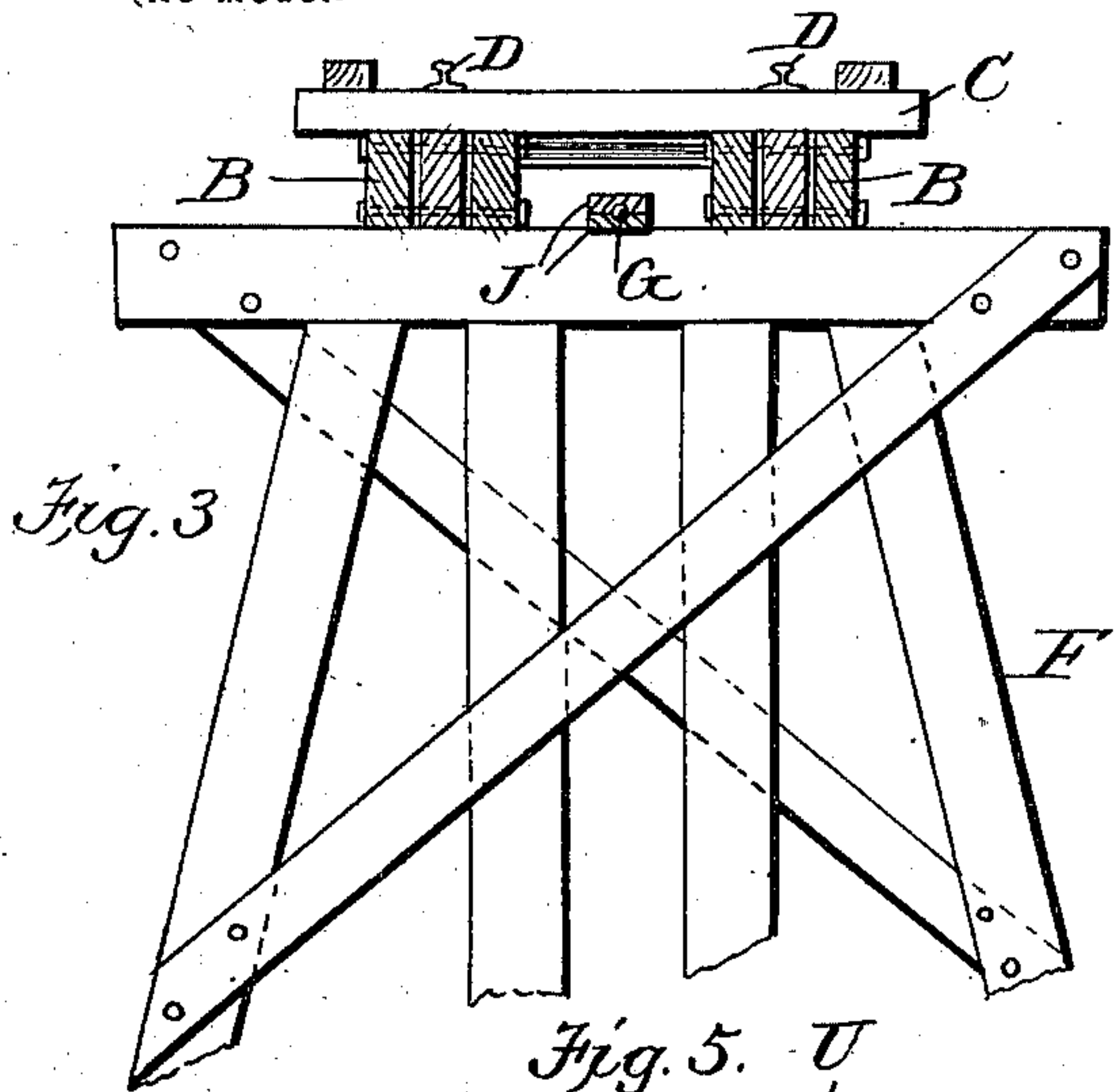
Patented Mar. 5, 1901.

C. H. REMINGTON.
RAILROAD SIGNAL.

(Application filed Aug. 31, 1900.)

(No Model.)

3 Sheets—Sheet 2.



Witnesses.
James L. Ouray
[Signature]

Inventor
Charles H. Remington
By *[Signature]*
his Attorney

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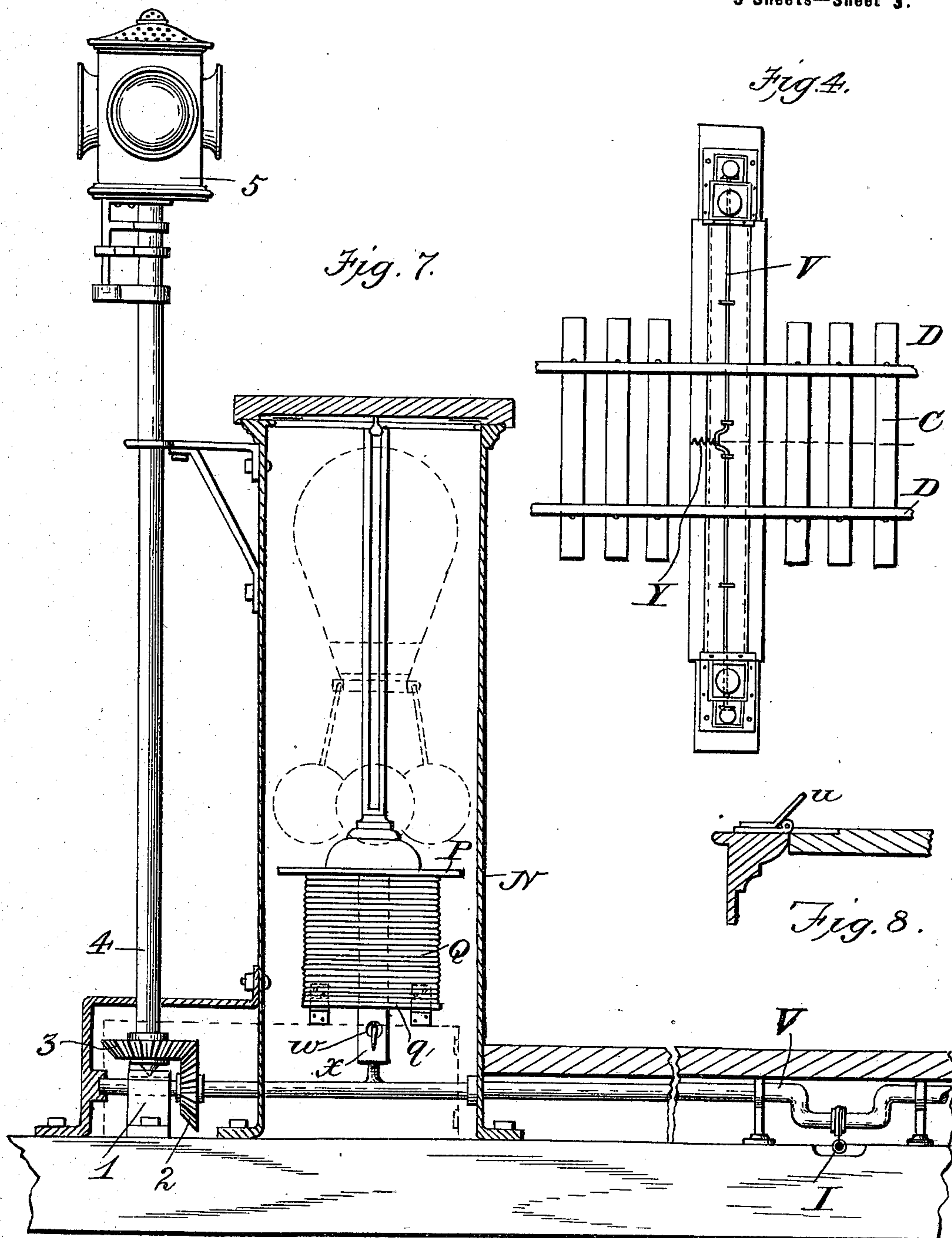
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3 Sheets—Sheet 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES H. REMINGTON, OF ROSWELL, TERRITORY OF NEW MEXICO.

RAILROAD-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 669,488, dated March 5, 1901.

Application filed August 31, 1900. Serial No. 28,705. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. REMINGTON, a citizen of the United States, residing at Roswell, in the county of Chaves and Territory of New Mexico, have invented certain new and useful Improvements in Railroad-Signals; and I do 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, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in railway-signals, and is designed more particularly for use at bridges, culverts, and the like to notify the engineer as to the condition of the bridge or culvert. I provide for the actuation of a signal in case of accident to the bridge or culvert, either by the burning of the same or by the washing away of its support or the washing away of the dirt to such an extent as to impair the safety thereof. In some instances I may provide for the display of a semaphore or light in addition to the danger-signal, and this supplemental signal is arranged to be operated simultaneously with and by the same means that actuates the danger-signal. I aim at absolute safety and the prevention of accidents at bridges or the like, and this by simple yet reliable and efficient means.

The invention is capable of embodiment in a variety of forms, some of which are herein illustrated as representing what I at the present time consider the most preferable.

Further objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the characters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a view in end elevation, with portions in cross-section, illustrating my invention. Fig. 2 is a view in section, taken at right angles to Fig. 1, with portions in elevation. Fig. 3 is an enlarged detail, partly in elevation and partly in cross-section. Fig.

4 is a top plan on a reduced scale. Fig. 5 is an enlarged view with portions in section and parts in elevation, showing the signal in its closed position. Fig. 6 is a similar view with the signal open. Fig. 7 is a view, partly in section and partly in elevation, with the signal closed and showing the mechanism for operating the semaphore or light. Fig. 8 is a detail of the spring-hinge employed in connection with the top to the signal-box.

Like characters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates a gap or chasm bridged by a suitable bridge of known construction except as hereinafter specified. It is to be understood that the width of this chasm in no wise affects my invention, nor is it material whether it be such as to require more than such as is usually employed at a culvert or a bridge of great length, as my mechanism works the same in any event. For the purpose of illustration simply I have shown in Fig. 2 the gap or chasm as of but little width and spanned by a suitable support B, on which rest the cross-ties C, and they in turn support the track-rails D. The signal-boxes may be located at any desired distance from the bridge or culvert. The construction is such that should the bridge burn or from any cause be damaged or obstructed the signal will be operated. For this purpose I provide the means (seen best in Fig. 2) wherein it will be seen that upon the opposite sides of the gap or chasm is a casting E, supported on top of the piles or bents F, to which they are secured in any suitable manner. These castings have openings through which pass the wires soon to be described. These wires G or a single wire passes through these holes near the upper edge of the castings and extends beneath the cross-ties between the side supports B, as seen in Fig. 2, and the wire is turned downward near its ends, as indicated, where it is held or strained by means of the bars H, supported between the side supports B, as seen best in Fig. 2. Beneath the cross-ties I support a rail or a plurality of rails h, held in position in any suitable manner and adapted to fall from their supports when the bridge burns or if from any cause it should be damaged to such an extent as to render it

unsafe. In falling this rail or these rails will fall upon the wire G and by depressing it cause the same to draw upon the rod or wire that actuates the signal, as will be now explained.

The ends of the wire G after passing through the holes in the castings are connected with a stronger wire or rod I upon each side of the gap or chasm, and at this point or these points I prefer to employ some sort of connecting device which will permit of the breakage of the wire G, which by preference is of copper, without damage to the wires or rods I; but as this form of connection constitutes no part of my present invention, although a desirable feature, the same has not been shown in detail. It is indicated at *a* in Fig. 2.

The wires or rods I are preferably incased in suitable protective casings—such, for instance, as gas-pipes *i*—which terminate at the inner wall of the signal-box or the base thereof, as indicated in Figs. 5 and 6. As above stated, these signal-boxes may be arranged at any desired distance from the gap or chasm.

Where trestle-work is employed, or upon a bridge of any great length where a plurality of bents are necessary, I place the wire G between two wooden strips J, as seen in Fig. 3, securing them in any suitable manner and supporting these strips on the upper cross-bars of the bents, as shown. In case the bents or any one of them burn or from any cause should sink to such an extent as to impair the safety of the bridge these strips will fall sufficiently to pull upon the wire and actuate the signal.

It is evident that the longitudinal supports on which the cross-ties rest may be of any of the well-known forms of construction and not necessarily composed of the three timbers each, as shown in Fig. 3, this form being merely shown as illustrating the preferred form and that in general use at the present time.

In Fig. 2 I have shown means for preventing the caving in of the earth about the culvert or shore of the gap or chasm without actuating the signal. As will be readily understood from reference to this view, K represents piles driven into the earth at the proper distance from the gap and down a sufficient distance into the earth, and to each of these piles, preferably at or near the lower end thereof, I attach in any suitable manner a wire L, the other end of which is attached to the wire or rod I in such a manner that should the pile sink or be pulled outward or in any direction by the caving in of the earth it will cause a pull upon the rod or wire I and thus actuate the signal.

At M, I have shown a temper-screw or turn-buckle in the wire G to allow for the compensation for contraction and expansion by heat or cold.

Having now described in detail the different means by which the signal is actuated by the displacement of the bents or piles or the

burning of the supports, it remains only to describe the signal and its connection with the rods or wires I and the manner in which the said signal is actuated thereby.

N is the signal-box. It consists, essentially, of a vertically-disposed rectangular closure supported upon a suitable base *n*, with a chamber *m* beneath the bottom *l*, which latter is provided with an opening through which works the hook or catch which controls the signal. The opposite inner walls of this box are provided with vertical guides or grooves *o*, in which work the ends of the guide-bar O, as seen clearly in Fig. 6, also for the upper guide-bar P, which latter is limited in its upward movement by its engagement with stop lugs or the like, *p*, on the inner wall of the box at the top, as is clearly shown in Fig. 6.

Q is a spring disposed between the upper bar or plate P and a stationary part *q* within the box, near its lower end, and this spring is normally compressed, as seen in Fig. 7, and the signal confined within the box. This signal may be of any preferred form of construction. I have herein illustrated it as of peculiar form with the intention of making it more noticeable; but it is evident that this form is not essential to the invention. As seen in Fig. 6, this signal R embodies a body portion which may be of glass or metal coated with red paint to designate "danger," as is customary in railroad service, and this body is supported upon the upper plate P in any suitable manner, and in order to make it more attractive or noticeable I have provided it with a plurality (preferably four) of pivoted arms *r*, each carrying a ball *s*, which may be of any suitable material and colored red, and S represents springs acting upon the under side of the arms to force them upward and outward when the balls are released by the upward movement of the signal. Normally when the signal is closed the parts are in the position in which they are seen in Fig. 5; but when the spring is released by the means now to be described the said spring forces the signal upward and the arms *r* are thrown outward, and the signal then assumes the position in which it is seen in Fig. 6.

In lieu of the spring just described I may sometimes prefer to employ counterbalance-weights T, as seen in Fig. 5, which I consider the full equivalent thereof.

Any suitable means may be employed for closing the upper end of the signal-box when the signal is in its closed position. In Fig. 6 I have shown a cap-plate *t* attached to and carried by the upper end of the body of the signal and adapted when down to close the upper end of the box. In Fig. 5 I have shown a hinged sectional cap or cover U, the sections of which are hinged to the top of the box by spring-hinges *u* and the meeting edges of the cover held together by a spring latch or bolt *v*, as shown. As the signal flies upward under the influence of the spring the upper end of the body strikes this bolt and

causes it to disengage the sections of the cover when the springs of the hinges force the cover-sections upward and out of the way of the signal. The construction of these spring-hinges is shown in Fig. 8.

In Fig. 7 I have indicated by dotted lines a door by which access may be had to the chamber at the bottom of the box.

The outer ends of the rods or wires I are each connected to the crank of a crank-shaft V, and this crank-shaft carries a hook or the like, W, which works through the hole in the bottom plate l, as seen in Fig. 7, and engages through a hole w in the plate or bar X depending from the upper plate P, as shown, and when this hook is engaged in this hole it holds the spring in its compressed position and retains the signal within the box, as seen in Fig. 7. The wires I pass beneath suitable guide-pulleys y, as seen in Figs. 5 and 6.

When I employ the weights as shown in Fig. 5, I provide at the bottoms of the casings or boxings in which they work rubber or elastic cushions x, as seen in Fig. 5, against which the weights engage as they fall into their lowermost position, and thus deaden the sound. It is evident, however, that these cushions may be dispensed with, if desired.

In order to insure the engagement of the hook in the opening of the bar X and guard against any possibility of its accidental disengagement therefrom and the accidental opening of the signal, I provide a spring Y, acting on the crank of the crank-shaft to help keep the hook in the position in which it is seen in Figs. 5 and 7.

In Fig. 7 I have shown the crank-shaft V extended and mounted in a suitable bearing 1, and on the end of this shaft I fix a bevel-gear 2, which meshes with a bevel-gear 3 on a vertical shaft 4, suitably stepped at its lower end and mounted to revolve in suitable bearings near its upper end, and on the upper end of this shaft is mounted a lantern 5, or it may be a semaphore-arm of usual form, and from this it will be clearly seen that when the crank-shaft is actuated to operate the signal R it at the same time turns the said shaft, so that through the medium of the bevel-gears the lantern or semaphore-arm will be turned to display the red light or signal, and thus I provide a double safeguard against accident.

It will thus be seen that I have devised a simple, cheap, yet reliable and durable railway-signal, and while the structural embodiment of my invention as herein disclosed is what I at the present time consider the preferable form, I do not wish to restrict myself to the exact details and arrangement of parts herein disclosed, but reserve the right to make such changes, variations, and modifications as properly come within the scope of the protection prayed.

What is claimed as new is—

1. The combination with a signal-box, with guides, of a vertically-movable plate guided

by said guides, a signal carried by said plate, a spring within the box for forcing the plate upward when released, a depending portion having an opening, a crank-shaft, a hook carried thereby to engage said opening, and a wire operatively connected with said shaft, as and for the purpose specified.

2. The combination with a signal-box with guides, of a vertically-movable plate guided by said guides, a signal carried by said plate, and means within the box for forcing the plate upward when released, a depending portion having an opening, a crank-shaft, a hook carried thereby to engage said opening, and a wire operatively connected with said shaft, as and for the purpose specified.

3. The combination with a vertically-movable signal, a crank-shaft operatively connected therewith, a wire operatively connected with said shaft, a device or devices connected with the earth, an intermediate wire attached to said device or devices, and also to the wire of the crank-shaft, as and for the purpose specified.

4. In a railroad-signal, the combination with a bridge-support, of a casting mounted thereon, and having an opening therein, a wire connected through said opening to the signal, and bars suitably connected with said wire, as and for the purpose specified.

5. In a railroad-signal, the combination with a casing, a movable signal therein, movable arms connected to said signal, and balls attached to said arms and grouped around the body of the signal, and means for forcing said arms upward and outward when released from said casing as and for the purpose specified.

6. The combination with a bridge or the like, and the cross-ties thereof, a wire located below said ties, of a rail or rails interposed between said ties, and said wire, substantially as and for the purpose specified.

7. In a railroad-signal the combination with a casing, a signal inclosed therein, means for actuating said signal, a spring-hinged sectional cover for said casing, and a spring-latch connected to the meeting edges of said cover, whereby the cover is actuated by means of pressure of the signal, substantially as and for the purpose specified.

8. In a railroad-signal, the combination with the casing having grooves in the side walls thereof, a movable signal within said casing, a guide-bar connected with said grooves, of a vertical bar attached to said signal, and means connected to said bar whereby to hold or release said signal, as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. REMINGTON.

Witnesses:

GEO. C. POULTON,
E. A. PAUL.