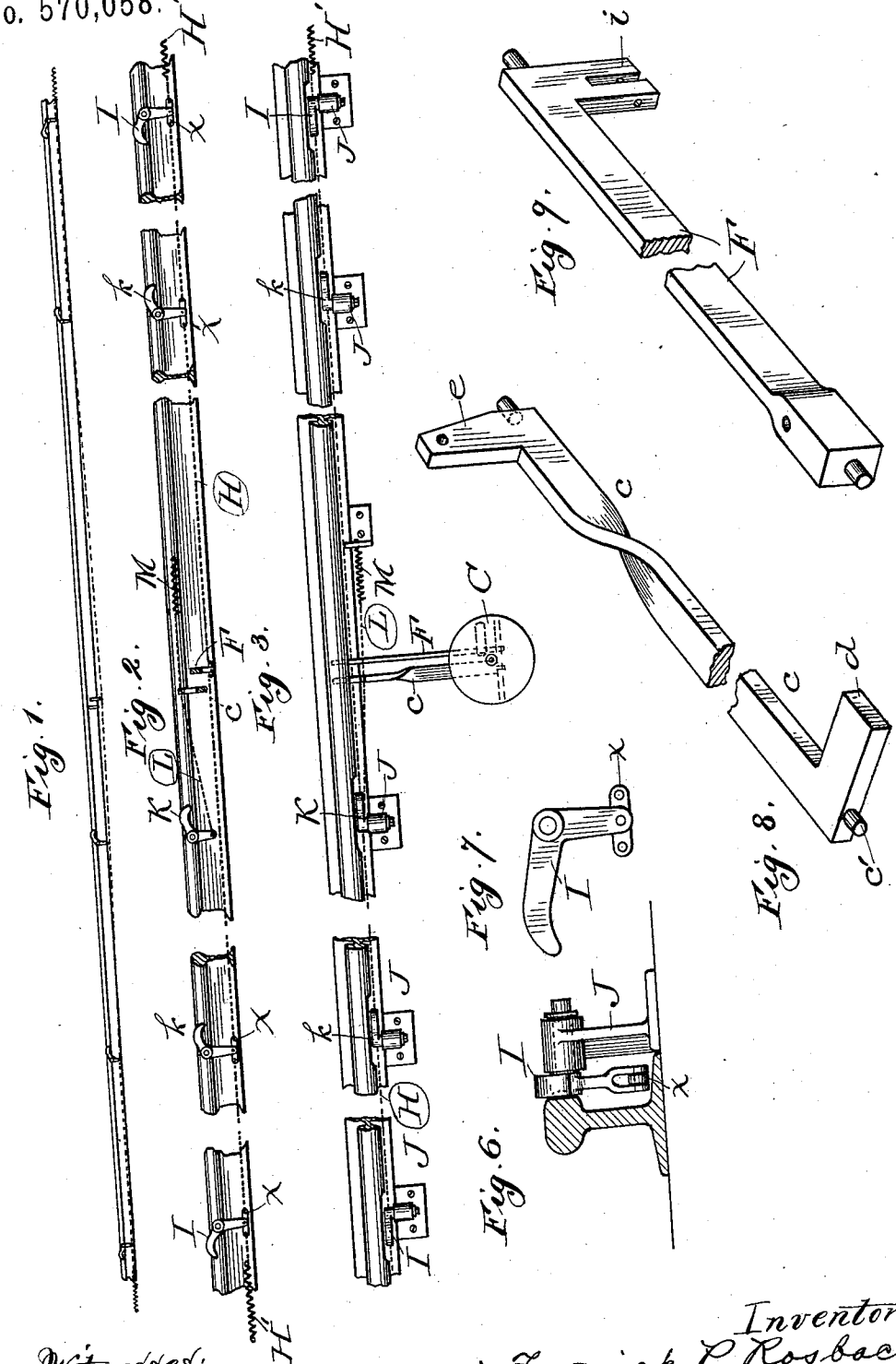
2 Sheets—Sheet 1.

(No Model.)

F. P. ROSBACK.

RAILWAY ALARM.

No. 570,058. Patented Oct. 27, 1896.



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(No Model.) 2 Sheets—Sheet 2.

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RAILWAY ALARM.

No. 570,058. Patented Oct. 27, 1896.

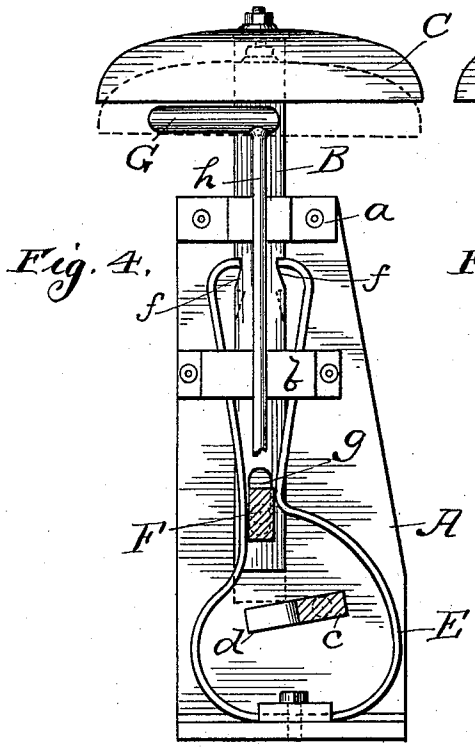


Fig. 4.

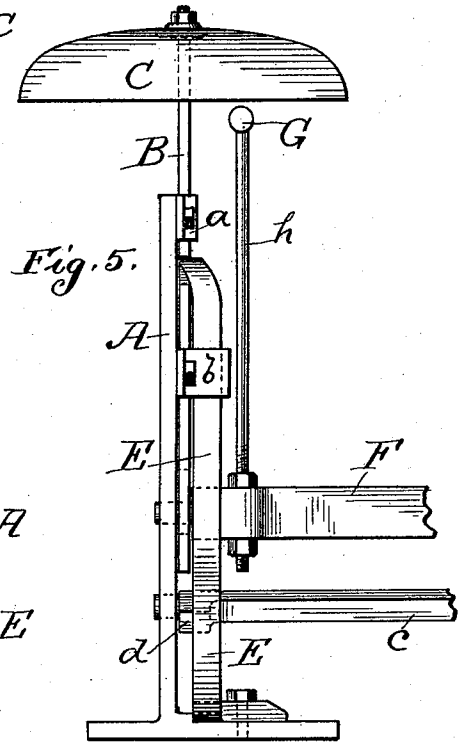
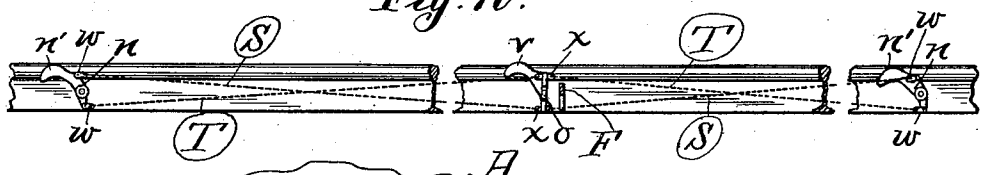


Fig. 5.

Fig. 10.



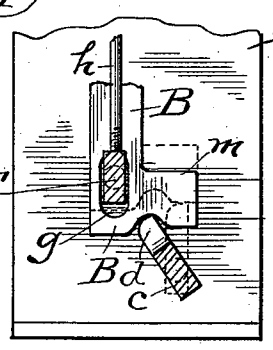


Fig. 11.

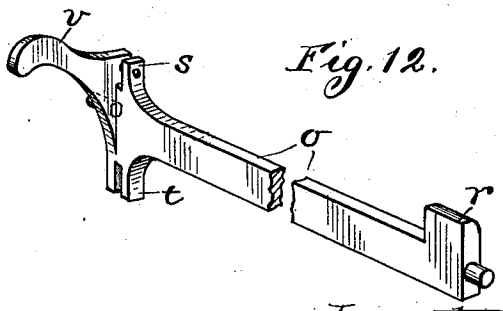


Fig. 12.

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UNITED STATES PATENT OFFICE.

FREDRICK PETER ROSBACK, OF CHICAGO, ILLINOIS.

RAILWAY-ALARM.

SPECIFICATION forming part of Letters Patent No. 570,058, dated October 27, 1896.

Application filed March 11, 1896. Serial No. 582,745. (No model.)

To all whom it may concern:

Be it known that I, FREDRICK PETER ROSBACK, a citizen of the United States, and a resident of Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Railway-Alarms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to railway-alarms such as are usually employed at railway-crossings and operated by hand.

The object of my invention is to enable the train, no matter in what direction it is moving, to ring the bell as it approaches the crossing and to stop and prevent the bell from ringing as it leaves the crossing. This I accomplish by means of a bell the mechanism of which is connected to track devices both near the crossing and removed some distance therefrom, whereby said bell is rung or is moved so that it cannot ring, according to the position of the moving train, substantially as hereinafter fully described, and as illustrated in the drawings, in which—

Figure 1 is a side view of a stretch of track, showing the relative positions of several track-levers used in conjunction with and constituting part of my invention and showing the lateral rock shafts or bars connecting the same to the bell mechanism in cross-section. Fig. 2 is a side view of the same, taken on a slightly larger scale. Fig. 3 is a plan view of my invention. Fig. 4 is a front elevation of the bell-post and bell. Fig. 5 is a side elevation thereof. Fig. 6 is an edge view of one of the track-levers used in conjunction with my invention. Fig. 7 is a side view of the same. Fig. 8 is a detail view showing in perspective one of the rock-shafts connecting the track devices to said bell-operating mechanism. Fig. 9 is a similar view of the other rock-shaft. Fig. 10 is a side view of a track, showing a modification of the system of track devices. Fig. 11 is a detailed view showing a front view of the lower end of the bell-post and a section of the rock-shaft for operating the same, and Fig. 12 is a detailed view showing a perspective of one of the rock-shafts used in the modification shown in Fig. 10.

In the drawings, A represents a suitable standard, the basal flanges of which are suitably secured so as to maintain said standard vertical. On the side of this standard facing the tracks are bolted upper guide-straps *a* and a lower guide-strap *b*. Movable vertically in these guides is a bell-post B, to the top of which is secured the bell C. The bell-post is given a slight vertical movement by means of the rock-shaft *c*, one journal *c'* of which has its bearings in the standard and the opposite journal has its bearings in the rail.

In order to obtain the requisite vertical throw for the bell-post, I journal shaft *c* a little to one side of said post and provide its end next the standard with a lateral arm *d*, which comes under said post when the arm is in a horizontal position. Shaft *c* is, for economy of construction, made of a flat bar, which is twisted at a given point along its length, and its end next the rail is provided with a normally vertical arm *e*, to a suitable eye in or near the end of which the track-wire H is secured, as will hereinafter be more fully explained. When shaft *c* is rocked, its arm *d* comes in contact with the lower end and raises the bell-post, and when said post reaches the limit of its vertical throw the two inturned ends of a spring E snap in the corresponding notches *f f*, made in the side edges of the bell-post, and hold it in its elevated position, as shown in Figs. 4 and 5.

Spring E is made of a flat strip of metal, is secured at about its center of length to the basal flange of the standard A, and its branches from its point of fastening extend in an upward segmentally-curved course on either side of and so as to practically surround shaft *c*, and then said branches approach very near each other at a suitable point above the plane of said shaft *c* and normally bear against the broader flat sides of one end of a rock-shaft F, which passes between them. From the shaft F the end portions of the branches of the spring E extend upward and have their extremities inturned. The normal tendency of the spring E is for its extremities to come together. When, therefore, these extremities enter the notches *f f* of the bell-post, it requires these extremities to be spread apart or separated a sufficient distance to release the bell-post and permit it and the bell to drop of their own weight to the limit of

their downward movement. This is accomplished by rocking shaft F, which latter in turn is assisted in its return to its normal position by the pressure of said spring E against its sides, as shown.

The journal of shaft F extends through a vertically-elongated opening or slot *g* in the lower end portion of the bell-post and then into suitable bearings in the standard. Slot *g* is of a length corresponding to the movement of the bell-post, and the journal of shaft F is of a diameter corresponding to the width thereof. So it will be noticed that said slot and journal of shaft F serve to direct the movement of the lower end of said post. The upper portion of the branches of spring E pass under the guide-strap *b*, which serves to hold them in proper position, and the extremities are bent slightly toward the standard. Now when shaft F is turned slightly or rocked in the right direction the ends of the spring are separated and the bell drops into proper position to be rung. Bell C is rung by means of a hammer G, which is secured on the upper end of a rod *h*, the lower end of which is adjustably secured in the shaft F just outside of embrace of spring E. Shaft F is utilized to both release the elevated bell and also to ring the same when it has dropped to the limit of its downward movement. This shaft F is also made of a flat bar of metal, and the end thereof journaled in the rail is provided with a downwardly-projecting arm *i*, to which the track-wire is secured.

In Fig. 2 of the drawings is shown in dotted lines a longitudinal wire H, which is connected at about its center of length to the arm *i* of shaft F. This wire extends some distance in both directions from the crossing and has expansion-springs H′, secured to both ends and pulling in the opposite directions to keep it taut. Near each end it is secured to the lower end of a bell-crank-shaped track-lever I I, which are fulcrumed either directly to the side of the rail or to a suitable post J, fastened to and arising from the extended end of the ties, substantially as shown in the drawings. The upper horizontally-disposed arms of levers I are curved so that their edges come slightly above the plane of the ball of the rail and so that the wheels of passing trains will depress them. In the drawings these levers I I are so positioned that when depressed the wire H, which is secured to the lower end of their vertical arms, will move to the right, no matter from what direction the train approaches the crossing, and turn shaft F, so that it spreads the ends of the spring and lets the bell-post, with its bell, drop to the limit of its lower movement and in position to be rung. Now a short distance from each lever I and at a point nearer the bell I pivot a lever *k*, to the lower end of the vertical arm of which the wire is connected and which corresponds in construction to lever I in every respect, excepting that its horizontal arm points to the right, so that when depressed it will move wire H to the left. This movement turns shaft F to the left and through the rod *h* and hammer G rings the bell without affecting spring E at all; but even if it did no harm would be done, because the bell-post will then be in its lowered position. Now, after the bell has been lowered by the train passing over either lever I and rung by the train passing over either lever *k*, in order to make the bell cease ringing when the train has passed the crossing I provide another track-lever, K, which is constructed similar to levers I and *k*, and in Figs. 2 and 3 is shown as fulcrumed at a point located to the left of the bell with its horizontal arm pointing to the right. To the lower end of this lever K is secured a wire L, which extends direct therefrom to and is connected with the arm *e* of the shaft *c*, and continuing on beyond said arm is secured to or terminated in a spring M, which latter is of sufficient tension not only to keep the wire L taut, but to restore said shaft *c* and lever K to their normal positions immediately after the pressure of the car-wheels is removed from said lever. The turning of shaft *c* in this manner brings the arm *d* to engage and raise the bell-post, as hereinbefore stated.

If desired, the lower end of the bell-post may have a lateral arm or offset *m*, with which the arm *d* of shaft *c* may engage, as shown in Fig. 11. This is considered simply as a variation of the construction of my invention, and as there will be other changes of this character in the practical application of my invention, according to the location and other conditions of the locality where my improvements are to be placed, I desire to be understood as contemplating all such changes as coming within the scope of my invention.

In Fig. 10 I show a modified construction of the system of wire and track levers for raising and lowering the bell-post, whereby the spring E can be dispensed with. This consists of levers *n*, that occupy the relative position and take the place of levers I, hereinbefore referred to, and by so constructing the rail end of a transverse shaft *o* as to make it the equivalent to the lever K, before alluded to. Shaft *o* is the equivalent of shaft *c*, and at the end next the standard has an arm *r*, the function of which is the same as that of arm *d*. The other rail end of this shaft *o* has its journal extending centrally therefrom about as shown in Fig. 12, and projecting both downward and upward from said end are bifurcated lugs *s* and *t*, respectively, the upper lug *s* having a lateral arm *v* projecting from the branch thereof nearest the rail, which is so curved that when lugs *s* and *t* are in the same vertical plane it will rise above the plane of the ball of the rail, as shown. Levers *n* are fulcrumed at about the center of length of the normally vertical portion of the same, and the extremity of the vertical portions of their upper branches has a normally horizontal lateral curved arm *n*′, which

extends in the same direction and rises above the ball of the rail-like arm *v*. These levers *n n* and the rail end of the shaft *o* are connected by two wires, one, S, secured to the angle of the upper branch of the left-hand lever *n* and extending from thence to and between the bifurcations of the lower lug *t* of shaft *o*, at which point it is fastened to said lug in any suitable manner, and from thence extending to the angle of the upper branch of the right-hand lever *n*. The other wire, T, has one end secured to the lower ends of the levers *n* and to the upper lugs *s* of shaft *o*, thus crossing wire S about midway between said levers *n* and shaft *o*. According to this system when the car is approaching the crossing it first comes in contact with and depresses the lateral arm *n'*, which, through wires S and T, causes the shaft *o* to turn, so that the bell-post, which rests on the arm *r* thereof, is lowered, and at the same time the arm *v* of the shaft is raised. Thus when the wheels of the train come in contact with said arm *v* and depress it the shaft *o* is turned so that its arm *r* raises the bell-post out of engagement with the hammer, and there it remains until the train passes over and depresses the other lever *n*, which causes the bell-post and bell to descend again.

The bell-ringing devices are the same in the modifications shown in Figs. 10, 11, and 12 as that hereinbefore described.

As it might be difficult to pivot the track-levers direct to the rail, I have, as shown in Figs. 6 and 7 of the drawings, adopted the angle-plate post J to fulcrum them to, and in order to avoid bending the wires where they attach to the levers I prefer to use bails *w*, as shown in Figs. 10, 11, and 12, or bars *x*, as shown in Figs. 2, 3, 6, and 7. In the event of my using the latter I prefer to bifurcate the lower arm of said levers and to pivot the said bar *x* between said bifurcations.

My invention, as hereinbefore described, is more applicable to a single-track railroad than to a double-track road, except in cities where switches or other traffic causes all tracks to be traveled on in both directions. In the event of the use of my improvements on double-track roads the devices for raising the bell out of possible engagement with the hammer thereof can be omitted, because the car, moving but in one direction on a given track, can be made to ring the bell when approaching the crossing and cease ringing it after the crossing has been passed simply by the omission of the track devices on the side of the bell in which the cars recede.

The levers I and *k*, which, as shown and as explained, draw or pull the wire in opposite directions, are placed such a distance apart that the car-wheels will not depress them at the same time. This would result in the breaking of the wire between said levers or in the slipping of the lever or levers on the wire, (according to the manner of fastening.) Should the character of the roadbed make it impossible to separate these levers just the proper distance, or other reasons exist for making it impracticable to do so, I can overcome any bad result caused by their simultaneous depression by interposing a stiff coil-spring R between them at some suitable point along the stretch of wire by which they are connected.

What I claim as new is—

1. The combination with a bell, a vertically-movable bell-post to the top of which said bell is secured, a bell-hammer movable on a fixed center and capable of engaging said bell only when the latter is in its lowered position, and a rock-shaft engaging said bell-post so as to move the same vertically, of devices for connecting said bell-hammer to said track, track-levers placed alongside the nigh rail of said track so as to be depressed by the wheels of passing trains and wires connecting said track-levers to said rock-shaft and to the bell-hammer-operating devices.

2. The combination with a bell, a vertically-movable bell-post to the top of which said bell is secured, and a bell-hammer movable on a fixed center and capable of engaging said bell only when the latter is in its lowered position, of devices actuated by the approaching and receding trains, which ring said bell on the approach of the train, raise the bell when the train passes the bell, and lower it again as it recedes therefrom.

3. The combination with a bell, a vertically-movable bell-post to the top of which said bell is secured, a hammer, and rock-shaft to which the rod of the same is secured, and a transverse rock-shaft engaging the lower end of said bell-post, of two angle-shaped track-levers located next said rail and some distance on each side said bell the horizontal arms of which extend in the same direction, two angle-shaped track-levers, each located between said bell and the first-mentioned levers, and having their horizontal arms projecting in an opposite position thereto, a wire connecting the lower arms of said levers to the bell-hammer, rock-shaft, and a track-lever located near said bell and a wire connecting the same to the bell-post-actuating rock-shaft as set forth.

4. In a railway-alarm the combination with a suitable standard, a bell, a vertically-reciprocal bell-post to the top of which said bell is secured, having notches in its side edges, and a spring engaging said notches when said bell-post is at the limit of its upper movement, of a rock-shaft F a vertical rod projecting therefrom, a bell-hammer on the upper end of said rod, and a rock-shaft *c*, journaled below said bell-post and adapted to engage and raise the same, said rock-shaft F when turned releasing said spring from the notches in said bell-post, and dropping the same as set forth.

5. The combination with a bell, vertically-

movable bell-post B, having notches *f* in its side edges and a vertically-elongated slot *g* in its lower portion, and a spring E, as described, of a rock-shaft F which when turned spreads the ends of said springs and releases said bell-post, and a rock-shaft *c* having an arm *d* and track devices consisting of levers and wires, said levers being depressed by the wheels of the cars passing over them and turning said rock-shafts as and for the purpose set forth.

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