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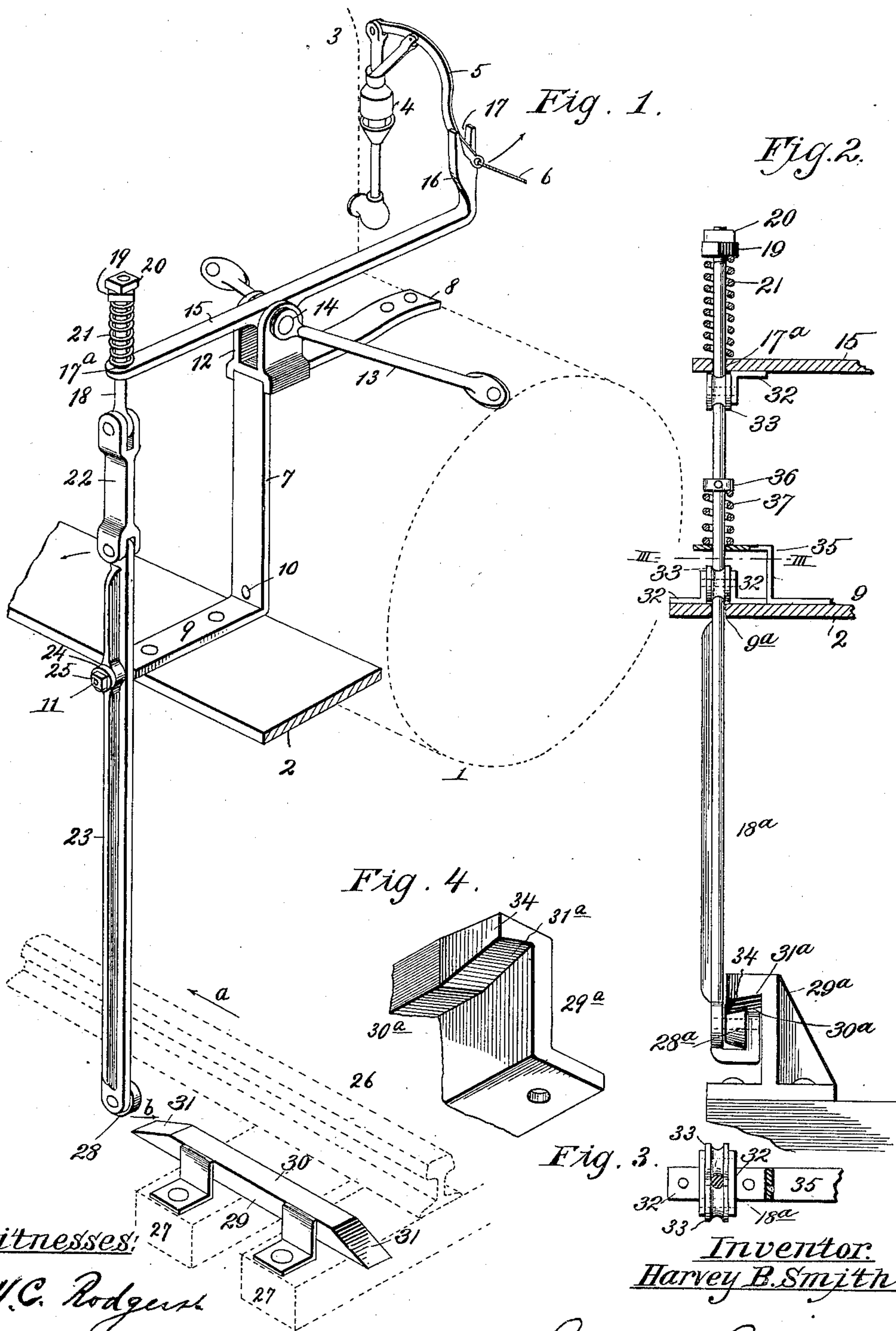
Patented June 19, 1900.

H. B. SMITH.

AUTOMATIC LOCOMOTIVE WHISTLE SIGNAL FOR RAILWAY CROSSINGS.

(Application filed Mar. 9, 1900.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

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AUTOMATIC LOCOMOTIVE WHISTLE-SIGNAL FOR RAILWAY-CROSSINGS.

SPECIFICATION forming part of Letters Patent No. 652,145, dated June 19, 1900.

Application filed March 9, 1900. Serial No. 7,973. (No model.)

To all whom it may concern:

Be it known that I, HARVEY B. SMITH, of Johnson county, State of Missouri, have invented a new and useful Automatic Locomotive Whistle-Signal for Railway-Crossings, of which the following is a specification.

My invention relates to locomotive whistle-signals, and more particularly to an automatic locomotive whistle-signal for railway-crossings; and my object is the provision of a construction which shall positively and reliably indicate the approach of a train at crossings, which is of simple, strong, durable, and cheap construction, and which can be readily applied to any style of locomotive.

To these ends the invention consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed; and in order that the invention may be fully understood I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 represents a perspective view of a locomotive whistle-signal embodying my invention, a part of the locomotive and track being shown in dotted lines to show the proper relation of the parts. Fig. 2 is a vertical section of a modified form. Fig. 3 is a horizontal section taken on the line III III of Fig. 2. Fig. 4 is a detail perspective view of the cam in Fig. 2.

Referring now to the drawings in detail, 1 designates the body of a locomotive; 2, the running-boards thereof; 3, the steam-dome, and 4 the whistle, which may be of the type shown or of any other suitable or preferred type, the whistle being sounded by operating a lever 5 in the direction indicated by an arrow through the medium of the customary cord 6, leading to the cab, (not shown,) or automatically by means which I will now proceed to describe.

7 designates a substantially step-shaped bracket having its upper horizontal arm 8 riveted or otherwise rigidly secured to the boiler and its lower horizontal arm 9 riveted or bolted to the running-boards upon which it rests, the vertical portion of the bracket being also riveted to the boiler, as shown at 10. The outer end of arm 9 preferably terminates in a threaded pivot-stem 11, and a

U-shaped bracket 12 is secured upon the bracket 7 at the junction of its vertical portion and arm 8, by preference said brackets being braced rigidly from lateral movement by the inclined braces 13, secured to the boiler and to the pivot bolt or rivet 14, bridging the upper end of the bracket 12.

15 designates a lever adapted to operate in a vertical plane and pivoted to the pivot bolt or rivet 14 and terminating at its inner end, by preference, in an upright arm 16, formed with a notch or bifurcation 17, embracing the whistle-lever 5. The outer end of lever 15 is provided with a vertical hole 17^a, through which extends a vertical slide-rod 18, having at its upper end a pair of taps 19 20, the tap 19 being adapted by adjustment upon the rod to affect the tension of the stiff expansion-spring 21, encircling the rod and bearing at its opposite ends against said tap and lever 15, the tap 20 being utilized as a lock-nut to prevent the clamping-tap 19 from working upward on the rod. Rod 18 is pivotally connected by link 22 to the upper end of a vertical rock-lever 23, pivoted upon pivot-stem 11 of bracket 7 and secured reliably thereon by washer 24 and tap 25. Said lever is arranged to operate in a plane parallel with but outward of the contiguous track-rail 26, secured, as usual, to the cross-ties 27, and is preferably provided at its lower end with an antifriction-roller 28, adapted to ride up and over a cam 29, secured to adjacent cross-ties, as shown, or in any suitable manner, said cam having its upper surface 30 as long or as short as desired or subdivided into a number of surfaces of equal or unequal lengths for a purpose which will hereinafter appear, the ends of the same being beveled downward, as at 31, to the horizontal plane of the lower edge of the roller 28, in order that the latter may ride up and over said surface, according to the train movement.

In practice, assuming that the train is moving in the direction indicated by arrow *a*, Fig. 1, it will be understood that as the roller 28 engages the oblique surface 31 first presented the lever is caused to swing in the direction indicated by the arrow *b*, and consequently through the medium of link 22 pull rod 18 downward, and thereby sound the whistle by elevating the inner end of said le-

ver, the spring 21 being so stiff and strong that it does not yield in the limited pivotal movement imparted to lever 23 by the cam, and as said roller 28 rides down the opposite oblique surface 31 of the cam it reassumes the position shown in Fig. 1.

In case the lower end of the lever should strike or ride over an obstruction imparting to it a greater movement than that effected by cam 30, and thereby tend to effect a more extended operation of the lever 15, which might injure the whistle or whistle-lever by bending the latter, it is obvious that spring 21 will yield sufficiently to accommodate the surplus movement of lever 23 and permit rod 18 to slide downward the necessary distance without imparting a corresponding movement to the outer end of lever 15. The spring 21 therefore is in the nature of a safety attachment to prevent injury to the whistle through an unexpectedly-extended movement of rod 18.

In Fig. 2 I show the lower arm of bracket 7 extended and provided with a vertical aperture 9^a. I also dispense with link 22 and lever 23 and in lieu thereof employ a rod 18^a, which is practically an elongation of rod 18 of Fig. 1. Said rod 18^a extends down through the aperture 9^a to arm 9, and carries at its lower end an antifriction-roller 28^a, by preference of conical form, for a purpose which will presently appear.

To eliminate friction as much as possible, I secure brackets 32 to lever 15 and arm 9 and journal between them and at opposite sides of the rod antifriction-rollers 33, the rollers at one side being adapted to sustain the pressure imparted when the locomotive is traveling in one direction and the rollers at the opposite side when the locomotive is traveling in the opposite direction.

In lieu of the cam 29 I employ a cam 29^a, similar in all respects to cam 29, except that its tread-surfaces 30^a and 31^a are presented downwardly or inverted with respect to Fig. 1, and also in forming said surfaces to slant inward and upward, as shown in Figs. 2 and 4, corresponding with the conical configuration of the roller 28^a, and thereby tend to throw said roller inward and eliminate chances of bending the rod 18^a outward, as will be readily understood by reference to Fig. 2. The ends of the cam are also beveled inward, as shown at 34, to provide against lever 23 being injured by striking against the square end of the cam, as will be readily understood. With this construction, as the engagement of roller 28^a with the cam depresses the rod, and thereby operates the whistle, it is necessary to employ means for reëlevating it after it leaves the cam, the means shown being a bracket 35, through which rod 18^a slides, a collar 36, secured upon said rod above the bracket, and a coil-spring 37 upon the rod between the bracket and collar, the spring being compressed in the descent of the rod and expanding when the resistance is removed to reëlevate

the rod to its original position, as will be readily understood. A single cam, as shown and described, will result in a single blast of the whistle. A number of blasts may be produced by employing two or more cams to be successively engaged by the roller 28 or 28^a, as the case may be.

Whistle-operating mechanism, of course, may be employed in connection with the whistle under control of the engineer, as shown herein, or an auxiliary whistle may be used, if desired, and it is to be understood that various changes in the detail construction, form, arrangement, or proportion of the parts may be made without departing from the spirit or scope or sacrificing any of the advantages of the appended claims.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A locomotive whistle-signal, comprising a whistle connected to the steam-dome, a bracket suitably supported, a lever mounted on said bracket and having a sliding connection with the whistle mechanism to operate the whistle when the inner end of the lever is elevated, and having a hole in its outer end, a rod extending slidably through said hole, a tap upon the upper end of said rod, a spring encircling the rod and bearing at its upper end against said tap and at its lower end upon said lever, and means for sliding said rod downward and thereby raising the inner end of the lever, substantially as described.

2. A locomotive whistle-signal, comprising a whistle connected to the steam-dome, a lever connected to the whistle to operate the same, a slide-rod extending through said lever having a tap near its upper end, a spring interposed between said tap and the lever, a roller mounted on said rod, a cam having a downwardly-disposed tread-surface for engagement by said roller, and means to reëlevate said rod after its roller passes from engagement with the cam, substantially as described.

3. A locomotive whistle-signal, comprising a whistle connected to the steam-dome, a lever connected to the whistle to operate the same, a slide-rod extending through said lever having a tap near its upper end, a spring interposed between said tap and the lever, a roller mounted on said rod, a cam having a downwardly-disposed tread-surface for engagement by said roller, and a spring for reëlevating said rod after the roller passes from engagement with the cam, substantially as described.

4. A locomotive whistle-signal, comprising a whistle connected to the steam-dome, a lever connected to the whistle to operate the same, a slide-rod extending through said lever having a tap near its upper end, a spring interposed between said tap and the lever, a conical roller connected to said rod with its base or largest diameter presented inward, a cam secured to the track-bed with its tread-

5 surface presented downward and beveled to conform with said roller, and means to reëlevate the rod after the roller passes from engagement with the cam, substantially as described.

10 5. A locomotive whistle-signal, comprising a whistle connected to the steam-dome, a bracket secured to the locomotive suitably braced, a lever pivoted to said bracket and engaging the whistle-lever, a spring-elevated slide-rod extending down through said lever

and the first-named bracket, a roller at the lower end of said lever, and a cam for engagement with said roller and adapted to depress said rod, substantially as described. 15

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

HARVEY B. SMITH.

Witnesses:

H. C. RODGERS,
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