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W. W. LANGE ET AL

CROSSING SIGNAL

Filed July 13, 1922

Fig. 1.

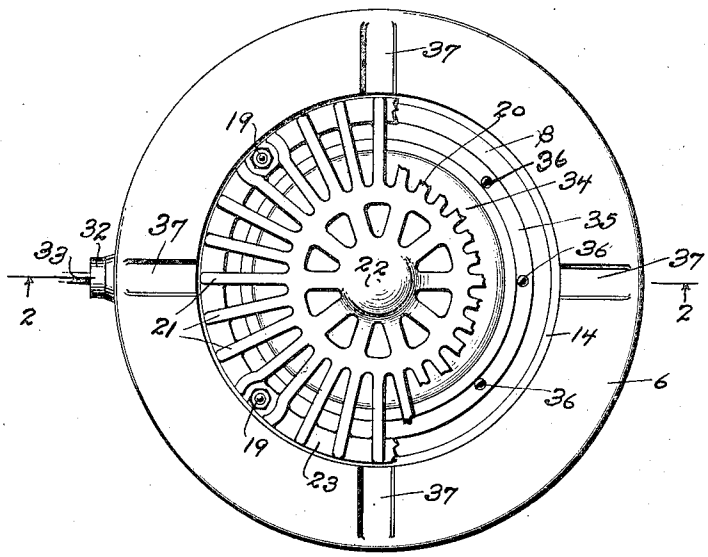
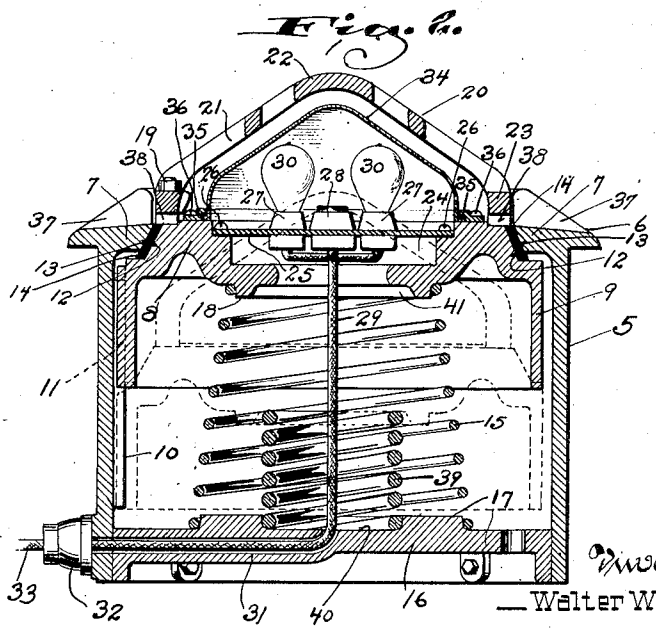


Fig. 2.



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CROSSING SIGNAL.

Application filed July 13, 1922. Serial No. 574,722.

To all whom it may concern:

Be it known that we, WALTER W. LANGE and FREDERICK S. LAWRIE, both citizens of the United States, and residents of Shorewood and Milwaukee, respectively, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Crossing Signals, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to new and useful improvements in crossing signals more especially designed for safety at junctions of intersecting streets.

In U. S. Letters Patent No. 1,410,007, granted March 21, 1922, to Richard F. Downey is illustrated a crossing signal light of the mushroom or dome type, wherein the skeleton dome is capable of yielding reciprocation within its housing, so that the dome is depressed when inadvertently struck or run over by a vehicle to eliminate possibility of serious accident.

In this patent, the skeleton dome is reciprocally mounted in the base member and has a snug but sliding fit in order to exclude moisture, which is a highly objectionable structure, frequently resulting in sticking of the dome and the consequent inability of the same to readily yield under load strain.

It is, therefore, one of the objects of this invention to provide cooperating means carried by the fixed base or housing and the yieldable member whereby the yieldable member may be loosely fitted in the base and, at the same time, exclude all moisture when the yieldable member is in its normal position.

Another objection to the Downey structure is that when it is raining, water stands about the yieldable member and when the same is depressed the water follows the movable member into the fixed member resulting in considerable leakage into the interior of the signal.

Having this in mind, our invention has for another object to provide a signal of the class described in which a water shed is provided whereby all moisture is immediately drained and conveyed from the signal.

Another object of this invention resides in the provision of means normally urging the movable member to its position projecting above the fixed member and yieldable means engageable with the movable member upon depression a predetermined degree to cushion the same and prevent injury to the parts by reason of the sudden depression of the movable member and to permit the employment of a comparatively weak yieldable means and to further provide a support for the wheel of the vehicle passing over the movable member on substantially the same plane as the uppermost portion of the fixed member.

A still further object of this invention resides in the provision of a crossing signal of the character described having an improved mounting for the lights thereof and one wherein all the parts are readily accessible for the purpose of repair or renewal.

With the above and other objects in view which will appear as the description proceeds, our invention resides in the novel construction combination and arrangements of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claims.

In the accompanying drawings, we have illustrated one complete example of the physical embodiment of our invention constructed according to the best mode we have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a top plan view of a crossing signal embodying the features of our invention, parts thereof being broken away to more clearly illustrate details of construction, and

Figure 2 is a sectional view taken through Figure 1 on the plane of line 2—2.

Referring now more particularly to the accompanying drawings in which like numerals designate like parts throughout the several views, the numeral 5 designates a cylindrical housing which is sunk into a well provided for the purpose. The housing is formed at its top with a beveled bead 6, which merges into an inwardly extended flange 7, the bead 6 projecting above the ground or bed line.

Vertically, slidably mounted in housing 5 is a base member or supporting head 8, the same being in the form of a hollow piston

having its side walls 9 loosely fitted within the housing. The housing and head are preferably cylindrical, in which case the head is held against rotary movement in the housing by a rib or key 10 carried by the housing wall and engaging in a keyway 11 formed in the piston side wall. Obviously, if these relatively movable parts are formed polygonal in shape, the keyway construction illustrated may be eliminated.

The top portion of the piston head is slightly reduced in diameter with the side wall of the reduced part tapered upwardly and inwardly, as at 12, to correspond with the taper of the inner periphery 13 of flange 7, a suitable packing or gasket 14 being carried by head 8 to form a water tight union between the piston head and housing when the head is in its normal position. This construction forms a valve, the upper or top portion of the piston head providing the valve member and the periphery of flange 7 the valve seat.

The piston head is yieldably urged, at all times, to its normal position illustrated in Figure 2 by a coil spring 15, one end of which engages against the under face of the head 8 and the other end of which engages an end plate 16 closing the bottom of housing 5. The spring 15 is properly centered within the housing by a boss or raised portion 17 formed on the end plate 16 and a boss or raised portion 18 carried by the head.

As illustrated in Figure 2, the top of head 8 is beneath the uppermost portion of bead 6 when in normal position, and removably mounted on the head by securing means 19 is a skeleton dome 20, the spokes 21 of which radiate from a central pad portion 22. The spokes 21 terminate in a ring 23 of a diameter slightly less than that of the opening through bead 6 and the outer surface of the skeleton dome forms a substantial continuation of the inclination of bead 6.

The head 8 is centrally recessed, as at 24, and closing the recess is a panel 25 preferably of nonconducting material and removably secured in place by fastenings 26. One or more lamp sockets 27 are mounted on panel 25 which are in circuit with a fuse 28 and feed wires 29 and have mounted therein suitable light bulbs 30. The feed wires pass downwardly through head 8 and housing 5 and outwardly through an opening or passageway 31 in end plate 16 and the wall of the housing and are connected through a junction box 32 with the service line 33.

A dome-shaped transparent globe 34 of any suitable design or color, whereby the mushroom is rendered visible at night, encloses the light bulbs 30, the globe having its edge directed laterally, to be engaged by a removable mounting ring 35 secured to head 8 by fastening members 36. A water tight joint is provided between ring 35 and the flange of the globe by a suitable gasket or other packing.

Formed in the bead 6 at intervals are drains or passages 37 which register with openings 38 in ring 23 to provide a water shed for the signal. With this construction any moisture falling on the signal is immediately drained therefrom by flowing from the space between the skeleton dome and globe 34 through openings 38 and outwardly through drains 37, the inner ends of which are on a higher plane than their outer ends to prevent back flowing of water, as will be readily apparent.

The spring 15 is preferably of light construction to permit ready depression of the signal proper immediately upon impact by a vehicle irrespective of its weight and the lowering or depressing action of the signal proper is arrested by a cushion spring 39, the lower end of which is nested in a depression or recess 40 formed in projection 17 and the upper end of which engages within a depression 41 in the projection 18 of the head member when said head member is sufficiently depressed.

By reason of this construction, a vehicle passing over the signal merely depresses the dome to the plane of the uppermost portion of bead 6, the occupants experiencing only a slight jar, that of passing over the bead. Immediately upon the vehicle wheel passing off the dome, spring 15 expands and returns the signal to its normal position illustrated in the drawing. The circuit of lights 30 is preferably such that in the event one bulb burns out the other remains lighted to prevent darkening the signal.

What we claim as our invention is:

1. A crossing signal, comprising a base member, a skeleton, substantially dome-shaped, framework carried by the base member, a light within the framework, a translucent dome within the framework and covering the light, and a passageway leading from the space between the skeleton framework and the dome to provide a water shed for the signal.

2. A crossing signal, comprising a base member, a skeleton, substantially dome-shaped, framework carried by the base member, a light within the framework, a translucent dome within the framework and covering the light, a bead surrounding the periphery of the framework, the bead having its outer face inclined upwardly and inwardly to form a substantial continuation of the shape of the framework and having its inner upper edge on a plane above the base member, and a passageway through the bead and communicating with the space between the framework and the dome to provide a water shed for the signal.

3. A crossing signal, comprising a base

member, a skeleton, substantially dome-shaped, framework carried by the base member, a light within the framework, a translucent dome within the framework and covering the light, a bead surrounding the periphery of the framework, the bead having its outer face inclined upwardly and inwardly to form a substantial continuation of the shape of the framework and having its inner upper edge on a plane above the base member, a passageway through the bead and communicating with the space between the framework and the dome to provide a water shed for the signal, and means permitting vertical movement of the framework with respect to the bead.

4. A crossing signal, comprising a housing, an inwardly projected flange at its upper end, a head member reciprocally mounted in the housing, a signal carried by the head member and normally projecting above the housing, means normally urging the head member to a position with the signal projected above the housing, and a part carried by the head member and cooperating with the housing flange to provide a valve construction excluding moisture from the interior of the housing when the head member is in its upper-most position.

5. A crossing signal, comprising a housing, an inwardly projected flange at its upper end, a head member reciprocally mounted in the housing, a signal carried by the head member and normally projecting above the housing, means normally urging the head member to a position with the signal projected above the housing, a part carried by the head member and cooperating with the housing flange to provide a valve construction excluding moisture from the interior of the housing when the head member is in its upper-most position, and means for conveying moisture falling on the signal outwardly of the housing.

6. A crossing signal, comprising a housing an inwardly projected flange at its upper end, a head member reciprocally mounted in the housing, a signal carried by the head member and normally projecting above the housing, the peripheries of the flange and head member being correspondingly tapered, a packing member positioned between said flange and head member, and said packing member, flange and head member cooperating to provide a valve structure when the head is in normal position to exclude moisture from the interior of the housing, and means urging the valve member to normal position.

7. A crossing signal, comprising a housing, an upwardly and inwardly tapered bead carried by the upper end of the housing, a head member reciprocally mounted in the housing, means normally urging the head member outwardly of the housing, a signal light carried by the head member, a globe covering said light, a skeleton framework carried by the head member and protecting the signal light and globe, the skeleton framework normally projecting above the bead with its periphery attached to the head member and at all times on a plane beneath the bead, and drain passages through the framework and bead whereby a water shed is provided.

8. A crossing signal, comprising a housing, an upwardly and inwardly tapered bead carried by the upper end of the housing, a head member reciprocally mounted in the housing, means normally urging the head member outwardly of the housing, a signal light carried by the head member, a globe covering said light, a skeleton framework carried by the head member and projecting the signal light and globe, the skeleton framework normally projecting above the bead with its periphery attached to the head member and at all times on a plane beneath the bead, a water tight joint between the head member and housing when the head member is in normal position, and drain passages in the bead and communicating with the space between the frame work and globe, whereby a water shed is provided.

9. A crossing signal, comprising a housing, a head member reciprocally mounted therein, a signal carried by the head member, yieldable means normally urging the head member upwardly to project the signal above the housing, the head member moving against the action of the yieldable means when opposed by load strain to sink the signal to approximately the line of the plane of the road bed, and a yieldable member engageable with the head member upon the same being depressed a predetermined degree to cushion the same.

10. A crossing signal, comprising a housing, a head member reciprocally mounted therein, a signal carried by the head member, a comparatively weak yieldable member normally urging the head member upwardly to project the signal above the housing, the head member moving against the action of the yieldable member when opposed by load strain to sink the signal to approximately the line of the plane of the road bed, and a second yieldable member of greater strength than the first yieldable member and engageable with the head member upon the same being depressed a predetermined degree to cushion the same.

11. A crossing signal, comprising a substantially vertically movable signal mounted to normally project above the bed of the road, means yieldably urging the signal to its normal position, the signal moving against the action of the yieldable means when opposed by load strain to sink the

signal approximately to the line of the plane of the road bed, and yieldable means operable upon the signal being depressed a predetermined degree to cushion the same.

12. A crossing signal, comprising a housing, an inwardly projecting flange at the upper end thereof having its inner face inclined upwardly and inwardly, a head member of similar form to the housing and reciprocally mounted therein, a signal carried by the head member and normally projecting above the housing, means normally urging the head member upwardly to position the signal above the housing, a reduced portion on the upper part of the head member having its walls inclined upwardly and inwardly corresponding to the inclination of the inner face of said housing flange and adapted to abut the housing flange to limit the upward movement of the head member, and a packing confined between the head member projection and said flange when the head member is at its uppermost limit of movement to provide a water tight joint therebetween.

In testimony whereof we affix our signatures.

WALTER W. LANGE.
FREDERICK S. LAWRIE.