June 10, 1924. 1,496,811

W. W. LANGE ET AL

CROSSING SIGNAL

Filed Nov. 2, 1922

Fig. 1.

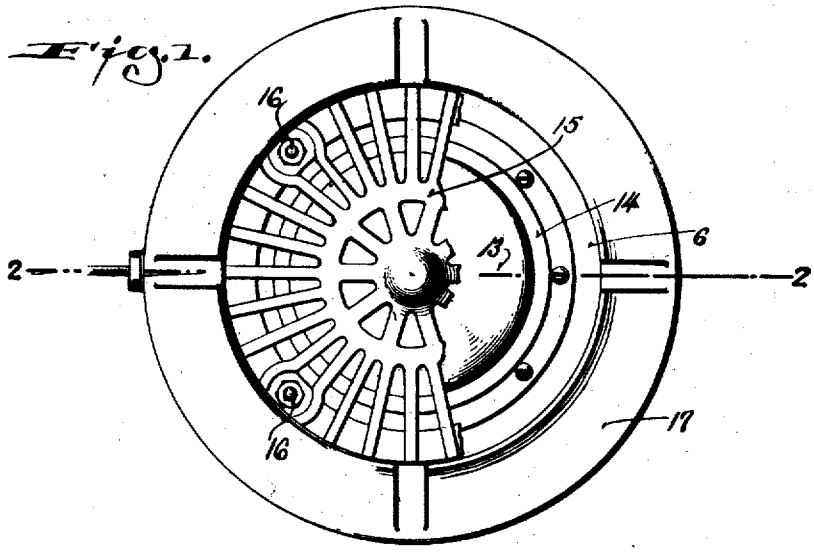
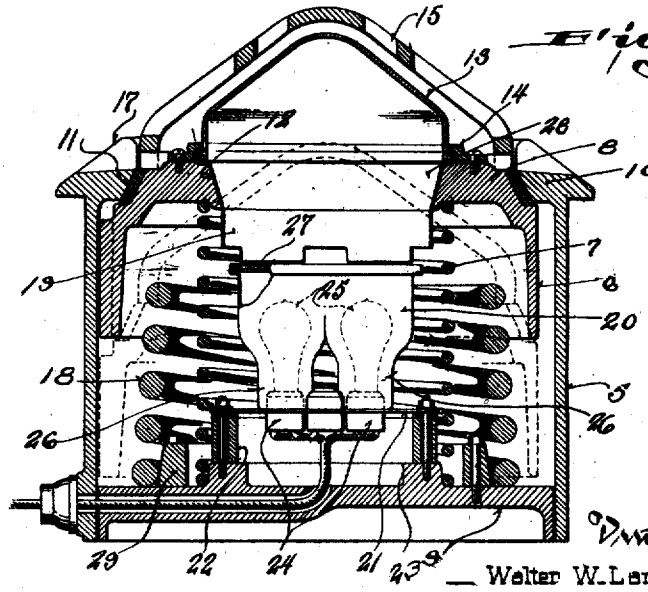


Fig. 2.



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UNITED STATES PATENT OFFICE.

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CROSSING SIGNAL.

Application filed November 2, 1922. Serial No. 598,603.

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 certain new and useful improvements in crossing signals more especially designed for safety at junctions of intersecting streets.

In that type of crossing signal comprising a dome member adapted to sink to approximately the line of the plane of the road bed when opposed by a load strain, considerable difficulty has been experienced in so mounting the illuminating means as to prevent injury thereto incidental to the dome being struck by a vehicle, and its return to normal position.

Having this in mind, it is one of the objects of our invention to provide illuminating means for a depressible or disappearing crossing signal dome which is independent of the dome to thus avoid injury thereto incidental to the striking of the dome, and its consequent depression, by a vehicle.

It is another object of our invention to provide a depending guard or reflector carried by the depressible dome of a traffic signal which is adapted to telescope over the illuminating means mounted beneath the depressible dome and independent thereof, whereby the rays of light from the illuminating means are at all times reflected up into the signal dome to insure the proper visibility thereof whether depressed or in normal position projecting above the road bed.

A further object of this invention resides in the provision of a spacing ring which, together with the mounting within the housing member for the illuminating means, forms an annular channel in which the inner end of the spring normally maintaining the depressible dome in a position above the road bed is mounted whereby depression of the dome member to compress the spring surrounding the same will not result in the first mentioned spring becoming entangled with the heavier spring.

With the above and other objects in view which will appear as the description proceeds, our invention resides in the novel construction, combination and arrangement 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 hereindisclosed 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 therethrough on the plane of the line 2—2 of Figure 1.

Referring now more particularly to the accompanying drawing, the numeral 5 designates a cylindrical housing which is sunk in a well provided for the purpose in a roadway and 6 a depressible member or supporting head, preferably in the form of a hollow piston, the same being vertically slidably mounted within the housing.

The head 6 is normally urged to a position substantially flush with the top of housing 5 by a coil or spiral spring 7, one end of which engages against the under face of top 8 of the supporting head and the other end of which engages against a bottom member 9 closing the lower portion of the housing. The upward movement of the supporting head is limited by an inwardly directed, annular flange 10 on the upper edge of the housing which, co-operating with a packing ring 11 on the piston head, forms a water tight joint when the head is in its normal position to thus prevent the elements from entering the interior of the housing.

The top of the supporting head is provided with a central opening 12 above which is mounted a translucent dome 13 removably secured in place by a retaining ring 14, said dome being preferably of a suitable color depending on the use to which the signal is adapted.

The translucent dome is protected by a

guard or skeleton frame 15 which is secured to the head of the depressible member by removable fastenings 16, the peripheral edge of said guard being of a slightly less diameter than the opening within the top of the housing. The exterior of the guard is shaped so as to form a substantial continuation of an upstanding bead or flange 17 formed on the top of the housing so that a vehicle wheel striking the housing is given but a slight jar, riding over bead 17, the guard 15 moving into the housing against the action of spring 7 as the wheel passes thereover.

As the signal dome approaches full depressed position, a second heavier coil spring 18 engages the under face of top 8 to thus yieldably limit its downward movement and at the same time support the weight of the vehicle when the dome top is substantially flush with the line of the plane of the road bed.

The diameter of the opening 12 within head 8 is substantially equal to that of the dome 13 and depending from the opening into the interior of the housing is a shield or reflector 19 which is of a diameter slightly greater than that of a reflector 20 fixed to a panel board 21 rigidly mounted on bottom 9, as hereinafter described. Reflector 19 is preferably secured in place by having its upper edge flanged laterally and confined between the peripheral edge of dome 13 and that portion of head 8 surrounding opening 12.

Panel board 21 is mounted on an annular ring member 22 fixed to a boss 23 formed on bottom 9 and carries one or more lamp receiving sockets 24 which communicate with the reflector 20 and are adapted to receive electric lamps 25. When more than one lamp 25 is employed, the reflector 20 is preferably formed with separate lamp receiving, reflecting compartments 26 which merge together at their upper ends and are covered by a translucent member 27, the reflector 20 telescoping within reflector or shield 19 when the dome is depressed.

With this construction it will be readily apparent that the light from lamps 25 is reflected upwardly and by reason of the flared portion 28 of reflector 19, the entire dome 13 is illuminated, rendering the same clearly visible at night.

Surrounding ring 22 is a slightly larger ring 29 which fits within the spirals of spring 18 to properly center the same, the inner end of spring 7 being confined between rings 22, boss 23 and ring 29 to thus prevent interference between the springs when compressed.

What we claim as our invention is:

1. A crossing signal, comprising a rigid housing adapted to be embedded in a roadway, a dome reciprocally mounted in the housing, means normally urging the dome to a position above the roadway, said dome being yieldable to sink approximately to the line of the plane of the road bed, a lamp mounted in said housing, a reflector for directing the rays of light from said lamp upwardly, and a shield depending from said dome and adapted to telescope over said reflector when the dome is depressed whereby the rays of light from said lamp are reflected into the interior of the dome to illuminate the same.

2. A crossing signal, comprising a depressible member adapted to be substantially vertically reciprocally mounted in a well in a roadway, means normally urging said depressible member to a position substantially flush with the line of the plane of the road bed, said depressible member having a central opening therein communicating with said well, a dome carried by said depressible member and covering the opening therein and adapted to be normally positioned above the roadway, a reflecting shield depending from said depressible member opening into the well, and illuminating means mounted in said well, the rays of light from said illuminating means being directed ino the interior of said dome to illuminate the same.

3. A crossing signal, comprising a depressible member adapted to be substantially vertically reciprocally mounted in a well in a roadway, means normally urging said depressible member to a position substantially flush with the line of the plane of the road bed, said depressible member having a central opening therein communicating with said well, a dome carried by said depressible member and covering the opening therein and adapted to be normally positioned above the roadway, a reflector shield depending from said depressible member opening into the well, a reflector mounted in said well, and a lamp mounted in said reflector, said reflector throwing the rays of said lamp through said shield into the interior of the dome to illuminate the same and said shield telescoping over said reflector when the depressible member is moved into the interior of the well.

4. A crossing signal, comprising a depressible member adapted to be reciprocally mounted in a well provided in a roadway, means normally urging said depressible member to a position substantially flush with the line of the plane of the road bed, said depressible member having an opening therein, a reflector shield extended through said opening into the interior of said well, flanged means on the upper end of said shield engaging the marginal portion of the depressible member surrounding said opening, a dome member carried by the depressible member and covering said opening, the peripheral edge of said dome member en-

gaging the flange of said shield to confine the same between it and the marginal portion of the depressible member surrounding said opening, means for securing the dome to said depressible member, and illuminating means mounted in said well and arranged to protect its rays of light through said shield into the dome to illuminate the same.

5. A crossing signal, comprising a housing adapted to be embedded in a roadway, a depressible member reciprocally mounted in said housing, a spring in said housing and tending to normally yieldably urge said depressible member to a position substantially flush with the line of the plane of the road bed, a dome mounted on said depressible member and normally projected above the line of the plane of the road bed, said dome being movable to a position substantially approximately on a line with the plane of the road bed when opposed by load strain, a second spring adapted to exert its force to yieldably oppose depressing movement of said member after a predetermined movement into the housing, and means for centering and maintaining said springs in spaced relation with respect to each other.

In testimony whereof we affix our signatures.

WALTER W. LANGE.
FREDERICK S. LAWRIE.