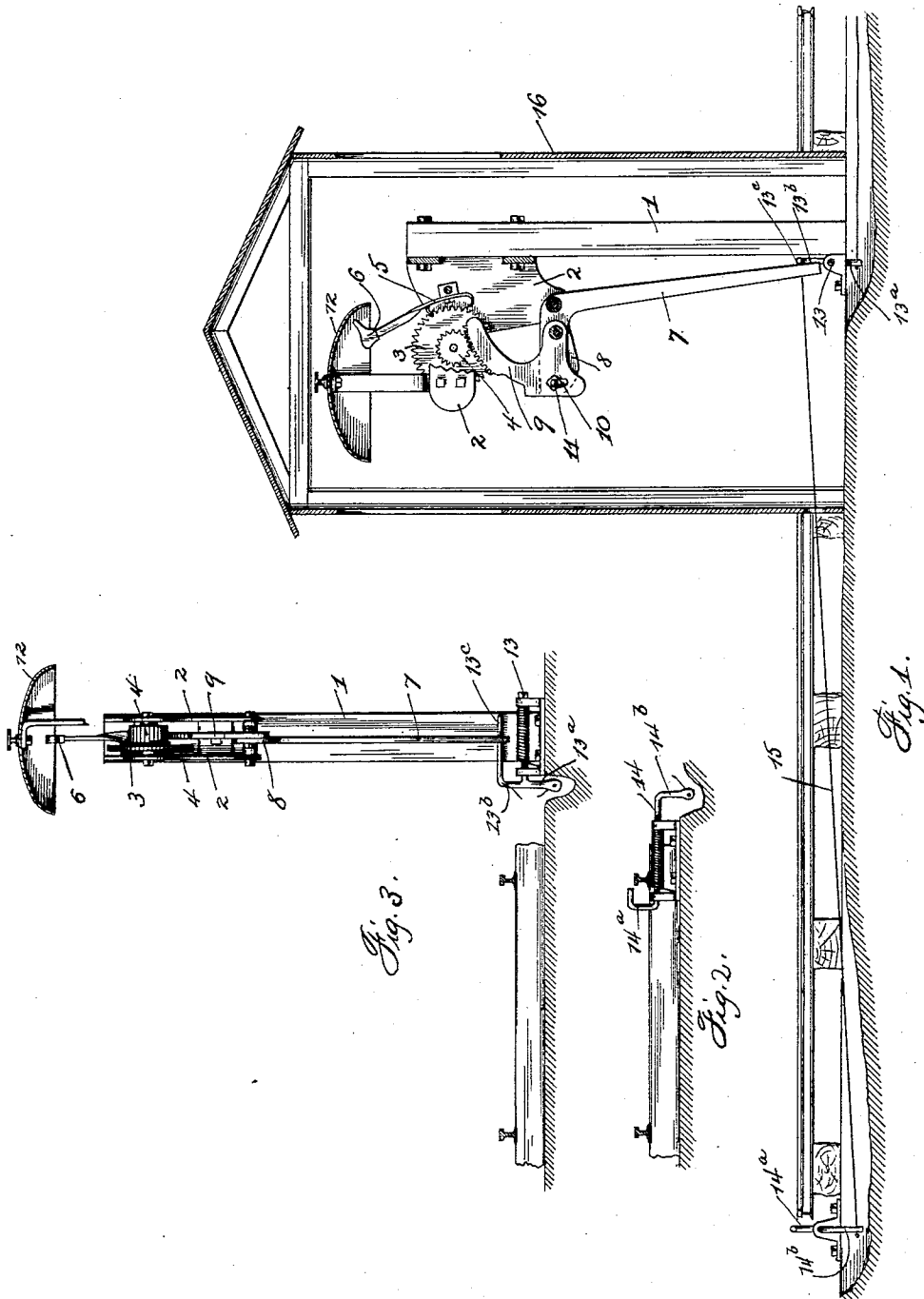


(No Model.)

L. S. BROWN.  
RAILWAY CROSSING SIGNAL.

No. 580,105.

Patented Apr. 6, 1897.



Witnesses  
*Grant Burroughs.*  
*Harry S. Rohrer.*

Inventor  
*Lewis S. Brown,*  
By his Attorneys,  
*Finckel & Finckel.*

# UNITED STATES PATENT OFFICE.

LEWIS S. BROWN, OF COLUMBUS, OHIO, ASSIGNOR TO CHARLES W. CRITCHFIELD, NOAH T. SHAW, SOLOMON M. HALL, CHARLES C. LOGSDON, AND ORLANDO W. ALDRICH, OF SAME PLACE.

## RAILWAY-CROSSING SIGNAL.

SPECIFICATION forming part of Letters Patent No. 580,105, dated April 6, 1897.

Application filed November 2, 1896. Serial No. 610,843. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS S. BROWN, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Railway-Crossing Signals; and I do hereby 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.

My invention relates more particularly to the class of signal mechanisms for railway-crossings that are operated by the wheels of an approaching train.

The object of my invention is to provide a simple and inexpensive mechanism that shall be reliable in its action and not readily deranged.

In the annexed drawings, Figure 1 is a side elevation of a portion of a track equipped with my apparatus. Fig. 2 is a transverse section of a track, illustrating a trip. Fig. 3 is also a cross-section of track, illustrating an edge view of the signal mechanism, the house for the same shown in Fig. 1 being omitted.

The frame or support of the signal apparatus comprises a post 1, on the upper part of which are secured a pair of similarly-formed and parallelly-arranged bracket-plates 2. Between these bracket-plates is journaled a pallet-wheel 3, having a toothed hub 4. Near the periphery of the pallet-wheel 3 is pivoted a pallet 5, having attached thereto a bell-hammer 6. The location of the pallet with respect to the pallet-wheel is such that when the wheel is forced around an oscillating movement is imparted to the hammer. Also pivoted between the bracket-plates below the pallet-wheel is a bell-crank lever having a depending long arm 7 and a short arm 8 extending out horizontally under the pallet-wheel, and pivoted to this short arm 8 is a segmental gear 9. In the outer and lower portion of the segmental gear is formed a slot 10, into which extends a pin 11, that engages the upper end of the slot when the short arm 8 is forced upward. Normally the segmental gear 9 rests against the toothed hub 4 of the

wheel, and when the long arm 7 is pulled outward the segmental gear is forced upward against the hub 4, imparting a rotary motion to the pallet-wheel, and consequently an oscillating motion to the bell-hammer. When the limit of the upward motion of the segmental gear has been reached and the long arm 7 released, the said gear will drop by gravity into its lowermost position, the teeth of the gear simply sliding over the pointed teeth of the hub 4. The bell 12 is supported upon the bracket-plates 2 in proper position to receive the blows of the hammer as the latter is oscillated.

At the foot of the post is journaled in suitable bearings a shaft 13, that has at one end two oppositely-extending arms 13<sup>a</sup> and 13<sup>b</sup>, and from the upper of these arms 13<sup>b</sup> extends an arm 13<sup>c</sup>, that stands parallel to the shaft 13 and behind the long arm 7 of the bell-crank lever. A coil-spring on the shaft 13 is arranged and secured on the shaft and its base, so as to hold the arms 13<sup>a</sup> and 13<sup>b</sup> normally in a vertical position.

At desirable points on the track are placed "trips," each consisting of a horizontal shaft 14, journaled in suitable bearings below the rail and having a trip-arm 14<sup>a</sup> and an arm 14<sup>b</sup>, a suitable spring being provided to hold said trip-arm 14<sup>a</sup> and arm 14<sup>b</sup> normally in vertical position. A small wire or wire rope 15 connects the arm 14<sup>b</sup> of the trip with the arm 13<sup>b</sup> of the signal mechanism.

The trip-arm 14<sup>a</sup> is positioned so as to be depressed by the passage thereof of a wheel of a car going toward the signal apparatus, thereby drawing down the arm 13<sup>b</sup> and operating the signal.

The signal-operating devices on each of the approaches to the signal are alike, except that the connecting-wire on the right-hand side, as viewed in Fig. 1, is attached to the downwardly-extending arm 13<sup>a</sup>.

The signal apparatus may be inclosed in a house 16 to protect it from rain, snow, ice, or the tampering of unauthorized persons. The wires or ropes 15 may also be inclosed in conduits.

From the foregoing it will be understood that each pair of wheels on a car passing to-

ward the signal apparatus or road-crossing will effect one operation of the signal, and a train of ordinary length will therefore effect operations sufficiently numerous to give due  
5 warning to persons about to cross the track; but the number of operations may be indefinitely multiplied by the addition of trips to which the wire 15 may be attached.

From the construction described and shown  
10 it will also be observed that a passing train does not operate the signal apparatus after it has passed the crossing and is leaving the signal apparatus, for although such train may depress the trip-arms 14<sup>a</sup> the arms 14<sup>b</sup> are  
15 moved toward the signal apparatus and hence do not draw down the arm 13<sup>c</sup>.

The distance from the signal apparatus at which the trip devices are placed is wholly a matter of choice and may be varied to suit  
20 circumstances.

What I claim, and desire to secure by Letters Patent, is—

1. In a signal device, a supporting-frame, a pallet-wheel and a pallet having a device  
25 for effecting a signal, a hub 4 on the pallet-wheel, a lever having arms 7 and 8 pivoted on said frame and a segmental gear pivoted on said lever adapted to be operated to impart a rotary motion to said hub and pallet-  
30 wheel, substantially as described.

2. In a signal device, a supporting-frame, a pallet-wheel and a pallet having a device  
for effecting a signal, a hub 4 on the pallet-wheel, a lever having arms 7 and 8 pivoted  
35 on said frame and a segmental gear 9 pivoted on said lever having a slot 10, a pin on the

lever projecting into said slot, said lever being adapted to be operated to impart a rotary motion to said hub and pallet-wheel.

3. In a signal apparatus for road-crossings, 40 a supporting-frame, a pallet-wheel, and a pallet having a device for effecting a signal, a hub 4 on the pallet-wheel, a lever having arms 7 and 8 pivoted on said frame, and a segmental gear pivoted on said lever adapted to be  
45 operated to impart a rotary motion to said hub and pallet-wheel, combined with a shaft journaled near the supporting-frame having an arm adapted to be operated by a moving train to effect an operation of the lever-arm  
50 7, substantially as described.

4. In a signal apparatus for road-crossings a supporting-frame, a pallet-wheel and a pallet having a device for effecting a signal, a  
55 hub 4 on the pallet-wheel, a lever having arms 7 and 8 pivoted on said frame, and a segmental gear pivoted on said lever adapted to be operated to impart a rotary motion to said hub and pallet-wheel, a shaft journaled near  
60 the supporting-frame having arms 13<sup>a</sup> and 13<sup>b</sup>, trips arranged on the railway adapted to be operated by the wheels of a train approaching said signal apparatus, and wires or cords  
65 connecting said trips with the arms 13<sup>a</sup> and 13<sup>b</sup>, substantially as shown and described.

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

LEWIS S. BROWN.

Witnesses:

GEORGE M. FINCKEL,  
ORLANDO W. ALDRICH.