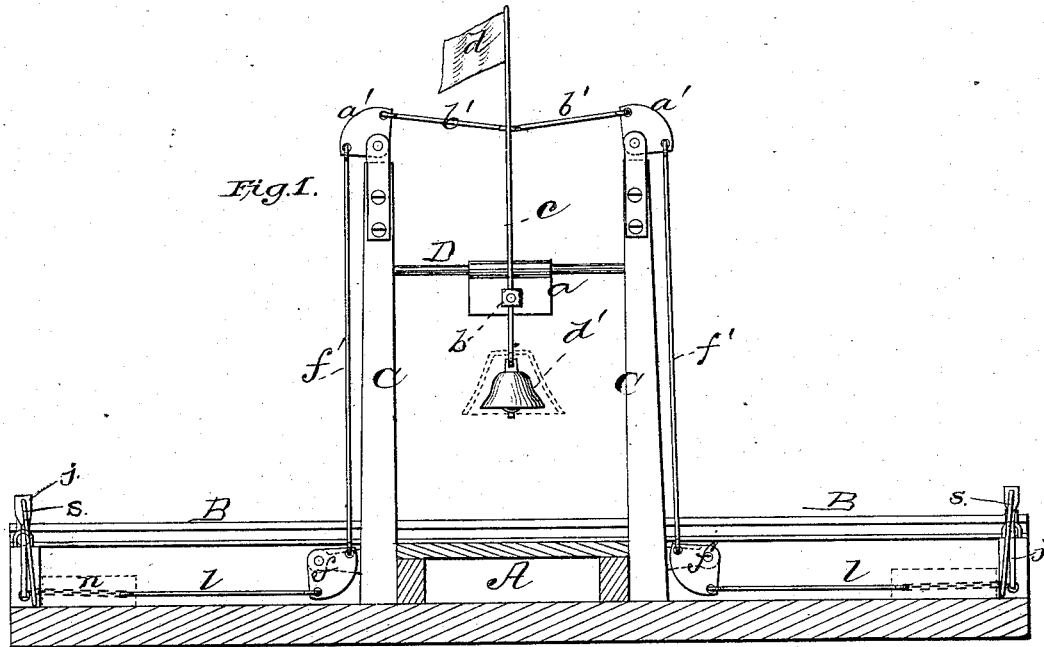


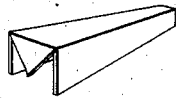
M. L. HURD.  
Railway-Signal.

No. 219,480

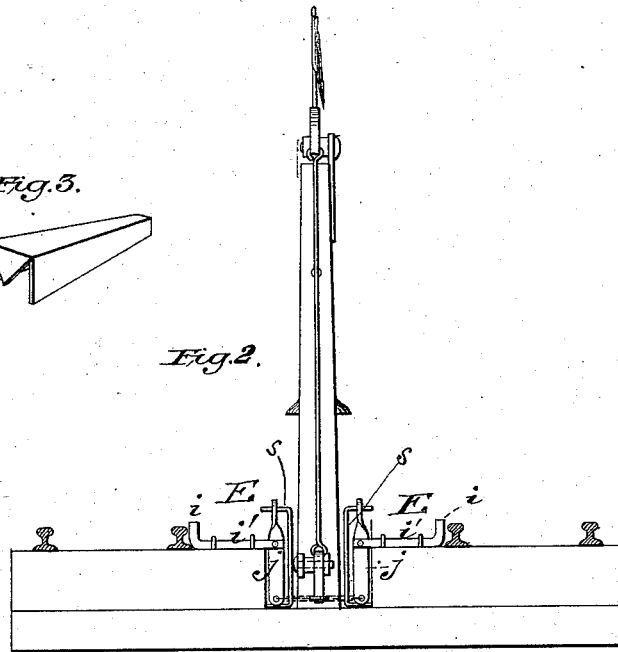
Patented Sept. 9, 1879.



*Fig. 3.*



*Fig. 2.*



WITNESSES  
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# UNITED STATES PATENT OFFICE.

MARSHALL L. HURD, OF DAVENPORT, IOWA.

## IMPROVEMENT IN RAILWAY-SIGNALS.

Specification forming part of Letters Patent No. **219,480**, dated September 9, 1879; application filed February 15, 1879.

*To all whom it may concern:*

Be it known that I, MARSHALL L. HURD, of Davenport, in the county of Scott and State of Iowa, have invented a new and valuable Improvement in Railway Street-Crossing Signals; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a front view of my improved signal. Fig. 2 is an end view thereof, and Fig. 3 is a detail of the housing.

This invention has relation to improvements in cautionary-signals for railroad-crossings; and the nature of the invention consists in certain novel arrangements and constructions of the parts of the signal, and in their mode of co-operation, as will be hereinafter more fully explained.

In the annexed drawings, the letter A designates a street or roadway crossed by one or more tracks, B. At each side of the street are erected the posts C, connected together at a suitable height from the ground by a brace, D, to which is attached a metallic plate, *a*. This brace is usually a metallic rod, but, if desirable, may be of wood. The plate *a* has projecting horizontally from it a spur, *b*, to which is pivoted so as to vibrate vertically a metallic rod, *c*, having at its upper end above the said brace a flag, *d*, of any suitable conspicuous colors, and at its lower end a bell, *d'*, or its equivalent.

At the top of each of the posts C is a bell-crank, *a'*, pivoted to vibrate in the plane of the said posts, and connected pivotally to rod *c* by means of the rigid rods *b'*. At the base of each of the uprights C is a projecting arm of suitable strength, to which are pivoted the bell-cranks *f*, connected by means of rods *f'* to the cranks *a'*, as shown in Fig. 1.

E indicates angular levers vibrating in bearings on the cross-ties, one arm, *i*, being vertical and alongside of the inner rail of the tracks, and the other, *i'*, horizontal, and provided with

a vertical cross-head, *j*. The arms *i* project above the treads of the rails, so that when they are struck by the wheels of the train they are caused to vibrate, and, through the medium of the rods *l*, connecting the lower ends of the cross-bar *j* and the bell-cranks *f*, to impart a vibratory motion to rod *c*, causing the bell to ring and the flag to wave. These levers being at a sufficient distance from the crossing, an alarm will be given in time to prevent the passage of teams and human beings across the track, thus preventing serious accidents, involving loss of life and property. The flag by its waving would attract a deaf man and prevent him from running into danger.

The levers after being vibrated are returned to their normal positions by means of springs *s*, secured rigidly at one end to the upper end of the cross-head *j* and at the other to the ties.

When two or more tracks are arranged side by side the cross-heads *j* of the levers will be connected to the horizontal rod *l* by means of the branched chain *n*. Usually the levers and their connections will be housed in, to prevent them from being clogged by ice and snow, and the connecting-rods, for a like purpose, will work in pipes. The bell also should be housed in.

Sometimes in lieu of the bell I may substitute a gong.

Having described my invention, I claim as new and desire to secure by Letters Patent—

In a signal for street-crossings for railroads, the combination, with the uprights C at each side of the street, of the brace D, the bell-rod *c*, pivoted to the brace and having the bell at one end and a flag at the other, the bell-cranks *a'* at the tops of the posts, the rods *b'*, the bell-cranks *f* at the bottom of said posts, the rods *f'* *l*, and the vibrating spring-retracted levers E at the side of the track, arranged and operating substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

MARSHALL L. HURD.

Witnesses:

JOHN HILL,  
W. J. BERNHARD.