

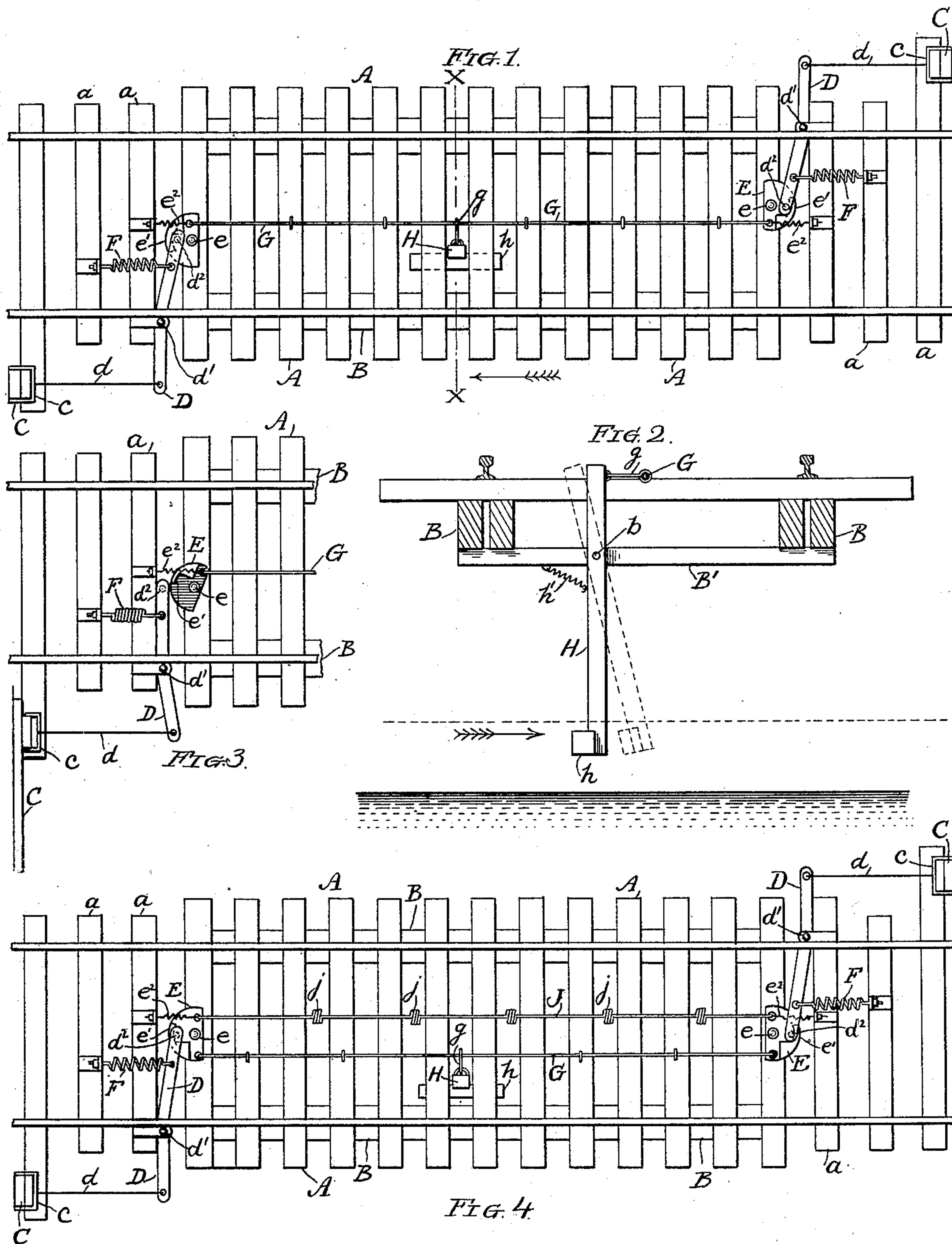
(No Model.)

J. W. STEELE.

DANGER SIGNAL FOR RAILWAY BRIDGES.

No. 401,800

Patented Apr. 23, 1889.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES W. STEELE, OF TOPEKA, KANSAS, ASSIGNOR OF ONE-HALF TO ANDREW McNALLY, OF CHICAGO, ILLINOIS.

DANGER-SIGNAL FOR RAILWAY-BRIDGES.

SPECIFICATION forming part of Letters Patent No. 401,800, dated April 23, 1889.

Application filed December 14, 1888. Serial No. 293,600. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. STEELE, of Topeka, in the county of Shawnee and State of Kansas, have invented a new, useful, and

5 Improved Danger-Signal for Railway-Bridges, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which—

10 Figure 1 is a plan view of a bridge, showing my improved device applied thereto, the parts being represented as in their respective normal positions. Fig. 2 is a transverse vertical sectional view thereof upon the line $x x$,
15 Fig. 1, viewed in the direction of the arrow there shown. Fig. 3 is a plan view in detail of a portion of said bridge, showing the parts of the signal in an abnormal position; and Fig. 4 is a plan view showing a modification
20 of said construction.

Corresponding letters of reference in the different figures indicate like parts.

The object of my invention is to provide a danger-signal for railway-bridges which may
25 be actuated by either flood or fire in such a manner as to operate a semaphore or other analogous device at any desired distance from the bridge, and thus give warning of danger to approaching trains.

30 To this end my invention consists in the combination of elements hereinafter described and claimed, being an improvement upon my application filed herewith as Serial No. 293,599.

35 Referring to the drawings, A represents the ties of a railway-bridge, of which B B are the stringers or supports. The shorter ties, a , indicate the railway-track at the respective ends of the bridge.

40 C represents any well-known form of semaphore or signal, with means, as a clamp or slide, c , for retaining said signal in a normal position. Connected with said clamp or releasing device by means of a rod, d , is a lever, D, pivoted at d' to one of the ties, the
45 opposite end of which is adapted to engage in any way which may suggest itself to a skilled mechanic to a tripper, E. Said tripper may be constructed in various ways. That
50 in the drawings consists of a plate of metal

pivoted at e to the tie or other stationary support, and is provided with a lug, e' , adjusted to engage with a pin, d^2 , or other projection upon the end of the lever D. A spring, F, attached to said lever and to one of the ties, 55 is held under normal tension, as shown in Fig. 1, and tends to draw said lever back, and thus release the signal whenever the end of said lever is thrown out of engagement with the tripper. I prefer to employ two trippers, which 60 are located at or near the respective ends of the bridge, said trippers being connected by means of a rod or wire, G, which is attached to the tripper at a point eccentric to its axis, as shown. A spring, e^2 , attached to each of 65 said trippers and to the bridge, respectively, serves to retain them in normal positions, while they are free to rotate upon the application of sufficient force. Pivoted at b to cross-bars $B' B'$, one of which is shown at- 70 tached to the bottom of the stringers B B, Fig. 2, is a vertical lever, H, to the bottom of which is rigidly attached a cross-bar or float, h , placed at any desired distance above the normal water-level of the stream, as indicated in said 75 figure. A spring, h' , is attached to said lever and to the bridge, substantially as indicated, to normally hold said lever in a vertical position against the action of the wind or other slight disturbing causes which might serve to 80 move it when not desired. The upper end of said lever is attached to the rod G, preferably by means of a link, g .

In the event of a dangerous rise of water, as indicated by the horizontal dotted line in 85 Fig. 2, the float h is carried forward in the direction indicated by the arrow shown in said figure, which causes the upper end of the lever to draw upon the wire sufficiently to overcome the resistance of the springs e^2 90 when the plate E is revolved upon its axis sufficiently to disengage it from contact with the lever D. This permits the spring F to act and release the signal.

In Fig. 4 I have shown a modification of 95 said invention, which is designed to give warning of fire as well as flood by actuating the trippers E in either event, and thus permitting a signal to be displayed. Upon the opposite side of the pivotal point e of the trip- 100

pers to which the rod G is attached I attach a wire, J, of any metal capable of being tempered and annealed by heat, but preferably brass, which is provided with a series of bends, crimps, or coils, *j*, therein. The coils *j*, being tempered, exert a resilient tension upon the tripping-plates E sufficient to overcome the force of the springs e^2 , (shown in said figure,) which are normally stretched, as indicated. Upon the burning of the bridge the coils *j* become heated, and as soon as they are sufficiently annealed thereby their resistance is overcome by the force exerted by the springs e^2 , the recoil of which rotates the tripper E sufficiently to release the signal-operating mechanism.

In case the float is actuated by means of the rising water, and the wire G is moved thereby, the coils *j* expand to permit such movement, and when the signals are reset resume their normal position.

Having thus described my invention, I claim—

1. The combination, with a railway-bridge and danger-signals, of the trippers E E, constructed and arranged as described, and in operative connection with the signals, connecting-wire G, springs e^2 e^2 , held normally under tension by means of said connecting-

wire, a swinging float suspended beneath the bridge and connected directly to the wire G, and independent springs for actuating the signals upon the movement of said trippers, substantially as shown and described.

2. The combination, with a railway-bridge and danger-signals, of the trippers for holding said signals in a normal position, wire G, having a swinging float connected therewith and suspended beneath the bridge, and a coiled, crimped, or bent wire, J, composed of a material capable of being annealed by heat, substantially as shown and described.

3. The combination, with a railway-bridge and danger-signals, of the trippers E E, for holding said signals in a normal position, wire G, having a swinging float connected therewith and suspended beneath the bridge, springs e^2 e^2 , and wire J, having a series of coils, crimps, or bends therein, substantially as described.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 17th day of November, 1888.

JAMES W. STEELE.

Witnesses:

BENNETT R. WHEELER,
HOWEL JONES.