

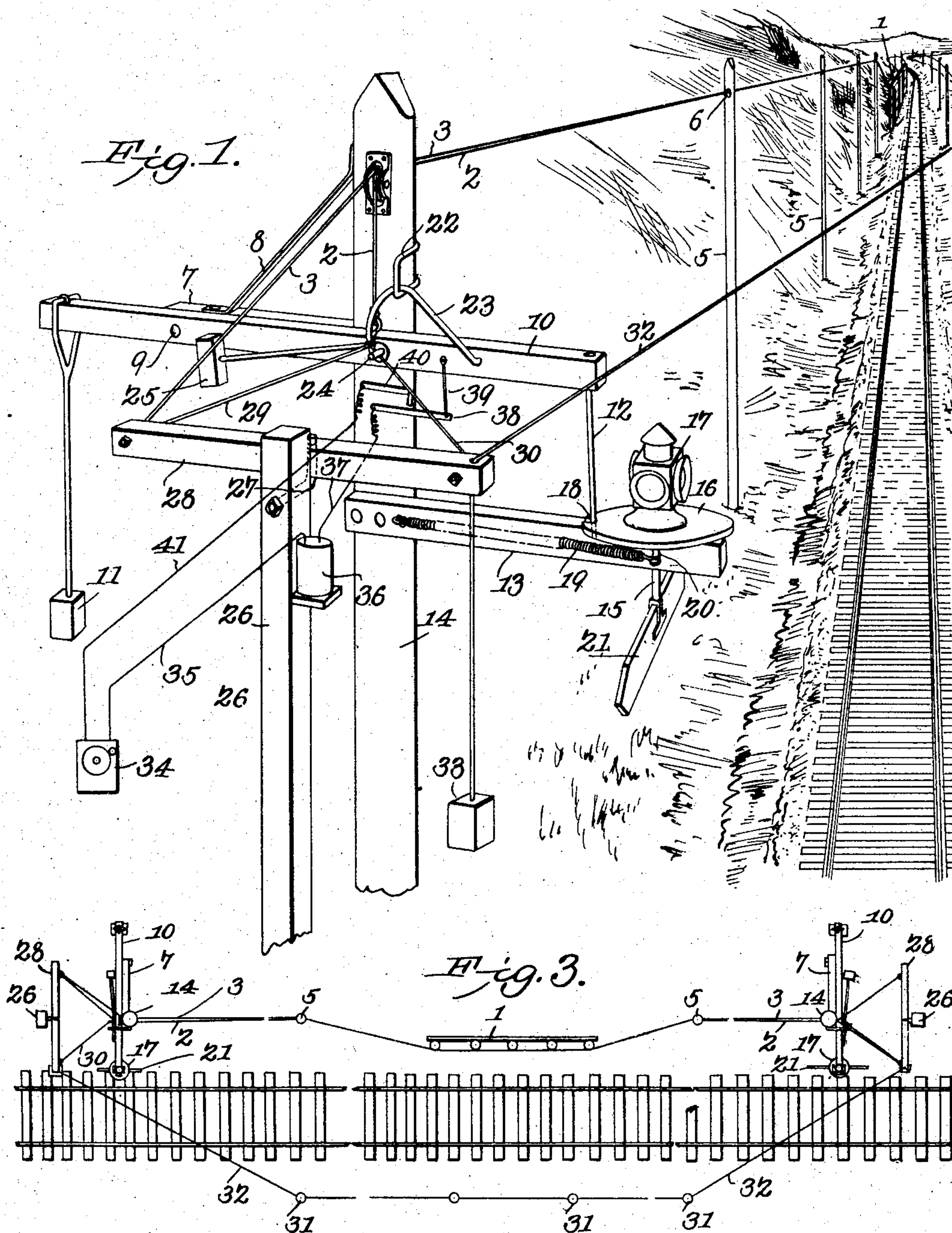
No. 833,935.

PATENTED OCT. 23, 1906.

B. S. MILLER.
DANGER SIGNAL.

APPLICATION FILED MAY 21, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

E. J. Stewart
Hubert Dawson

Burns S. Miller
INVENTOR

By *C. A. Snow & Co*
ATTORNEYS

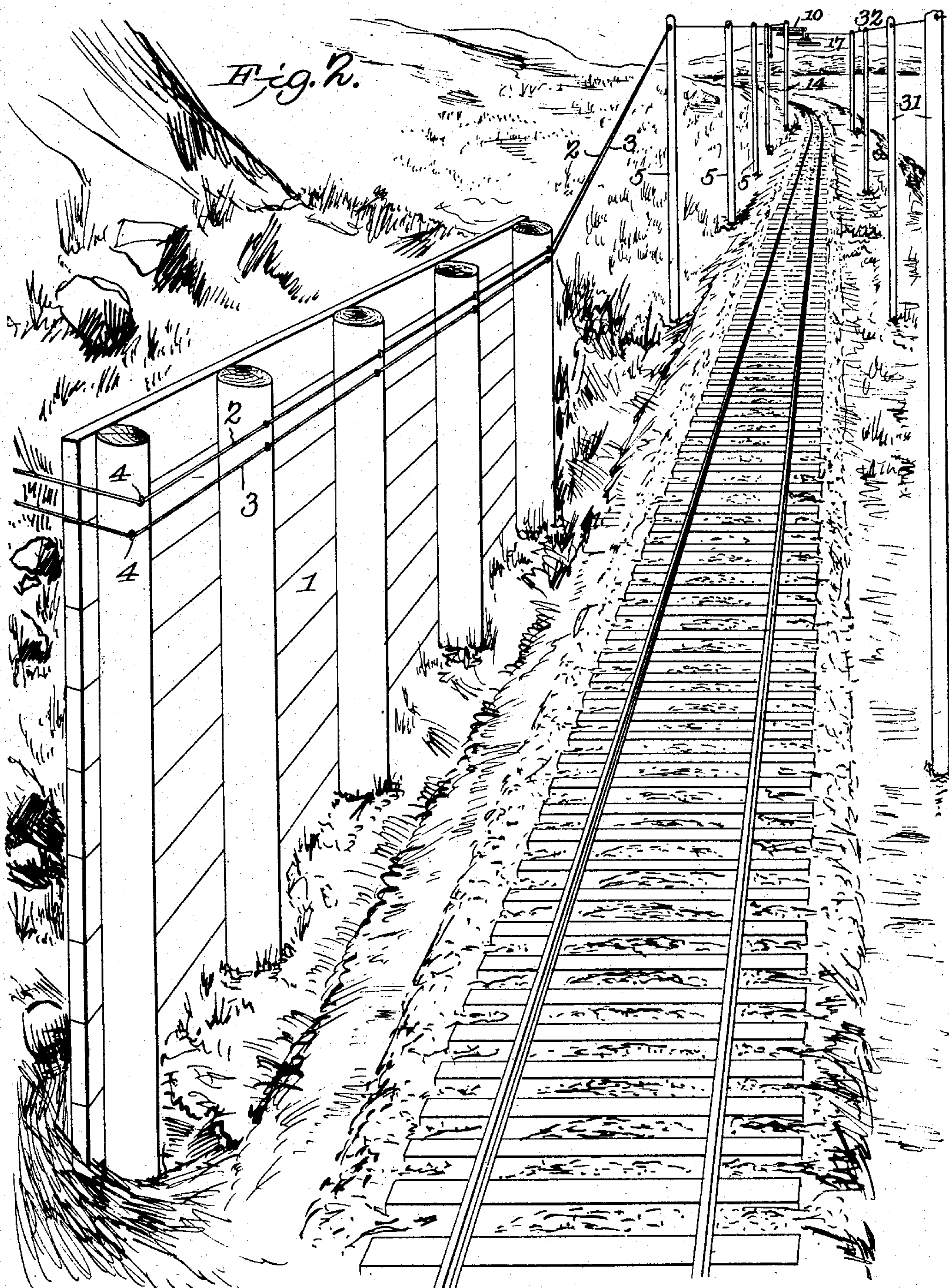
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UNITED STATES PATENT OFFICE.

BURNS S. MILLER, OF EVERETT, WASHINGTON.

DANGER-SIGNAL.

No. 833,935.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Application filed May 21, 1906. Serial No. 318,000.

To all whom it may concern:

Be it known that I, BURNS S. MILLER, a citizen of the United States, residing at No. 2819 Chestnut street, Everett, in the county of Snohomish and State of Washington, have invented a new and useful Danger-Signal, of which the following is a specification.

This invention relates to signal apparatus; and its object is to provide apparatus of this character adapted to automatically indicate the presence of a land or snow slide upon a railway-track, and thereby prevent disastrous wrecks, such as often occur from obstructions of this nature.

Another object is to provide means whereby the engineer of a train approaching the slide from either direction will be warned of the danger, as will also the station agent nearest the slide.

With the above and other objects in view the invention consists of a guard-fence adapted to be placed at a point where a snow or land slide is likely to occur, and at a considerable distance from each end of this fence is located a signal apparatus which is so connected to the fence that should all or a portion of said fence be thrown over by a slide a semaphore and lamp will be actuated to indicate to the engineer of an approaching train that danger is ahead. Means are also employed for causing the actuation of the signals at both sides of the slide, whether or not all of the guard-fence is thrown down.

The invention also consists of certain other novel features of construction and combinations of parts which will be hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings, Figure 1 is a perspective view showing the signal mechanism at one end of the apparatus, said figure showing the guard-fence in the distance and properly connected to the signal mechanism. Fig. 2 is a perspective view looking from the guard-fence toward the other end of the apparatus; and Fig. 3 is a plan view, on a reduced scale, of the entire apparatus.

Referring to the figures by characters of reference, 1 is a guard-fence which may be of any desired proportions and is adapted to be erected at one side of the track at a point

where a land or snow slide is liable to occur.

Two cables 2 and 3 extend along the face of the fence adjoining the track and are movably connected to the fence by large staples 4 or in any other desired manner, said staples permitting longitudinal movement of the cables. Poles 5 are arranged beside the track and beyond the ends of the fence for any desired distance and are preferably provided with pulleys 6 in their upper ends, which serve to carry the cables. At each end of the apparatus is provided signal mechanism which is adapted to be actuated by the cables should the fence fall, so as to indicate the presence of danger. The signal mechanism at the two ends is the same, and for that reason detailed description of one will apply to both. An arm 7 extends laterally from the posts supporting the signal mechanism and is suitably held, as by means of a brace 8. A pivot-pin 9 extends from the arm 7, and fulcrumed thereon is a lever 10, having a weight 11 suspended from one end, while its other end is provided with a depending locking-finger 12. An arm 13 extends from the supporting-post 14 of the mechanism and toward the track, and a spindle 15 is rotatably mounted in the outer end of this arm and carries a disk 16 at its upper end, on which is mounted a signal-lamp 17, which is adapted, when in its normal position, to show a green light, but which when shifted by the mechanism will show a red or "danger" light. A slot 18 is formed in the disk 16 and is normally engaged by the finger 12, thereby holding under tension a spring 19, which is connected to the arm 13 and to a pin 20, extending downward from the disk 16. A semaphore-arm 21 is connected to the spindle 15 and is locked normally in position (shown in Fig. 1) by the locking-finger 12.

A loop 22 extends from the post 14, and arranged within it is a curved rod 23, which is loosely coiled about a pin 24, extending from lever 10. This rod has a weight 25 at its free end which serves to counterbalance the weight 11, so that under ordinary conditions the finger 12 is held in position within the slot 18. Another post 26 is arranged close to the post 14 and has a pivot-bolt 27 extending therefrom and on which a lever 28 is fulcrumed so as to swing in a horizontal

plane. The ends of this lever are connected by short cables 29 and 30 with the coil of the rod 23. The cable 2, hereinbefore referred to, extends through the upper end of post 14 and is secured to lever 10, close to pin 24, whereas the cable 3 extends through the post 14 and is connected to one end of lever 28. Posts 31 are located at the other side of the track between the two signal mechanisms and carry a longitudinally-movable cable 32, the ends of which extend loosely through one end of the levers 28 and have weights 33, which serve to hold the cable 32 taut under all conditions.

As shown diagrammatically in Fig. 1, the actuation of the signal mechanism may be caused to sound an alarm. In said figure a bell has been indicated at 34, the same being connected by a wire 35 with a battery 36, which in turn is electrically connected by a wire 37 with a switch 38, connected to the lever 10 by means of a rod 39. With this construction the actuation of lever 10 will cause the switch to move against a contact 40, electrically connected to the bell 34 by a wire 41. This bell may be located at the nearest station on the road or can be disposed at any other desired point where it is deemed advisable to inform of the presence of an obstruction upon the track. In the event of the fence 1 being overthrown by a slide at least one of the wires 2 and 3 will be pulled downward by the fence and cause a corresponding longitudinal movement of said cables. This movement of cable 2 will cause the two levers 10 to be simultaneously swung upward, so as to lift the fingers 12 out of engagement with disks 16. The springs 19 will therefore immediately contract and partly rotate the disks, so as to bring the red light into position to warn the engineer of an approaching train and also to swing the semaphore-arm toward the track. If only the cable 3 should be actuated by the falling of the fence, the two levers 28 would be swung upon their pivots 27 so as to cause their cables 30 to pull the loose coils of the rods 23 off of the pins 24. The weight 11 is thus relieved of its counterbalance and, assisted by the upward pull of rods 23 through loops 22, will swing the levers 10 upward, so as to unlock the disks. Should only one end of the fence collapse, the cable 3 will cause the actuation of the signal mechanism at one end in the manner described and the swinging of the actuating-lever 28 and will cause the longitudinal movement of cable 32, which will in turn actuate the lever 28 at the other end of the apparatus, so as to cause the withdrawal of the coil from pin 24 and the actuation of the signal mechanism. The weights 33 at the ends of cable 32 are sufficiently heavy to prevent longitudinal movement of said cable while the

lever 28 is being actuated thereby to slide the coil from pin 24.

The preferred form of the invention has been set forth in the foregoing description; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of the claims.

What is claimed is—

1. An automatic signal apparatus comprising a guard-fence, a normally locked spring-controlled signal device, means operated by the collapse of the fence for unlocking the device to cause its actuation, an alarm, and means operated by the actuation of the signal device for causing the sounding of said alarm.

2. An automatic signal apparatus comprising a weighted lever, a counterbalance therefor detachably connected to the lever, a spring-controlled signal device, carried by the lever for locking the signal device, a guard-fence, and means operated by the collapse of the fence for disconnecting the counterbalance to cause the actuation of the lever.

3. An automatic signal apparatus comprising a weighted lever, a counterbalance movably connected thereto, a signal device, means carried by the lever for locking said device against movement, an unlocking-lever, the connection between said lever and the counterbalance, a guard-fence, and a flexible connection between said fence and the unlocking-lever adapted, upon the collapse of the fence, to actuate the unlocking-lever and relieve the first-mentioned lever of its counterbalance.

4. An automatic signal apparatus comprising a guard-fence, a rotatable signal device at each end of said fence, a weighted locking-lever for each signal device, a counterbalance movably connected to each locking-lever, an unlocking-lever connected to each counterbalance, flexible connections between the fence and the locking and unlocking levers, and a flexible connection between the unlocking-levers.

5. An automatic signal apparatus comprising a guard-fence, a movable signal device, means operated by the collapse of the fence for actuating said signal device, a second signal device, and means for actuating said second device from the first-mentioned signal device.

6. An automatic signal apparatus comprising a guard-fence, a movable signal device, means operated by the collapse of the fence for actuating said signal device, a second similar device, and means for actuating said second device from the first-mentioned signal device.

7. An automatic signal apparatus comprising a guard-fence, a movable signal device, means operated by the collapse of the fence for actuating said device, an alarm, and
5 means operated by the actuation of the signal device for causing the operation of said alarm.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BURNS S. MILLER.

Witnesses:

JOS. COLEMAN,
T. A. DOHERTY.