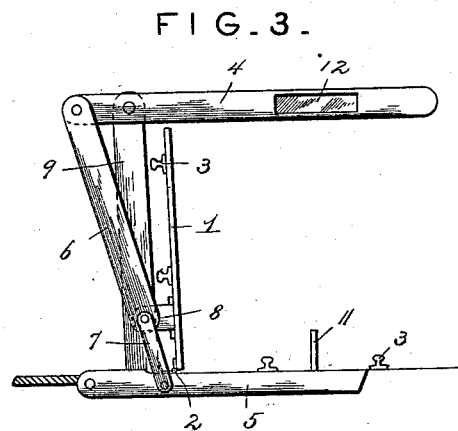
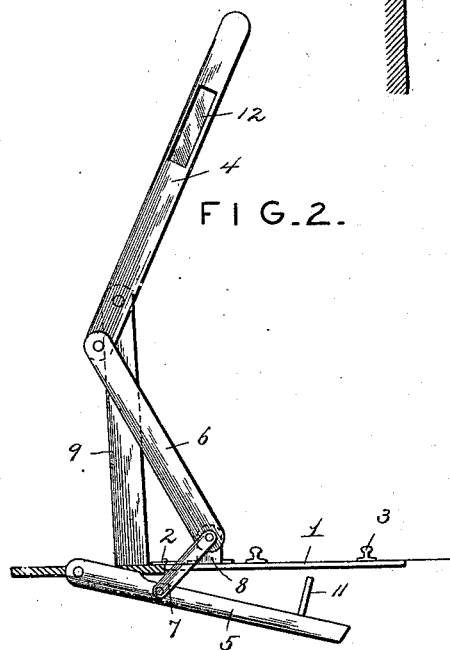
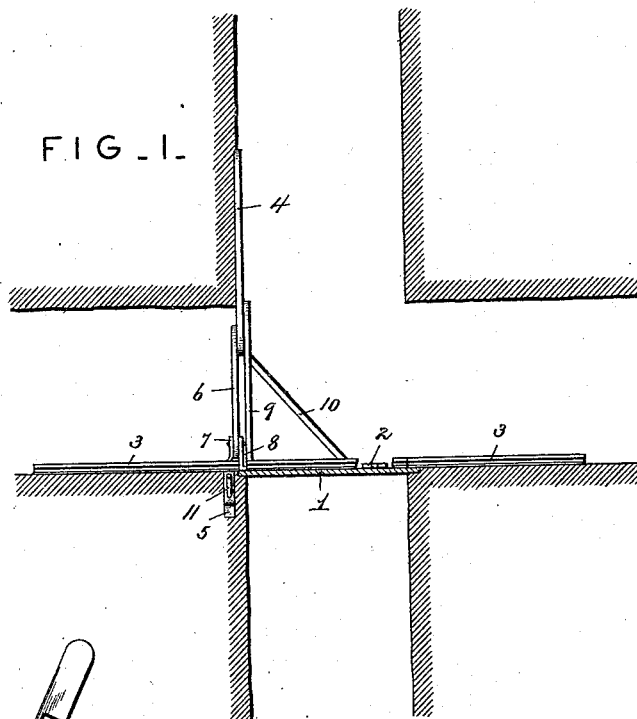


(No Model.)

C. E. ANDERSON.
GUARD FOR MINES.

No. 553,382.

Patented Jan. 21, 1896.



Inventor

Charles E. Anderson.

Witnesses

Harry L. Amer.
J. H. Riley

By His Attorneys,

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

CHARLES E. ANDERSON, OF ALTMAN, COLORADO.

GUARD FOR MINES.

SPECIFICATION forming part of Letters Patent No. 553,382, dated January 21, 1896.

Application filed October 25, 1895. Serial No. 566,858. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. ANDERSON, a citizen of the United States, residing at Altman, in the county of El Paso and State of Colorado, have invented a new and useful Guard for Mines, of which the following is a specification.

The invention relates to improvements in guards for mines.

10 The object of the present invention is to provide for mines a guard designed to be used in connection with a trap-door for closing the shaft at a drift or tunnel, and capable of indicating when a trap-door is open, and of preventing a car from falling down the shaft.

15 The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

20 In the drawings, Figure 1 is a sectional view illustrating the arrangement of a mine-guard constructed in accordance with this invention in a mine. Fig. 2 is an elevation of a mine-guard, the trap-door being closed. Fig. 3 is a similar view, the trap-door being open.

Like numerals of reference indicate corresponding parts in all the figures of the drawings.

30 1 designates a trap-door hinged at one edge at 2, and arranged in a mine adjacent to a drift and provided with tracks 3, which form a continuation of those of the drift when the trap-door is in a lowered or horizontal position. 35 The trap-door is connected respectively with an upper lever or gate 4 and a lower lever or stop 5 by link-bars 6 and 7, which have their adjacent ends pivoted together and to a bracket 8 of the trap-door. The upper lever or gate 4 is fulcrumed adjacent to one end on a post or support 9, and the upper end of the link-bar 6 is pivoted to the short arm of the lever or gate. When the trap-door is closed, the gate 4 assumes substantially a perpendicular position, and when the trap-door is raised to open the shaft of the mine the lower end of the gate is swung rearward and upward, thereby lowering the gate or lever 4 to a horizontal position to form a guard, and when the lever or gate is in the horizontal position its free end is designed to be received within a suitable recess or keeper to render it sufficiently stable. The post or support 9 is strengthened by a brace 10.

55 The lower lever or stop 5 is fulcrumed at its

rear end to a suitable support and is arranged at a slight inclination when the trap-door is in a horizontal position, and when the trap-door is opened the lever 5 is raised and carries a pin 11, mounted on it in position to form a stop to prevent a car falling into the shaft. 60 When the trap-door is lowered, the lever 5 and the stop-pin drop below the track and do not interfere with the passage of the cars.

The lever or gate 4 is designed to be provided with a luminous signal 12 to indicate the condition of the trap-door, and the guard may be used on either or both sides of the mine as described. 65

It will be seen that the mine-guard is simple and inexpensive in construction, that it is strong and durable, and that it is adapted to indicate the condition of a trap-door at a drift, and also to form a gate and a stop to prevent a person, car, or the like from falling down the shaft. 70 75

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any advantages of the invention. 80

What I claim is—

1. The combination with a trap door, of a support, a lever or gate fulcrumed on the support, a substantially horizontally disposed stop lever fulcrumed adjacent to the trap door, and carrying a stop adapted to engage the car, and links connecting the levers with the trap door, whereby when the latter is raised, the gate will be closed and the stop will be brought into operative position, substantially as described. 85 90

2. The combination with a trap door, of a support, a gate or lever fulcrumed adjacent to one end on the support and arranged substantially vertical when the trap door is closed, a stop lever disposed substantially horizontal and fulcrumed adjacent to the trap door and carrying a stop pin, and upper and lower links having their adjacent ends pivoted to the trap door and connected respectively with the gate or lever and the stop lever, substantially as described. 95 100

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

CHARLES E. ANDERSON.

Witnesses:

I. P. BUCK,
WALTER BROWN.