No. 732,903. PATENTED JULY 7, 1903.

A. O. SLENTZ.

MINE CURTAIN.

APPLICATION FILED JUNE 25, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

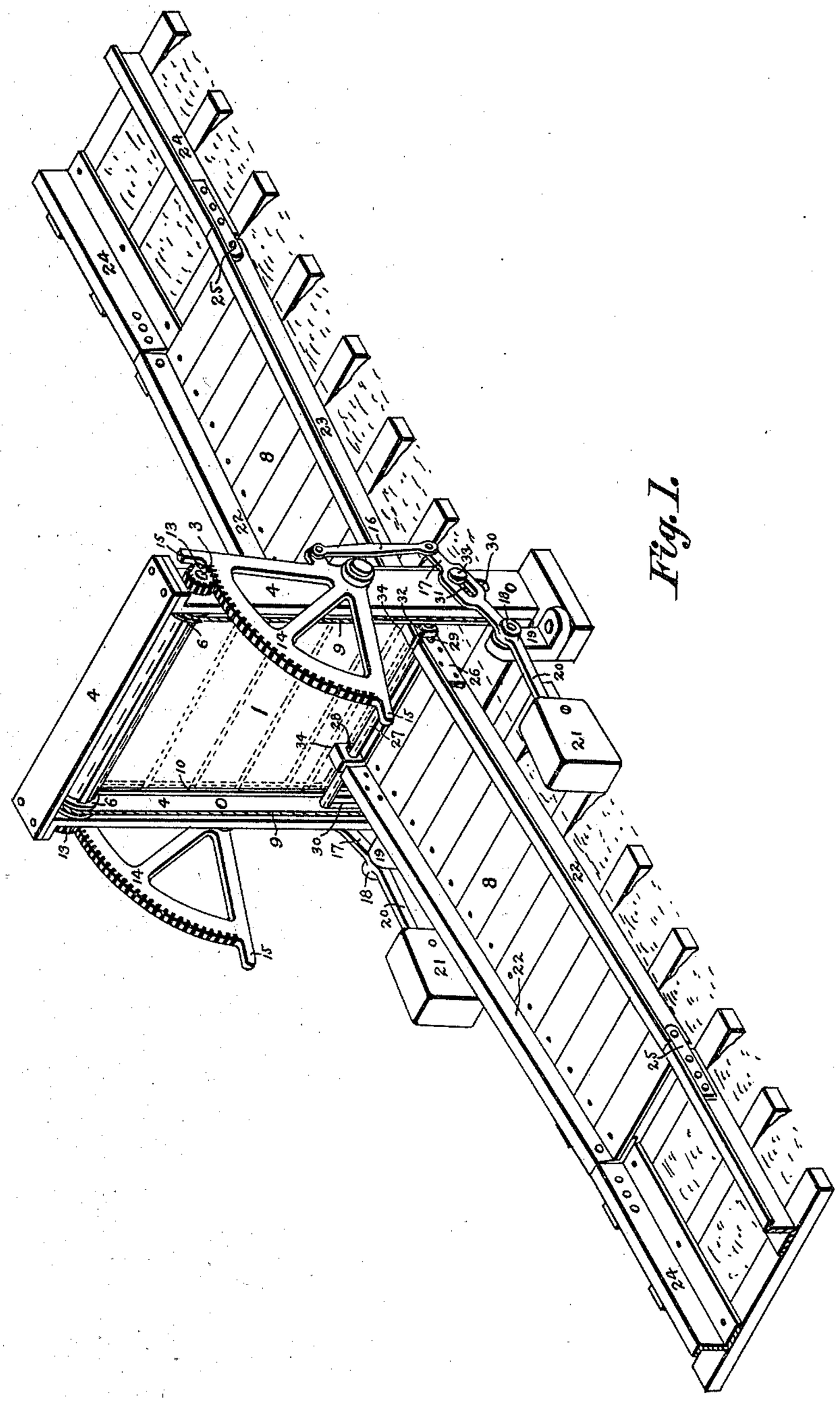

Fig. 1.

Witnesses;
William J. Davies
Joseph Frease.

Inventor;
Albertus O. Slentz,
By Harry Frease, Attorney.

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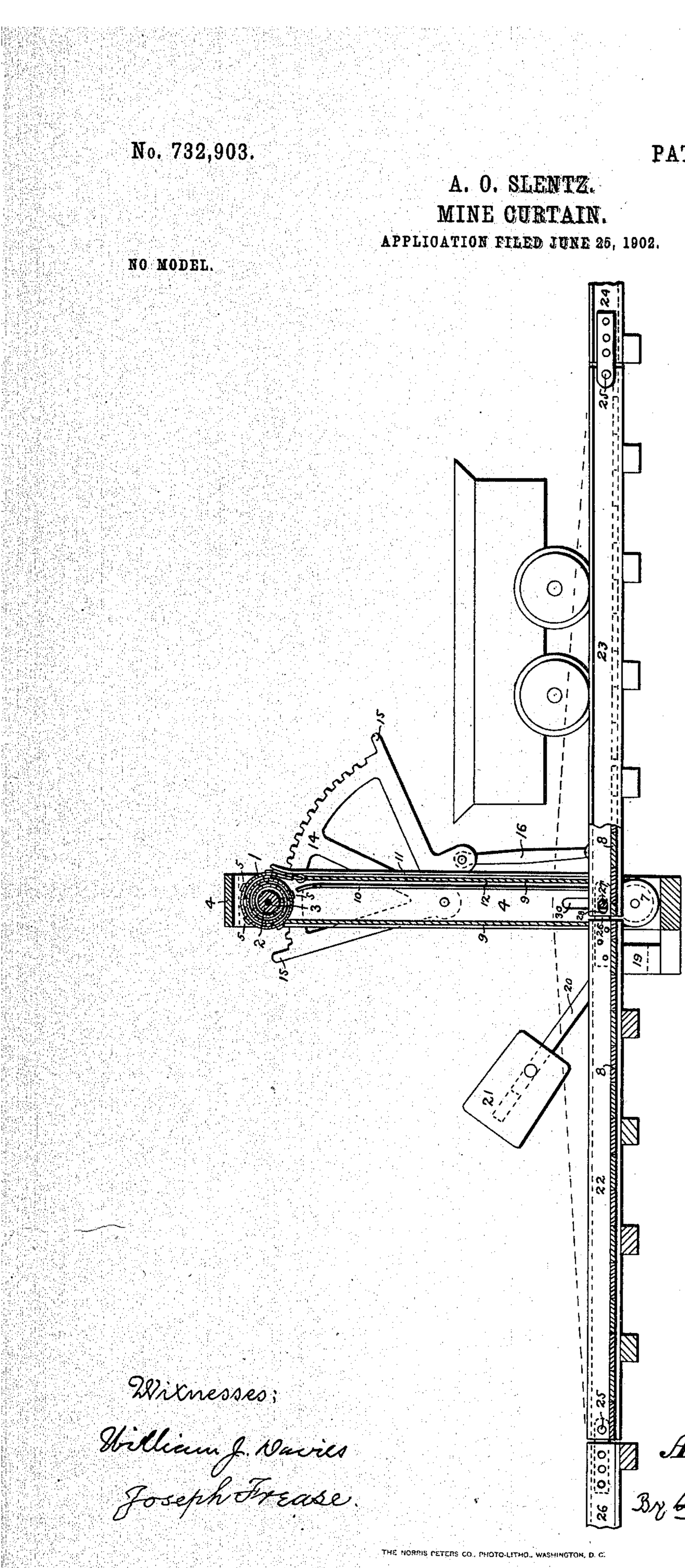

Fig. 2.

Witnesses;
William J. Davies
Joseph Frease.

Inventor;
Albertus O. Slentz,
By Harry Frease, Attorney.

No. 732,903.

Patented July 7, 1903.

UNITED STATES PATENT OFFICE.

ALBERTUS O. SLENTZ, OF CANTON, OHIO, ASSIGNOR OF ONE-HALF TO EDWARD A. LANGENBACH, OF CANTON, OHIO.

MINE-CURTAIN.

SPECIFICATION forming part of Letters Patent No. 732,903, dated July 7, 1903.

Application filed June 25, 1902. Serial No. 113,085. (No model.)

To all whom it may concern:

Be it known that I, ALBERTUS O. SLENTZ, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented a new and useful Mine-Curtain, of which the following is a specification.

In the ventilation of mines it is usually necessary to partition the entries at various points for controlling and properly directing the air-currents. In entry-ways which are little traveled this is well done by building a wooden partition with an ordinary door swinging on hinges; but in ways that are much used, and particularly those along which mine-cars are hauled, the opening and closing of an ordinary door causes considerable loss of time, is a constant source of danger when the door is not properly opened, and is not effective when it is not promptly closed. Various methods have been devised for automatically manipulating such doors to be operated by an approaching man, mule, or car; but the door is usually heavy and cumbersome and requires considerable time and energy to open and shut, so that its efficiency is greatly lessened, and the operating mechanism must be extended some distance either way from the door.

My invention relates to a device in which a curtain, raised and lowered on a roller, is used to close the mine-entry, and the objects of my improvements are to open the curtain quickly by means of the weight of an approaching man, mule, or car as they nearly reach it and then to close it promptly and positively as the passing object leaves the curtain. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the mine-curtain and its operating mechanism; and Fig. 2 is a longitudinal vertical section of the same, showing a mine-car and part of the mine-track in side elevation.

Similar numerals refer to similar parts throughout the drawings.

The curtain 1 is preferably made of canvas or ducking and is hung on the roller 2, which roller is mounted on the shaft 3, which in turn is journaled near the top in the sides of the frame 4. Cross-slats 5 are preferably attached on the side of the curtain to prevent its bulging by air-pressure. Pulleys 6, with grooved rims, are mounted on the roller next to the frame on either side of the curtain, and similar idle pulleys 7 are pivotally mounted on the sides of the frame, respectively, below the roller-pulleys and with their axes below the operating-platforms 8. Cords or cables 9 are attached at one end on the roller-pulleys and pass down around the idle pulleys, thence upward to attachments with the lower corners of the curtain. The cords are so arranged that when the curtain is dropped there are enough winds of the cords on the roller-pulleys to be expended as the curtain is raised by the rotation of the roller, and when the roller is rotated in the reverse direction the rewinding of the cords will pull down the curtain by their connection with the respective lower corners thereof. The lower edge of the curtain may be sufficiently weighted to lower itself, in which event the cords and pulleys can be omitted; but it is preferable to use them to make the drop positive. Guide-flanges 10 and 11 are projected inward from either side of the frame, thereby forming a groove in which the edges of the curtain and the cord are guided and protected. Cog-pinions 13 are attached on the ends of the roller-shaft outside of the frame, and these pinions mesh with the cog-wheel sections 14, which are pivotally mounted on the sides of the frame below the pinions. Guards 15 are preferably projected from the ends of the cog-wheel sections to limit their movements, respectively, and pivotally depending from corresponding sides of each section are the pitmen 16. The lower ends of the pitmen are pivotally connected with the free ends of the operating-levers 17, which levers extend past the sides of the frame to the hubs 18, which hubs are pivotally mounted on the bearing-brackets 19, which are in turn attached to the frame. Extending from the opposite sides of the hubs are the arms 20, on which are adjustably mounted the counterbalance-weights 21.

The operating-platforms 8 extend, respec-

tively, to pivotal points a short distance either way from the curtain-frame. Where a track is laid, the platforms are preferably made by pivotally connecting movable sections of rails 22 and 23 to the stationary track-rails 24, as at 25, and then laying plank between the free rails to form the platforms. The free ends of the rails 22 are near and opposite the free ends of the rails 23, and the plates 26, attached on the sides of the rails 22, are extended endwise along the sides of the rails 23. The operating-bar 27 extends across the track, passing through the slotted apertures 28 and 29 in the rails 23 near their ends and in the plate extensions 26, and it extends on either side through the vertical slots 30 in the sides of the frame and through the longitudinal slots 31 in the operating-levers. Suitable nuts, as 32, are provided on the operating-bar on either side of the rail-plates and heads, as 33; on the ends of the bar outside of the operating-levers to keep the parts in proper place. The weights 21 are so adjusted as to overbalance the platforms, and the parts of the mechanism are so arranged that when the curtain is dropped the weights are down and the free ends of the platforms and the operating bars and levers are up, as shown in Fig. 1, but that when a car is run onto the platform on either side its weight will overcome the counterbalance and depress the platforms with the operating bar and levers, which rotates the cog-wheel sections by the pitmen, and thereby raises the curtain by rotating the cog-pinions and the roller to the position shown in Fig. 2. As soon as the car moves off the platform either way the counterbalance-weights act at once to reverse the mechanism, thereby dropping the curtain and raising the platforms to their normal position. A man or a mule walking on and off the platforms will operate the mechanism the same as described for a car. Notches 34 are preferably provided in the lower edge of the curtain to fit over the rails, and the curtain-frame is suitably connected with the bottom, sides, and top of the mine-entry to stop the passage of air.

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

1. The combination of a curtain, a roller on which the curtain is hung, cog-pinions on the roller, depressible platforms on each side of the curtain, a bar projecting on each side at the junction of the platforms beneath the roller, rotatable hubs at the sides of the platforms, levers on the hubs having longitudinal slots receiving the ends of the bar, counterbalancing-weights on the hubs, cog-wheel sections pivoted between the roller and the bar and meshing with the pinions, and pitmen connecting the sections with the free ends of the levers.

2. The combination of a curtain, a roller on which the curtain is hung, depressible rails on each side of the curtain pivoted at their remote ends, plates attached on the free ends of corresponding rails and extending alongside the opposing rails, the free ends of said plates and the contiguous rails being provided with slotted apertures, a bar passing through the apertures and raised and lowered by the elevation and depression of the rails, and mechanism between the bar and the roller for rotating the roller actuated by the movements of the bar.

3. The combination of a curtain, a roller on which the curtain is hung, pulleys on the roller, idle pulleys opposite the roller-pulleys, cords winding on the roller-pulleys and passing around the idle pulleys and connected with the free corners of the curtain, depressible rails on each side of the curtain, and mechanism actuated by the alternate depression and elevation of the rails for rotating the roller in alternate directions, whereby the curtain is positively lowered by the action of the cord when the roller is rotated to unwind the curtain and wind the cord.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERTUS O. SLENTZ.

Witnesses:
JOSEPH FREASE,
HARRY FREASE.