

No. 790,004.

PATENTED MAY 16, 1905.

A. O. SLENTZ.
MINE TRAP DOOR.
APPLICATION FILED JULY 19, 1904.

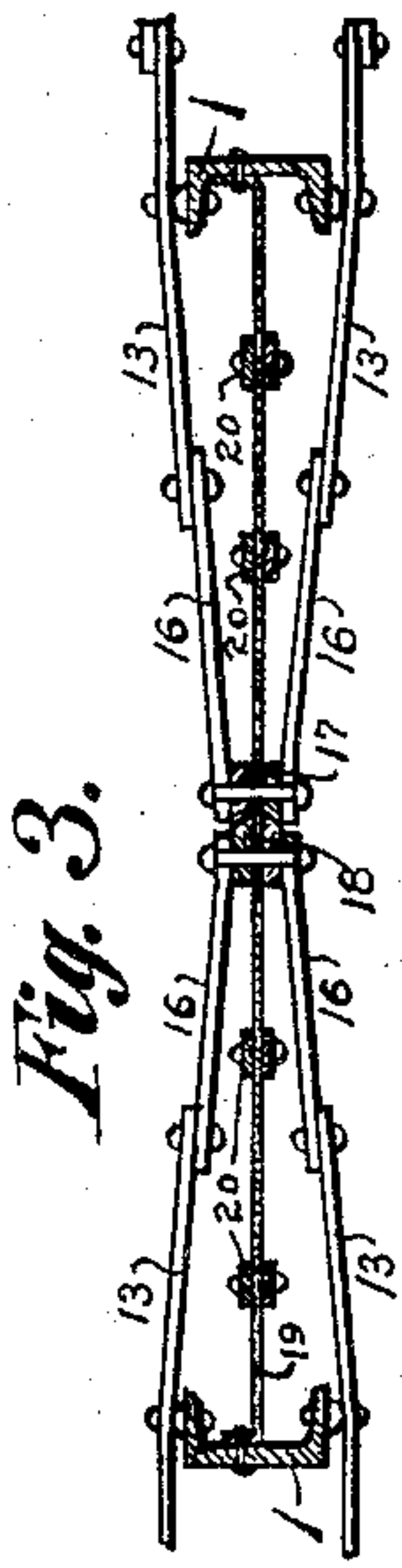


Fig. 3.

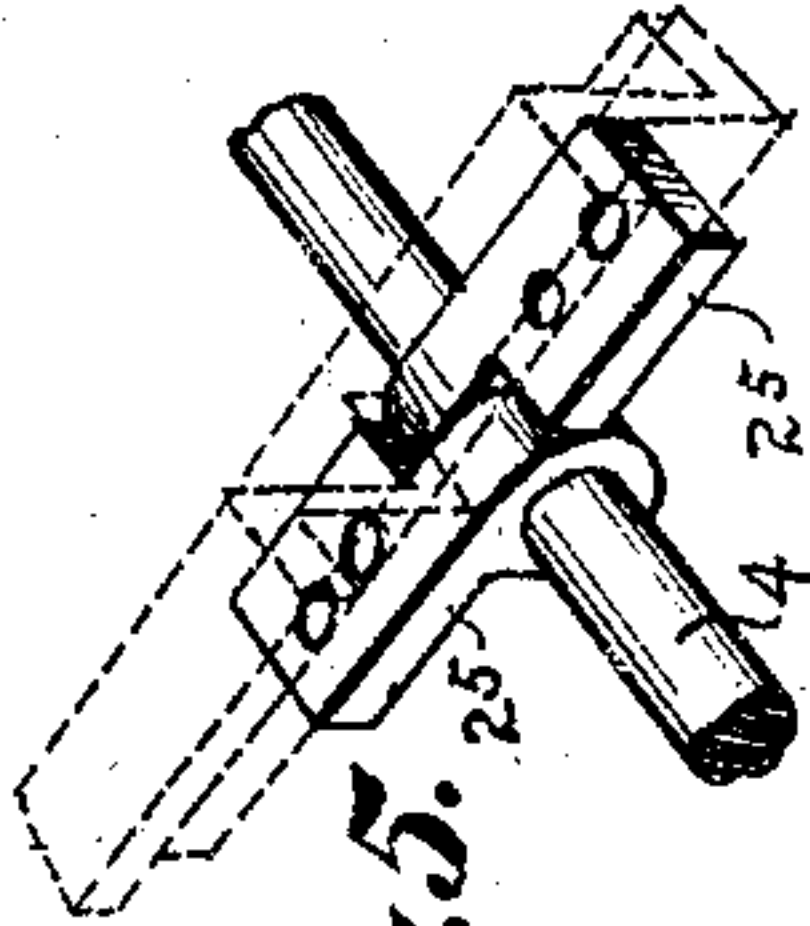


Fig. 5.

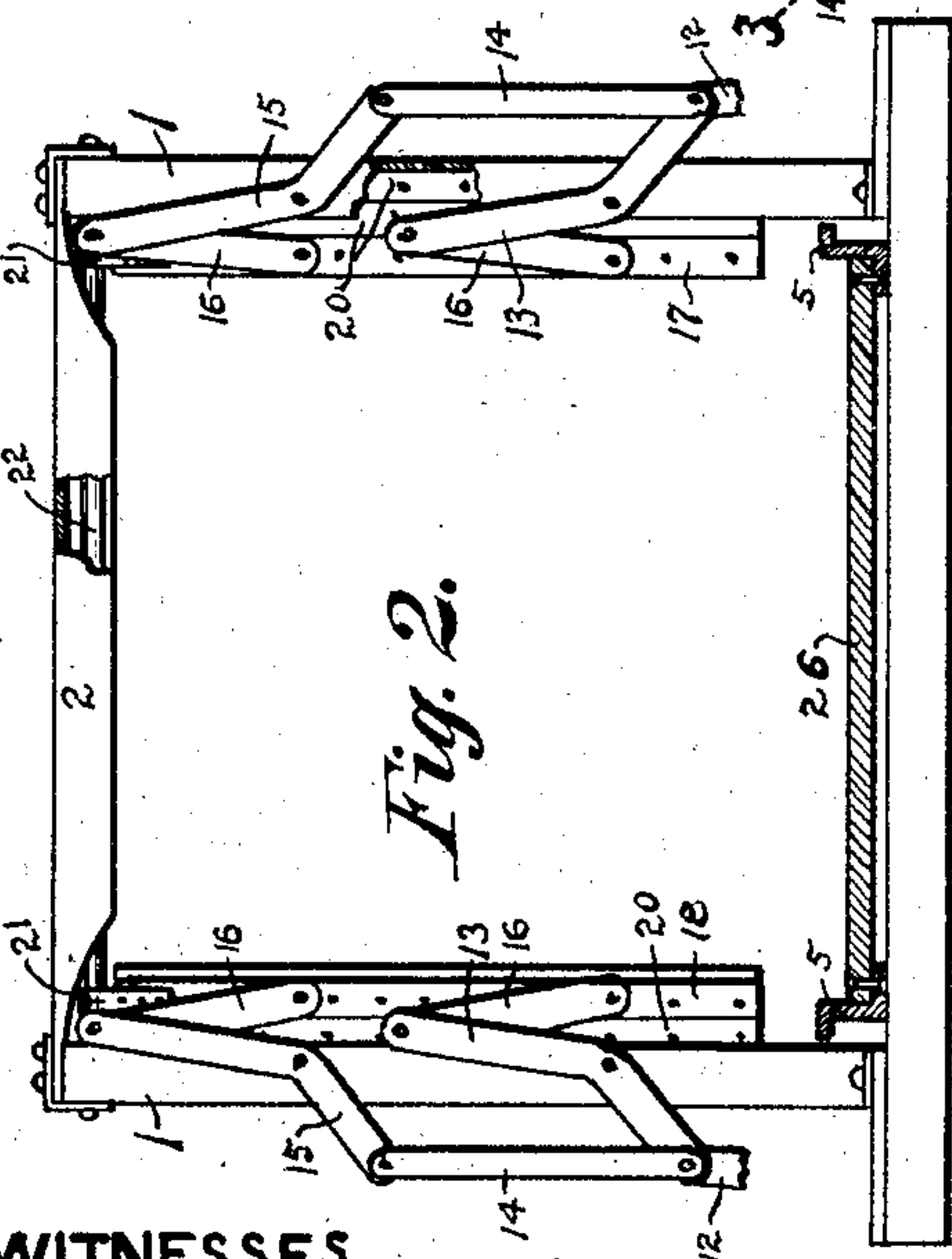


Fig. 2.

Fig. 1.

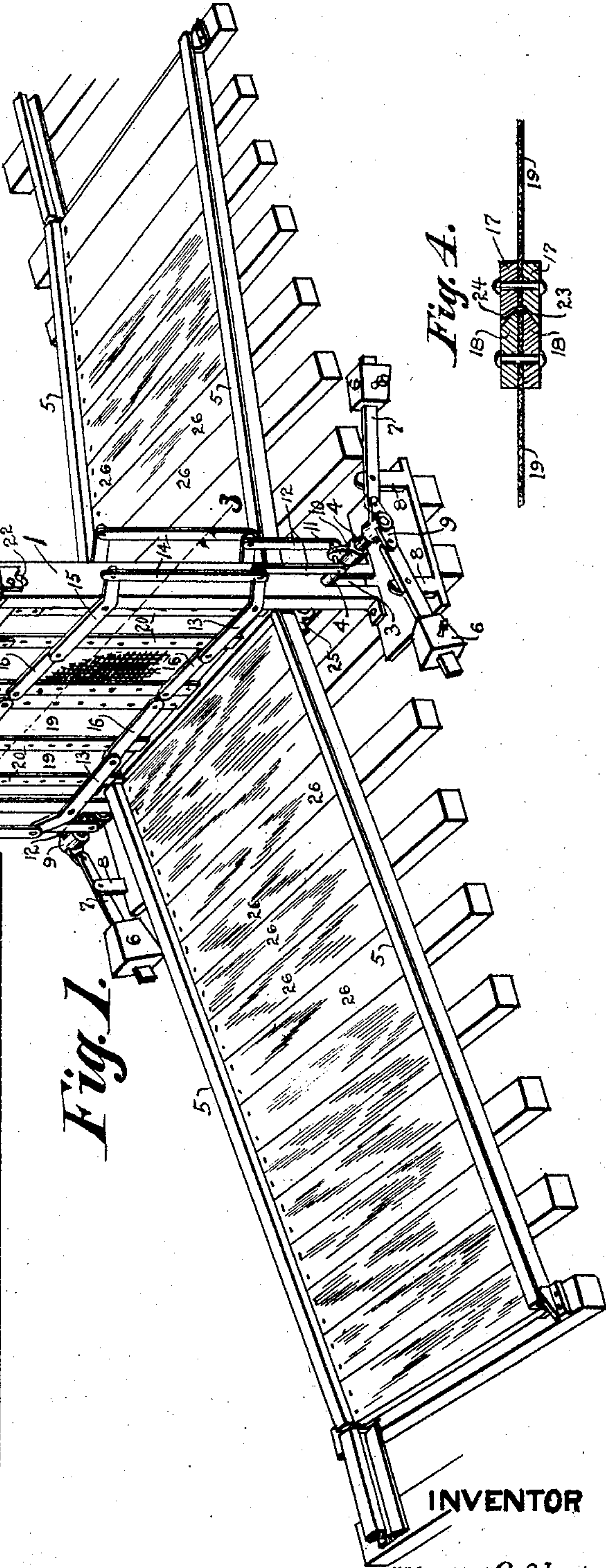
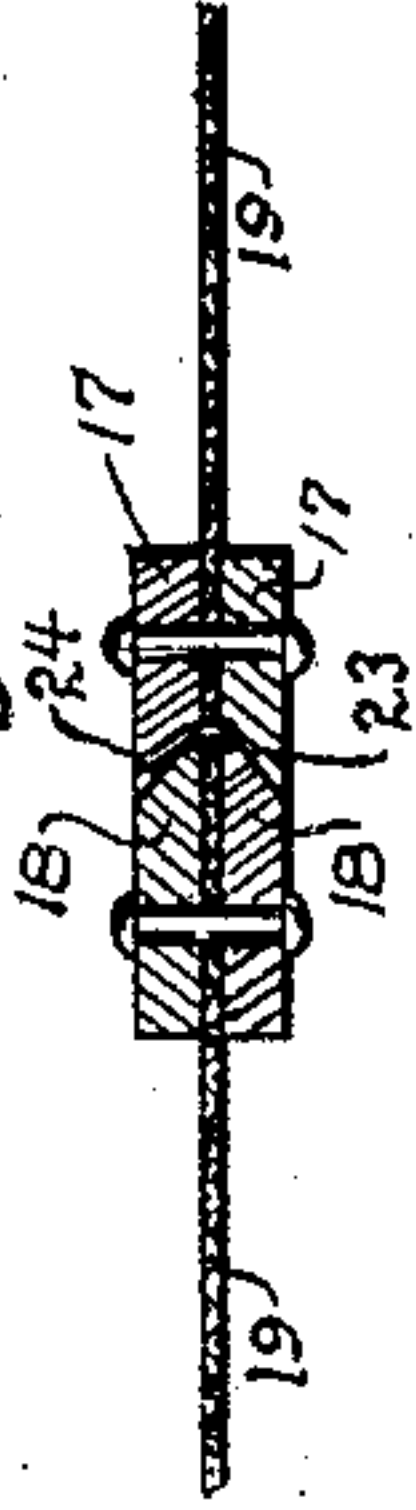


Fig. 4.



WITNESSES

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ALBERTUS O. SLENTZ, OF CANTON, OHIO, ASSIGNOR OF ONE-HALF TO
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MINE TRAP-DOOR.

SPECIFICATION forming part of Letters Patent No. 790,004, dated May 16, 1905.

Application filed July 19, 1904. Serial No. 217,179.

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 certain new and useful Improvements in Mine Trap-Doors; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the figures of reference marked thereon, in which—

Figure 1 is a perspective view showing the door closed. Fig. 2 is a front elevation showing the door open. Fig. 3 is a transverse section on line 3 3, Fig. 1. Fig. 4 is a transverse section of the door meeting strips. Fig. 5 is a detached view of the platform-hinge and a portion of the shaft.

The present invention has relation to mine trap-doors; but it consists in the different parts and combination of parts hereinafter described, and particularly pointed out in the claims.

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

In the accompanying drawings, 1 represents the upright channel-posts, which are held in upright position in any convenient and well-known manner and are formed of a height to correspond substantially with the height of the door designed to be constructed. To the top or upper ends of the posts 1 is securely attached the top channel-bar 2. The bottom or lower ends of the posts 1 are provided with the elongated slots 3, in which elongated slots is located the rod or bar 4, to which rod or bar are hinged adjacent ends of the platform-rails 5, which platform-rails are held in an elevated position and inclined downward from their adjacent ends in either direction from the gate proper.

For the purpose of holding the platform-rails 5 in elevation the weights 6 are provided, which weights are located upon the pivoted arms 7, said pivoted arms being pivotally attached to the posts 8 and the flanged heads 9, respectively. Said flanged heads are secured in any convenient and well-known manner to the

rod or bar 4. Upon the rod or bar 4 are located the blocks or heads 10, which heads are provided with the flanges 11 for the purpose of providing a means for attaching the bottom or lower ends of the links 12. The top or upper ends of the links 12 are pivotally attached to the lower door-operating levers 13, and to said lower door-operating levers 13 are pivotally attached the bottom or lower ends of the links 14; the top or upper ends of said links being pivotally attached to the upper door-operating levers 15.

It will be understood that in order to provide a door suitable to close or cut off the passage of air canvas should be employed, which canvas folds when the door is open.

To the inner ends of the upper and lower door operating levers 15 and 13 are pivotally attached the links 16, which links are also pivotally attached to the meeting strips or bars 17 and 18.

For the purpose of assisting in holding the canvas 19 in proper position and to prevent said canvas from swaying back and forth the strips 20 are provided, which strips are located upon opposite sides of the canvas 19, as best illustrated in Fig. 3.

It will be understood that any desired number of strips, such as 20, may be employed without departing from the nature of my invention.

For the purpose of suspending the door proper all of the strips should be provided with loop-straps 21, which loop-straps are located upon the bar 22.

The operation of the herein-described door is as follows: When the platform-rails 5 are depressed, the rod or bar 4 will be moved downward, carrying with it the links 12, which in turn pull the outer ends of the levers 13 and 15 downward and elevate the inner ends of said levers, which levers are pivotally attached to the posts 1 or their equivalents, and as the inner ends of the levers 13 and 15 are turned upon their pivotal points in an upward direction the links 16, together with the strips or bars 17 and 18, will be moved toward the posts 1 and assume the position illustrated in Fig. 2. When the platform-rails 5 are released, the

weights 6 are moved downward by gravity, which in turn elevates the inner ends of the pivoted arms 7, thereby lifting the rod or bar 4, which in turn elevates the levers 13 and 15 at their outer ends by means of their link connections and brings the door proper into the position illustrated in Fig. 1.

For the purpose of holding the two sections of the door proper in desired relation to each other when the door is closed the strips 17 and 18 are provided with inclined edges 23 and 24, which produce a rib and groove, as illustrated in Fig. 4, and the rib seated in the groove.

It will be understood that as the door-sections move to open and close the passage the loop-straps 21 are moved back and forth upon the rod 22, by which arrangement the door is properly suspended either in open or closed position.

The object and purpose of forming the posts 1 of channel-bars is to provide side flanges, which flanges assist in holding the strips 20 and also the canvas 19 when the door is open.

To connect the track-rails 5 and the rod or bar 4, the hinge-sections 25 are provided, which hinge-sections may be of any desired form.

For the purpose of providing a combined track-rail and platform-rail the platform-rails 5 are formed Z-shaped in cross-section, the lower flange serving the purpose of supporting and holding by suitable bolts or otherwise the platform-planks 26 and the upper flange constituting the tread-flange for the car-wheels.

It will be understood that when the gate is closed, as illustrated in Fig. 1, the levers 13 and 15, together with the intermediate links 16, will be located in a horizontal position, and thereby assist in holding the door proper against any swinging movement by reason of air-blasts.

For the purpose of better holding the door proper in a true vertical position and at the same time preventing any lateral movement of the operating-levers 13 and the links 16 said levers and links are inclined toward each other as they approach the meeting strips 17 and 18, this feature being illustrated in Fig. 3.

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

1. In a mine trap-door, the combination of a door-frame, the posts thereof provided with channels and slots at their bottom or lower ends, a rod located in the slots, links operatively connected to the rod, levers pivotally attached to the door-frame and linked together at their outer ends, depressible track-rails carrying a platform and said track-rails located in the path of a car and adapted to move the rod, means for elevating the track-rails when released, and a door consisting of slats and canvas, substantially as and for the purpose specified.

2. In a mine trap-door, a door-frame provided with a door adapted to be folded, a suspending-bar adapted to suspend the door, depressible track-rails located in the path of a car, a rod to be operated by the depressible track-rails, levers pivotally attached to the door-frame, links connected to the outer ends of the levers, links located below the links pivotally connected to the levers on the door, the lower ends of said links operatively connected to the rod operated by the depressible rails, links connected to the inner ends of the levers on the door-frame, and means for elevating the track-rails when released, substantially as and for the purpose set forth.

3. In a mine trap-door, a door-frame, the posts thereof provided with channels, a door formed in sections and the sections adapted to be folded toward the door-posts, depressible track-rails and a platform secured to and operative with the track-rails, a bar actuated by the depressible rails, links connected at their lower ends to the bar actuated by the track-rails, levers pivotally attached to the door-posts, links connected to the outer ends of the levers, the lower links connected to said levers at their upper ends, links pivotally attached to the inner ends of the levers and the inner ends of said links pivotally attached to the door members, and means for elevating the track-rails and platform when released, substantially as and for the purpose specified.

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

ALBERTUS O. SLENTZ.

Witnesses:

J. A. JEFFERS,
F. W. BOND.