

No. 698,465.

Patented Apr. 29, 1902.

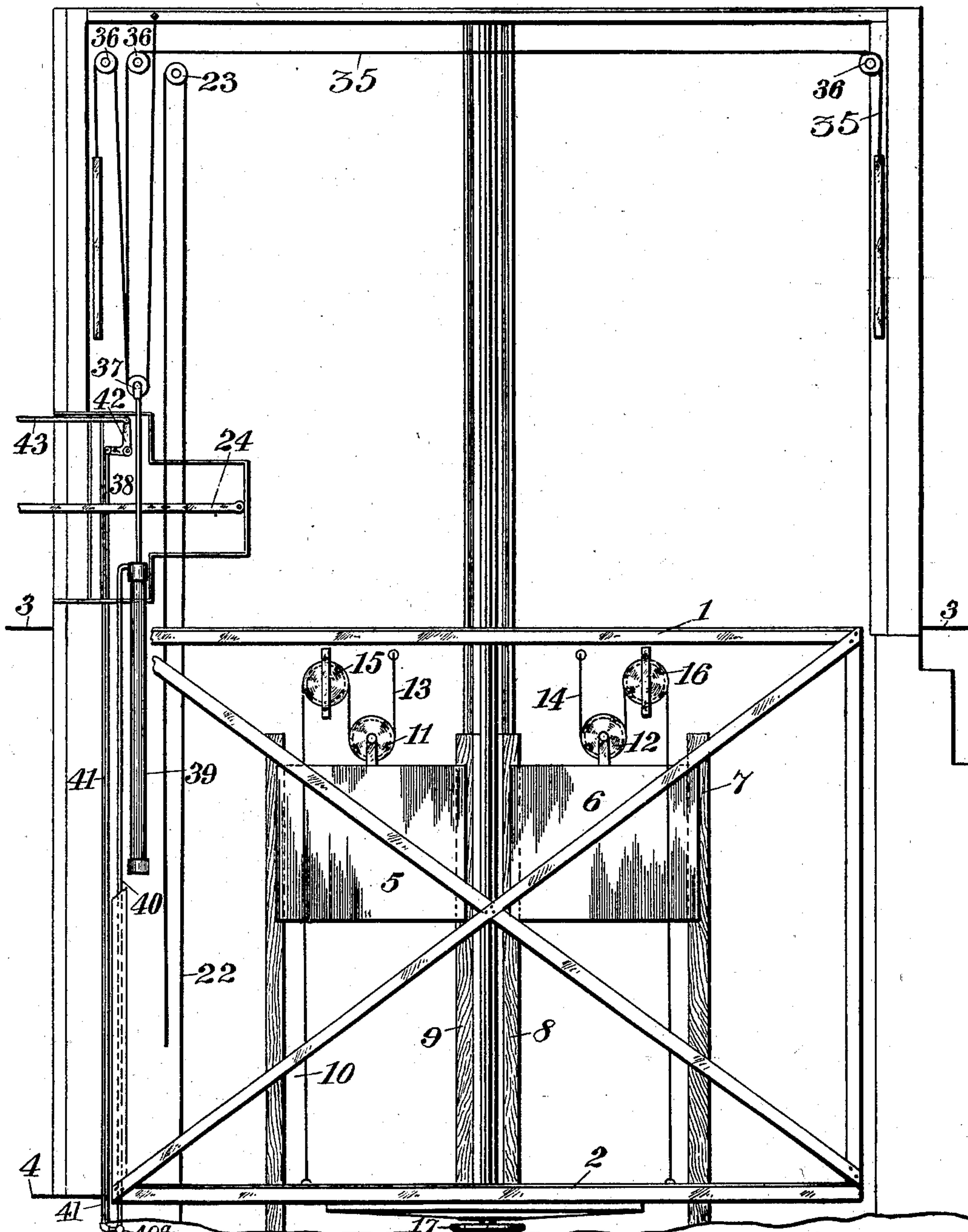
D. H. DARRIN & W. M. DOLLAR.
HOISTING APPARATUS.

(Application filed Dec. 15, 1900. Renewed Mar. 7, 1902.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1



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By their Attorney
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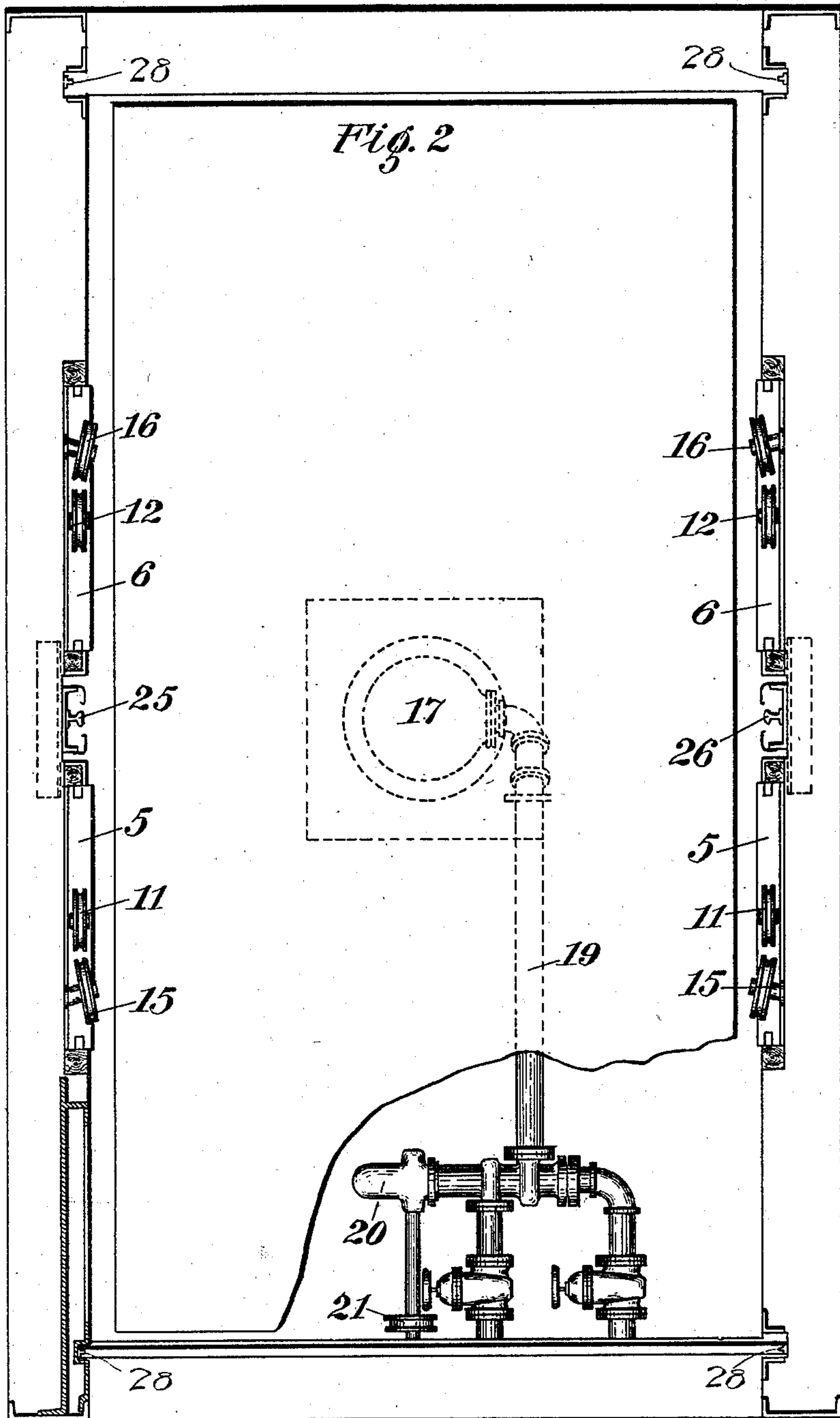
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4 Sheets—Sheet 2.



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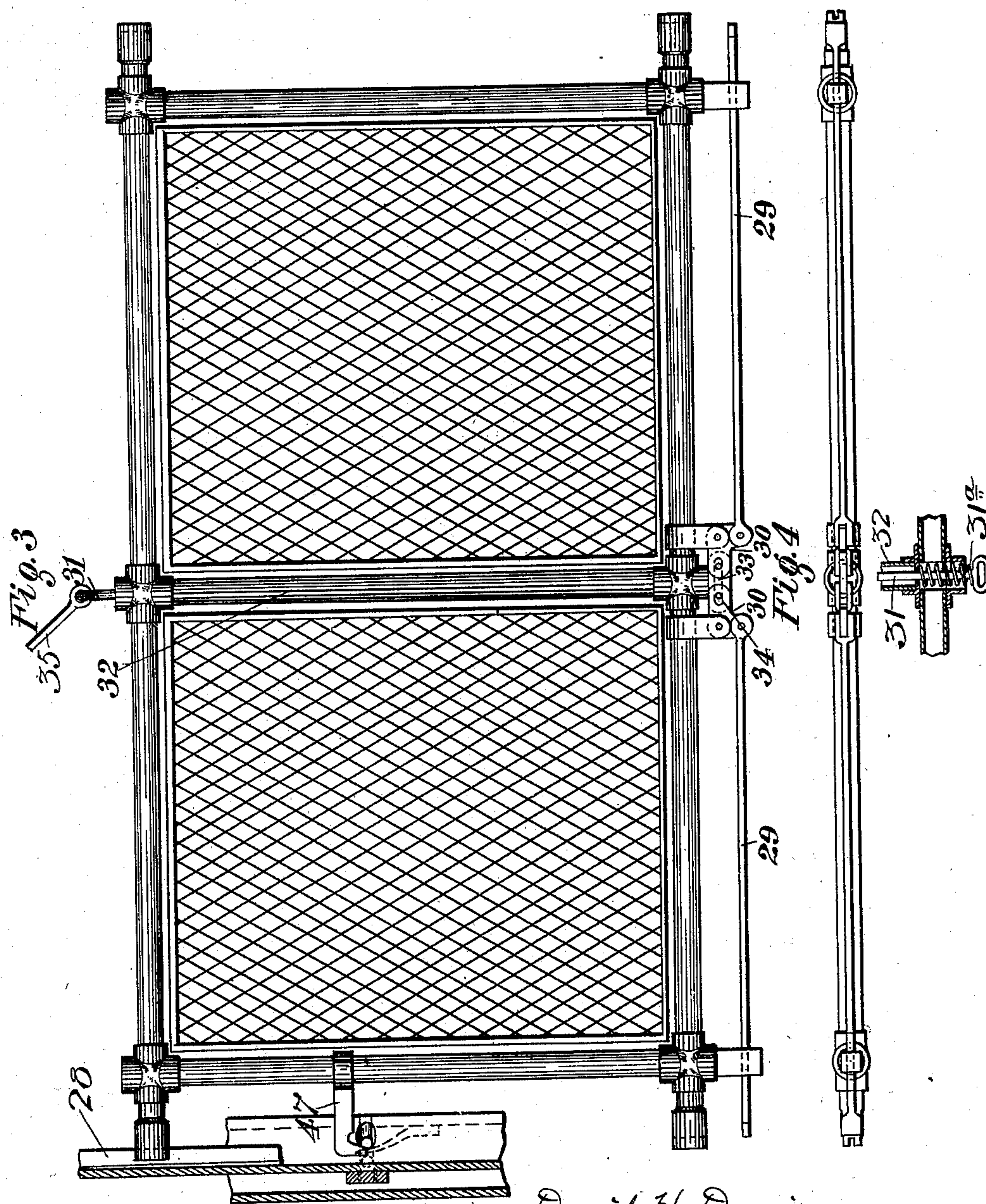
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4 Sheets—Sheet 3.



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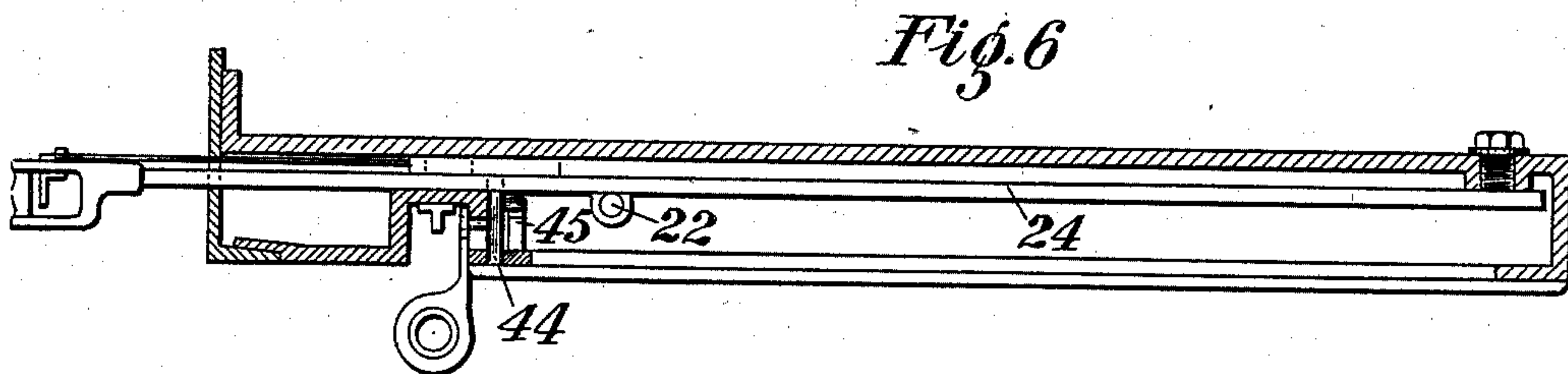
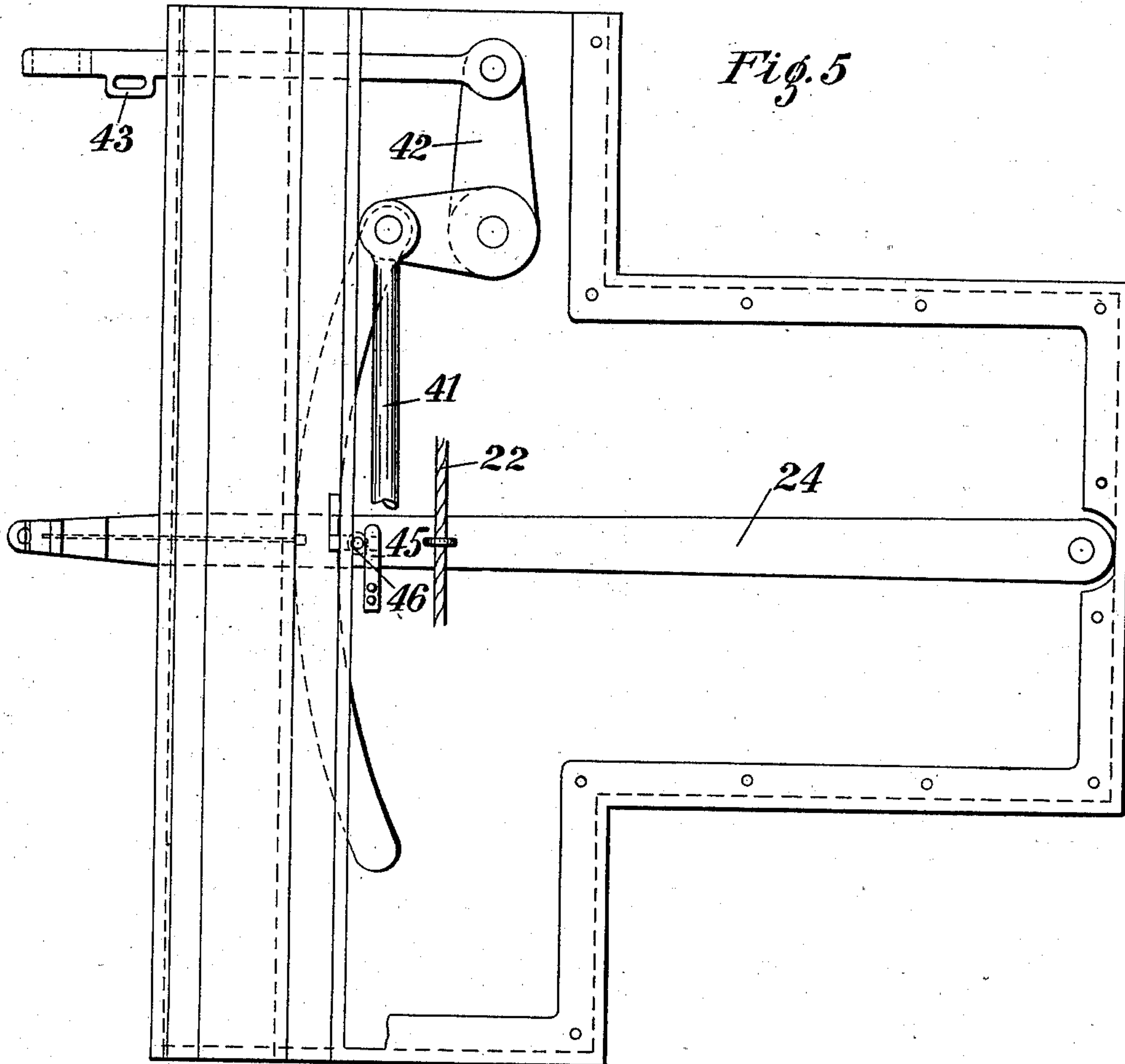
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(No Model.)

4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

DAVID H. DARRIN, OF NEW YORK, AND WILLIAM M. DOLLAR, OF BUFFALO, NEW YORK, ASSIGNORS TO HOWARD IRON WORKS, A CORPORATION OF NEW YORK.

HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 698,465, dated April 29, 1902.

Application filed December 15, 1900. Renewed March 7, 1902. Serial No. 97,063. (No model.)

To all whom it may concern:

Be it known that we, DAVID H. DARRIN, residing in the city and county of New York, and WILLIAM M. DOLLAR, residing at Buffalo, in the county of Erie, State of New York, citizens of the United States, have invented certain new and useful Improvements in Hoistway Apparatus, of which the following is a full, clear, and exact specification.

10 This invention relates to elevator-hoistways or lifts, and is particularly applicable for use in connection with hoistways in which the car or platform when on a level with the floor is used as a passage-way.

15 The object of the invention is primarily to provide means for guarding against movement of the car or platform until after the safety guards or gates have been closed, and thus preventing persons from unwittingly getting upon the platform when the same is in motion.

20 A further object is to provide a simple and efficient hoisting apparatus which shall be adapted for handling baggage or freight in crowded places—as, for instance, in railroad-stations—without injury to persons in or about the place or using the platform as a passage-way.

25 The invention will be more particularly described with reference to the form thereof shown in the accompanying drawings, in which—

30 Figure 1 is a side view of a hoistway embodying our invention. Fig. 2 is a top view of the hoistway-shaft with parts broken away to show the driving or hoisting means. Fig. 3 is a detail view of one of the protecting or safety gates, showing its arrangement with respect to the controller for the hoisting means. Fig. 4 is a bottom view of the gate. Fig. 5 is a detail view of the controllers for the hoisting and gate-operating means, and Fig. 6 is a sectional view of Fig. 5 along the controller for the hoisting means.

35 Referring more particularly to the drawings, 1 and 2 represent the platforms of the car or lift, the car being of any suitable construction and having any suitable number of platforms. In the present instance the invention is shown as applied to a baggage-lift

for moving baggage and freight between the floors 3 and 4, and when the lift is at the bottom of the shaft, as shown in Fig. 1, the platform 1 serves as a passage-way or part of the floor 3.

5 5 and 6 represent the usual counterweights moving in the guides 7, 8, 9, and 10 and carrying the pulleys 11 and 12. A cord or chain 13 14 is attached to the side of the shaft and leads through pulleys 11 12 over pulleys 15 16, also attached to the sides of the shaft, and thence to the car, to which its end is attached.

The hoisting or driving means may be any suitable power. In the present instance we have shown the lift as operated by hydraulic power, and to this end the usual main cylinder 17 is provided, a piston and piston-rod 18 being operated thereby against the bottom of the car. The pressure in cylinder 17 through pipe 19 is regulated by the valve 20, which is turned by the pulley 21, movement of the pulley in one direction admitting the water to the main cylinder and movement in the other direction releasing the water. A shipper-rope 22 is connected to the pulley 21 and leads over a pulley 23 at the upper end of the shaft, its ends being attached to the controller-lever 24. The parts are so adjusted that when the lever is in its normal position, as shown in Fig. 1, the pulley 21 is in such position that water is neither admitted nor released from cylinder 17. Therefore when the controller-lever is in the position shown the car will be at rest, and when moved to one side will be moved upward, and when moved to the other side the car will be moved downward. The car is fitted and moved in the shaft in any suitable manner.

In the drawings, 25 26 represent the usual guides at the sides of the shaft.

The gate or gates 27 are suitably mounted at the entrances to the shaft, and 28 28 are suitable guides for the gates, and 29 29 are bolts arranged to project into and engage the sides of the entrance to the shaft when pushed outward. The inner ends of the bolts 29 are connected to the bell-crank levers 30, mounted upon the lower side of the gate, and the inner ends of the bell-crank levers 30 are connected to a rod 31, which passes vertically

through the gate and is provided with a spring (preferably a coiled spring) 31^a, surrounding the rod inside the tube 32 of the gate, which incloses the rod, tending to throw
 5 the rod downward, and thereby force the bolts 29 outward. In order to permit proper movement of the rod, the connection between the latter and the bell-crank levers 30 should be substantially as shown in Figs. 3 and 4, where-
 10 in the lower end of the rod is provided with a slot 33, in which the pins 34, carried by the bell-crank levers, are free to slide. To the rod 31 is attached a lifting cord or chain 35, which extends upward over the pulleys 36
 15 and thence through the pulley 37, attached to the piston-rod 38 of a hydraulic or other suitable power-cylinder 39 and its end is attached to the elevator-shaft. To move the rod 38 downward to raise the gates, water is
 20 admitted to the cylinder 39, through the pipe 40, the valve-controlling pipe 40 being operated by the rod 41, the end of which is attached to the bell-crank lever 42, mounted adjacent to the controller handle or lever 24.
 25 Bell-crank lever 42 is operated by the rod 43. In place of the cylinder 39 any suitable or convenient means may be employed to raise or operate the gates.

A bolt 44 is mounted in the side of the shaft
 30 adjacent to the controller-lever 24, and a spring 45 acts against the same to normally force it toward the lever and into an opening 46 in the lever whenever the lever is in such position that the opening is opposite the bolt.
 35 Therefore whenever the controller-lever 24 is moved to the position of rest to stop the movement of the car the opening 46 is in position to be engaged by the bolt unless the action of the latter is restrained or prevented. A
 40 hook or cam 47, carried by the gate, is adapted to engage a projection 48 upon the bolt 44 and withdraw the bolt when the gate is dropped to its closed position.

In the operation of the apparatus when the
 45 car is not in motion the controller-lever 24 will be in the position shown in the drawings, because it is necessary to bring it to that position to stop the car. When in that position, the bolt 47 engages and locks it and
 50 prevents its being moved unless the gate be first closed. Upon closing the gate the hook 47 withdraws the bolt 44 and allows the controller-lever 24 to be moved. The latter lever is then operated to move valve 21 and
 55 start the car. When the car reaches its proper floor, the operator moves the lever 43 to operate the cylinder 39, which draws down the piston-rod 38, and cord 35 is pulled. The
 60 cord first pulls the bolts 29 out of engagement with the sides of the entrance against the pressure of the spring and then raises the gate. When the gate is lowered, the weight of the gate is sufficient to overcome the tension of the spring and hold the bolts 29 in po-
 65 sition to permit movement of the gate until the gate rests upon the floor, when the springs force the bolts into position.

It will be seen that the operator cannot start the car until he has first closed the safety-gates to keep persons out of the shaft, 70 and, furthermore, the gates cannot be raised or interfered with by persons other than the operator in control of the lever 43. The gates may be opened irrespective of the po- 75 sition of the car, but when opened as soon as the car is stopped it cannot be again operated until the gate is closed.

The above construction is capable of various modifications and changes without departing from the spirit or scope of the inven- 80 tion, and we therefore desire it to be understood that we do not intend to limit ourselves to the precise construction and arrangement of parts herein shown and described.

Having thus described our invention, we 85 declare that what we claim as new, and desire to secure by Letters Patent, is—

1. In apparatus of the character described, the combination with the gate or gates, of a controller for the gate-operating mechanism 90 and a controller for the elevator hoisting power, normally operative means for locking the elevator-controller when in the position of rest, means for preventing the operation of the locking means while the gate is held 95 in closed position, locking means for said gate, operative except when the gate is opened by its operating mechanism, and a connection between said locking means and the gate mechanism whereby the gate-operating 100 mechanism first unlocks the gate and then opens the same, substantially as described.

2. In apparatus of the character described, the combination with the gate or gates, of a controller for the gate-operating means and 105 a controller for the elevator hoisting power, normally operative means for locking the elevator-controller when in the position of rest, means for preventing the operation of said locking means when the gate is in closed po- 110 sition, means for locking the gate except when opened by the gate-operating means, operating means for said gate adapted to first unlock and then open the same, and a controller for said operating means, substantially as de- 115 scribed.

3. In apparatus of the character described, the combination with the car or platform which forms a part of the passage-way, of elevator hoisting means, a controller device 120 located in said passage-way and comprising a controller for the elevator hoisting means and a controller for the gate-hoisting means, a gate or gates, normally operative means for locking said controller when in the position 125 of rest, means for preventing the operation of said locking means when the gate is closed, operating means for the gate, and means for locking the gate against movement except when operated through its controller, sub- 130 stantially as described.

4. In apparatus of the character described, the combination with the gate or gates, of controller for the gate-opening mechanism and

a controller for the elevator hoisting power, a spring-bolt normally engaging and locking said elevator-controller when the same is in position of rest, a cam on the gate or gates adapted to engage and withdraw said bolt when the gate is closed, a spring-bolt carried by the gate and adapted to engage the elevator-shaft and lock the gate when the latter is closed, and a connection between said bolt and the gate-hoisting mechanism, whereby said gate-hoisting controller regulates the gate-locking mechanism and said elevator-controller is subject to the operation thereof, substantially as described.

5 5. The combination of a car, a vertically-moving gate, spring-bolts carried thereby and adapted to engage the elevator-shaft, a gate-hoisting rope connected to said spring-bolts and adapted to withdraw the same and raise
10 said gate, a controlling device comprising a controller for the gate-hoisting mechanism

and a controller for the elevator hoisting mechanism, a spring-bolt in the shaft adapted to engage the elevator-controller when the same is in position of rest, a cam on said gate adapted to engage and withdraw said last-named spring-bolt when the gate is closed, hoisting means for the elevator and the gates, and connections between the same and the elevator and gate-hoisting rope respectively, substantially as described. 25 30

In testimony whereof we affix our signatures in presence of two witnesses.

DAVID H. DARRIN.
WILLIAM M. DOLLAR.

Witnesses as to said Darrin:

C. V. EDWARDS,
H. J. PARKS.

Witnesses as to said Dollar:

H. J. PARKS,
MABEL REED.