

No. 897,566.

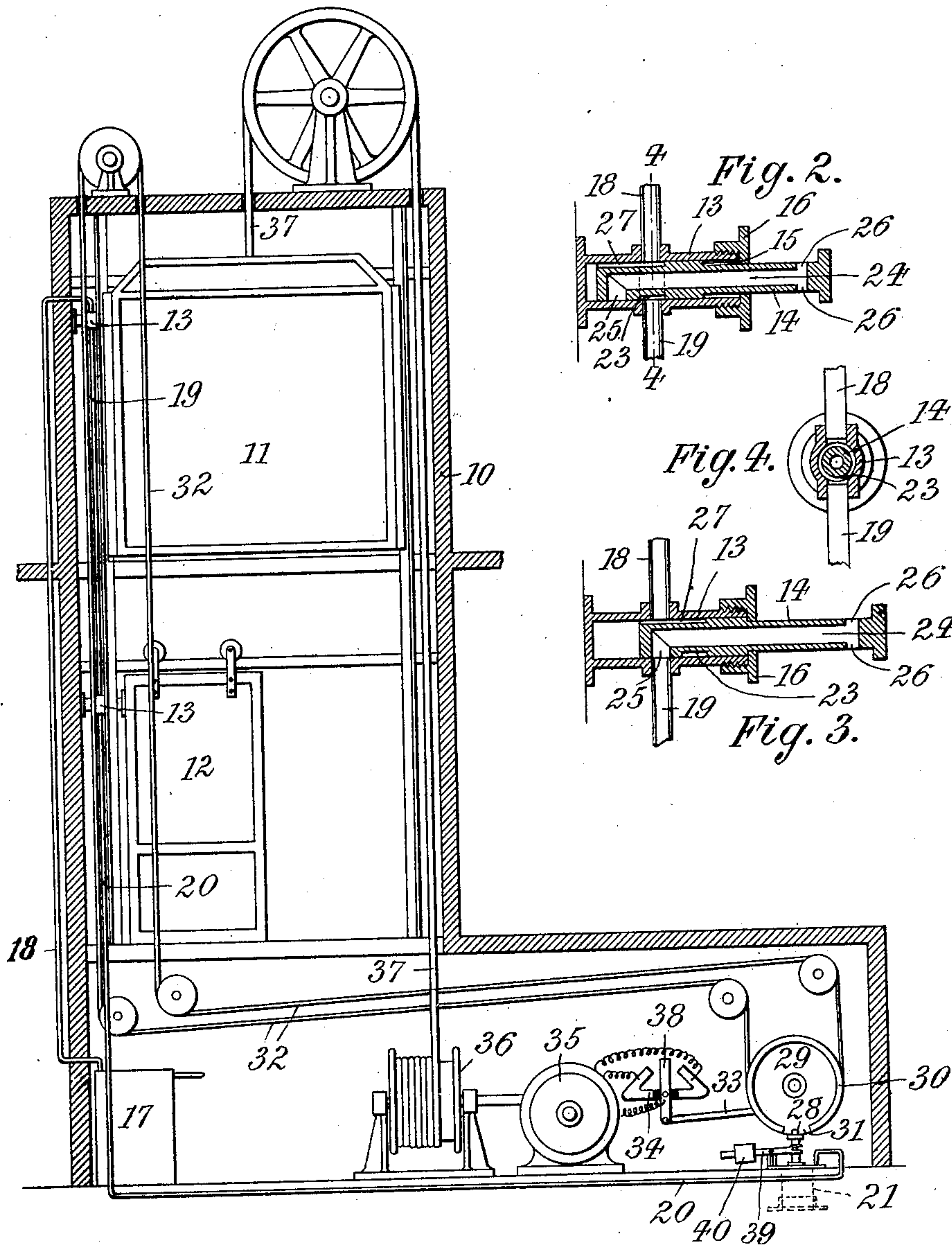
PATENTED SEPT. 1, 1908.

F. W. A. WIESEBROCK.
SAFETY DEVICE FOR CONVEYANCES.

APPLICATION FILED JUNE 17, 1907.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
Arthur E. Zump.
William Schulz.

Inventor
Frederick William A. Wiesebroek
By his Attorney Frank P. Sierren

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2 SHEETS--SHEET 2.

Fig. 5.

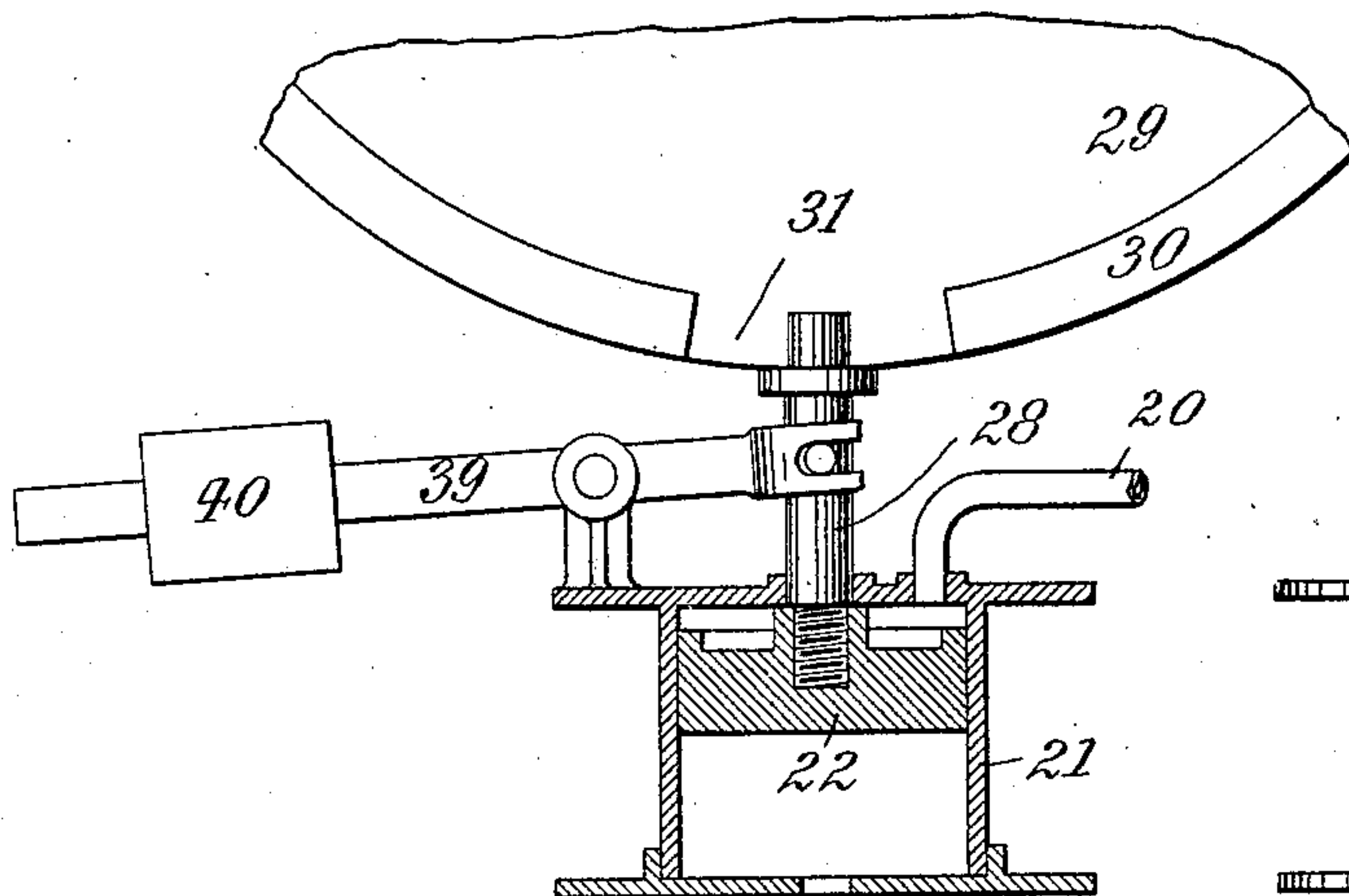
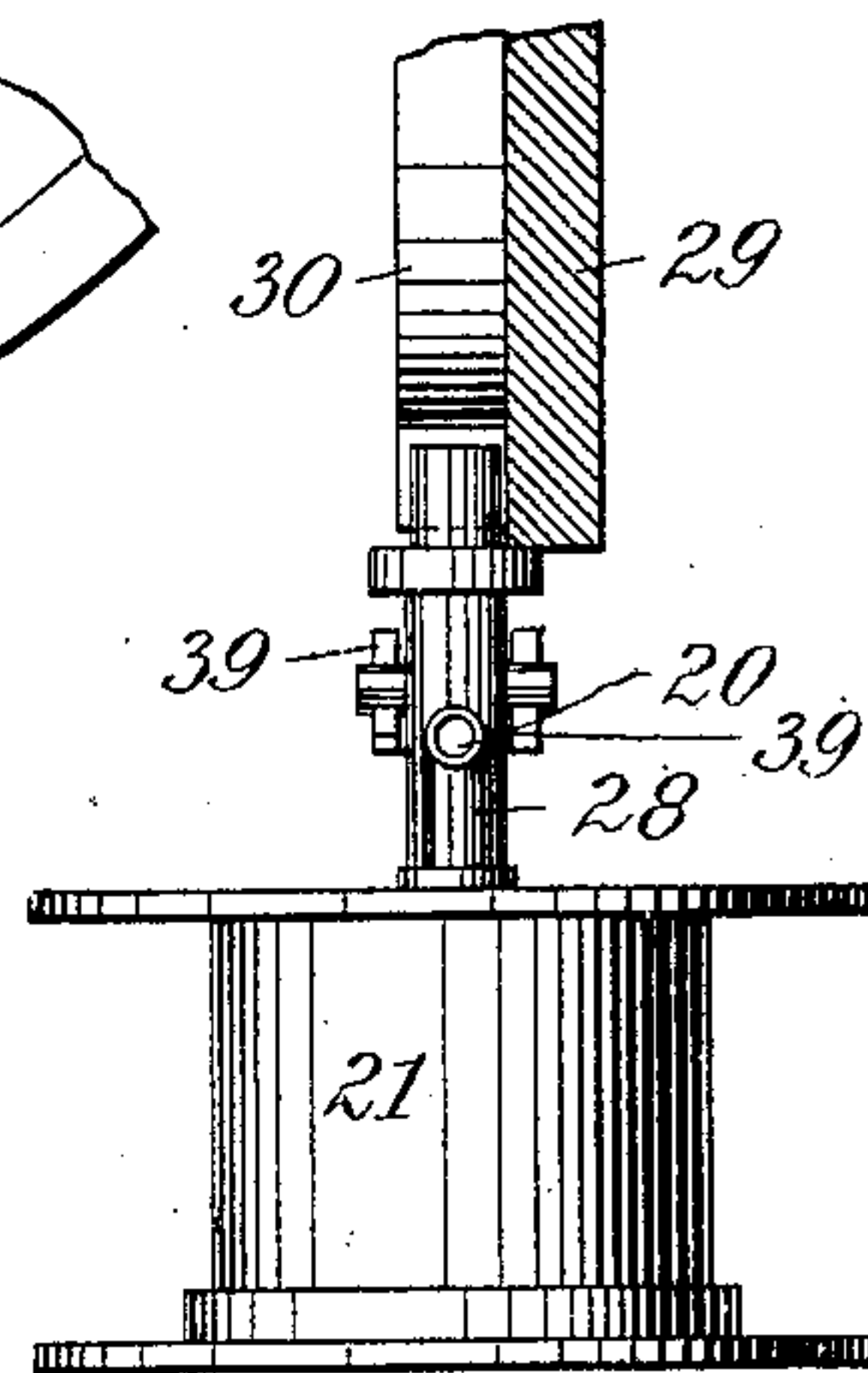


Fig. 6.



Witnesses:
Arthur E. Junge.
William Schulz.

Inventor
Frederick William A. Wiesbrock
By his Attorney
Frank J. Biesew

UNITED STATES PATENT OFFICE.

FREDERICK WILLIAM A. WIESEBROCK, OF NEW YORK, N. Y.

SAFETY DEVICE FOR CONVEYANCES.

No. 897,566.

Specification of Letters Patent.

Patented Sept. 1, 1908.

Application filed June 17, 1907. Serial No. 379,316.

To all whom it may concern:

Be it known that I, FREDERICK WILLIAM A. WIESEBROCK, a citizen of the United States, residing at New York city, (Bronx,) county and State of New York, have invented new and useful Improvements in Safety Devices for Conveyances, of which the following is a specification.

This invention relates to an improved device for automatically preventing the movement of elevators, trains and other conveyances, until all the doors leading thereto have been closed, so that accidents resulting from a premature starting of the conveyance are prevented.

In the accompanying drawings: Figure 1 is a vertical section through an elevator provided with my improved safety device; Fig. 2 a detail longitudinal section through one of the valves; Fig. 3 a similar view showing the plunger in a different position; Fig. 4 a cross section on line 4—4, Fig. 2; the mechanism shown in Fig. 5 is a front view, partly in section, of the power locking means, and Fig. 6 an end view, partly in section, of the mechanism shown in Fig. 5.

Within the shaft 10 of the elevator moves the car 11 accessible at every floor by a sliding door 12. Opposite each door there is secured to the frame thereof a cylindrical casing 13 in which is free to move a piston or plunger 14, which is adapted to be pushed inwards by the door when the latter is closed, the outward movement of the plunger being limited by the engagement of its shoulder 15 with a head 16. The casing 13 of the top floor receives compressed air from a tank 17 by a pipe 18, such air being conveyed to the casing 13 of the bottom floor by pipe 19. This lower casing, in turn, connects by pipe 20 with the cylinder 21 containing piston 22 of the power locking means. Plunger 14 is provided with a circumferential groove or port 23 that establishes communication between the compressed air pipes when the plunger is in its retracted position, *i. e.*, when the door is closed. Each piston is further provided with a longitudinal bore 24 having rear port 25 and front exhaust openings 26. A duct 27 of piston 14 further conveys the compressed air to the back of such piston so as to tend to force the latter outward. When piston 14 is retracted, groove 23 connects the compressed air pipes entering its casing 13, while port 25 is thrown out of connection with the lower one of such pipes, (Fig. 2).

When the piston is advanced, groove 23 is moved out of communication with the compressed air pipes, while port 25 is brought into communication with the lower pipe, (Fig. 3).

Piston 22 carries a bolt 28 adapted to lock a wheel 29 which controls the movement of car 11 and is operated by hand-rope 32. Wheel 29 is provided with a circumferential flange 30, recessed or cut away as at 31 to accommodate bolt 28. As illustrated, wheel 29 operates by rod 33 the reversing switch 34 of an electro-motor 35 which rotates the drum 36 of the hoisting cable 37, but this construction may be varied for adaption to the particular operating means employed. The position of recess 31 is such that it will arrive opposite bolt 28 when the car is stopped, *i. e.*, when switch-knife 38 arrives in its central or neutral position. Piston 22 is, by a lever 39 engaging bolt 28 and carrying counter-weight 40, adapted to be raised so as to bring bolt 28 into engagement with wheel 29.

The operation is as follows: When all doors 12 of the elevator are closed, plungers 14 will be retracted and tank 17 will deliver compressed air through pipes 18, 19 and 20 and connecting grooves 23, into top of cylinder 21. Piston 22 will accordingly descend against action of weight 40, to withdraw bolt 28 from recess 31 and thereby liberate wheel 29. The motor is now started to move car 11 opposite the floor level desired, when it is stopped. When any one of the doors 12 is opened its plunger 14 will be advanced by the air pressure back thereof to disconnect the ingress and egress air pipes entering the casing 13 of such plunger. In this way tank 17 is cut off from cylinder 21 and the latter is brought by the air pipe into communication with port 25 of the dislodged piston 14, (Fig. 3). The compressed air will thus escape from the cylinder through said pipe and plunger out of the exhaust openings 26 to relieve piston 22 from pressure. Counter-weight 40 will now raise piston 22 to carry its bolt 28 into engagement with recess 31 which has arrived opposite the bolt. Thus wheel 29 becomes locked and the elevator cannot be re-started until the open door has been closed and the pressure medium re-admitted to cylinder 21 by the retraction of the corresponding plunger.

It will be seen that by my invention automatic means are provided for preventing the

starting of the car as long as any one of the doors is open, so that accidents resulting from an untimely starting of the elevator are prevented. The drawing shows an elevator having two landings, but it is obvious that the latter may be multiplied to any extent desired. So also may the invention be applied to various other conveyances, such as electric and other trains, and wherever movement is to be prevented as long as access to such conveyance is unobstructed.

I claim:

A device of the character described, comprising a compressed air tank, a casing communicating therewith, an inclosed tubular

door-controlled plunger having a circumferential groove and an exhaust port, a pipe adapted to communicate at one end with said groove and port, a cylinder communicating with the other end of the pipe, an inclosed piston, a wheel controlled by the piston, and means controlled by the wheel for operating a conveyance, substantially as specified.

Signed by me at New York city, (Manhattan,) N. Y., this 15th day of June, 1907.

FREDERICK WILLIAM A. WIESEBROCK.

Witnesses:

WILLIAM SCHULZ,
FRANK V. BRIESEN.