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O. JOHNSON.

DOOR OPERATING APPARATUS.

(Application filed May 7, 1900.)

(No Model.)

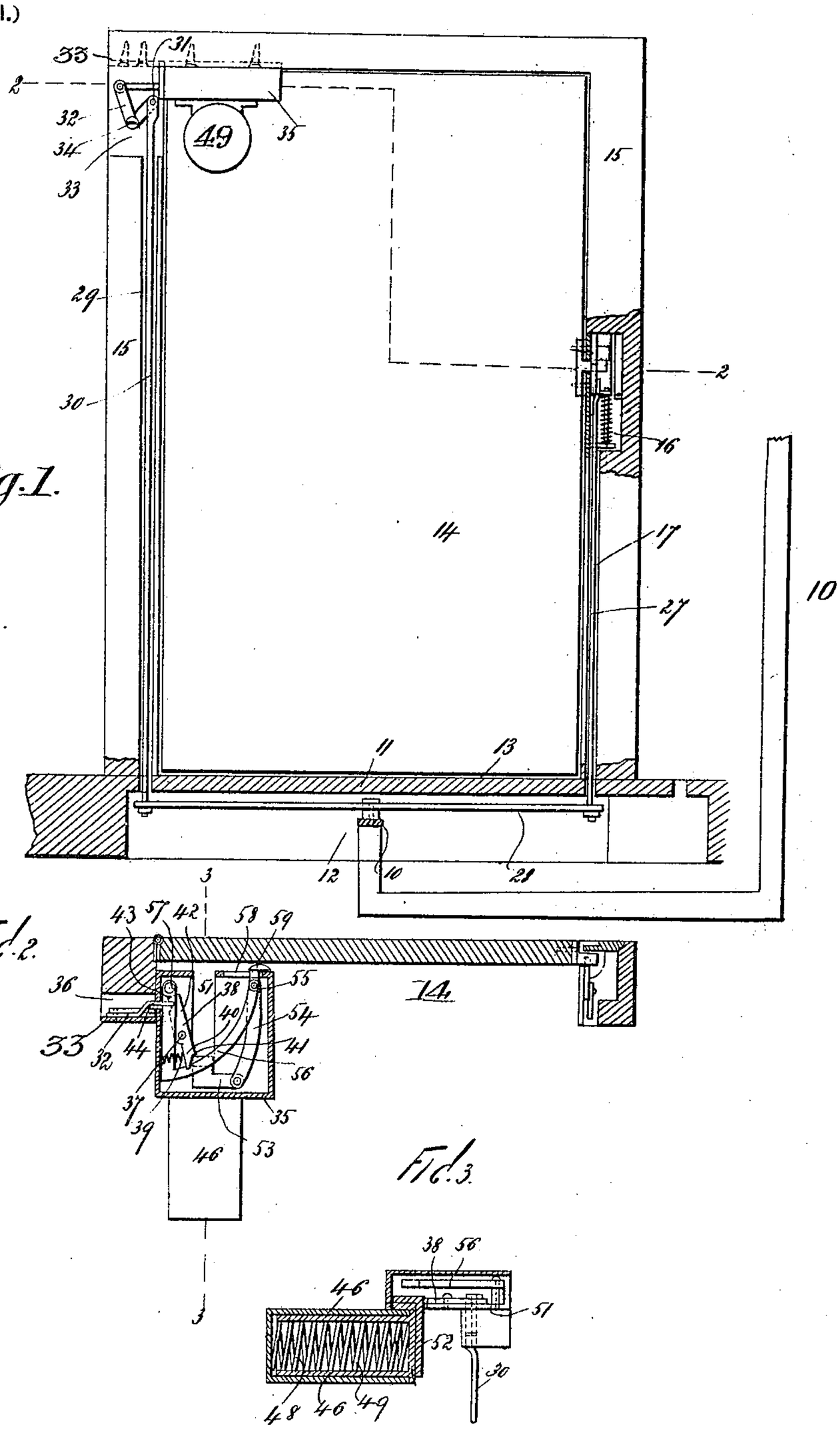

Fig. 1.

Fig. 2.

Fig. 3.

WITNESSES

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DOOR-OPERATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 670,281, dated March 19, 1901.

Original application filed December 7, 1899, Serial No. 739,474. Divided and this application filed May 7, 1900. Serial No. 15,733. (No model.)

To all whom it may concern:

Be it known that I, OLOF JOHNSON, a subject of the King of Sweden and Norway, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Door-Operating Apparatus, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to door-operating apparatus; and the object thereof is to provide apparatus whereby stable and other doors may be simultaneously unlocked and actuated to open the same.

This application is a divisional application and is based upon original application Serial No. 739,474, filed December 7, 1899.

The invention consists in the construction and arrangement of parts hereinafter described.

In the accompanying drawings, forming part of this specification, in which like reference characters denote like parts in the several views, Figure 1 is an elevation of a door, showing means for simultaneously unlocking and actuating the same to open the door; Fig. 2, a section on the line 2 2; Fig. 3, a section of Fig. 2 on the line 3 3 thereof.

In the practice of my invention I provide an operating-rod 10, which may be operated in any suitable manner and from any desired point. The operating-rod 10 extends downwardly beneath the floor, which is represented in the drawings at 11, and thence passes into a chamber 12, formed beneath the floor and beneath the sill 13 of the door 14. The door may be hung in any portion of the building and hung or hinged in any desired manner, being shown as hinged in the door-frame 15, which latter is chambered at one side at 16 and provided with a vertical chamber 17, communicating with chamber 12 beneath the door-sill 13. Mounted in the chamber 17 is an operating-rod 27, which is operatively connected at its upper end with a lock which is mounted within the casing 16 and which is not shown, being of any preferred form. The lock in the chamber 16 operates normally to maintain the door 14 in closed position. The operating-rod 27 is connected at its lower end with a horizontal connecting-bar 28, which is centrally connected with the operating-rod 10. The opposite side of the door-frame 15 is provided with a vertical chamber 29, and mounted therein is a reciprocating operating-rod 30, which is pivoted at its upper end at 31 to a bell-crank lever 32, pivoted to a flange 33 at 34, formed upon a casing 35, as clearly shown in Figs. 1 and 2. The casing 35 is connected with the door-frame 15 by means of the flange 33, and said door-frame is provided with a chamber 36 at its upper end and communicating with the chamber 29, the bell-crank lever 32 being arranged within said chamber 36, as clearly shown in Fig. 2. Within the casing 35 is pivoted at 37 a dog 38, which is actuated by a spring 39, which presses against one end thereof, 40, and is provided with a shoulder 41. The dog 38 is provided at the end 42, opposite to the end 40, with a shoulder 43, as shown in dotted lines in Fig. 2, and a catch 44, pivotally connected with the bell-crank lever 32, passes through an opening in the side of the casing 35 and engages with said shoulder 43, all as shown in Fig. 2.

Rigidly connected with the under side of the casing 35 is a hollow cylindrical casing 46, which projects outwardly, and mounted therein is a reciprocating casing 47, as clearly shown in Fig. 3. A coiled spring 48 is arranged within the casing 47, bearing against the outer closed end of the casing 46 at one end and at the other end against the closed end of the casing 47. The bottom of the casing 35 is provided with a recess 51, which is also cut through one side of the casing 35, and a cross-head 52, connected with the closed end of the casing 46, operates within said recess 51. The upper end of said cross-head 52 operates in connection with the shoulder 41 upon the dog 38, normally maintaining the casing 47 in telescoped position within the casing 46 against the tension of the spring 48. The cross-head 52 is provided within the casing 35 with a laterally-directed head 53, and pivotally connected therewith is a curved link 54, which is pivotally connected at 55 with the outer end of a bowed lever 56, which is pivoted at 57, adjacent the dog 38. The lever 56 and the link 54 operate within a slot 58,

formed in the inner side of the casing 35, and the lever 56 is provided at its outer end with a head 59, which normally rests in engagement with the door 14.

It is manifest that upon depression of the operating-rod 10 the connecting-rod 28 will be depressed and the operating-rod 27 will disengage the lock in the chamber 16 from the door 14. Upon depression of the connecting-rod 28 the operating-rod 30 will also be depressed, swinging around the bell-crank lever 32, freeing the dog 38 from the catch 44, allowing the shoulder 41 to be disengaged from the cross-head 52. The spring 48 will then thrust the casing 47 out of its position within the casing 46, swing the lever 56 and link 54 rearward through the recess 58, and force the head 59 against the door 14 to open the same.

It is manifest that my improved apparatus for operating doors may be applied to doors of various forms and classes and that the specific form, construction, and arrangement of parts may be considerably varied without departing from the spirit of my invention or sacrificing the advantages thereof.

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

1. As an improvement in apparatus for operating doors, a casing arranged upon the frame of the door, and tension devices connected therewith and adapted to operate in connection with the door, said tension devices comprising a pair of telescoping hollow cylinders, a coiled spring mounted therein and bearing operatively thereupon, one of said cylinders being movable and the other being fixed, a dog pivoted within said casing and normally retained upon said movable cylinder, means for operating said dog, and a curved lever pivotally mounted in said casing and operatively connected with said movable cylinder and arranged to engage said door, said curved lever operating within an opening formed in said casing, substantially as shown and described.

2. As an improved operating apparatus for doors, a casing arranged upon the door-frame, a cylinder fixed thereto and closed at one end, a supplemental cylinder passed slidably within the first-named cylinder and provided with a closed end, a coiled spring interposed between the closed ends of said cylinders, and whereby a tension is normally maintained to relatively support said cylinders, a fixed cross-head mounted in said cylinder, said casing being provided with a slot in which said cross-head operates, said cross-head being provided within said casing with a laterally-directed head, a link pivoted to said laterally-directed head, a lever pivoted to the outer end of said link and also pivotally connected with said casing, said casing being provided with an opening through which said link and lever are arranged to pass, a pivoted spring-actuated dog arranged to operate in connection with said cross-head to lock said tubes in telescoped position, and means for operating said dog, substantially as shown and described.

3. An operating apparatus for doors, comprising a casing arranged upon a support adjacent to the door, a tube secured in said casing and closed at one end, a supplemental tube slidably mounted therein, and also closed at one end, a tensional element imposed within said tubes and between the closed end thereof, a door-engaging member movably mounted within said casing and operatively connected with the closed end of said slidably-mounted tube, spring-actuated means for retaining said tubes in telescoped position, and means for releasing said movable tube, whereby said door-engaging member is free to move the door, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 1st day of May, 1900.

OLOF JOHNSON.

Witnesses:
F. A. STEWART,
C. C. OLSEN.