

No. 772,095.

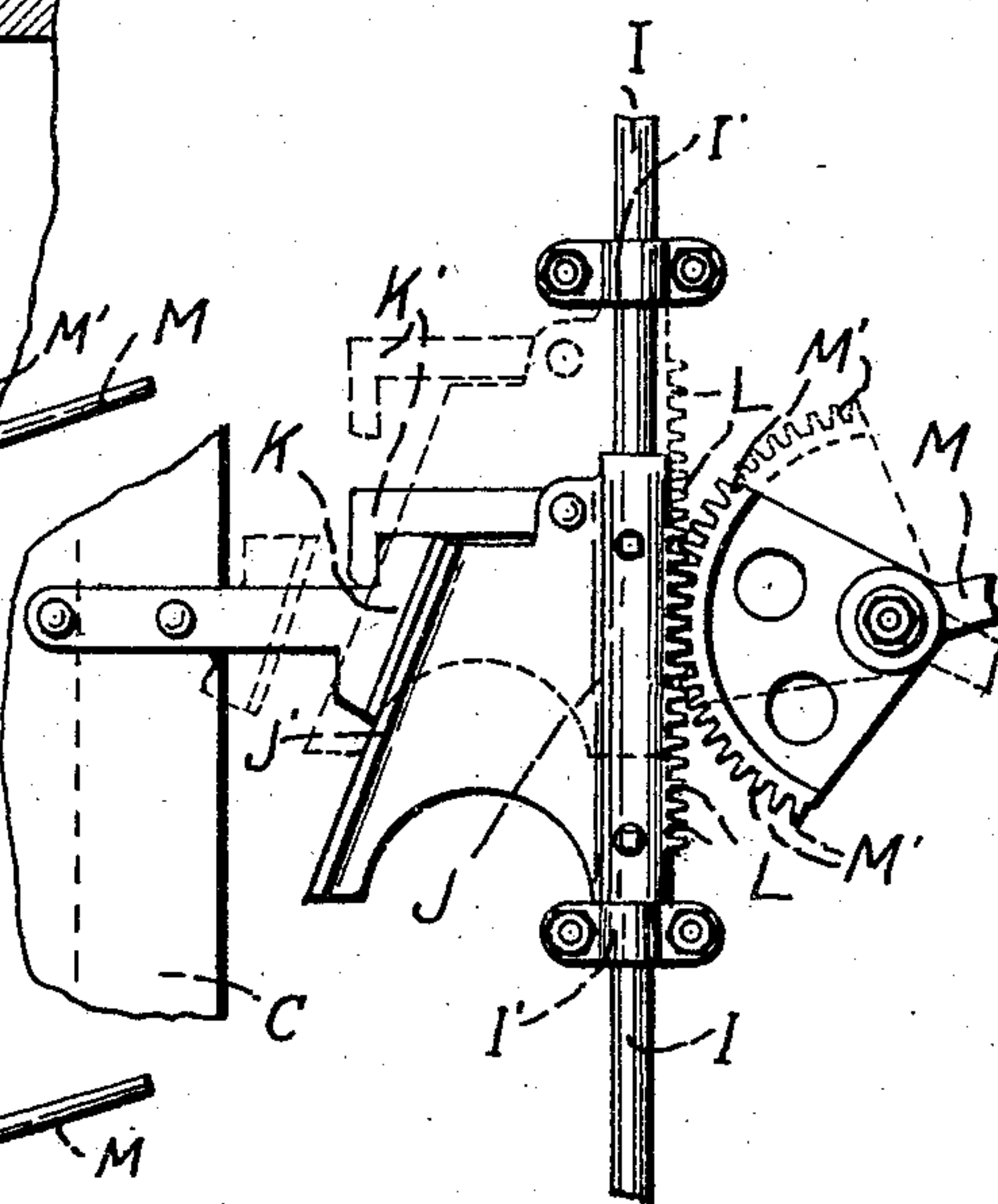
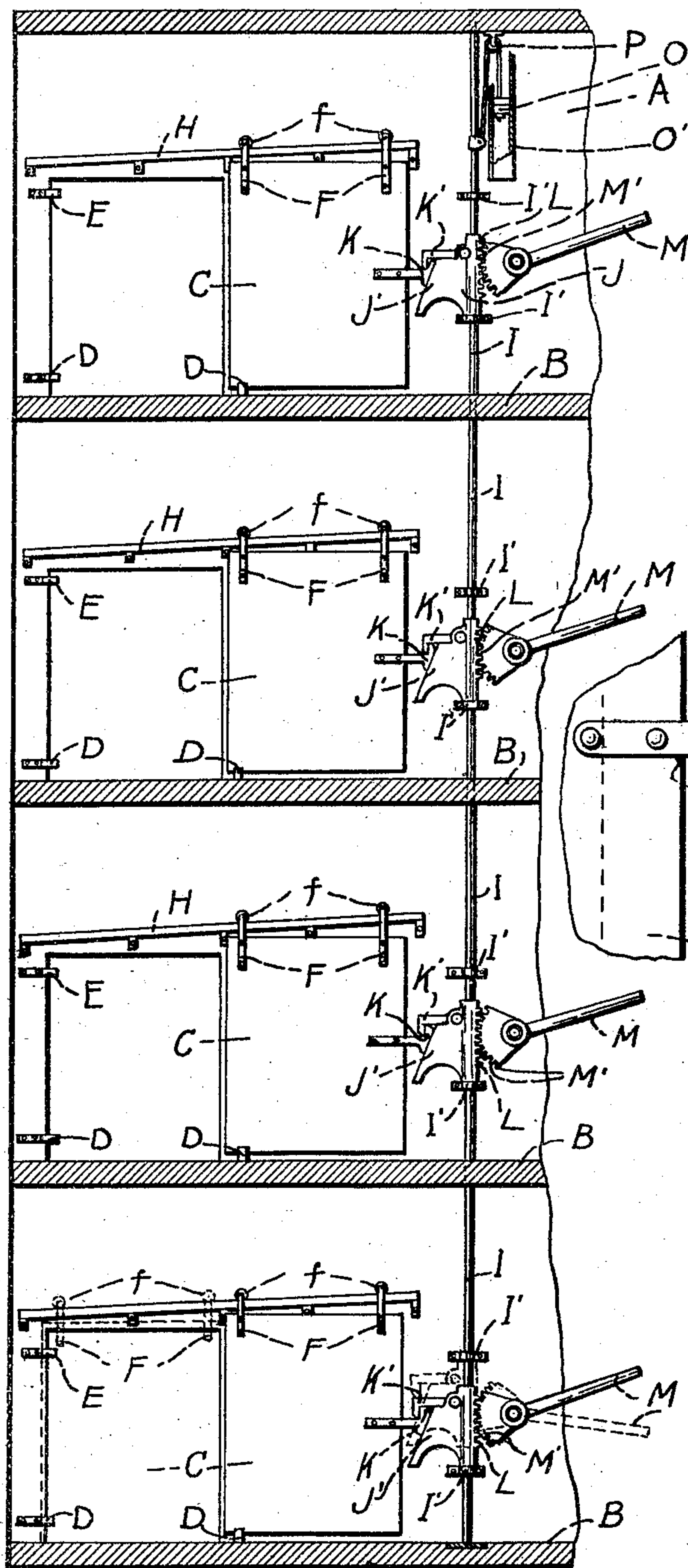
PATENTED OCT. 11, 1904.

J. E. GATES & F. EIHSTADT.

# AUTOMATIC DOOR CLOSER.

APPLICATION FILED MAY 9, 1904.

NO MODEL.



*WITNESSES:*

WITNESSES:  
Clara C. Barlow.  
Neta Ross.

**INVENTORS:**

INVENTORS:  
James E. Gates and  
BY Fred Eihstadt  
Eugene Ayres,  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

JAMES E. GATES AND FRED EIHSTADT, OF ST. JOSEPH, MISSOURI.

## AUTOMATIC DOOR-CLOSER.

SPECIFICATION forming part of Letters Patent No. 772,095, dated October 11, 1904.

Application filed May 9, 1904. Serial No. 207,048. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES E. GATES and FRED EIHSTADT, citizens of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Automatic Door-Closers; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in opening and closing doors at elevators or other doors that are located one above the other on different stories of a building; and our object is to provide a lock which being operated at one floor in closing a door will operate automatically at the same instant with every door vertically above or below it or that may be both above and below it.

We attain our object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a section through a building, the wall broken away, and an elevation of the device, showing it in position with the doors open and also by dotted lines at the first floor with a door closed; and Fig. 2 is a detail elevation of the device, the shaft, lever, and door broken away.

Similar letters refer to similar parts in these views.

The wall of the building is indicated by letter A, the several floors by letters B B, and the doors by C C.

D D are bottom guides for the doors, E E top guides, and F F are hangers with attached rollers *f f*, which travel upon inclined tracks H H, attached on the side of the wall or door-casing.

I is a shaft the lower end of which rests in a socket in the floor of the bottom story of the building in which the device is operated and the upper end of which passes up into the ceiling of the top story of the building or into a socket therein. I' I' are guides attached

to wall A or other convenient way, within which the shaft travels. Rigidly attached to said shaft I or cast as a part thereof are castings J J, each provided with a starter J', having a flat edge bearing outward obliquely from top to bottom toward its door.

Each door is provided with a lock-piece K, rigidly fastened thereto, the lock edge of which bears outward obliquely from bottom to top at an angle adapting it to adjust itself to the flat edge of starter J' when the door is open or is being started shut. A lock-piece K', pivoted in a slot in the upper part of casting J, rests upon the top of starter J'. Said casting is provided with cogs L L on the edge opposite starter J'. A lever M, attached to the wall or other support, is provided with cogs M' M', adapted to mesh with cogs L L. A balance-weight O, provided with a box O', is attached to shaft I and supported from the ceiling by a pulley P. This weight is intended to assist in carrying the weight of the device when operated in a building having a height of five or more stories.

From the foregoing description, examined in connection with the drawings, it will be understood that our device is especially adapted for use with elevators in stores and other buildings in which the elevators carry heavy freight or goods as well as passengers and in which the doors are connected with the building instead of with the elevators, have no connection one with another on the several floors, and each is opened and closed entirely by hand. In our device a door being shoved open lock-piece K crowds automatically under the hooked end of lock-piece K', which instantly drops into its normal position, and the door is thus held open securely. To close the door, it is only necessary to press lever K downward slightly. Assisted by cogs L L and M' M' this pressure elevates shaft I, its casting J, and starter J' and lock-piece K', thereby releasing lock-piece K. At the same instant the flat edge of starter J' as the shaft and casting are lifted crowds lock-piece K backward, thus starting the door, which is quickly carried shut by the aid of inclined track and rollers and its own weight. If



other doors on the different floors are open, the movement which releases the one door automatically releases every other door, thus enabling a single person in case of a fire or  
5 other emergency to simultaneously and almost instantly close the door upon each of the floors of the building.

What we claim, and desire to secure by Letters Patent, is—

10 1. In an automatic door-closer the combination with a plurality of doors in vertical line on different floors and provided with inclined tracks, hangers, rollers and guides, of a shaft provided with guides and upper and lower  
15 socketed apertures to permit the raising and lowering thereof, its balance-weight and pulley, the rigidly-attached castings thereon, the projecting starters each having an oblique edge, the lock-pieces pivoted in the upper parts  
20 thereof and supported thereby, the lock-pieces rigidly attached to the doors and adapted to engage with the pivoted lock-pieces and when released therefrom to bear against the edges of the starter as the shaft is raised to  
25 close the doors, the cogs upon the castings and the levers and their cogs by which at any floor the entire shaft may be raised and every

door closed, substantially as described and shown.

2. The combination in a door-closing device 30 of a single shaft extending vertically through the stories of a building, a casting at each story on said shaft provided with a cogged edge and an opposite projection with flat edge extending outward obliquely from top to bot- 35 tom, a lock-piece pivoted therein and resting upon the top thereof adapted to engage with a lock-piece rigidly fastened to each door at each story, and a hand-lever provided with cogs adapted to mesh with the casting-cogs 40 and by which said shaft and castings may be raised and their pivoted lock-pieces lifted out of contact with the lock-pieces upon the doors and the doors upon all floors shoved simultaneously to a close, substantially as described 45 and shown.

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

JAMES E. GATES.  
FRED EIHSTADT.

Witnesses:

J. M. CROSS,  
EMMA HECKEL.