

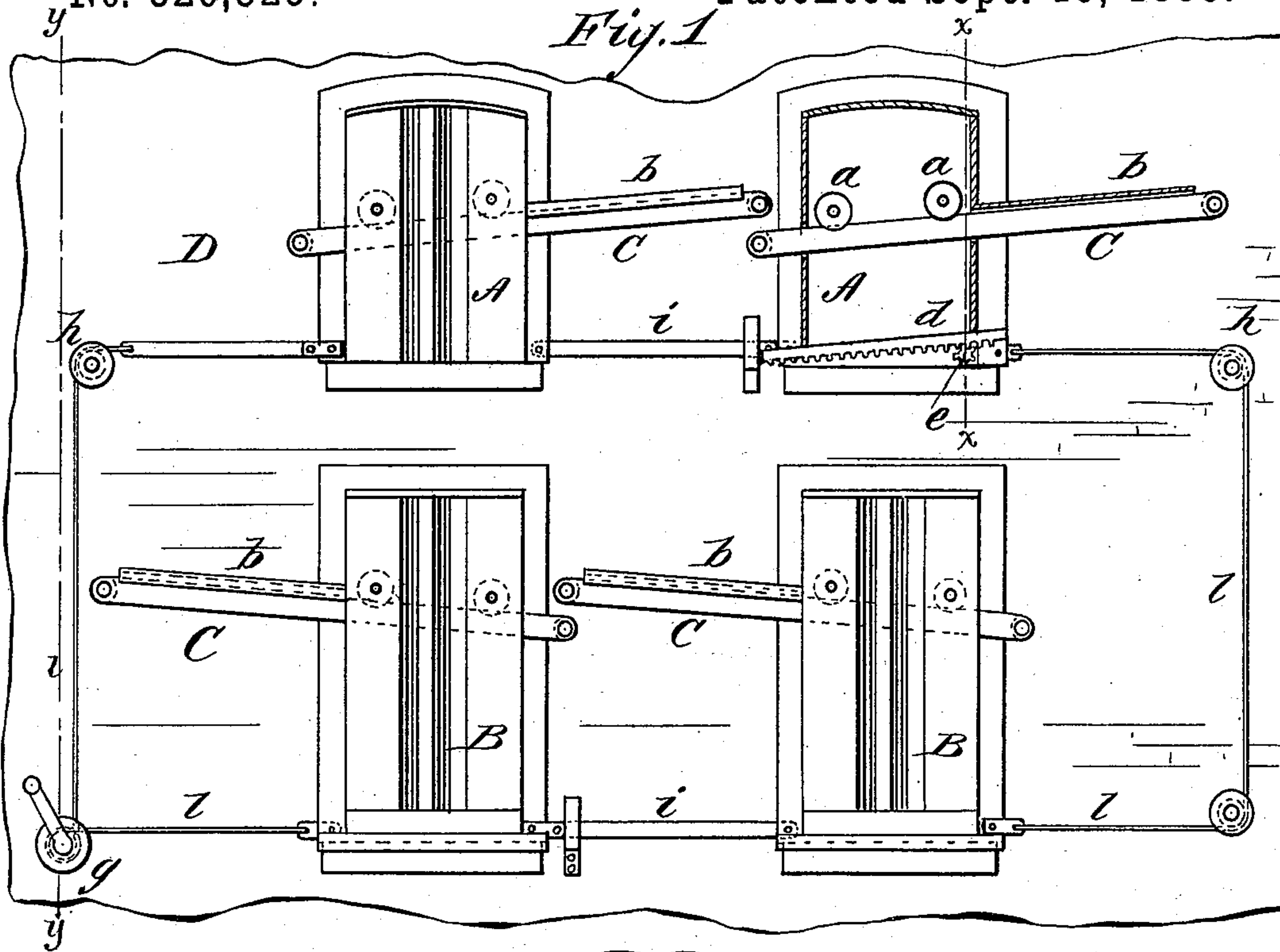
(No Model.)

E. PERKINS.

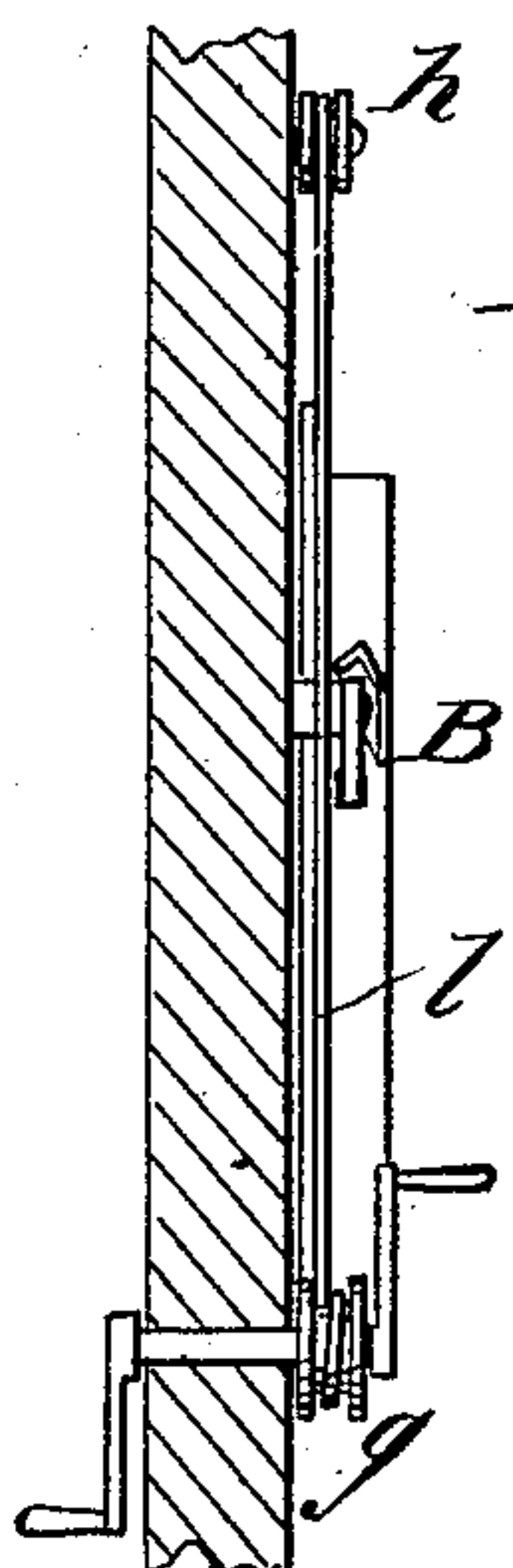
MEANS FOR OPERATING DOORS AND SHUTTERS.

No. 326,325.

Patented Sept. 15, 1885.



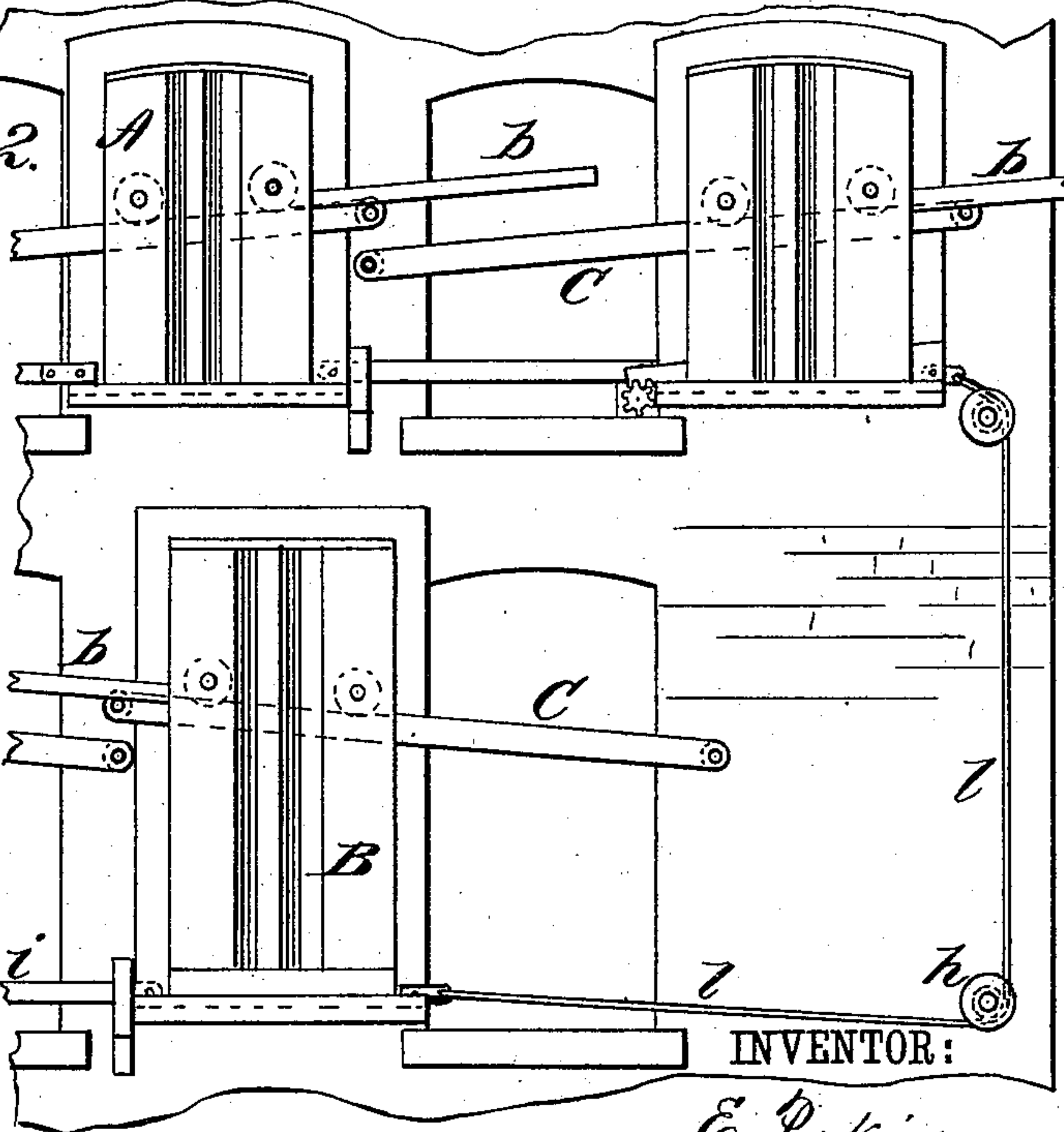
*Fig. 4.*



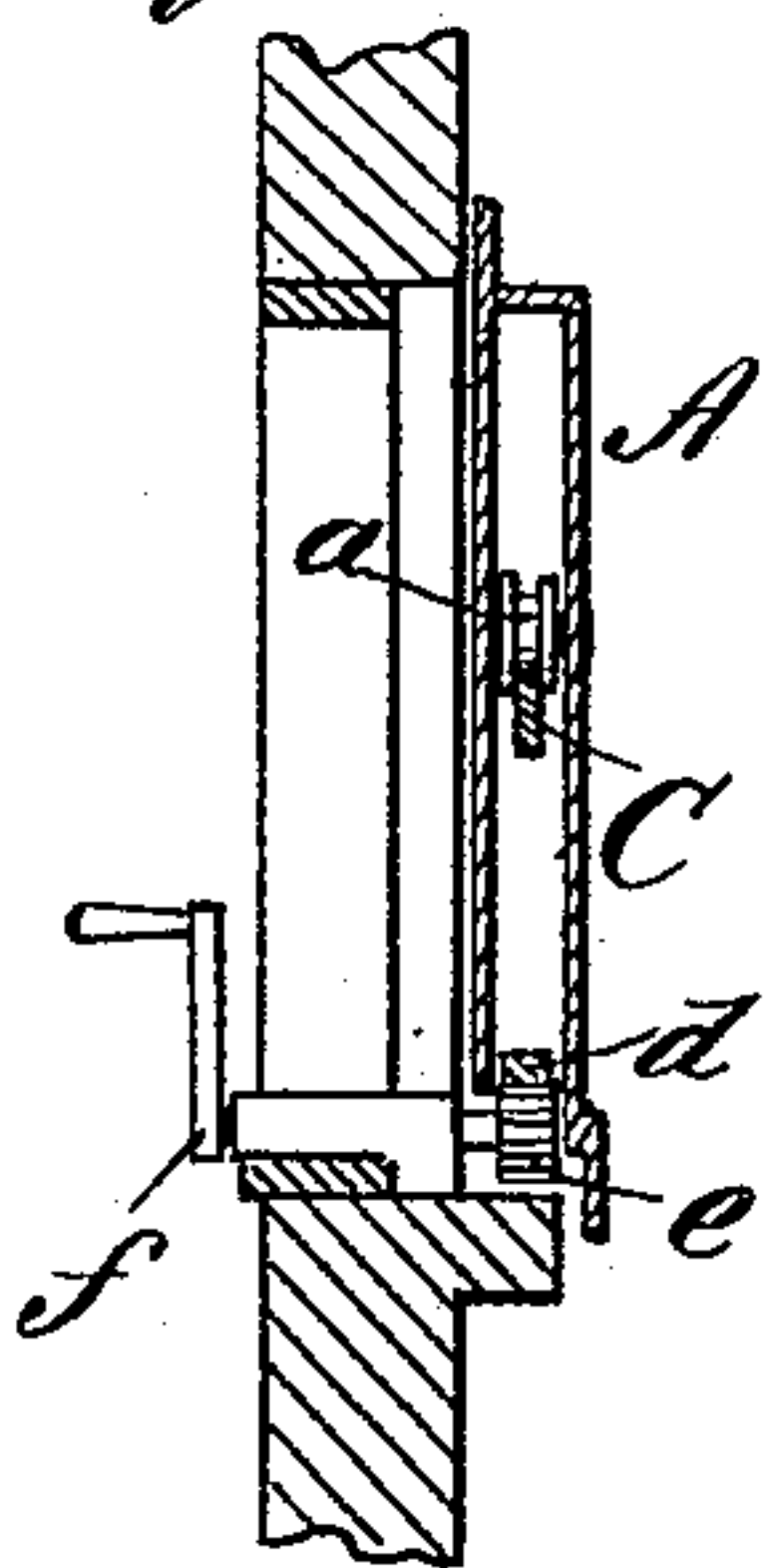
WITNESSES:

*Donn Twitchell.*  
*C. Sedgwick*

*Fig. 2.*



*Fig. 3.*



INVENTOR:

*E. Perkins*  
BY *Munn & Co.*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

ELIAB PERKINS, OF ST. JOSEPH, MISSOURI.

## MEANS FOR OPERATING DOORS AND SHUTTERS.

SPECIFICATION forming part of Letters Patent No. 326,325, dated September 15, 1885.

Application filed January 5, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, ELIAB PERKINS, of St. Joseph, in the county of Buchanan and State of Missouri, have invented a new and Improved Means for Operating Doors and Shutters, of which the following is a full, clear, and exact description.

The object of my invention is to provide for the convenient opening and closing of shutters and doors, particularly those made of metal, and to arrange for the simultaneous operation of several shutters and doors by devices that can be operated at one place. To these ends I hang the shutters or doors so as to slide or roll, and for their separate movement racks and pinions are suitably arranged. I also combine with the shutters and doors a windlass with ropes connecting as may be desired, so that all can be moved together, as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is an elevation showing the outside of a building with shutters and doors of my improved arrangement. Fig. 2 is a similar view representing the open position. Figs. 3 and 4 are sectional views taken on the lines  $x$  and  $y$  of Fig. 1, respectively.

D represents the side view of a building with shutter A and doors B. These are made of sheet-iron and double, with an air-space between the front and back plates.

C C are metal bars attached at their ends firmly to the building and offset therefrom so as to pass between the two sides of the double shutters and doors, and thus form tracks for the shutters and doors to move on, and these tracks are slightly inclined to the horizontal, so as to give a rising movement in opening. On the shutters and doors are rollers  $a$ , supporting them on the track, and arms  $b$  are also provided, of grooved or angle iron, which arms take on the tracks and guide the movement.

For the independent operation of the shutters and doors, they are fitted between their sides, as shown in Figs. 1 and 3, with rack-bars  $d$ , which engage pinions  $e$ , that are upon

spindles  $f$ , sustained in boxes on the window-sills, and the spindles have crank-handles at the inside of the building, whereby the shutters and doors can be worked.

At  $g$  in the wall of the building is fitted a windlass, from which ropes  $l$  pass over guide-sheaves  $h$  to the shutters and doors, and are connected to the shutters and doors. I prefer the arrangement shown, in which the doors and shutters of each story of the building are connected by rigid bars  $i$ , so that the windlass-ropes need be attached to the end shutters of each row; but that arrangement may be varied.

The windlass has crank-handles both at the inside and outside of the building, to allow operation at either place.

By the construction and arrangement described the ready opening and closing of the shutters and doors are provided for by devices that can be operated at each floor to close the shutters of one row; or they may be all closed at once from one place.

I am aware of the existence of shutters mounted to travel upon inclined ways or tracks.

I am also aware that it is not new to simultaneously open and close a number of shutters of the same floor of a building, the same being effected by connecting the shutters together by bars at top and bottom and supporting them by rolls traveling upon a rail and connecting to the end shutters chains passed around pulleys and having weights attached thereto.

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

1. The combination of inclined tracks C with shutters and doors having rollers  $a$  and guide-arms  $b$ , substantially as described.

2. The combination, with the shutters and doors of different floors of a building of pulleys and ropes or chains passed over said pulleys and reversely around the drum of a common windlass, substantially as and for the purpose set forth.

3. The combination, with the shutters and doors mounted to travel upon inclined tracks or ways and having connecting-arms, of the

ropes and pulleys, the ropes passing over said pulleys and actuated by a common windlass, substantially as and for the purpose set forth.

4. The combination, with the shutters and  
5 doors, of the bars one connecting the shutters of one floor and the other bar connecting the doors or shutters of another floor, the pulleys and the ropes or chains passed over said pul-

leys and reversely around the drum of a common windlass, substantially as and for the purpose set forth.

ELIAB PERKINS.

Witnesses:

WILLIAM LOVING,  
M. I. SHURD.