

G. FOLLETT & A. BRUMMEL.
Hatchways.

No. 139,307.

Patented May 27, 1873.

Fig. 1.

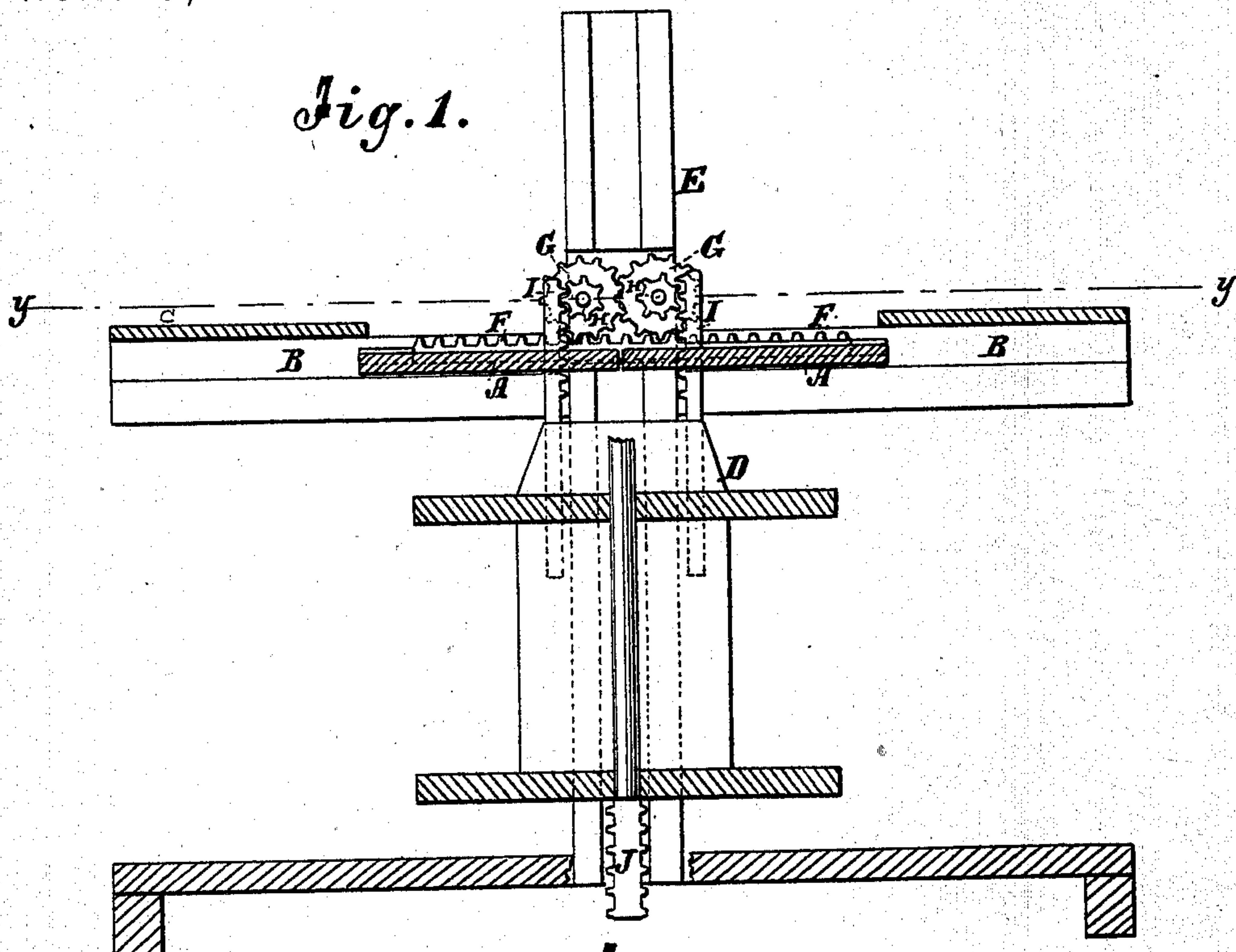
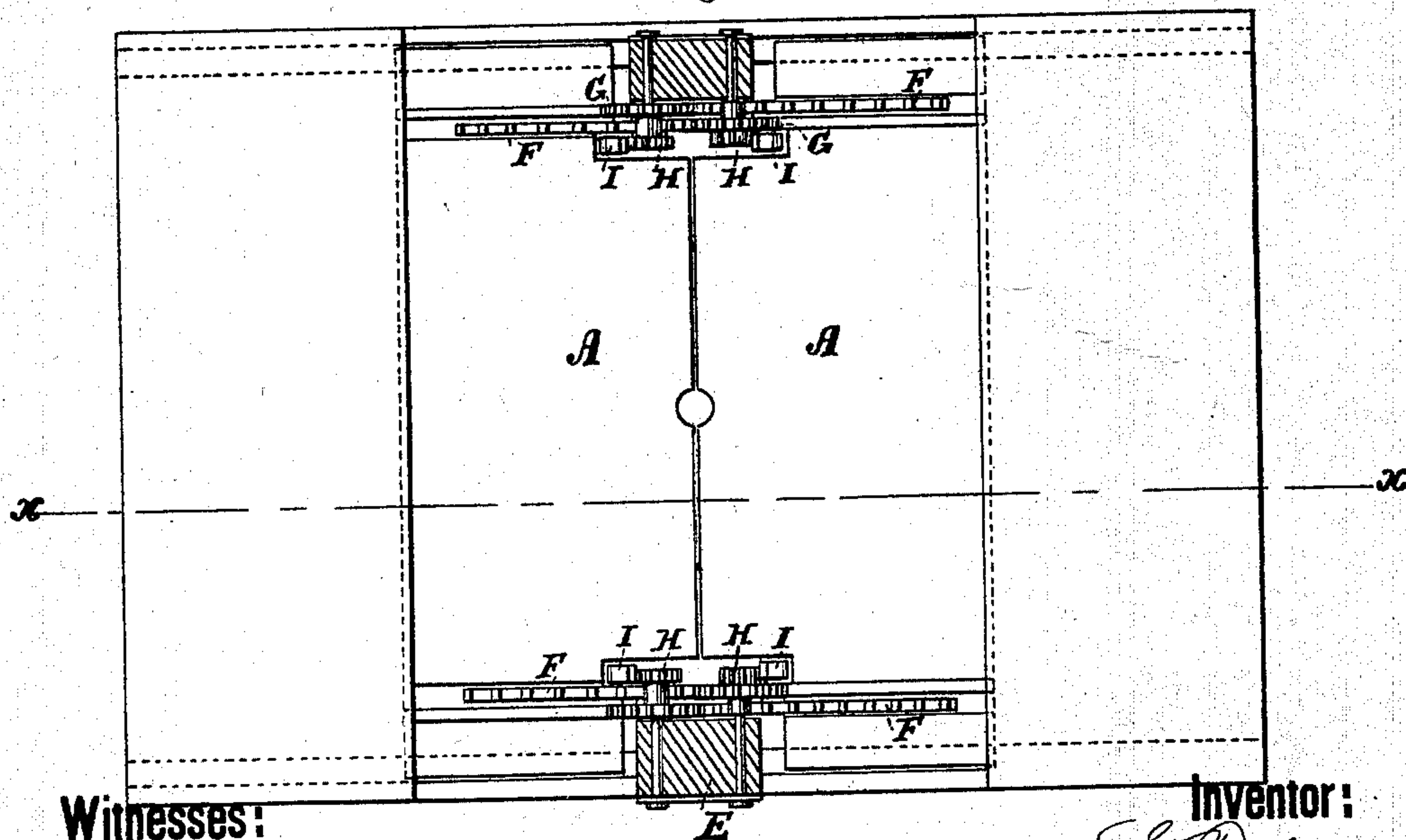


Fig. 2.



Witnesses:

A Bennekenendorf.
Hedgenick

Inventor:

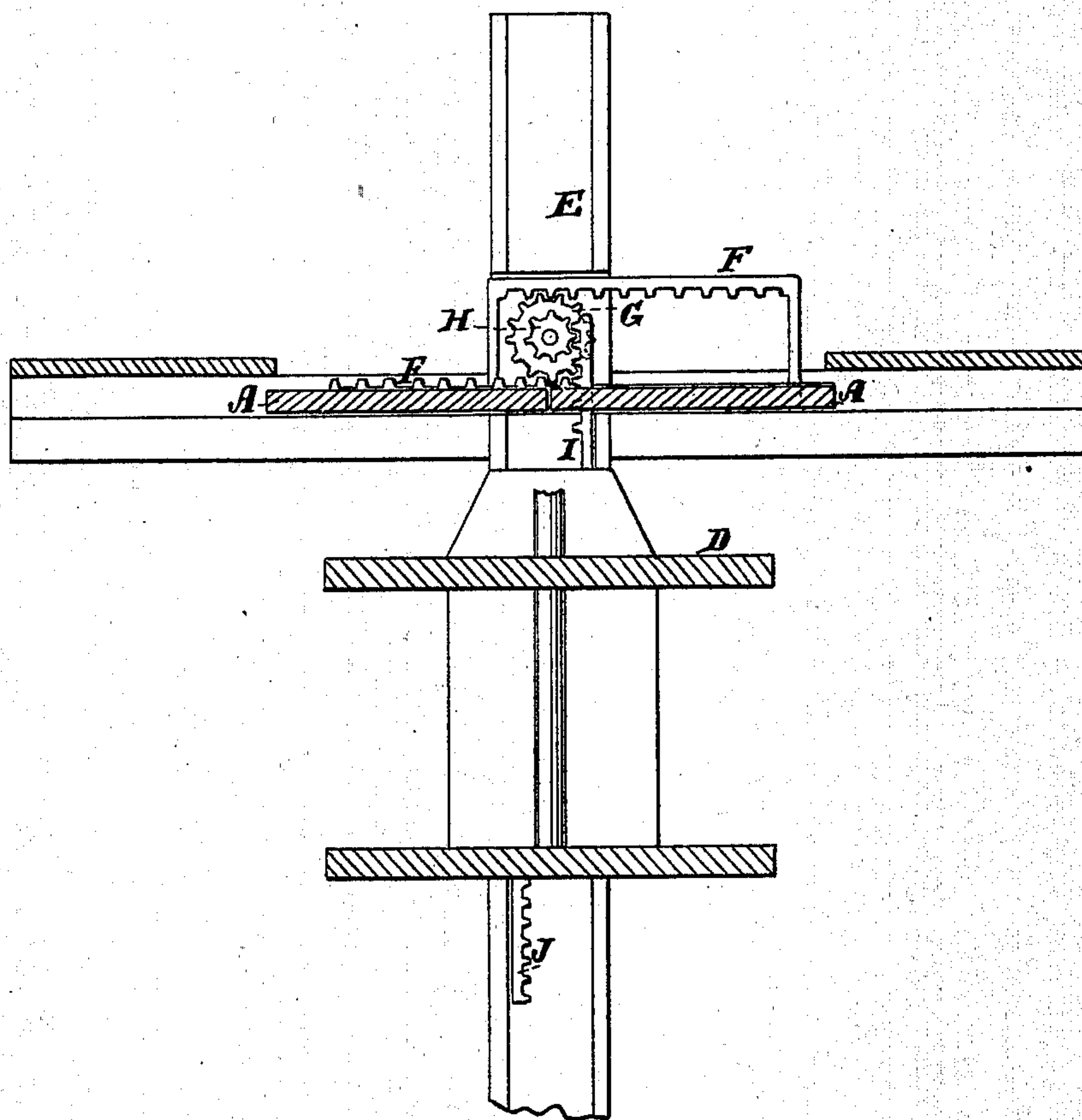
Per G. Follett
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Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE FOLLETT AND ADOLPHUS BRUMMEL, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN HATCHWAYS.

Specification forming part of Letters Patent No. **139,307**, dated May 27, 1873; application filed May 5, 1873.

To all whom it may concern:

Be it known that we, GEORGE FOLLETT and ADOLPHUS BRUMMEL, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Automatic Hatch Opening and Closing Apparatus for Elevators, of which the following is a specification:

Our invention consists of an arrangement of gearing, in connection with sliding hatchway covers, whereby the elevator-carriage is caused to automatically open the way for passing through and to close it after passing, so that all danger of accidents by falling through open hatchways will be avoided, and the keeping of them closed to prevent draft in case of fire will be insured.

Figure 1 is a sectional elevation of a couple of floors, hatchway-covers, and an elevator-carriage, showing one arrangement of mechanism according to our invention for automatically opening and closing the hatchway, the section being taken on the line *x x* of Fig. 2. Fig. 2 is a horizontal section taken on the line *y y* of Fig. 1. Fig. 3 is another sectional elevation, showing a modification of the apparatus.

Similar letters of reference indicate corresponding parts.

The essential feature of the invention is one or more toothed wheels on opposite sides of the elevator-way next to the guides in which the elevator runs, gearing with the sliding door (or doors, if two are used) by a rack or racks, and a rack or racks on the top of the elevator-carriage, which connect with said wheel or wheels sufficiently in advance of the carriage to throw the door or doors open by the time the carriage rises to the passage, and corresponding rack or racks on the lower end of the carriage connecting with the wheel or wheels, as soon as the carriage arrives above the passage, in such manner as to reverse the action and shut the way. In this example we have represented double sliding doors, meeting at the middle, which is the arrangement which we prefer, but it is not very material whether two doors or one be employed.

A represents the doors, which slide in ways

B under the floor C in opening. D represents the carriage; E, the guides for it. F represents the toothed racks attached to the doors for sliding them, which said racks are represented in Figs. 1 and 2, to be arranged side by side and gearing with a special wheel, G, for each pivoted to the guide-post F, each wheel having a pinion, H, to be turned in one direction for opening the doors by a special rack, I, for it on the top of the carriage, which extends high enough to open the doors in advance of the carriage. J is a double-toothed bar on the lower end of the carriage, which passes between the pinions and gears with both, so as to turn them in the opposite direction after the carriage has passed through to close the doors.

In Fig. 3 only one wheel G and pinion is used to throw both doors, the racks of which are both geared with it by having one arranged above it and the other below. This requires only one rack, I, on the top of the carriage, and a single one, J, at the bottom, the two being arranged to act on opposite sides of the pinion H.

It is manifest that in the down movement of the carriage the rack at the lower end of the carriage will open the doors, and the rack or racks at the upper end will close them, as their action on the wheels is then the reverse of what it is in the up movement.

Instead of sliding doors of planks or plates, as here shown, we may have them formed of slats connected to chains, and cause them to wind on or pass over a drum at the side of the hatchway, the drum being turned by a wheel gearing with racks F. We contemplate such an arrangement where the way is arranged in a corner of a building, so that the door, or one door, if two are used, would not have room to move laterally on account of the wall.

When only one door is used it will be slotted at the middle to pass the rope which suspends the elevator.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The combination, with an elevator-carriage and the hatchway-doors, of one or more toothed

wheels on opposite sides of the hatchway gearing with the sliding door (or doors) by one or more toothed racks, and a toothed rack or racks on each end of the elevator-carriage engaging with said wheel or wheels in advance of the carriage and opening the doors therefor; also engaging said rack or racks after the elevator has passed, and clos-

ing the doors both in the up and down movements, substantially as specified.

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Witnesses:

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