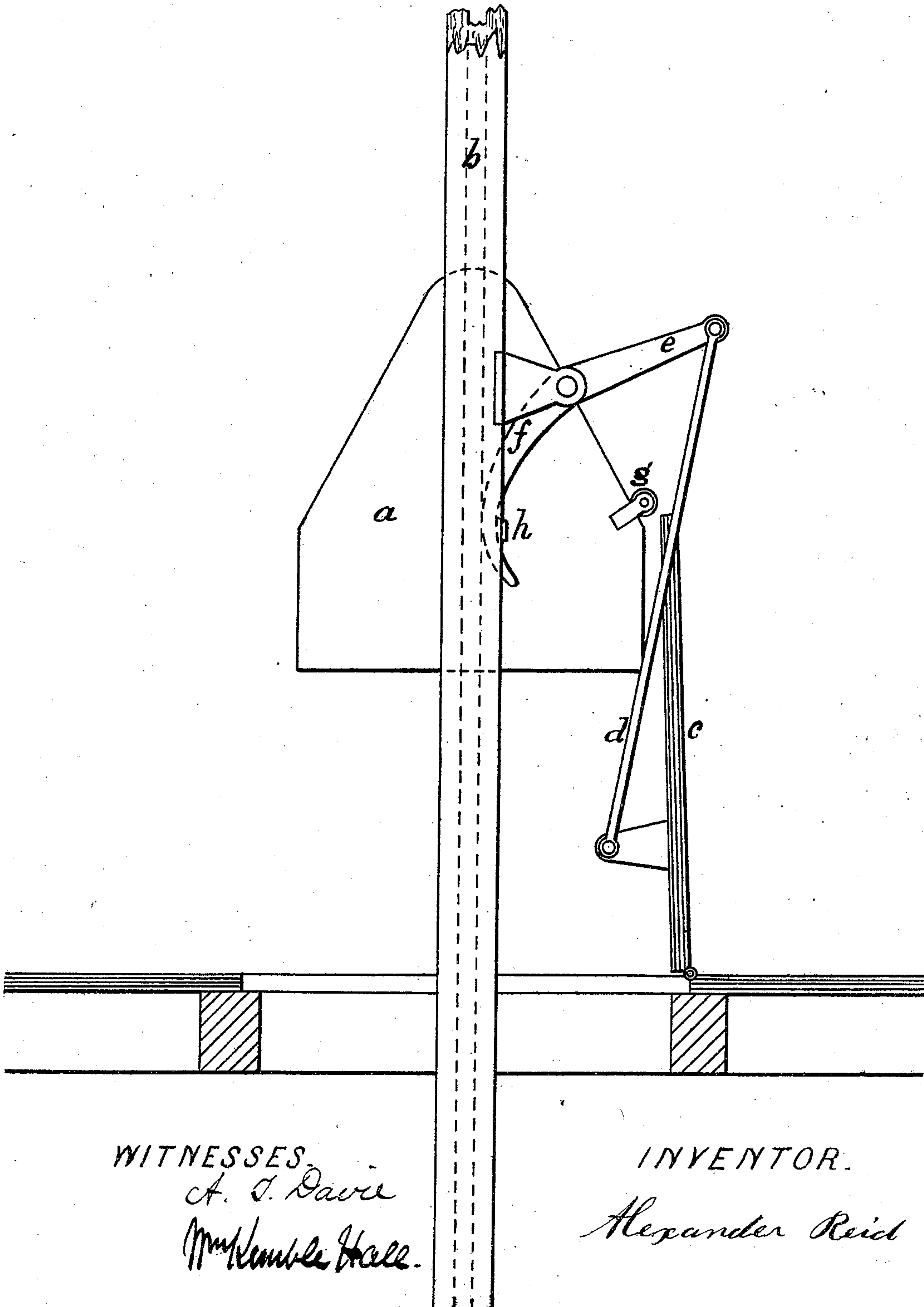


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No. 141,171.

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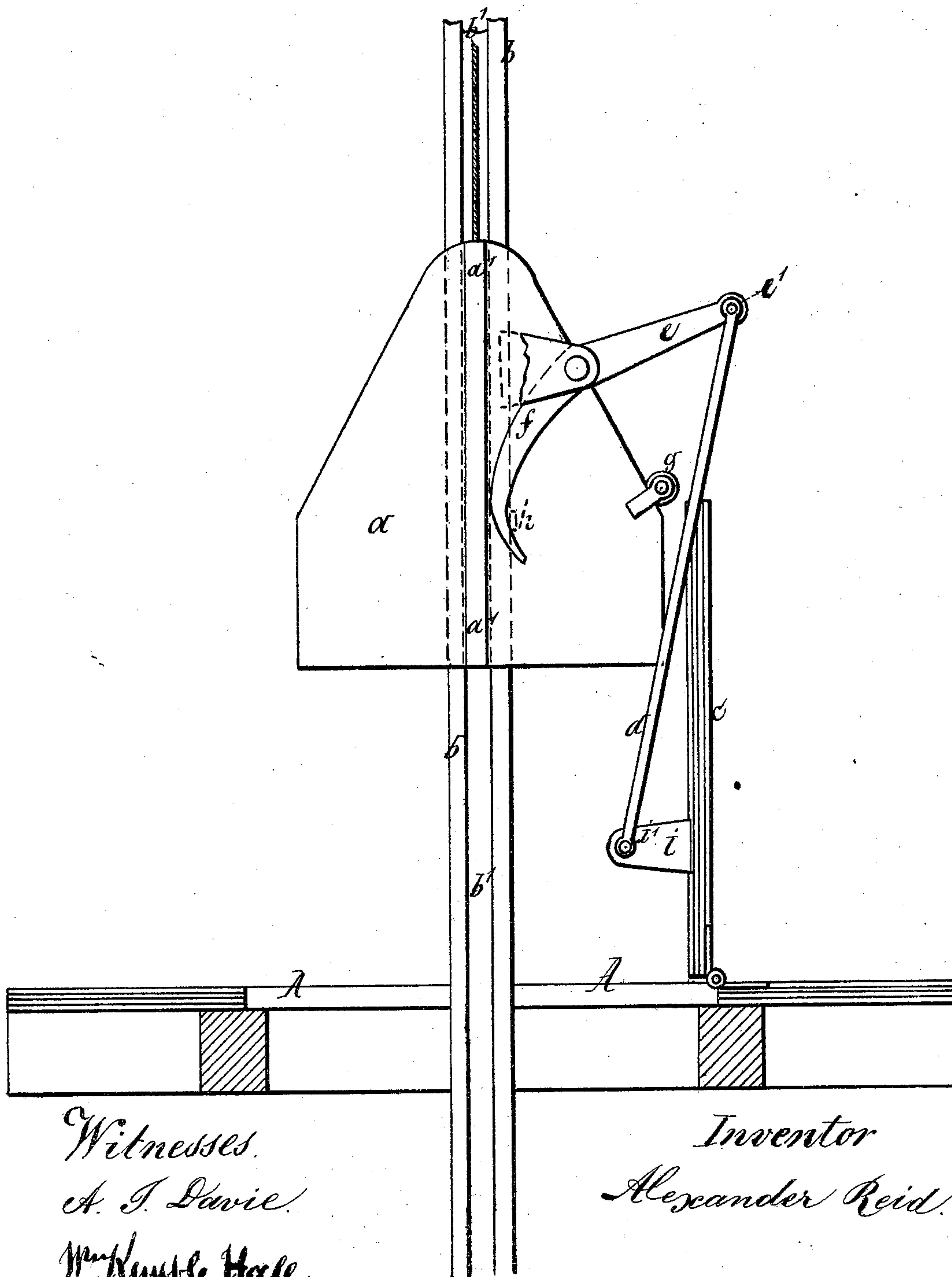
WITNESSES.  
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Wm. H. Hall.

INVENTOR.  
Alexander Reid

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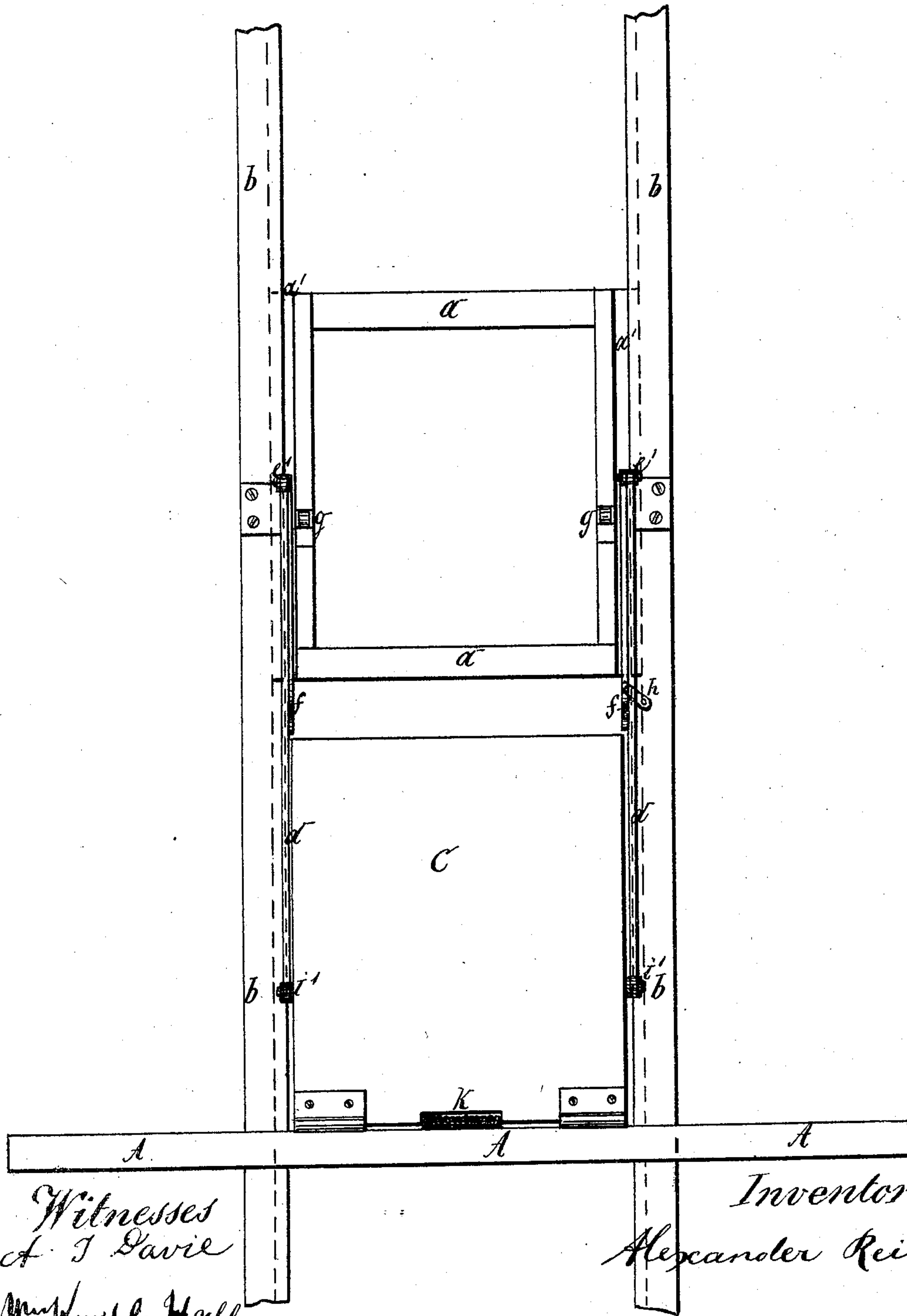
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# UNITED STATES PATENT OFFICE.

ALEXANDER REID, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND WILLIAM REID.

## IMPROVEMENT IN SELF-CLOSING HATCHWAYS.

Specification forming part of Letters Patent No. **141,171**, dated July 22, 1873; application filed January 24, 1873.

*To all whom it may concern:*

Be it known that I, ALEXANDER REID, of the city, county, and State of New York, have invented certain new and useful Improvements in Elevator-Hatchways, of which the following is a specification:

In the ordinary construction of elevators the open hatchway extending from the top to the bottom of the building is a very dangerous feature. Besides the necessity for providing some means of protection to prevent persons from falling through the openings in the floors by means of the casings fitted with doors, there is need of closing the passage from floor to floor in the hoistway itself. A fire starting on one of the lower floors as generally arranged is urged and attracted by the draft through the hoistway, which it soon reaches, and then sweeps, by its means as a communication and a chimney, entirely through the building.

The object of my invention is to leave a closed hatch at each floor of the building, so that it is entirely separated from the others except at the moments when it is required to be open for the passage of the elevator, and these hatches are opened and closed by the vertical movement of the elevator, and without requiring the intervention of the attendant in any respect. This object is accomplished when the rising elevator requires the hatch above it to be opened by the formation of the upper part of the elevator in a cam shape, so that it will gradually lift the trap after it comes in contact, (friction-rollers being employed when requisite,) and when it has been lifted holding the trap open by a pair of levers bearing against the slides of the elevator. When the elevator has traversed beyond the swing of the trap the passage of the levers, which are also formed as cams under the slides of the elevator, let the hatch fall easily and quickly into place.

In descending, the elevator opens the hatch below for its passage by a movement which is the reverse of that which has been described.

The contact of the elevator with the bent

levers opens the hatch, and when the elevator passes beyond the scope of the levers the hatch is sustained by the friction-rollers, and while resting on the elevator is gradually lowered with it to its place.

To enable others skilled in the arts to which it appertains to make and use my invention, I will proceed to describe its construction and operation with reference to the drawings hereunto annexed.

Figure 1 represents a side view, Fig. 2 a section, and Fig. 3 a front view, of apparatus arranged according to my invention.

The elevator *a* is provided with slides *a*<sup>1</sup>, which work in the grooves *b*<sup>1</sup> of the side posts *b*, and in the position illustrated may be passing either up or down. The trap *C* is held open by the rods *d* and the levers *e*, the bent end of which rests against the slides *a*<sup>1</sup> of the elevator *a* as the elevator passes up. When it gets beyond the curved arms *f* of the levers *e* they are permitted to rise and the opposite ends fall and lower the hatch to its place.

On coming down again the elevator strikes and depresses the bent levers *e*, and lifts the outer ends *f* and the hatch *c*; and when it passes down far enough to clear the levers *e* the hatch rests against the friction-rollers, as at *g*, and gradually lowers with the elevator *a* until it reaches the floor *A* and is entirely closed.

On again passing up the elevator *a* first strikes the hatch *c*. The elevator is formed cam-shaped at *a*<sup>2</sup>, and the hatch may be cushioned to avoid a sudden shock. The hatch *c* is opened by the passage of the elevator *a*, and is held open by the levers until it is released by the elevator getting beyond the levers, as before described.

The hatch may be provided with a spring, *k*, or other means to insure its closing, and it may be made in halves operated by a double set of levers and opening to each side of the hatchway, and the parts may be adapted to any of the forms of elevators in ordinary use.

The rods *d* are connected at one end to the levers *e* by pin-joints *e*<sup>1</sup>, while their opposite

ends are by pin-joints  $i'$  connected to brackets  $i$  projecting from the under side of the hatch  $c$ .

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

In combination with an elevator,  $a$ , formed with cam-shaped sides,  $a^2$ , and a hatch,  $c$ , the slides  $a^1$  working in grooves  $b'$ , levers  $e$

having curved arms or extensions  $f'$ , connecting-rods  $d$ , and brackets  $i$ , all arranged, constructed, and operating substantially as described.

ALEXANDER REID.

Witnesses:

A. T. DAVIE,

WM. KEMBLE HALL.