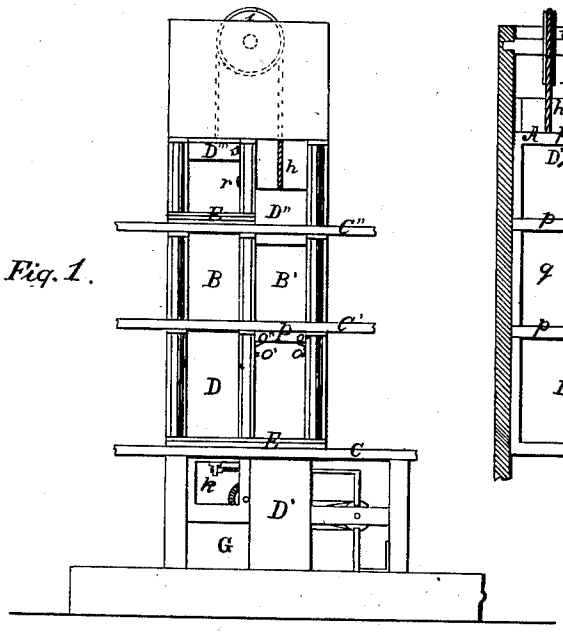
No. 28,273. PATENTED MAY 15, 1860.

I. H. HOBBS.

MACHINE FOR HOISTING PERSONS, &c., FROM ONE STORY TO ANOTHER.

Fig. 1.



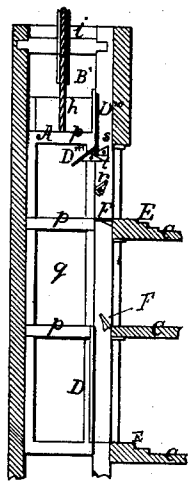


Fig. 2.

Fig. 5.

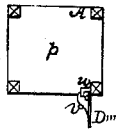


Fig. 6.

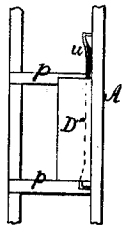
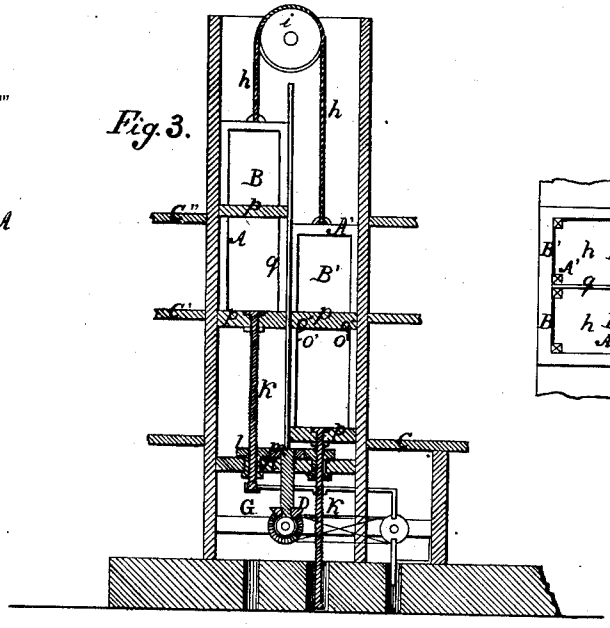


Fig. 3.



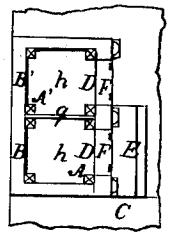


Fig. 4.

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MACHINE FOR HOISTING PERSONS, &c., FROM ONE STORY IN A BUILDING TO ANOTHER.

Specification of Letters Patent No. 28,273, dated May 15, 1860.

To all whom it may concern:

Be it known that I, ISAAC H. HOBBS, of the city of Philadelphia and State of Pennsylvania, have invented a new and Improved Reciprocating Stairway for Buildings; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a front elevation of the apparatus applied to the floors of a building; Fig. 2, a vertical longitudinal section at a right angle to the said front elevation; Fig. 3, a vertical longitudinal section parallel with the said front elevation; Fig. 4, a horizontal section of Fig. 1, just above the first floor; and Figs. 5, and 6, sectional plan and front views of automatically operating doors of the same; like letters, when on the different figures, indicating the same objects.

The object of this invention is to afford a ready, convenient, and appropriate means of conveyance, for persons, from one story to another in buildings of any kind, and especially in lofty hotels and factories.

It consists in the application, to a building, of either a single or a pair of frames or cases of sufficient length to reach from the first to the highest floor of the said building; the said frame or frames being provided with platforms arranged at such distances apart therein as to correspond respectively with the levels or landings of the floors of the said building, and also adapted to slide up and down in a suitably guarded opening or hatchway made through the floors of the building for the purpose, the extent of one story only, substantially as hereinafter described, when the said frame or frames are actuated by any suitable machinery and motive power applied thereto for the purpose; whereby the labor and fatigue incident to stepping up and down the usual stairs of such buildings is avoided, as persons will be conveyed by this apparatus from any one floor or landing to the next, or, successively, from any one floor or landing to any other floor or landing of the said building, as may be desired, by their simply stepping on and off the platforms of the frame or frames, as the same reach the said floors or landings in the operation of the machine. The annexed drawings represent a pair of these frames applied to a building having three stories besides the basement in which the actuating machinery is located; A, A′, being the frames; B B′ the opening or hatchway in which the frames slide; C—C the usual floors of the building, and E—E, the supplementary floors or landings; and D—D, F, the guards.

The frames (A, A′,) are connected, at their upper ends, by a rope, *h*, over a grooved pulley, *i*, so as to admit of the frames being moved up and down longitudinally and parallel with each other, in the opening (B, B), the extent of one story. The lower end of each frame has a screw, *k*, fixed permanently in the center of the lowest platform (*p*) so as to project perpendicularly downward therefrom somewhat more than the length of a story, which screws pass through screwed collar-wheels, *l—l*, which are supported strongly by any suitable beam, *n*, and rotated by means of another wheel, *m*, gearing therewith and rotated or driven by any suitable machinery and power for the purpose.

The platforms (*p—p*) of the frames (A A′) are fixed to the uprights of the frames, respectively, at equal distances apart so as to correspond with the levels of the respective floors of the building—supposing the said floors to be also at equal distances apart from each other; but as there is generally a difference in the relative heights of the stories or floors of the same building, the necessary uniformity in the heights to correspond with the platforms (*p—p*), is produced by the addition of the supplementary landings (E, E), which are made of such heights, respectively, as to produce the uniformity required to make all the platforms (*p—p*) of the frames (A, A′) reach their respective floors, or landings of the building, at the same time. This result may also be effected by making the platforms, for the smaller stories, loose on the frames (A A′) so as to allow their said frames to slide on them the extent of the excess of motion which the frames are required to have to bring the respective platforms for the greater stories to their respective floor levels of the building. The arrangement for this purpose is seen in Figs. 1 and 3—*o*, *o* being studs or brackets fixed in the sides of the casing of the opening B′, so as to support the loose platform (*p*) on a level with its respective floor (C′), and

o' o' being similar brackets fixed to the floor uprights of the frame (A′), at such a distance below the brackets (o—o) as will allow the frame (A′) to have the required excess of motion upward, before it lifts the said platform (p).

The two spaces (B, B′,) are separated by a thin partition q, which may be either close, as seen in the drawing, or open so as to afford communication from the platforms of one frame (A) to those of the other (A′), as may be desired.

The safety guards D, D′, D″, D‴, are panels, fixed to the front sides of the frames (A A′), which slide up and down therewith so as to close the entrance openings from the stories, after the frames have started; and, when made to close by means of the descending motion of the frames (A A′), they may each be hinged so as to turn inward and upward, to open an entranceway to its particular platform of the frame, as the latter rises, and to turn downward and outward to a vertical position so as to slide with the frame and close the said opening, as the said platform sinks—by means of the stops r, and s, fixed on the casing, and a lever t, which turns on a pivot in the casing, and whose bent inner end works in a slot in the edge of the guard (D⁗) as seen in Figs. 1 and 2—the outer end, of the said lever, coming in contact, alternately, with the stops (r and s), as the frame falls and rises; thus, automatically operating the said guard.

In cases where the building admits of an outward movement of the safety guards, the same may be automatically opened and closed, like common doors, by means of a curved guide u, (see Figs. 5 and 6) fixed to the upright of the sliding frame, and a slotted piece v, fixed to the safety-guard (D⁗) which latter is adapted to turn on hinges or pivots, like a common door. The up and down motions of the frame will therefore cause the curved piece (u) to slide up and down in the slot of the piece (v) so as to operate the said guard (D⁗) as required.

To guard against a person's being injured, should he, by leaning over, be brought in contact with the edge of the floor of the building on the open side of the apparatus, as the frame A or A′ is carrying him upward, the flaps (F—F,) (see Figs. 2 and 4) are arranged, in the recess left between the frames and the floors, to turn on hinges or pivots in such a manner as to yield easily to any slight, upward pressure and, afterward, to fall into place again by gravitation—being ,supported thus by the brackets w thereon.

Operation: Rotary motion being given to the wheel (m), by means of any suitable machinery operated by a competent motive power, the two collar-wheels are rotated thereby and, consequently, the two screws (k, k) being fixed to their respective frames (A, A′), the latter are caused to move—the one upward, the other downward—within the spaces (B, B′,) until, by an automatic shifting of a driving-pulley of the operating machinery, the motions of the said frames cease—and this cessation of the motions of the frames is generally arranged to take place when the platform (f) of the first floor, reaches to a level with the second floor. After a few seconds, a second shifting of the said driving pulley takes place, and a reverse motion of the wheel is produced, and consequently the frames (A A′) are brought to their original positions, and, after a few seconds, the same operation is repeated; and so on, continually, the frames are intended to be moved up and down a distance equal to the space of one story only; and the platforms (p—p) being originally arranged to correspond with the different floors (c), by being either fixed to, or made adjustable on, the frames—or, to correspond with the supplementary platforms or landings (E E) of the building, as described, it is manifest that a person standing upon any one of the said platforms (p—p) of the frames (A A′), will be raised or lowered therewith, one story; and all that the said person would have to do, to either ascend or descend from one story to another through the whole height of the several stories of the building, would be to step on and off the different platforms (p—p) from or to the different floors, or landings, in succession, as the former reach them; and, as the said platforms (p, p) are so moved up and down in the spaces (B, B′), the openings left in front of them become immediately afterward closed sufficiently, by the intervention of the safety guards, as described.

In the operation of the pair of frames (A and A′) as described, it is evident that when different persons are being conveyed up and down thereby, at the same time, the weight on one frame will tend to counterpoise the weight on the other, and so relieve the pressure on the screws (k, k); and that greater expedition will be attained by the use of two frames, than where only a single frame is applied to a building. A pair of frames (A and A′) operating together as described, would therefore be preferable in most instances; but nevertheless, a single frame will answer the purpose of conveying persons from one story to the next, or any other story, of a building, precisely in the same manner—with the exception that the person wishing to ascend or descend thereby, would have to wait the return motion of the frame which he has just left, before he could be conveyed farther thereby in the same direction.

Having thus fully described my improved reciprocating stair-way, and pointed out its utility, and the several modes in which I contemplate its construction and application:

What I claim as new therein of my invention, and desire to secure by Letters Patent, is,

The application to a building of any suitable kind, of either a single reciprocating frame (A or A′), or of a pair of such frames arranged together substantially as described; the same being actuated by any suitable machinery and motive power so that the respective platforms (*p*—*p*) of the said frame or frames may operate in combination with the several respective floors or landings of a building, substantially as described, and for the purpose of conveying persons from any one floor to its next, or successively to any other floors, of the said building, substantially in the manner set forth and described.

ISAAC H. HOBBS.

Witnesses:
BENJ. MORISON,
M. O. B. KENNEY.