3 Sheets—Sheet 1.

J. MACOMB.

Ice-Elevator.

No. 202,181. Patented April 9, 1878.

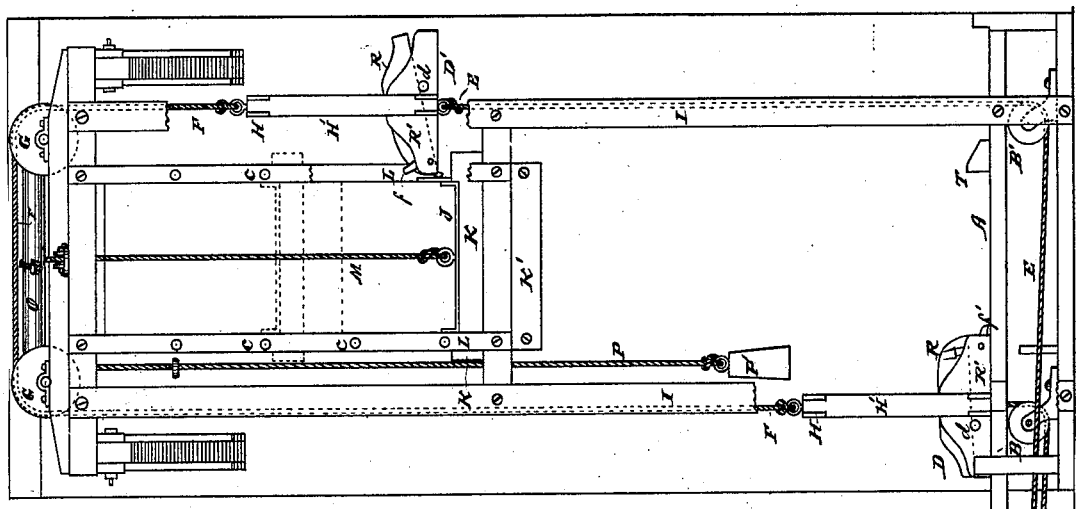

Fig. 1

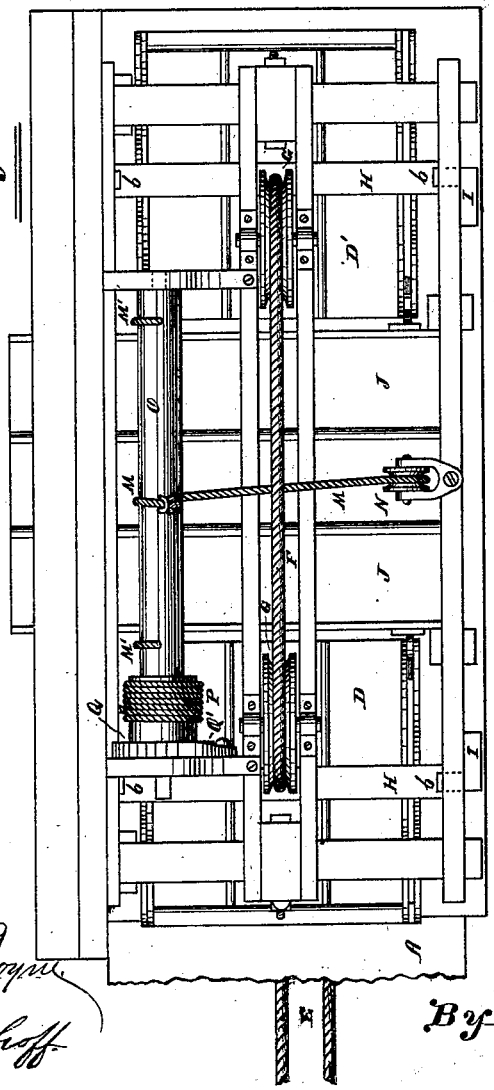

Fig. 2

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S. S. Schoff

INVENTOR:

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By F. F. Warner, his

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3 Sheets—Sheet 2.

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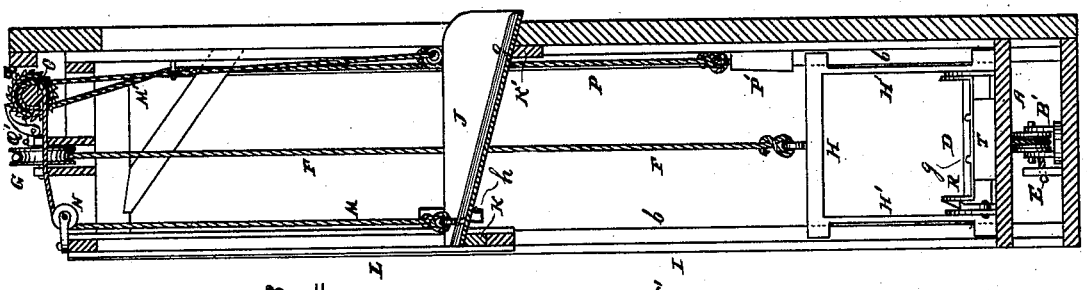

Fig. 3

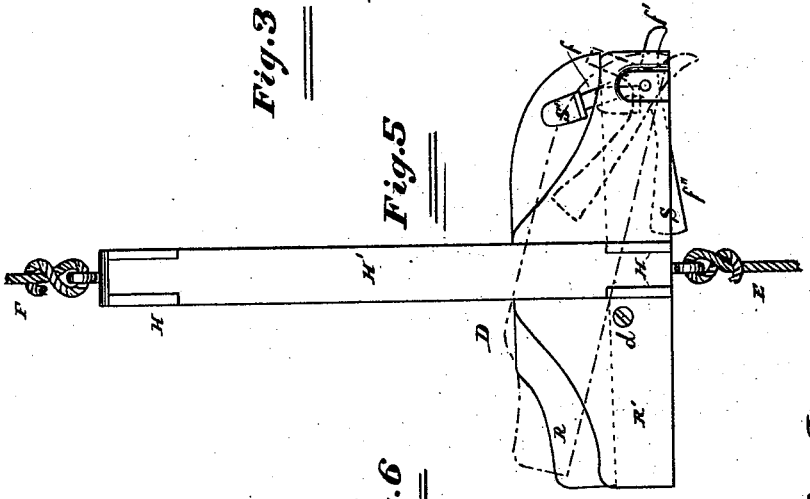

Fig. 5

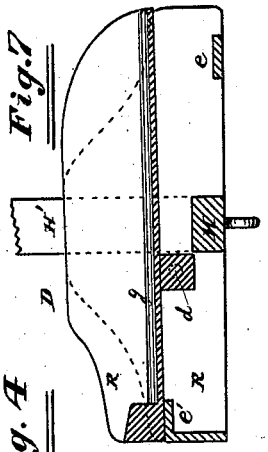

Fig. 7

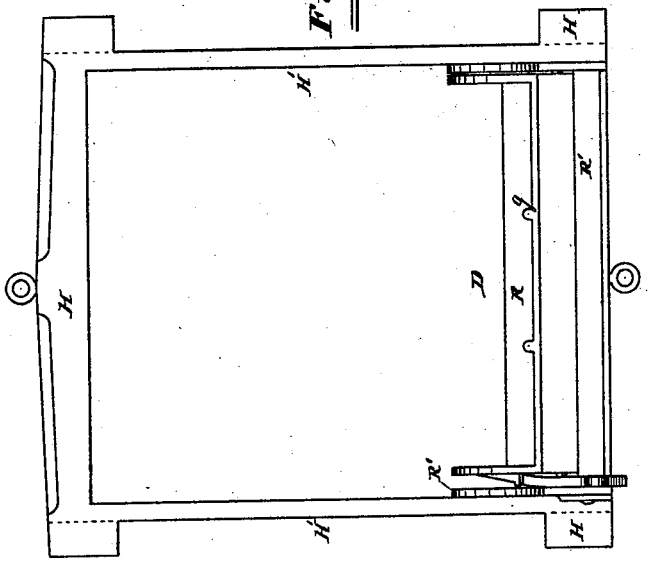

Fig. 6

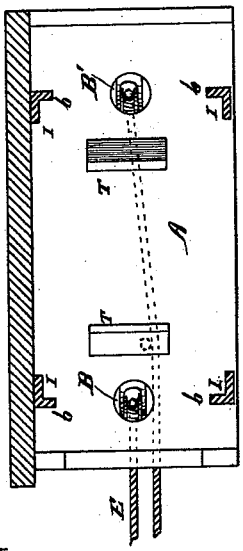

Fig. 4

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3 Sheets—Sheet 3.

J. MACOMB.

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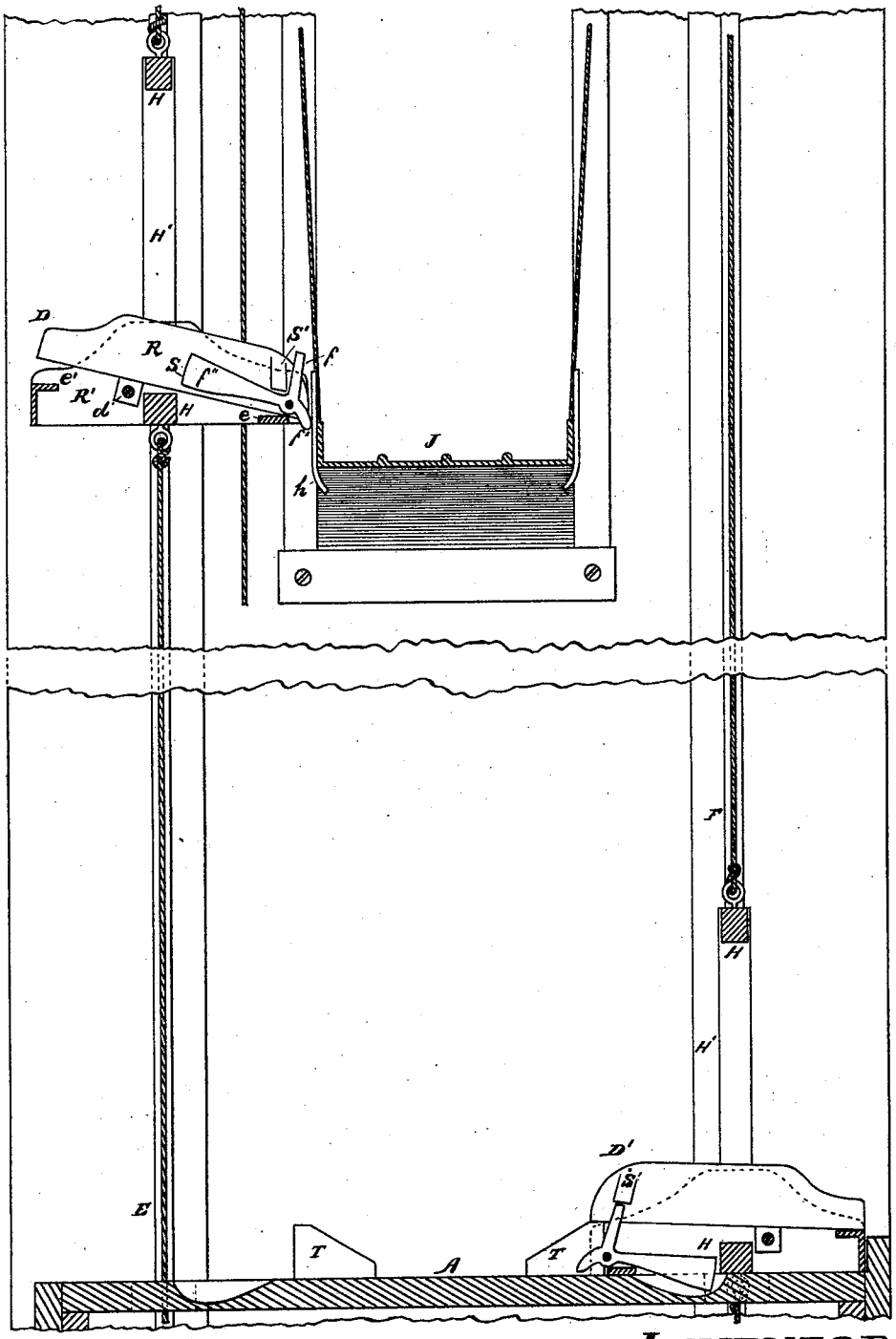

Fig. 8

Attest:

Charles H. Schoff

S. L. Schoff

INVENTOR:

John Macomb

By F. F. Warner, his Attorney.

UNITED STATES PATENT OFFICE.

JOHN MACOMB, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN ICE-ELEVATORS.

Specification forming part of Letters Patent No. **202,181**, dated April 9, 1878; application filed December 17, 1877.

To all whom it may concern:

Be it known that I, JOHN MACOMB, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ice-Elevators, of which the following is a specification, reference being had to the accompanying drawing, forming a part hereof, and in which—

Figure 1, Sheet 1, is a side elevation of an elevator embodying my invention; Fig. 2, Sheet 1, a top or plan view of the same; Fig. 3, Sheet 2, a vertical cross-section; Fig. 4, Sheet 2, a cross-section showing the top or upper side of the floor of the well; Fig. 5, Sheet 2, a side elevation of the elevator-carriage detached; Fig. 6, Sheet 2, a front view of the same; Fig. 7, Sheet 2, a vertical central cross-section thereof; and Fig. 8, Sheet 3, is an additional representation of the car shown in Fig. 5, showing its relation to that part of the elevator with which it directly operates.

Like letters of reference indicate like parts.

In the drawing, A represents the floor or platform of the elevator-frame. B B′ are pulleys arranged underneath the floor A, and C is a pulley connected to a stake, post, or other suitable fixed part. D and D′ are elevator cars or carriages. E is a rope or chain fastened to the bottom of the car D, and passing thence through a hole in the floor A and around the pulley B; thence around the pulley C; thence back to the pulley B′, around which it passes; thence through a hole in the floor A to the bottom of the car D′, to which it is attached. F is a rope or chain attached to a cross-bar of each car, and supported on the pulleys G G, having bearings in the upper part of the frame of the elevator.

If a horse be hitched to one of the horizontal parts of the rope E—at *a*, for example—he will elevate the car D by traveling toward the pulley C, and the car D′ by traveling in the opposite direction, one car descending as the other is elevated.

The cars D and D′ are made to move vertically, and are prevented from being turned while being so moved by means of the cross-bars H H, which extend laterally from the vertical posts H′ H′, and are cut or forked at the ends to receive the guide-posts *b b* of the L-shaped guides I I.

J is a vertically-adjustable chute, having cross-bars K K′, the former of which bars rides between the vertical guides L L, while the laterally-projecting ends of the bar K′ ride against the door-frame of the door opposite to which the chute may be arranged, and into which the ice loaded upon the chute is to be discharged. This chute is supported by means of the rope or chain M, attached to its rear or highest end, and carried over the pulley N, and passing thence to the windlass O, to which it is attached, and also by means of the ropes or chains M′ M′, attached to the forward end of the chute at or near the corners thereof, and to the windlass O.

P is a cord, rope, or chain, also attached to the windlass, and wound thereon in such a manner that the chute will be elevated when the cord or rope P is drawn down and unwound. The lower end of the rope P may be weighted, as shown at P′, so as to render the operation of raising the chute easy. When the weight P′ descends the chute will be raised, the cords M and M′ being thus wound upon the windlass.

Q is a ratchet-wheel rigidly mounted upon one end of the windlass O, and Q′ is a ratchet-hook pivoted to the frame of the elevator, or to some fixed part, and arranged to engage the teeth of the wheel Q. When the hook Q′ is released from the wheel Q the chute will descend, and its descent may be controlled by grasping the cord or rope P. When the chute is at the proper elevation, the hook Q′ should be made to again engage the teeth of the wheel Q.

In order to support the chute firmly while ice is being elevated, I perforate the bars L L, and pass supporting-bars through these perforations into sockets in the door-frame, these perforations and sockets being at suitable distances apart, as shown at *c c*.

It will be perceived that the chute is supported and rendered vertically adjustable by means of only three cords, ropes, or chains carried to the same windlass.

The bottom of each car or carriage consists of a shallow hopper, R, turning on piv-

ots *d d*, entering the rigid frame or base R′. The pivots *d d* support the parts R R behind the center of gravity, so that the forward ends of the hoppers will be the lowest when not otherwise supported, or when supported only by the cross-bar *e* of the frame or base R′.

e′ is a lip or cross-bar to support the rear end of the part R. The bar *e′* is sufficiently low to cause the rear end of the hopper to be lower than the forward end when the rear end rests on the bar *e′*.

S is a catch or trigger pivoted to the base R′. The forward end of the catch S is forked, and consists of the arms *f* and *f′*, and the rear end *f″* is sufficiently heavy to counterbalance the forward end.

S′ is a laterally-projecting arm or stop on the tilting part R. The stop S′ and the pivot on which the catch S turns are in, or nearly in, the same line when the arm *f* stands in such a position as to support the stop S′, and thus the forward end of the part R is firmly supported so long as the stop S′ rests on the arm *f*, and the forward end of the part R is then supported at such a height that the rear end lies on the bar *e′*. The arm *f*, however, may be tripped from underneath the stop S′ by pushing the arm *f′* downward, when the forward end of the part R will fall upon the bar *e*, and if the forward end of the part R be raised until the rear end rests upon the bar *e′*, the arm *f′*, owing to the weight and position of the arm *f″*, will pass automatically underneath the stop S′, and thus support the forward end of the part R in its elevated position until the arm *f* be again tripped from underneath the stop.

T T are blocks arranged upon the floor A in such positions as to be struck by the descending cars, and so that the forward ends of the hoppers or parts R R will be thereby raised until the arm *f* will move underneath the stop S′. The arm *f′* projects sufficiently to strike the chute J, or some tripping device, *h*, for example, arranged to be struck during the upward movement of the cars, and thus trip the arm *f* from underneath the stop S′.

The ropes attached to the cars are of such length that one car will be so tilted as to dump its load into the chute when the other reaches the floor A; and in order to adjust the cars properly and with facility with relation to each other and the chute, the ropes may be tied into rings in the cars, the length of the ropes being sufficient to meet the requirements of the greatest elevations, and taken up for lesser heights.

The chute, when one is employed, may be adjusted vertically in the manner already described.

The cars, instead of being arranged to dump their loads into a chute outside of the doors leading to the different floors of the building, may be so arranged as to dump the ice directly into the doorways, and a chute, either fixed or portable, may be arranged within the building to conduct the ice to any desired locality therein.

It will be perceived that the rear ends of the tilting bottoms of the cars are, at the time of loading the cars, enough lower than the forward ends to prevent the load from slipping forward until the chute is reached, and that when the chute is reached the forward ends of the tilting bottoms of the cars drop sufficiently to dump the load.

It will also be perceived that this tilting movement is produced automatically at each end of the route traveled by the cars.

The line of draft, or the path traveled by the horse, may be in any direction which circumstances may render most convenient, pulleys or anti-friction rollers being employed to shift the direction of the rope E.

In order to decrease the friction of the ice with the tilting bottoms of the cars, these bottoms may be ribbed, as shown at *g g*, and the bottom of the chute may be ribbed in like manner, and for the same purpose.

Steam or other power, instead of horse-power, may be employed to run the elevator.

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

1. An elevator wherein are combined the tilting platform R, the rigid frame or car-base R′, and a support and trip device pivoted to one of the said parts for supporting and releasing the said platform, substantially as and for the purposes specified.

2. The combination of the platform R, supported on bearings arranged behind its center of gravity, and provided with a stop or catch, S′, the counterbalanced trip-arm *f′*, and supporting-arm *f*, a platform-tilter arranged at the lower end of the route of the car, and a tripper arranged to strike the arm *f′* at the upper end of the route, substantially as and for the purposes specified.

3. The combination, in an elevator, of the vertically-adjustable chute J, the tilting platform R, pivoted behind its center of gravity, the rigid frame or car-base R′, and a counterweighted trip device, substantially as and for the purposes specified.

4. The combination, in an elevator, of the chute J, ropes or chains M and M′ M′, windlass O, rope or chain P, ratchet Q, catch Q′, and guides L L, substantially as and for the purposes specified.

JOHN MACOMB.

Witnesses:
F. F. WARNER,
CHAS. H. SCHOFF.