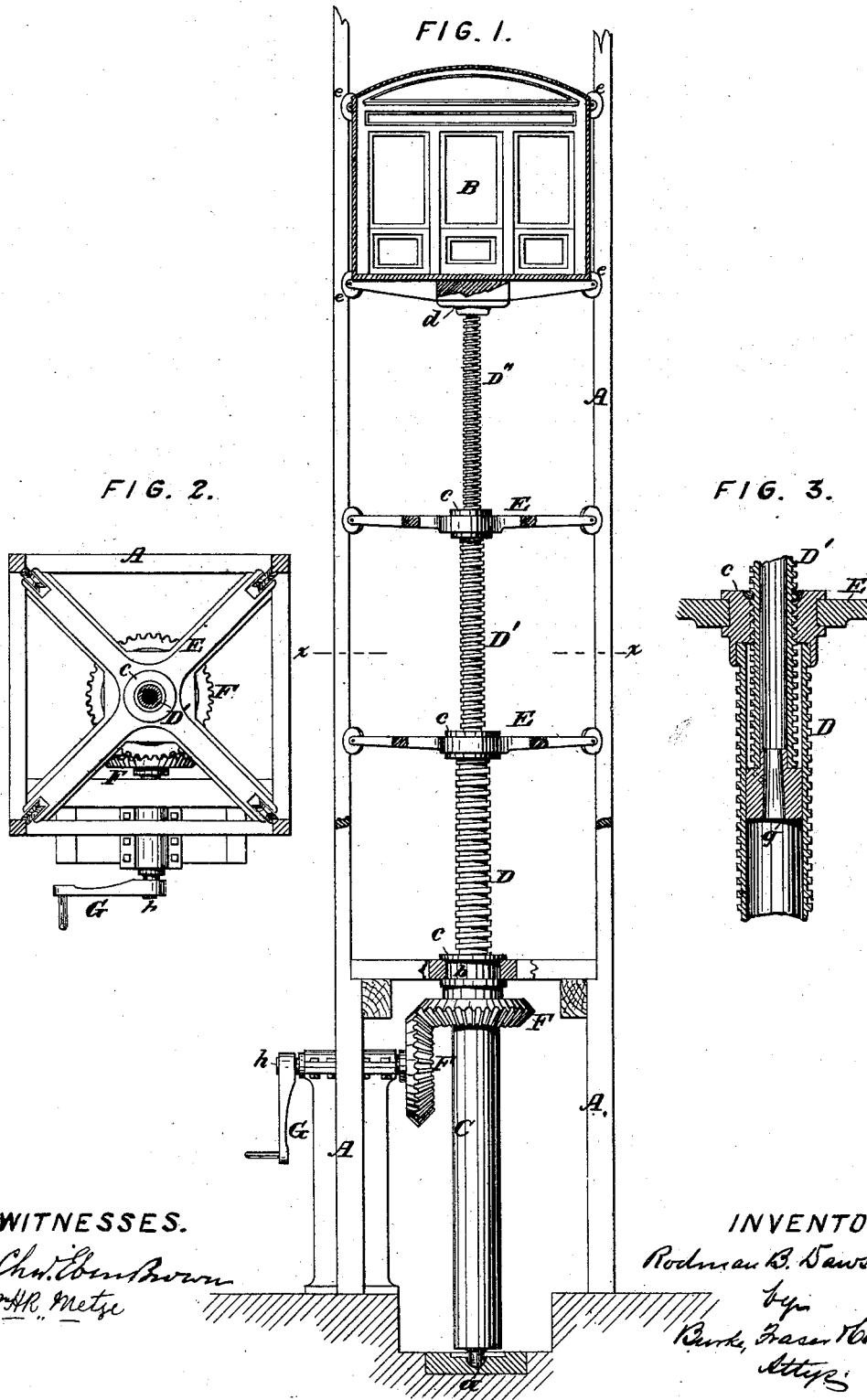


R. B. DAWSON.  
Elevator.

No. 221,037.

Patented Oct. 28, 1879.



WITNESSES.

Chas. E. Brown  
Wm. H. Metze

INVENTOR.

Rodman B. Dawson  
By  
R. B. Frazar, Attorney

# UNITED STATES PATENT OFFICE.

RODMAN B. DAWSON, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN ELEVATORS.

Specification forming part of Letters Patent No. **221,037**, dated October 28, 1879; application filed September 15, 1879.

*To all whom it may concern:*

Be it known that I, RODMAN B. DAWSON, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Elevators or Lifts, of which the following is a specification.

My invention relates to a means of raising and lowering the cars or platforms of elevators, lifts, or hoists; and it consists, mainly and essentially, of two or more screw-sections arranged telescopically, the upper extremity of the upper screw-section being secured to the car or platform so that it may not rotate, and the lower section, which is not externally threaded, being arranged vertically in bearings, so that it may be rotated and the sections above projected successively, one by the other, by the said rotation of the lower section.

It also consists in several minor features of construction, all as will be more particularly hereinafter set forth.

In the drawings, which serve to illustrate my invention, Figure 1 is an elevation, partly in section, showing the elevator complete. Fig. 2 is a horizontal section taken in the plane of the line *xx* in Fig. 1. Fig. 3 is an enlarged sectional detail view taken through the point where one section enters another.

A represents any suitable frame-work, wherein the car or platform B of an elevator is guided in its ascent and descent. C is a tubular shaft, stepped at *a* on a pintle in its lower end, and provided with a bearing at *b*, near its upper extremity. D D' D'' are screw-sections. The first two are tubular, and the last-named may or may not be tubular, as preferred.

At the upper extremities of the sections D D' and the shaft-section C are fixed or formed nuts *c c*, which are threaded internally to fit the threads of the screws, which enter them as shown. The internal construction is best illustrated in Fig. 3.

The upper section, D'', is preferably provided with some form of flanged cap, *d*, whereby it is rigidly secured to the car B.

The car or platform is guided and prevented from turning by grooved friction-wheels *e e*,

arranged to take over the angles of the guide-frame posts.

Some other well-known means of guiding and steadying the car may be substituted for that shown, however, without departing from my invention.

So far as described the operation is as follows: The lower section or shaft, C, being rotated in the proper direction, the sections D D' D'' are projected to their full length, thus elevating the car B. By reversing the motion and rotating the shaft or lower section in the opposite direction, the three upper sections are retracted and telescoped, thus lowering the car again.

The screw-sections are projected in succession, the upper one, D'', being, ordinarily, projected first, then the section D', and then D, and so on down if more are employed. When the first-named section is run up to its full length a stop on its lower extremity prevents its further extension, and stops the revolution of the next section, D', below, when it too begins to protrude. This section, when projected, performs the same service for the next below, D, and so on until all are projected. Thus it will be seen that all of the sections are mutually dependent in their movements, and this enables me to project all of them directly from the rotation of the shaft C. While one screw-section is being projected endwise the others continue to rotate with the section C, and as soon as this rotation is checked they begin to move longitudinally.

To steady the sections in their movement I provide spiders or cross-head guides E E, arranged to clasp the sections at their upper ends, preferably taking into grooves in the nuts *c c*, which form, in a manner, journal-bearings for the sections to rotate in. The arms of these spiders are provided, by preference, with friction wheels or sheaves to bear against tracks on the frame-work in their ascent, similar to those on the car B.

To assist in steadying the sections in their movement and to prevent them from being run out of the nuts when projected, I provide their lower extremities with stop-flanges or pistons *g*, as indicated in Fig. 3. These fit

neatly into the bores of the sections they play in, and serve the double purpose above stated.

F F are miter-gears, one mounted on the section or shaft C, and the other on a suitable shaft, *h*, provided with a crank, G.

The appliances for rotating the lower section or shaft, C, are common and well known, and I only employ them to illustrate the operation of the hoist. In most cases steam-engines provided with a throttle-valve and reversing-gear arranged to be operated from the platform will doubtless be employed; but these form no part of my present invention.

To prevent an accumulation inside the sections of oil from the screws, the stops *g* should be bored or tubular and should be fluted or bored, as indicated by the dotted line in Fig. 3, so that the oil may escape.

The foot of the section C may be stepped in a recess, *i*, at the base, and the oil from the sections be allowed to drip into this, thus insuring perfect lubrication at that point.

To avoid noise as much as possible I prefer to provide the gears F F with wooden cogs, and in some cases friction-gears may be employed to good advantage.

Having described what I believe to be the preferable method of constructing my invention, I wish it understood that I do not confine myself to that shown, as various colorable alterations, which would not materially affect the invention, will readily suggest themselves—as, for instance, the tubular sections might be internally, as well as externally, screw-threaded their whole length, and the pistons *g* might be replaced by any form of stop or check; or the lower shaft or section, C, may be shortened and rotated only in bearings at the upper end, the section D being allowed to protrude through it when down. Indeed, this lower section may be made of any shape or form best suited to the circumstances.

I contemplate making the upper or screw-threaded sections of steel, and the nuts *c c* of hard brass or any suitable metal. Single, double, or many threaded screws may be employed.

Having thus described my invention, I wish it understood that I do not claim the device shown in the patent of Thomas and Joerns, No. 168,485, dated March 2, 1875, and consider it to be entirely different from my herein-described invention in many important respects; but

What I do claim is—

1. In an elevator or hoist, the arrangement between the section or nut C and the screw-section D'', which is secured to the non-rotative car or platform, of the telescopic tubular screw-sections D D', provided with fixed nuts *c c*, internally screw-threaded, whereby the rotation of the said nut or section C is caused to protrude the said sections successively and elevate the platform, substantially as set forth.

2. In an elevator or hoist, the combination of a rotary section or nut, C, the screw-sections D D' D'', arranged telescopically, as shown, the upper section being secured rigidly to the car, and the others provided with fixed internally-threaded nuts *c c*, and all arranged to be protruded successively by the rotation of the nut C and the non-rotative car B, all arranged to operate substantially as set forth.

3. The screw-sections D D' D'', provided with pistons *g*, or other similar stops, to prevent them from being projected or driven out of the nuts *c c* when protruded, and to form guides to steady them in their movements, substantially as shown and specified.

4. In a telescopic screw for hoists, the intermediate sections, D D', provided with fixed internally screw-threaded nuts *c c* and stops on their lower ends, substantially as and for the purposes set forth.

5. The tubular screw-sections D D', provided with fixed nuts *c c*, grooved to receive spiders or guides E, in combination with said guides, the sections C D'', and the car B, all arranged substantially as set forth.

6. The lower rotative tubular section, C, provided with a nut, *c*, and a bearing, *b*, at its upper end, and a pintle, *a*, at its lower end, substantially as and for the purposes set forth.

7. The combination of a car, B, arranged to move in a guide-frame, A, and a telescopic screw, consisting of the moving sections D D' D'', provided with pistons *g*, and the rotative nut or section C, arranged centrally beneath it, the upper section being fixed to the car, and the other sections being provided with fixed nuts *c c* and guides E E, all substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

RODMAN B. DAWSON.

Witnesses:

HENRY CONNETT,  
ARTHUR C. FRASER.