

D. H. CHAMBERLAIN.

Improvement in Elevators.

No. 116,156.

Patented June 20, 1871.

Fig. 1.

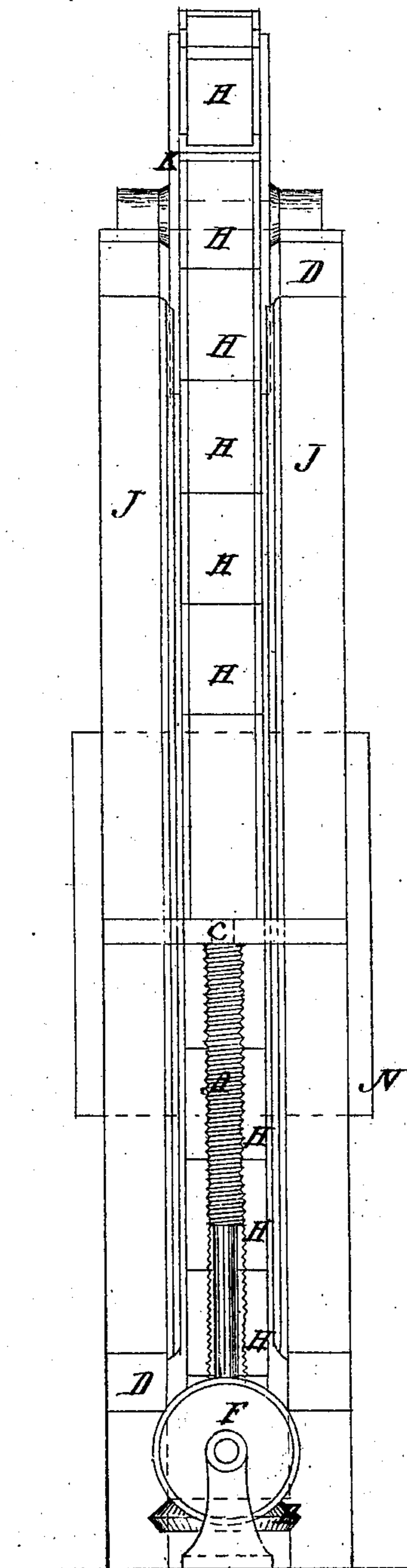
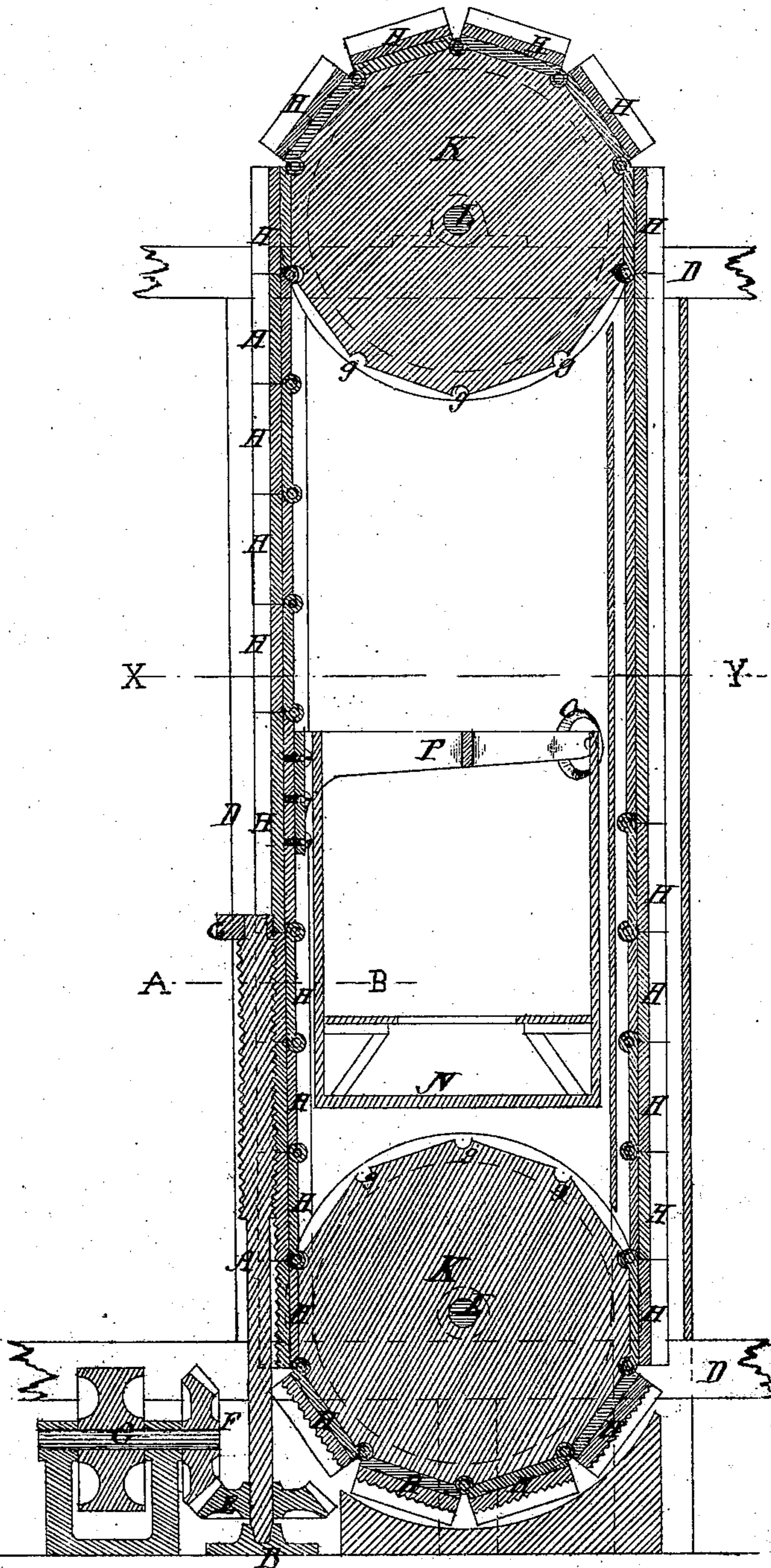


Fig. 2.



Witnesses:

Chas. J. Taylor
Daniel Flaherty

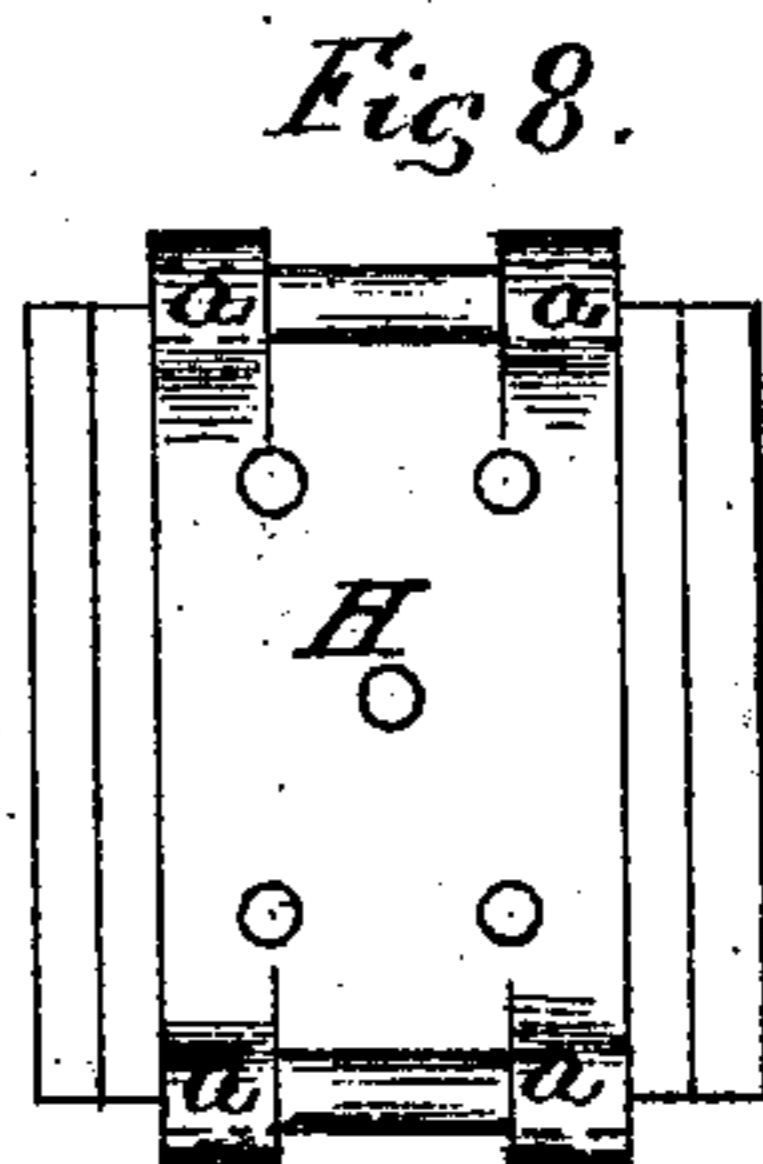
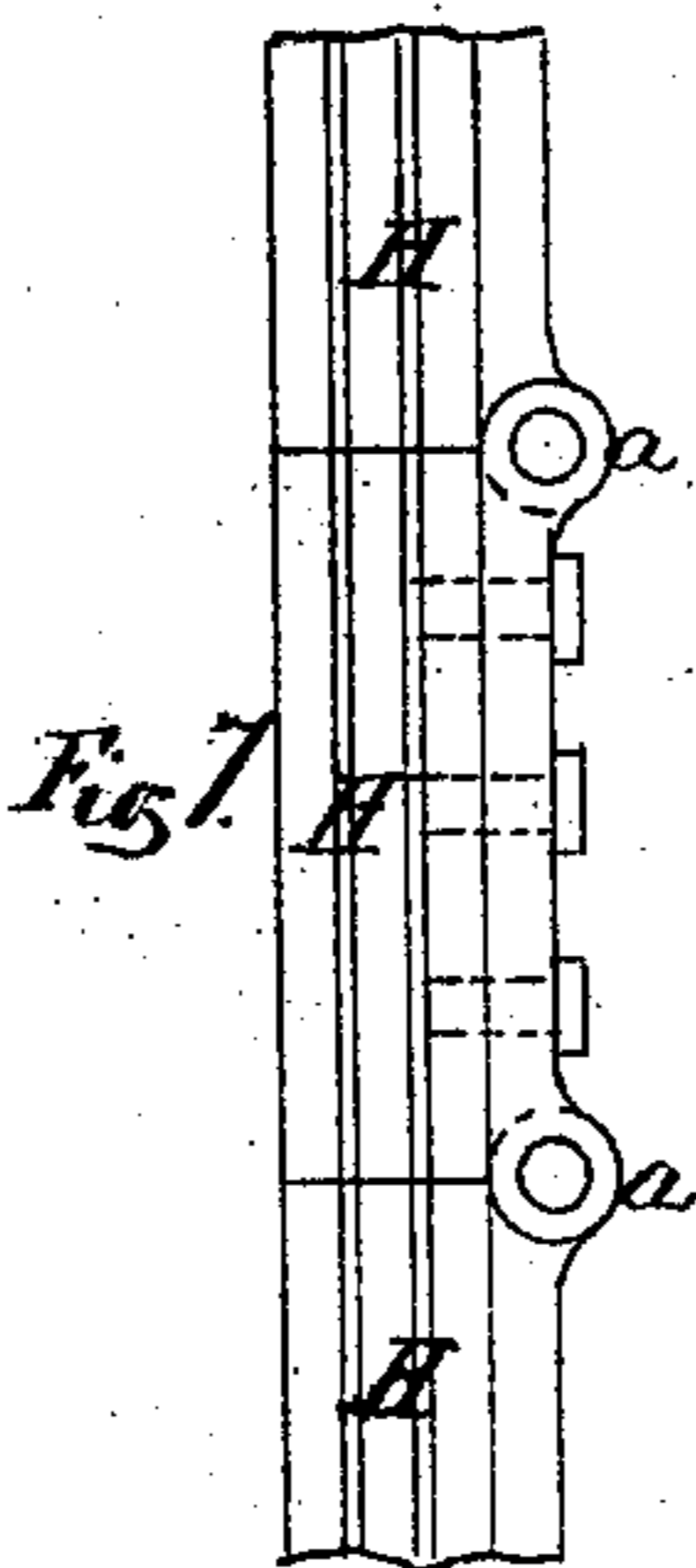
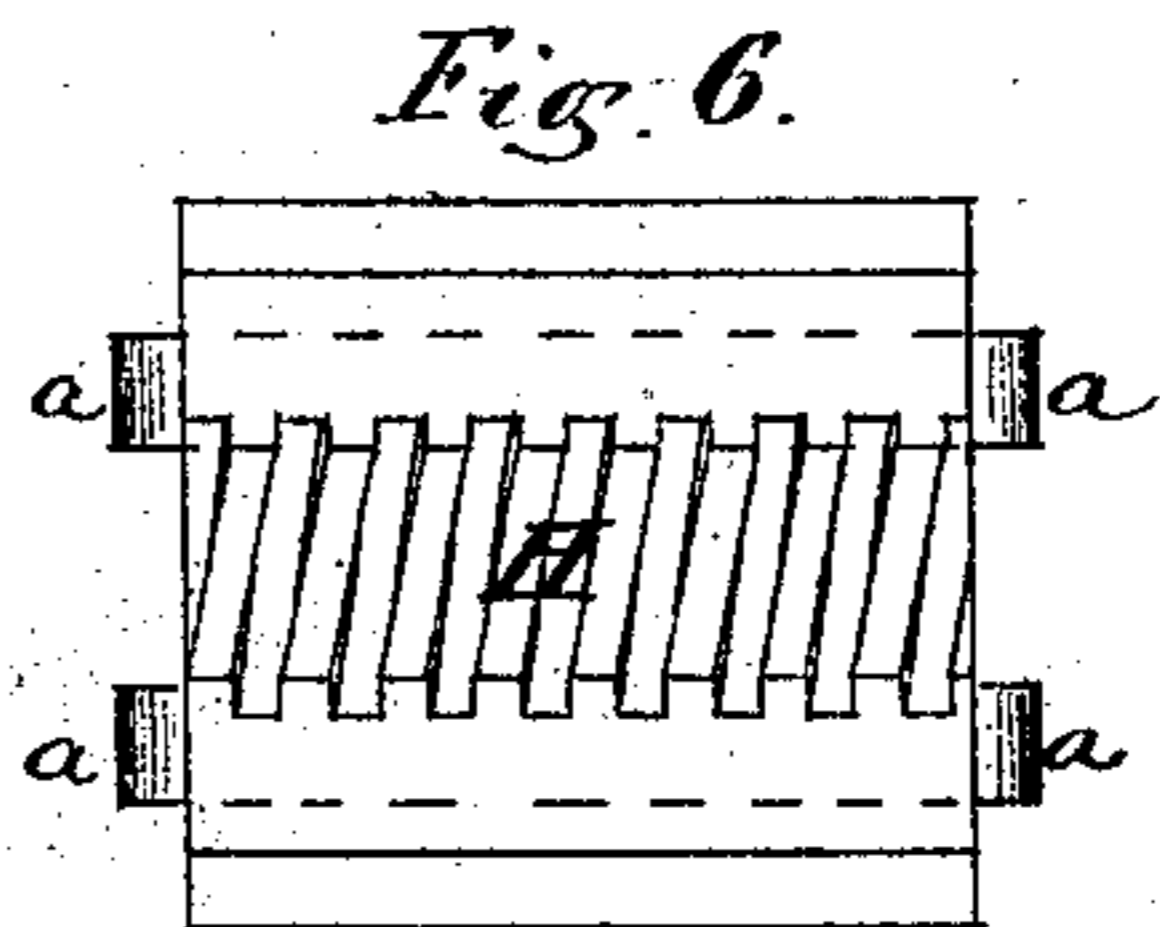
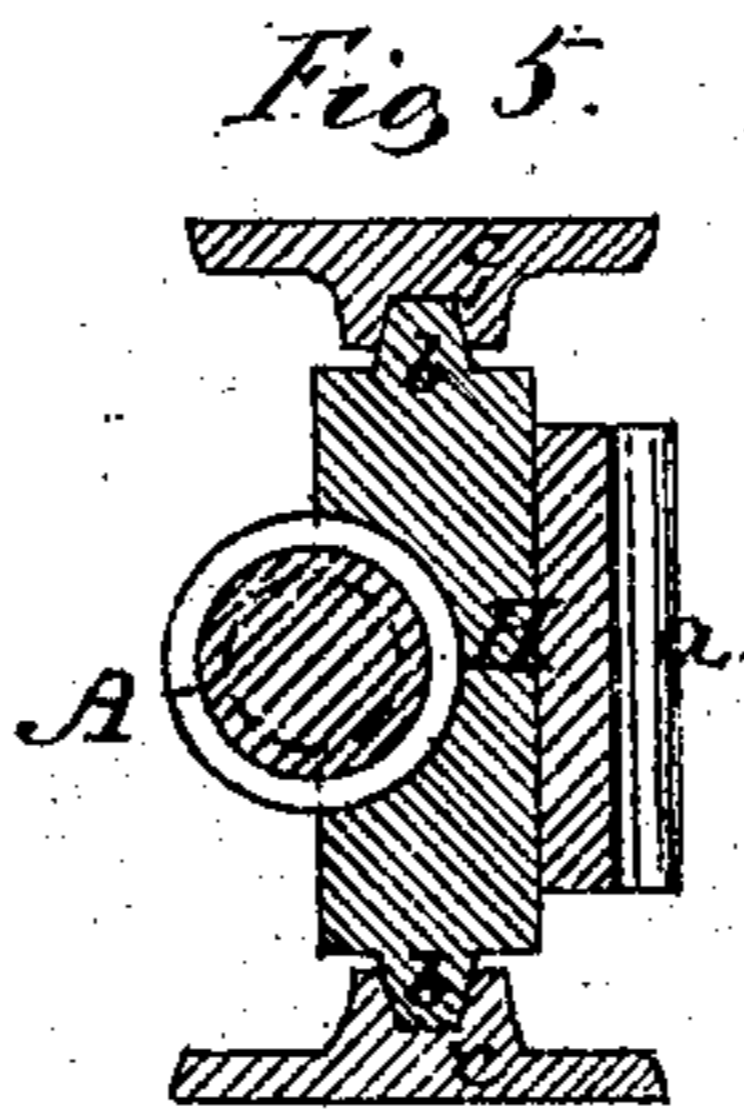
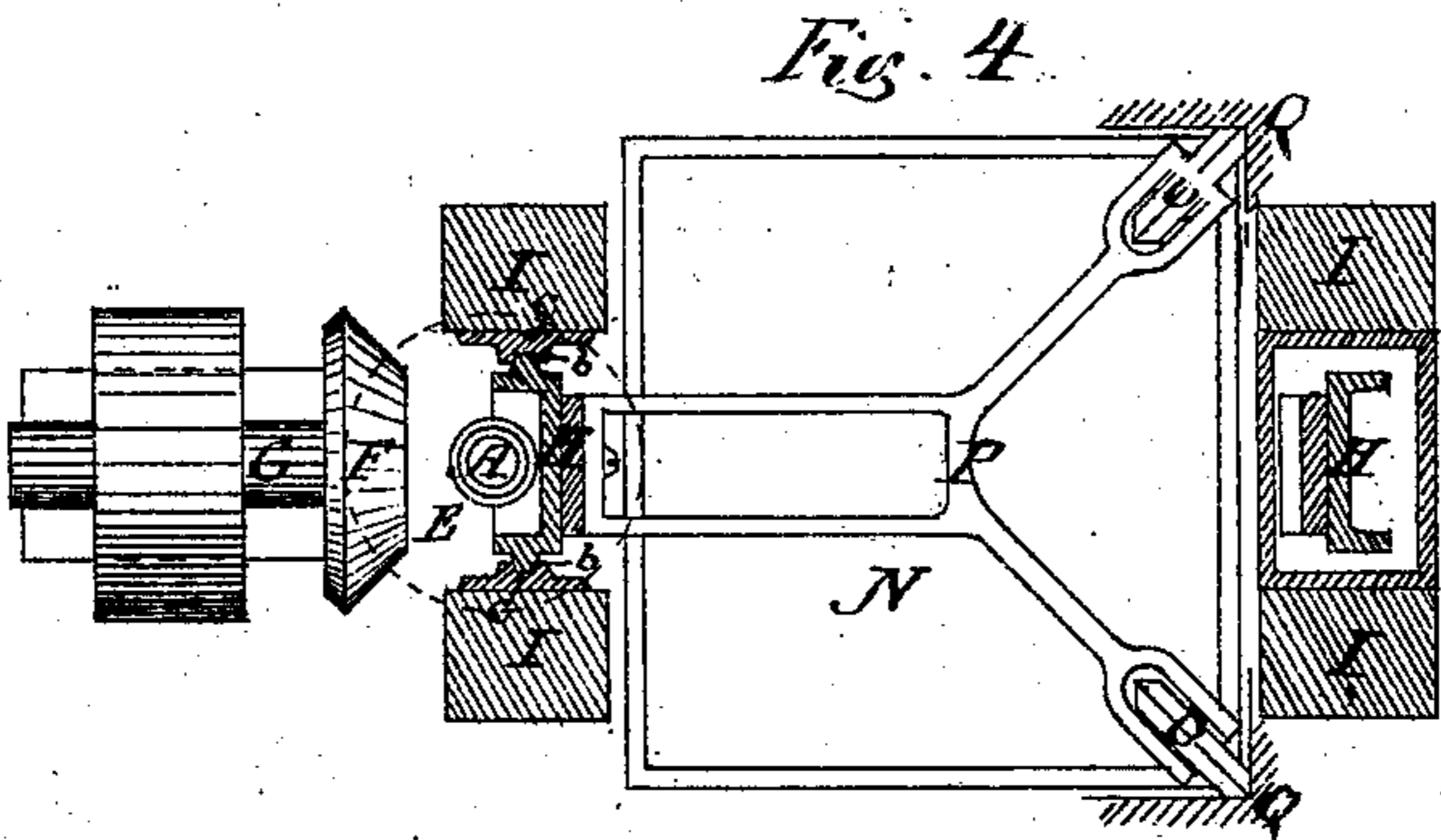
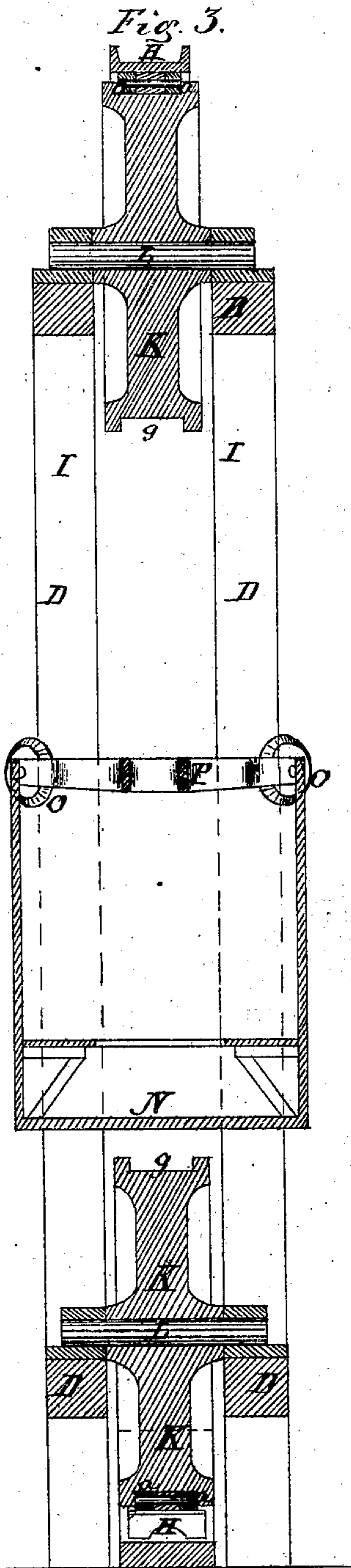
Inventor:

D. H. Chamberlain
per
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UNITED STATES PATENT OFFICE.

DEXTER H. CHAMBERLAIN, OF WEST ROXBURY, MASSACHUSETTS.

IMPROVEMENT IN ELEVATORS.

Specification forming part of Letters Patent No. 116,156, dated June 20, 1871.

To all whom it may concern:

Be it known that I, DEXTER H. CHAMBERLAIN, of West Roxbury, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Hoisting Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification.

This invention consists, first, in the combination, with a vertical screw-shaft suitably arranged and driven, of a series of sector screw-nuts, linked or pivoted end to end in a continuous series, and arranged to be guided and travel in a fixed vertical line interlocking with the said screw-shaft, by which, according to the direction it is turned, they are brought one after another either upward or downward to connect or interlock with said screw-shaft, the carriage or platform of the hoisting apparatus being secured to one or more of said screw-nuts, and consequently partaking of the movement given to them either upward or downward, as stated; second, of a series of sector screw-nuts linked or pivoted end to end together, when endlessly connected or endless in themselves, and arranged to pass around, at each end, pulleys suitably located therefor; third, of the said series of sector screw-nuts, in combination with vertical guide-ways, when relatively constructed with tenon and groove or otherwise so as to secure the perfect guidance and movement of the nuts in a fixed vertical line.

In the accompanying drawing my improvements in hoisting apparatus are illustrated. Figure 1 in Plate 1 is a view in elevation from side; Fig. 2, a central vertical section from one side to the other of the apparatus. Fig. 3 in Plate 2 is a transverse vertical section from the front to rear side; Fig. 4, a horizontal section in plane of line Fig. 2, Plate 1; Figs. 5, 6, 7, and 8, views in detail of sector screw-nuts.

A in the drawing represents a screw-shaft arranged in a vertical plane to turn at its lower end in step B and its upper end in the horizontal rail C of the frame-work D, made of suitable form to receive the working parts of the hoisting apparatus, to be hereinafter explained; E, a bevel-gear wheel secured to vertical shaft A, through which wheel, by a simi-

lar gear-wheel, F, attached to driving-shaft G, the screw-shaft A is turned; H, a series of sector-shaped screw-nuts, the threads of which correspond to the thread of screw-shaft A. Each sector screw-nut is similarly constructed with eyes *a*, two at each end, in planes directly opposite to each other. These several nuts H are, by their eyes *a*, pivoted end to end in a regular series. They are arranged within and between vertical guide-posts I of the framework D, moving, by their ribs *b*, within corresponding-shaped grooves *c* of said guide-posts I; these guide-posts being located with reference to the vertical screw-shaft A so as to interlock the threads of the sector nuts with the thread of the shaft A, so that by the turning of the shaft they will be moved up or down, as the case may be, with the guide-posts, and consequently one after the other brought into connection with the screw-shaft. The nuts H are shown, in the present instance, as of a nearly endless series, and as arranged to pass around drums or pulleys K, one at each end, and suitably located for the running of the sector nuts in the ways of guide-posts I, as described. These drums are constructed with recesses or grooves *g* to receive the link or pivot-connection parts which project from the back of the nuts, and, by their journals L, are arranged to turn in bearings of the frame-work D. N, a platform or carriage secured, by screws, bolts, or other suitable fastening devices, to the rear side of one of the series of sector nuts H, within and between the two vertical portions of the series. This platform has friction or guide wheels O hung in its upper frame-work P, and arranged to travel in the corners Q of the frame-work D.

From the above description of the several parts and the arrangement thereof it is obvious that the turning of the screw-shaft causes the series of sector screw-nuts to pass up or down, as the case may be, carrying, consequently, the platform, as it is connected to one of them, correspondingly up or down, and that, therefore, with a suitable number and length of sector nuts H, the platform can be made to travel through a greater or lesser vertical distance or elevation. It is obvious that, by the arrangement of hoisting mechanism described, a short screw-shaft can be used, it being, how-

ever, best and most practical and effective that it should be of a length sufficient to be engaged at any and all times with at least two whole lengths of the screw-nuts, and with a portion of a third, from the reason that straining of the sector nuts, their links, connection, &c., is thus prevented, and a more uniform and steady movement secured. With the platform attached to the sector screw-nuts upon their vertical portion nearer to the screw-shaft the weight of the platform and its contents, as is obvious, rests upon the screw-shaft, relieving the chain of nuts and their connections.

With an arrangement of screw-shaft and endless sectional screw-nuts substantially as described the travel of the series half of its length secures a complete traverse of the platform within the frame-work D, thus allowing one-half or nearly so of the endless series to be blank, should it be so desired for economy or other reasons, or to be otherwise made continuous.

It may be well to observe that should any one or more of the series of sector screw-nuts above or below the platform connection therewith break, the platform would still be retained from falling by the screw-shaft, should such screw-shaft be in connection with a sec-

tor nut; but, if not, by at least the packing together of the sector nuts within and between the guide-posts.

The advantages of the use of a short shaft are obviously many, among which may be mentioned that less power is required to operate the mechanism and a smaller screw-shaft can be used.

It is, of course, self-evident that in the arrangement of the sector screw-nuts it is necessary that the screw-threads of each and all should connect where they joint or come together.

Having thus described my invention, I shall state my claim as follows:

The screw-shaft A, endless connected sector nuts H, pulleys K, vertical guide-posts I, and platform N, combined and arranged together for operation, substantially as described, for the purpose specified.

The above specification of my invention signed by me this 6th day of February, A. D. 1871.

D. H. CHAMBERLAIN.

Witnesses:

CHAS. J. TAYLOR,
ALBERT W. BROWN.