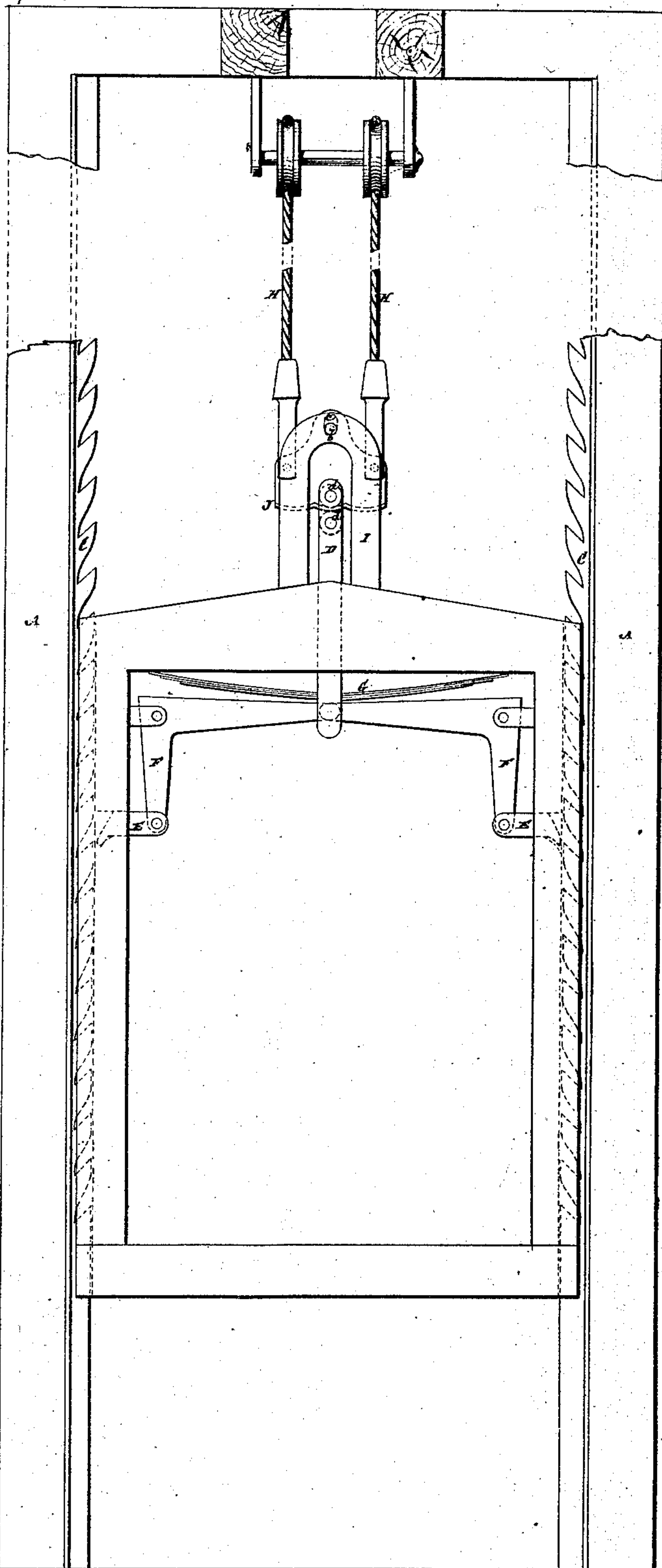


Fig. 1



Witnesses

J. M. Loomis
 W. H. Babcock

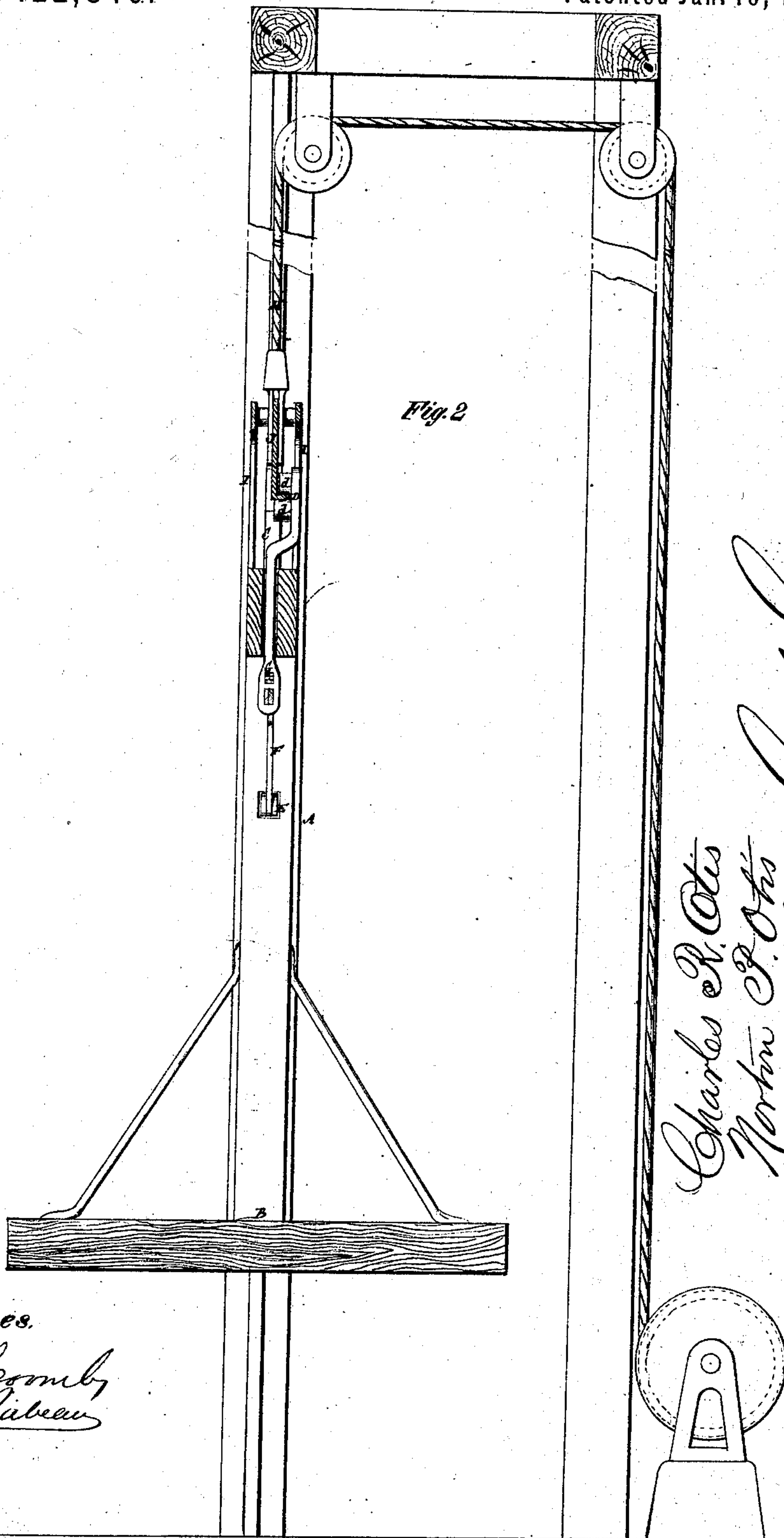
Charles R. Otis.
 Norton P. Otis.
 By James Cornelius & Co. Attys.

Chas. R. Otis & Norton P. Otis. Improv'd in Hoisting Apparatus.

3 Sheets
Sheet 2.

No. 122,846.

Patented Jan. 16, 1872.



*Charles R. Otis
Norton P. Otis
per Brown & Smiley, Attys.*

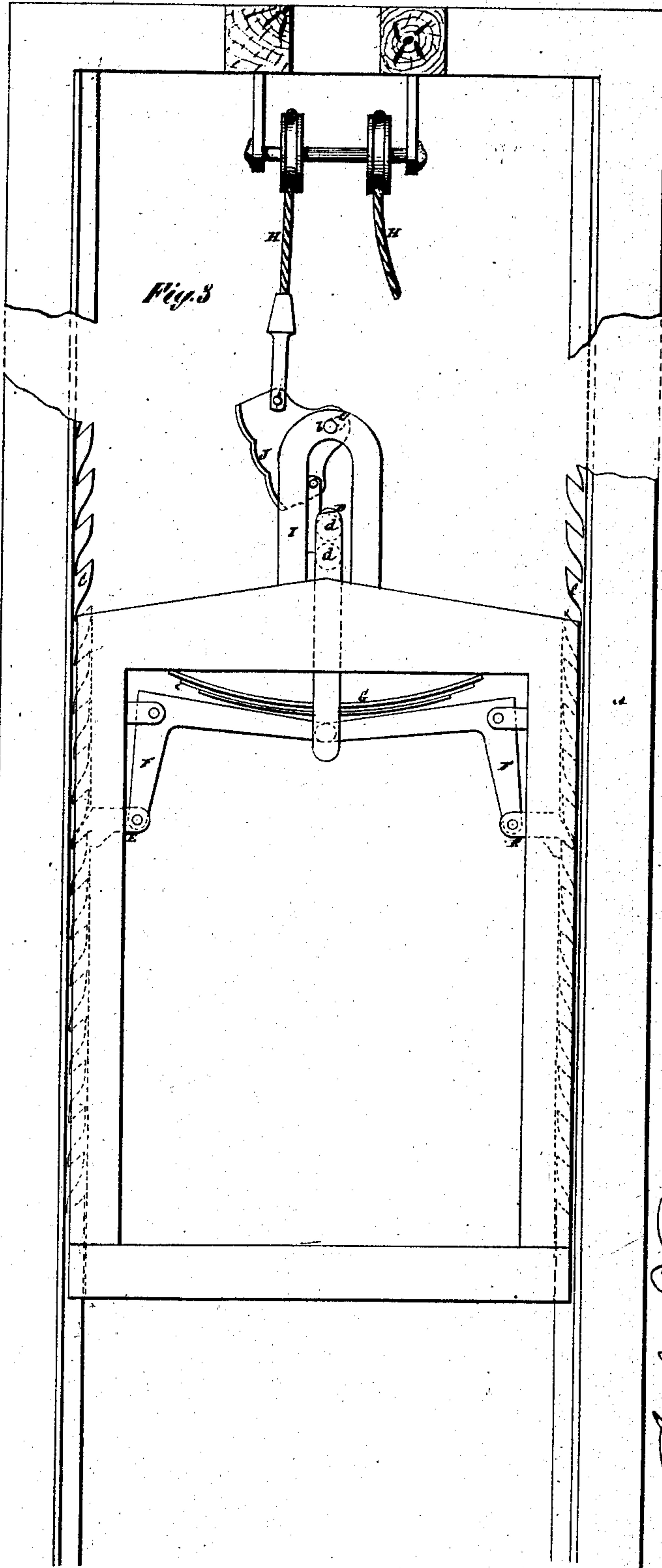
Witnesses.

*J. McCormick
R. H. H. H. H.*

No. 122,846.

Patented Jan. 16, 1872. *Sheet 3.*

Chas. R. Otis & Norton P. Otis Imp^t in Hoisting Apparatus. *3 Sheets.*
Sheet 3.



Witnesses.
J. McCormick
R. H. H. H.

Charles R. Otis
Norton P. Otis
per J. Brown, Counselor at Law

UNITED STATES PATENT OFFICE.

CHARLES R. OTIS AND NORTON P. OTIS, OF YONKERS, NEW YORK.

IMPROVEMENT IN HOISTING APPARATUS.

Specification forming part of Letters Patent No. 122,846, dated January 16, 1872.

To all whom it may concern:

Be it known that we, CHARLES R. OTIS and NORTON P. OTIS, of Yonkers, in the county of Westchester and State of New York, have invented a new and useful Improvement 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, and in which—

Figures 1 and 2 represent sectional elevations, at right angles to each other, of a hoisting apparatus with our improvement applied to it. Fig. 3 is a view showing the improvement when in operation on the racks of the hoist-way.

Similar letters of reference indicate corresponding parts in the drawing, which is on a scale of about one inch to the foot.

Our invention relates to hoisting apparatus in which two hoisting-ropes are used; and consists, in a combination with the stop-pawls, of certain means that in the case of either rope breaking or hanging slack, operate in a positive manner by the tension concentrated on the other rope to throw the stop-pawls into operation, and this without interfering with the action of the spring that controls said pawls, and which here operates in addition to the positive means or motion just referred to.

Referring to the accompanying drawing, A A represent the uprights of the hoistway, and B a portion of the car or traveling-platform. C C are the racks up the sides of said uprights for holding the car against tipping or accidental descent in case of the lifting-ropes breaking or hanging loose, said racks serving, on tension being removed from a lifting-bar or attachment, D, to hold the car or platform by means of stop-pawls E E, attached to levers F F, under the control of a spring, G, which, under breakage or disarrangement of the ropes, as described, causes the pawls to engage with the racks. This is the usual action of the pawls whether one or two ropes operating as a divided single one be used, but to make said pawls E E applicable to two ropes, H H, so that in case of either rope breaking or hanging slack said pawls will act not merely under control of the spring G, but in a positive manner as derived from the tension of the other rope. There is mounted on the car a standard or standards,

I, arranged to carry a cam-like yoke, J, which works on a fulcrum-pin or pivot, b, by or through a slot, c, in it, that allows of up and down play to insure the proper action of the pawls. This cam-like yoke engages with the lifting-bar D by the fit of its flange between rollers d d carried by the bar. The ropes H H are fastened to this pivoted or swinging cam-like yoke on opposite sides of its fulcrum.

In case of both ropes breaking or fouling and hanging loose, then the spring G operates, as heretofore in single-rope hoists, to throw the stop-pawls into operation with the racks on the uprights. In case of only one of the ropes becoming disarranged or breaking a like action takes place, with the additional effect of the tension on the other rope operating, by the swinging of the yoke J to aid in a positive manner the action of the stop-pawls to make them engage with the racks, and the spring further serving to hold said pawls in action after the cam-like yoke has been swung out of gear with the rollers on the lifting-rod, which disengaging action it is preferred the yoke should have at the close of its swinging stroke, and so that said yoke when slipping out from between the rollers on the slackening of one of the ropes, as described, and after it has performed its function of locking the stop mechanism, will be thrown back or out of the way by the tightening of the other rope, and be prevented, except by special adjustment, from entering again between the rollers on the lifting-rod to unlock the stop-pawls.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The combination, with the stop-pawls or mechanism, of a pivoted or swinging cam-like yoke arranged to operate on said mechanism by tension of either of a pair of ropes attached to opposite sides of its swinging center, substantially as specified.

2. The combination of the pivoted cam-like yoke J with the spring G, the lifting bar D, the levers F F, and the pawls E E, essentially as shown and described.

CHAS. R. OTIS.
N. P. OTIS.

Witnesses:

J. W. COOMBS,
R. E. RABEAU.