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Patented Sept. 9, 1902.

C. W. HUNT.  
HOISTING APPARATUS.

(Application filed Feb. 20, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

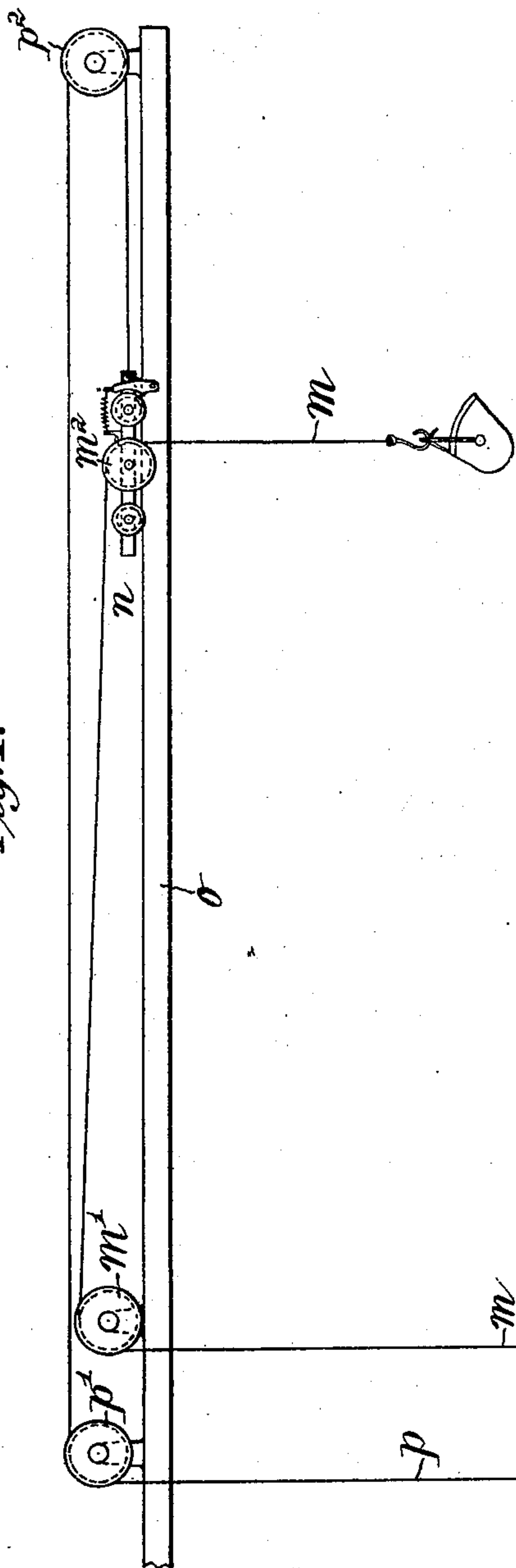
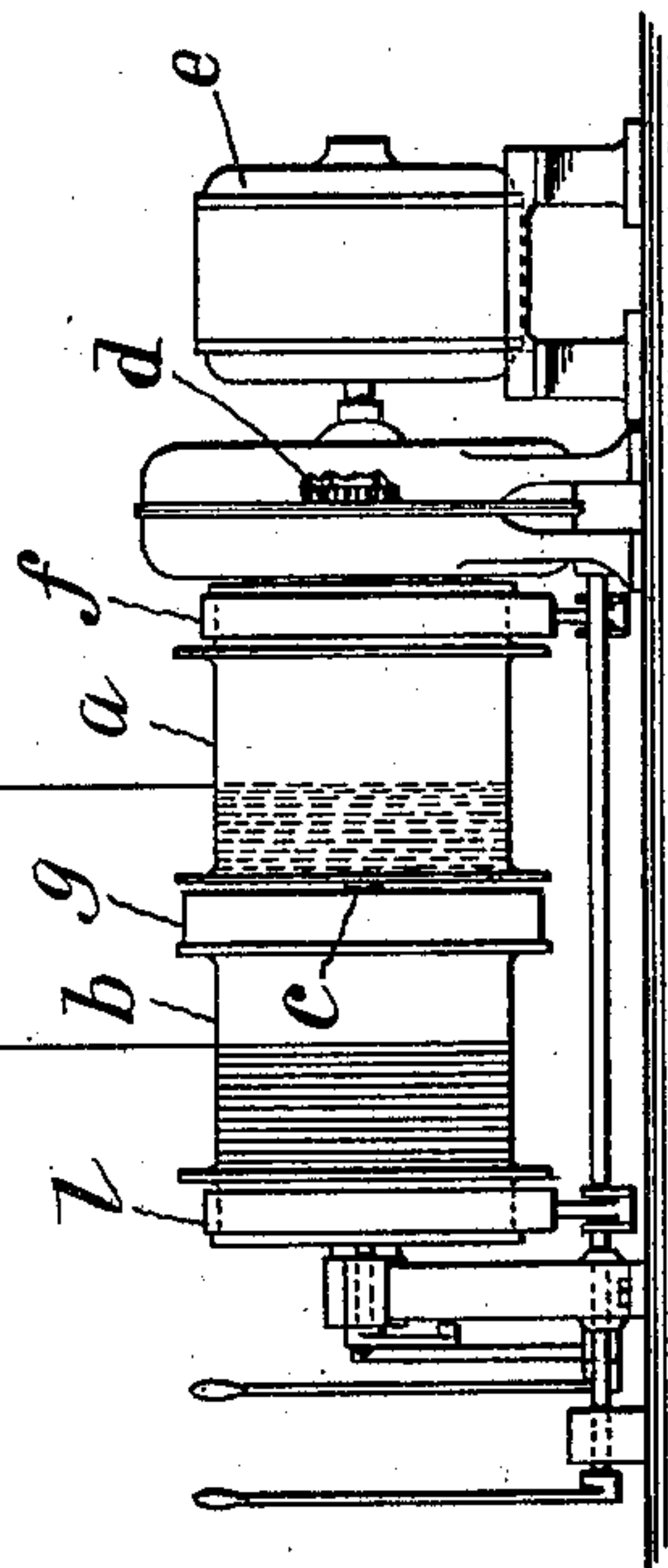
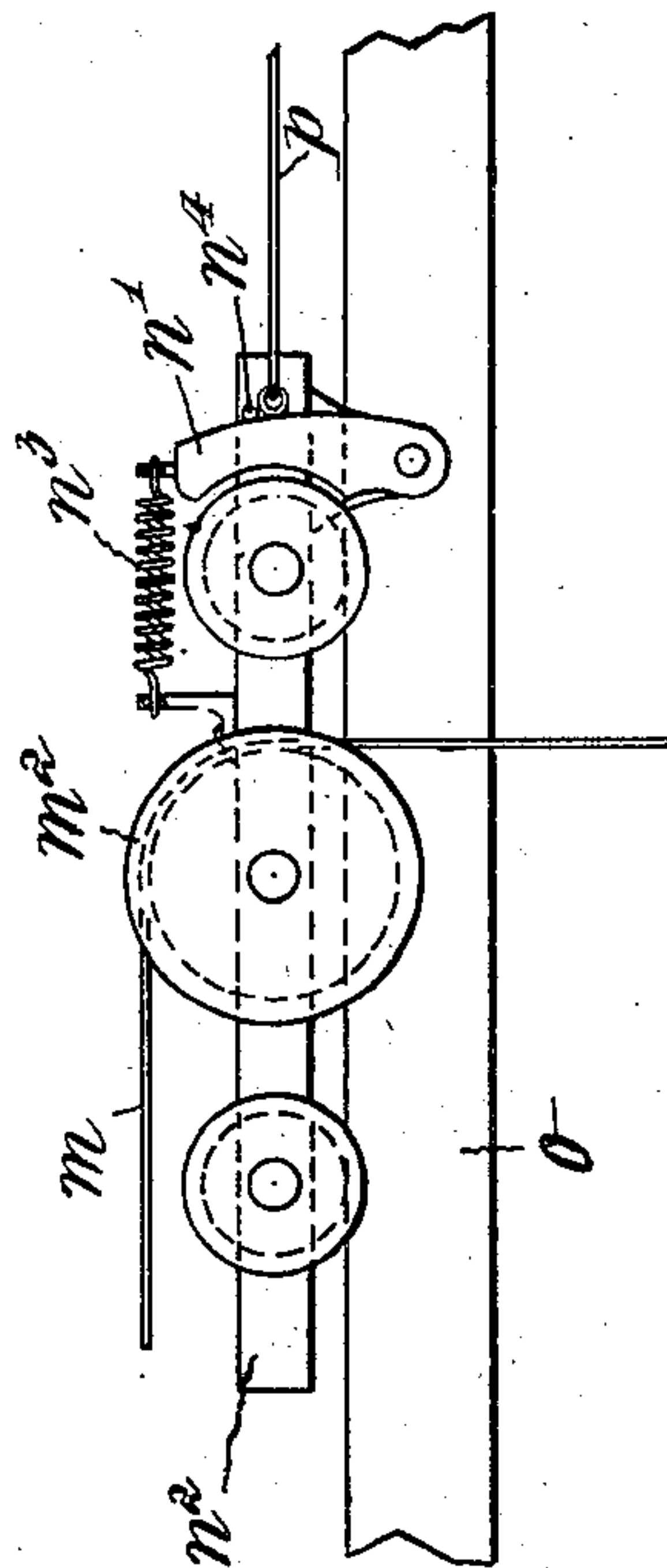


Fig. 2.



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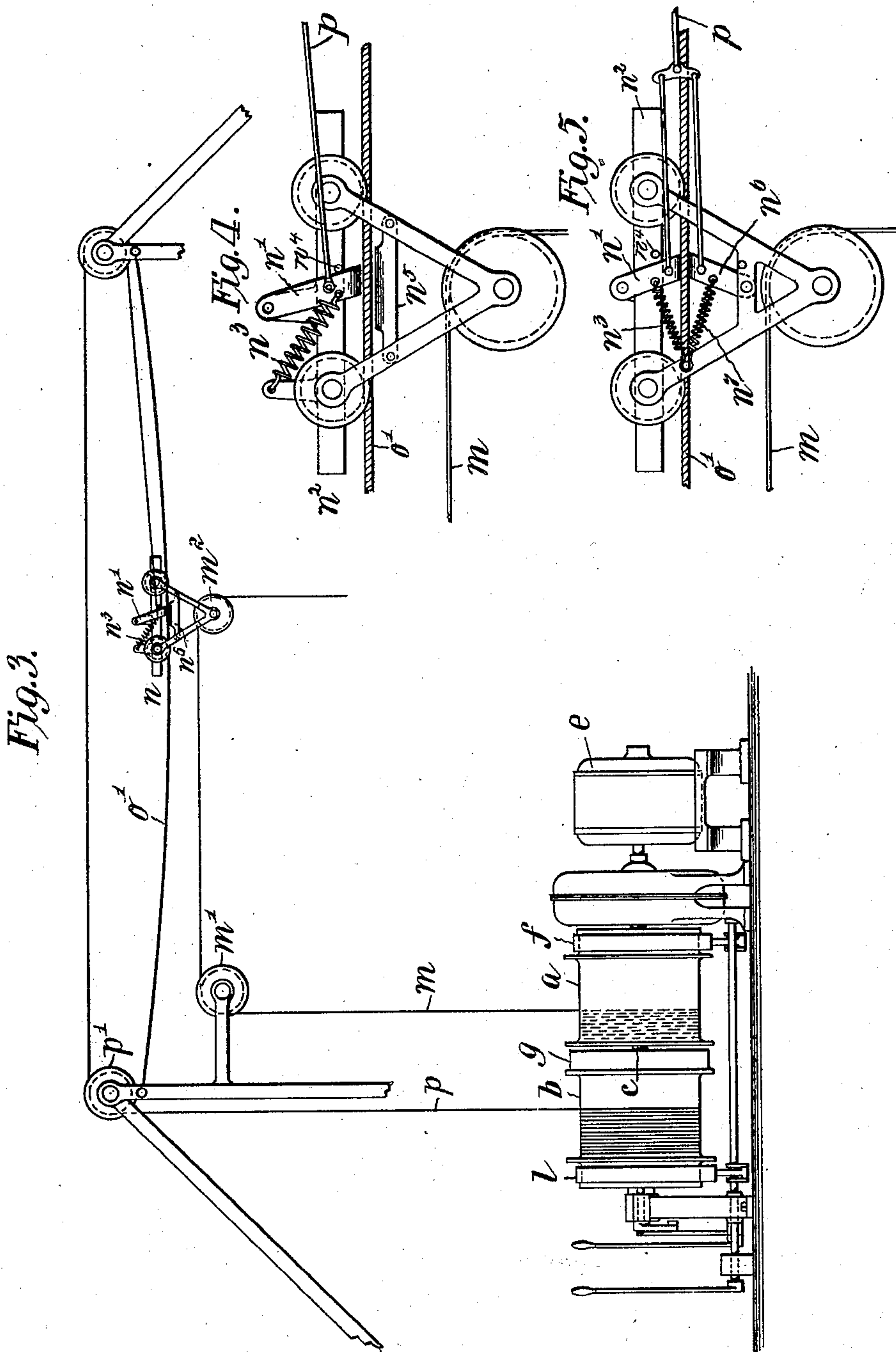
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# UNITED STATES PATENT OFFICE.

CHARLES WALLACE HUNT, OF WEST NEW BRIGHTON, NEW YORK.

## HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 708,713, dated September 9, 1902.

Application filed February 20, 1902. Serial No. 94,874. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES WALLACE HUNT, a citizen of the United States, residing in West New Brighton, borough of Richmond, city of New York, State of New York, have invented certain new and useful Improvements in Hoisting Apparatus, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

In the use of hoisting apparatus of the general character of that shown in Letters Patent of the United States, Nos. 622,366 and 624,811, in which the hoisting rope or ropes run over a guide-sheave which is arranged to be moved on a suitable track or cable or other support for the purpose of translating the load horizontally, it is frequently desirable to hold the trolley stationary upon its support, particularly if such support be inclined. This has been accomplished heretofore by maintaining the trolley rope or ropes under tension; but this method possesses some disadvantages in practical use.

It is therefore the object of this invention to provide means for holding the trolley in any desired position without requiring tension to be maintained on the trolley-ropes.

A further object is to insure the operation of such trolley-holding devices whenever the tension of the trolley-rope is relaxed.

The present improvement in hoisting apparatus is especially useful in connection with hoisting apparatus in which the rope for effecting the translation of the load is attached directly to the trolley itself instead of being carried over a sheave on the trolley to the load, and it is therefore described herein in connection with hoisting apparatus of this kind, although, as will be readily understood, it is not necessarily restricted to the use of such apparatus.

The invention will be more fully described hereinafter with reference to the accompanying drawings, in which for purposes of explanation it is illustrated as embodied in convenient and practical forms, and in which—

Figure 1 is a view, partly in elevation and partly in outline, of so much of a complete structure as is necessary to enable the invention to be understood, the trolley being represented as mounted upon a rigid track or

support and the brake or trolley-holding device as applied to one of the trolley-wheels. Fig. 2 is a detail view, on a larger scale, of the trolley brake or holding device shown in Fig. 1. Fig. 3 is a view similar to Fig. 1, illustrating the application of the improvement to a structure in which the trolley travels on a suspended cable, the brake or holding device being in this instance applied to the cable. Fig. 4 is a detail view, on a larger scale, illustrating the brake or holding device shown in Fig. 3. Fig. 5 is a view similar to Fig. 3, illustrating a slightly-different form of the brake or holding device.

It will be understood that the present invention is not directly concerned with any particular construction and arrangement of hoisting-drums and driving means therefor; but for convenience in explanation of the nature of the invention the arrangement of hoisting-drums and driving means shown in the accompanying drawings will be briefly described.

Two drums *a* and *b* for raising and lowering the load and for effecting the horizontal translation thereof, respectively, are represented as mounted upon a common shaft *c*. The drum *a* may be fixed on the shaft and may be provided with a gear *d*, through which it may be driven with the shaft by a motor *e*, of any suitable character. The drum *a* may also be provided with a brake *f*. The drum *b* is loose on the shaft *c* and may be engaged therewith through a friction-clutch *g*, one member of which is fast on the shaft *c*. A brake *h* is applied to the drum *b*. The hoisting-rope *m*, which is connected to the drum *a*, passes over a suitable guide-sheave *m'* and thence over a sheave *m''* on the trolley *n* and is connected to the load in any suitable manner. The rope *p* for effecting the translation of the load is connected to the drum *b* and is wound thereon in the opposite direction to that in which the hoisting-rope *m* is wound on the drum *a*. From the drum *b* the rope *p* passes over suitable guide-sheaves *p'* and *p''* and exerts its stress upon the trolley through the intermediary of such devices as are hereinafter described.

Thus far the description of the construction and arrangement of the apparatus is applicable alike to the construction shown in Fig.



1 and to the construction shown in Fig. 3. In Fig. 1, however, the support upon which the trolley is arranged to move is represented as a horizontal track  $o$ , while in Fig. 3 it is represented as a cable  $o'$ , suspended upon suitable supports.

As indicated hereinbefore, the brake or trolley-holding device may be arranged in any suitable manner to effect its intended purpose, as for coöperation with one of the wheels of the trolley or with the track or support upon which the trolley travels. As represented in Figs. 1 and 2, it is arranged to coöperate with a wheel of the trolley, being shown as a brake-arm  $n'$ , which is pivoted upon the trolley-frame  $n^2$  and held normally by suitable means, such as a weight or spring  $n^3$ , in such a position as to exert a braking or holding effect upon the trolley-wheel. The rope  $p$  is so arranged with reference to this brake or holding device as to move it against the tension of the spring, and therefore to release the trolley for free movement whenever the rope is put under sufficient tension. This desired relation may be provided for in different ways; but, as shown in Figs. 1 and 2, the rope  $p$  is connected directly to the brake-arm, a stop  $n^4$  being provided for the arm  $n'$ , so that the pull of the rope  $p$  shall be exerted directly on the trolley as soon as the brake or holding device is released. In the arrangement shown in Figs. 3 and 4 the trolley is arranged to travel on a cable  $o'$ , as already described, and in view of the inclination of this trolley-support it is desirable that the brake or holding device shall coöperate directly with the support rather than with one of the trolley-wheels. The brake-arm  $n'$  is pivoted upon the trolley-frame  $n^2$  and is normally held in a direction to perform its function by a spring  $n^3$ , as already described with reference to Figs. 1 and 2. The rope  $p$  may also be connected directly to the brake-arm and a stop  $n^4$  be provided therefor. In this arrangement, however, the brake-arm is arranged to coöperate directly with the support or cable  $o'$ , and for this purpose a shoe  $n^5$  is provided on the trolley-frame, so that the cable or trolley support may be clamped between such shoe and the brake-arm to hold the trolley in the desired position whenever the tension on the rope  $p$  is released. The construction represented in Fig. 5 is similar to that represented in Fig. 4, save that in place of the shoe above described a second brake-arm  $n^6$  is pivoted to the trolley-frame and is made to perform its function by a spring  $n^7$ . The two arms  $n'$  and  $n^6$  are ar-

ranged to clamp the cable between them and may be actuated by the tension of the rope  $p$  to release the cable through any suitable connection, the rope  $p$  being represented in this instance as provided with a second part  $p'$  for connection to such second brake-arm.

The operation of the improved apparatus in any of the forms shown or any other equivalent forms, which will readily suggest themselves, will now be apparent. Whenever the tension of the rope  $p$  is relaxed, as when the load is lowered by the rope  $m$  to the ground or other support, the brake or holding device will immediately perform its function, retaining the trolley in position on its support until such time as the rope  $p$  is again put under tension.

I claim as my invention—

1. In a hoisting apparatus, the combination of a trolley, a support therefor, a hoisting-rope, a rope for effecting movement of the trolley on its support, operating means for said ropes, and a trolley-brake or holding device in operative relation with one of said ropes, substantially as described.

2. In a hoisting apparatus, the combination of a trolley, a support therefor, a hoisting-rope, a rope for effecting movement of the trolley on its support, operating means for said ropes, a trolley-brake or holding-arm in operative relation with one of said ropes, and a spring coöperating with said arm, substantially as described.

3. In a hoisting apparatus, the combination of a trolley, a support therefor, a hoisting-rope, a rope for effecting movement of the trolley on its support, operating means for said ropes, a trolley-brake or holding device having the second-named rope connected thereto, and a spring coöperating with said brake or holding device against the tension of the rope, substantially as described.

4. In a hoisting apparatus, the combination of a trolley, a support therefor, a hoisting-rope, a rope for effecting movement of the trolley on its support, operating means for said ropes, a trolley-brake or holding-arm having the second-named rope connected thereto, and a spring coöperating with said arm against the tension of the rope, substantially as described.

This specification signed and witnessed this 8th day of February, A. D. 1902.

CHARLES WALLACE HUNT.

In presence of—

ANTHONY N. JESBERA,  
M. A. BRAYLEY.