

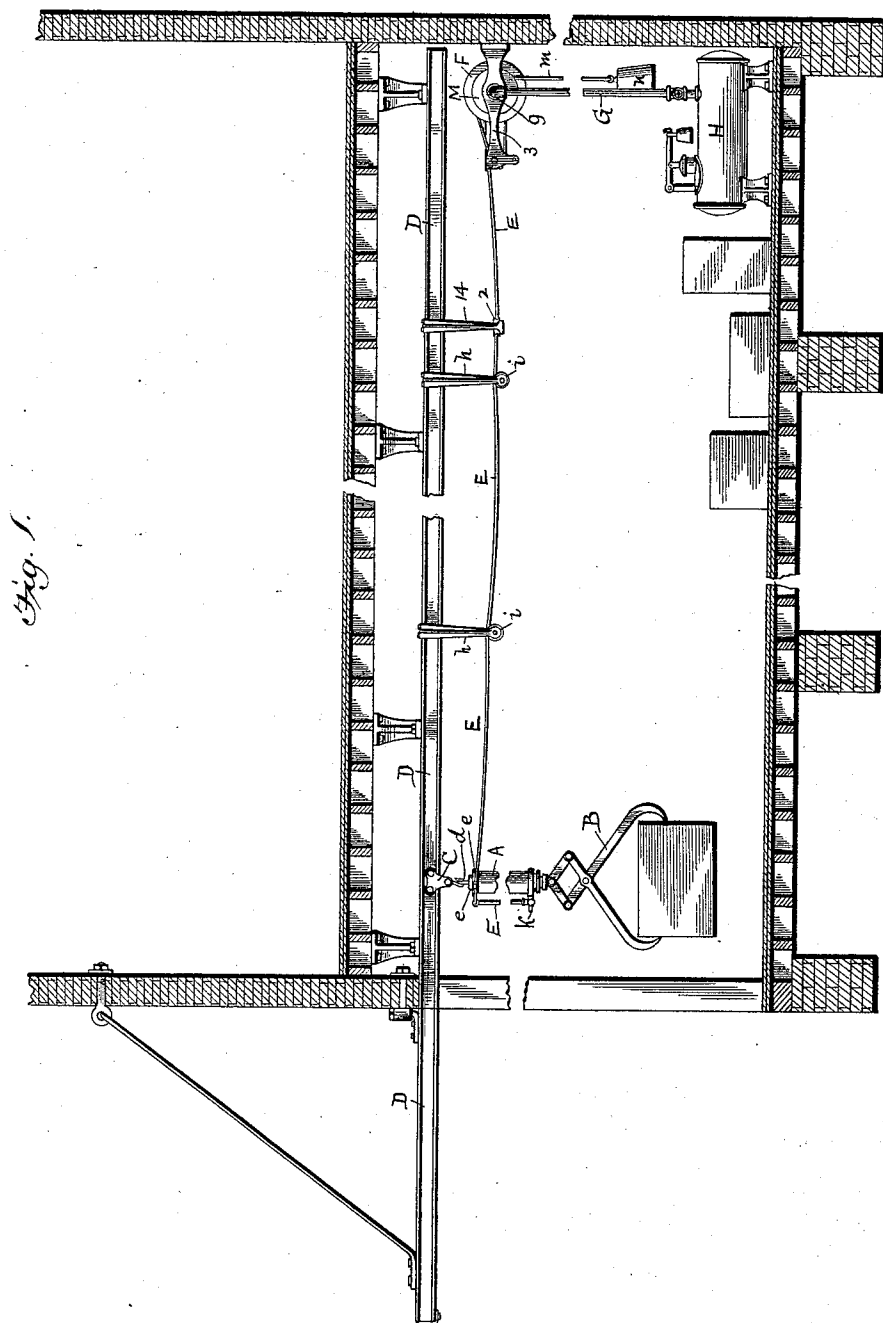
(No Model.)

2 Sheets—Sheet 1.

C. W. NASON.
HOISTING AND CONVEYING APPARATUS.

No. 539,995.

Patented May 28, 1895.



Witnesses

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HOISTING AND CONVEYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 539,995, dated May 28, 1895.

Application filed September 11, 1893. Serial No. 485,296. (No model.)

To all whom it may concern:

Be it known that I, CARLETON W. NASON, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Improvement in Hoisting and Conveying Apparatus, of which the following is a specification.

The aim of this invention is to improve the hoisting and conveying apparatus shown and described in Letters Patent of the United States, granted to me March 24, 1891, and numbered 448,823.

To this end, the invention comprises a hoisting and conveying apparatus, in which a hoisting cylinder is suspended from a carriage, which is adapted to run upon an overhead track, the cylinder being supplied with a fluid under pressure, by means of a flexible tube, which tube passes through suitable guiding mechanism for properly winding it upon, and unwinding it from a rotary drum.

My invention also consists in the improved construction, combinations, and details, as hereinafter set forth, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, I have shown the preferred construction, and have also illustrated a modified form of the winding and guiding mechanism for the flexible tube.

Figure 1 is a vertical sectional view of a building or warehouse provided with my improved hoisting and conveying apparatus. Fig. 2 is a perspective view showing a retractile drum and the mechanism which I have devised for properly winding the flexible tube thereon and unwinding the same therefrom. Fig. 3 is a plan view, partially broken away, which more clearly illustrates the parts shown in Fig. 2. Fig. 4 is a plan view illustrating a modified form of the retractile drum and winding mechanism.

Referring to said figures, it is to be understood that the hoisting apparatus proper consists of a cylinder A operatively connected with any suitable form of grapple B, for taking the package or article, which is to be operated upon.

The cylinder A is provided at its upper end with a hook or eye *d* by which it can be suspended so as to swing freely from the carriage

C, which is arranged to run upon an overhead track D extending along the path in which it is desired to transfer the packages or articles. The carriage C and its track D may be of any desired pattern, the form shown being merely for the purpose of illustration.

Connected to the lower end of the cylinder A is a flexible tube E, which for convenience, is passed through eyes or guides *e* at the upper end of the cylinder, and is wound around a drum F located at a convenient point, and the end of the tube, which is wound upon the drum, is connected to the hollow shaft 10 of the drum, as shown in Fig. 3. The shaft 10 of the drum is connected by means of a suitable packing or stuffing box *g* with a pipe G, which, in turn, communicates with a tank H, in which a volume of air is maintained under suitable pressure, by any ordinary air-compressing apparatus. The pipe E, where it enters the cylinder A, is provided with a suitable valve or cock *k*, by which the air from the tank H can be shut off from, or allowed to enter the cylinder beneath the piston.

As the cylinder is moved along the track, the tube E will be unwound from the drum F, and if the apparatus is moved so as to unwind a considerable length of the tube, I may provide hangers *h* at suitable intervals along the track, having grooved pulleys *i*, which will support the tube, and prevent it from sagging and being in the way. In order to re-wind the tube upon the drum, when the apparatus is again moved toward the drum, the drum is provided with a retractile, by which the tube will be automatically re-wound upon the drum, when the apparatus is moved inward. In its preferred form, this retractile consists of an extension M of the drum F around which is wound a cord *m* provided with a weight *n*, as shown. By this means, as the tube is unwound from the drum F, the weight *n* will be raised, and, as the hoisting apparatus is moved inward, the weight *n* will operate to unwind the cord *m*, and turn the drum F, so as to rewind the tube E upon it.

The parts before described are fully set forth in my patent before referred to.

In order to insure an even winding of the flexible tube E upon the drum F, I have devised the following apparatus:

The brackets 3, supporting the drums F and

M are extended beyond the bearings of the drums, and are connected at their outer ends by a tie-rod 4, which also serves as a guide for the carriage 9, hereinafter described.

5 In the brackets 3 and parallel with the rod 4 is mounted a screw 5, upon the end of which is secured a sprocket-wheel 6, this sprocket-wheel being driven by the chain 7 from a sprocket-wheel 8 mounted on the end of the
10 pipe 10, which forms the axis of the drums F and M, and which is extended through the brackets 3.

Mounted upon the lead-screw 5, and guided by the rod 4 is the reciprocating carriage 9,
15 which carries the guide-rollers 12 and 13.

The flexible tube E is suitably connected to the pipe 10 by means of the screw-coupling 15, through which it passes through an aperture in the drum F. A portion of the
20 tube in operation may be wound in grooves, which are provided for this purpose on the surface of the drum F.

The tube E from the drum F passes between the guide-rollers 12 and 13 carried by the carriage 9, then through the guide rollers 1 and 2
25 carried by the bracket 14, and from this point, the tube E is led over the rollers 1, and is connected to the hoisting cylinder, as shown in my former patent.

30 The sprocket-wheels 6 and 8 and the lead-screw 5 are so proportioned that the carriage 9 is always maintained opposite the groove in the drum F in which the flexible tube E is being wound or unwound, and by means of this construction, the tube is wound smoothly
35 upon the drum, and the possibility of uneven winding, or of kinking the tube, is avoided.

It is to be noted, that while I have shown and described a lead-screw, chain, and sprocket-
40 wheels for gearing the reciprocating carriage to the drum, that I may use any convenient form of gearing for this purpose.

Instead of providing a reciprocating carriage for guiding the flexible tube, while it is
45 being wound upon the drum, it is evident that the tube may be led through a stationary guide, and the drum itself may be moved longitudinally past the guiding point, in order to accomplish the same purpose, and in Fig.
50 4, I have illustrated this modified form of device.

In Fig. 4, the drums F and M are secured fast upon the pipe 15, which is supported by brackets 16 and 17. A screw is cut upon the
55 portion of the pipe 115 at the left of the drum F. This screw-thread engages a nut carried by the bracket 17, and is adapted to move the

drum back and forth, as it is rotated. A pipe 19, somewhat smaller than the pipe 15, suitably packed or fitted to telescopically engage
60 the screw 115 is supported by the bracket 18, and is suitably connected to the pipe G, which leads to the source of fluid supply. The pipe 15 is connected through the drum F to the tube E, in the same manner as the pipe 10 of the
65 preferred form of my invention. The flexible tube E is led from the surface of the drum between the guide-rollers 1 and 2, and is connected to the hoisting cylinder.

Various changes may be made in the details of the device, and I do not wish to be
70 limited to the exact construction, which I have illustrated and described.

What I claim as my invention, and desire to secure by Letters Patent, is—
75

1. In a hoisting and conveying apparatus, the combination of an overhead track, a carriage adapted to travel on said track, a hoisting cylinder carried by said carriage, a source of fluid supply, a flexible tube, a series of vertical
80 guide-rollers 1; the stationary horizontal guide-rollers 1 and 2 journaled in line with the top of said vertical guide-rollers, said rollers being arranged to maintain the flexible tube in line with the overhead track, a drum
85 and a retractile for automatically rewinding said flexible tube, and a reciprocating mechanism for receiving the tube as it passes from between the guide-rollers 1 and 2, and for
90 guiding it as it is wound upon and unwound from said drum, substantially as described.

2. In a hoisting and conveying apparatus, the combination of an overhead track, a traveling carriage, a hoisting cylinder carried by said carriage, a source of fluid supply, a flexible
95 tube, a series of vertical guide rollers, a pair of horizontal guide rollers located near the inner end of the track, and journaled in line with the top of said vertical guide rollers, a drum and a retractile for automatically
100 rewinding said flexible tube, a reciprocating guiding carriage for receiving the tube as it passes from between the horizontal guide-rollers, a lead-screw for actuating said carriage, and a chain and sprocket wheels for
105 gearing together said drum and lead-screw, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CARLETON W. NASON.

Witnesses:

PHIL. W. SOUTHGATE,

WM. J. MYERS.