

No. 708,589.

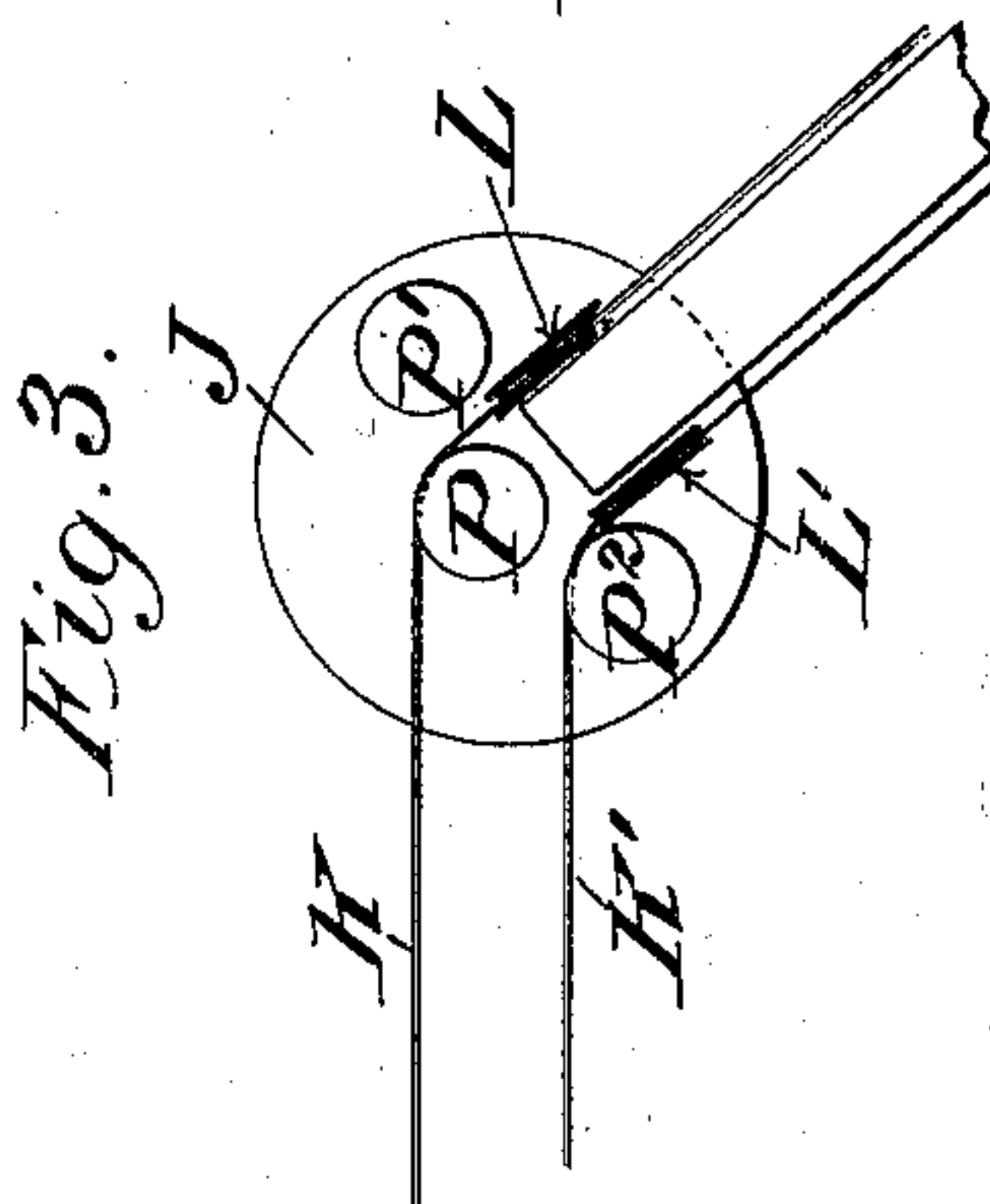
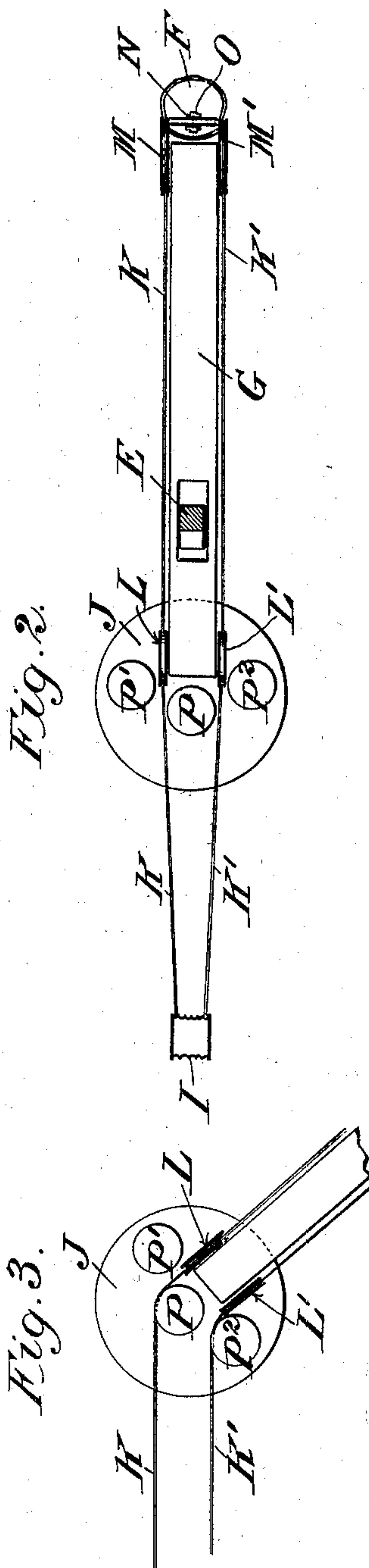
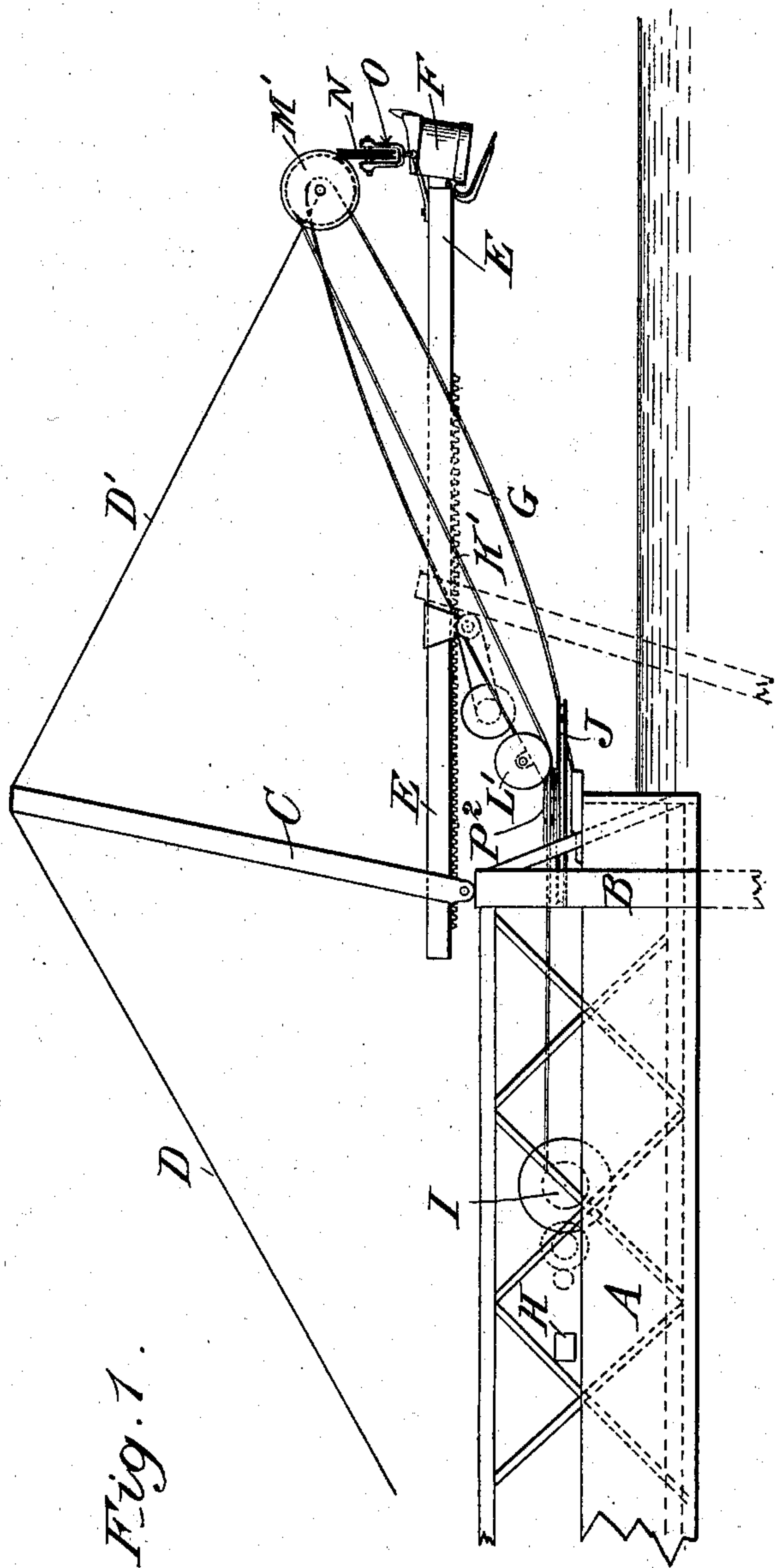
Patented Sept. 9, 1902.

A. W. ROBINSON.

HOISTING GEAR FOR DIPPER BUCKETS FOR USE UPON DREDGES, STEAM SHOVELS, &c.

(Application filed May 20, 1902.)

(No Model.)



Witnesses
Edward C. Rowland
J. M. Donstach

Arthur W. Robinson Inventor
By his Attorney Phillips Abbott.

UNITED STATES PATENT OFFICE.

ARTHUR W. ROBINSON, OF MONTREAL, CANADA.

HOISTING-GEAR FOR DIPPER-BUCKETS FOR USE UPON DREDGES, STEAM-SHOVELS, &c.

SPECIFICATION forming part of Letters Patent No. 708,589, dated September 9, 1902.

Application filed May 20, 1902. Serial No. 108,272. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR W. ROBINSON, a citizen of the Dominion of Canada, and a resident of Montreal, in the Province of Quebec, Dominion of Canada, have invented a certain new and useful Improvement in Hoisting-Gear for Dipper-Buckets Adapted for Use upon Dredges, Steam-Shovels, Derricks, and the Like Structures, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 illustrates the invention in elevation, certain of the parts being diagrammatically illustrated only. Fig. 2 illustrates a plan view of the parts involved in the invention. Fig. 3 illustrates a view similar to that of Fig. 2, the boom being swung to one side, showing the method of engagement of the hoisting chains or ropes with the idlers, whereby they are properly guided and led back to the drum.

A illustrates the hull of the dredge or other suitable support, such as a platform-car or any equivalent structure.

B illustrates a spud whereby the dredge is steadied.

C is the usual A-frame, having stays D D'.

E is the dipper-arm.

F is the dipper.

G is the boom.

H represents an ordinary hoisting-engine suitably geared to an ordinary drum I.

J is the turn-table, to which the boom is connected in any suitable manner.

The above parts may be of any preferred construction.

KK' are the two hoisting-ropes. They both connect at their rear ends with the drum, so that they are both wound and unwound simultaneously. These ropes or the two sections of the same rope extend from the drum forwardly and pass under two guide-sheaves L L', which are suitably mounted on or near the feet of the boom. They thence pass forwardly and over to other guide-sheaves M M', thence under a single sheave N, which is supported in a crotch O, to which is connected the bail of the bucket F, so that when the boom is parallel with the longitudinal axis of the float or other support the hoisting-rope extends directly from the drum under the

grooved guiding-sheaves L L' at the base of the boom, thence over the grooved guiding-sheaves M M' at the extremity of the boom, thence downwardly and under the grooved sheave N, which is attached to the bail of the bucket, whereby perfect equalization in the strain upon the hoisting-rope is effected by such rotation of the sheave N as necessity may require.

In order that the hoisting-ropes may be properly guided and controlled relative to the drum and the sheaves L L', I provide on the turn-table three idlers P, P', and P². The central one, P, is located midway between the two hoisting-ropes K K'. Those marked P' and P² are set to the left and right, respectively, and a little in advance of the central one (marked P) in such manner that when the boom and turn-table are swung to the right, as shown in Fig. 3, the two ropes K and K' will come in contact with the idlers P and P², respectively, whereby they will be properly guided from the drum to the sheaves L and L', respectively, and when the boom is swung in the opposite direction—that is to say, to the left—the hoisting-ropes will in the same way be guided by the idlers P and P'.

It will be noted that under my improvement in hoisting-gear construction a doubled hoisting-rope is employed and that the sheave N, attached to the bucket, affords equalizations between its operative sections, and thereby also the ropes are spread apart, so as to permit of the employment of a solid boom and dipper-arm, if desired, at the same time permitting any other preferred construction of these parts. Also it will be noted that whatever the position of the boom may be relative to the actual line of its support both hoisting-ropes will be accurately and in a simple and effective manner controlled and guided, also that there is no contact between the hoisting-ropes and the idlers P, P', and P² unless the position of the boom is such as to require their use, so that during a considerable part of the operation of the mechanism there is no wear and tear upon the hoisting-ropes or the sheaves nor any friction generated, since the sheaves are called into action only when their function is essential. Also under my invention I employ a single hoisting-rope which is doubled about the sheave

end at the bucket, thus securing the advantages of smaller diameter, and consequently greater flexibility, in the hoisting rope or chain as well as improved appearance and
5 greater efficiency.

It will be obvious to those who are familiar with this art that modifications may be made in the details of construction of my invention without departing from the essentials thereof.
10 I therefore do not limit myself to such details.

Having described my invention, I claim—

1. A hoisting-gear embodying a doubled hoisting-rope and five guiding-sheaves over the turn-table, three of them equally spaced
15 and horizontally arranged, the central one lying between the hoisting-ropes, and two vertically arranged, and a turn-table which directly or indirectly supports all of said sheaves, for the purpose set forth.

20 2. A hoisting-gear embodying a doubled hoisting-rope, a turn-table, three horizontally-disposed and equally-spaced sheaves carried by the turn-table, the central one lying between the hoisting-ropes, two verti-

cally-disposed guiding and supporting sheaves 25 so arranged relative to the first-named sheaves as to guide the ropes to and from them and means for winding up and unwinding said ropes, for the purpose set forth.

3. A hoisting-gear embodying a doubled 30 hoisting-rope and vertically-arranged and horizontally-arranged sheaves for guiding and controlling the direction of the hoisting-ropes, said sheaves being all of them directly or indirectly supported by a turn-table and 35 moving with it, and the horizontal sheaves being equally spaced relative to each other, the central one lying between the hoisting-ropes, a turn-table itself and a sheave at the bucket around which the doubled hoisting- 40 rope passes, for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR W. ROBINSON.

Witnesses:

J. B. ROBINSON,
E. M. CORBET.