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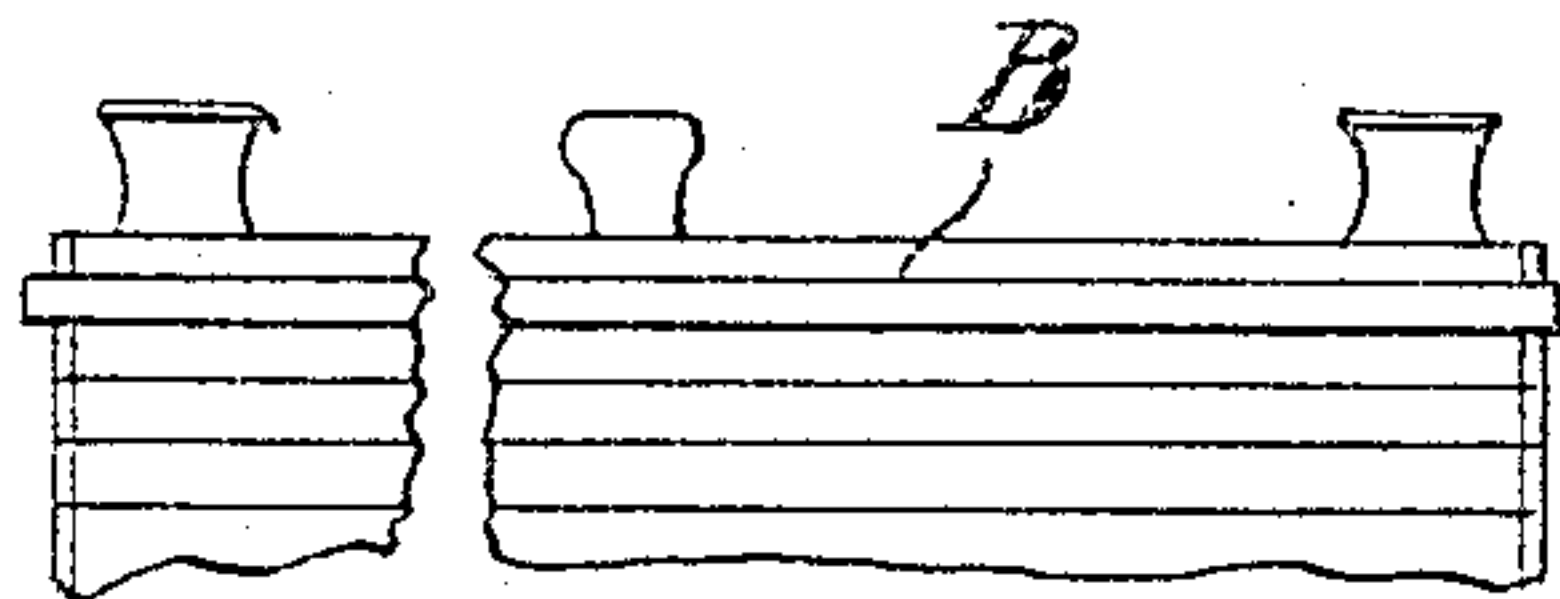
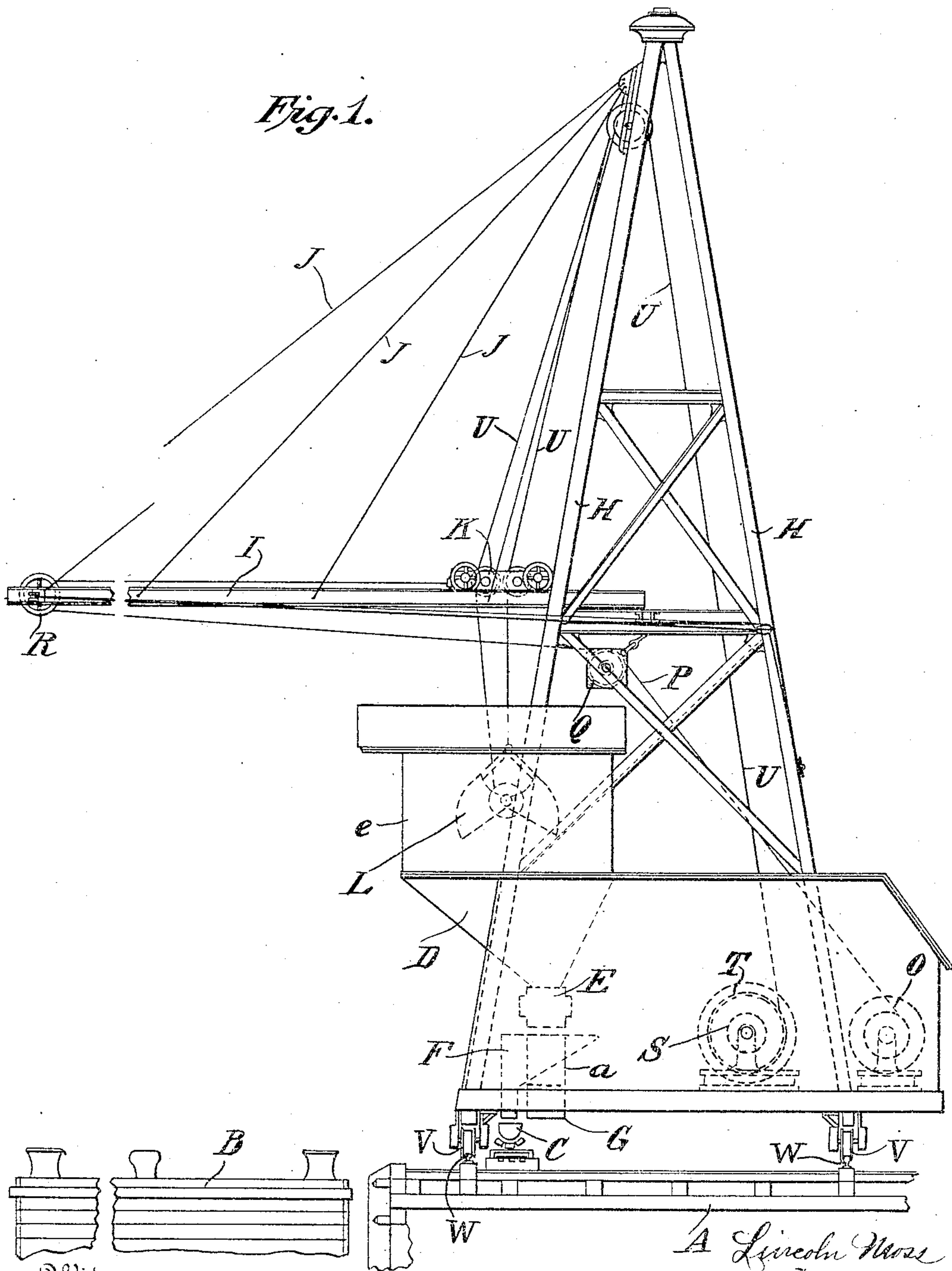
PATENTED DEC. 27, 1904.

L. MOSS.

HOISTING APPARATUS.

APPLICATION FILED MAY 19, 1903. RENEWED DEC. 26, 1903.

4 SHEETS—SHEET 1.



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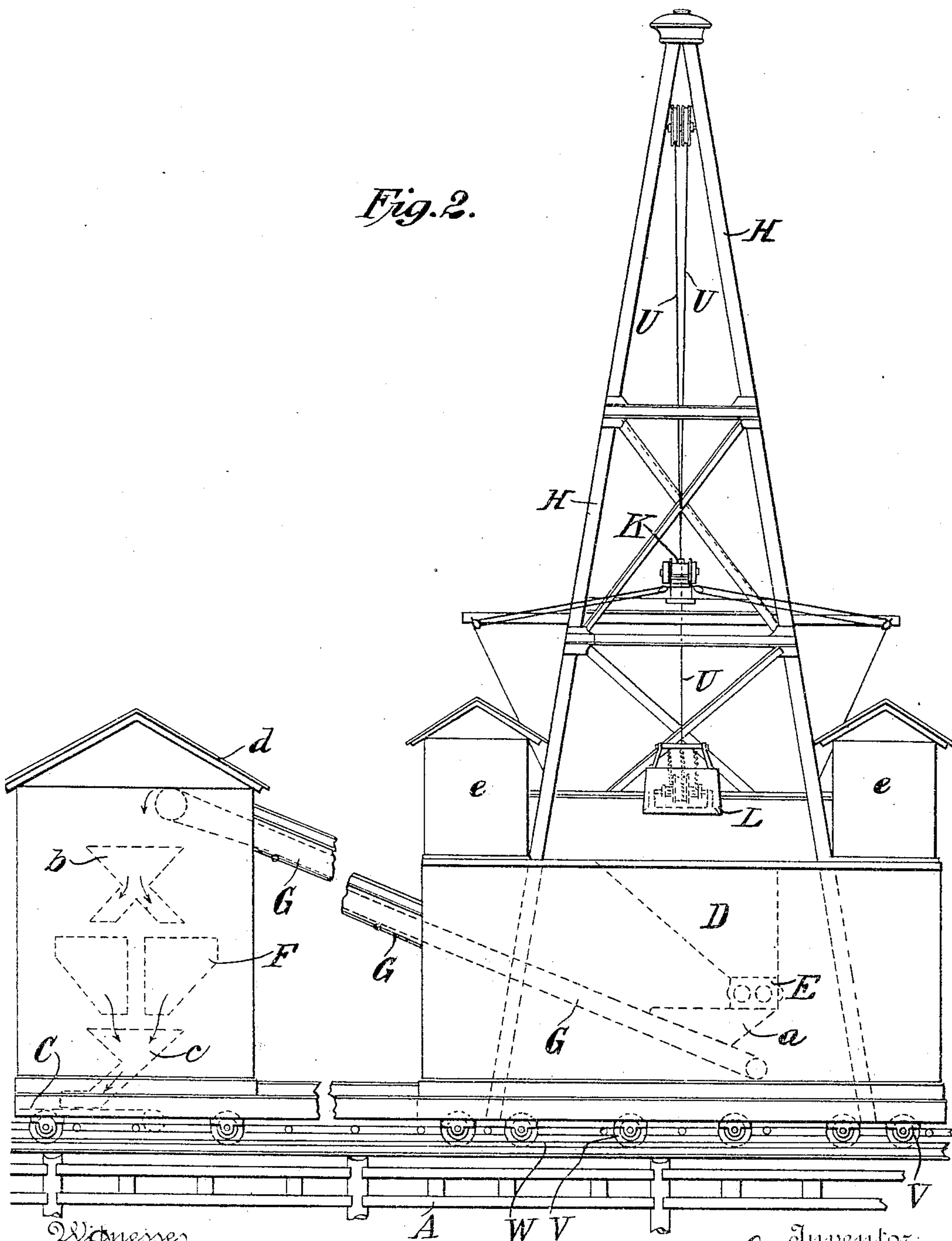
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4 SHEETS—SHEET 2.

Fig. 2.



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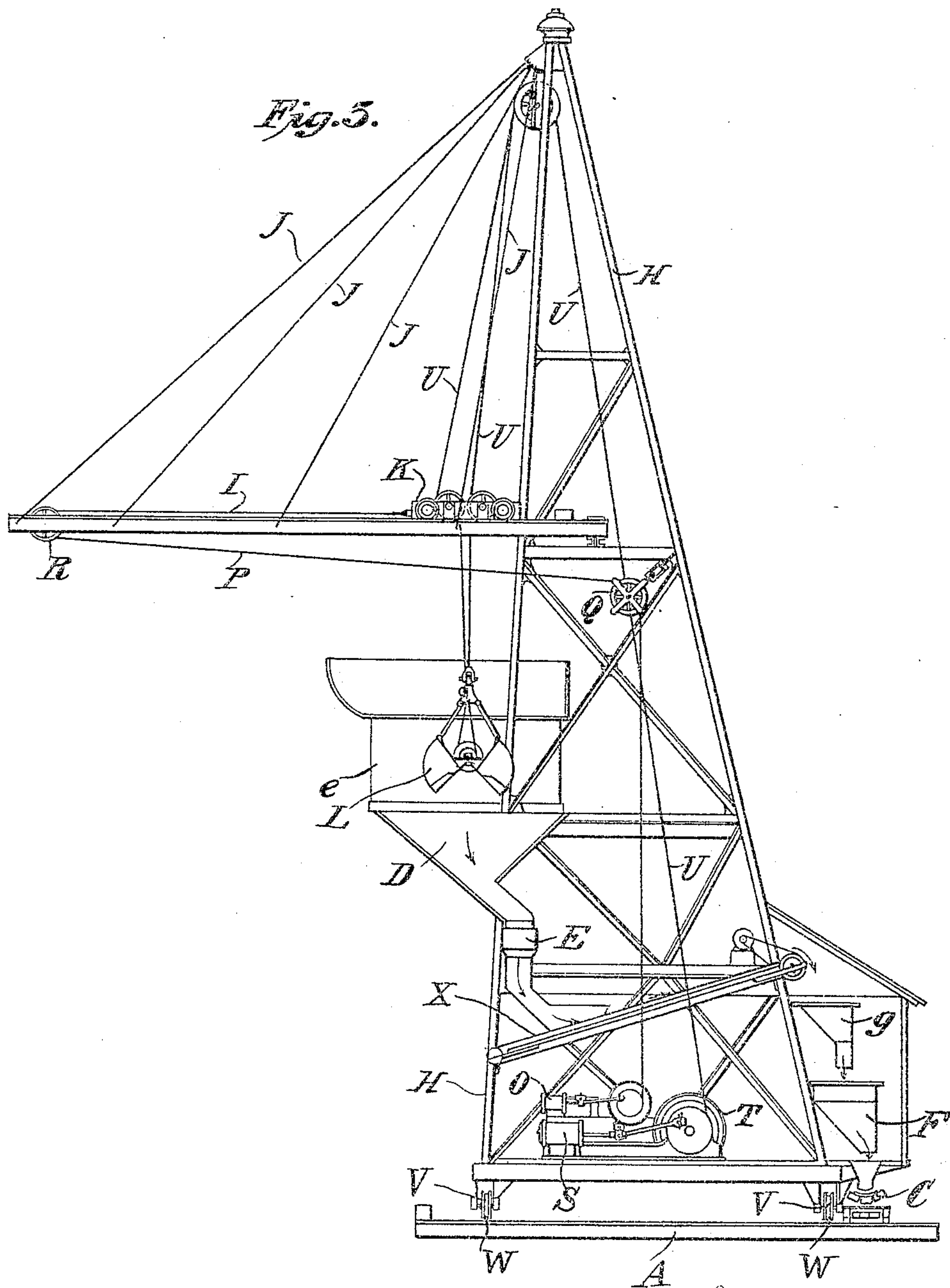
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4 SHEETS--SHEET 3.



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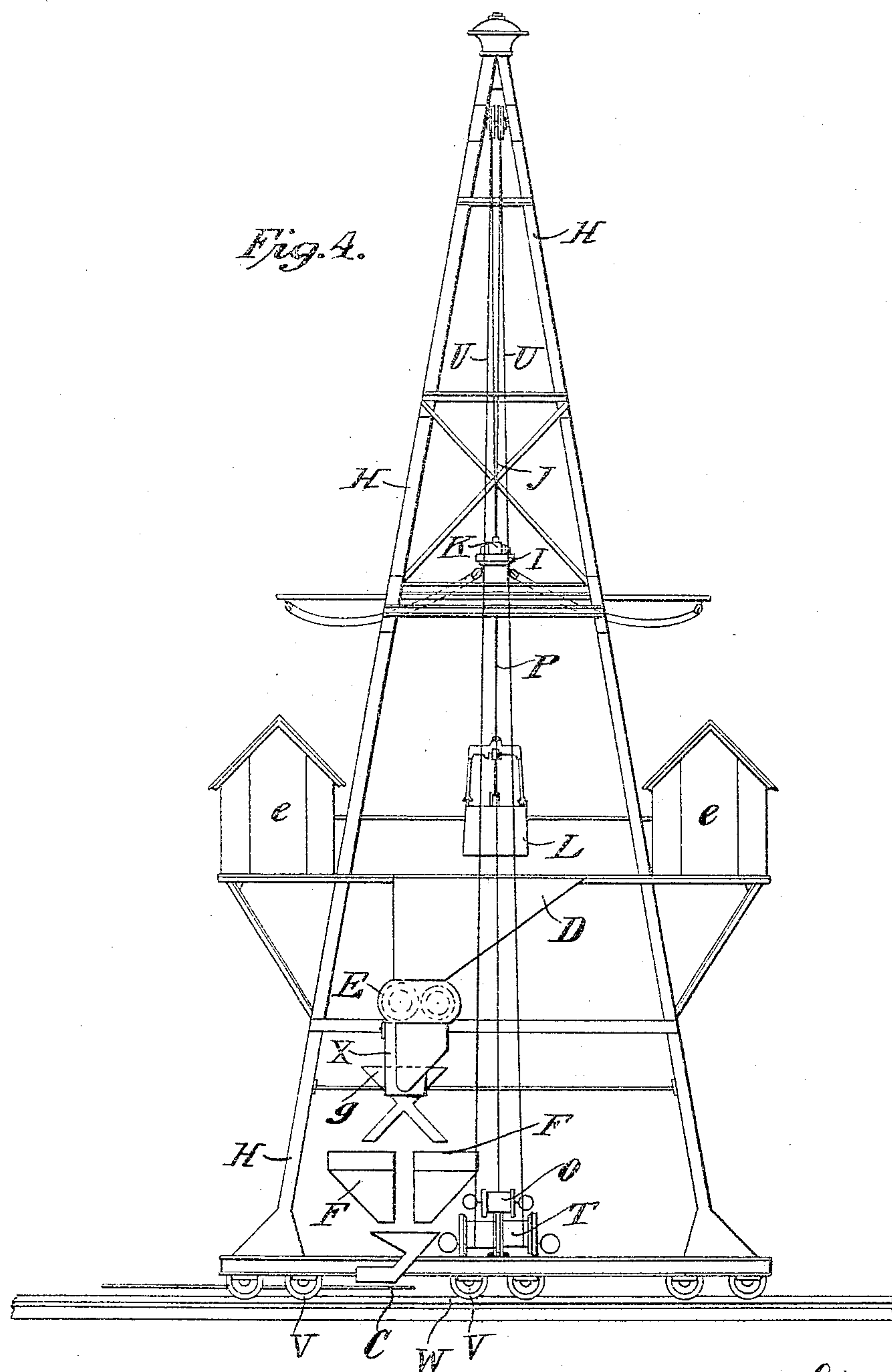
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UNITED STATES PATENT OFFICE.

LINCOLN MOSS, OF NEW YORK, N. Y., ASSIGNOR TO THE ROBINS CONVEYING BELT COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 778,502, dated December 27, 1904.

Application filed May 19, 1903. Renewed December 26, 1903. Serial No. 186,708.

To all whom it may concern:

Be it known that I, LINCOLN MOSS, a citizen of the United States, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Hoisting Apparatus, of which the following is a specification accompanied by drawings.

This invention relates to hoisting apparatus, but more particularly to hoisting-towers; and its objects are to improve upon the construction and operation of such apparatus, enable more work to be done in less time, and reduce the requisite height of the tower heretofore deemed necessary for accomplishing the operations of hoisting.

Further objects of the invention will hereinafter appear; and to these ends the invention consists of apparatus for carrying out the above objects embodying the features of construction, combinations of elements, and arrangement of parts having the general mode of operation, substantially as hereinafter fully described and claimed in this specification and shown in the accompanying drawings, in which—

Figure 1 is a side elevation of apparatus embodying the invention. Fig. 2 is a front elevation of the apparatus. Fig. 3 is a side elevation of a modified form of the invention. Fig. 4 is a front elevation of Fig. 3.

In apparatus of the class referred to the tower is provided with a self-filling bucket or a tub or other carrier, by means of which material is elevated into a receiving-hopper, from which the material passes to a crusher and then to weighing-hoppers before being delivered upon the removing-conveyer or other carrier or vehicle.

Referring to the drawings, A represents a dock or other suitable structure, and B is a vessel or barge to be unloaded, which may contain materials of loose bulk, such as coal, ore, and other materials of like character. The object of the apparatus is to remove the material from the barge or vessel B and deliver it upon the removing-conveyer C, which in this instance is arranged upon the dock A

and extends beneath the tower along the front of the apparatus. In the passage of material from the receiving-hopper D to the removing-conveyer C the ore or coal or other material passes through the crusher E and is weighed in the duplex weighing-hoppers F, represented diagrammatically.

Heretofore in this class of elevators the receiving-hopper, the crusher, and the weighing-hoppers have all been superimposed one above the other, and according to this old construction a tower of excessive height must be provided. It is also necessary to elevate the material by means of the self-filling tub or bucket to an excessive height in order to deposit it in the receiving-hopper. One of the principal objects, as hereinbefore stated, of this invention is to reduce the height of the tower, and this end is accomplished by arranging the weighing-hoppers F at one side of the apparatus, which enables the receiving-hopper D and crusher E to be considerably lowered on the tower, and then a transversely-extending conveyer G or other carrier is arranged to deliver the material from the crusher and elevate it to the weighing-hoppers. In other words, the conveyer G is introduced below the receiving-hopper and crusher and affords provision for transferring the material horizontally to any desired distance while at the same time elevating it.

In the drawings, H represents the framework of a suitable tower, and I is an arm extending outwardly therefrom, supported by the guys J. A carriage K travels along the arm I and carries the self-filling tub or bucket L. The carriage K may be suitably operated, as by means of the motor or engine O, connected by the rope P, passing over the sheaves Q and R to the carriage K. The bucket L is connected to be operated from the engine S, provided with a drum or drums T, over which the ropes U are wound.

The receiving-hopper D is suitably supported upon the frame H of the tower, while the crusher E is shown communicating with the receiving-hopper D. The crusher is shown diagrammatically, and any suitable form of

apparatus may be used. In this instance the whole framework of the tower is supported upon wheels or rollers V, running upon the tracks W on the dock.

5 From the crusher the material is delivered through a hopper *a* upon the transversely-extending conveyer G, which is also shown diagrammatically, and is arranged to elevate the material to the hopper *b*, delivering into the
10 hoppers of the weighing-hoppers F. From the weighing-hoppers the material passes through a hopper *c* and is delivered upon the removing-conveyer C. The weighing-hoppers F are shown diagrammatically within a
15 housing *d*, and housings *e* are provided upon the tower for the operators. According to the construction of auxiliary conveyer C described a saving in height of many feet is obtained in the working lift of the self-filling
20 bucket or other elevating-carrier from that ordinarily required in this class of machinery. In practical operation a reduction of the working height of the apparatus largely increases the daily output, and economy of construction is effected by lessening the height
25 of these towers, which are of necessity very high. The required weight of the various members increases rapidly with the height because of the wind loads. In those cases
30 where fine coal is to be handled the crusher may be omitted, if desired.

Referring to the modification shown in Figs. 3 and 4, the removing-conveyer C, which removes the material hoisted by the tower, is
35 arranged back of the tower and extends along the same. According to this construction it is necessary to convey the material the width of the tower from the front to the back to deliver it into the removing-conveyer C, and ac-
40 cording to the invention an auxiliary conveyer X is arranged extending from the front to the rear of the tower, so that the material delivering into the receiving-hopper D passes through the crusher E and upon the conveyer
45 X, by means of which it is elevated to the hopper *g* for delivering into the duplex weighing-hoppers F. In the ordinary construction the receiving-hopper D would have to be placed a great many feet higher than as shown
50 in the drawings to enable the coal or other material to be chuted across the width of the tower to the conveyer C, which removes the material taken out of the boat. In Figs. 3 and 4, as in Figs. 1 and 2, the crusher, auxiliary conveyer, and duplex weighing-hoppers
55 F are shown diagrammatically for convenience of illustration, it being understood that they are suitably supported from the tower.

Obviously some features of this invention
60 may be used without others, and the invention may be embodied in widely-varying forms.

Therefore, without limiting myself to the construction shown and described nor enumer-

ating equivalents, I claim, and desire to secure 65 by Letters Patent, the following:

1. The combination with a hoisting apparatus comprising a hoisting-bucket and means for operating the same, receiving and discharge hoppers, and an auxiliary carrier ex- 70 tending between said hoppers, of a removing-conveyer independent of said hoisting apparatus and arranged to receive material from said discharge-hopper.

2. A hoisting apparatus, comprising a tower 75 and a bucket for raising the material, with means for operating said bucket, a receiving-hopper for receiving the material from the bucket, a weighing-hopper arranged at one side of said receiving-hopper, a removing- 80 conveyer, and an auxiliary conveyer arranged to receive the material upon the receiving-hopper and deliver it to the weighing-hopper.

3. A hoisting apparatus, comprising a tower 85 and a bucket for raising the material, with means for operating said bucket, a receiving-hopper for receiving the material from the bucket, a removing-conveyer and a weighing-hopper delivering into the same, and an auxiliary conveyer arranged to deliver the mate- 90 rial from the receiving-hopper and elevate it to the weighing-hopper.

4. The combination with a hoisting apparatus comprising a tower, elevating devices carried thereby for raising the material to be han- 95 dled, a hopper to which material is delivered by said elevating devices, an auxiliary elevating device for again elevating the material to a higher level than that of the delivery end of said hopper, and a hopper for receiving the 100 material from said auxiliary elevating device, of a conveyer adjacent to and independent of the hoisting apparatus for receiving the material from the last-mentioned hopper.

5. The combination with a traveling hoist- 105 ing apparatus and a receptacle for the material hoisted mounted for travel with said apparatus, of a conveyer adjacent to and independent of said apparatus, and auxiliary means carried by said hoisting apparatus for 110 transferring material from said receptacle to said conveyer.

6. The combination with a traveling hoist- 105 ing apparatus and a receptacle for the material hoisted carried by said apparatus, of a 115 conveyer adjacent to and independent of said apparatus, and an auxiliary conveyer carried by the hoisting apparatus for transferring the material from said receptacle to said con- 120 conveyer.

7. The combination with a traveling hoist- 105 ing apparatus, a track for said apparatus and a receptacle for material hoisted by the apparatus mounted for travel with the apparatus, 115 of a conveyer arranged near the track and 125 auxiliary means for transferring the material from said receptacle to said conveyer.

8. The combination with a hoisting appa-

5 tus of a receptacle for the material hoisted a weighing apparatus upon substantially the same plane as said receptacle and means for transferring material from said receptacle to said weighing apparatus.

10 9. The combination with a hoisting apparatus of a receptacle for the material hoisted, a weighing apparatus upon substantially the same plane as said receptacle and means for receiving material at the bottom of said receptacle and discharging it into the top of the weighing apparatus.

15 10. The combination with a traveling hoisting apparatus of a receptacle for the material hoisted, a weighing apparatus upon substantially the same plane as said receptacle and means for transferring the material from said receptacle to said weighing apparatus.

20 11. The combination of a hoisting apparatus a receptacle for the material hoisted, a crushing apparatus into which the material

passes from said receptacle a weighing apparatus located upon substantially the same plane as said crushing apparatus and means for transferring the material from said crushing apparatus to said weighing apparatus. 25

12. The combination with a traveling hoisting apparatus of a receptacle carried thereby to receive the material hoisted, weighing apparatus traveling with the hoisting apparatus, 30 a conveyer upon which said weighing apparatus is adapted to discharge at any point in its travel and means for transferring material from said receptacle to said weighing apparatus. 35

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

LINCOLN MOSS.

Witnesses:

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