

No. 750,865.

PATENTED FEB. 2, 1904.

J. J. LAMB & J. M. ADAMS.
COMBINED LOADER AND TRIMMER.
APPLICATION FILED SEPT. 28, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

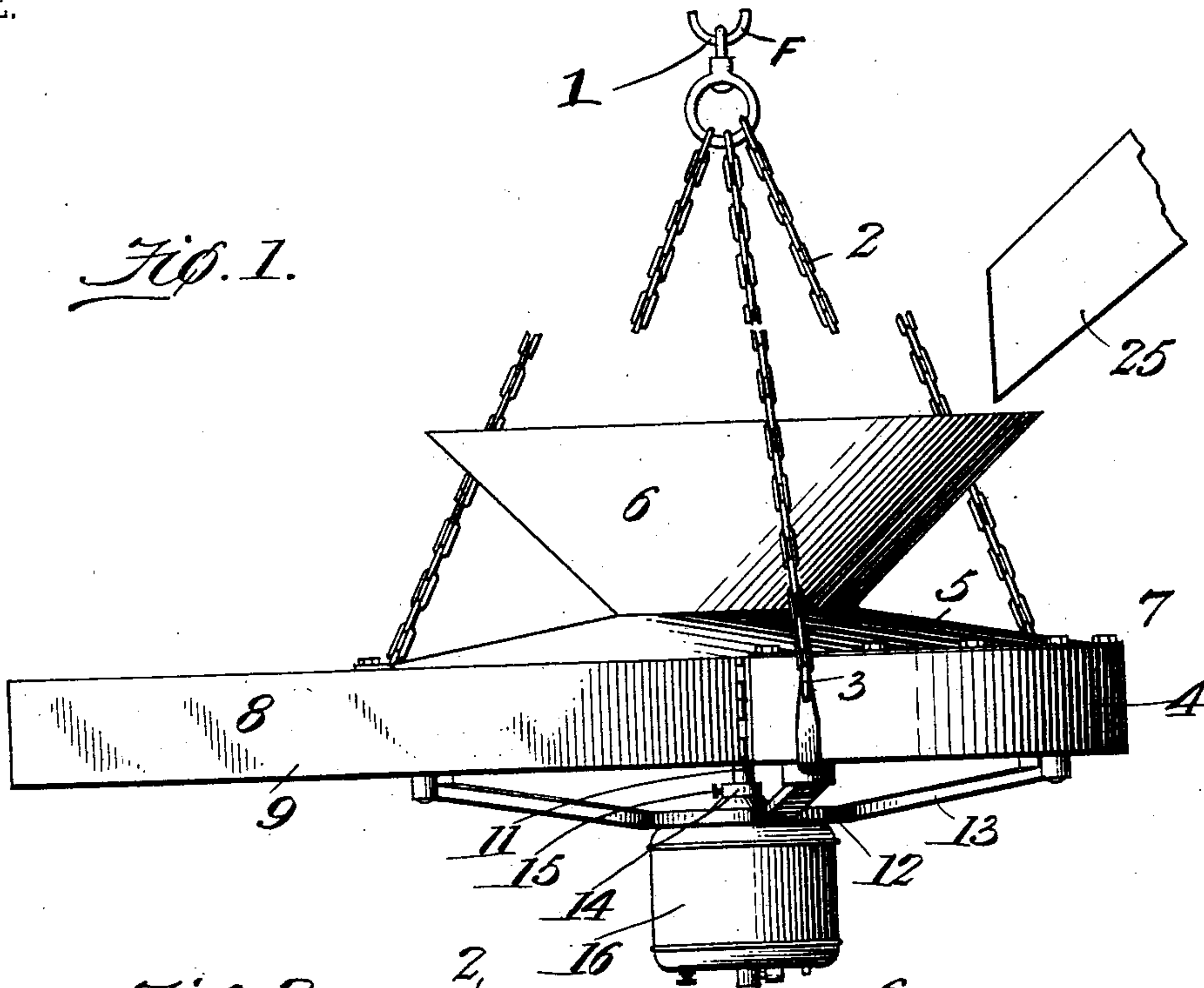


Fig. 2.

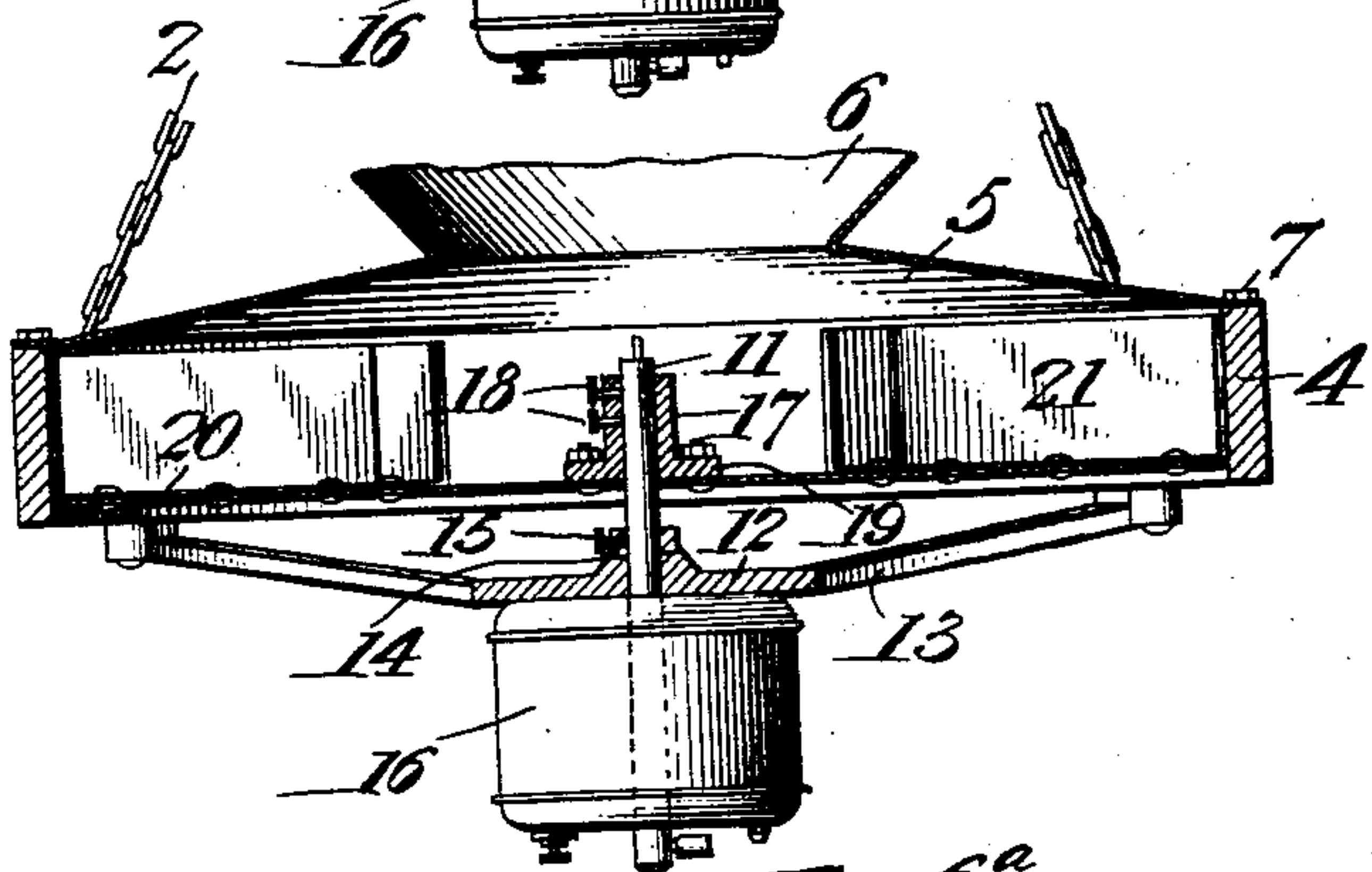
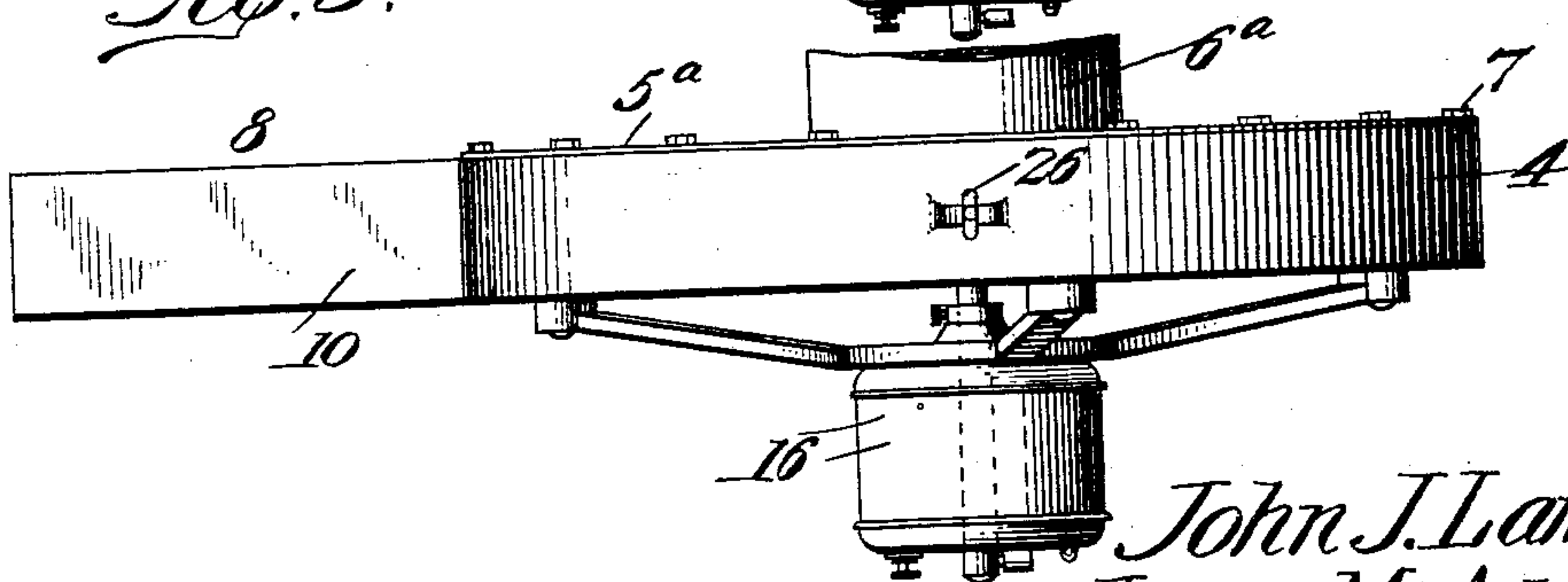


Fig. 5.



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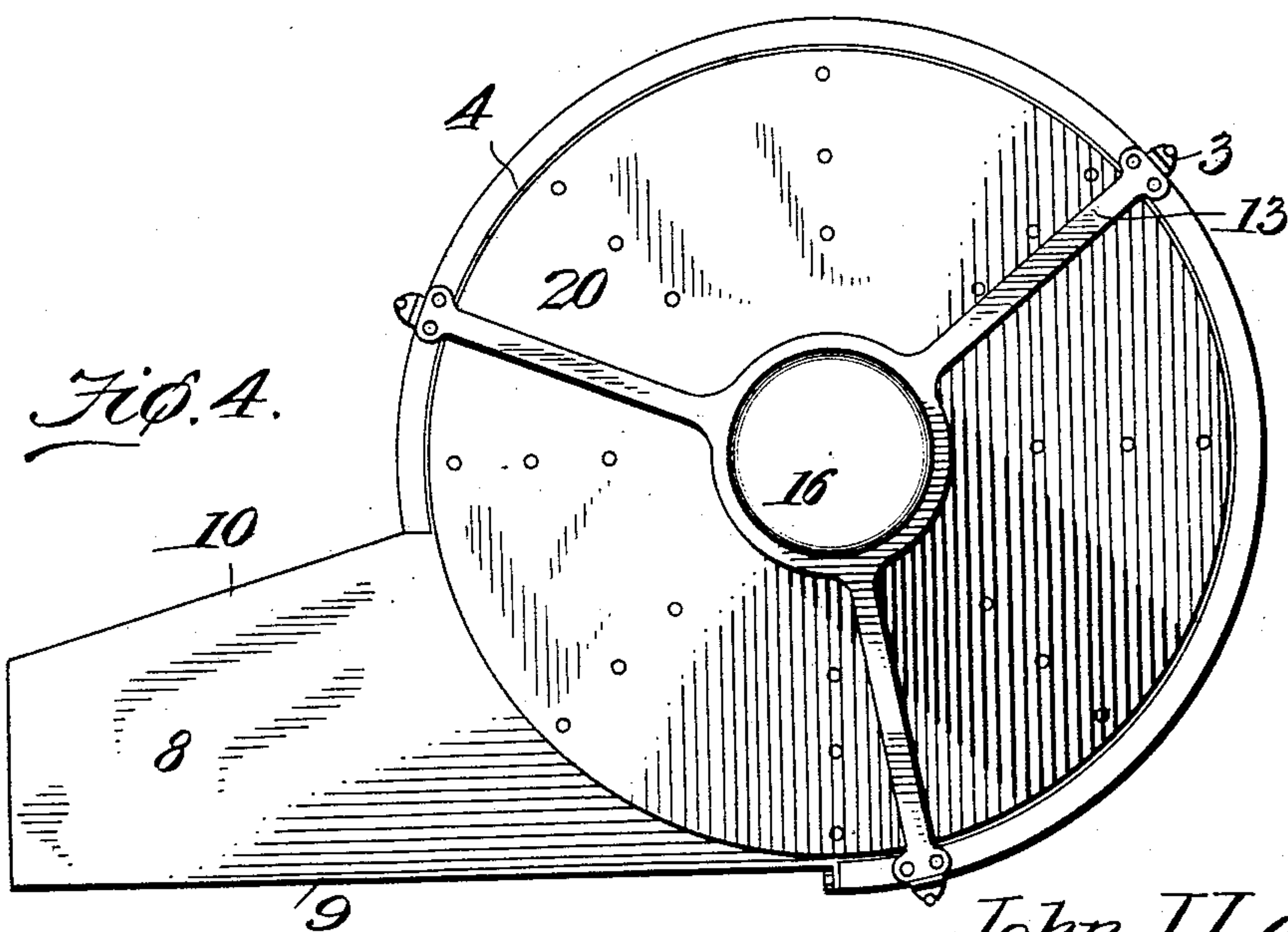
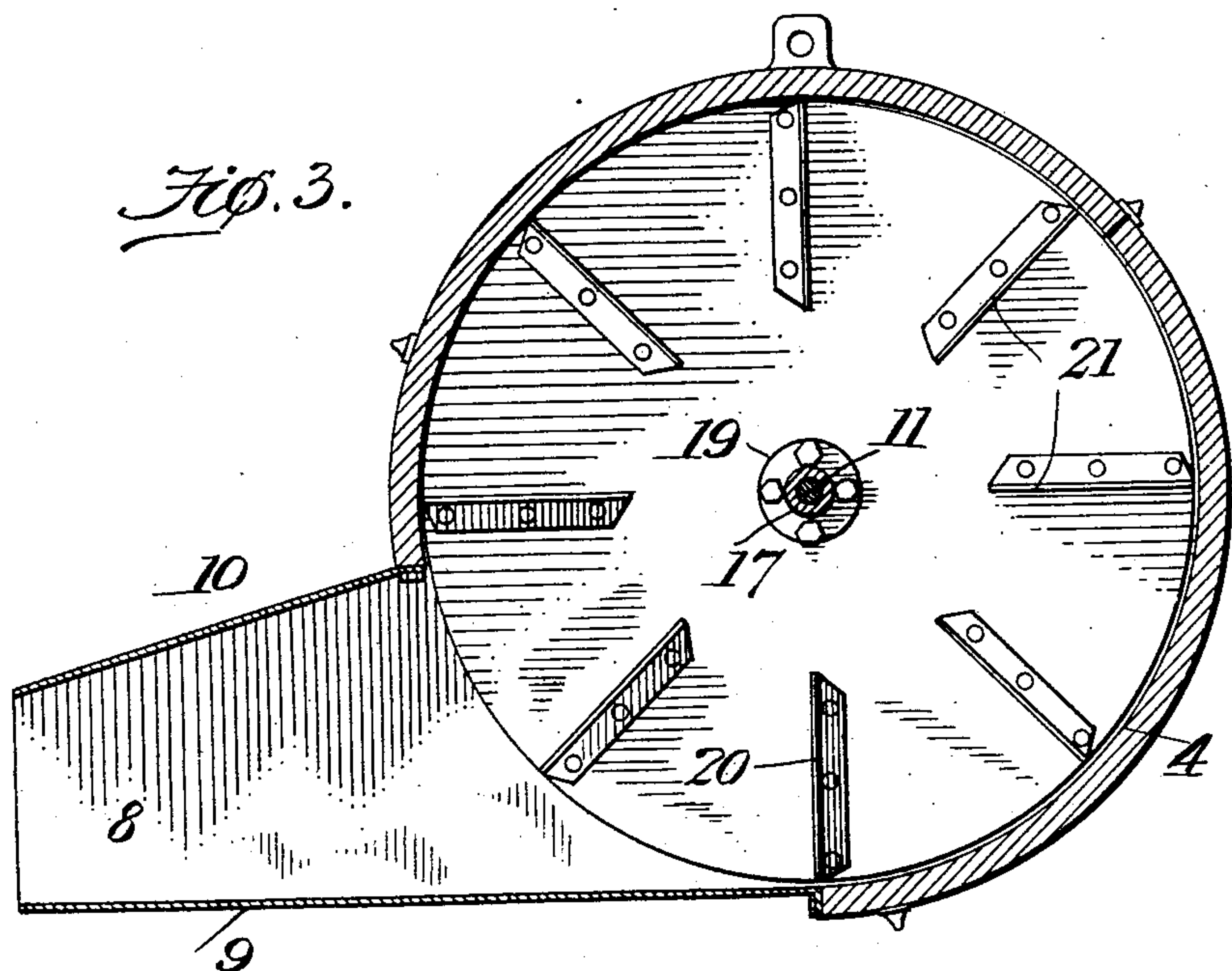
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UNITED STATES PATENT OFFICE.

JOHN JAY LAMB AND JAMES M. ADAMS, OF GALVESTON, TEXAS.

COMBINED LOADER AND TRIMMER.

SPECIFICATION forming part of Letters Patent No. 750,865, dated February 2, 1904.

Application filed September 28, 1903. Serial No. 174,974. (No model.)

To all whom it may concern:

Be it known that we, JOHN JAY LAMB and JAMES M. ADAMS, citizens of the United States, residing at Galveston, in the county of Galveston and State of Texas, have invented a new and useful Combined Loader and Trimmer, of which the following is a specification.

This invention relates to a combined loader and trimmer for use in loading grain or other material of similar character into the holds of vessels, storage-bins, or cars.

The object of the invention is to provide an improved form of mechanism for loading grain or other materials into the holds of vessels or bin-cars in such manner that the load will be evenly distributed throughout the hold of the vessel or "trimmed" to prevent disturbing the equilibrium of the vessel and also obviate excess strain at any point.

A special object of the invention is to provide an improved device of the character specified which may be suspended from a ship's fall or from a beam, rafter, or other convenient support, as circumstances may demand, and may be readily shifted in position or raised and lowered to effect the uniform distribution of the material throughout the space in which it is to be deposited.

A further object of the invention is to provide a device for distributing grain or other material in which the driving mechanism is positively and directly associated with the shaft of the distributing mechanism, so that the distributing mechanism and driving mechanism form a unitary structure and may be moved about within the space to be filled and raised or lowered, as circumstances require.

With the object above mentioned in view and others which will appear when the invention is more fully disclosed the same consists in the construction and arrangement of parts of a combined loader and trimmer, hereinafter fully described, illustrated in the accompanying drawings, and having the novel features thereof specifically pointed out in the appended claims, it being understood that various changes in the construction may be resorted to without departing from the spirit of the invention or sacrificing its advantages.

In the drawings, Figure 1 is a view in side

elevation of the complete device suspended from a fall on a ship within the hold thereof, parts of the suspending-chains being broken away to save space. Fig. 2 is a view in vertical section through the loader and trimmer with the feeding-hopper broken away. Fig. 3 is a plan view of the device with the top of the casing and the hopper removed. Fig. 4 is a reverse plan view, and Fig. 5 is a view of the device with a modified form of hopper to adapt it for suspension in a vertical plane.

Referring to the drawings, in which corresponding parts are designated by similar characters of reference throughout, F designates the fall of a ship's tackle, provided near the end with an eye for the reception of a hook 1, swiveled at the upper end of chains 2. The chains 2 are connected at their lower ends with hooks 3, bolted to the outer wall 4 of a circular casing having an open bottom and a top 5 sloping gradually outward from the bottom of a hopper 6 and secured upon the casing-wall 4 by means of bolts 7. The casing-wall will preferably be formed in sections secured together in any suitable manner and will have at one side a chute 8, having a wall 9 extending tangentially from one end of the casing-wall and having the other wall 10 disposed substantially normal to the casing-wall. Within the casing there is arranged a shaft 11, which is mounted to rotate in bearings 12, supported upon a spider-frame 13, bolted to the under side of the open-bottom casing. The shaft 11 is secured in position by means of a collar 14, attached thereto by a set-screw or other suitable means and extends upward into the casing almost to the top of the side wall 4. The shaft 11 extends below the spider to a sufficient distance to permit the attachment thereto of the rotative elements of a motor 16, preferably driven by electricity, and having the casing thereof rigidly attached to the spider in any suitable manner. Upon the upper end of the shaft 11 there is secured a sleeve 17, adjusted in position by means of clamping-screws 18, which also serve to hold the sleeve in rigid association with the shaft. The sleeve 17 has at the lower end an outwardly-disposed flange 19, to which is bolted a circular plate or disk 20 of such diameter

that its periphery lies just out of contact with the casing-wall, so that the disk serves in lieu of a bottom for the casing. The disk 20 has upon the upper surface thereof a plurality of
 5 radially-arranged blades or fans 21, which may be formed integral therewith or may be riveted thereto, as shown. The blades 21 are spaced at equal intervals, are mounted on radial lines, and in this instance are eight in
 10 number. Their outer ends are so disposed as to barely escape contact with the inner surface of the casing-wall 4, and their inner ends are disposed beneath the line of juncture of the feeding-hopper 6 and the top 5 of the casing.

15 In operating the device as above described power will be imparted to the shaft from the motor and grain or any other material of suitable character to be distributed by means of the apparatus will be fed downward through
 20 the hopper 6 from any suitable apparatus, as a spout 25. The rotation of the disk, with the blades or fans thereon, will throw the grain or other material outward through the chute 8, and by regulating the power of the motor the
 25 distance to which the material will be projected from the apparatus may be varied from any desired minimum up to seventy-five feet or more.

30 By turning the device within the hold of the vessel the chute may be directed toward all the different parts of the hold successively and the grain or other material uniformly distributed within the space to be filled.

35 As the material passes downward through the hopper and descends into the casing it will fall first upon the disk adjacent to the center and will then be impelled outward by the centrifugal action of the rotating disk and the pressure from above of the material, passing
 40 downward through the hopper. This will bring the material into the space between the blades or fans and will cause it to acquire the rotary velocity of the disk, so that it may be impelled outward through the chute at any
 45 desired speed.

50 In order to effect even distribution within an irregular space, the speed of the motor may be varied as the casing is turned to direct the chute toward portions of the space near to or remote from the point of support, or the apparatus may be suspended upon an arm arranged to swing within the space to be filled and may be moved about within the space to effect the equal distribution of the material
 55 thereabove.

60 In Fig. 5 there is shown a slightly-modified form of the device in which the sloping top 5 is replaced by a flat side wall 5^a and the hopper 6 is replaced by a hopper 6^a, having an elbow leading into the opening in the side wall. This modified form of the invention is adapted for suspension in a vertical plane by means of an eye 26, arranged opposite the point of attachment of the chute-wall 9 to the

casing-wall 4 and adapted for engagement 65 with a hook on any suitable support.

In both forms of the invention the ends of the blades or fans are brought as close as possible to the inner surface of the casing-wall, and in the preferred form of the invention 70 the absence of a bottom beneath the disk 20 prevents the possibility of grinding the grain or other material upon the bottom of the apparatus.

75 Having thus described the construction and operation of our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination in apparatus of the class described, of a suspended casing, a shaft rotatably mounted within the casing and having one end extending outside of the casing, a fan rigidly mounted on the shaft within the casing, a chute for the escape of material from the casing, and a motor supported beneath the 85 casing and directly connected with the shaft.

2. The combination in apparatus of the class described, of a casing, a shaft mounted for rotation within the casing and having one end projecting outside thereof, a fan comprising 90 a disk rigidly attached to said shaft, and a plurality of plates mounted on said disk and having their outer ends adjacent to the casing-wall and their inner ends at some distance from the center of the casing, and means for 95 rotating said shaft.

3. The combination with a suspended casing, of a spider-frame rigidly mounted on the exterior of said casing, a shaft rotatably mounted in said spider-frame and having one 100 end disposed within the casing and the other disposed external thereto, a fan rigidly mounted on the end of the shaft within the casing, a chute for the discharge of material from the casing, and a motor supported beneath the 105 casing and directly connected with the shaft.

4. The combination in apparatus of the class described, of a freely-swinging supporting-frame, a shaft journaled therein, a distributing mechanism mounted on said shaft and 110 comprising a disk rigidly secured to the shaft, and a plurality of blades mounted on the disk, and a motor supported beneath the frame and rigidly connected with the shaft.

5. The combination in apparatus of the class 115 described, of a freely-swinging supporting-frame, a shaft journaled therein, a distributing mechanism rigidly mounted on one end of the shaft and a motor supported beneath the frame and directly connected with the 120 other end of the shaft.

6. The combination in apparatus of the class described, of an open-bottom casing, a shaft supported in said casing and having one end projecting outside the casing, a chute for the 125 escape of material from the casing, a disk rigidly mounted on said shaft and having its periphery disposed so as to barely escape con-

tact with the inner wall of said casing, blades arranged upon said disk, and means for driving said shaft.

5 7. The combination in apparatus of the class described, of an open-bottom casing, a shaft rotatably supported within said casing, a disk mounted on said shaft at the bottom of said casing and having its periphery so disposed as to barely escape contact with said casing-wall, blades mounted on said casing having their outer ends disposed adjacent to said casing-wall and their inner ends at a distance from the center of said disk, and means for imparting motion to said shaft.

15 8. The combination in apparatus of the class described, of a casing, a distributor mechanism arranged within said casing, a hopper to feed material into said casing, a motor directly connected with said distributor mechanism, motor-supporting devices mounted on said casing, and means at the periphery of said casing for suspending said casing from an overhead support.

9. The combination in apparatus of the class described, of a centrifugal distributor mechanism, means for imparting rotative movement to said distributor mechanism, and means for suspending said distributor mechanism from an overhead support for free swinging movement.

10. The combination in apparatus of the class described, of a centrifugal distributor mechanism, means for imparting rotative movement to said distributor mechanism, and swiveled means for suspending said distributor mechanism for swinging movement beneath an overhead support.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

JOHN JAY LAMB.
JAMES M. ADAMS.

Witnesses:

H. L. CHAPMAN,
THEO SCHWARZBACH.