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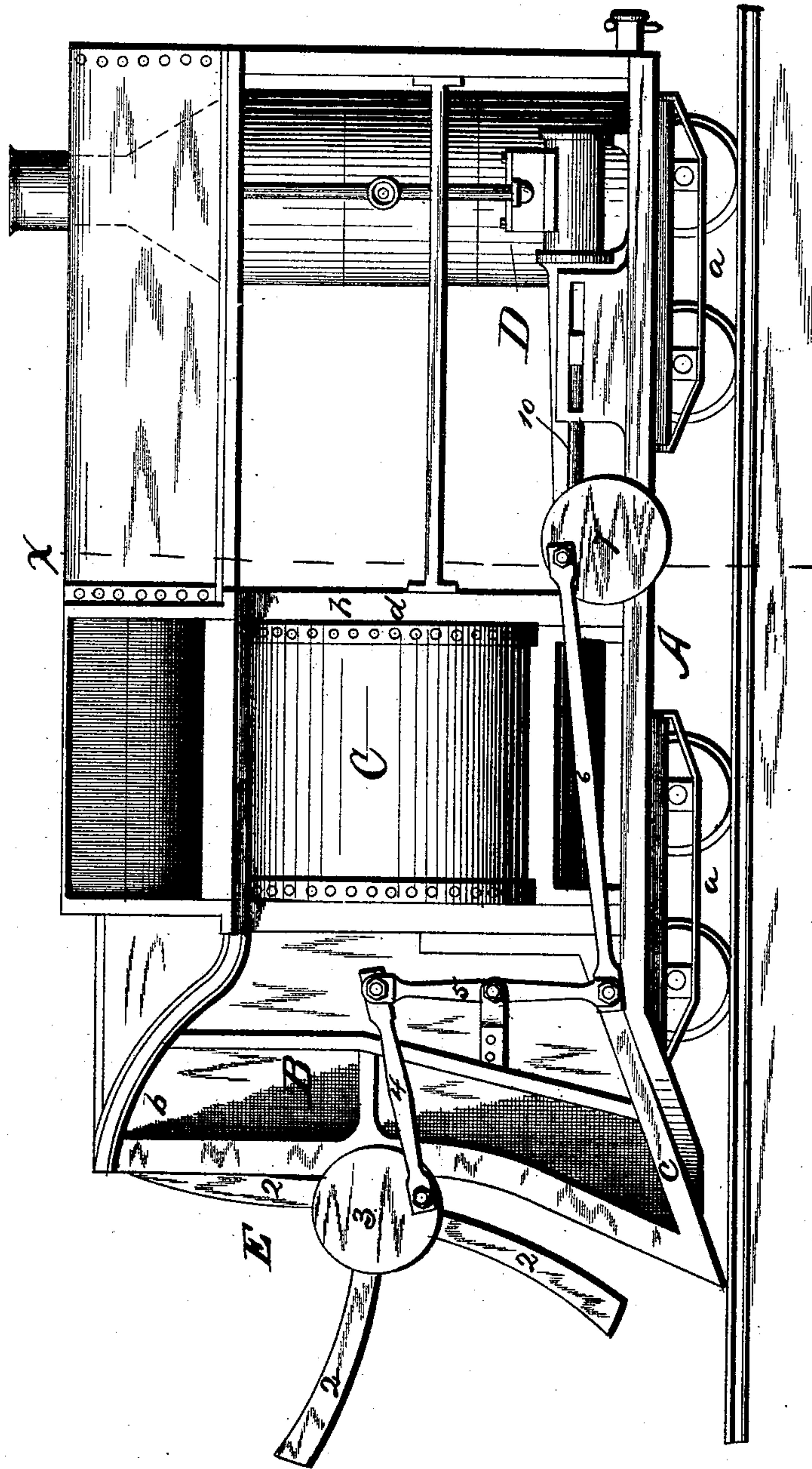
4 Sheets—Sheet 1.

J. M. BOUCK.  
SNOW PLOW.

No. 437,416.

Patented Sept. 30, 1890.

*Fig. 1.*



Witnesses

*H. P. Demson*

*F. L. Demson*

*John M. Bouck* Inventor

*By his Attorneys*  
*Smith & Demson*

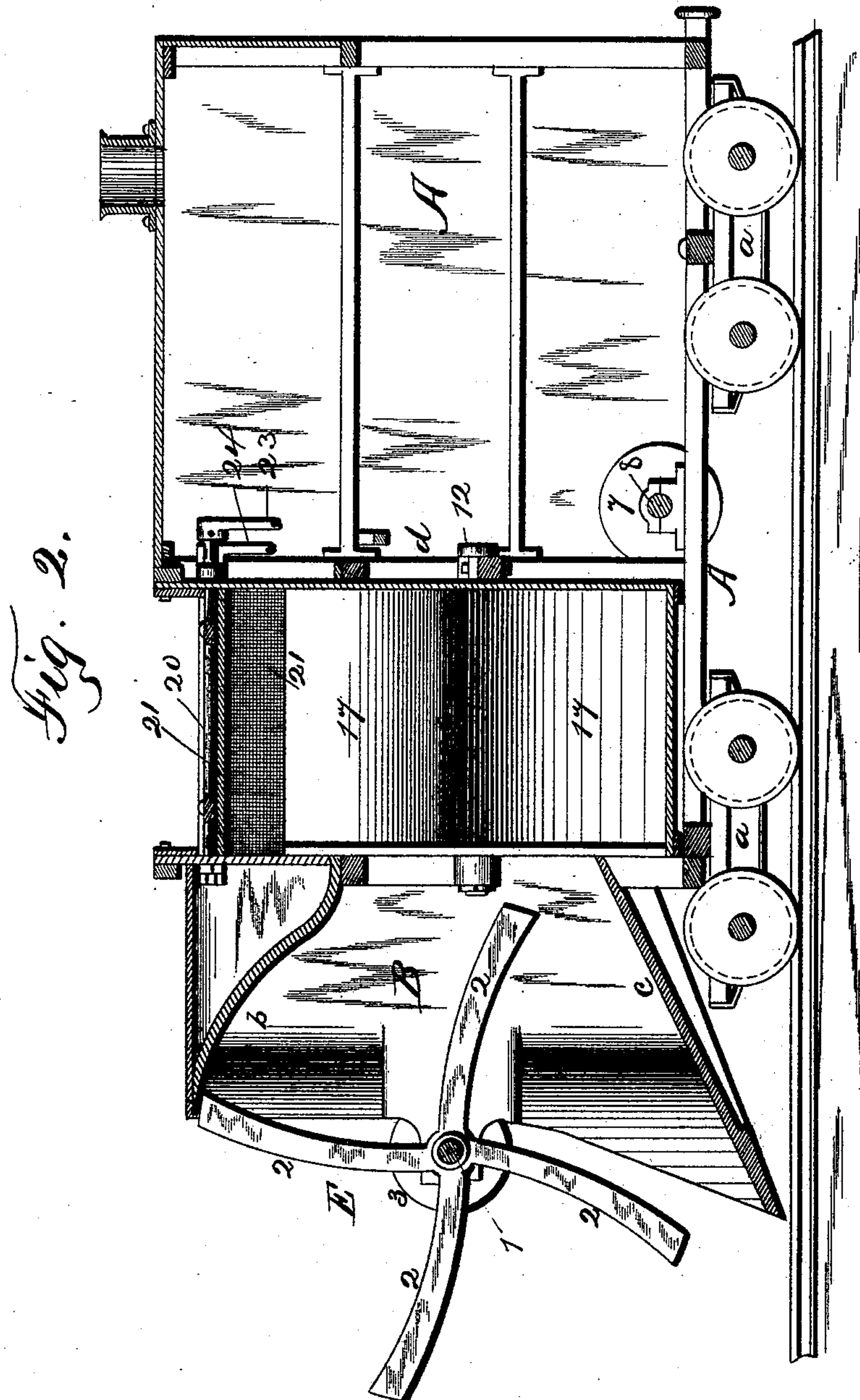
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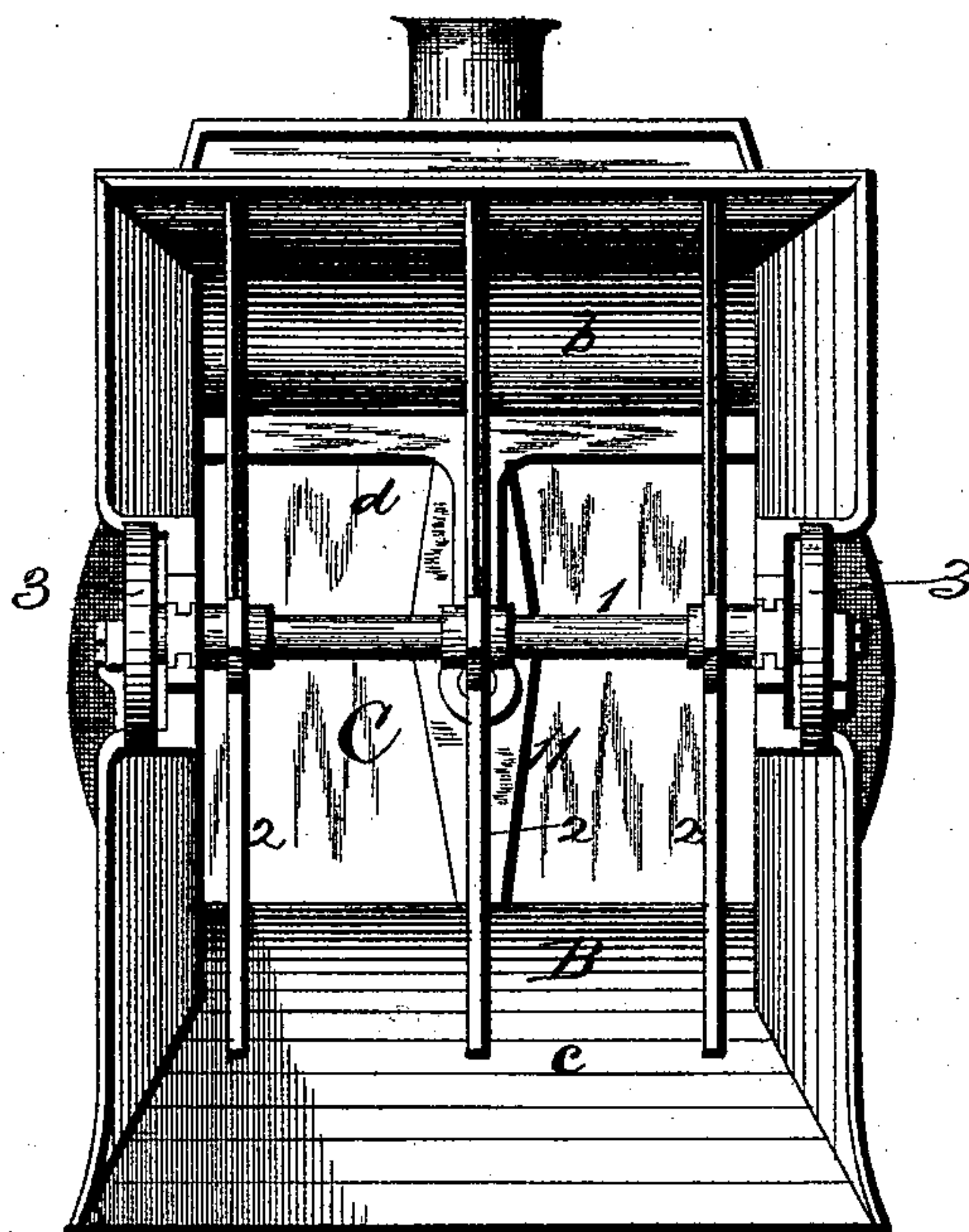
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*Fig. 3.*



*Fig. 6.*

Witnesses

*W. P. Dunsow*  
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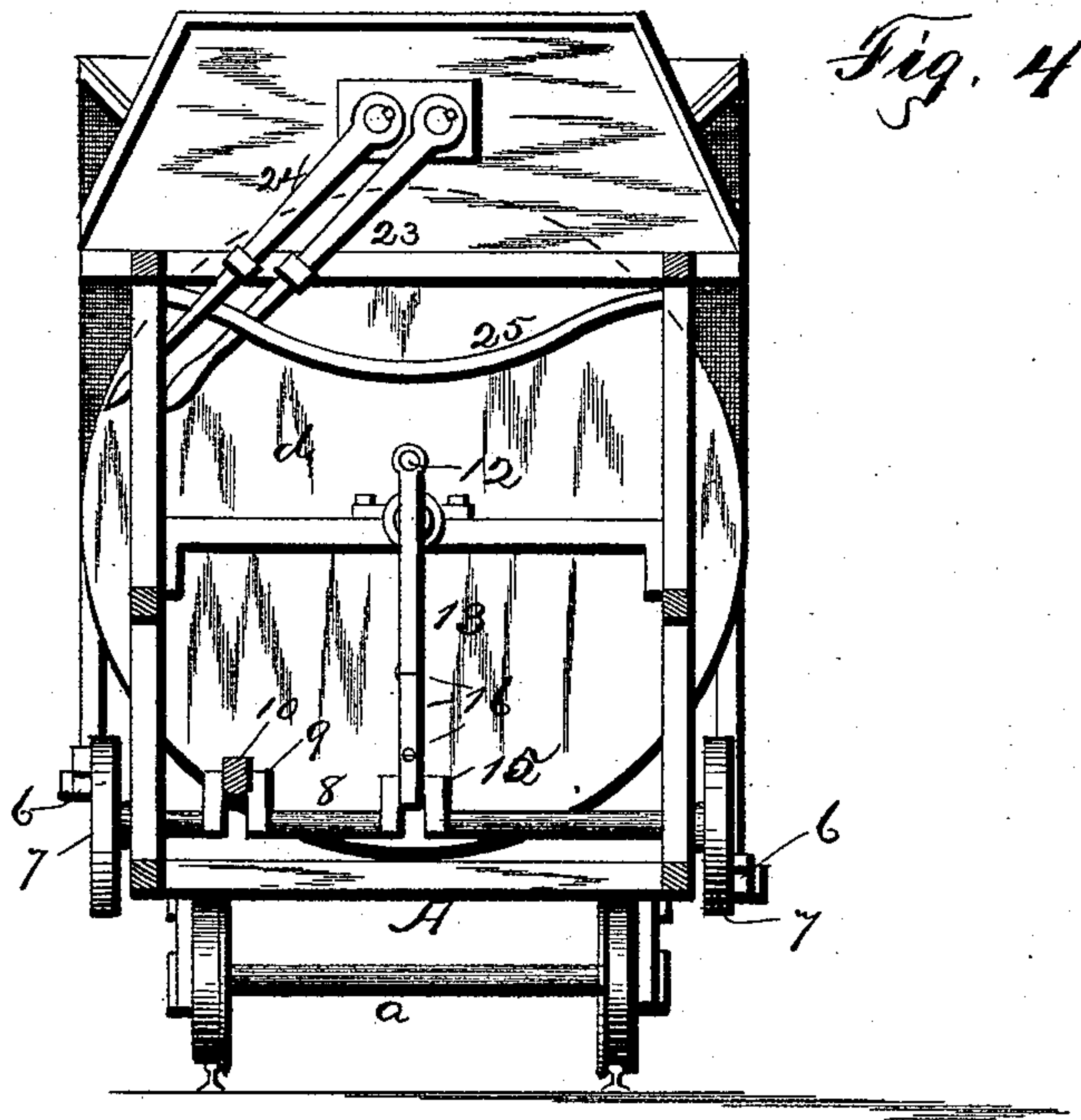
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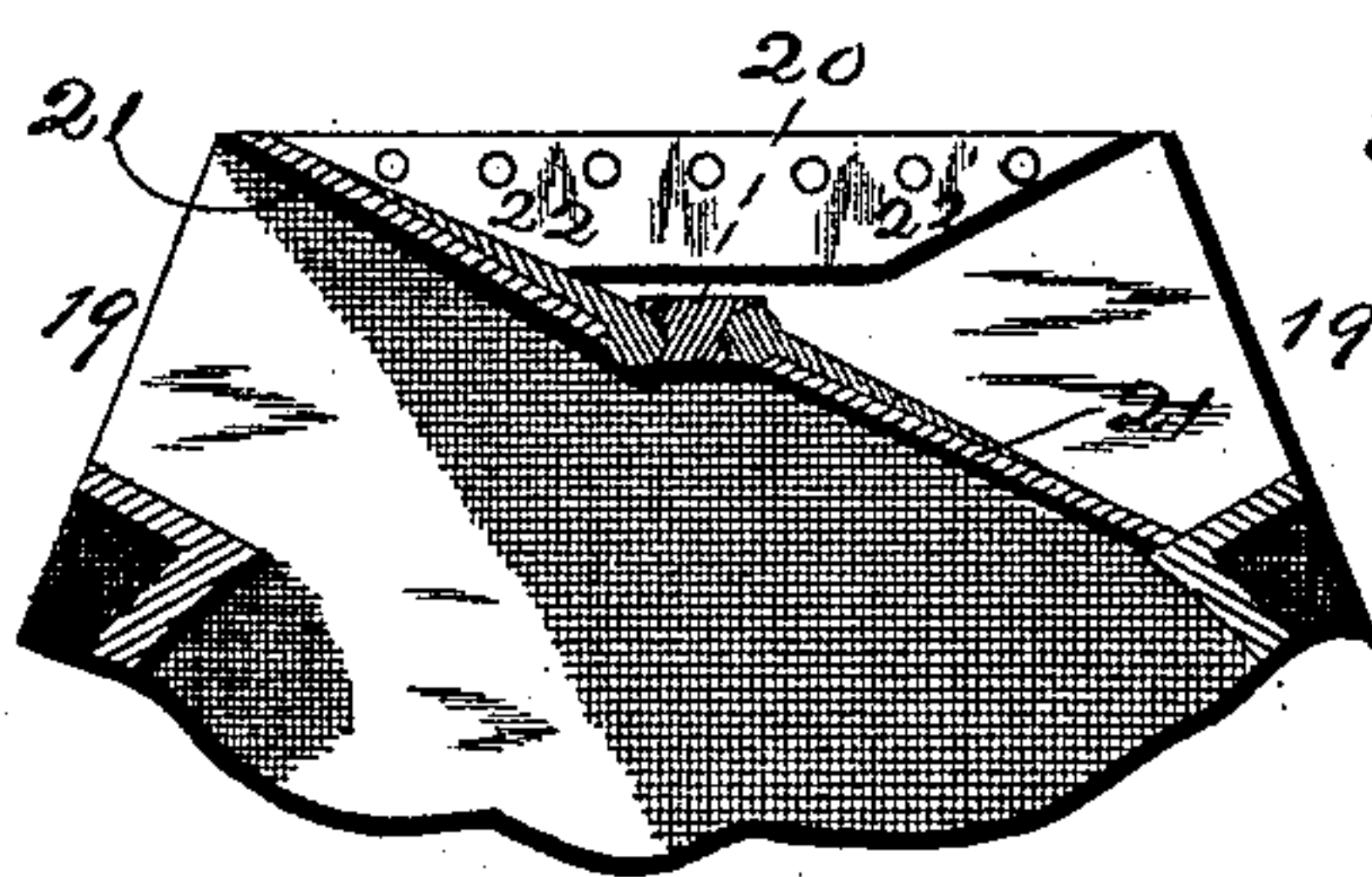
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*Fig. 4*



*Fig. 5.*

Witnesses

H. P. Denison  
T. T. Denison.

*John M. Bouck* Inventor

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# UNITED STATES PATENT OFFICE.

JOHN M. BOUCK, OF GOUVERNEUR, NEW YORK.

## SNOW-PLOW.

SPECIFICATION forming part of Letters Patent No. 437,416, dated September 30, 1890.

Application filed December 18, 1889. Serial No. 334,162. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN M. BOUCK, of Gouverneur, in the county of St. Lawrence, in the State of New York, have invented new and useful Improvements in Snow-Plows, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to railroad snow-plows, and especially to that class in which the snow after being broken up is taken into the machine and ejected therefrom by means of a rotating fan and thrown onto both sides of the track or to either side, as may be desired, the whole being mounted upon trucks and adapted to be driven in front of a locomotive, and being also provided with a separate boiler and engine to rotate the knives or other means for breaking up the snow and to rotate the fan at a high speed, so as to forcibly eject the snow and throw it far away.

My object is to provide an improved snow-plow adapted to thoroughly break up drifts when packed and hard, to take the same into the throat and into a fan-chamber, from which it is forcibly ejected by a rapidly-revolving fan to both sides of the track at once or to either side, at the will of the operator, by means of regulating-gates operated from within the body of the plow, which close the discharge-openings in the upper part, said gates operating as deflectors, as they form the top of the discharge-throat when opened and can be set at any angle desired.

My invention consists in the several novel features of construction and operation hereinafter fully described, and which are specifically set forth in the claims hereunto annexed. It is constructed as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation with a side of the rear casing removed. Fig. 2 is a vertical longitudinal section with boiler and engine omitted. Fig. 3 is a front elevation. Fig. 4 is a vertical transverse section on line  $xx$  in Fig. 1. Fig. 5 is a sectional detail of the discharge-throats and of the gates operated to open or close them. Fig. 6 is an end elevation of a two-bladed fan.

A is the main frame, mounted in the ordinary way upon the trucks  $a a$  and carrying

upon its front a throat B, provided with vertical sides and inclined and converging top  $b$  and bottom  $c$ . This throat opens rearward into the fan-chamber C, which is also the snow-receiving chamber. In rear of this is a vertical transverse partition  $d$ , constituting the rear wall of the fan-chamber. In rear of this partition the machine is inclosed in any ordinary manner and adapted to receive and carry the boiler and engine D.

E is the snow-cutter, consisting of a central shaft 1, mounted in the sides of the throat and at the front, and provided with knives 2, rotating therefrom. Upon either end or on both ends of this shaft I secure a pitman crank-wheel 3, which is connected back to the engine by the pitman 4, lever 5, and connecting-rod 6, which last is connected to the crank-wheel 7 upon the transverse shaft 8, provided with a crank 9, to which the piston-rod 10 of the engine is connected.

I mount the fan 11 upon a shaft extending across the chamber C and longitudinally to the plow, and upon its rear end behind the partition  $d$ , I secure a crank-arm 12, and 13 is a crank-rod connected to the crank-arm at one end and to the crank 15 in the shaft 8, and it is hinged at 16 in order to transmit the rotation of the shaft 8 to the fan-shaft, which stands at a right angle thereto; or in place of the hinge a ball-and-socket joint of ordinary construction can be used upon the ends of this pitman adjacent to the crank. This is illustrated here as one method of transmitting this power to rotate the fan; but I do not limit myself to this precise means, as there are many others well known to mechanics for doing this.

The fan consists of a central shaft and fans 17, thick at the center and tapering outward to the ends, and end pieces 18, broader than the fans, and the edges thereof may be sharpened, if desired. The fan-chamber opens outward above the fan, and upon both upward quarters through the upper corners of the fan-chambers and through the discharge-throats 19 is a longitudinal stationary partition 20 centrally across and above the fan-chamber, and between these throats 19 and 21 are the gates, each mounted upon a shaft parallel to and hinged to the partition 20, the gates being wide enough to reach over and



rest upon the bottom of the throat, and 22 are stops to hold the gate against being forced upward above the desired angle. These gate-shafts extend through the partition *d*, and the one on the right is provided with a lever-handle 23 and the other with a like handle 24, and both swing contiguous to a notched quadrant 25, in which they lock in any ordinary manner to hold each lever in the position desired.

As shown in the drawings, Figs. 4 and 5, the gate on the left is open, so that the snow will be discharged through it while the other gate is closed, and to discharge the snow to the other side I swing the levers 23 and 24 both over to the right, which opens the gate on the right and closes the other, and when I wish to discharge it on both sides the lever will stand right and left, respectively.

The front of the machine is as wide at least as a passenger-coach and substantially as high, and when forced into the snow it gathers in the snow chopped up and broken by the knives, and the pressure forces it up the inclined bottom into the fan-chamber, where the fan swings, as they rapidly rotate, catch it, and force it upward and out of one or both of the discharge-throats with sufficient velocity to throw it clear over away from the train, the actual distance depending upon the speed at which the fan is driven.

Various modification may be made in detail from the above constructions of parts without materially departing from the spirit of my invention, as illustrated in the accompanying drawings.

The snow-cutter E may be driven by one motor and the fan mechanism by another, or the snow-plow may furnish its own motive power by two engines in the rear, or power may be transmitted from the driving-engine. I may also place any number of knives upon the shaft of the snow-cutter; but for convenience sake I have shown but four. The wings of the fan may also be multiplied and made curvilinear in form instead of the angular construction shown.

What I claim as my invention is—

1. The combination, with the main frame, its truck, and the feed-throat, of multiple knives mounted upon a shaft journaled transversely to the feed-throat and projecting beyond the front thereof, a pitman-rod connected to the shaft, another pitman-rod connected to the motor and passing alongside of and below the fan-chamber, a pivotally-mounted connecting-bar to the ends of which the pitman-rods are connected, a fan-chamber and fan rotating therein, discharge-throats opening out on either side from the fan-chamber, a gate for each throat, a handle for each gate,

and means for locking it, each gate when open forming the top of the discharge-throat, as set forth.

2. The combination, with the rotating fan and the fan-chamber, of discharge-throats opening outward on either side of the fan-chamber through its upper corners, a gate for each throat mounted upon a rock-shaft, a handle on each rock-shaft, and means for locking each handle when its gate is open or closed, and each gate when open forming the top of the discharge-throat, as set forth.

3. The combination, with the rotating fan and the fan-chamber, of discharge-throats opening outward on either side of the fan-chamber through its upper corners, a separate gate for each throat mounted upon a rock-shaft, a handle on each rock-shaft, and means for locking each handle when its gate is open or closed, each gate when open forming the top of the discharge-throat, and stops 22, with which the gate engages when open, as set forth.

4. The combination, with the main frame, its truck, the feed-throat upon the front of the frame, the fan-chamber in rear of and communicating with the feed-throat, and a single boiler and engine upon the rear of the frame, of a knife-shaft across the front of the feed-throat and journaled upon the sides thereof, multiple knives radiating from this shaft, a pitman-rod connected to the knife-shaft exterior to the feed-throat, another pitman-rod connected to the outer end of the main drive-shaft, a pivotally-mounted connecting-rod connecting the pitmen, a fan mounted upon a shaft through the fan-chamber, rotating transversely to the feed-throat, a crank upon the fan-shaft, a crank upon the main shaft, a pitman-rod connecting these cranks and a motor to drive the main drive-shaft, the fan, the discharge-throats opening outward from the upper corners of the fan-chamber, a rock-shaft across the fan-chamber, separate gates secured to the rock-shafts, handles on each rock-shaft and means for locking them when either gate is open or closed, each gate when open forming the top of the discharge-throat, and stops 22, with which the gate engages when open, as set forth.

5. The combination, with the fan-chamber, of a fan-shaft and the fans thereon, constructed with the sides wider than the intermediate portion, as set forth.

In witness whereof I have hereunto set my hand this 14th day of December, 1889.

JOHN M. BOUCK.

In presence of—

C. R. LOVELAND,

G. H. SUMMERFELDT.