

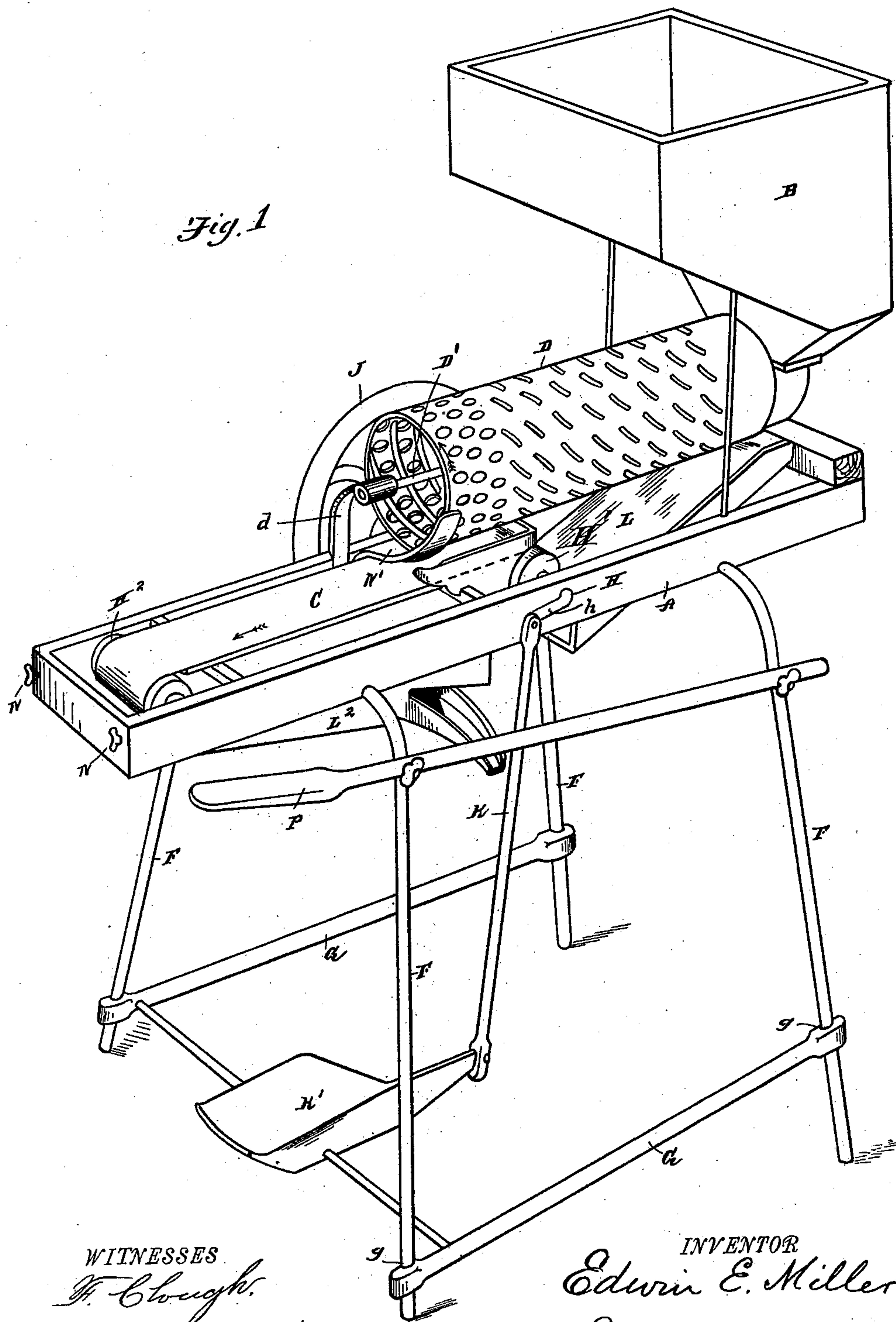
(No Model.)

4 Sheets—Sheet 1.

E. E. MILLER.  
BEAN PICKER.

No. 550,993.

Patented Dec. 10, 1895.



WITNESSES  
H. Clough.  
L. W. Bradford

INVENTOR  
Edwin E. Miller  
By Parker & Benton  
Attorneys.

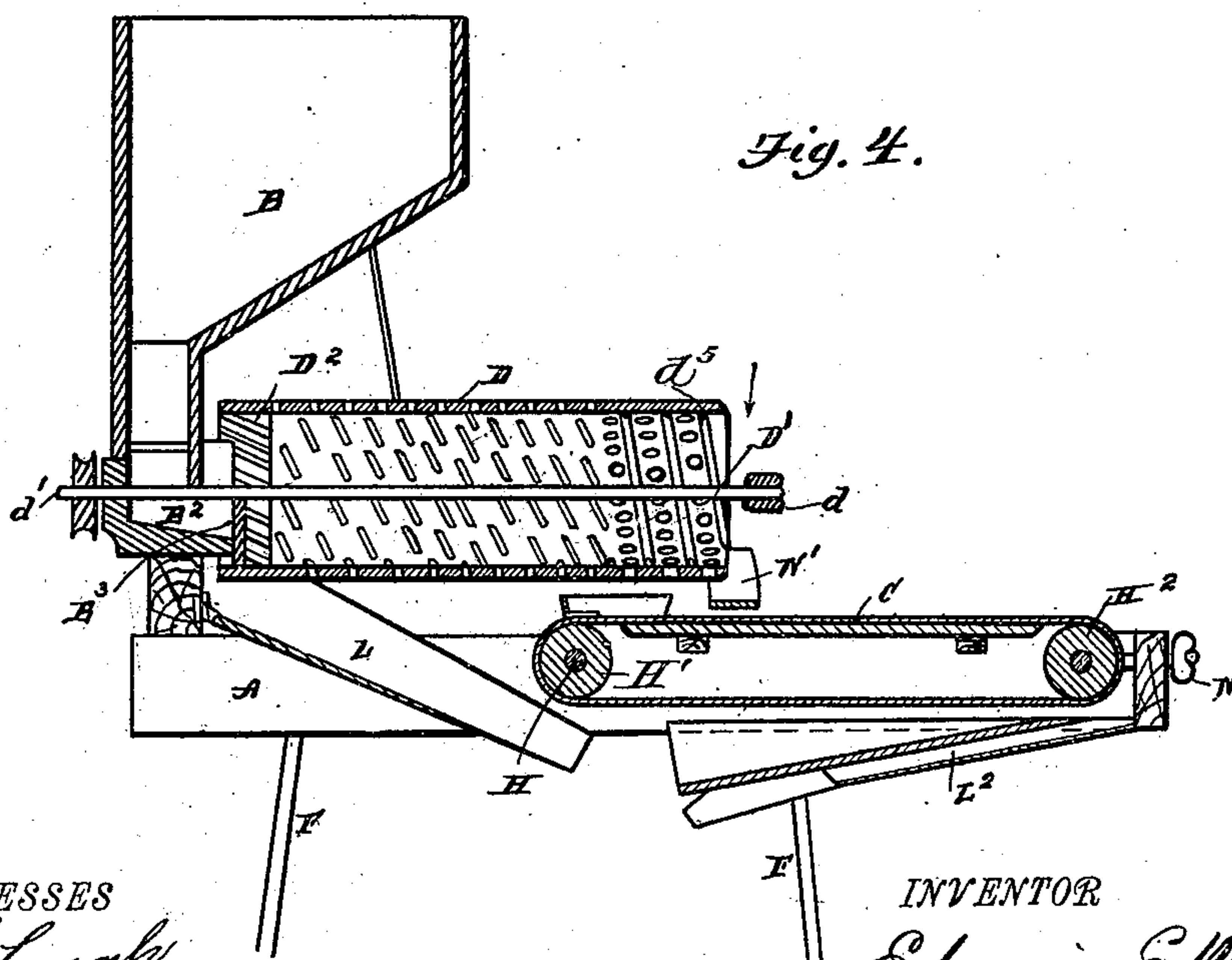
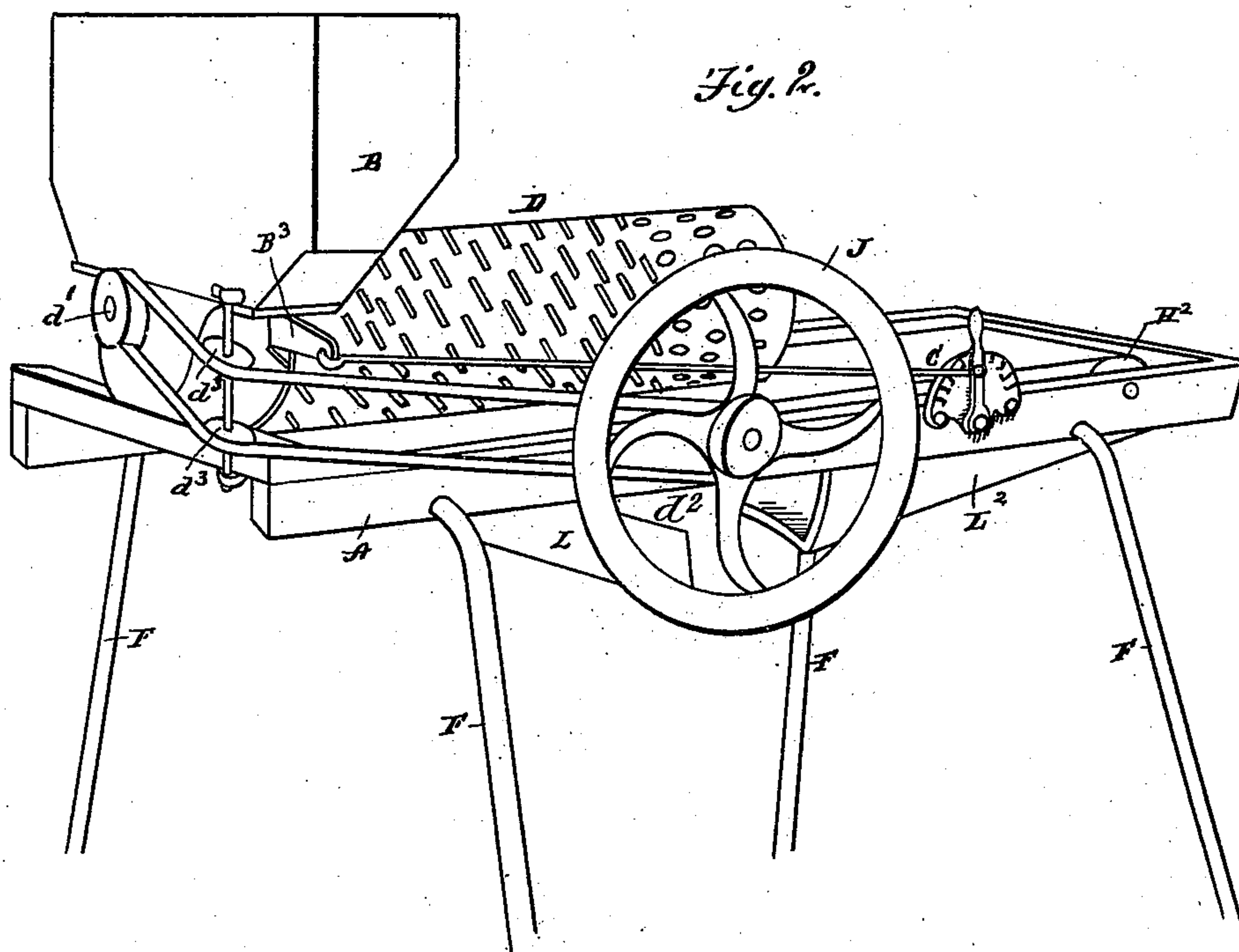
(No Model.)

4 Sheets—Sheet 2.

E. E. MILLER.  
BEAN PICKER.

No. 550,993.

Patented Dec. 10, 1895.



WITNESSES  
H. Clough.  
D. W. Bradford

INVENTOR  
Edwin E. Miller  
By Parker W. Burton  
Attorneys.

(No Model.)

4 Sheets—Sheet 3.

E. E. MILLER.  
BEAN PICKER.

No. 550,993.

Patented Dec. 10, 1895.

Fig. 3.

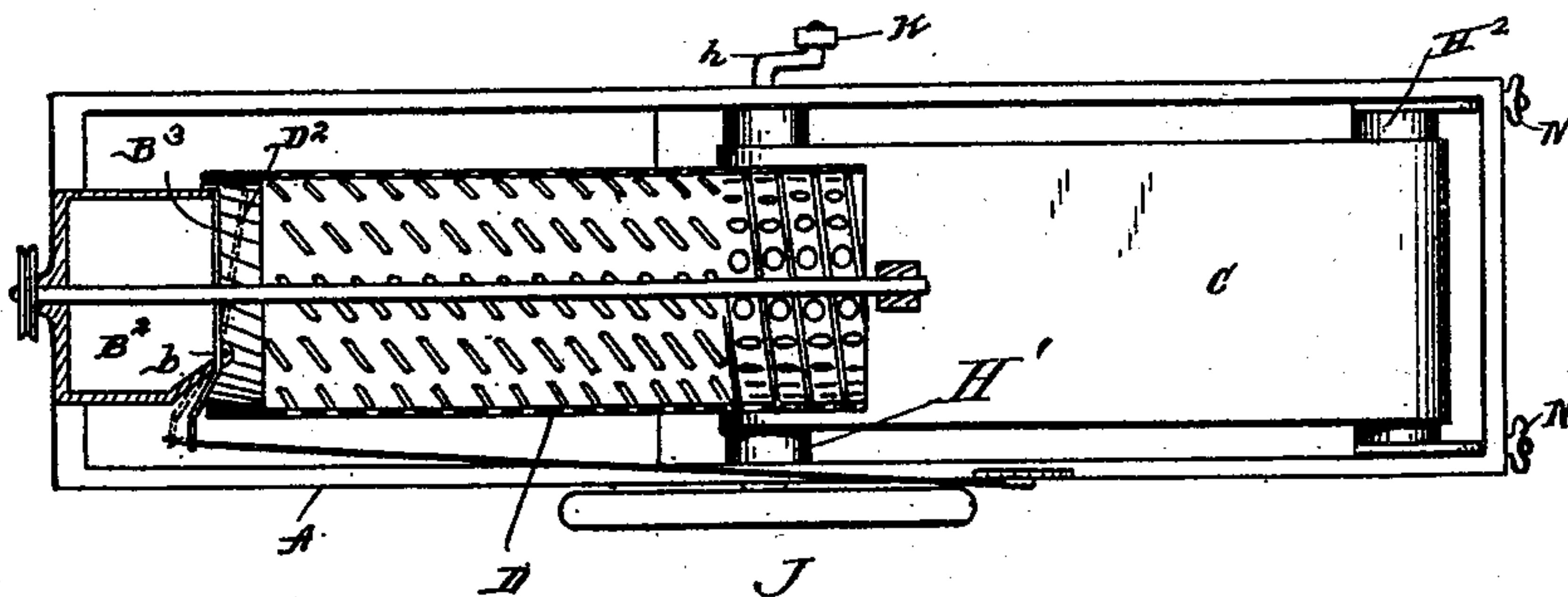


Fig. 5.

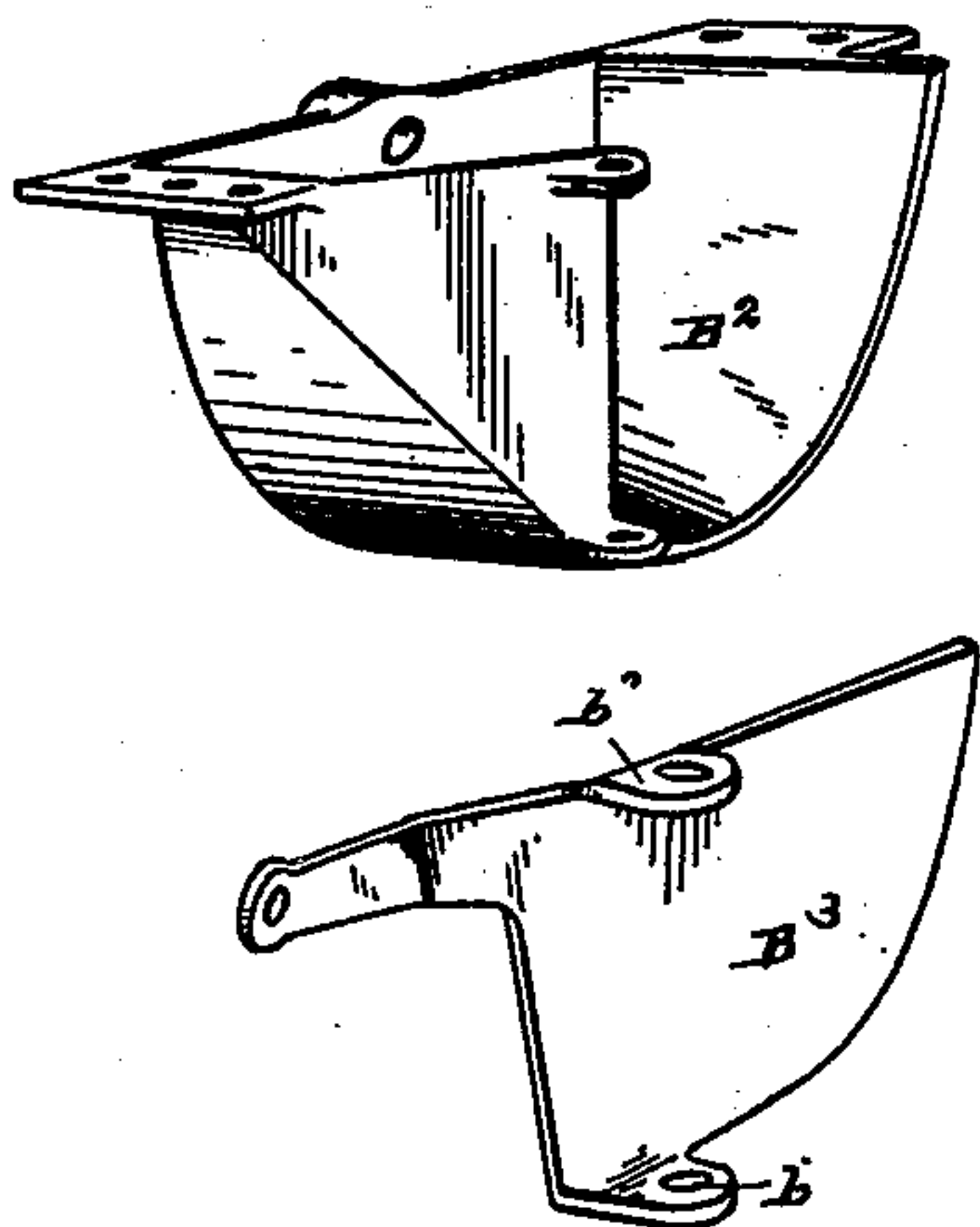
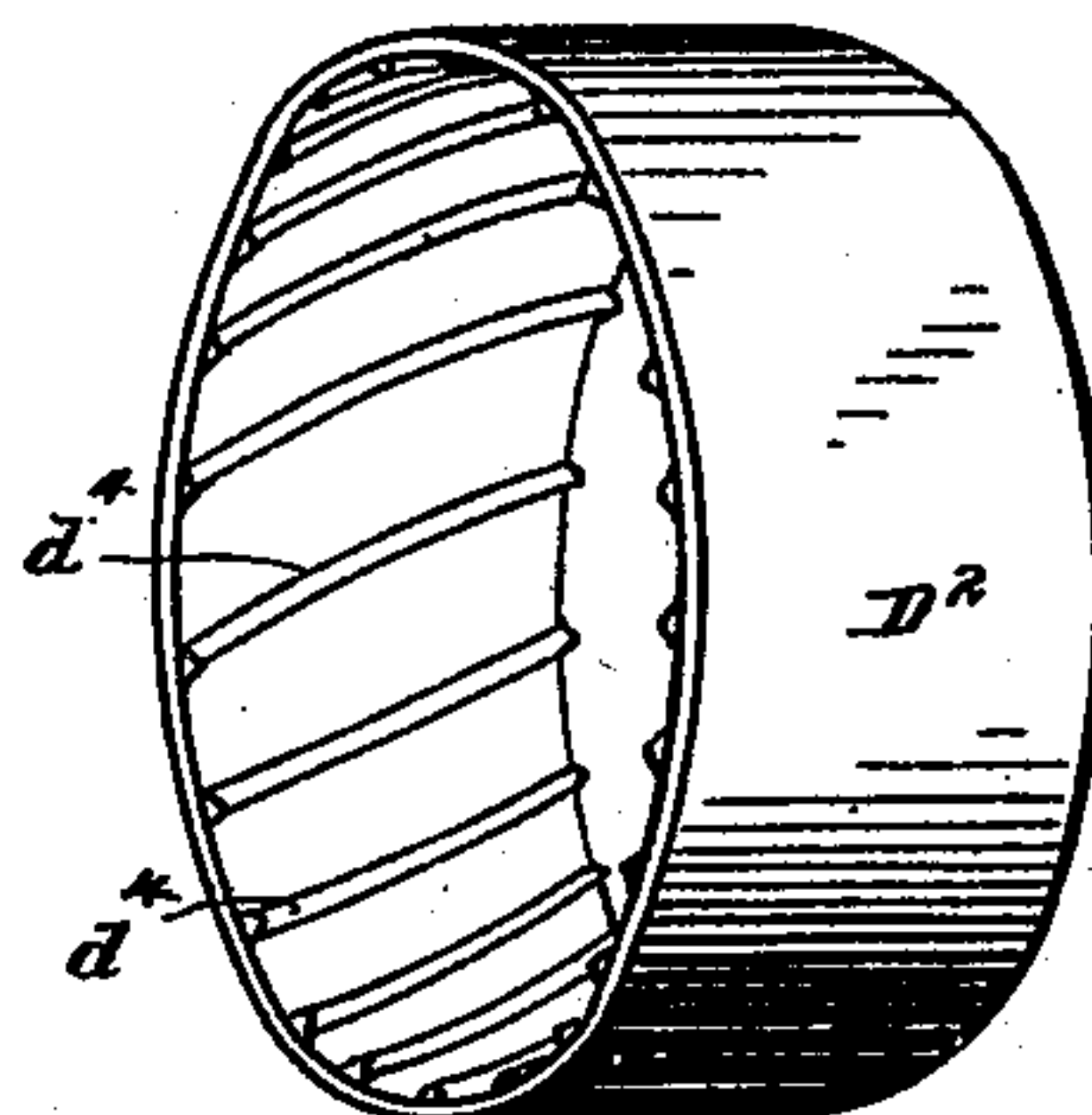


Fig. 6.



WITNESSES

J. Clough  
D. W. Bradford

INVENTOR

Edwin E. Miller

By

Parker & Burton

Attorneys.



(No Model.)

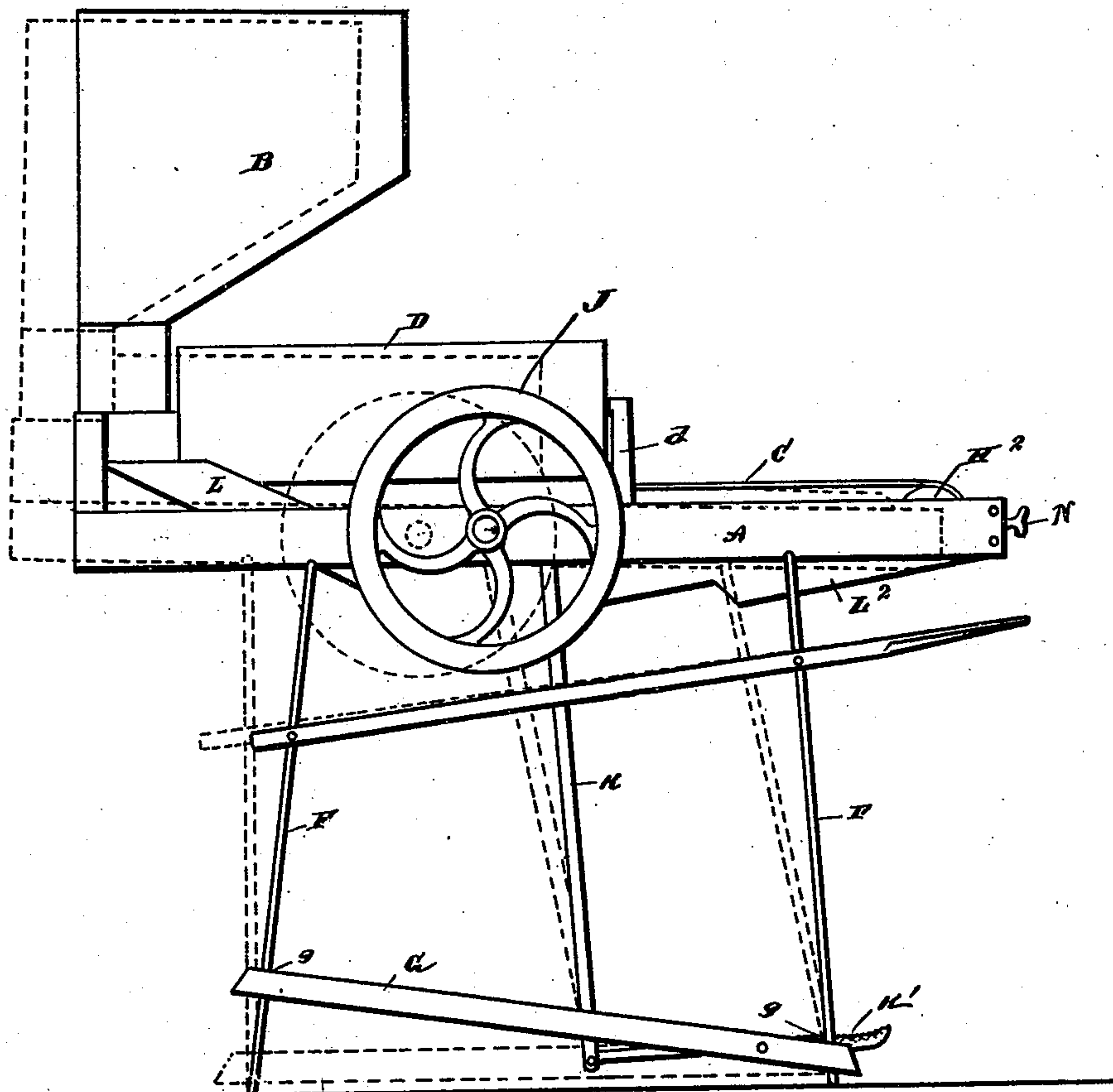
4 Sheets—Sheet 4.

E. E. MILLER.  
BEAN PICKER.

No. 550,993.

Patented Dec. 10, 1895.

*Fig. 7.*



*WITNESSES*

WITNESSES  
H. Clough.  
W. Bradford

INVENTOR

Edwin E. Miller

*By*

Parker and Burton  
Attorneys.

# UNITED STATES PATENT OFFICE.

EDWIN E. MILLER, OF ROCHESTER, MICHIGAN.

## BEAN-PICKER.

SPECIFICATION forming part of Letters Patent No. 550,993, dated December 10, 1895.

Application filed May 14, 1894. Serial No. 511,273. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN E. MILLER, a citizen of the United States, residing at Rochester, county of Oakland, State of Michigan, have invented a certain new and useful Improvement in Bean-Pickers; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to machines for picking beans; and it consists in certain improvements therein, which are hereinafter described and claimed.

In the drawings, Figure 1 is a perspective elevation of the right-hand side of the machine. Fig. 2 is a perspective elevation of a portion of the left-hand side, showing the operative mechanism. Fig. 3 is a horizontal section on a plane just above the axis of the separating-drum hereinafter described. Fig. 4 is a central vertical section. Figs. 5 and 6 illustrate details of the feeding mechanism. Fig. 7 is an elevation showing in dotted lines the change of position and pitch of the machine.

In the drawings similar letters refer to similar parts.

In embodying my invention, A represents a frame upon which the upper part of the mechanism is carried.

B represents a hopper containing and delivering the unpicked beans.

C represents a traveling belt upon which the beans are received and from which a final separation by hand-picking is made.

D is a peculiarly-perforated cylindrical drum interposed between the feeding mechanism of the hopper and the belt and receiving the beans from the former and delivering a residue thereof upon the belt.

The frame A is pivotally mounted upon four legs F F F F. The legs upon either side constituting pairs are connected by adjustable cross-bars G G. Each end of the cross-bars is perforated at g g and slides upon the legs F F with some little friction. The rais-

ing and lowering of the cross-bars G G by slipping them upon the legs F F produces different degrees of inclination of the legs, which results in altering the plane of the frame A and the mechanism carried thereon, and thereby a means of adjustment of a plane of the frame A is attained. This permits the tail portion of the frame to be depressed from a horizontal plane, and thus gives to the cylinder D a descent or pitch which can be altered, as hereinafter described, at will. This change of position is indicated by dotted lines in Fig. 7.

Near the center of the frame A is journaled the transverse shaft H. One end of this shaft is cranked at h, to which a pitman K is connected through a pedal K'. The opposite end of the shaft H carries a balance-wheel J. The shaft forms the axis of a drum H', located between the side pieces of the frame, and which drives the endless belt C, arranged thereon. At the tail of the frame is an idler-drum H<sup>2</sup>, which carries the opposite extension of the belt C. This drum has adjustable bearings controlled by the screws N N, whereby the belt C may be tightened or loosened.

It is obvious that the belt C may be driven by means of the pedal mechanism, causing the belt to travel in the direction of the arrow. This portion of the mechanism is not new, and hence will need no further description.

In the front of the lower portion of the hopper is journaled a longitudinal shaft D', the opposite end being journaled in a bracket d, springing from one of the side pieces of the frame. Appropriate radial arms from this shaft carry the concentric perforated drum D. At the outer extremity of the shaft at d' is attached a pulley-wheel. A similar pulley-wheel d<sup>2</sup> is attached to the shaft H. A belt-drive, passing over these pulleys and turned at an angle by means of perpendicular idlers d<sup>3</sup> d<sup>3</sup>, enables the drum to be rotated simultaneously with the travel of the belt.

The lower portion of the hopper at B<sup>2</sup> opens out against a valve B<sup>3</sup>, which swings upon a perpendicular pivot at one edge of the hopper at b. The upper face of this valve is



nearly on a level with the center of the cylinder. The lower face is convex, conforming very closely to the interior face of a ring  $D^2$ , which is firmly attached to and forms a portion of the cylinder at this point. This ring has a series of internal corrugations, more fully illustrated in Fig. 6. The corrugations are not longitudinal, but are spiral or angular with reference to a longitudinal plane, as shown in detail at  $d^4$   $d^4$  in Fig. 6. The valve  $B^3$  is actuated by a reach-rod connected to an arm thereof at one end and at the other end to a hand-lever operating in a quadrant, whereby the opening of the valve may be adjusted and held at any desired position.

The shell of the drum  $D$  is perforated with a series of oval or rectangular perforations arranged spirally, the spiral arrangement being such that the rotation of the drum in the direction of the arrow tends to carry the beans from the head toward the tail of the drum. About one-quarter of the tail of the drum is perforated with round perforations. The sizes of the perforations, both oval and round, are made to conform substantially to the perfect beans and split beans, the object thereof being to take out of the beans delivered to the drum the split beans and deliver the perfect beans through the round perforations, while the large beans and foreign material pass from the tail of the drum. The round holes are also arranged in spiral form, and between the rows there is attached to the drum a spiral flange  $d^5$ , which is in substance an interior screw-thread, the pitch of it being arranged in such a way that the rotation of the drum in the direction of the arrow, combined with the falling beans as they rise against the side, tends to compel a delivery of the beans out at the tail of the drum. While this spiral thread  $d^5$  is an advantage, it is not absolutely essential, as it is obvious that the delivery of the beans from the head to the tail of the drum can be made to depend upon the pitch of the drum, which, as hereinbefore stated, is made adjustable. However, by arranging a spiral thread the pitch of the drum can be very much lessened from what otherwise would be necessary to effect a delivery of the beans.

Beneath the drum  $D$  is arranged a chute  $L$ , which takes the split beans which may be delivered through the oval perforations. The beans delivered through the round perforations are received upon the end of the belt, which is surrounded by a protecting-flange  $N'$ . The material passing over the tail of the drum is received by a chute  $L^2$  and carried off to the side to any appropriate receptacle. The beans received upon the belt, as hereinbefore stated, are open to observation and are separated by hand, the black beans and such materials as may pass through the round perforations in the drum being manually thrown off from side to side and re-

ceived in appropriate receptacles, while the perfect beans are permitted to pass over the roller  $H^2$  and are delivered into the chute  $L^2$  and from thence carried into a separate receptacle.

Adjustable arm-rests are provided, fashioned from oar-shaped bars  $P$   $P$ , adjustably attached at each side to the upper ends of the supports  $F$   $F$ . The fact of these rests being made adjustable enables different operators to work with an equal degree of facility and comfort and which could not be accomplished were the arm-rests fixed.

The mode of operation is very largely apparent from the description heretofore given. With respect to the feeding mechanism, however, it is as follows: The beans being deposited in the hopper of course fall to its lowest point and press against the valve  $B^3$ , hereinbefore described. The valve is adjusted substantially bean-tight within the interior of the corrugated ring  $D^2$ , with the exception of the opening which is permitted to be made. Upon opening the valve to any degree the beans are allowed to come in contact with the interior of the corrugated ring upon the rising side as the drum rotates, the angle of the corrugations being so adjusted that at this point there is a descent in them from the head of the drum toward its interior. The continued rotation of the drum thus compels the beans to pass over the valve and upon the rising side and descend in a thin even sheet into its interior, permitting all the beans therein to come in contact with the shell of the drum, and thus providing in as perfect manner as possible for the taking out of the split beans, as before described.

As hereinbefore stated, the operation of the balance of the mechanism is sufficiently obvious from the description.

What I claim is—

1. In a bean picker, the combination of a perforated separating drum, a force feed ring located between the hopper and the separating drum and provided with interior forcing corrugations arranged in spirals of long pitch, a swinging valve conforming in shape to a segment of said force feed ring and provided with vertical pivot connections, and a reach rod adapted to actuate it, substantially as and for the purpose specified.

2. In a bean picker, the combination of a frame carrying a hopper, a perforated separating drum, an endless traveling belt arranged to receive a portion of the beans delivered from perforations in the tail end of said drum, pivoted adjustable legs supporting said frame, adjustable sliding bars  $G$   $G$  arranged between the fore and aft pairs of said pivoted legs, and movable thereon, and adapted to adjust the pitch of the frame, substantially as described.

3. In a bean picker, the combination of a hopper, a perforated separating drum, a force feed ring located between the hopper and the



separating drum, a swinging valve, conform-  
ing in shape to a segment of said ring, pro-  
vided with a vertical pivot and adapted to  
swing into said ring, a reach rod and seg-  
5 ment guide, an endless traveling belt, and  
means for actuating the belt and drum, sub-  
stantially as specified.

In testimony whereof I sign this specifica-  
tion in the presence of two witnesses.

EDWIN E. MILLER.

Witnesses:

MARION A. REEVE,  
R. A. PARKER.