

No. 722,990.

PATENTED MAR. 17, 1903.

J. J. KENNELLY.  
SANDING DEVICE.

APPLICATION FILED JULY 16, 1902.

NO MODEL.

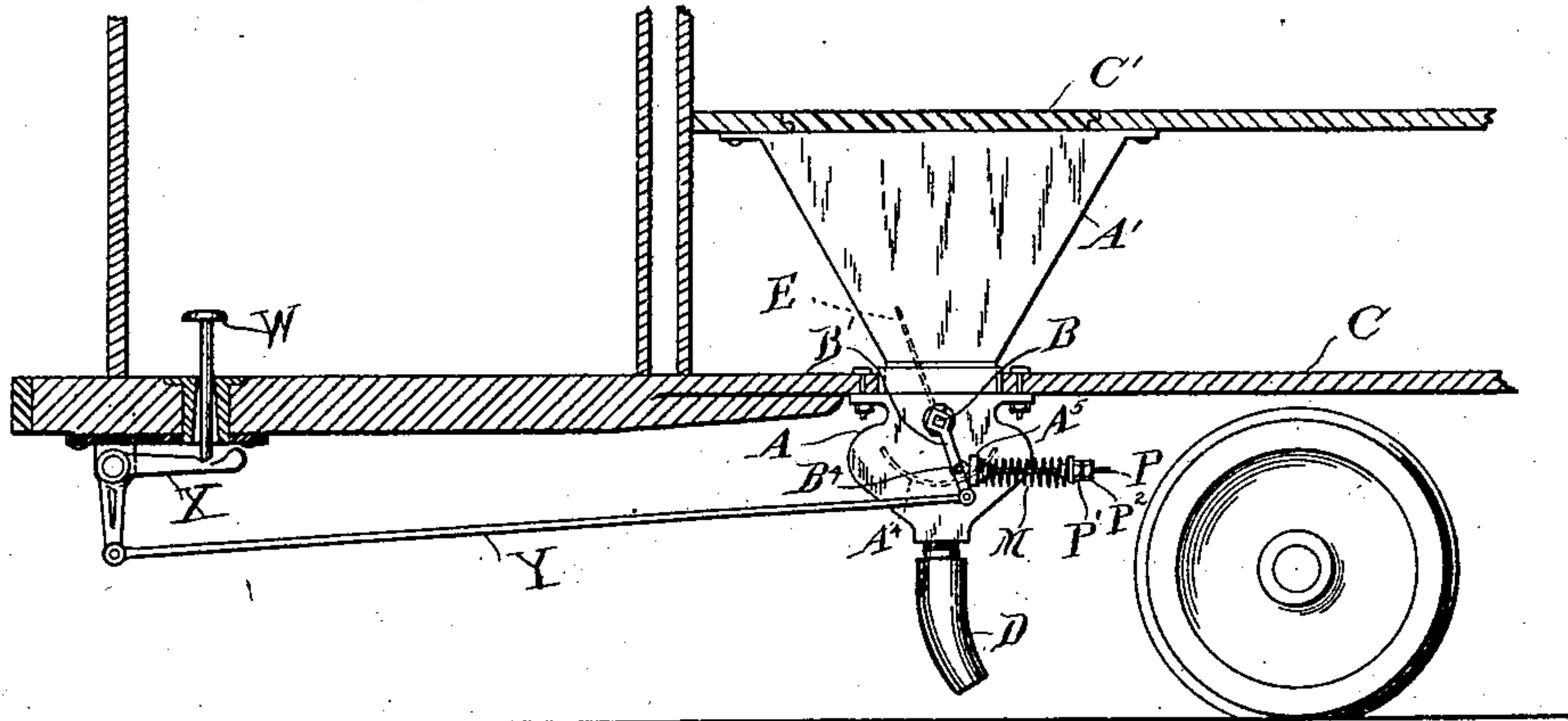


Fig. 1.

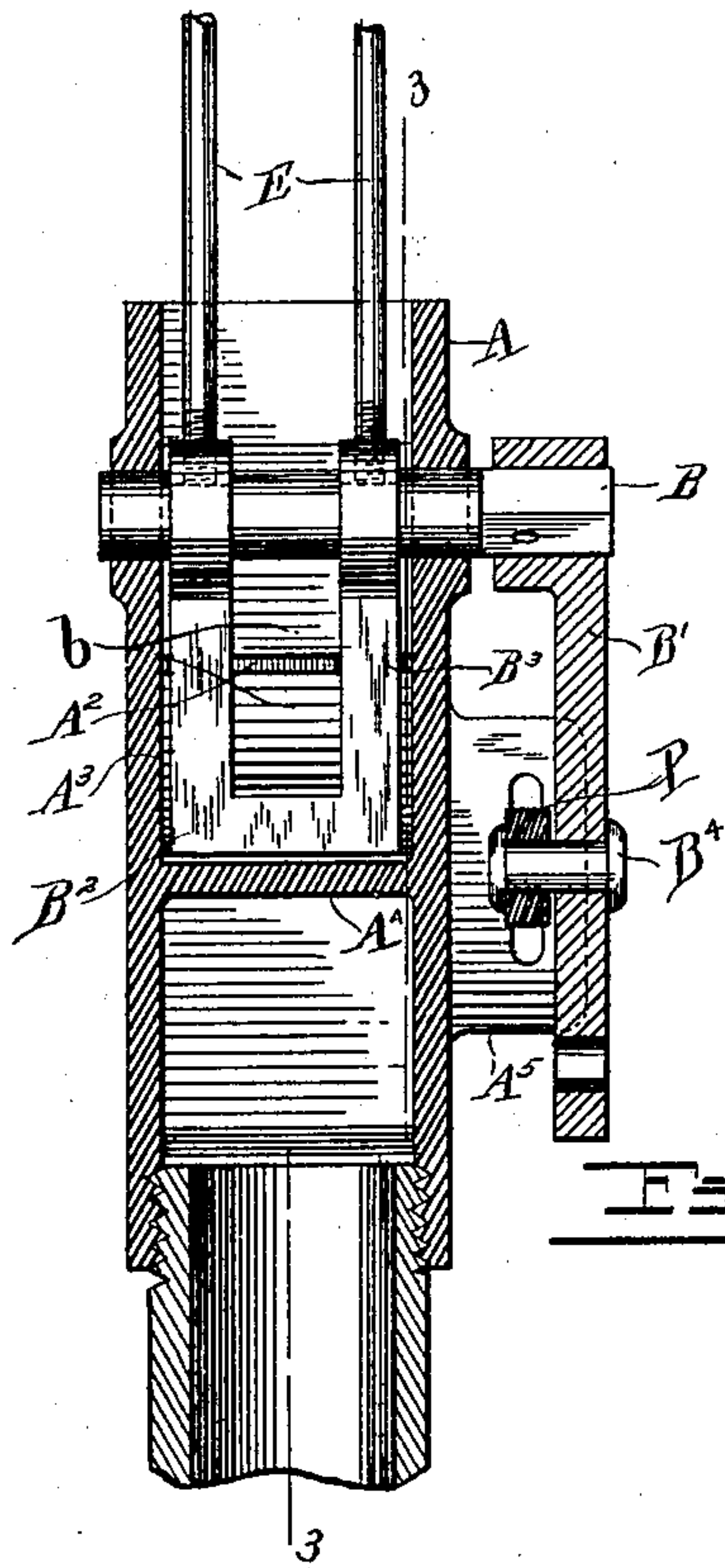


Fig. 2.

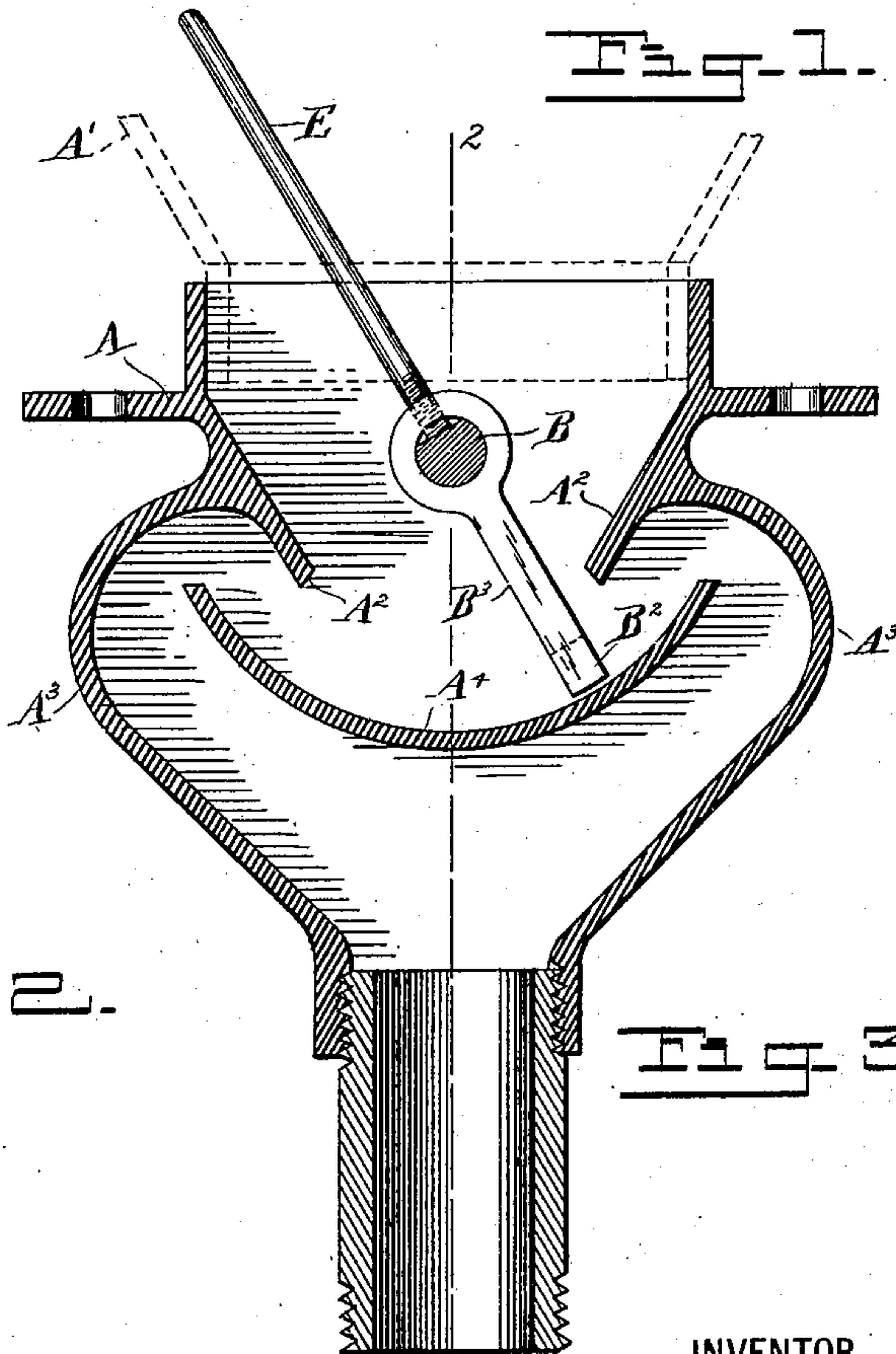


Fig. 3.

WITNESSES:

*Marc A. Guigon.*  
*J. B. Clautier*

INVENTOR

*John J. Kennelly*  
BY  
*Thomas D. Stetson*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

JOHN J. KENNELLY, OF NEW YORK, N. Y.

## SANDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 722,990, dated March 17, 1903.

Application filed July 16, 1902. Serial No. 115,876. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN J. KENNELLY, a citizen of the United States, residing in the borough of Manhattan, in the city and State of New York, have invented a certain new and Improved Sanding Device, of which the following is a specification.

My improvement is intended more particularly for use on trolley-cars to deposit a small stream of sand upon the track as required. I will describe it as thus applied.

The device is of the class in which the sand is let down in small instalments at will. I have devised important improvements.

The sand is retained by the form of the parts in a reservoir until required for use. A rocking shaft extends across near the base of the sand-reservoir. A spring with provisions for adjusting its tension automatically turns such shaft in one direction whenever allowed, and the operator by convenient connections overcomes the force and turns the shaft in the opposite direction at will. I carry on the shaft an agitating device, which performs the triple function of holding the shaft against axial displacement, agitating the sand for a proper height, and ejecting at will the required small quantities of sand.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation showing one end of a car with my improvement applied. The remaining figures are on a larger scale. Fig. 2 is a vertical section on the line 2 2 in Fig. 3. Fig. 3 is a vertical section on the line 3 3 in Fig. 2.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

C is a portion of a car.

A is a casing, of cast-iron or other suitable material, bolted to the base of the car and extending upward through a close-fitting aperture therein. I will designate certain portions by supernumerals when necessary. The upper portion A' is hopper-shaped and adapted to store the sand, which is supplied at intervals through a removable portion C' of one of the seats of the car C. Below the

floor are bearings in which is supported a short horizontal shaft B, capable of being rocked at will, which carries the paddle to be presently described. Internal lips A<sup>2</sup> of the casing extend downward below the level of this shaft in inclined converging lines. Outside of these the casing extends outward, downward, and inward, as indicated by A<sup>3</sup>, terminating in a nozzle, to which is united a short length of hose D, which guides the sand to a point near the rail. Below the converging lips A<sup>2</sup> and within the casing A<sup>3</sup> is a curved platform or segment A<sup>4</sup>, constituting a portion of a cylinder and cast integral with the other portions of the casing. It lies concentric to the axis of the shaft B and performs the important functions of arresting and reliably holding the sand against its escape from the hopper A' above until required and of delivering the sand with certainty in measured quantities when the paddle is properly rocked. The holding is due to the fact that the converging lips A<sup>2</sup> extend downward so deeply that the sand, whether it be shaken loosely or shall by any peculiarity of the sand or of the motions of the car be packed tightly, after descending below the lips A<sup>2</sup> will not move outward at such an elevation as to flow over the boundary of the segment A<sup>4</sup>. The certain and measured delivery is due to the motion of the paddle. The agitator is equipped with an operating lever or handle B', by which it can be turned, a paddle B<sup>2</sup>, which extends downward nearly into contact with the smooth inner face of the segment A<sup>4</sup>, and one or more removable arms B<sup>3</sup>, which extend upward. The rocking of the shaft B and its connections forces the sand that lies within the segment A<sup>4</sup> alternately in opposite directions. The paddle is formed with a large opening b. It is, in short, an open-work frame. When it moves in one direction—the right in Fig. 3—it forces a certain quantity of the sand over the right-hand end of the segment A<sup>4</sup>, and when it moves in the opposite direction it forces a corresponding quantity over the left edge of the segment. The quantities thus successively forced out are discharged through the hose D upon the track.

E E are slender arms of steel tapped into the central boss and forming portions of the



agitator. At each rocking movement of the shaft B these arms move to the right or left through the sand and by keeping it in a loose condition insure that even if a little damp or  
 5 if quite caked it will descend reliably whenever there is space formed for it below. The inner ends of these arms are screwed tightly against corresponding flat places in the upper face of the shaft B and perform a function of some consequence in firmly holding  
 10 the latter in the proper relations when in use, but allowing the machine to be easily taken apart. To dismember, I unscrew these arms, after which the shaft B can be easily drawn  
 15 out endwise, and the paddle can then be lifted out. The paddle is turned in one direction by a helical spring M, which abuts against a projection A<sup>5</sup> and forces outward on a nut and jam-nut P' P<sup>2</sup>, which are set  
 20 adjustably on a bolt P, which extends loosely through an aperture in the abutment A<sup>5</sup> and engages with a pin B<sup>4</sup> on the handle or lever B'. The motion in the opposite direction is obtained through a "button" W, conveniently placed to be operated by the foot of  
 25 the motorman, and which on being depressed turns a bell-crank lever X and communicates motion to the lever B' through a link Y. The service required of the spring M is important. Its tension may be conveniently  
 30 adjusted at will by simply changing the position of the nut and jam-nut P' and P<sup>2</sup> on the bolt P. It must have a sufficient tension to turn the paddle promptly to or near its extreme position in one direction; but if the  
 35 tension is too great it imposes much labor on the motorman to depress the pedal or button W.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. The form and proportions of the parts may be varied within wide limits. Some of the parts may be used without others.

45 I attach importance to the open form of the paddle because it insures that the sand will be efficiently agitated and moved to the small extent required at each vibration, while the open space in the middle, by allowing the  
 50 sand to move idly through it, allows the device to be operated with little resistance; but the invention will serve usefully with other forms of paddle.

There may be only one of the arms E extending upward from the shaft B. Such may perform the double function of agitating the sand and of allowing the easy removal of the shaft when required.

There will ordinarily be only two of my  
 60 sanding devices on each car, one on each side.

In such case they will be connected at the opposite ends, so that one will be used while the car is moving in one direction and the other when it is moving in the opposite direction. I propose in some cases to use  
 65 four, two at one end, connected by a cross-bar and arranged to deliver sand simultaneously to both.

I claim as my invention—

1. In a sanding device the case A, rocking shaft B and means for oscillating the latter at will, in combination with the hopper A', the paddle B<sup>2</sup> for agitating below the shaft, and also an arm E for agitating above the shaft, all arranged for joint operation substantially  
 75 as herein specified.

2. In a sanding device the case A, rocking shaft B and means for oscillating the latter at will, in combination with the hopper A', the paddle B<sup>2</sup> for agitating below the shaft and  
 80 also an arm E for agitating above the shaft, and with the segmental platform A<sup>4</sup> having its upper face coinciding substantially with the sweep of the paddle and extending upward as shown to near the level of the base  
 85 of the lips A<sup>2</sup>, all adapted to serve substantially as herein specified.

3. In a sanding device the case A, rocking shaft B and means for oscillating the latter at will, in combination with the hopper A' and  
 90 with the paddle B<sup>2</sup> for agitating below the shaft and also an arm E tapped into the boss of the agitator, arranged to perform the double function of agitating the sand above the shaft and also of holding the parts as required, all substantially as herein specified.

4. In a sanding device the case A rocking shaft B and means for oscillating the latter at will, in combination with the hopper A' and  
 100 with the paddle B<sup>2</sup> for agitating below the shaft and also an arm E for agitating above the shaft, and with the segmental platform A<sup>4</sup> having its upper face coinciding substantially with the sweep of the paddle and extending upward as shown to near the level of  
 105 the base of the lips A<sup>2</sup>, and with the operating-button W and connections therefrom to operate the agitator in one direction and the spring M with means P' P<sup>2</sup> for operating it with widely-varying force in the opposite direction as required, all substantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

JOHN J. KENNELLY.

Witnesses:

J. B. CLAUTICE,  
 M. F. BOYLE.