

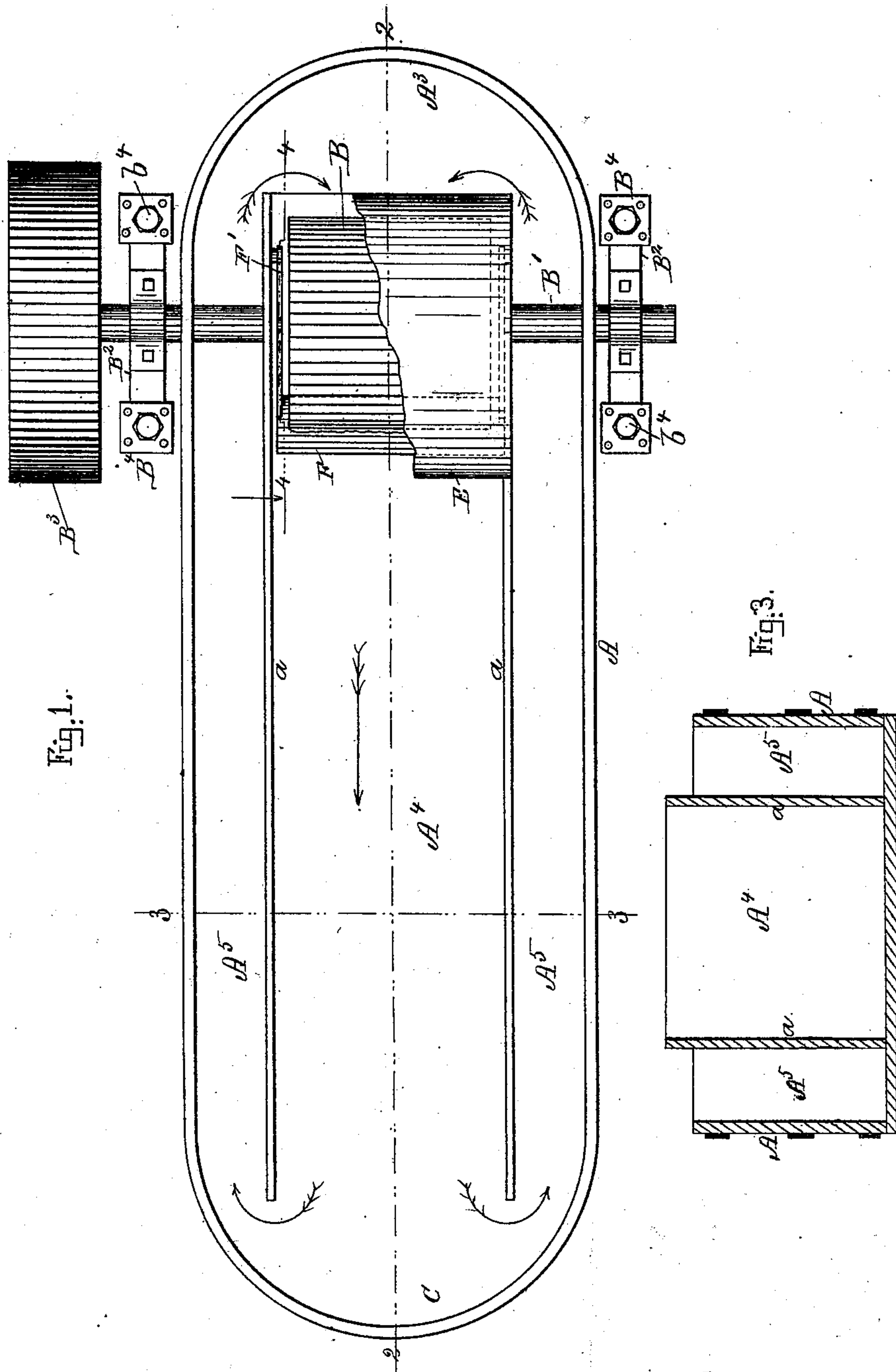
(No Model.)

2 Sheets—Sheet 1.

E. W. BARTON.  
PULP BEATING AND MIXING ENGINE.

No. 503,069.

Patented Aug. 8, 1893.



Witnesses.

Lauritz W. Möller,  
Alice A. Perkins.

Inventor.

Edwin W. Barton  
by *Alvan Andrieu*  
his atty

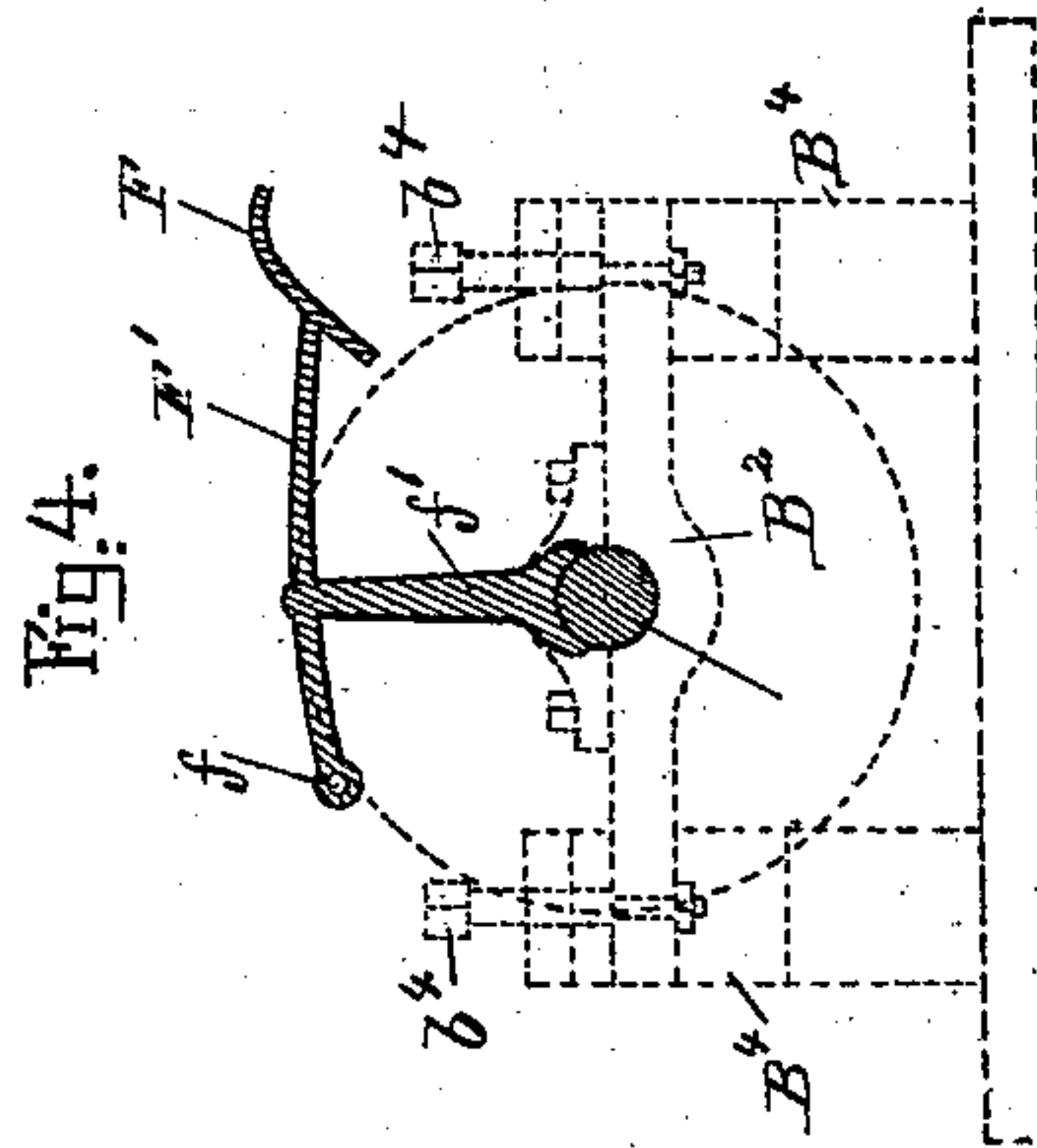
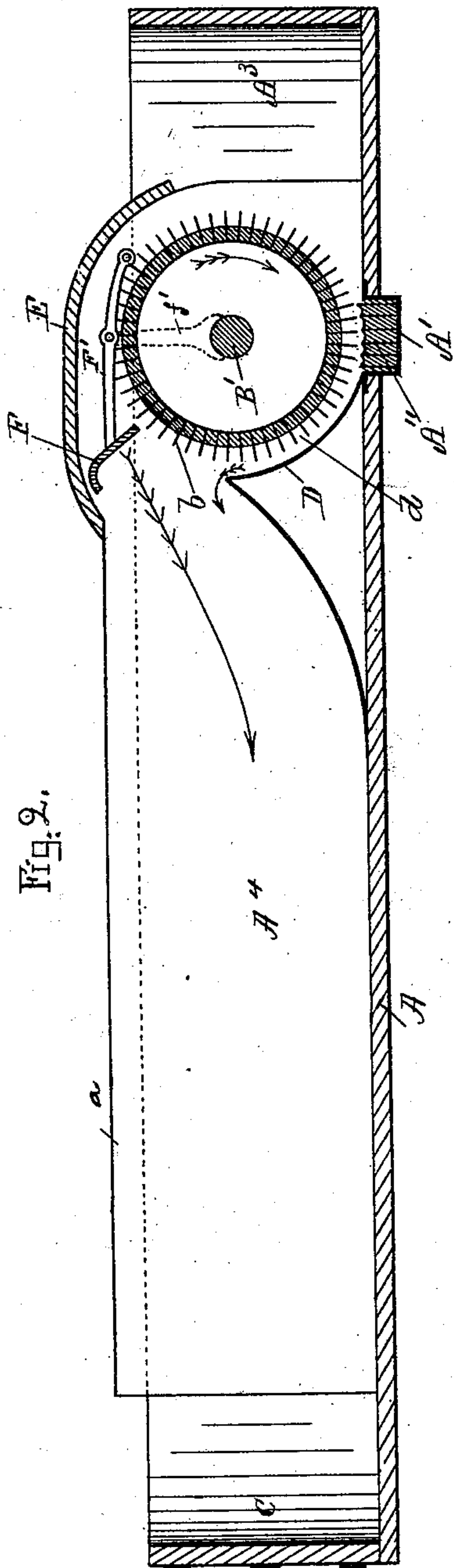
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by *Alban Andren*  
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# UNITED STATES PATENT OFFICE.

EDWIN W. BARTON, OF LAWRENCE, MASSACHUSETTS.

## PULP BEATING AND MIXING ENGINE.

SPECIFICATION forming part of Letters Patent No. 503,069, dated August 8, 1893.

Application filed August 6, 1892. Serial No. 442,387. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN W. BARTON, a citizen of the United States, and a resident of Lawrence, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Pulp Beating and Mixing Engines, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in pulp beating and mixing engines for the purpose of beating and mixing rags or other materials used in the process of manufacturing paper, and it is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a plan view of the invention. Fig. 2 represents a longitudinal section on the line 2—2 shown in Fig. 1. Fig. 3 represents a cross-section on the line 3—3 shown in Fig. 1; and Fig. 4 represents a section on the line 4—4 also shown in Fig. 1.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

The apparatus consists of a tub A provided in one end with a rotary roll B, having bars  $b, b$ , on its circumference as usual. The roll B is secured to a shaft  $B'$  projecting through perforations in the sides of the tub and is journaled in bearings  $B^2, B^3$ , outside of said tub as is common in devices of this kind.

$B^3$  is a pulley secured to one end of the shaft  $B'$  to which a rotary motion is imparted by means of belt power as usual. Below the roll B is arranged the box  $A'$  containing the "plate"  $A''$  composed of stationary blades and intermediate wood fillings in the usual manner. The end bearings  $B^2$  of the roll shaft  $B'$  are vertically adjustable in the standards  $B^4$ , and although this adjustment may be effected by the usual means employed in this type of machines, I prefer to use vertical screws  $b^4$  engaging the standards and connected with the extremities of the end bearings  $B^2$ , as clearly indicated by dotted lines Fig. 4, so that by turning the screws in the proper direction the end bearings  $B^2$  may be raised or lowered, thereby adjusting the roll B in proper position relatively to the plate  $A''$  and to compensate for the wear of the bars on the said roll and plate.

$A^3$  is the beating chamber in one end of which the roll B is located and in which the mass is beaten by passing between the under side of said roll and the upper edge of the stationary plate  $A''$  during the rotation of the said roll in the direction shown by arrow in Fig. 2. The interior of the tub A is longitudinally divided by means of walls  $a, a$ , into a central chute  $A^4$ , the delivery end of which communicates with side conduits  $A^5, A^5$ , leading to the beating chamber  $A^3$  as shown in Figs. 1, 2 and 3.

C is the curved rear end of the tub A into which the mass is received from the central chute  $A^4$  and conducted into the side conduits  $A^5, A^5$ .

In front of the rotary roll B is arranged a stationary curved wall D between which and the periphery of the roll B is a narrow space or channel  $d$  by means of which communication is established between the beating chamber  $A^3$  and the central chute  $A^4$  as shown in Fig. 2. Above the rotary roll B is located a preferably curved hood or cover E for the purpose of preventing the mass from being thrown out of the tub during the rotation of the latter.

Between the upper part of the wall or "back fall" D and the under side of the hood E is located a deflector plate F of a length about equal to that of the roll B, for the purpose of deflecting the mass from the channel  $d$  into the central chute  $A^4$  as shown in the drawings. The lower edge of said deflector is to be held as near to the periphery of the roll B as is safe and convenient without coming in contact with it, so as to prevent the mass from being carried with the roll beyond the said deflector and thus causing the mass to be most thoroughly agitated, circulated and mixed, and allowing the roll to be run at a higher speed than is usually done. It is essential that said deflector should partake of the vertical adjustment of the roll and its shaft for the purpose above mentioned, and therefore I prefer to secure to each end of said deflector F, a lever  $F'$  pivoted at  $f$  and adapted to rest on the roll shaft  $B'$  as shown in Fig. 4. In practice I prefer to pivot said levers about on a level with the top of the roll B and attach to each of such levers, a downwardly projecting rod or arm  $f'$  termi-



nating as a concave shoe adapted to rest on the roll shaft B'; but this is immaterial, it being only essential that the said levers shall be supported on the roll shaft or its connections so as to cause the deflector F to rise and fall with the roll B as the latter is being vertically adjusted.

In the operation of the machine, the roll is rotated in the direction of the arrow shown in Fig. 2, causing the mass to be conducted from the beating chamber between the roll and plate, and up over the back fall into the central chute and to the opposite end of the tub into the side conduits and back into the beating chamber and so on until the mass is thoroughly mixed and beaten.

In the construction described and shown, the floors of the channels and the bed-plate are on substantially the same level, and the roll, B, and back-fall D, are so arranged relatively to the chamber A<sup>3</sup>, that an attendant can use his hands to supply the pulp to said chamber, thereby avoiding the necessity of using a forcing apparatus to supply the pulp.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent and claim—

1. In a pulp beating and mixing engine, the combination with a tub, a vertically adjustable roll carrying shaft, a back-fall, and a bed-plate in juxtaposition to the roll, of a deflector located above the back-fall and connected with the roll carrying shaft to partake of the rising and falling movements thereof, substantially as described.

2. In a pulp beating and mixing engine, the combination with a tub, a vertically adjustable roll carrying shaft, a back-fall, a bed-plate located in the tub in juxtaposition to the roll, and a hood or cover arranged above the roll, of a deflector arranged beneath the hood or cover and above the back-fall and connected with the roll carrying shaft to partake of the rising and falling movements thereof, substantially as described.

3. In a pulp beating and mixing engine, the combination with a tub, a vertically adjustable roll carrying shaft, and a back fall arranged in front of the roll, of a deflector arranged above the back fall, and a pivoted lever connected with the deflector and bearing against the roll carrying shaft, substantially as and for the purpose described.

4. In a pulp beating and mixing engine, the combination with the tub, of two longitudinal walls arranged therein and forming three channels, one in the center and the others at the sides, and a roll, bed-plate and back-fall located in the center channel between said walls, the floors of the channels and the bed plate being on substantially the same level, as and for the purpose described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 30th day of June, A. D. 1892.

EDWIN W. BARTON.

Witnesses:

ALBAN ANDRÉN,  
KARL ANDRÉN.