

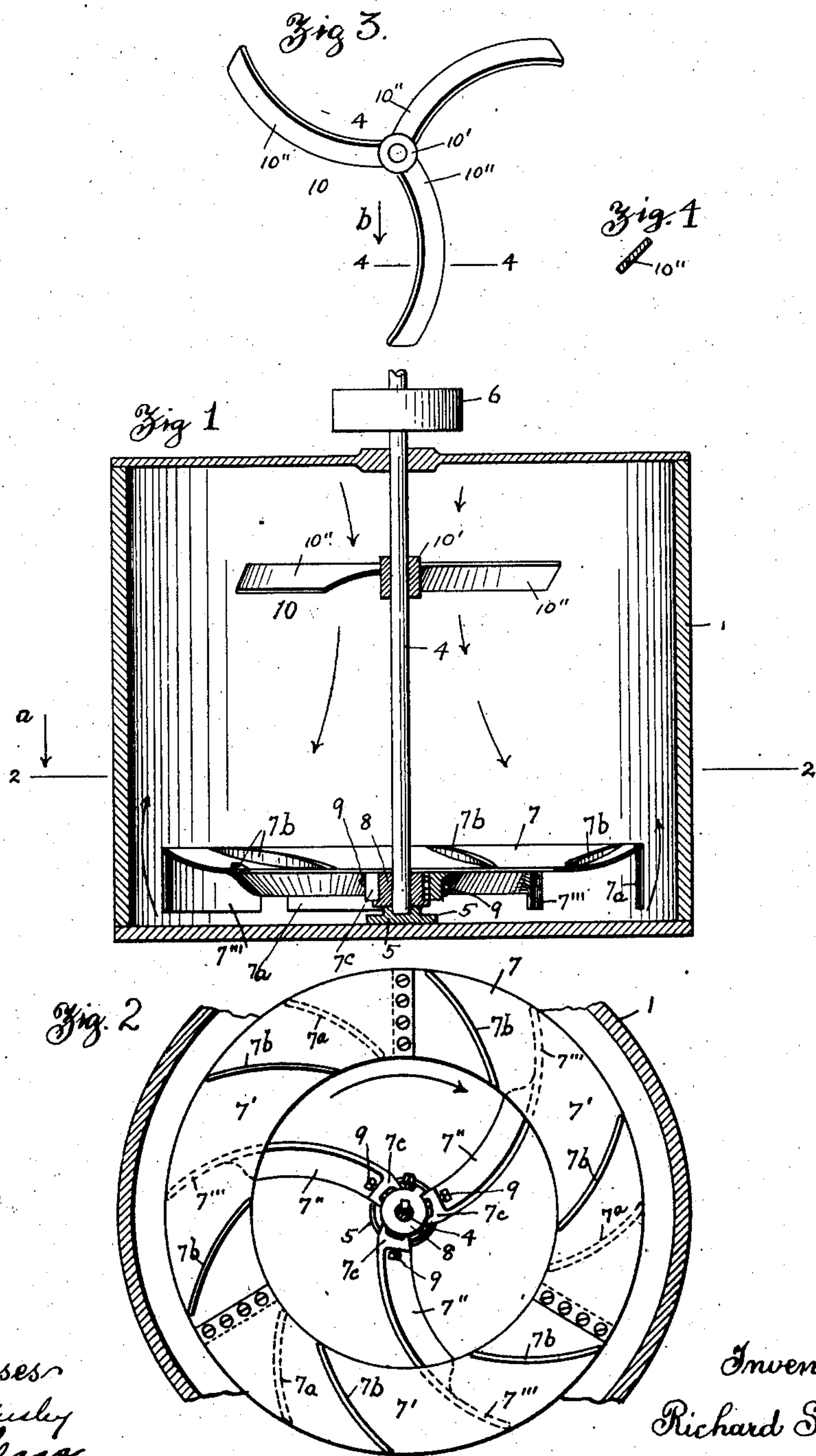
No. 865,128.

PATENTED SEPT. 3, 1907.

R. SMITH.  
AGITATOR OR MIXING APPARATUS.

APPLICATION FILED APR. 1, 1907.

2 SHEETS—SHEET 1.



Witnesses  
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By Attorney

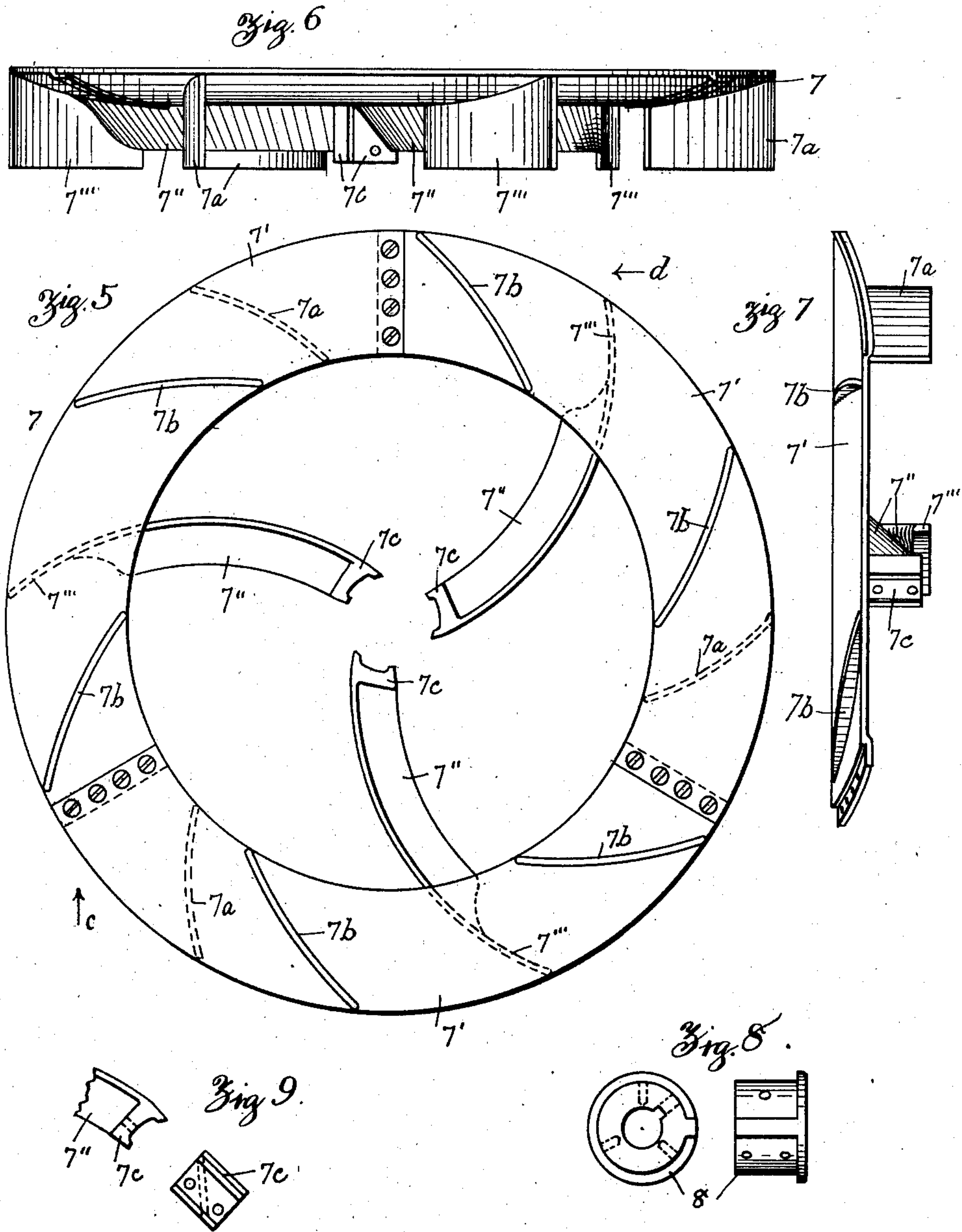
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# UNITED STATES PATENT OFFICE.

RICHARD SMITH, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO SMITH PAPER MACHINERY COMPANY, OF PORTLAND, MAINE, A CORPORATION OF MAINE.

## AGITATOR OR MIXING APPARATUS.

No. 865,128.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed April 1, 1907. Serial No. 365,846.

*To all whom it may concern:*

Be it known that I, RICHARD SMITH, a citizen of the Dominion of Canada, residing at Worcester, in the county of Worcester and State of Massachusetts, have  
5 invented certain new and useful Improvements in Agitators or Mixing Apparatus, of which the following is a specification.

My invention relates to an agitator or mixing apparatus, and particularly to that class of agitators or mixing  
10 apparatus shown and described in my U. S. Letters Patent, No. 473,530, and No. 492,475, in which there is a central feed, combined with a circumferential discharge, for mixing semiliquid materials, such as paints, pulp, etc.

15 The object of my invention is to improve upon the construction of the agitator or revoluble plate, shown and described in said patents, and also to provide an auxiliary propeller, located at a suitable distance above the agitator, within the circular stuff chest, and fast on  
20 the same vertical rotary shaft as the agitator to rotate in the same direction as the agitator.

My invention consists in certain novel features of construction of my improvements as will be hereinafter fully described.

25 Heretofore it has been customary to make the agitator in one piece or casting, and it is so shown in my patents above referred to. I have found in practice that in some cases agitators are required which have to be ten or more feet in diameter, and if the same are  
30 made in one piece, or as a single casting, they are very heavy, and cumbersome to handle, and put into position in the stuff chest, and also require greater power to operate the same. In my improved construction of an agitator, I make the same in separate sections,  
35 which are secured together, and I also make the hub, secured to the upright shaft, separate from the other parts, and secure the other parts thereto. In connection with the agitator I also preferably use an auxiliary propeller, which is so made that it will draw the  
40 pulp, or other material, down and in toward the center of the stuff chest, to direct it to the agitator, all as will be hereinafter fully described.

Referring to the drawings:—Figure 1 is a central vertical section through the stuff chest, the auxiliary propeller, and the agitator. Fig. 2 is a horizontal section through the stuff chest, taken at a point indicated by line 2, 2, Fig. 1, looking in the direction of arrow a, same figure. Fig. 3 is a plan view of the auxiliary propeller, detached. Fig. 4 is a section, on line 4, 4,  
45 Fig. 3, looking in the direction of arrow b, same figure. Fig. 5 is, on an enlarged scale, a plan view of the agitator, detached. Fig. 6 is an edge view of the parts shown in Fig. 5, looking in the direction of arrow c, same figure. Fig. 7 is an inner edge view of the section

of the agitator shown at the left in Fig. 5, detached, 55 and looking in the direction of arrow d, same figure. Fig. 8 is a plan and edge view of the central hub of the agitator; detached. Fig. 9 is a plan and edge view of the inner end of an attaching arm of a section of the agitator. 60

In the accompanying drawings, 1 is a portion of a circular stuff chest, of any ordinary construction, in which is contained the material to be mixed. Within the stuff chest 1 is located a vertically extending rotary shaft 4, which is suitably mounted at its lower end in 65 a step 5, and has secured on its upper end, in this instance a belt pulley 6.

I will now describe my improved agitator.

The agitator 7 is, in this instance made in three separate sections in curved shape, the contiguous ends of 70 which are adapted to overlap, and be bolted, or otherwise detachably secured together to form a ring, or round disk opened through the center. Each section 7' has preferably one arm 7'' extending inwardly therefrom, and preferably cast integral with the section. 75 The outer end of said arm preferably extends to the outer edge of the disk, as shown by broken lines in Fig. 5, to form a downwardly extending vertical blade or flange 7''' on the underside of the disk, tangentially disposed. Each section preferably has upon its under- 80 side a second downwardly extending vertical blade 7<sup>a</sup>, tangentially disposed, and upon its upper side two ribs 7<sup>b</sup>, tangentially disposed. The blades 7''' and 7<sup>a</sup>, and ribs 7<sup>b</sup>, are used for the same purpose as the blades and ribs shown and described in my said Patent, 85 No. 492,475. Each arm 7'' on the sections 7', has a vertically extending ear or lug 7<sup>c</sup> on its inner attaching end, and between said ears or lugs 7<sup>c</sup> a hub or collar 8 extends, and is secured to said lugs 7<sup>c</sup>, in this instance by bolts 9. The hub 8 is secured to the shaft 90 4 by bolts or otherwise.

In connection with the agitator 7, I preferably use an auxiliary propeller 10, which is preferably made as shown in the drawings, having a central hub 10', adapted to fit on and be secured to the shaft 4, at a 95 suitable distance above the agitator 7. The hub 10' has preferably three arms 10'' extending out therefrom, and preferably integral therewith, which are of curved shape, and extend in a horizontal plane at an angle to the hub 4', as shown, so that as the said arms 100 10'' of the propeller revolve with the shaft 4, in the direction indicated by the arrow, Fig. 2, and in the same direction as the agitator 7 the pulp or other material will be drawn inwardly and downwardly toward the agitator 7. 105

The revolution of the agitator 7 will cause the pulp or other material to pass down through the open or perforated central portion of the agitator, between the



arm 7", and be agitated and mixed by the blades and ribs on the agitator, and then pass out from under the outer edges thereof to the upper part of the stuff chest, as shown by arrows in Fig. 1.

5 It will be understood that the details of construction of my improvements may be varied if desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

- 10 1. In a mixing apparatus, the combination with a rotary shaft, and a hub made separate therefrom and secured thereon, of an agitator made in sections, each section of curved shape and provided with a plate or plates on the under side thereof, and a fin or fins on the upper side thereof, and the contiguous ends of the sections secured  
15 together, to form a ring or disk having its central part open for the passage of the material to be mixed, and each section having an attaching arm thereon—extending inwardly therefrom, and having a vertically extending lug on its attaching end, adapted to be secured to said hub.
- 20 2. In a mixing apparatus, the combination with a rotary shaft, and a hub made separate therefrom and secured thereon, of an agitator made in sections, each section

of curved shape and provided with a plate or plates on the underside thereof, and a fin or fins on the upper side thereof, and the contiguous ends of the sections secured  
25 together, to form a ring or disk, having its central part open for the passage of the material to be mixed, and each section having an attaching arm integral therewith—extending inwardly therefrom, and at its outer end extending to the outer edge of the section, and at its inner end  
30 having a vertically extending lug thereon adapted to be rearwardly secured to said hub.

3. In a mixing apparatus, the combination with a rotary shaft, and an agitator made in sections, each section of curved shape, and provided with a plate or plates on  
35 the underside thereof, and a fin or fins on the upper side thereof, and an attaching arm extending inwardly therefrom, and the contiguous ends of the sections secured together, to form a ring or disk having its central part open for the passage of the material to be mixed, of an auxiliary  
40 propeller located above the agitator, and secured on said shaft to revolve in the same direction as the agitator.

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