

No. 633,124.

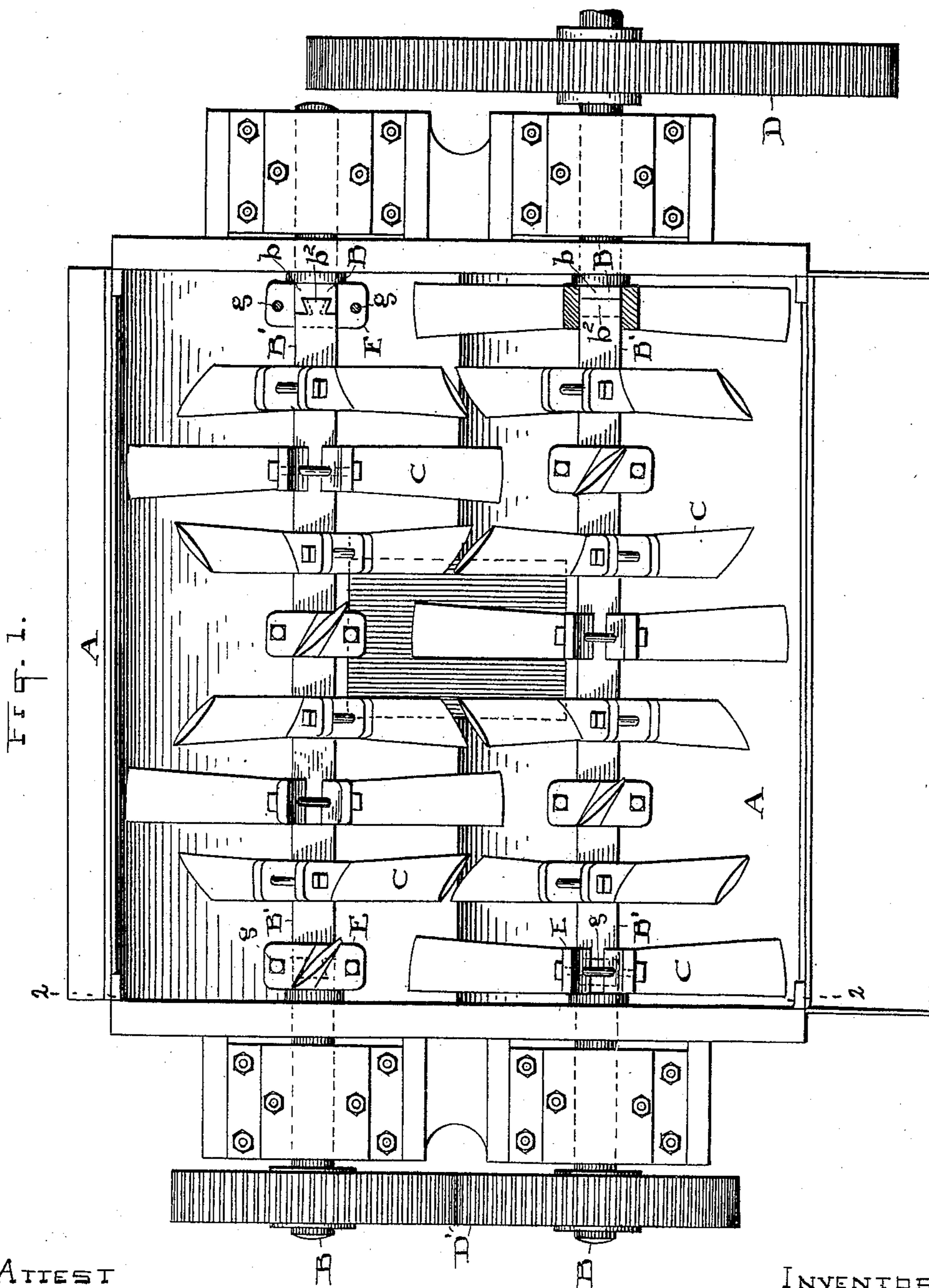
Patented Sept. 19, 1899.

W. M. CUMMER.
MIXING MACHINE.

(Application filed Apr. 8, 1899.)

(No Model.)

2 Sheets—Sheet 1.



ATTEST

R. Smoser
H. E. Mydra

INVENTOR

WILL. M. CUMMER

BY

W. T. Fisher

ATTY

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Fig. 2.

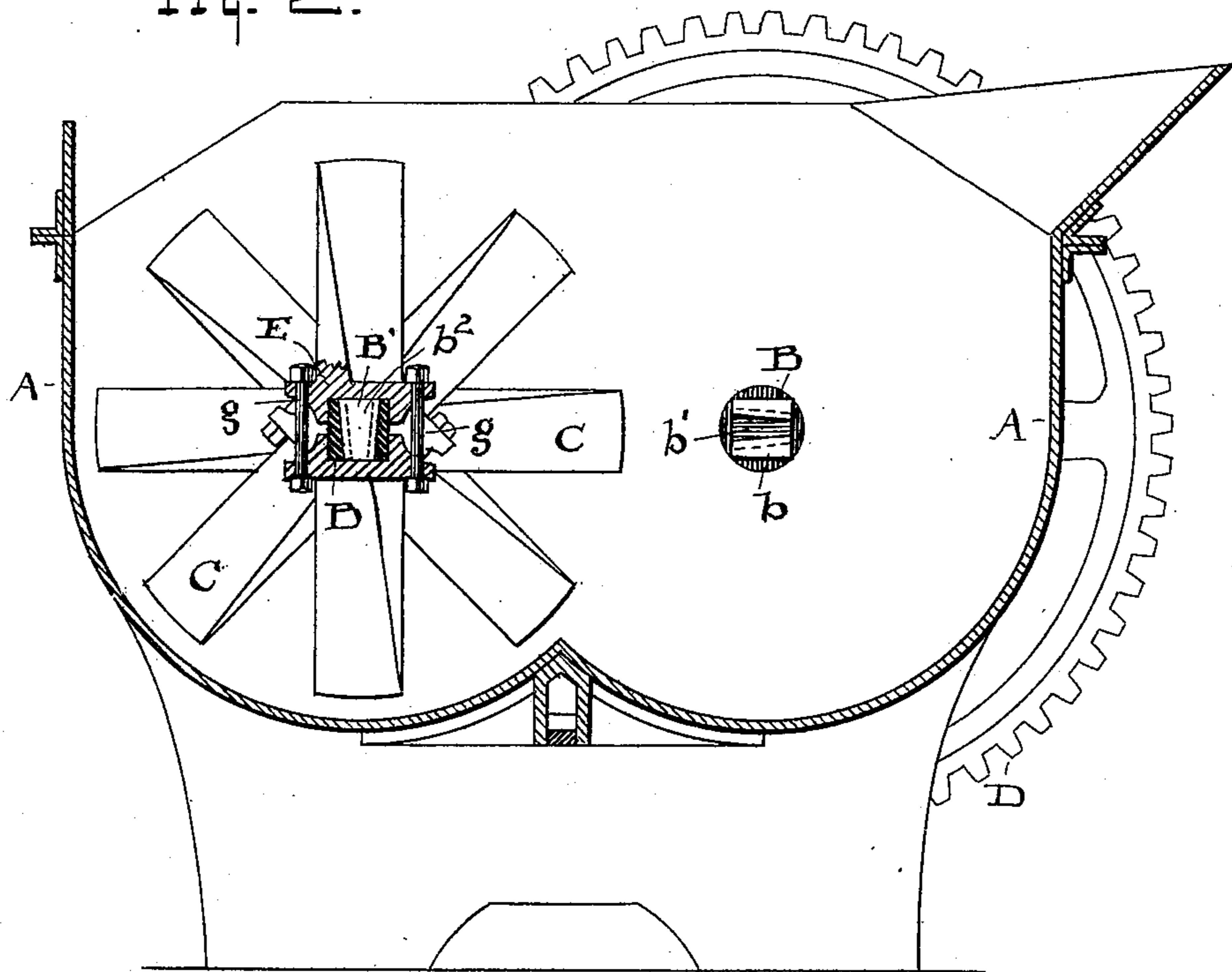
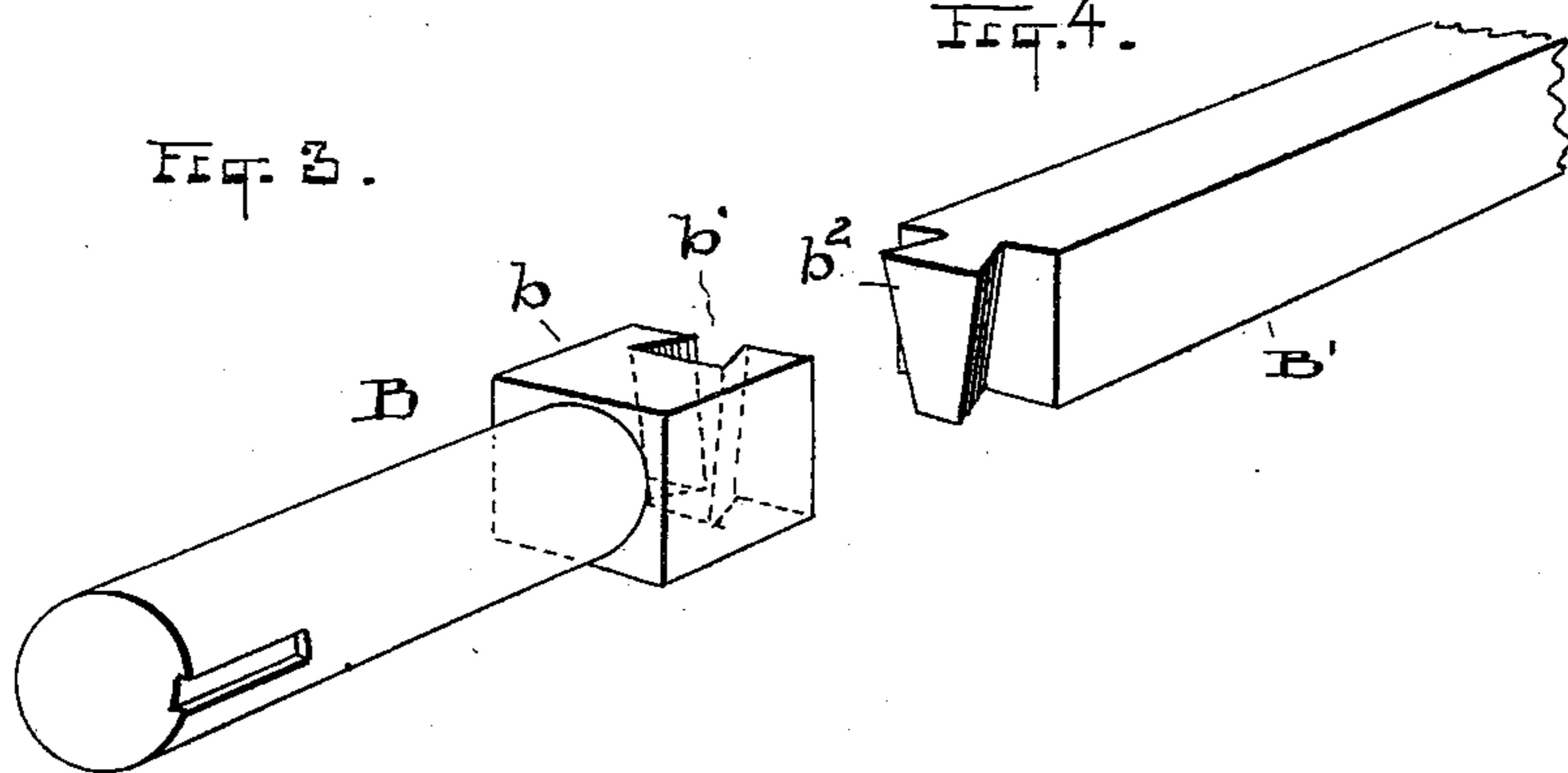


Fig. 4.

Fig. 3.



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J. B. Moser
St. E. Mydra

INVENTOR.

WILL M. CUMMER

BY

W. V. Fisher
ATTY.

UNITED STATES PATENT OFFICE.

WILL M. CUMMER, OF CLEVELAND, OHIO.

MIXING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 633,124, dated September 19, 1899.

Application filed April 8, 1899. Serial No. 712,223. (No model.)

To all whom it may concern:

Be it known that I, WILL M. CUMMER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Mixing-Machines; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it ap-
10 pertains to make and use the same.

My invention relates to mixing-machines such as are used on a large scale or of a large size for mixing asphalt compositions for pavements and other purposes and generally for
15 mixing plastics and compounds of various kinds requiring thorough incorporation and union of all the elements. It occurs in machines of this kind not only that there is excessive wear in the moving parts, requiring
20 repair and replacement at different intervals, but when differently-conditioned materials are to be mixed requiring also different constructions or styles of mixing blades or arms. Obviously also in the case of machines built
25 in the large proportions or size of these it is both difficult and inconvenient to handle the mixer shaft and blades and gears in one part or as a whole to make changes, because they are not only very heavy, but also very awkward for handling. Hence I have conceived
30 the idea of building a machine with a sectional shaft having a single removable part and two stationary parts, all substantially as shown and described, and particularly pointed
35 out in the claims.

In the accompanying drawings, Figure 1 is a plan view of a mixing-machine containing my improvement. Fig. 2 is a cross-section
40 on line 2 2, Fig. 1, disclosing the invention in two particulars, as hereinafter fully described. Fig. 3 is a perspective view of one of the end sections of the shaft, and Fig. 4 is a perspective view of the matching end of the middle
45 or removable section of the shaft.

A represents the casing or hopper of the machine, in which are two cooperating mixer-shafts, formed each in like sections B B, with
50 blades C of any suitable kind, according to the material to be mixed, and gears D and D' at opposite ends for jointly rotating the said shafts. As both shafts are alike, a descrip-

tion of one will suffice for both. Now to carry out my idea of convenience for exchange of shafts and blades, I have made a shaft consisting of three sections, two equal end sections B and one longer middle section B'.
55 One of the end sections is shown fully in Fig. 3, where it is seen to be circular in cross-section to form the bearing part of the shaft and receive a gear-wheel on its end, 60 while the inner end thereof has a head *b* with an undercut slightly-tapered mortise or recess *b'* directly across its end, adapted to receive the correspondingly-formed tongue or tenon *b*² on the middle section B'. This
65 tongue has the form, substantially, of a dovetail tenon, except that it is wedge shaped lengthwise, and as the recess *b'* is tapered to match the tenon the two when united form a flush and firmly-locked union of the parts, with
70 their shoulders abutting. The same kind of joint is used at both ends of the section B', and of course the recess *b'* and tenon *b*² might be reversed as to the shaft-sections without affecting the invention—that is, the tenon
75 might be on B and the recess on B'. Now having the shaft united in this way it is bound together and made practically the same as if it were one solid piece by means of the two-part flanged heads E, which carry the blades
80 C, and a cross-section of which is seen at the left in Fig. 2. These heads have width or reach enough to completely overlap the joints on both sides, and then by fastening the bolts
85 *g* the work is complete and the middle section, with its blades, is in working position. Then in removing the middle section B', with its blades, I leave the end sections both in their bearings and undisturbed, and it is only
90 necessary to take off the locking-heads E at each end and at once the said middle section is ready to be lifted out. Of course a special clip or fastening for these joints could be used in lieu of the blade-fastenings, but I prefer
95 to employ the heads of the stirrer-blades for this purpose and make them perform a double office. In this instance I show a middle-shaft section angular in cross-section, which is the preferred form; but this is not necessary, and hence the joint could be made by omitting
100 the head *b* and using a shaft which is cylindrical throughout. In that case a spline or

other means would be required to prevent rotation of the blades on the shaft. It will also be noticed that the body or casing A has holes in its sides through which the shaft extends, 5 which, however, are suitably packed or otherwise protected to prevent leakage at this point.

What I claim is—

10 1. A sectional shaft for a mixer having stirring-blades provided with flanged heads and fastenings, said heads adapted to completely overlap the joints of the sections and fasten them together, substantially as described.

15 2. A shaft consisting of three several sections locked together at their ends, a series of stirrer-blades fixed to the middle section, and fastenings overlapping the joints where

the ends of the sections come together, substantially as described. 20

3. A shaft consisting of two stationary end sections and an intermediate removable section forming the body of the shaft, said sections connected by an interlocking joint and said removable section provided with a removable fastening overlapping and fastening 25 the joint of said section with the adjacent section, whereby said center fastening and section are removed without disturbing said end sections, substantially as described. 30

Witness my hand to the foregoing specification this 8th day of March, 1899.

WILL M. CUMMER.

Witnesses:

H. E. MUDRA,

R. B. MOSER.