

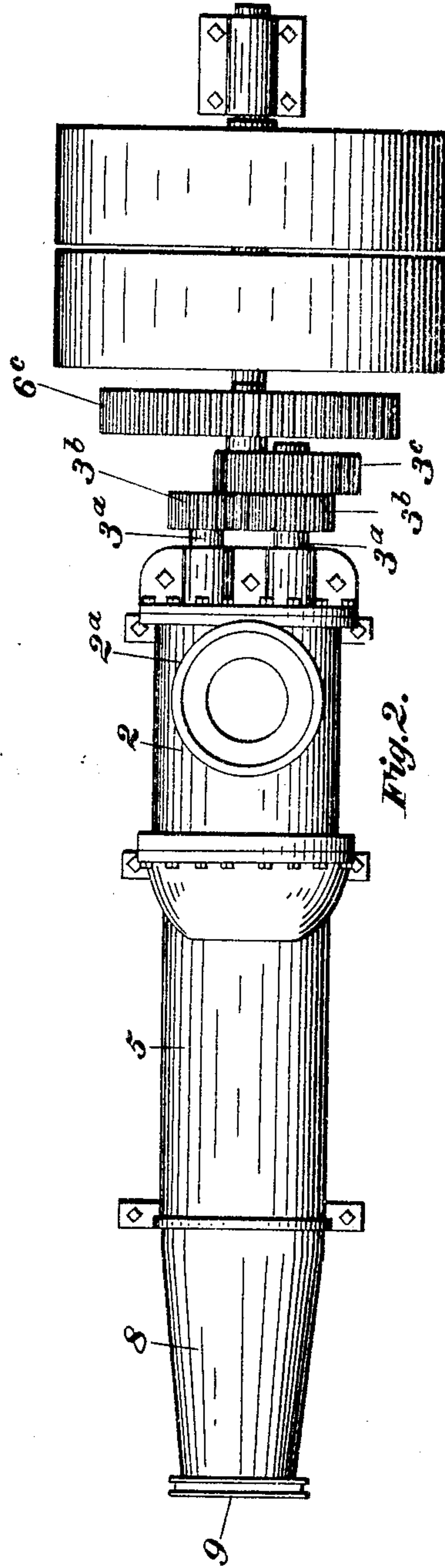
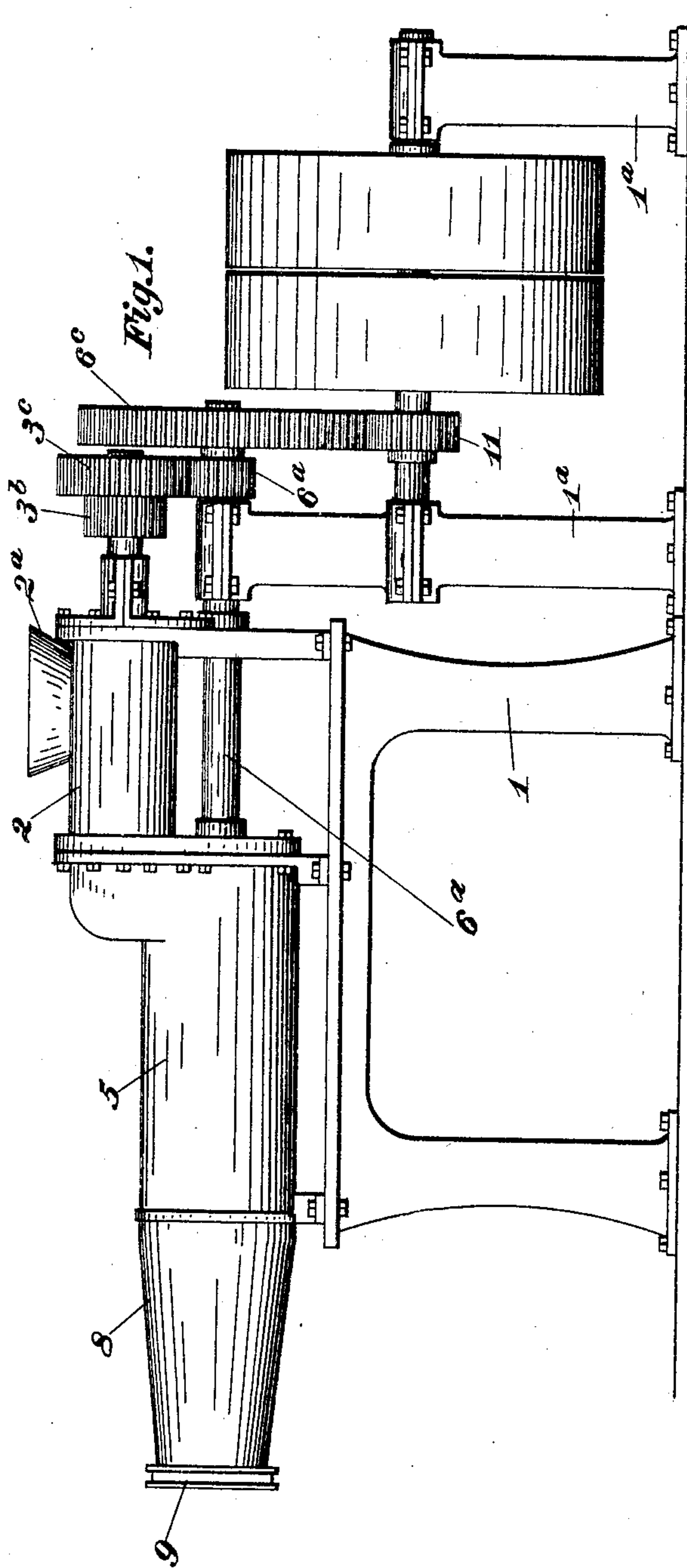
No. 786,125.

PATENTED MAR. 28, 1905.

J. N. HINKLE.
SOAP MILL.

APPLICATION FILED AUG. 19, 1904.

2 SHEETS—SHEET 1.



Witnesses

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Inventor

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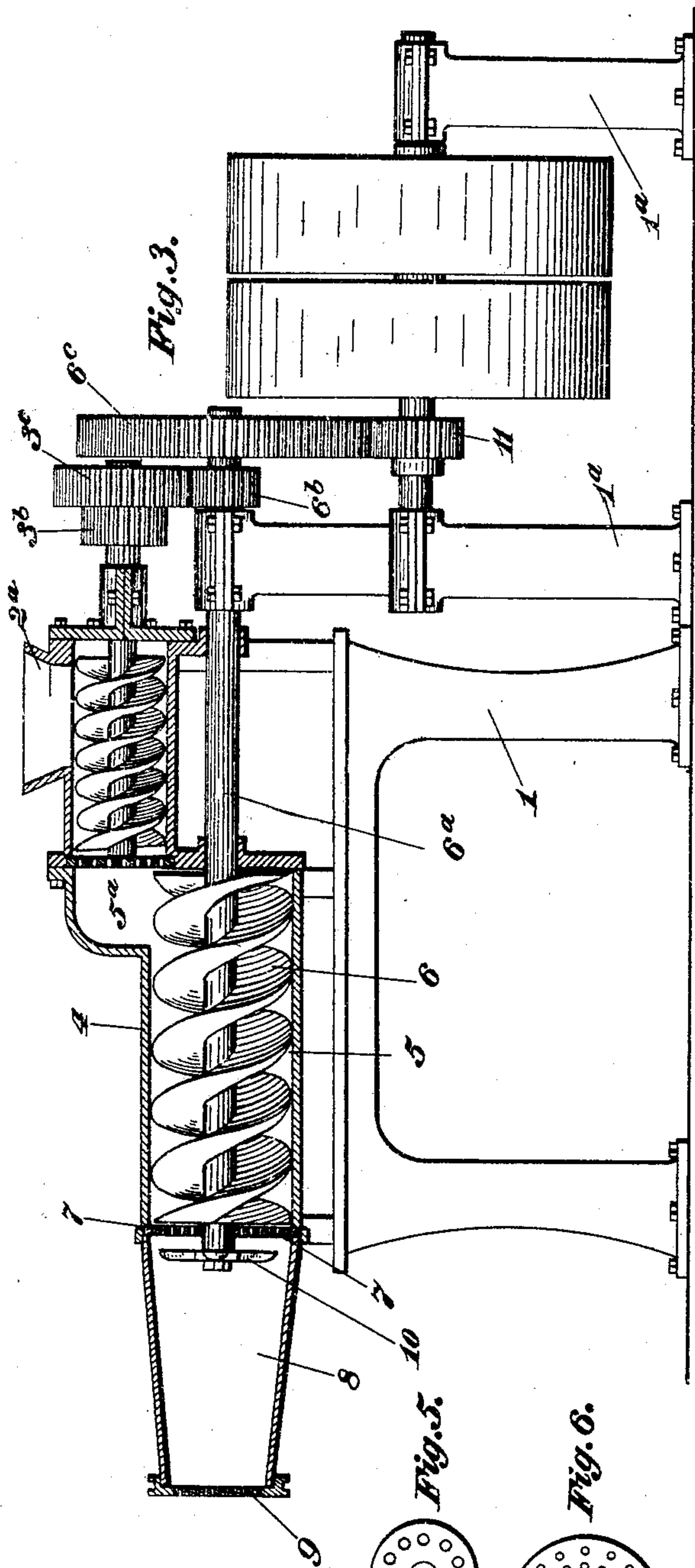


Fig. 4.

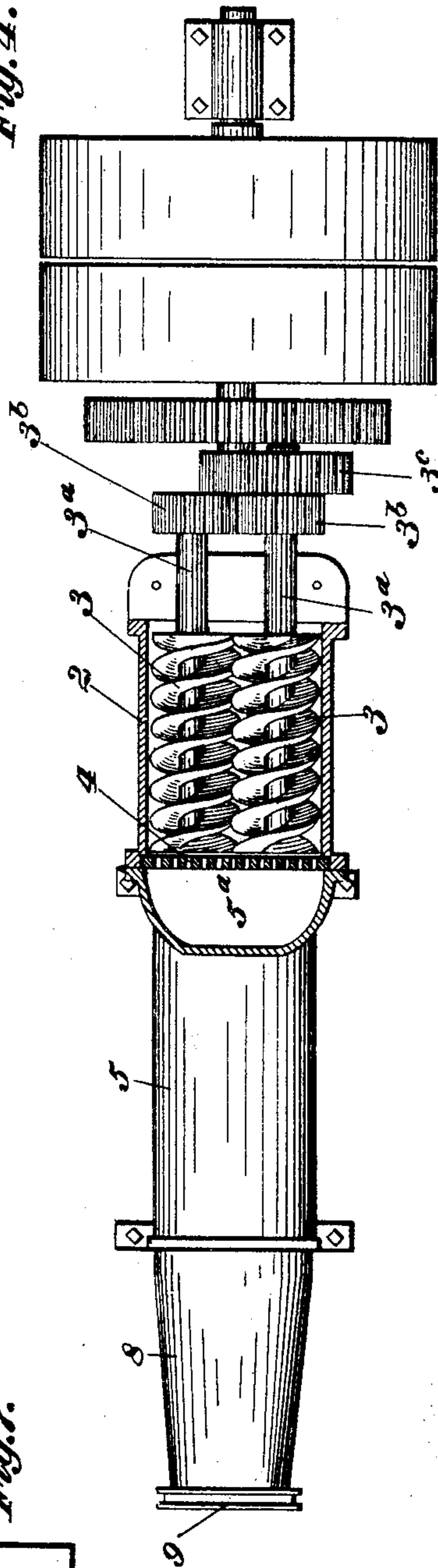


Fig. 5.

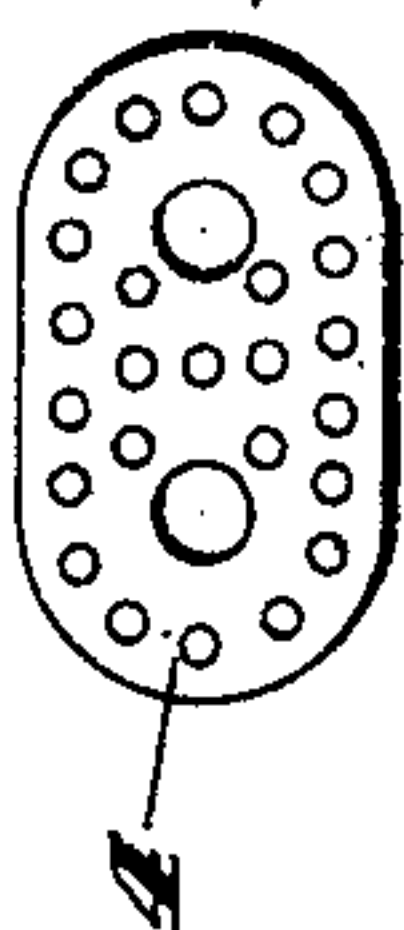


Fig. 6.

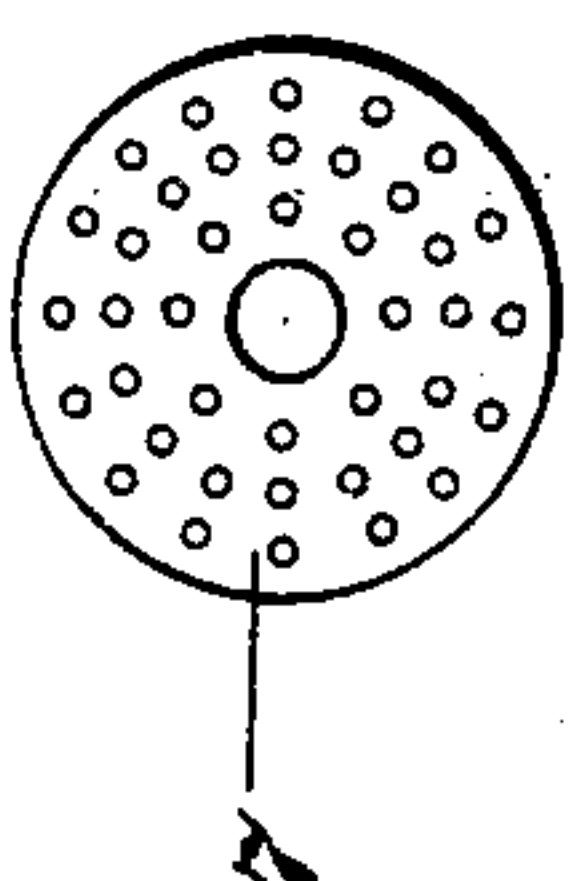
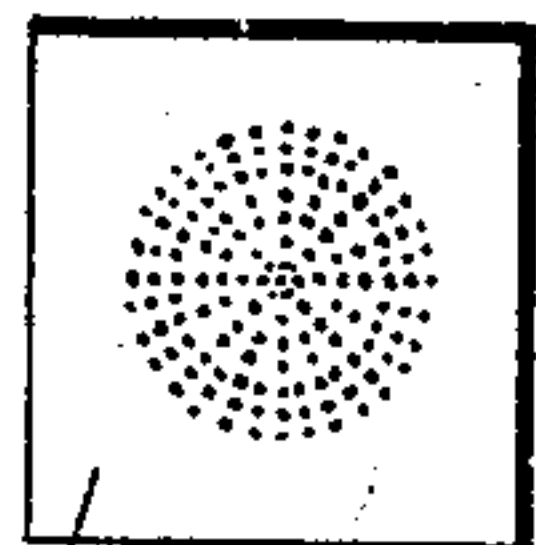


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN N. HINKLE, OF COLUMBUS, OHIO.

SOAP-MILL.

SPECIFICATION forming part of Letters Patent No. 786,125, dated March 28, 1905.

Application filed August 19, 1904. Serial No. 221,411.

To all whom it may concern:

Be it known that I, JOHN N. HINKLE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Soap-Mills; and I do hereby 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 appertains to make and use the same.

So far as I am informed, soap has heretofore been milled by passing it through stone rolls; but I have found it impracticable to mill—that is, grind and mix in perfume and coloring-matter where the soap has for its base vegetable oil—without leaving it more or less flaky and streaky.

The object of this invention, therefore, is to provide a machine in which this work can be successfully performed; and the invention consists in the construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a machine according to the invention; Fig. 2, a top plan view; Fig. 3, a vertical section of part of Fig. 2; Fig. 4, a horizontal section of part of Fig. 3. Figs. 5, 6, and 7 are views of the several perforated milling-plates.

In the several views, 1 designates a suitable frame upon which the milling-chambers are supported.

2 designates the primary or first of the chambers. This chamber is nearly elliptical in cross-section and is made so as to receive a pair of parallelly-arranged screws 3 3, the threads of which preferably intermesh. The shafts 3^a 3^a of these screws 3 3 are journaled at their right-hand ends in suitable bearings in the right-hand head of the chamber, and said shafts project beyond said head and are provided with meshing gears 3^b 3^b of equal diameters, so that said shafts can be turned synchronously. At their left-hand ends the shafts 3^a 3^a are conveniently journaled in the perforated plate 4, which is fitted in the corresponding end of the chamber 2. The second chamber, 5, is located to the left and below the first chamber. It is mainly cylindrical in form, but is enlarged above its right hand end where it is joined to the first cham-

ber, as seen at 5^a, so as to afford an inlet for the soap exuding through the perforated plate 4. The second chamber 5 is provided with a feeding-screw 6, the right-hand end of the shaft 6^a, of which extends back under the first or double-screw chamber, so that a pinion 6^b thereon may engage a pinion or gear 3^c on one of the shafts 3^a. The left-hand end of the shaft of the screw 5 projects through and is supported in a perforated plate 7, fitted in the left-hand end of the chamber 5.

8 designates a third chamber into which the soap discharges from the chamber 5. This chamber is shown to be of slightly-tapering form and to be provided at its left-hand end with a perforated plate 9. The end of the shaft 6^a where it projects into the chamber 8 is provided with a star-shaped wheel 10, which cuts, stirs, and mixes the threads of soap as they exude through the plate 7.

In practice the holes or perforations of the several diaphragm-plates 4, 7, and 9 will be uniform in each plate, but different in the different plates. For example, the perforations of the plate 4 will be of half-inch diameter, those in the plate 7 of quarter-inch diameter, and those in the plate 9 of eighth-inch diameter.

The chamber 2 is provided with a hopper 2^a, through which the soap to be milled is passed into the machine.

The right-hand end of the shaft 6^a is shown to be provided with a large spur-gear 6^c, and this is shown to be engaged by a pinion 11 on a power-driven shaft 11^a, suitably supported in standards 1^a supplemental to the main frame.

In operation the unmilled soap is supplied in chips with the coloring-matter and perfumery through the hopper 2^a into the first chamber. The soap is then forced by the screws 3 through the first perforated plate 4 into the enlargement 5^a of the chamber 5. From this point the screw 6 takes the soap, forcing it through the chamber 5 and perforated plate 7 and also crowding it through the chamber 8 and perforated plate 9. In its passage through the chamber 8 the soap is stirred with the transversely-rotating star-wheel 10.

It will be observed that with this machine the soap is first subjected to the crowding action of the intermeshing screws, being thereby

forced through plate 4, which divides it into many threads that are subsequently united and again crowded through the second dividing-plate 7 and after this laterally stirred and 5 crowded and finally divided, thus thoroughly mixing the coloring-matter and perfumery with the soap, making it properly ready for molding into cakes or bars.

What I claim, and desire to secure by Letters Patent, is—

1. In a soap-mill, the combination of a first and a second chamber, the first located above the second, a hopper or supply opening to the first chamber, feeding-screws in both said 15 chambers, a perforated plate between the discharge end of the first chamber and the inlet end of the second chamber, and a perforated plate at the discharge end of the second chamber.

2. In a soap-mill the combination of a first and a second chamber the first of which has an opening through which soap can be supplied thereto, a perforated plate or diaphragm between and dividing said chambers, feed- 25 screws in said chambers for forcing the soap out of the same and through the perforated plate or diaphragm.

3. In a soap-mill, the combination of a series of three chambers, perforated plates between the adjoining chambers and at the end 30 of the third chamber, feed-screws in the first and second chambers and a stirring-wheel in the third chamber.

4. In a soap-mill, the combination of two chambers, the first arranged above the second 35 and the second provided with an enlargement in line with the exit end of the first, a perforated plate at the exit end of the first and feed-screws in said chambers.

5. In a soap-mill, the combination of two 40 chambers, the first arranged above the second and the second provided with an enlargement in line with the exit end of the first, a perforated plate at the exit end of the first chamber, feed-screws in both chambers and means 45 for simultaneously operating the screws of both chambers.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN N. HINKLE.

Witnesses:

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BENJ. FINCKEL.