

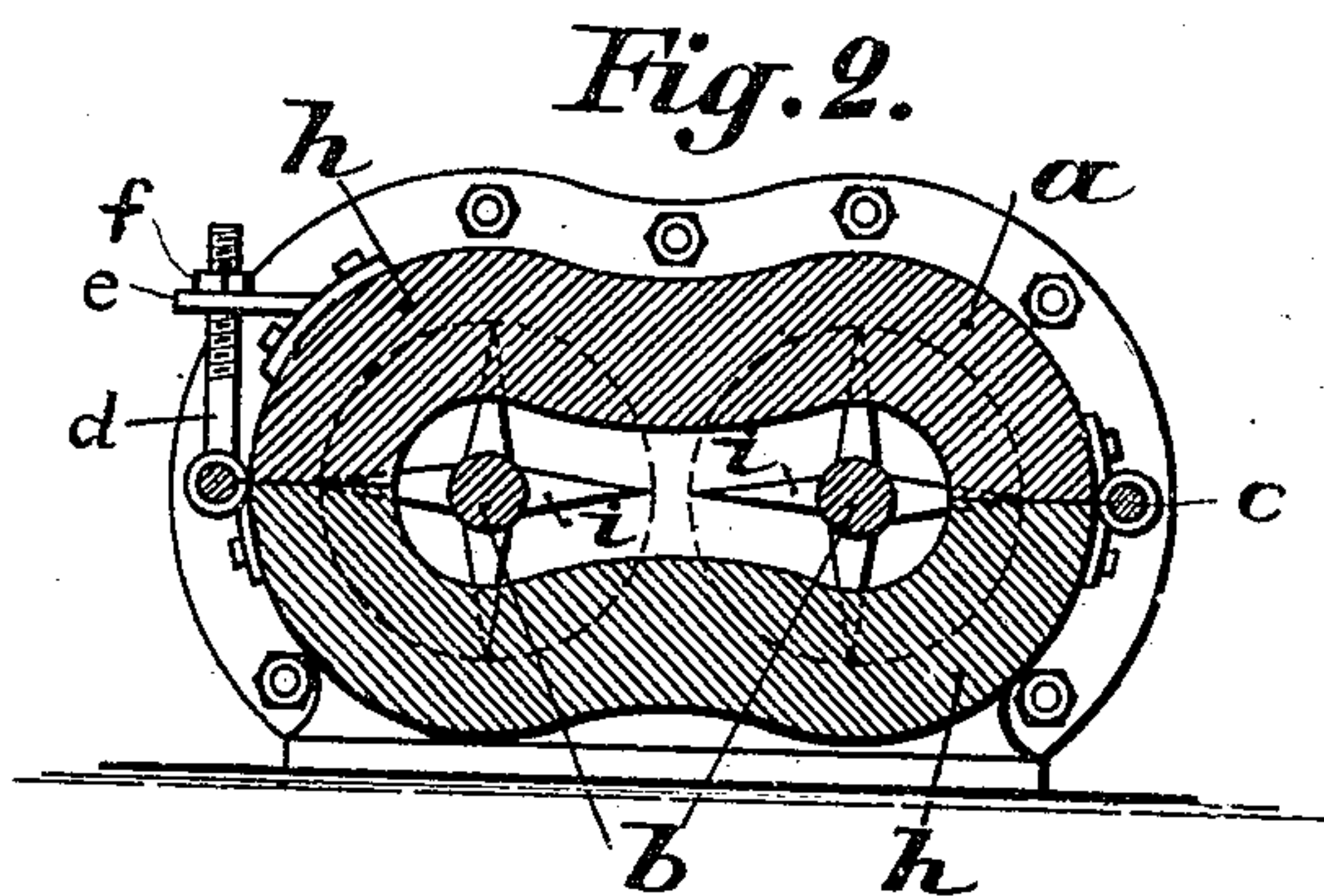
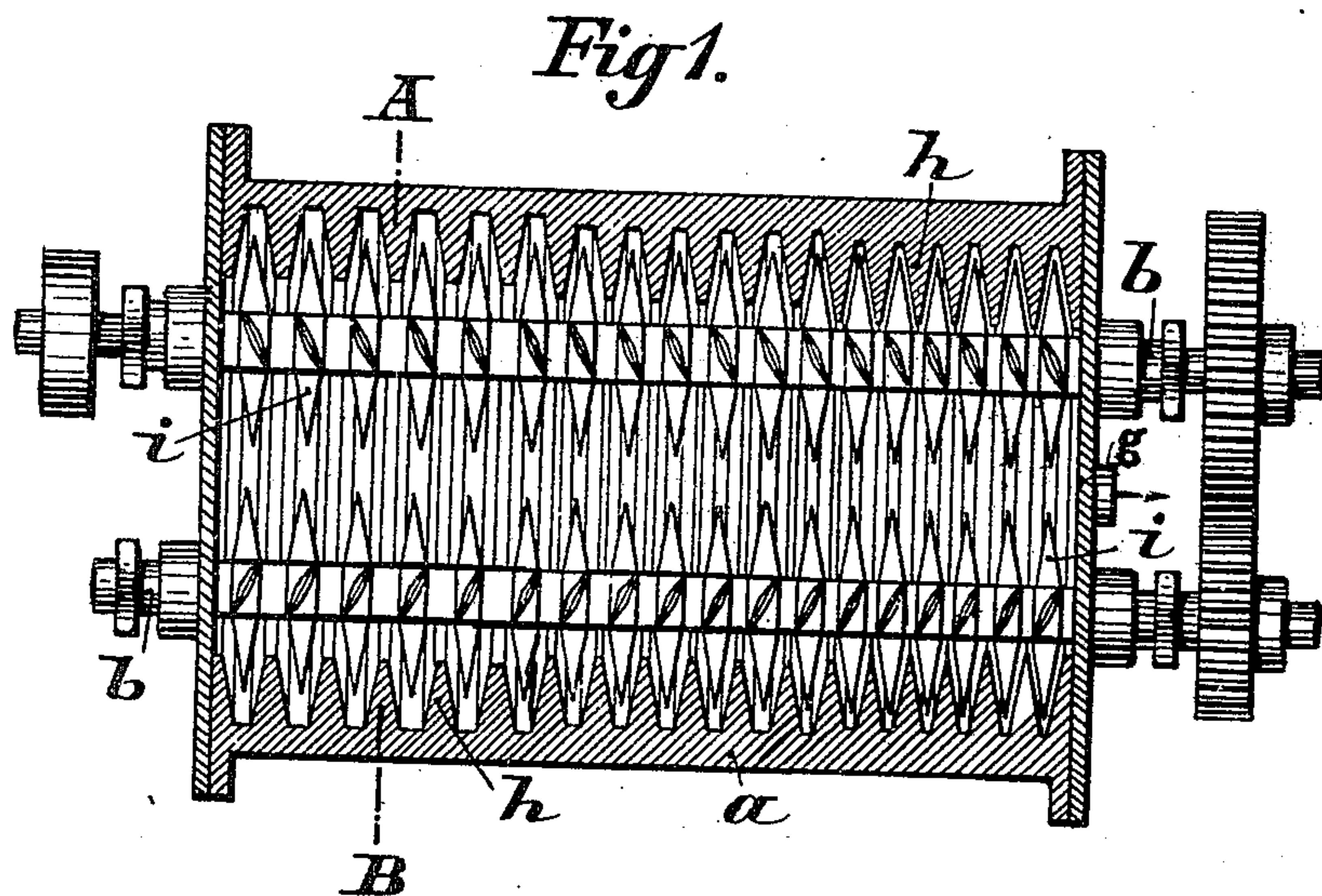
No. 666,404.

Patented Jan. 22, 1901.

C. WURSTER.
PULPING AND KNEADING MACHINE.

(Application filed July 12, 1900.)

(No Model.)



WITNESSES:

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CASIMIR WURSTER, OF LONDON, ENGLAND.

PULPING AND KNEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 666,404, dated January 22, 1901.

Application filed July 12, 1900. Serial No. 23,306. (No model.)

To all whom it may concern:

Be it known that I, CASIMIR WURSTER, a subject of the Emperor of Germany, residing at Dudley Mansion, 29 Abbey road, St. John's Wood, N.W., London, England, have invented a certain new and useful Pulping and Kneading Machine; 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.

My invention is intended for pulping paper or materials for the manufacture of paper; but it is obvious that it may be used for other purposes—such, for instance, as kneading clay or dough.

This invention consists in dividing the body of the ordinary kneading or pulping machine into a certain number of separate compartments, cells, or divisions by means of high ribs projecting between the stirring and kneading arms in such a way that very little space is left between the propelling blades and the shaft on which the said pulping or kneading arms are fixed. By this arrangement of the parts, a sifting or separating of the larger bodies or such that are too hard or elastic to be kneaded or pulped during the kneading or pulping process itself is obtained, the larger particles being kept back, as the spaces between the ribs and the shaft are such that they only allow particles of a certain size to pass through into the next compartment.

The principal and first object of the ribs is to sift and separate and to keep back foreign substances which are too large or too hard to pass. The kneading or pulping action of these ribs is only a secondary consideration.

In the accompanying drawings, which illustrate one form of pulping and kneading machine made in accordance with my invention, Figure 1 is a longitudinal horizontal section, and Fig. 2 is a vertical cross-section.

In the body *a* of the machine there revolve two shafts *b b*, which are furnished with mixing or conveying blades *i*, which push the material from one end of the machine to the other. The number of the shafts varies according to the material to be pulped. In the body *a* there are arranged high ribs *h*, forming partitions which reach nearly to the shaft

between the mixing or propeller arms. In this way the body of the kneader is changed into a battery of different compartments, in which each compartment acts as a sieve or separator. Only those particles which are already smaller than the opening in the central part—that is to say, the space between the ribs, the propellers, and the revolving shaft—can pass through into the next compartment. By this arrangement not only can a much quicker and more complete mixing or pulping take place, but it is possible to keep back and therefore separate automatically nearly all the impurities and hard or elastic foreign substances which do not pulp up well or quickly. These hard substances generally stick between the blades of the propeller and have to be taken out from time to time by hand, when the machine is stopped for this purpose. It is also possible to make the arms longer, the ribs more projecting, and the spaces narrower toward the end of the machine, as is shown in Fig. 1, and in this manner to always keep back the coarser particles and to only allow the really fine and already pulped or kneaded stuff to leave the machine. In this way there is also no danger of the propelling blades breaking, even when the spaces between the blades, the ribs, the shaft, and body of the machine are made very small indeed.

The body of the machine is divided into upper and lower parts, which are hinged together at *c*. The lower part of the body is provided at the side opposite the hinge *c* with a bolt *d*, pivotally connected thereto. The bolt *d* is adapted to engage with a slotted lug *e*, secured to the upper part of the body, and is provided with a nut *f*, by means of which the two parts of the body are securely fastened together.

The operation of my machine is as follows: The nut *f* is first loosened, so that the bolt *d* may be swung out of engagement with the lug *e*. The upper part of the body *a* can now be swung back on the hinge *c* and the material to be pulped placed in the machine by hand. The parts of the body *a* are now secured together by means of the bolt *d*, lug *e*, and nut *f*, and the shafts *b* are rotated in such a direction that the blades *i* will drive the material toward the outlet-opening *g* at the

same time that they knead and pulp the said material. As the openings around the shafts *b* are of successively-diminishing area, the largest particles are kept back at the end of the machine opposite the outlet-opening and the smaller particles are kept back as the material approaches the smaller end until only the completely-pulped material is allowed to pass through the last opening and out through the outlet *g*.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a pulping and kneading machine, the combination with a casing, of a shaft passing through said casing, partitions carried by one of said parts but not extending to the other, whereby said machine is divided into a plurality of compartments communicating with each other through restricted openings, and kneading-blades carried by said shaft and operating in said compartments.

2. In a pulping and kneading machine, the combination with a casing, of a shaft passing through said casing, partitions carried by one of said parts and dividing the machine into a plurality of compartments communicating with each other through restricted openings of successively-diminishing area adjacent to the other of said parts, and kneading-blades carried by said shaft and operating in said compartments.

3. In a pulping and kneading machine, the combination with a casing, of a shaft passing through said casing, partitions carried by said casing but not extending to said shaft, whereby said machine is divided into a plurality of compartments communicating with each other through restricted openings surrounding said shaft, and kneading-blades carried by said shaft and operating in said compartments.

4. In a pulping and kneading machine, the combination with a casing, of a shaft passing through said casing, partitions carried by said casing and dividing the machine into a plurality of compartments communicating with each other through restricted openings of successively-diminishing area adjacent to said shaft, and kneading-blades carried by said shaft and operating in said compartments.

5. In a pulping and kneading machine, the combination with a casing consisting of an upper and lower section separably secured together, of a shaft passing through said casing, partitions carried by one of said parts

but not extending to the other, whereby said machine is divided into a plurality of compartments communicating with each other through restricted openings, and kneading-blades carried by said shaft and operating in said compartments.

6. In a pulping and kneading machine, the combination with a casing consisting of an upper and lower section separably secured together, of a shaft passing through said casing, partitions carried by one of said parts and dividing the machine into a plurality of compartments communicating with each other through restricted openings of successively-diminishing area adjacent to the other of said parts, and kneading-blades carried by said shaft and operating in said compartments.

7. In a pulping and kneading machine, the combination with a casing composed of an upper and lower section separably secured together, of a shaft passing through said casing, partitions carried by said casing but not extending to said shaft, whereby said machine is divided into a plurality of compartments communicating with each other through restricted openings surrounding said shaft, and kneading-blades carried by said shaft and operating in said compartments.

8. In a pulping and kneading machine, the combination with a casing composed of an upper and lower section separably secured together, of a shaft passing through said casing, partitions carried by said casing and dividing the machine into a plurality of compartments communicating with each other through restricted openings of successively-diminishing area adjacent to said shaft, and kneading-blades carried by said shaft and operating in said compartments.

9. In a pulping and kneading machine, the combination with a casing composed of an upper and lower section separably secured together, of two shafts passing through said casing, partitions carried by said casing and dividing the machine into a plurality of compartments communicating with each other through restricted openings of successively-diminishing area adjacent to said shafts, and kneading-blades carried by said shafts and operating in said compartments.

In witness whereof I have hereunto set my hand in presence of two witnesses.

CASIMIR WURSTER.

Witnesses:

KARL SCHMITT,
J. J. SCHOLZ.