

(No Model.)

2 Sheets—Sheet 1.

S. L. GOULD.

AUTOMATIC PULP EXTRACTOR.

No. 277,268.

Patented May 8, 1883.

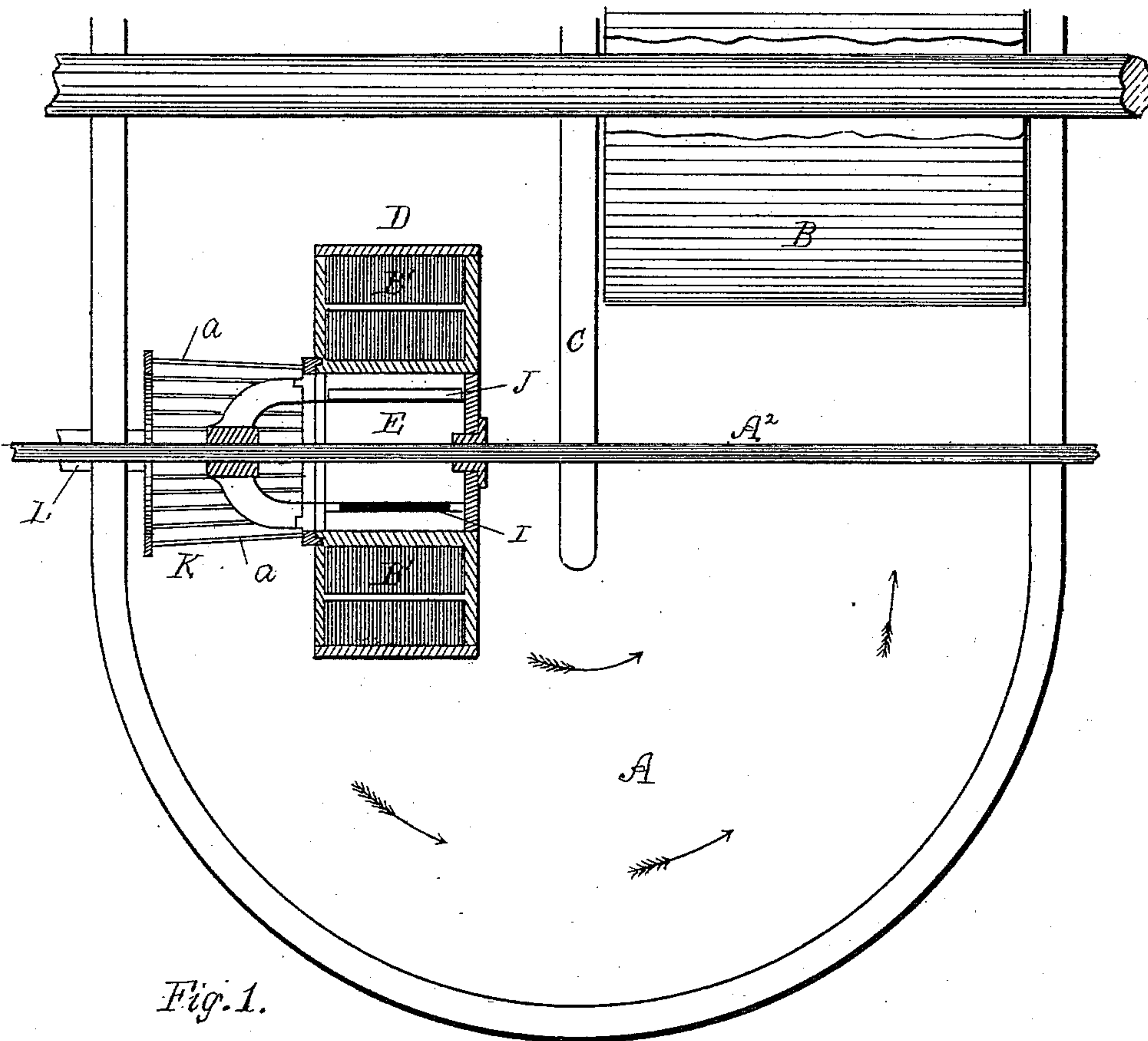


Fig. 1.

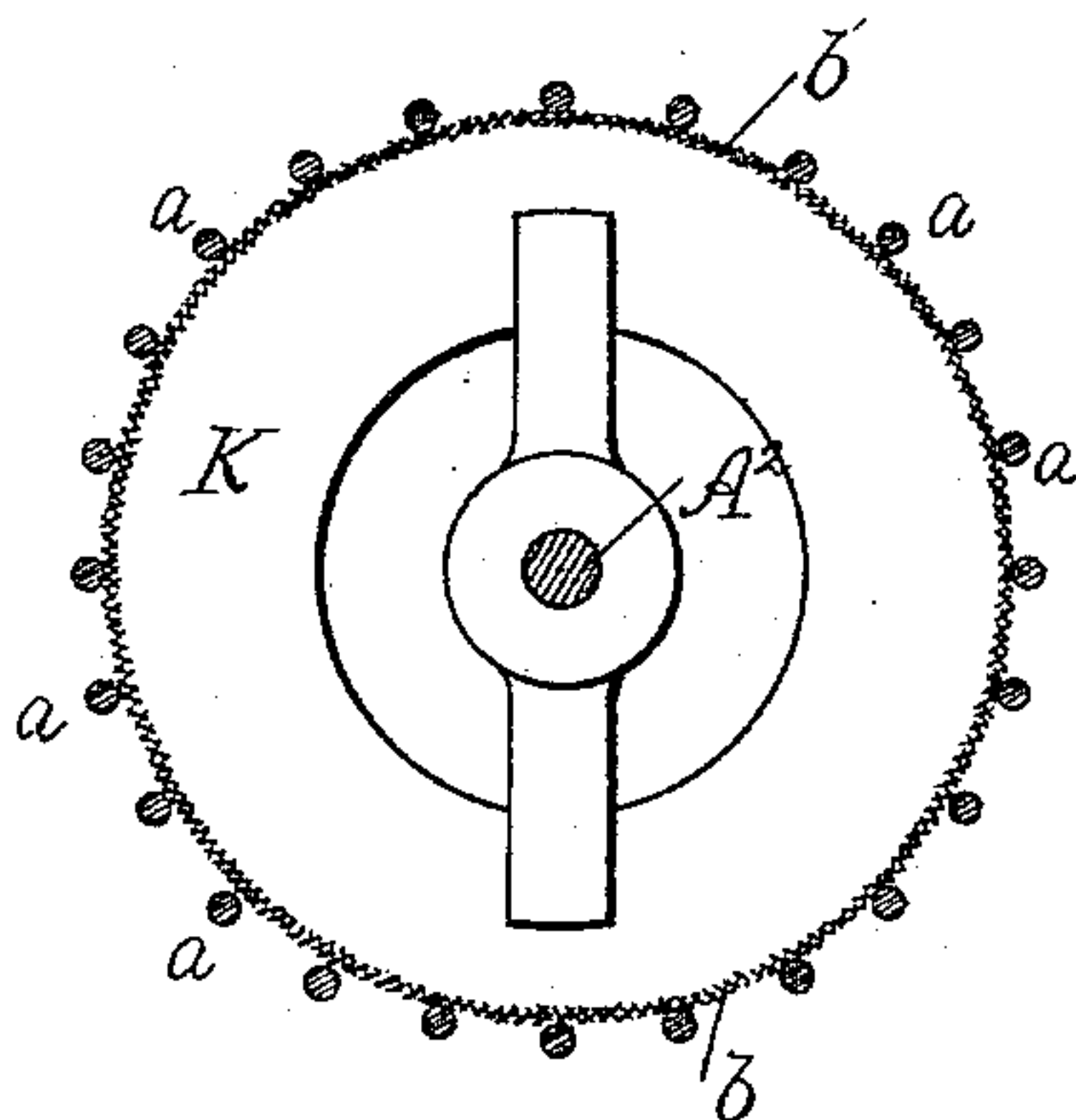


Fig. 2.

Witnesses.
H. E. Lodge.
Major D. Peter

Inventor.
Simeon L. Gould.
J. Curtis. Atty.

(No Model.)

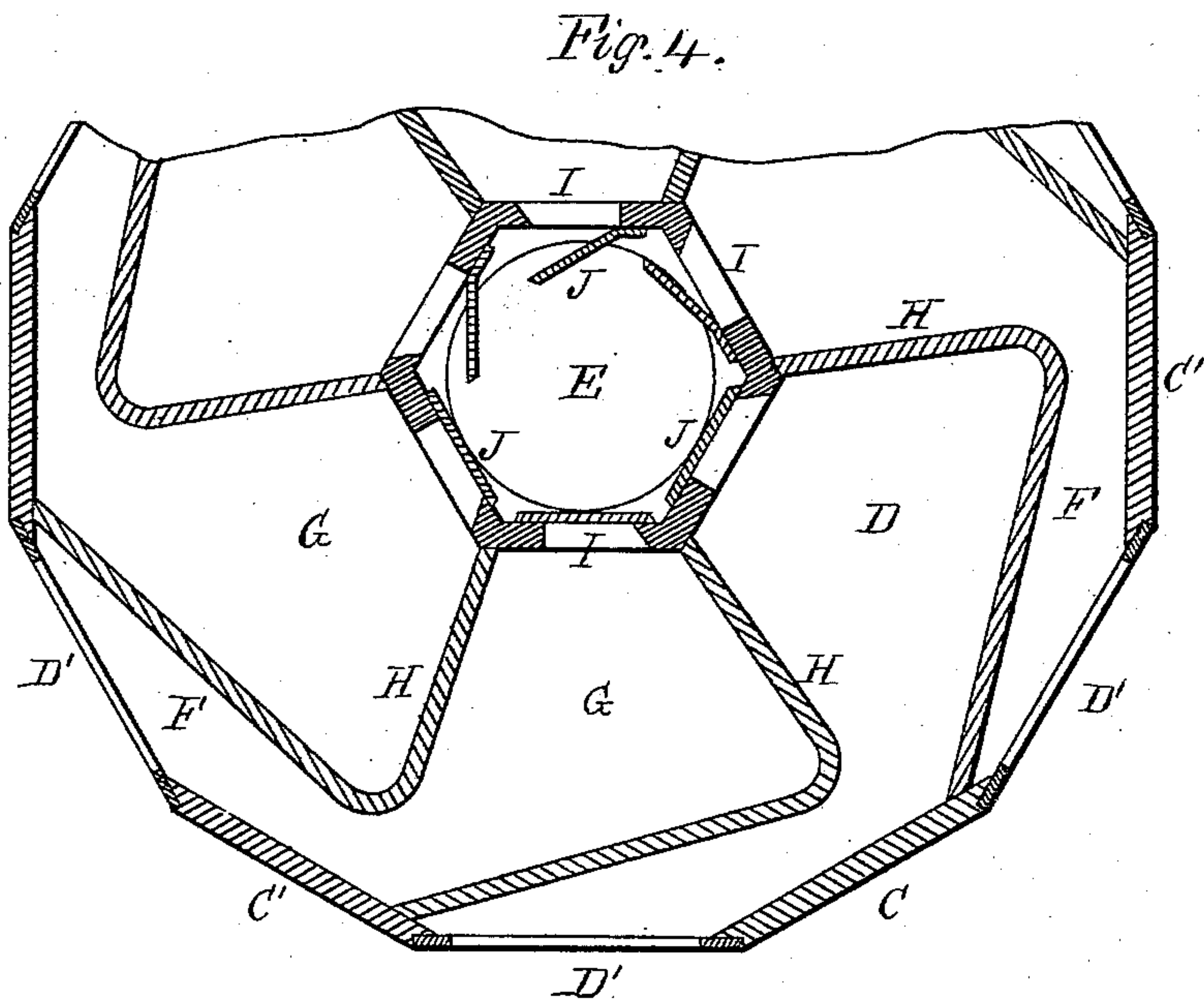
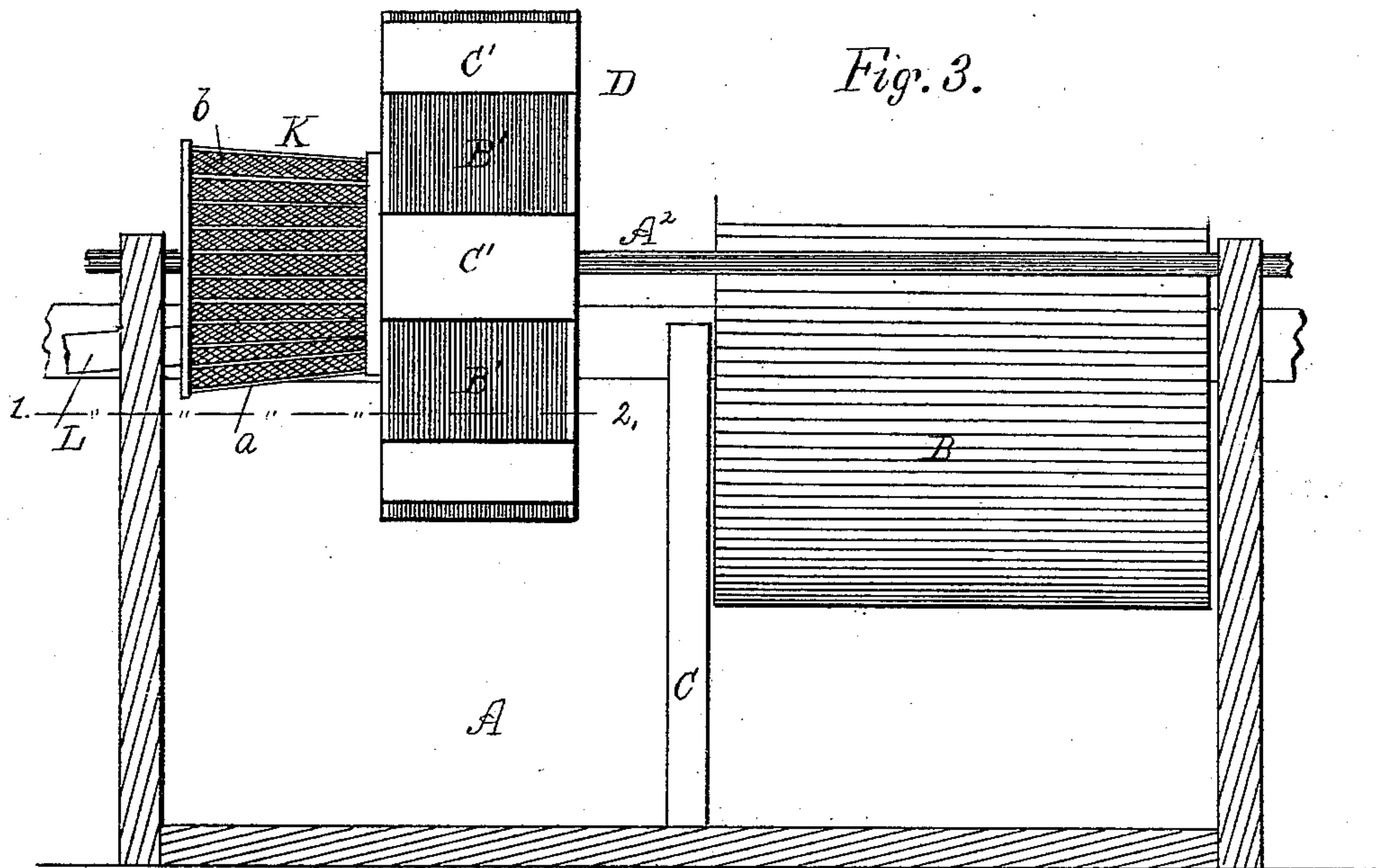
2 Sheets—Sheet 2.

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Witnesses.
H. C. Lodge
Major D. Porter

Inventor.
Simeon L. Gould.
H. Curtis, Atty.

UNITED STATES PATENT OFFICE.

SIMEON L. GOULD, OF GARDINER, MAINE.

AUTOMATIC PULP-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 277,263, dated May 8, 1883.

Application filed February 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, SIMEON LATHAM GOULD, a citizen of the United States, residing at Gardiner, in the county of Kennebec and State of Maine, have invented certain new and useful Improvements in Automatic Pulp-Extractors; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

In the manufacture of pulp for paper of the finer qualities it is customary to grind the material in a "beating-engine" until it is reduced to "half-stock," so called, and this half-stock is afterward subjected to a bleaching process, to be again ground to the desired consistency. In this operation the half-stock as furnished to the grinding-engines is in a very uneven condition as regards length of fiber, and a large percentage of it is reduced to a sufficiently fine state to be made into paper without further grinding, while the remainder is so long that the engine cannot be emptied until this long stock is reduced to an equal fineness.

The object of my invention is to utilize this finely-ground material by removing or extracting it from the engine as fast as it accumulates, leaving the bulk of the material behind; and I effect this by adding to a rag-engine a revolving drum provided with screen-plates sufficiently fine to permit of escape of the fine portions only of the said stock.

The drawings accompanying this specification represent in Figure 1 a horizontal cross-section of a beating-engine containing my improvements, while Fig. 2 is a cross-section of the tubular head, to be hereinafter explained; Fig. 3, an end elevation of the invention, and Fig. 4 a vertical cross-section of the rotary drum.

In said drawings, A represents a paper-rag engine of usual form, the grinding-roll thereof being shown at B and the mid-board at C.

In carrying out my improvements in one form in which my object is simply and effectually accomplished I form a hollow rotary drum, D, substantially in the form of the or-

dinary "cylinder-washer," so called, now generally employed with beating pulp-engines, with the exception that a portion of the periphery only of this drum has a reticulated covering. The drum D is mounted upon a horizontal shaft, A², revolving in bearings in the side of the engine. In any case the periphery of the drum is divided into a series of equal openings, D' D', &c., separated by alternating solid bars or plates C' C', the openings being covered by a suitable screening material. I prefer that this material shall be a series of slotted screen-plates, B' B', &c., such as are used in Fourdrinier machines to screen the pulp prior to the entrance of the latter upon the wire apron. My object in employing these screen-plates is that the pulp, after passing through them, will require no further screening, and because they are especially adapted to the purpose required of them. The interior of the drum contains an axial longitudinal passage, E, which is closed at its inner end and converts the remainder of the drum into an annular chamber, F, which in turn is divided into segmental compartments G G, &c., by partitions H H, &c., the mouth of each compartment G being made up of one of the screen-plates B' and a bar or plate, C', the pulp from the engine entering the compartment through such screen-plate. The inner termination of each compartment G communicates with the central passage, F, by a port, I, covered by a flap-valve, J, closing outward from the inside of the passage E. As each valve with the revolution of the drum D rises above the axis of rotation of such drum it opens and permits of entrance of pulp from the adjacent compartment G into the passage E, while as each valve passes below such axis it closes; hence the level of the pulp within the passage remains at a given level. To conduct the screened pulp from the passage E, I secure to its open end one end of a concentric tubular head, K, which is frusto-conical in form, with its larger end outward, by which an incline plane is produced, down which the pulp flows. The outer end of the head K is in close proximity to the side of the engine, and the pulp discharged from it flows into a chute, L, leading through said engine to the "stuff-chest" of the mill. This drum K has its periphery formed with wire bars or rods *a a*, &c.,

extending from one head to the other, while to prevent the pulp from escaping between said bars I provide the interior of said periphery with fine wire-cloth *b*, which allows a small portion of the water contained in said pulp to escape back into the engine, while the remainder of the water, with the pulp, passes down the spout into the stuff-chest. The half-stock in the engine should be maintained at a level somewhat below the largest periphery of the head K, so as not to enter the latter—for instance, as shown in the drawings. As the drum D rotates in the direction of its arrow the finely-reduced pulp flows into each compartment G in succession through the screens B', thence through the uppermost ports I into the passage E, and from the latter through the head K and chute L into the stuff-chest. Should any portions of the pulp passing through the head K tend to adhere to the latter and be carried about with it, I combine with the upper part of such head a showering-pipe, through which water may be precipitated upon the screens B' to dislodge any pulp that collects upon them.

I claim—

1. A paper-pulp-beating engine having an outlet protected by a screen sufficiently fine to admit of escape of finely-ground pulp and hold back the half-stock in such engine. 30

2. In combination, a paper-pulp-beating engine containing an opening provided with a screen to permit of escape only of finely-reduced pulp, a chest located outside of such engine to receive such pulp, and a device for conveying such finely-reduced pulp to said chest. 35

3. In combination, the engine A, the rotary drum D, divided into the compartments G G, &c., and passage E, with the intervening ports and valves, I and J, the openings D' and screens B', the hollow head K, and the chute L, all substantially as herein set forth. 40

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

SIMEON LATHAM GOULD.

Witnesses:

H. E. LODGE,
F. CURTIS.