

No. 612,425.

Patented Oct. 18, 1898.

R. J. LYNCH.
HAT FORMING MACHINE.

(Application filed Dec. 14, 1897.)

(No Model.)

2 Sheets—Sheet 1.

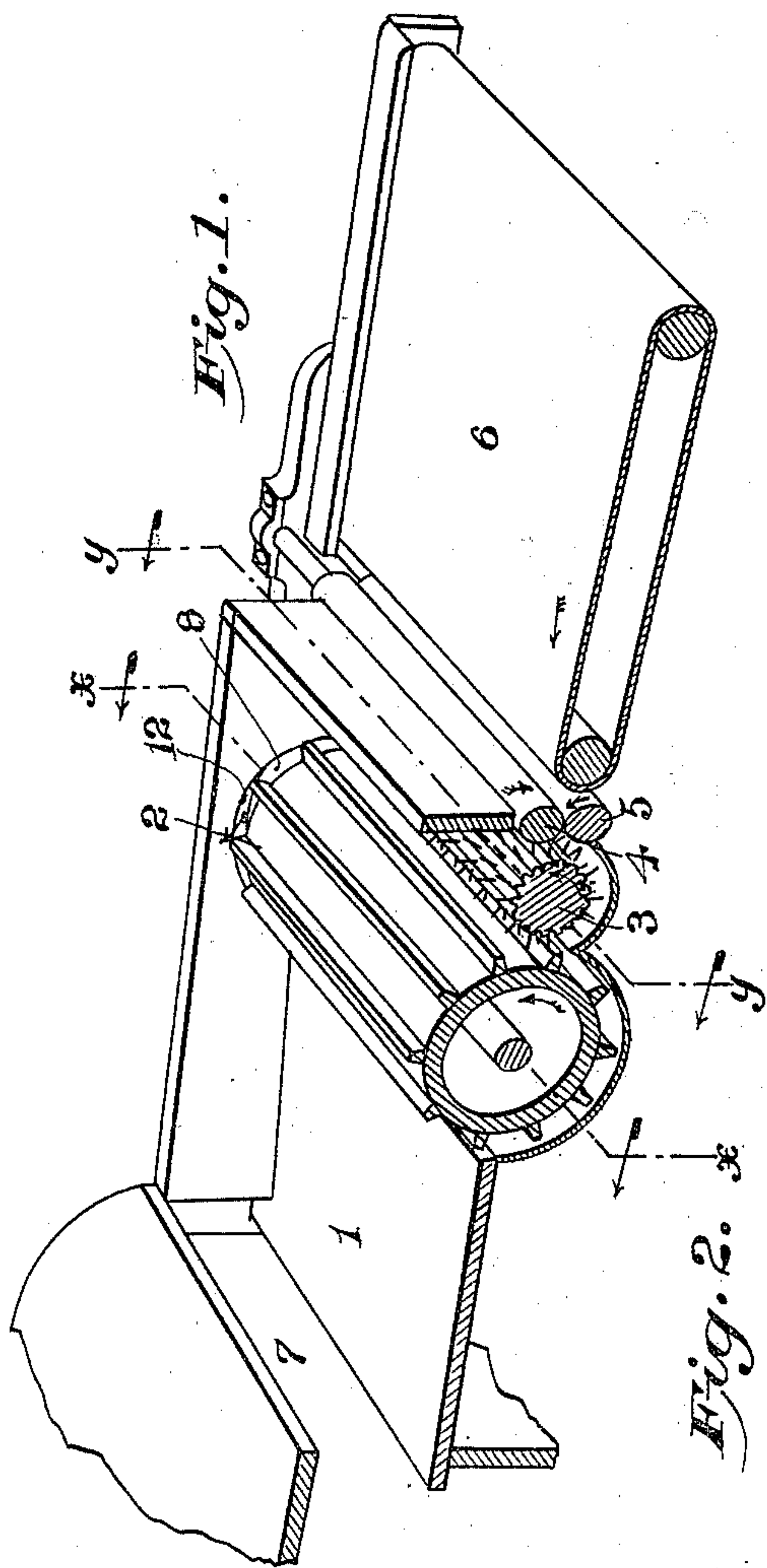


Fig. 1.

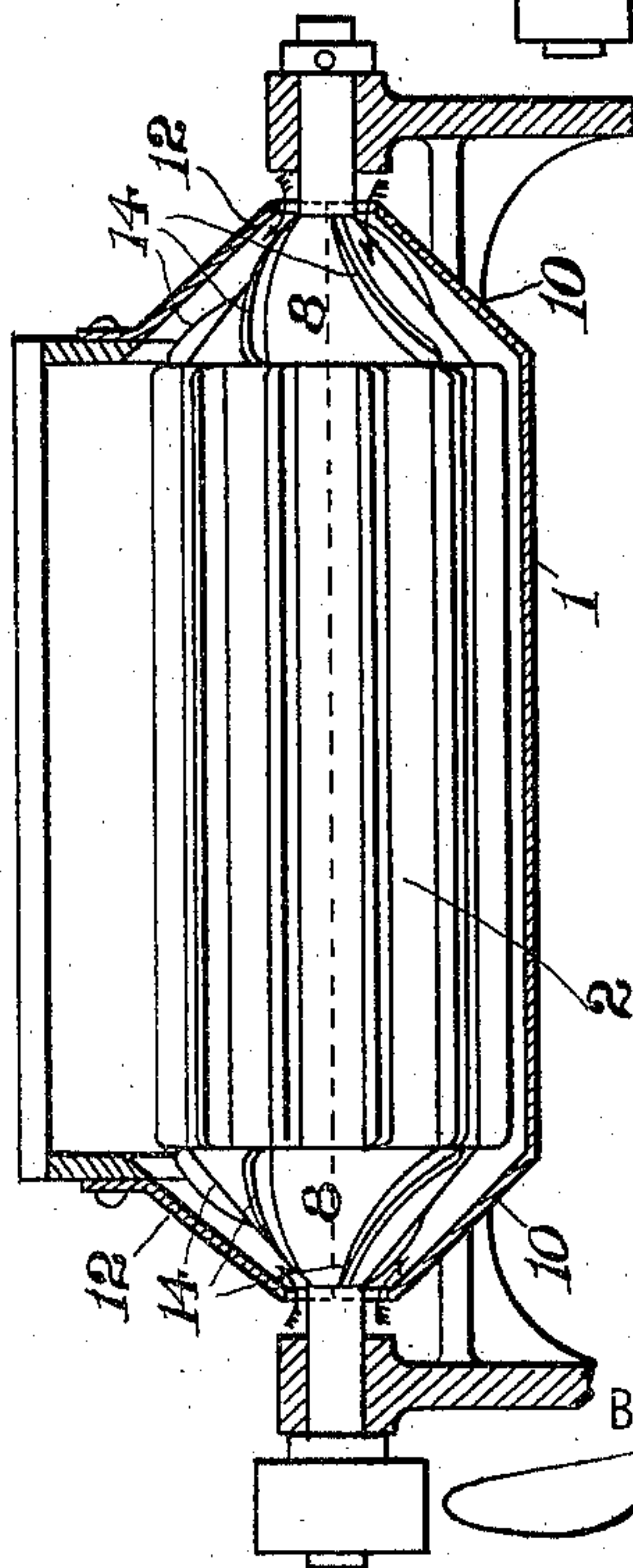


Fig. 2.

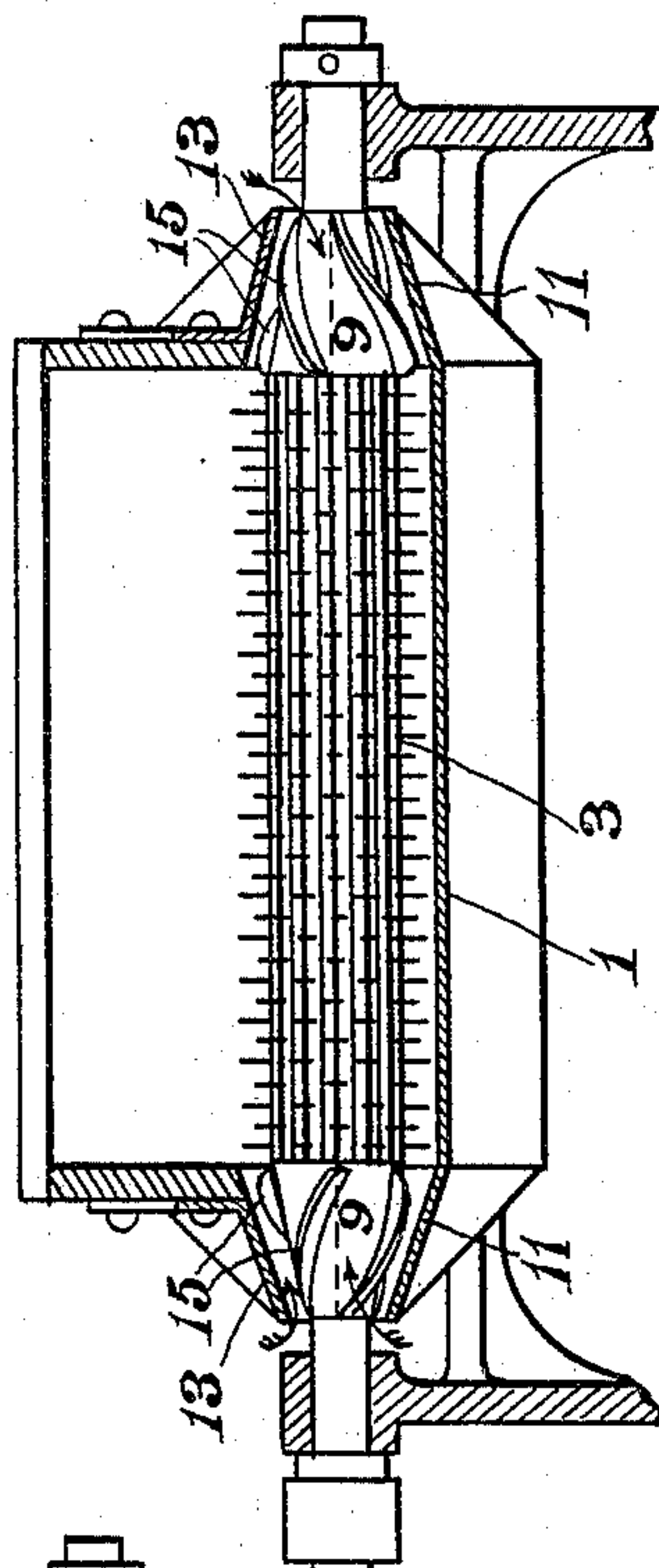


Fig. 3.

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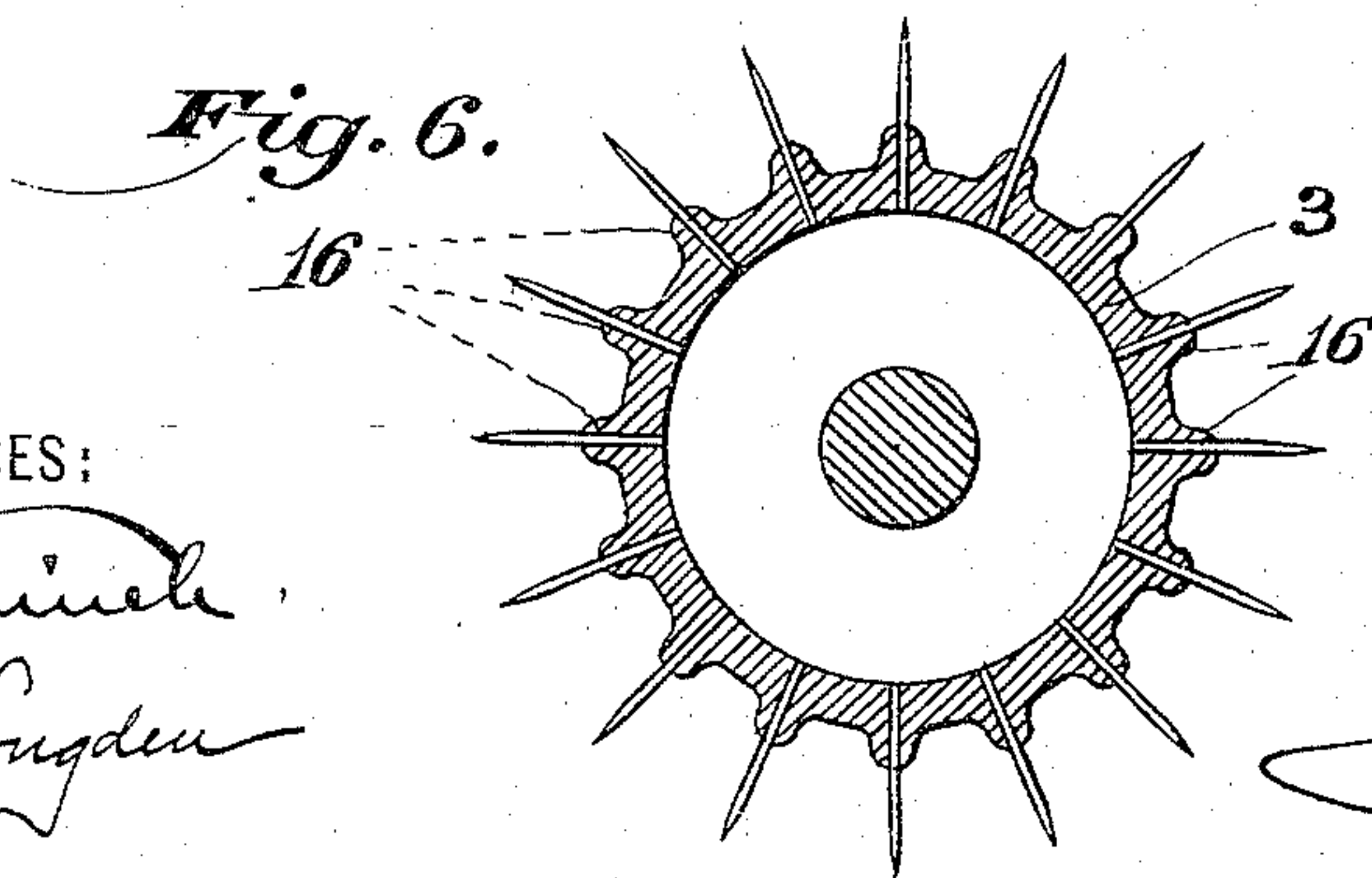
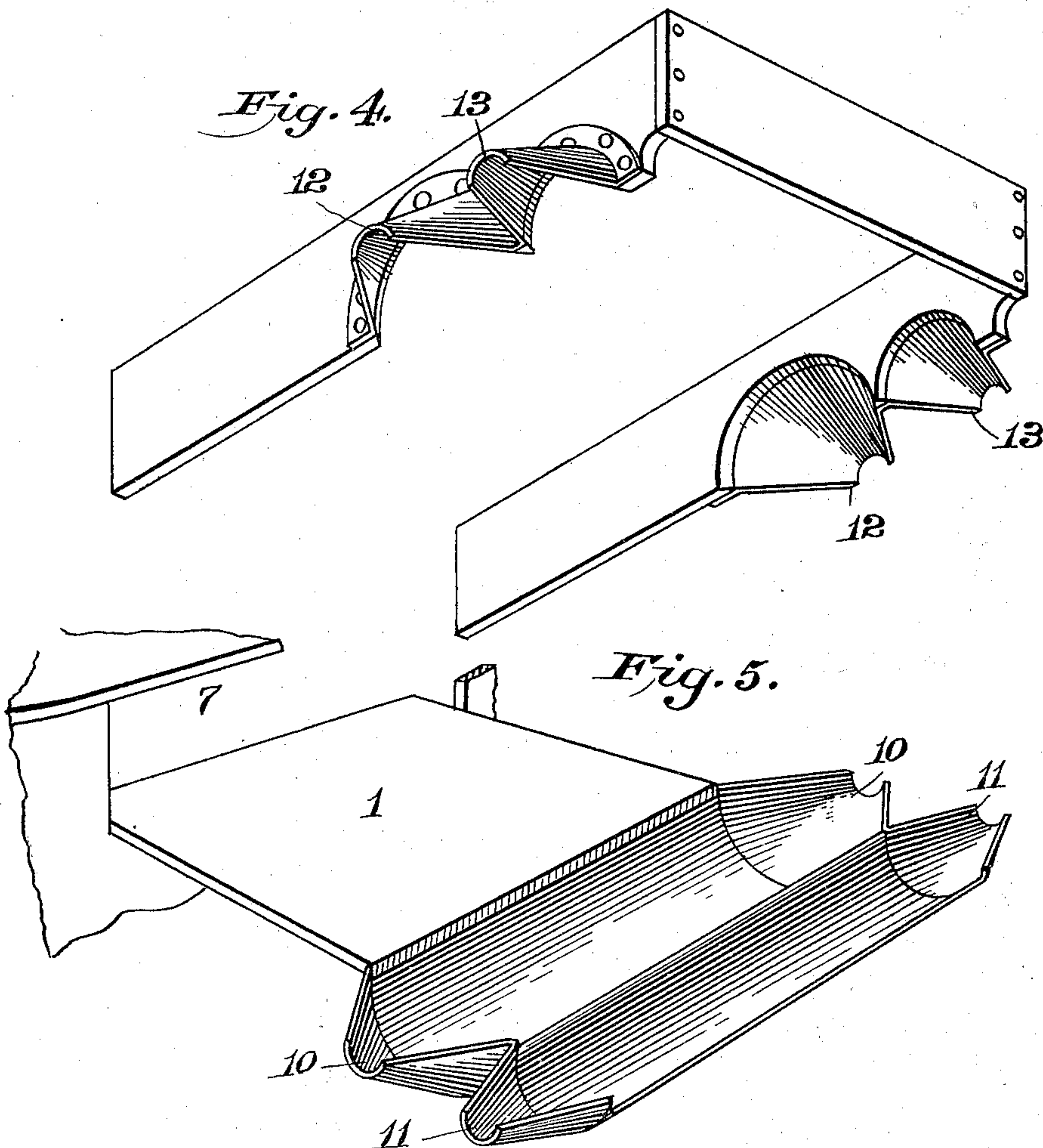
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2 Sheets—Sheet 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

RICHARD J. LYNCH, OF DANBURY, CONNECTICUT.

HAT-FORMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 612,425, dated October 18, 1898.

Application filed December 14, 1897. Serial No. 661,839. (No model.)

To all whom it may concern:

Be it known that I, RICHARD J. LYNCH, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Hat-Forming Machines; 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 relates to certain new and useful improvements in hat-forming machines, but more particularly relates to the apparatus and devices which are employed for the purpose of breaking up the fur and separating the same, so that it may readily be blown in proper condition into the chamber which contains the forming-cone.

The object of my present invention is to prevent the formation of "dags," which are frequently delivered to the forming-cone and render the hats imperfect. These dags are formed in several ways—for instance, by the matting together of particles of fur which become caught between the ends of the picker and brush rolls and the casing in which such rolls are journaled or by the fur coming in contact with the oil which lubricates the bearings of these rolls, and thus become worked into sticky lumps or balls. These dags would not work any material harm provided that they were never delivered into the forming-chamber proper; but it is a fact that during the operation of the machine such dags are constantly becoming dislodged and delivered into the forming-chamber with the results above noted.

Heretofore devices have been employed for the purpose of removing the dags, but such devices have always operated imperfectly and are not reliable; also, special bearings have been provided whereby the lubrication of the rolls is at a point or points outside the casing; but even this does not fully accomplish the result aimed at, for the reason that the small particles of fur will become caught and massed together between the casing and the ends of the rolls and will eventually be thrown out into the forming-chamber. By the use of my improvement the bearings and the ends of the rotary parts are kept perfectly clean

and free from gathering particles of fur, so that the defects above noted are entirely obviated.

In the accompanying drawings, which form a part of this application, Figure 1 is a perspective view, partly in section, illustrating the general construction of that part of a hat-forming machine which operates to pick the fur to pieces and properly deliver the same into the hat-forming chamber proper. Figs. 2 and 3 are broken sectional elevations respectively at the lines *x x* and *y y* of Fig. 1. Figs. 4 and 5 are broken perspectives illustrating, respectively, the upper and lower portions of the casing which incloses the picker and brush rolls; and Fig. 6 is a detail cross-sectional elevation of the picker-roll.

Similar numbers of reference denote like parts in the several figures of the drawings.

1 is the body or lower portion of the casing, within which the brush-roll 2 and picker-roll 3 are journaled in proper relative position with respect to each other.

4 5 are the feed-rolls, by means of which the fur is delivered to the picker-roll, and 6 is the endless apron, upon which the fur is spread preparatory to a delivery of the same to these feed-rolls.

I have not illustrated the hat-forming chamber, but will merely state that the opening 7 beyond the brush-roll leads directly into this chamber and that the draft or suction employed through the hat-forming cone draws the particles of fur in the usual manner through this opening.

The parts heretofore described are very ordinary and operate in the usual manner, and I will now describe my invention proper and the manner in which the same is applied.

The ends of the brush-roll and picker-roll are conical in shape, as shown, respectively, at 8 9, and from these conical portions the usual journals project. The casing within which these rolls are journaled is formed with conical-shaped boxes, which inclose the conical ends of the rolls; but there is considerable space between these boxes and these conical ends, and, moreover, there is a space between these boxes and the journals which pass therethrough, so that it will be clear that the interior of the casing has ready communication with the outside air by means of

the freespace afforded by these boxes. These boxes are preferably formed in sections, one half of the boxes being extended from the body of the casing, while the other half extends from the top of the casing, as clearly shown at Figs. 4 and 5.

In the drawings the lower halves of the boxes for the brush and picker rolls are designated by the numerals 10 11, while the upper halves of these boxes are respectively designated by the numerals 12 13. While I have shown these boxes as formed in sections and would prefer to make them in this manner, still it will be clear that they could be made in one piece for each side bearing for the rolls and could be secured to the sides of the casing in any suitable manner, and I therefore do not wish to be limited in this respect.

I provide the conical ends of the brush and picker rolls with wings 14 15, which are spirally disposed around the conical ends and taper down from the largest diameters of these ends to the smallest diameters thereof, so that when these conical ends thus provided are revolved in the conical boxes the draft of air is directed to a certain extent parallel with the axes of the rolls, so that there is a tendency to keep the material operated upon toward the centers of the rolls.

I preferably construct my picker-roll with corrugations 16, which extend in parallelism throughout the length of this roll after the manner of gear-teeth, and these corrugations serve to produce a strong current of air and materially assist the brush-roll in blowing the particles of fur.

It will thus be readily understood from the above description that there can be no "dead-corners" or places in the machine where the particles of fur can become wedged and matted together, for there is a constant and strong current of air always passing over and around the entire area of both the brush and picker rolls.

While I prefer to use the brush-roll in con-

nection with the picker-roll in hat-forming machines, still it is a fact that in some instances the brush-roll may be dispensed with, for the reason that the corrugations on the picker-roll create a current of air sufficient to act upon the fur. Furthermore, since the peculiar construction of the ends of the rolls is the means whereby the formation of the dags is prevented, I do not wish to be limited by the employment of both of these rolls, for the reason that in fur-blowing machines no brush-rolls are employed, but merely a lot of picker-rolls are used, and it is quite necessary that these picker-rolls should be constructed as to their ends in accordance with my improvement to prevent the formation of dags in the mass of fur before the latter is placed upon the apron of the hat-forming machine.

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

1. In a hat-forming machine, the combination of the casing provided with laterally-extending conical boxes, with the operating-roll suitably journaled and having conical ends extending within said boxes said ends being provided with spirally-disposed wings, substantially as set forth.

2. In a hat-forming machine, the combination of the casing provided with laterally-extending conical boxes, the operating-roll suitably journaled and having conical ends which extend within said boxes and are separated therefrom by an air-space, and wings spirally disposed around said ends and tapered down from the largest diameters of said ends to the smallest diameters thereof, substantially as set forth.

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

RICHARD J. LYNCH.

Witnesses:

THEO. F. JUDD,
GRACE CLARK.