

(No Model.)

3 Sheets—Sheet 1.

D. GESSNER.

ART OF FINISHING CLOTH.

No. 387,295.

Patented Aug. 7, 1888.

FIG. 1.

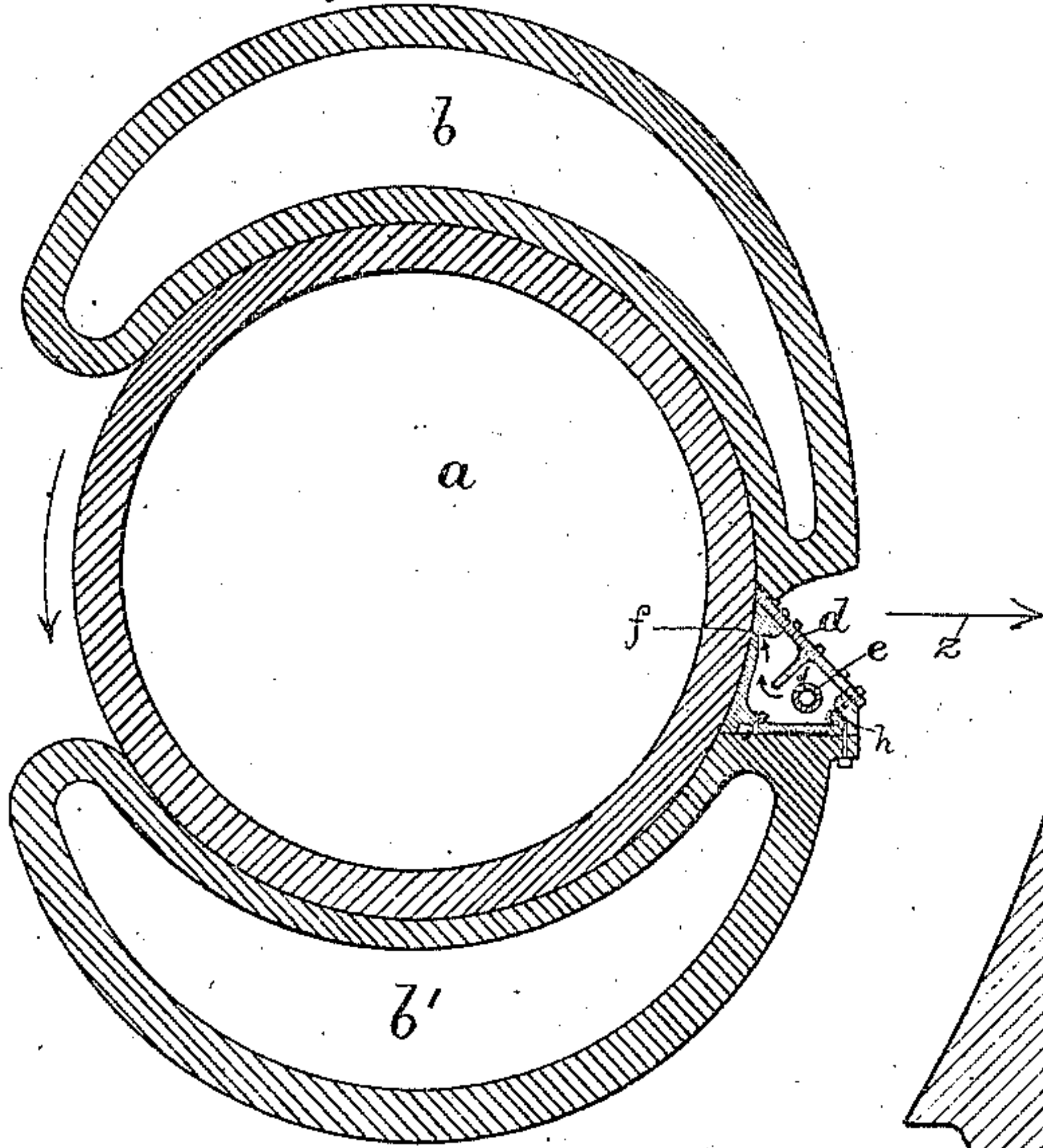
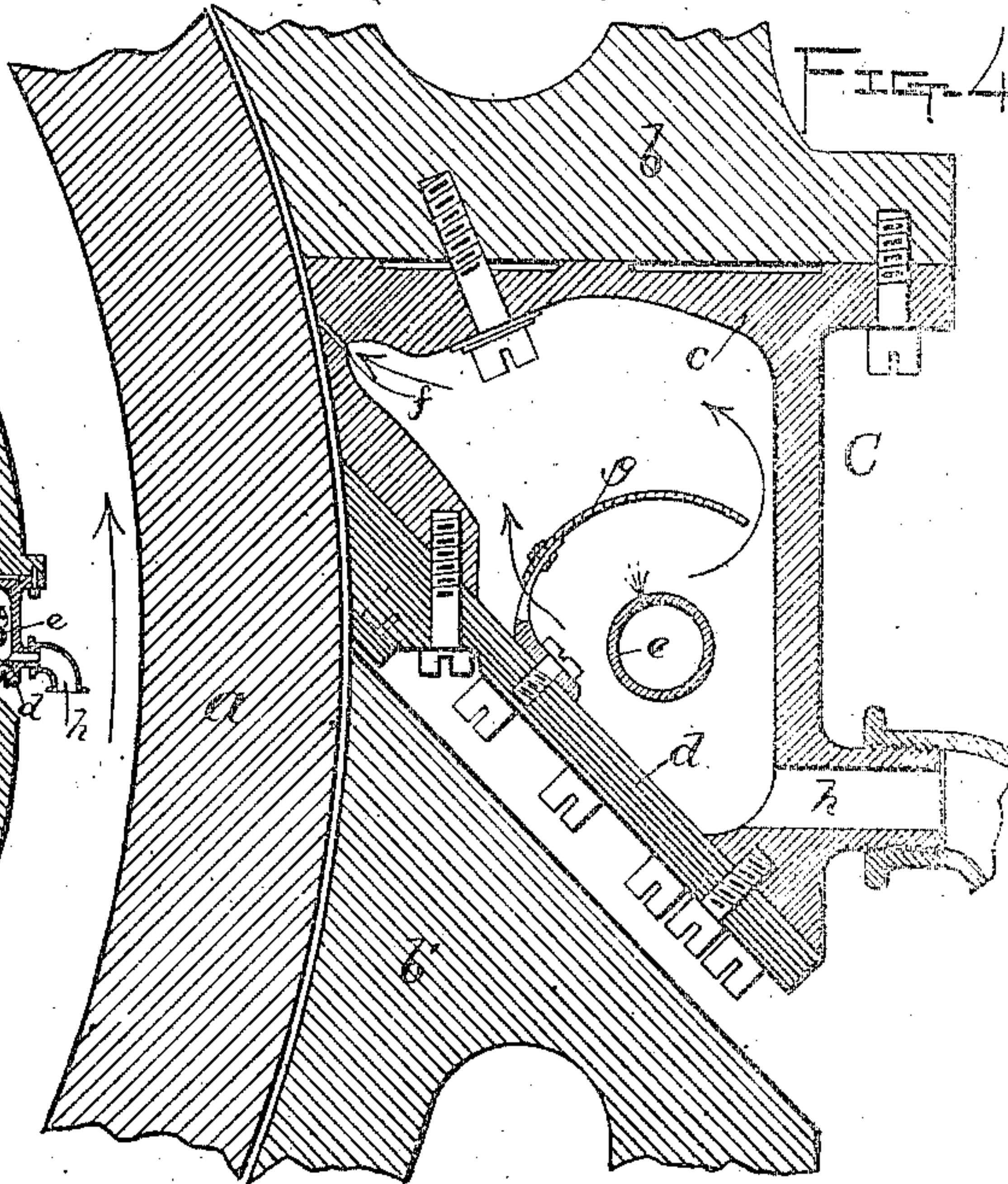
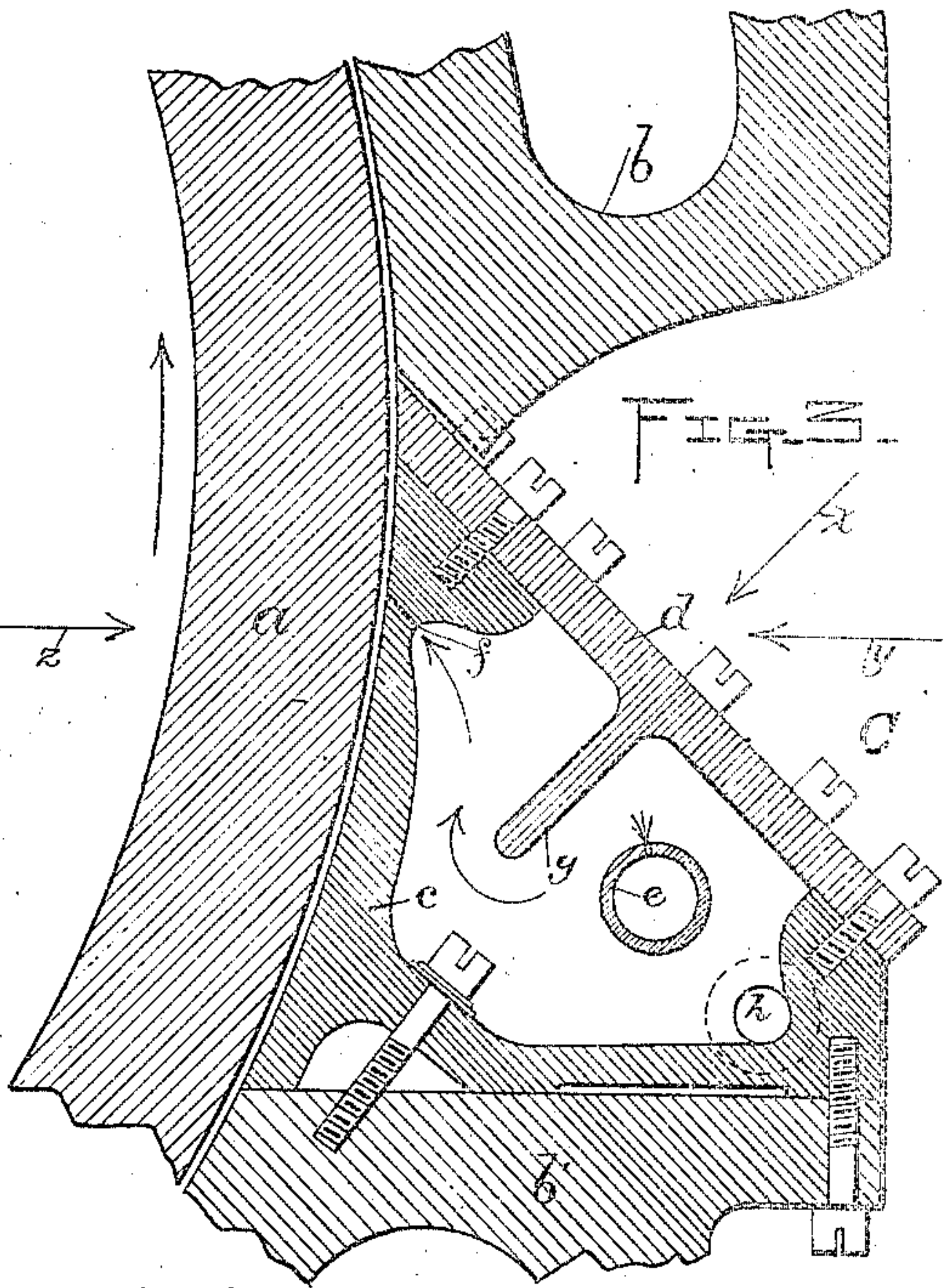
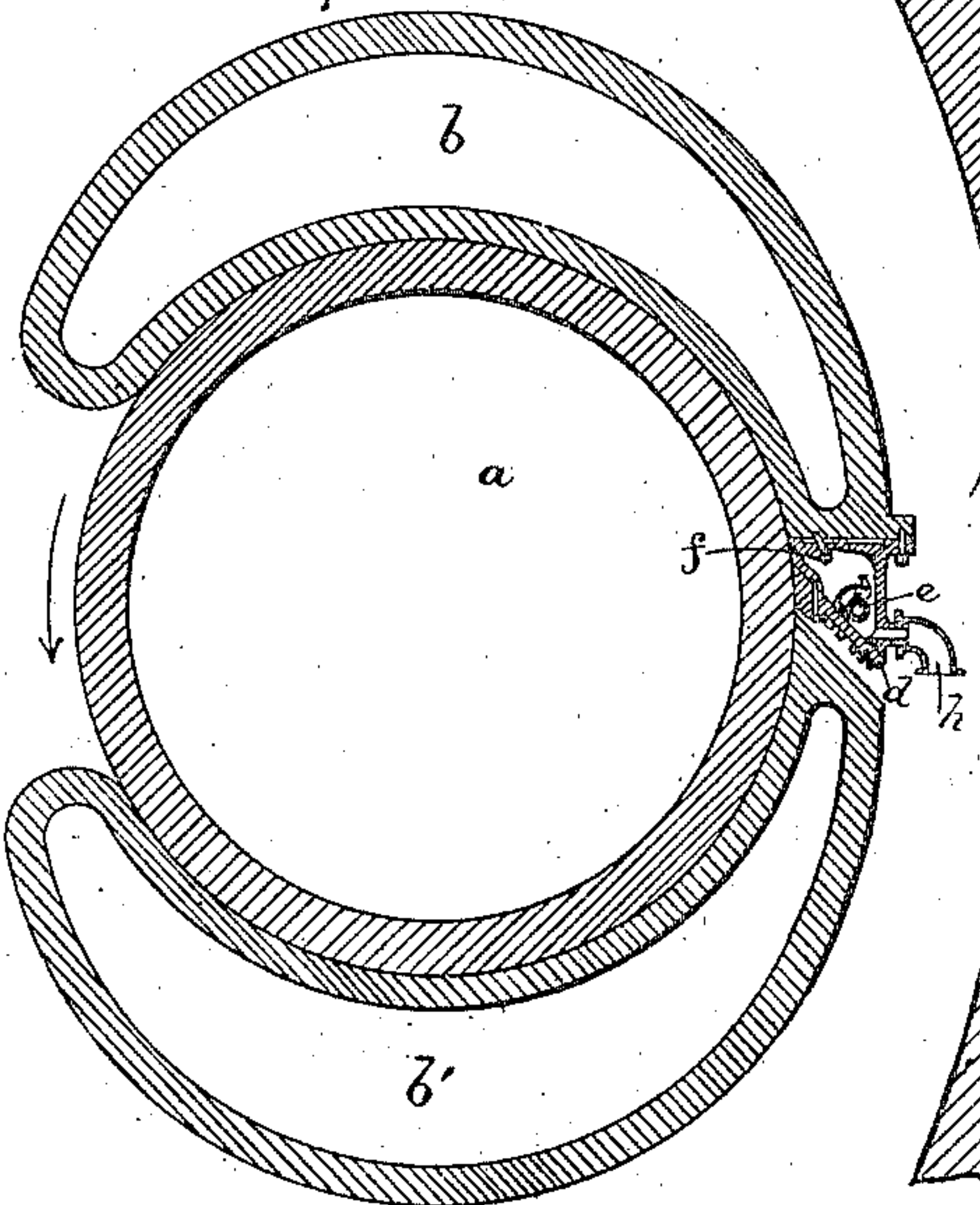


FIG. 2.



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By Clifford & Brown Attys

(No Model.)

3 Sheets—sheet 2.

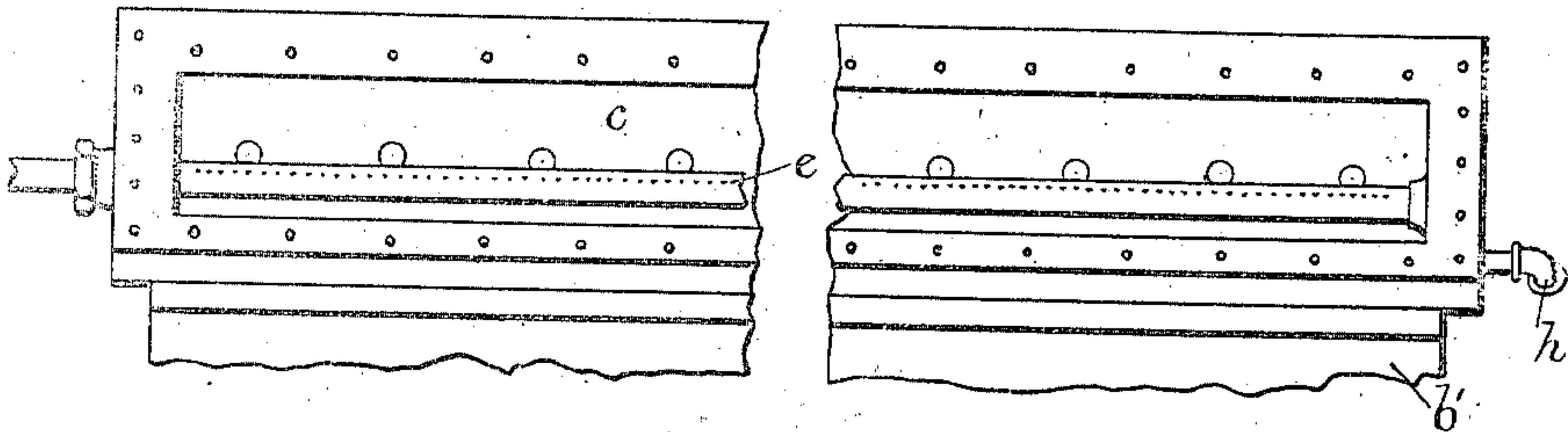
D. GESSNER.

ART OF FINISHING CLOTH.

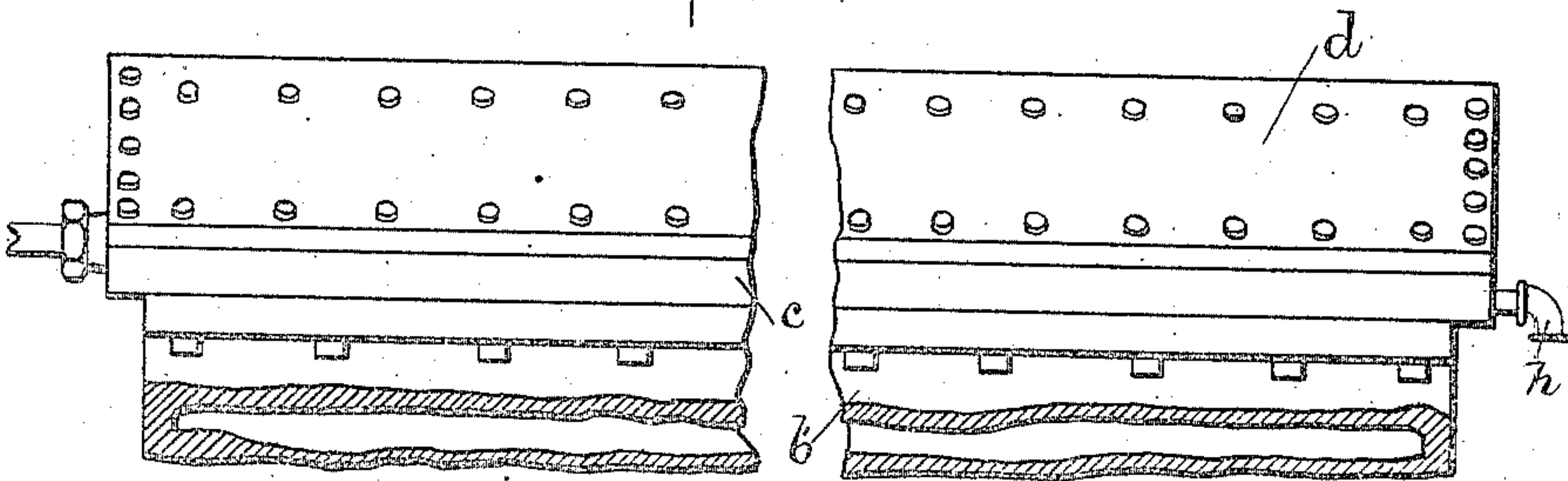
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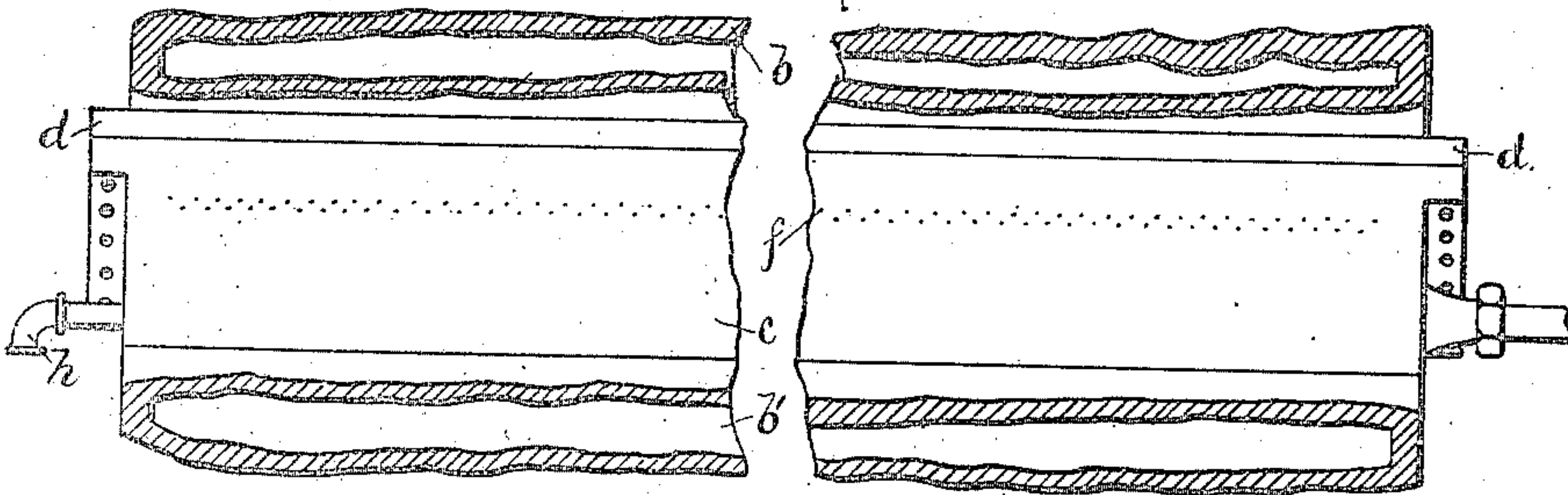
F I G. 5.



A hand-drawn diagram of a mechanical assembly. It features a vertical support on the left, a horizontal beam in the middle, and a curved arm on the right. The drawing is simple and appears to be a preliminary sketch.



T H E 7



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Geo. Wadman

Inventor:

Dana Gesner.

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(No Model.)

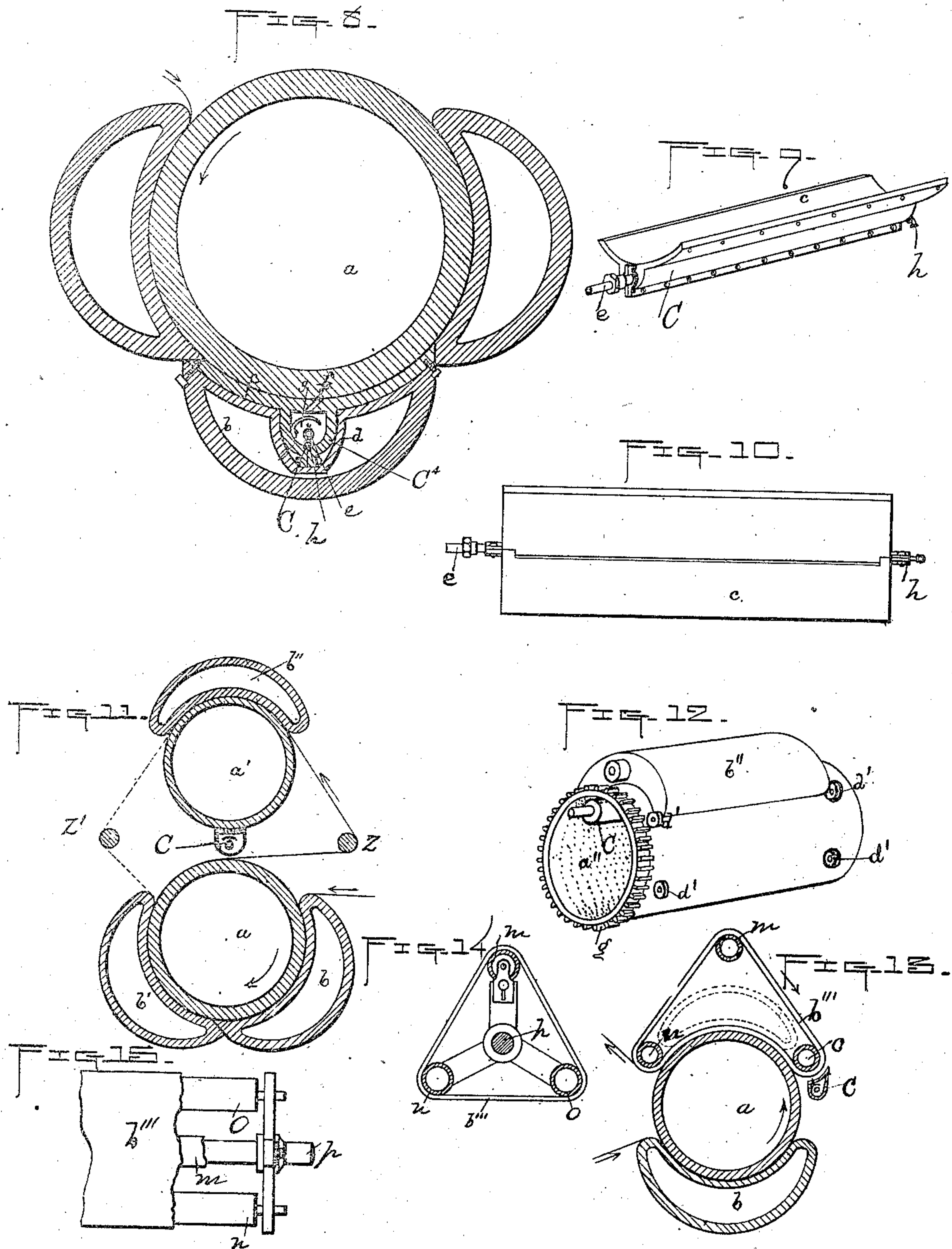
3 Sheets—Sheet 3.

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ART OF FINISHING CLOTH.

No. 387,295.

Patented Aug. 7, 1888.



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UNITED STATES PATENT OFFICE.

DAVID GESSNER, OF WORCESTER, MASSACHUSETTS.

ART OF FINISHING CLOTH.

SPECIFICATION forming part of Letters Patent No. 387,295, dated August 7, 1888.

Application filed September 4, 1886. Renewed June 16, 1888. Serial No. 277,353. (No model.)

To all whom it may concern:

Be it known that I, DAVID GESSNER, of Worcester, county of Worcester, State of Massachusetts, have invented a new and useful Improvement in the Art of Finishing Cloth, of which the following is a specification.

My invention relates particularly to an improved process for pressing cloth in the finishing, whereby the cloth will be improved in firmness, weight, feeling, and general appearance when compared with cloth pressed in the ordinary rotary presses now in use.

It consists in the introduction of vapor into the cloth after having received a pressure and while being held under pressure.

I do not intend to limit myself to any particular form of apparatus for carrying out my process; but I will proceed to describe and show in the drawings various modifications of apparatus by which it may be done.

Figure 1 is a cross-section of a cylinder and two bed-plates, with a steamer attached so as to form a part of the lower bed-plate. Fig. 2 is the same thing, excepting that the steamer is attached to the upper bed-plate. Figs. 3 and 4 are detail views, enlarged, of the parts shown in Figs. 1 and 2, respectively. Fig. 5 is a detail view of the steamer and a part of the lower bed-plate, taken in the direction of the arrow *x*, Fig. 3, with the cover of the steamer removed. Fig. 6 is a detail view of the steamer and a part of the lower bed-plate, taken in the direction of the arrow *y*, Fig. 3, with the cover of the steamer in place. Fig. 7 is a detail view of the face of the steamer, taken in the direction of arrow *z*, Fig. 3, with the cylinder removed. The foregoing figures represent the arrangements which I prefer for carrying out my process; but in the following figures I show modifications which will tend to illustrate various other arrangements by which my process may be applied.

Fig. 8 shows a cross-section of a cylinder and three bed-plates, with a steamer arranged in the center of one of the bed-plates. Fig. 9 shows in isometric view the construction of the steamer for the apparatus shown in Fig. 8. Fig. 10 shows a plan view of the same. Fig. 11 shows a cross-section of two cylinders, one having bed-plates combined with it and the other having a bed-plate above it, and a steamer arranged below it. Fig. 12 is an

isometric view of a cylinder, a bed-plate, and a steamer within the cylinder. Fig. 13 is a cross-section of a cylinder, a bed-plate, and an endless apron with a steamer in combination. Figs. 14 and 15 are details of the combination shown in Fig. 13.

Referring, first, to the apparatus shown in Figs. 1 to 7, inclusive, *a* is the cylinder. *b* is the upper and *b'* is the lower bed. The face of the cylinder may be either bare or jacketed with felt. The faces of the bed-plates may be faced with sheet metal or otherwise. The cylinder and bed-plates are hollow, with provision for the introduction of steam into them. The edges of the bed-plates, where the steamer is placed, are preferably of the form shown.

The steamer *C* is made of a trough, *c*, provided with a cover, *d*. The trough is formed, as shown, so as to be attached to the edge of one of the bed-plates and practically form the continuation thereof. The side of the trough next the cylinder is so formed as to continue the curve of the bed-plate around the cylinder and close up to the other bed-plate, so that when the pressing is going on there will be as little break as possible in the pressure on the cloth in passing from the steamer to the opposite bed-plate.

To further insure the smooth passage of the cloth from the steamer to the opposite bed-plate, the adjacent edges of the steamer and the bed-plate are beveled, as shown in Fig. 3, where the cloth travels from the steamer to the bed-plate, or as shown in Fig. 4, where the cloth travels from the bed-plate to the steamer. The face of the steamer next the cylinder should, like the face of the cylinder, be of metal which will not oxidize. The steamer may be secured to the bed-plate by screws or by any other suitable means, and the same is true of the attachment of the cover of the steamer.

f is a slot or a series of perforations, through which the vapor passes from the steamer into the cloth. There may be more than one series of perforations, as in Fig. 7, where it is considered desirable to have the vapor strike the cloth in practically a continuous line and prevent any streaking.

e is a perforated pipe running from end to end within the steamer, from which the vapor is supplied, and a deflector, *g*, may be supplied.

between this pipe and the perforations *f*, to throw back any water which may be formed from the vapor, so that only vapor will pass onto the cloth.

5 *h* is an exit-pipe, through which the water may escape.

The cylinder moves in the direction of the arrow. The cloth receives pressure by the bed-plate *b'*, which pressure is continued by the
10 face of the steamer while the vapor is passing into the cloth. The cloth is then, with as little intermission as possible, pressed by the bed-plate *b*. The steamer, bed-plates, and cylinder in this arrangement will be all kept
15 heated, so that the vapor passing into the cloth will be in the proper state to prevent any water-spots. The process may also be applied by arranging the steamer in the middle of the bed-plate, as shown in Fig. 8. *a* in this figure
20 represents the cylinder, which is hollow, so as to be heated by steam, and may be jacketed or not. *b* is a bed-plate, which is also hollow, so as to be heated by steam. This bed-plate may be faced with the metal *c*, which is an extension of the steamer *C*, as shown in Fig. 9, or
25 may be separate and secured thereto; or the steamer and bed-plate may be in one piece. In Fig. 8 the face walls of the bed-plate are shown formed at *d*, for the accommodation of the steamer. The steamer *C* may be formed
30 of a trough, *C'*, within which a perforated pipe, *e*, extends from end to end, and above this pipe a deflector, *g*, may project. The vapor admitted from the pipe *e* will pass through the series of perforations or slot *f* onto the cloth, and
35 any water formed will be thrown back by the deflector and pass off through a suitable escape-pipe, *h*. The cylinder will move in the direction of the arrow and the cloth will be
40 pressed and treated by vapor under pressure under the same conditions as by the apparatus previously described. The bed-plates might be faced with sheet metal, which might extend over two or more beds. In this case the sheet-
45 metal jacket will be perforated where the steam is admitted.

In Fig. 11, *a* and *a'* are two cylinders. The lower cylinder is supplied with a bed-plate or bed-plates *b b'*. The upper cylinder, *a'*, is provided with a bed-plate, *b''*. The cylinder *a*
50 and bed-plates *b b'* will be hollow and heated with steam. The cylinder *a'* and bed-plate *b''* will also be hollow and heated by steam. The cylinder *a'* will be jacketed in felt, and beneath the cylinder will be placed the steamer *C*, constructed like those already described and so arranged as to throw vapor into the felt jacket.
55 The cylinder *a* will turn in the direction of the arrow, and the cloth, having been pressed by cylinder *a* and its bed-plates, will pass either around the roll *z* or *z'*, as indicated, respectively, in full and broken lines. Thence it will enter between the cylinder *a'* and bed-plate *b''*. As soon as pressure commences by the bed-plate
60 *b''*, the cloth will be brought in contact with the felt jacket impregnated with vapor from steamer *C*. This vapor will be transferred into

the cloth while it is under pressure. If desired, a steamer might also be introduced at one or both bed-plates, or between the bed-
70 plates *b* and *b'*, and in this case by passing the cloth over roller *z'* it will receive moisture on one side at the cylinder *a* and on the other side at the cylinder *a'*. The cylinder *a'* will be so geared that it may be turned in either
75 direction, depending upon whether the cloth is passed over roller *z* or roller *z'*—viz., whether face side or back side of goods shall be moistened there.

In Figs. 13, 14, and 15 the simultaneous ap-
80 plication of vapor and pressure is provided for by an apron instead of the jacketed cylinder before described.

a is the cylinder. *b* is a bed-plate. Both cylinder and bed-plate are hollow and heated
85 by steam.

b''' is a felt apron, which is mounted, as shown in Figs. 14 and 15, on a frame supporting the three friction rollers *m n o*. The roller *m* is
90 mounted in adjustable bearings of any well-known construction, by the adjustment of which the apron may be drawn very tight. When the apron is in the position with reference to the cylinder shown in Fig. 13, the effect
95 of drawing it tight is to produce a pressure between it and the cylinder.

C is a steamer which throws vapor into the apron just before it comes in contact with the cylinder. This steamer may be similar in
100 construction to those already described.

It will be understood that the frame shown in Fig. 14 is provided with bearings *p*, Figs. 14 and 15, by means of which the frame is supported at each end in the same manner that
105 the bed-plate is usually supported, and in this manner the frame and the apron which it sustains may be moved toward and from the cylinder in the same manner as the bed-plate.

The cylinder and apron will be rotated in the direction shown by arrows. The cloth will
110 receive pressure by the bed-plate *b*, and then by the apron *b'''*; but as it receives pressure by the latter it will take up the vapor carried by the apron.

In Fig. 12 a cylinder, *a''*, is mounted in bearing-rollers *d'*. *b''* is a bed-plate which is hollow and heated by steam. *C* is a steamer
115 extending from end to end within the cylinder. The walls of the cylinder are perforated, and the steamer *C* is so arranged that the vapor escaping from it passes out upward
120 through the perforations in the walls of the cylinder and into the cloth as the same is under pressure from the bed-plate *b''*.

It will be understood that the cylinder, bed-
125 plate, and steamer of Fig. 12 are to be used in lieu of the cylinder *a'*, bed-plate *b''*, and steamer *C* in Fig. 11, the parts shown in Fig. 12 being used in connection with the lower cylinder, *a*, and bed-plates *b* and *b'* of Fig. 11.
130

Other modifications will suggest themselves in carrying out my process; but the above will be sufficient to illustrate.

In all cases it will be understood that ap-

paratus should be provided for cutting off the flow of vapor whenever the travel of the cloth through the machine stops.

Where the vapor is to be applied to the cloth by an apron or felt jacket, it may not in all cases be necessary to apply moisture to the apron or jacket in the form of vapor as by a steamer, since if water is applied to the apron or jacket it may be vaporized by contact of the apron or jacket with the heated surfaces, so that it will treat the cloth substantially in the form of vapor.

It will be observed that the cloth receives first a severe pressure, such as is exerted by the dry-hot pressing-surfaces. Subsequently it is moistened while held under pressure. The first pressure is relied on principally for compressing the cloth and laying the fiber. The moistening, under pressure is relied on principally for setting the fiber in the condition in which it is placed by the first pressure and improving the firmness, weight, and feeling of the cloth. The pressure which accompanies the moistening may therefore be comparatively light, and may, in fact, in some cases be more in the nature of a confinement than a pressure, so that where I refer to it as a "pressure" it is to be understood in this sense. The machine, which is preferably used in carrying out this process is the subject of another application, Serial No. 212,702, and therefore it is not claimed herein.

I have made another application, Serial No. 277,352, in which I have claimed the steaming or moistening of the cloth after it has been

pressed and while traveling in contact with a heated surface; also, as it is passing from one pressure to another, without reference to whether the cloth is held under pressure or confinement while being moistened. I do not intend to claim herein the subject-matter of said application.

I claim—

1. The art or process of finishing cloth, which consists in pressing the cloth and then moistening or steaming it while it is held under pressure, substantially as described.

2. The art or process of finishing cloth, which consists in pressing the cloth and then moistening or steaming it while it is being pressed against a heated surface, substantially as described.

3. The art or process of finishing cloth, which consists in pressing the cloth and then moistening it by pressing the same in contact with a moistened apron or jacket between two heated surfaces, substantially as described.

4. The improvement in the art or process of finishing cloth, which consists in feeding the same continuously and without intermission between pressing-surfaces, whereby it receives pressure, and thence between other pressing-surfaces, the cloth being treated with moisture while under pressure between the latter pressing-surfaces, substantially as described.

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Witnesses:

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