

(No Model.)

3 Sheets—Sheet 1.

J. S. TAYLOR.

HAT SCALDING AND FELTING MACHINE.

No. 279,843.

Patented June 19, 1883.

Fig. 1.

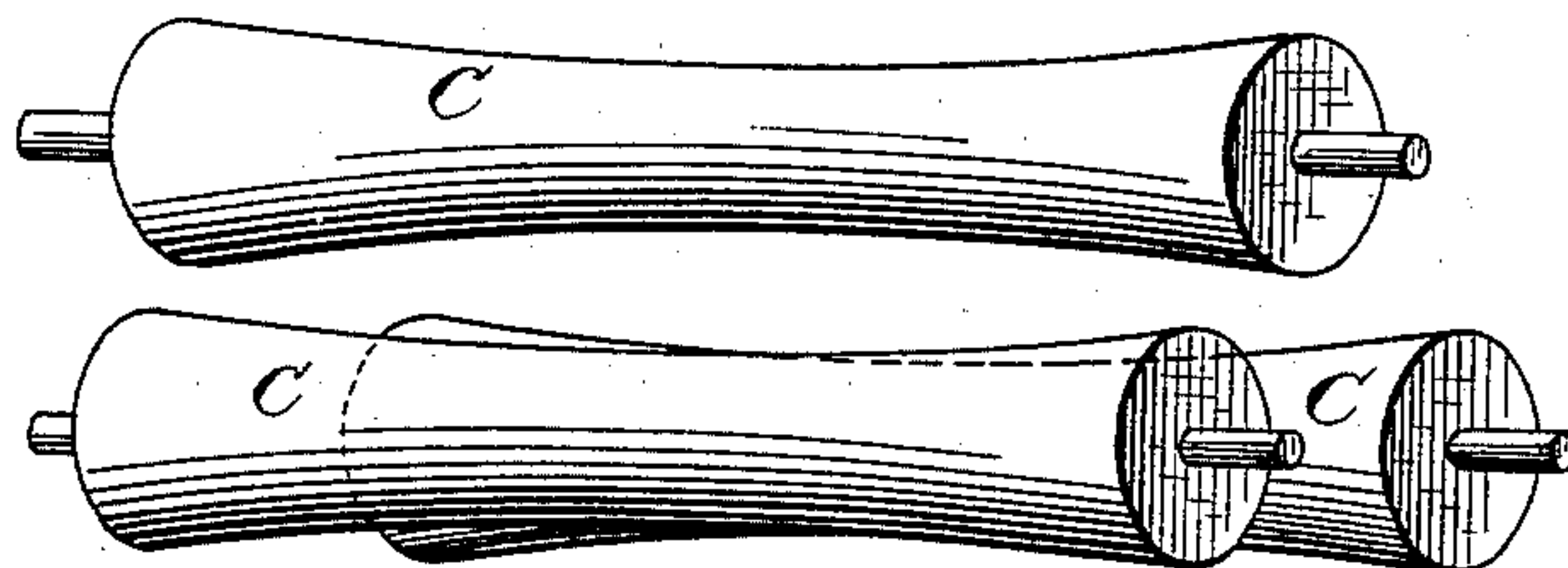


Fig. 2.

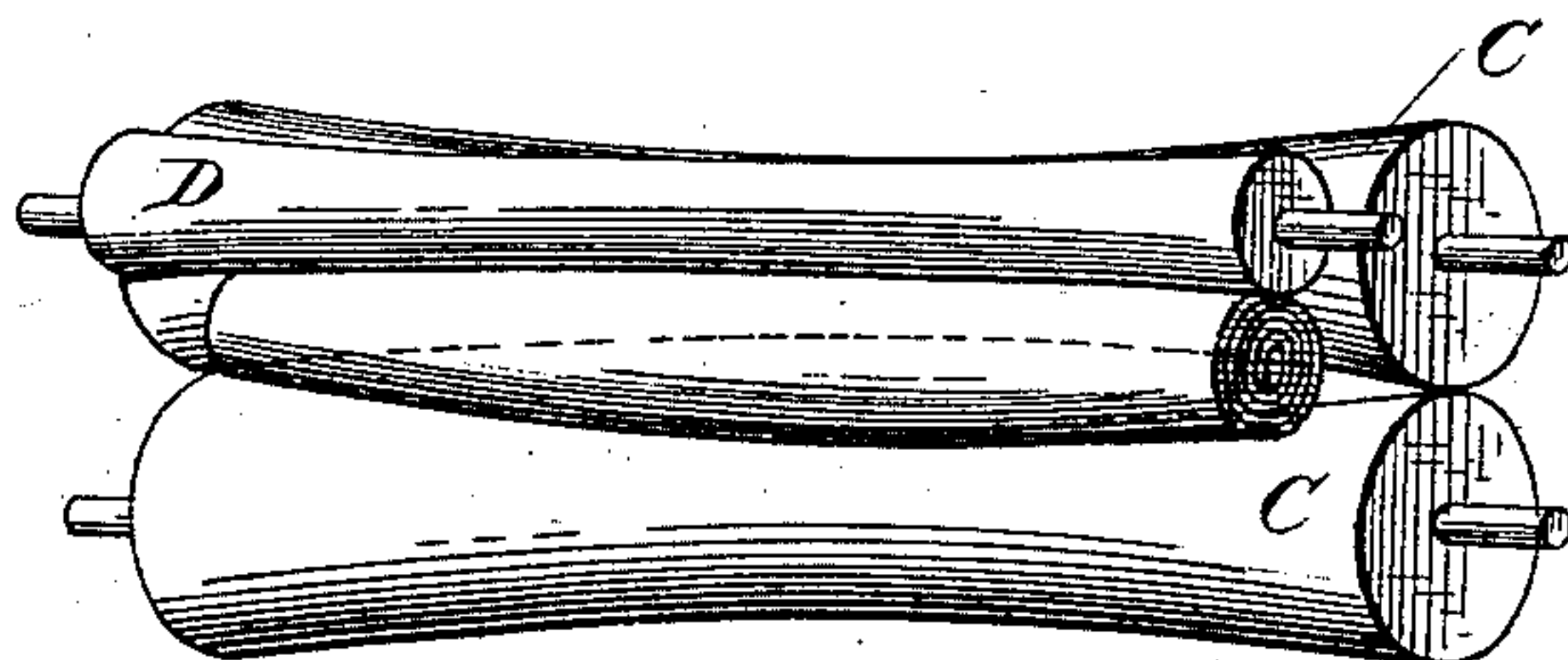
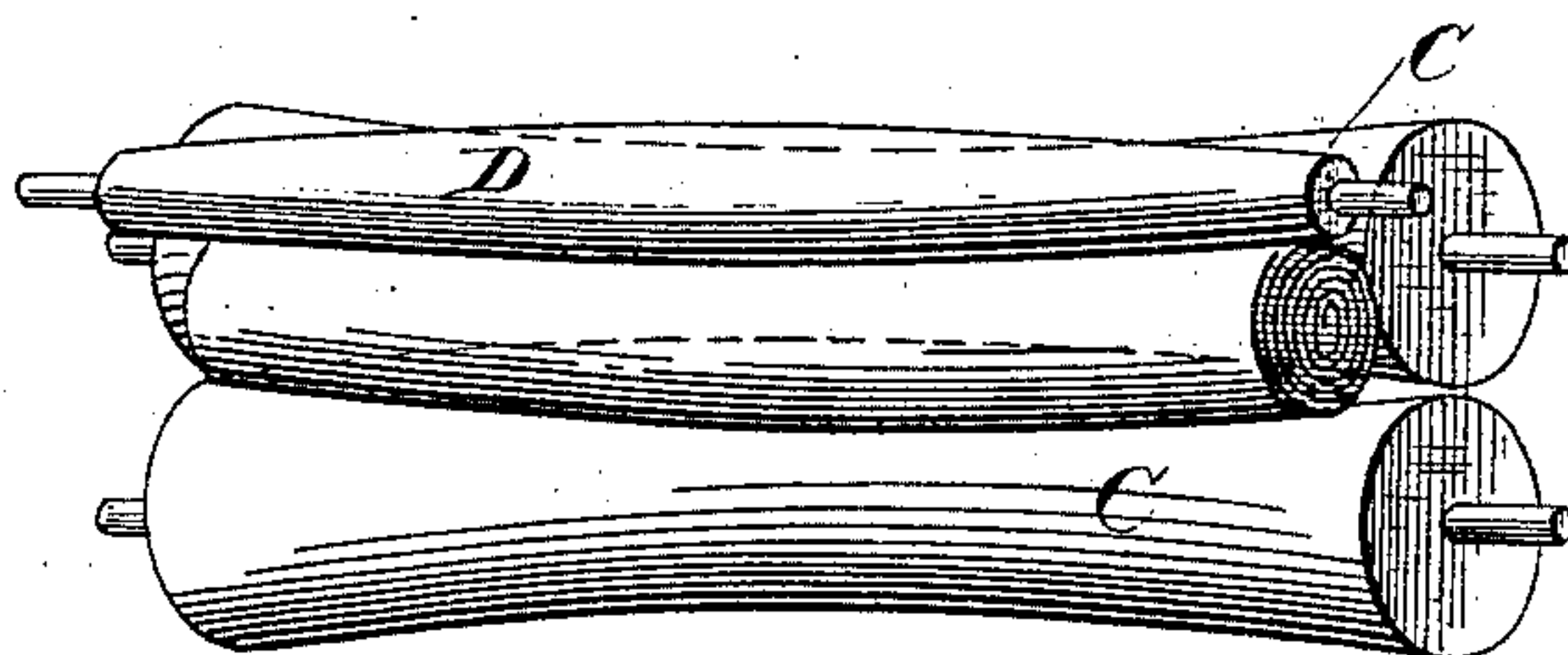


Fig. 3.



WITNESSES.
F. L. Ouraud.
W. T. Cole.

INVENTOR
J. S. Taylor
by F. W. T. Thomas
Attorneys.

(No Model.)

3 Sheets—Sheet 2.

J. S. TAYLOR.

HAT SCALDING AND FELTING MACHINE.

No. 279,843.

Patented June 19, 1883.

Fig. 4

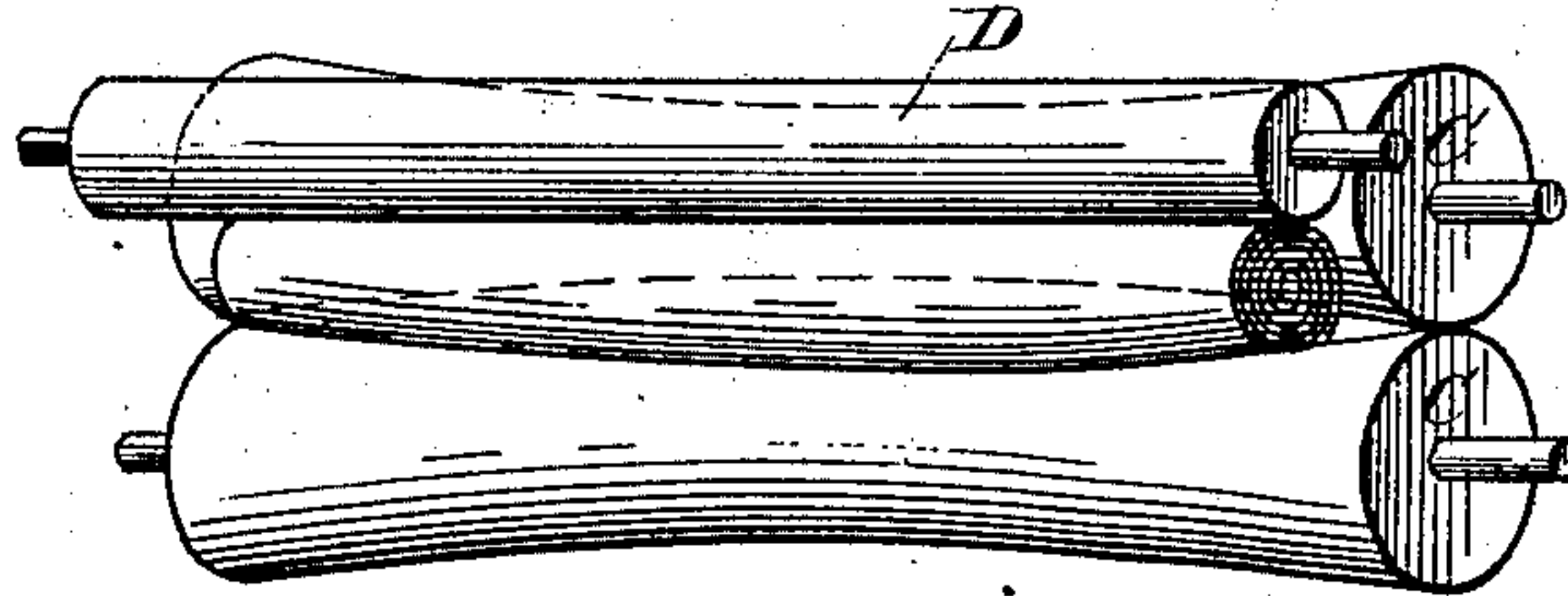


Fig. 5

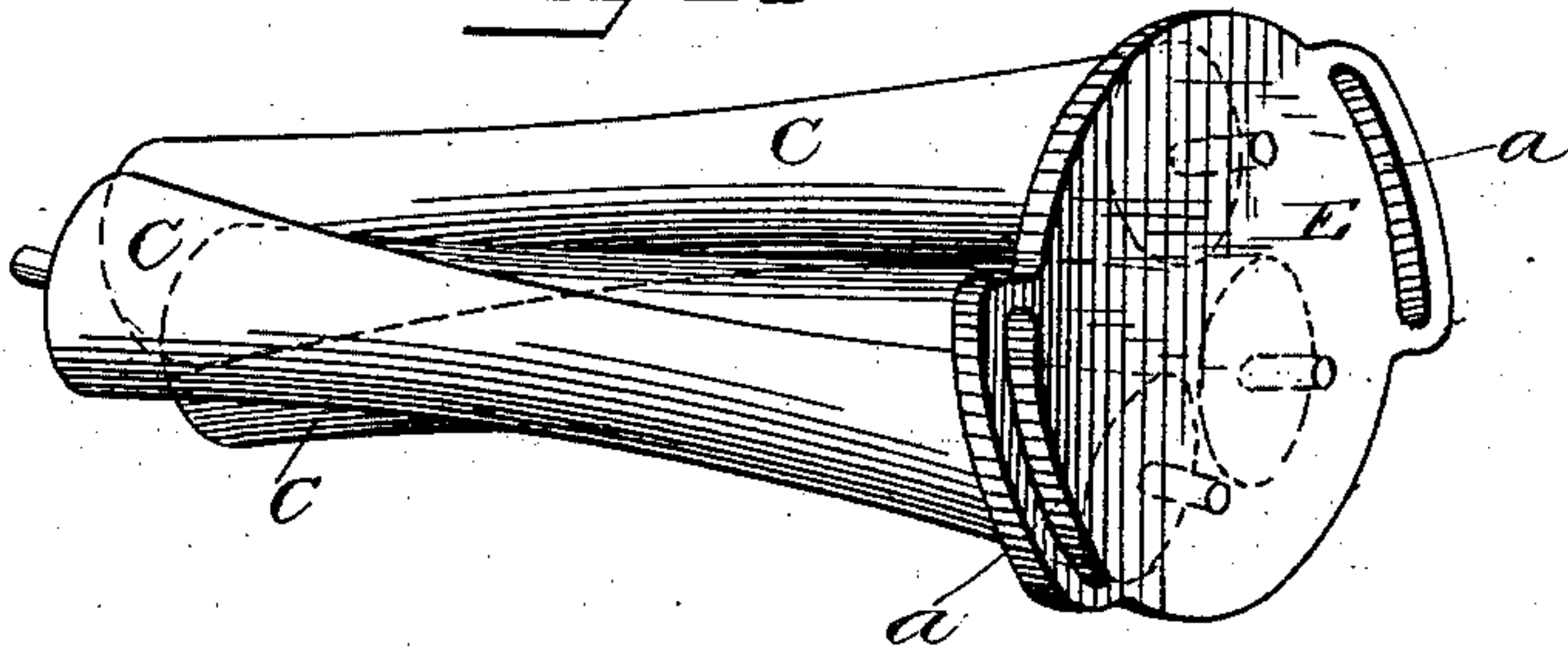
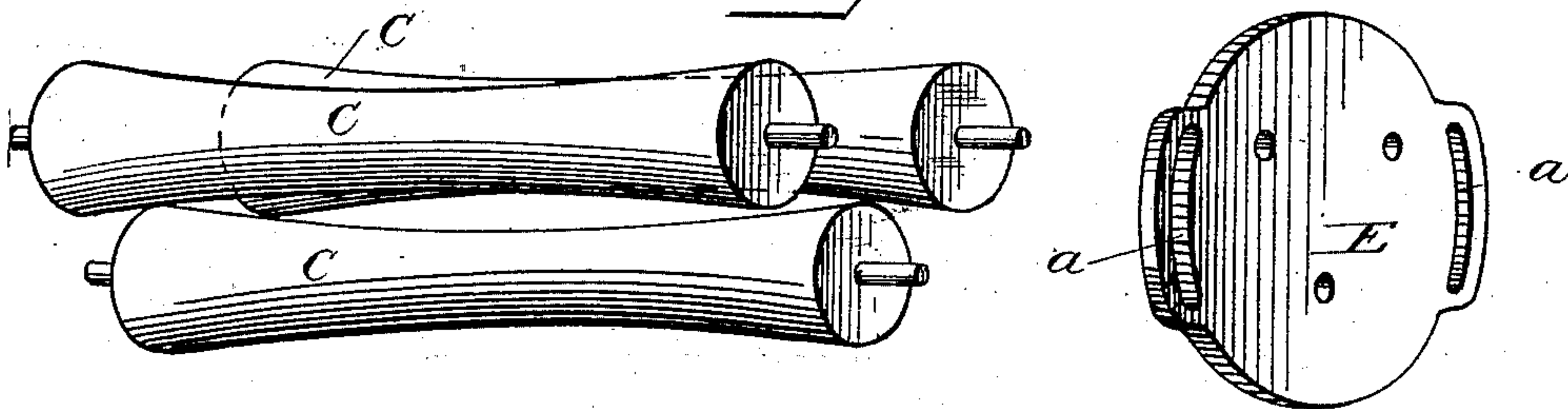


Fig. 6



WITNESSES
F. L. Ourand
W. T. Cole

INVENTOR
James S. Taylor
by *Wm. S. Brown*
Attorneys.

(No Model.)

3 Sheets—Sheet 3.

J. S. TAYLOR.

HAT SCALDING AND FELTING MACHINE.

No. 279,843.

Patented June 19, 1883.

Fig. 7.

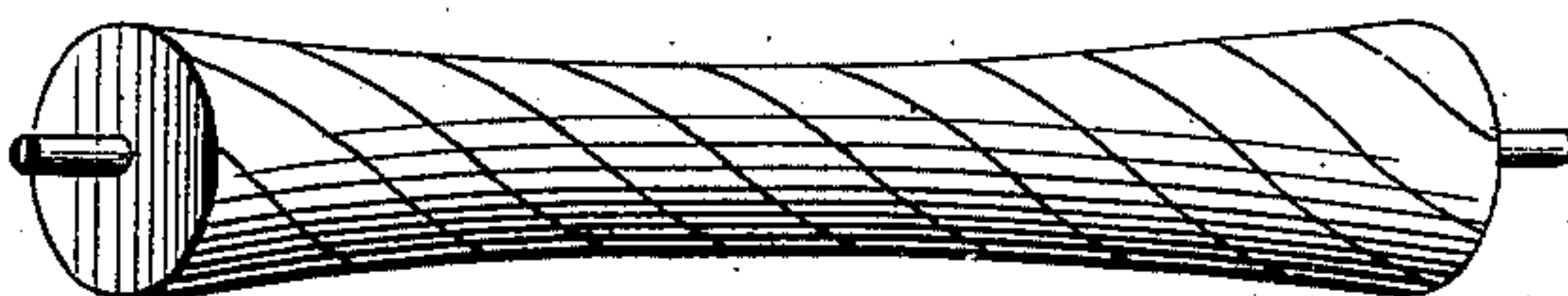


Fig. 8.

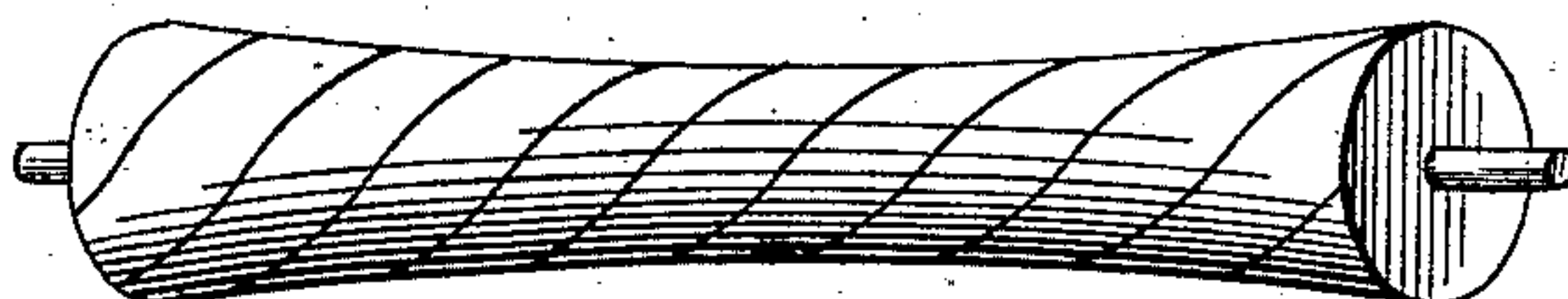
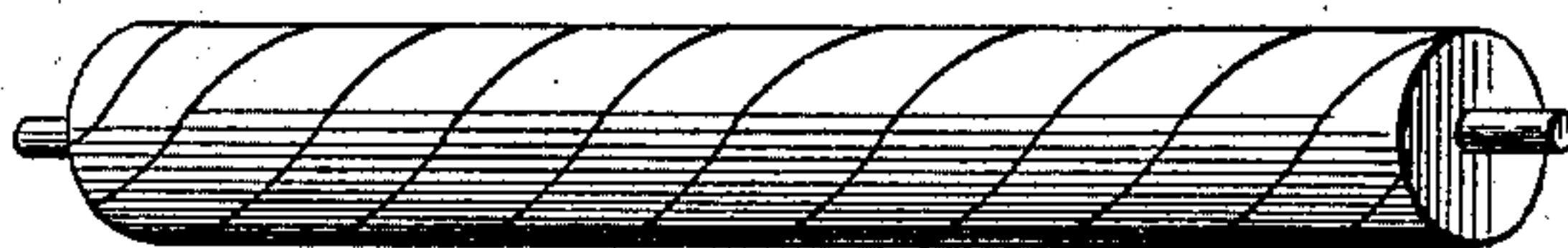


Fig. 9.



Fig. 10.



WITNESSES
H. L. Ouraud,
W. T. Cole.

INVENTOR
James S. Taylor
by W. T. Cole
Attorneys.

UNITED STATES PATENT OFFICE.

JAMES S. TAYLOR, OF DANBURY, CONNECTICUT.

HAT SCALDING AND FELTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 279,843, dated June 19, 1883.

Application filed September 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES S. TAYLOR, of Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and
5 useful Improvements in Hat Scalding and Felting Machines, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates, first, to a machine in
10 which the hat-bodies or other articles are felted by being rolled within or upon a concave moving bed formed by rollers revolving in one direction, and has reference more specifically to the formation of an open-topped chamber
15 and receptacle by the use of rollers of reduced diameter at their longitudinal center, whereby the chamber is given convex sides. Rollers of the general description which may be employed in my present invention are found in
20 Patent No. 14,121, granted to me January 15, 1856, and in other patents issued to me and to other parties. The object of the convex chamber open above is to allow of the ready insertion of the goods without changing the relations of any part of the machine, as also the
25 better action of the rollers in the felting operation. In one form of the machine a worker or supplemental roller for operating on the goods is used.

30 The invention further relates to a provision whereby the rollers forming the open receiving and working chamber may be twisted or their axes brought out of parallel relation with each other, in order that the goods may be subjected
35 not only to the rotary movement imparted by the rollers, but may also be given a longitudinal movement to increase the effectiveness of the felting operation.

The invention further relates to the construction of the various rollers used in the machine.
40 The rollers may have ribbed, fluted, corrugated, knuckled, or plain surfaces. In the machine having its rollers twisted, or on axes not parallel to each other, the rollers are preferably ribbed or fluted in lines parallel to the
45 longitudinal center lines or diagonally thereof. The ribs, flutes, or corrugations are preferably formed by the use with wooden rollers of brass or composition strips united thereto.

50 In the accompanying drawings, Figure 1 is

a perspective view, showing the arrangement of three concave rollers, whereby an open-topped receiving and working chamber is formed. Fig. 2 shows an arrangement of two rollers with the addition of a concave worker. 55 Fig. 3 shows the same with a convex worker. Fig. 4 shows the same with a straight, parallel, or cylindrical worker. Fig. 5 shows a machine with three rollers twisted, or with their axes brought out of parallel relations with each
60 other. Fig. 6 shows the same rollers untwisted or with their axes brought parallel to each other, as also the twisting-head detached. Figs. 7, 8, 9, and 10 show modifications in the construction of the rollers, as hereinafter speci- 65 fied.

Similar letters of reference indicate corresponding parts.

The frame of the machine and the vat or kettle for holding hot water wherewith to saturate the goods are not here shown, but are similar in arrangement to that in other machines of this class.

In my Patent No. 263,075, dated August 22, 1882, is shown a machine having certain general features incorporated in the present invention, and it will be referred to hereinafter as aiding in an understanding hereof. 75

In Fig. 1, C C C are concave rollers, whose axes are parallel to each other. The construction and arrangement of the rollers cause the formation of an open-topped receiving and working chamber, into which the goods may be placed for the action of the rollers. The shape of the chamber is such as to provide a
85 greater width or space at its center, the width or space diminishing toward the ends of the rollers. By this formation the goods can be readily placed in and removed by hand from the chamber, and the goods are rolled, grasped, 90 or compressed at their ends with greater pressure than at their longitudinal center, whereby the fibers are more effectually brought together and felted than where the pressure is equally distributed throughout the length of the goods. 95

In Fig. 2 two rollers C C are shown, together with a concave worker, D. The rollers C C are placed more closely together than the corresponding—i. e., the two forward—rollers in Fig. 1. In my said Patent No. 263,075 I 10

have described and shown ways in which such a worker may be applied, and I refer specially to Figs. 1 and 2 thereof, in which the worker is shown in yielding or spring bearings. The

5 bearings of the worker may, however, be fixed.

In Figs. 3 and 4 the worker is shown convex and straight, respectively. Its bearings may be either yielding or fixed.

10 In Figs. 5 and 6 the three concave rollers C C have their bearings at one end in a circular head, E, having slots *a*, segmental in form, through which screws or pins pass, entering the frame. The slots being concentric with the head E, the latter may be moved radially
15 on the frame, on which it is centered and secured by tightening the screws or pins. The gearing which causes the revolution of the series of rollers, not being changed in its relations by the radial movement given to the head, operates to rotate the rollers in a common direction whether the axes of the same are brought to parallel or diagonal lines with respect to each other. The gearing ends of the rollers are provided with links or universal joints,
25 substantially in the manner described in my Patent No. 14,121, dated January 15, 1856. The operation of the machine illustrated in Fig. 5 not only admits of the ready and convenient insertion and manipulation of the
30 goods and the effective felting of the same by increased pressure at the ends, which crowds the fibers together, but also enhances the character of the work performed by the longitudinal movement necessarily imparted to the
35 goods by the twisting action of the ribbed or fluted rollers. It is to be understood that the rollers may be fixed in their diagonal positions or brought alternately into diagonal and parallel relations by giving a forward and
40 backward radial movement to the circular head E. Such a movement may be given by hand or by mechanism prepared for the purpose; but which, not specially entering into my present invention, I deem it unnecessary
45 to describe with particularity. The rollers may be variously arranged with reference to the vat, so that the goods during the operation of felting may be partially submerged or entirely above the surface of the hot water.
50 Should one end of the rollers be low enough in the vat to submerge the goods at that end, the other end of the rollers, or that opposite to the end at which the circular head E is placed, may be elevated, so that the goods,
55 when discharged from the rollers, by being moved longitudinally, shall be out of contact with the water and in a measure dried.

60 Figs. 7, 8, 9, and 10 show modified constructions applicable to all the rollers (including the worker) of the machine. Fig. 7 shows a concave wooden roller with brass or composition strips attached thereto in any suitable manner in diagonal lines or out of line longitudinally with the axis of the roller. The amount
65 of angularity or divergence from the longitudinal line should not be great, but may be somewhat varied. Fig. 8 shows a similar construc-

tion, except that the strips are arranged in reverse order. Fig. 9 shows the diagonal strips used with a convex, and Fig. 10 with a straight,
70 parallel, or cylindrical roller. The construction of rollers shown in Figs. 7, 8, 9, and 10 is also applicable to the machines in which the axes of the rollers are parallel, and may be
75 applied to different forms of machine described in a former patent. In that patent, while the rollers in their various relations may be straight, concave, convex, plain, fluted,
80 corrugated, or of other shape or character of surface, they are described as being used in connection with devices as a worker, cam-shaped roller, &c., for imparting a fulling or a punching or a retarding action to the goods, or as providing eccentrically-revolving surfaces between which the goods are operated. In that
85 patent the use of rollers of the description named without the addition of the working or punching or retarding appliances is not contemplated, as neither is the use of rollers having ribs, flutes, or corrugations, arranged in
90 lines diagonal to the axis of the roller; neither in my said patent is the worker described as concave or convex, a cylindrical worker being only referred to and shown, whose working-
95 face, however, may be plain, fluted, corrugated, or of a shape and character corresponding with that of the main rollers. I therefore disclaim as a part of my present invention a cylindrical worker when used in combination
100 with the main rollers.

Having described my invention, I claim—

1. The combination, in a hat scalding and felting machine, of a series of concave rollers on parallel axes, whereby a convex working-chamber is formed without changing the relative
105 relations of the rollers in the act of felting the goods, substantially as and for the purposes set forth.

2. The combination, in a hat scalding and felting machine, of a series of concave rollers
110 on parallel axes, whereby a convex entrance for the hats to the convex working-chamber is formed without changing the relative relations of the rollers in the act of felting the goods, substantially as and for the purposes set forth.
115

3. The combination, in a hat scalding and felting machine, of a series of concave rollers on parallel axes and a supplemental concave
120 roller or worker, whereby the goods may be entered and worked without changing the relative positions of the rollers and worker, substantially as and for the purposes set forth.

4. The combination, in a hat scalding and felting machine, of a series of concave rollers and a supplemental convex roller or worker,
125 whereby the goods may be entered and worked without changing the relative positions of the rollers and worker, substantially as and for the purposes set forth.

5. The combination, in a hat scalding and
130 felting machine, of a series of rollers on parallel axes having unvarying relations relatively to each other, said rollers being provided with diagonally-ribbed, fluted, or corrugated faces,

whereby an open working-chamber is formed, substantially as and for the purposes set forth.

6. In a hat scalding and felting machine, a series of rollers on parallel axes and provided with diagonally ribbed, fluted, or corrugated surfaces, combined with a supplemental roller or worker, the axes of the rollers having unvarying relations to each other, and the axis of the worker being also fixed, or in automatically-yielding spring-bearings, substantially as and for the purposes set forth.

7. The combination, in a hat scalding and felting machine, of a series of concave rollers having ribbed, fluted, or corrugated surfaces, said rollers being on axes placed out of parallel relations with respect to each other and forming a convex open chamber within which the goods are placed, rotated, compressed, and given longitudinal movement, substantially as and for the purposes set forth.

8. In a hat scalding and felting machine, a series of concave rollers on parallel axes having unvarying relations relatively to each other, whereby a convex open receiving and working chamber is formed, combined with a vat for holding hot water, substantially as and for the purposes set forth.

9. In a hat scalding and felting machine, a series of concave rollers on parallel axes and a supplemental concave roller or worker, the axes of the rollers having unvarying relations to each other, and the axis of the worker being also fixed, or in automatically-yielding spring-bearings, combined with a vat for hold-

ing hot water, substantially as and for the purposes set forth.

10. In a hat scalding and felting machine, a series of concave rollers on parallel axes and a supplemental convex roller or worker, the axes of the rollers having unvarying relations to each other, and the axis of the worker being also fixed, or in automatically-yielding spring-bearings, combined with a vat for holding hot water, substantially as and for the purposes set forth.

11. In a hat scalding and felting machine, a series of concave rollers forming a convex open receiving and working chamber, combined with gearing and a circular head capable of limited rotation and supporting one end of the axis of each roller, whereby the rollers may be partially revolved in a common direction or twisted or given radial movement as a series, substantially as and for the purposes set forth.

12. As an element in a hat scalding and felting machine, a wooden roller having diagonal brass or composition strips combined therewith, substantially as herein described, for the purposes set forth.

In testimony whereof I have hereunto set my hand and seal this 14th day of August, 1882.

JAMES S. TAYLOR. [L. S.]

Witnesses:

E. M. BULKLEY,
F. T. HOYT.