

No. 747,787.

PATENTED DEC. 22, 1903.

E. G. SMITH.
DRYING MACHINE.

APPLICATION FILED FEB. 26, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.

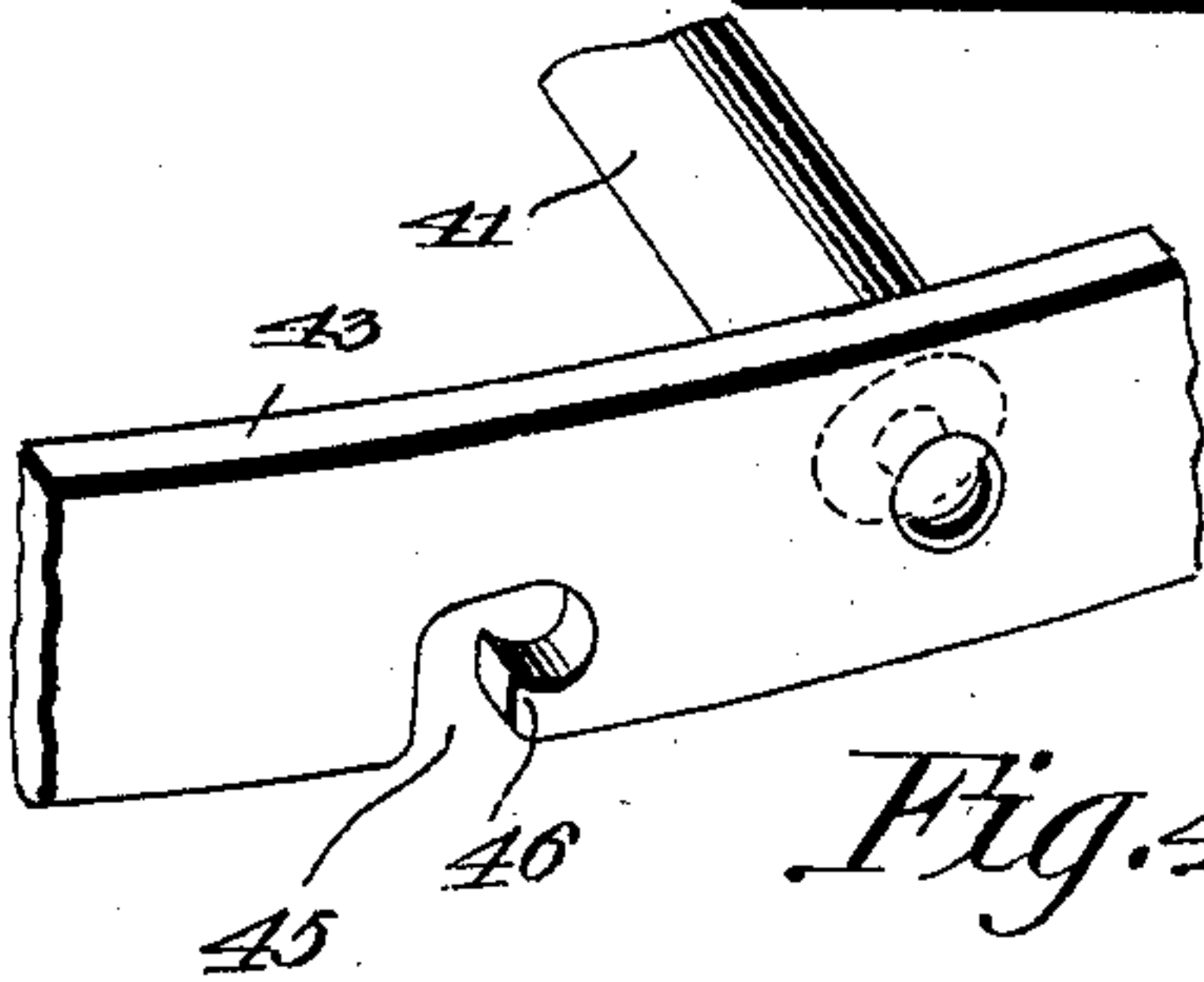
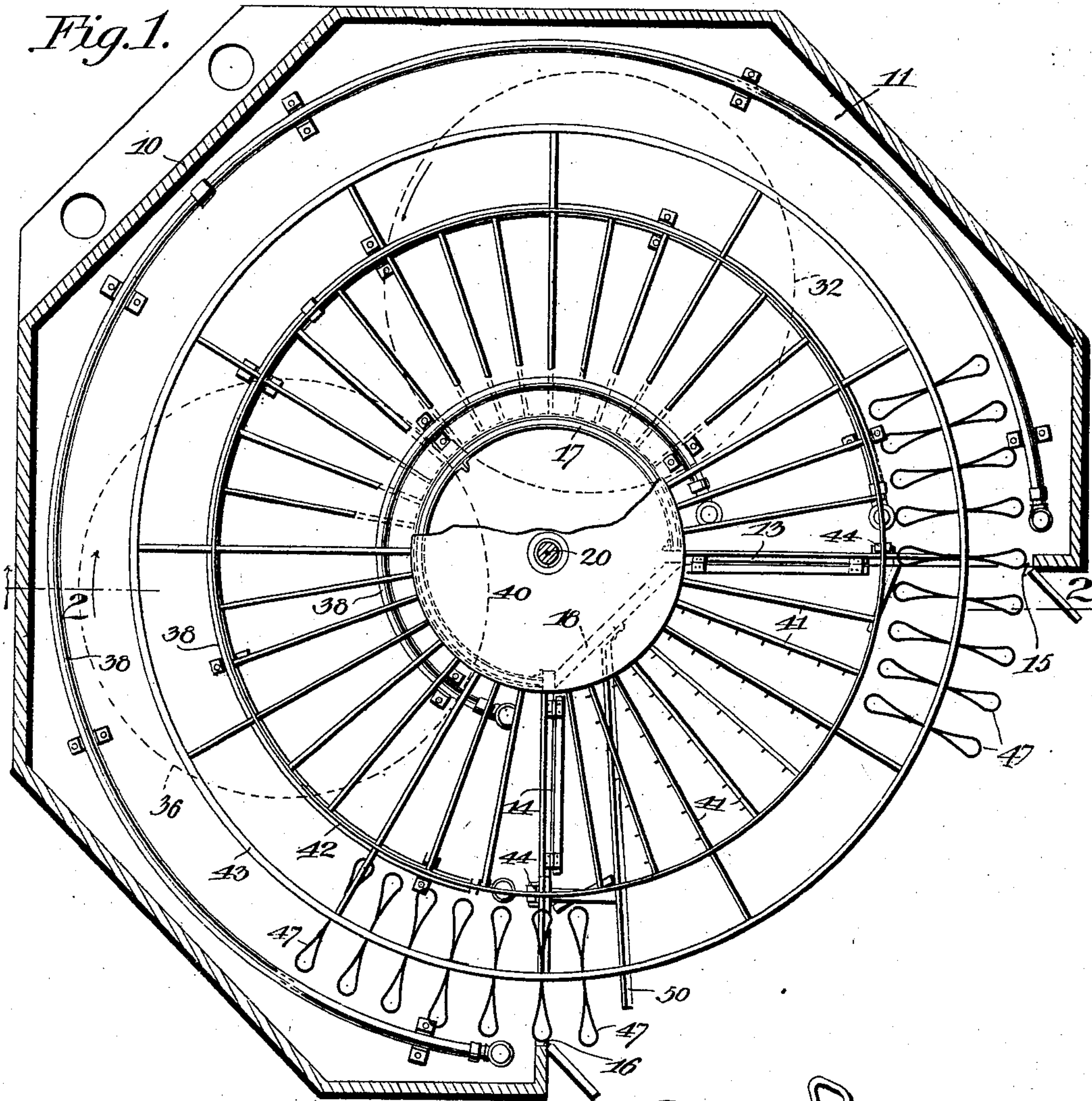


Fig. 4.

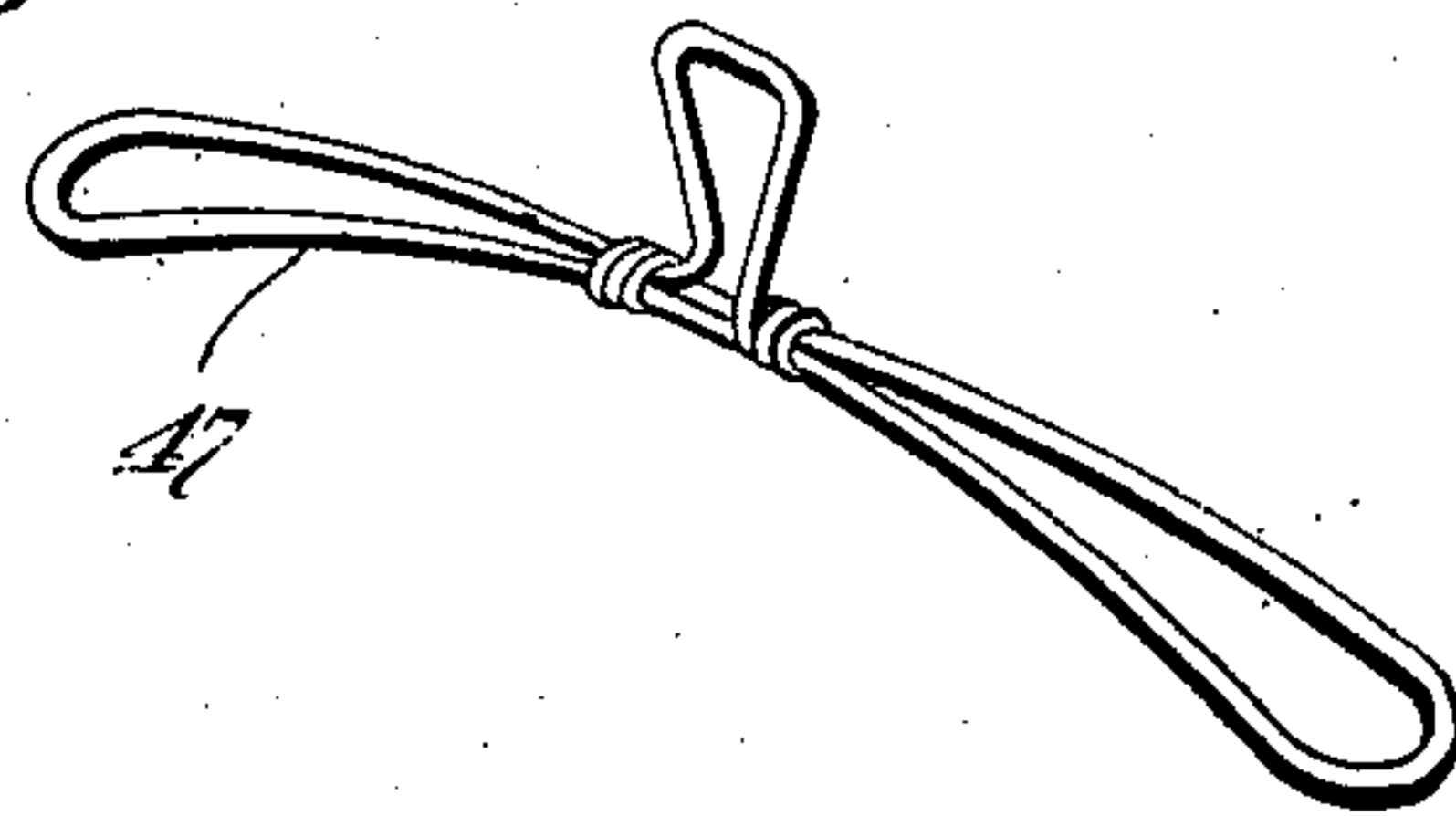


Fig. 6.

Witnesses
E. G. Stewart
Jno E. Parker

E. G. Smith, Inventor.
by *Chas. H. Snow & Co.*
Attorneys

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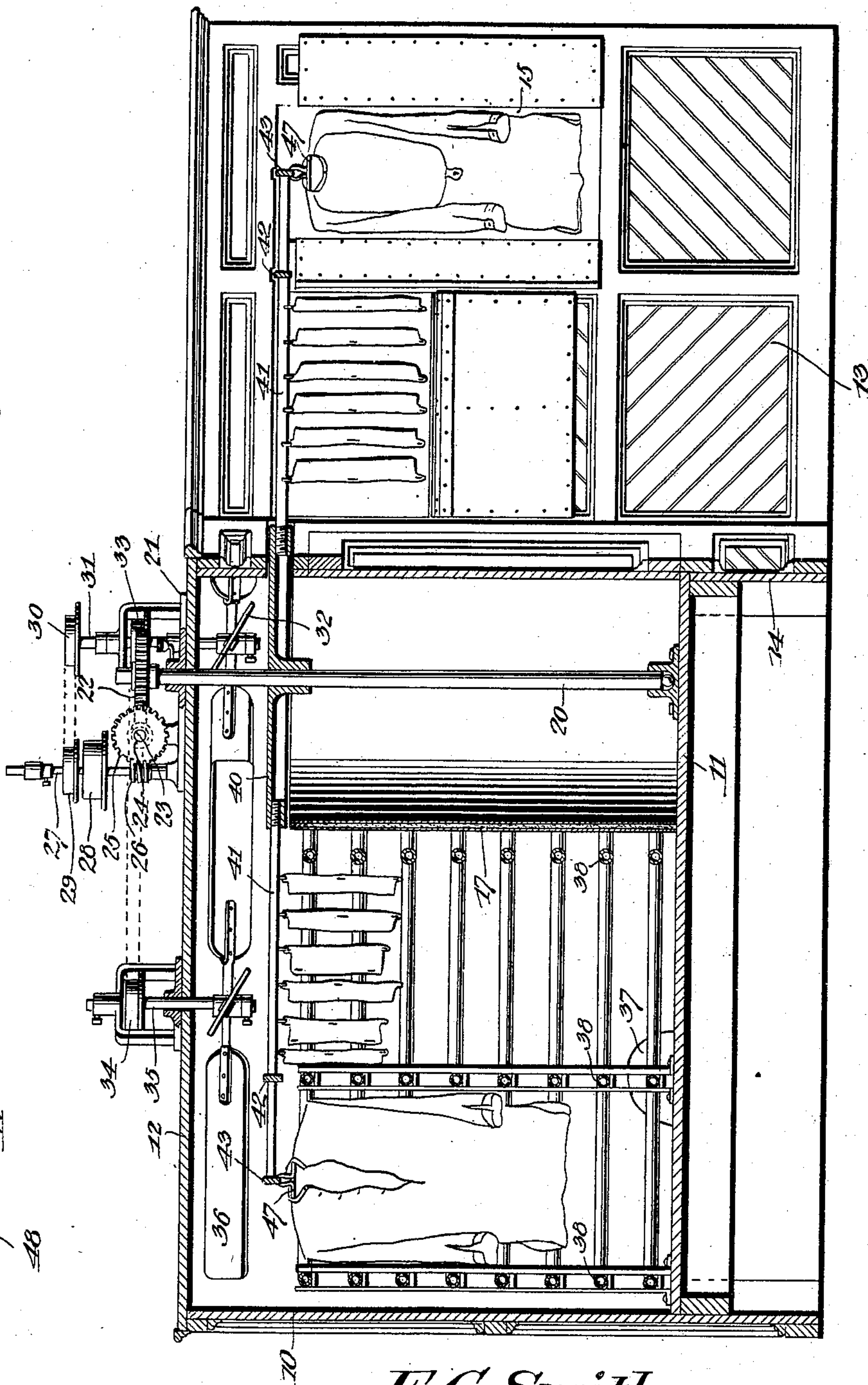
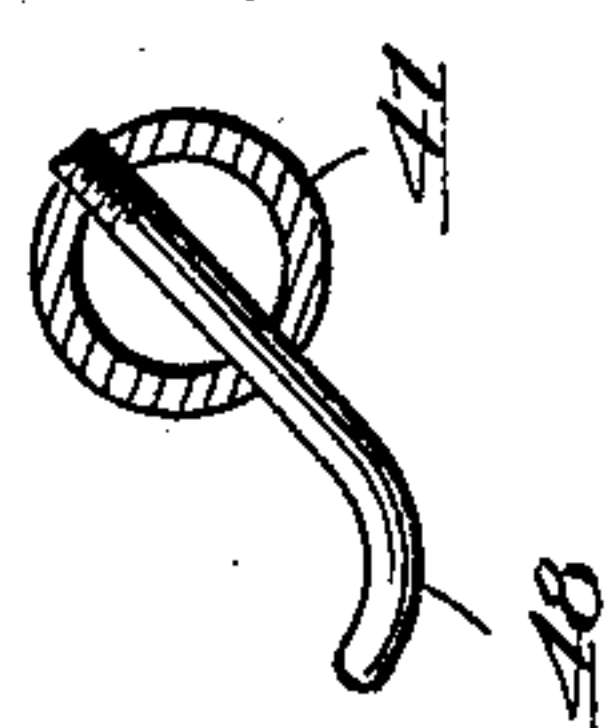
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3 SHEETS—SHEET 2.

Fig. 2.

Fig. 7.



Witnesses
E. H. Stewart
John E. Parker

E. G. Smith, Inventor.
by *C. A. Snow & Co.* Attorneys

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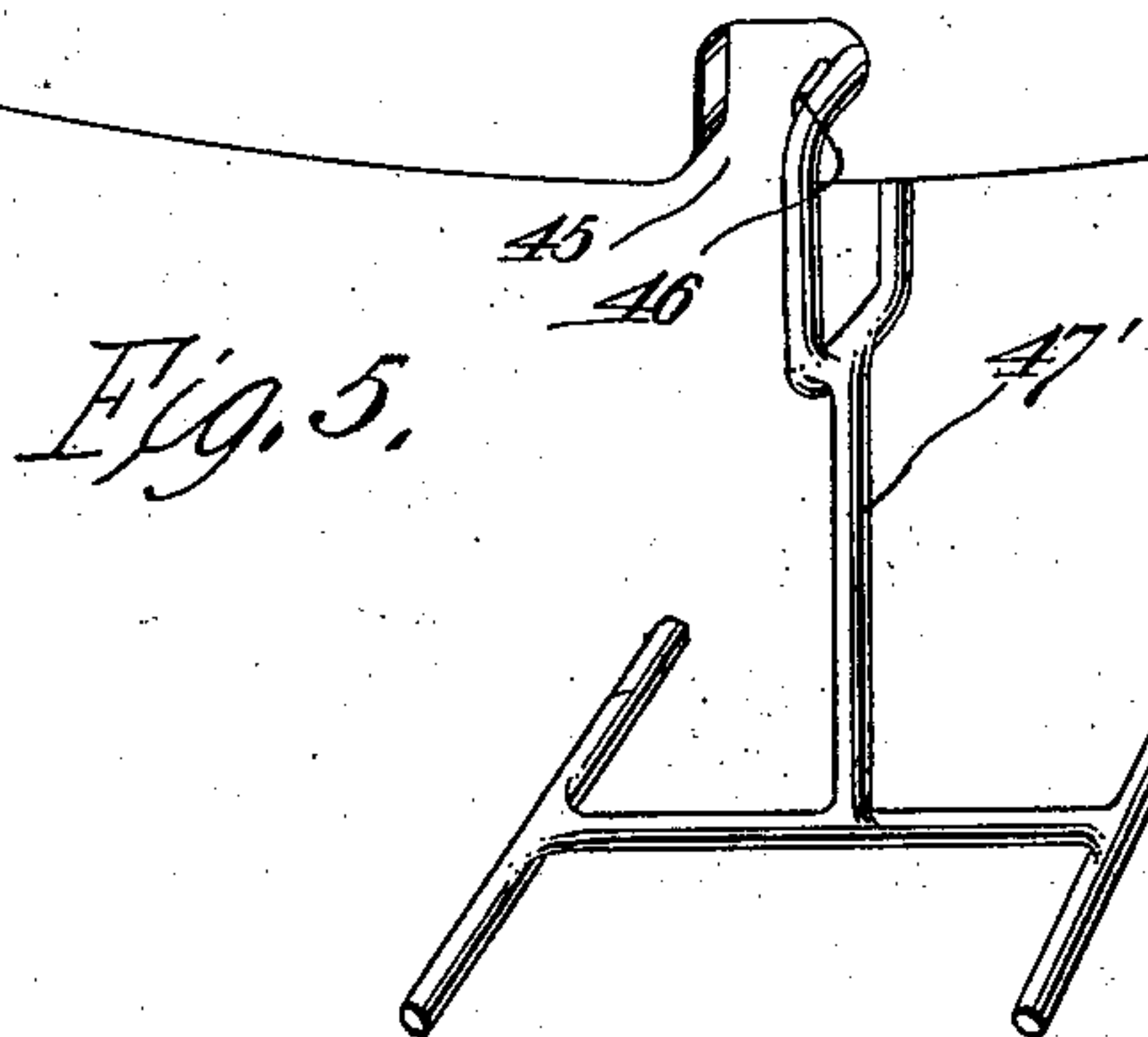
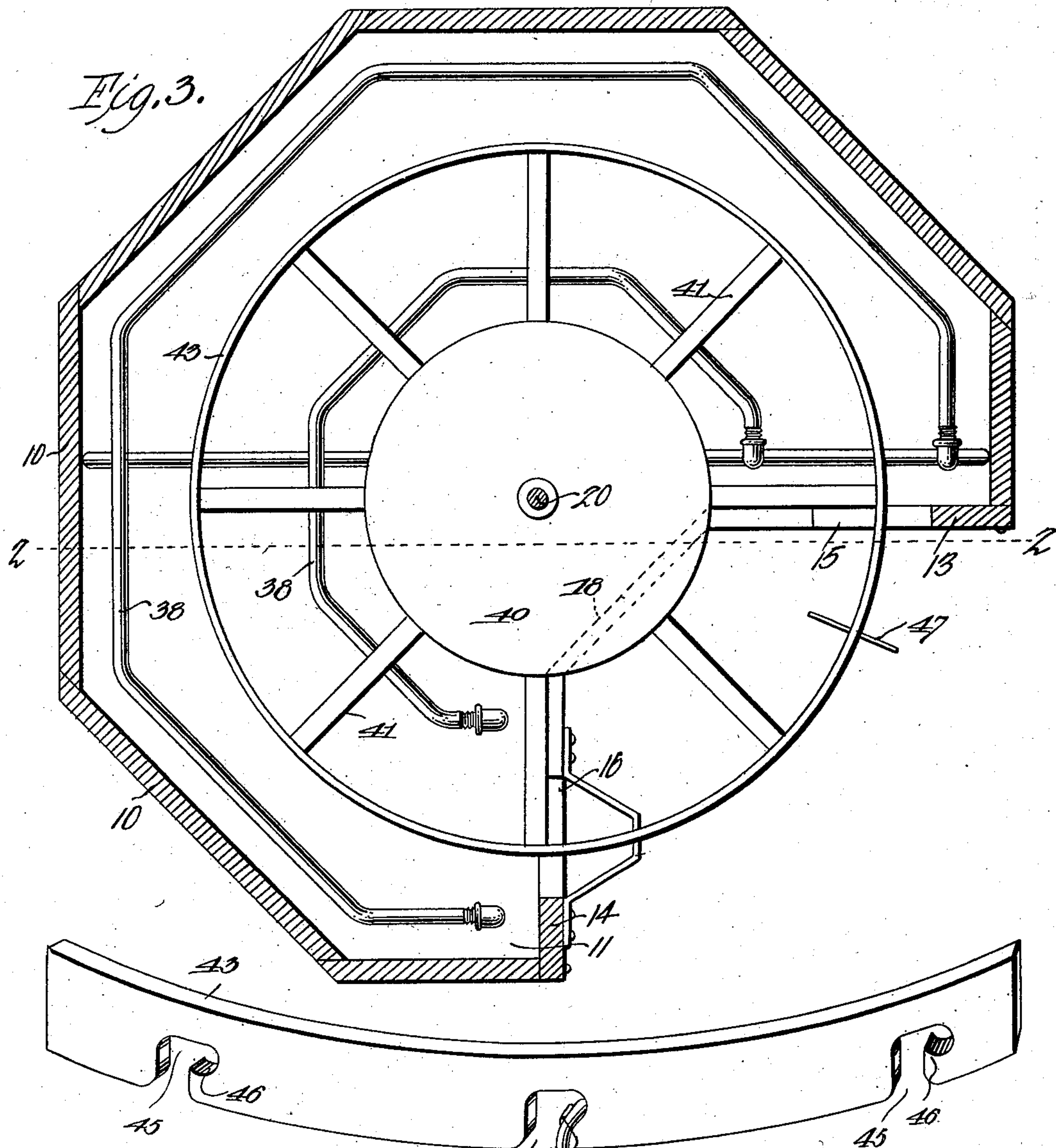
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3 SHEETS—SHEET 3.



Witnesses
E. G. Smith
Jno. C. Parker

by *E. G. Smith, Inventor*
Chas. Snow
Attorneys

UNITED STATES PATENT OFFICE.

ERNST G. SMITH, OF COLUMBIA, PENNSYLVANIA.

DRYING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 747,787, dated December 22, 1903.

Application filed February 26, 1903. Serial No. 145,259. (No model.)

To all whom it may concern:

Be it known that I, ERNST G. SMITH, a citizen of the United States, residing at Columbia, in the county of Lancaster and State of Pennsylvania, have invented a new and useful Automatic Drying-Machine, of which the following is a specification.

The object of the present invention is to provide an improved form of drying-machine of that general class in which the clothes to be dried are supported on an endless carrier and traveled through a heated drying-room.

One object of the invention is to provide an apparatus of this character in which the goods are automatically delivered from the machine and deposited in a suitable receptacle, and a further object is to so arrange the machine that the goods will be traveled between concentric rows of steam-pipes and subjected to the action of a heated current of air, the air being drawn in from both the feeding and discharge ends of the drying-chamber and traveling in one case in the same direction as that in which the clothes are traversed through the machine and in the other case the current of air and clothes being moved in opposite directions.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a sectional plan view of a drying-machine constructed in accordance with the invention. Fig. 2 is a transverse sectional elevation of the same on the line 2-2 of Fig. 1. Fig. 3 is a view similar to Fig. 1, illustrating a machine of somewhat smaller size and more simple construction. Figs. 4 and 5 are detail sectional views of a portion of the endless carrier which is employed for carrying the articles to be dried. Fig. 6 is a detail perspective view of hanger for the support of shirts and similar garments. Fig. 7 is a de-

tail view of a hook or hanger for the support of small articles of clothing.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The drying-chamber is of octagonal or circular form and is provided with an outer wall 10, an elevated floor 11, and roof 12, all formed of heavy planking or other material which will tend to lessen the escape of heat. A portion of the casing is formed of a pair of substantially radial walls 13 and 14, provided, respectively, with feeding and discharge openings 15 and 16, having suitable doors which may be closed when the machine is not in use or at the starting of the operation when it is desired to raise the temperature of the chamber to the desired point before any of the clothing is introduced. At the center of the chamber is a vertically-disposed partition 17, forming a substantially circular central chamber, the partition being preferably formed of two spaced sheets of metal and an intervening lining of asbestos or similar material, and to gain access to this chamber the outer casing is provided with a hinged door 18, as indicated by dotted lines in Fig. 1, the door appearing in section in Fig. 2. At the center of the chamber is a vertically-disposed shaft 20, having a lower stop-bearing supported by the floor 11, the door 18 permitting ready access to this bearing when it becomes necessary to supply lubricating material. The upper end of the shaft extends through an opening in the roof of the chamber and passes through a bearing or guiding opening in a metal plate 21. At the upper end of the shaft is a worm-wheel 22, intermeshing with a worm 23 on a shaft 24, adapted to suitable bearings in a bracket or standard rising from the plate 21. The shaft 24 carries a worm-wheel 25, with which engages a worm 26 on a vertical shaft 27, having suitable supporting-bearings. The shaft 27 has a belt-wheel 28 for the reception of a suitable driving-belt and is further provided with a belt-wheel 29 for the reception of a belt which also extends over a belt-wheel 30 on the upper end of a vertically-disposed fan-carrying shaft 31, which extends within the upper portion of the casing and is provided with a suitable fan 32.

The shaft 31 is further provided with a belt-wheel 33 for the reception of a belt which also passes around the belt-wheel 34 on the upper end of a shaft 35, the latter carrying a suitable fan 36 at a point within the upper portion of the casing. The belt connections are illustrated in dotted lines in Fig. 2. The fans are revolved at a comparatively rapid rate of speed and serve to force the heated air down to the lower part of the drying-chamber, the air in its passage absorbing the moisture from the garments and finally escaping at the bottom of the flooring through suitable openings, one of which is indicated at 37 in Fig. 2, the openings being disposed at points distant from the fans in order to prevent direct air-currents.

In the drying-chamber are three concentric rows of steam-pipes 38, supported by suitable racks and forming annular passage-ways through which the clothes are traveled from the inlet to the outlet opening in the casing, or, as indicated in Fig. 3, a single passage-way may be formed by employing two concentric rows of steam-pipes, and the pipes while preferably arranged in curved lines may follow the contour of the casing, as shown in Fig. 3. At the upper portion of the vertical shaft 20 is secured a disk 40, having at its outer edge a depending flange provided with threaded openings for the reception of the inner ends of a plurality of radially-disposed spokes or arms 41, which extend through or are otherwise secured to a circular ring 42, arranged at a point immediately above the central row of steam-pipes. The arms continue on past this ring and at their outer ends are secured to a circular carrying-ring 43, arranged at a point about midway between the outer and central rows of steam-pipes. Inasmuch as the carrying-frame supports considerable weight it is advisable to employ additional supporting means, and for this purpose rollers 44 are arranged near the upper portions of the radial walls 13 and 14 at points immediately under the inner ring 42, so that the weight of the latter will be borne partly by said rollers. The lower side of the outer ring is notched or recessed, as indicated at 45, to form a plurality of supporting-loops 46 for the reception of clothes-nails 47, formed of a suitable material and adapted to receive clothes or garments of any character. For smaller articles, such as cuffs and collars, I preferably employ hangers of the construction illustrated in Fig. 7. This hook or hanger is in the form of a bent bar 48, which is extended through or otherwise clamped or secured to the radial arms 41 and projects below and slightly to the rear of said arm. In practice each arm is provided with a number of hooks, the number employed depending on the width of the space between the inner and central rows of steam-pipes, or in some cases I may employ hangers of the construction shown in Fig. 5, wherein 47' indicates a hanger embodying features of construction of both the shirt and collar

hangers and which may be placed on the hooks 46 of the outer carrying-ring for the support of garments or articles of any character.

At the exit end of the chamber is secured a stripper-bar 50, arranged immediately under the carrier and adapted for contact with the successive hangers or articles passing through the machine as they are carried from the casing, the strippers serving to disengage the carriers and clothing from their supporting-hooks and the hangers and clothes falling together into a suitable basket or other receptacle placed immediately under the stripper, and thus rendering it unnecessary to remove the clothes by hand.

In operation the shaft is slowly rotated, and the attendant standing near the inlet-opening 15 places the goods to be dried on the hangers and then places the hanger loops or links on the bills 45 of the carrier-ring, or the collars, cuffs, or other small articles of clothing may be hung directly on the hooks 47. The carrier is traveled slowly and the goods are subjected to the action of high heat within the drying-chamber, the heated air being forced down by the fans toward the floor of the chamber, and thus coming into contact with other portions of the goods and effectually drying the same. When the hangers leave the drying-chamber through the exit-opening, they are successively forced into contact with the stripper and are automatically removed.

The capacity of the machine may be increased to any desired extent by the employment of carrying-rings of greater diameter or by the employment of a larger number of rings, as will be readily understood.

Having thus described the invention, what is claimed is—

1. In a device of the class specified, a casing forming a drying-chamber and having feed and exit openings, a pair of spaced steam-pipes disposed within the chamber, a circular carrying-ring partly within and partly outside of the casing and disposed in a path between the rows of steam-pipes, substantially as specified.

2. In a device of the class specified, a casing having feed and exit openings, spaced rows of steam-pipes disposed within the casing, and forming a substantially annular path for transit of the clothing to be dried, a carrier-ring movable in said annular path and disposed partly within and partly outside the casing and adapted for the reception of clothes-hangers, means for supporting and revolving the carrier-ring, and a fan for inducing the flow of currents of air within the casing.

3. In a device of the class specified, a casing having feed and exit openings, spaced rows of steam-pipes disposed within the casing, a carrier-ring disposed between said rows of steam-pipes and having a plurality of hooks adapted to receive clothes-hangers, and a stripper-bar arranged at the exit-opening and

adapted to make contact with and remove the successive hangers.

4. In a device of the class specified, the combination of the casing having inlet and discharge openings, a shaft centrally disposed within the casing, a recessed carrier-ring supported by the shaft and extending outside the casing, a plurality of detachable hooks adapted to the recesses of the ring, gearing
10 connected to the shaft, a fan arranged within the casing, and clothes-hangers adapted to the supporting-hooks of the carrier-ring.

5. In a device of the class specified, the combination of the casing having inlet and outlet
15 openings, means for heating the chamber, and a revoluble carrier comprising a central shaft, an outer carrier-ring constructed for the reception of clothes-hangers, radiating bars supporting the ring and provided with
20 hooks or supports for clothing, an intermediate carrier-ring secured to said bars, and means independent of the carrier for supporting said ring.

6. In a device of the class specified, a casing
25 having inlet and outlet openings, a heating means comprising a plurality of sets of spaced concentric rows of steam-pipes, a curved partition arranged at the central portion of the drying-chamber to form a central chamber, a
30 movable door for permitting access to said central chamber, a shaft extending through the central chamber and provided with a lower bearing therein, a disk secured to the upper portion of the shaft, a plurality of radi-
35 ally-disposed arms carried by said disk, and a carrier-ring secured to the arms and pro-

vided with means for the reception of clothes-hangers.

7. A laundry drying-room comprising a closed chamber or compartment provided at
40 one side with an opening, means for heating said chamber, a rotative frame located in said chamber and extending outwardly through said opening therein, means for continuously
45 rotating said frame and hanging devices on said frame.

8. A laundry drying-room comprising a closed chamber or compartment provided in its side wall with an opening, a drying-frame
50 comprising an annular ring, a central hub and spokes or arms connecting the hub with the ring, hanging devices on said ring, a rotative shaft to which said hub is affixed, said
55 frame extending outwardly through said opening in the chamber-wall, and means for rotating said shaft.

9. A laundry drying-room comprising a closed chamber or compartment provided in its side wall with an opening, a drying-frame
60 comprising inner and outer rings, a central hub and spokes or arms connecting the hub with the rings, a rotative shaft to which said hub is affixed, said frame extending out-
65 wardly through said opening, and means for rotating said shaft.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ERNST G. SMITH.

Witnesses:

C. W. BENDER,
AUGUST C. NOLB.