

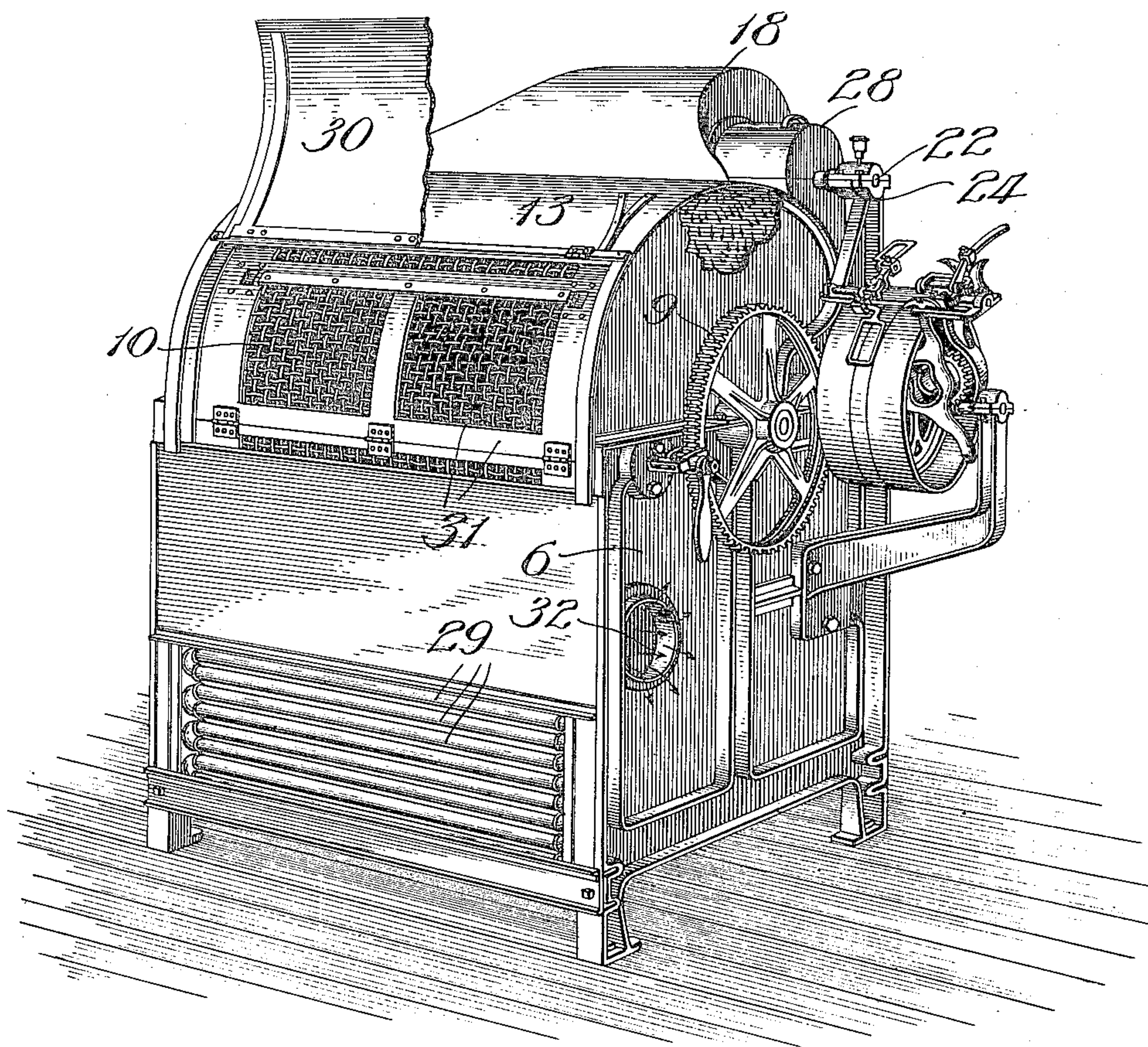
C. T. GILMORE.
DRYING APPARATUS.
APPLICATION FILED OCT. 5, 1908.

929,299.

Patented July 27, 1909.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
John Enders,
Chas. H. Buell.

Inventor:
Charles T. Gilmore.
By *Dyrenforth, Lee, Chritton & Wiles*
Attys.

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3 SHEETS—SHEET 2.

Fig. 3.

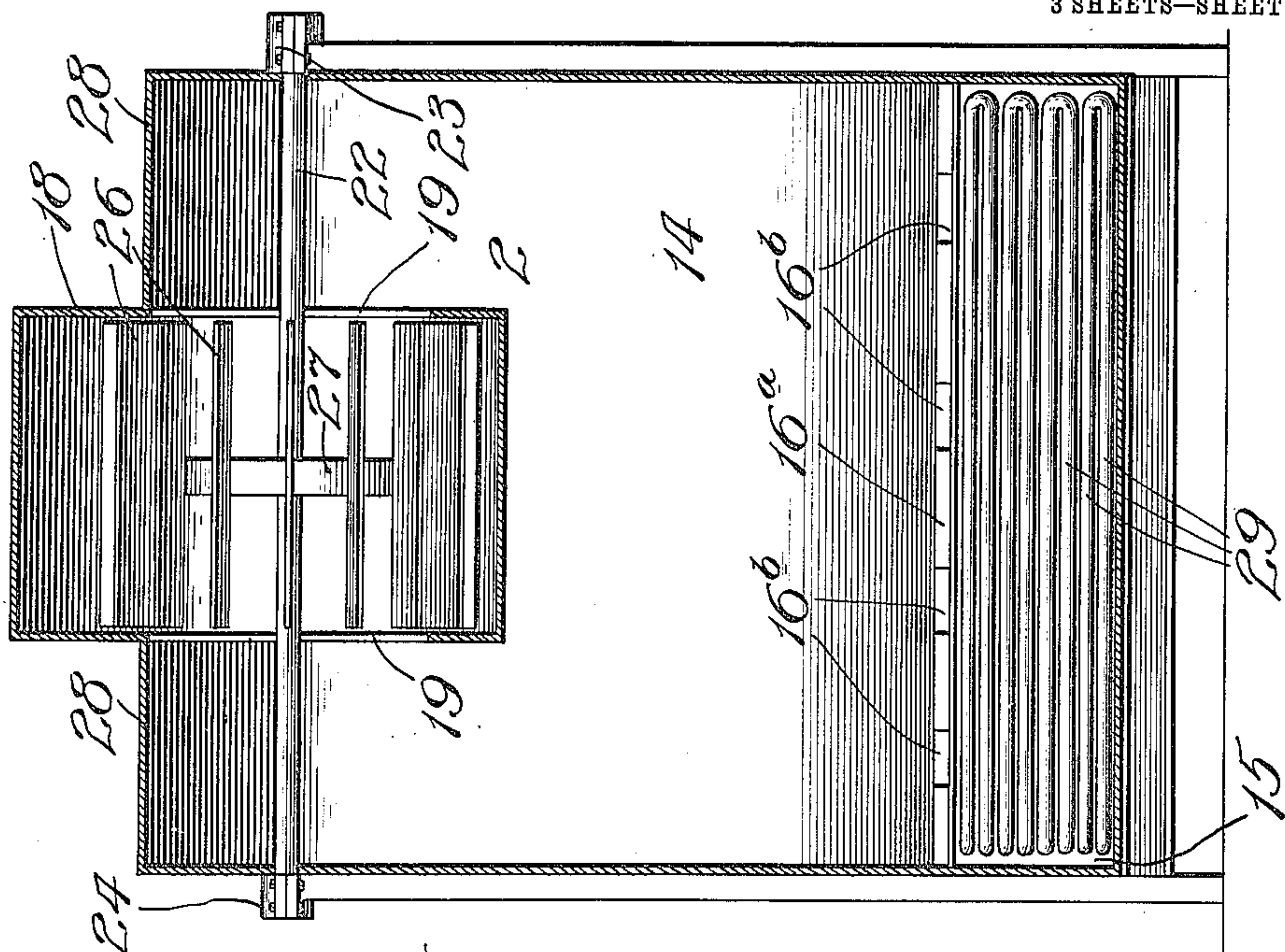
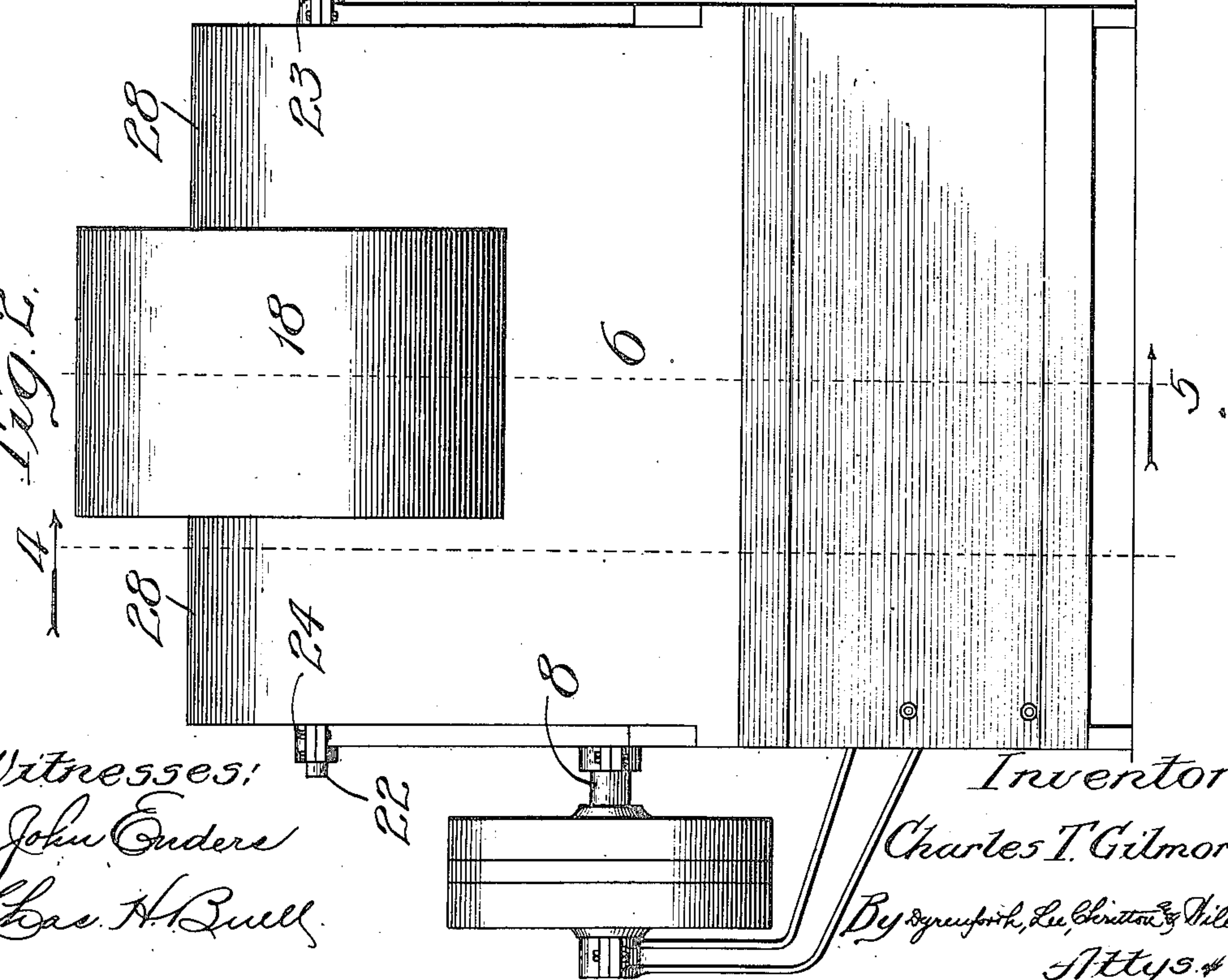


Fig. 2.



Witnesses:
 John Enders
 Chas. H. Bull.

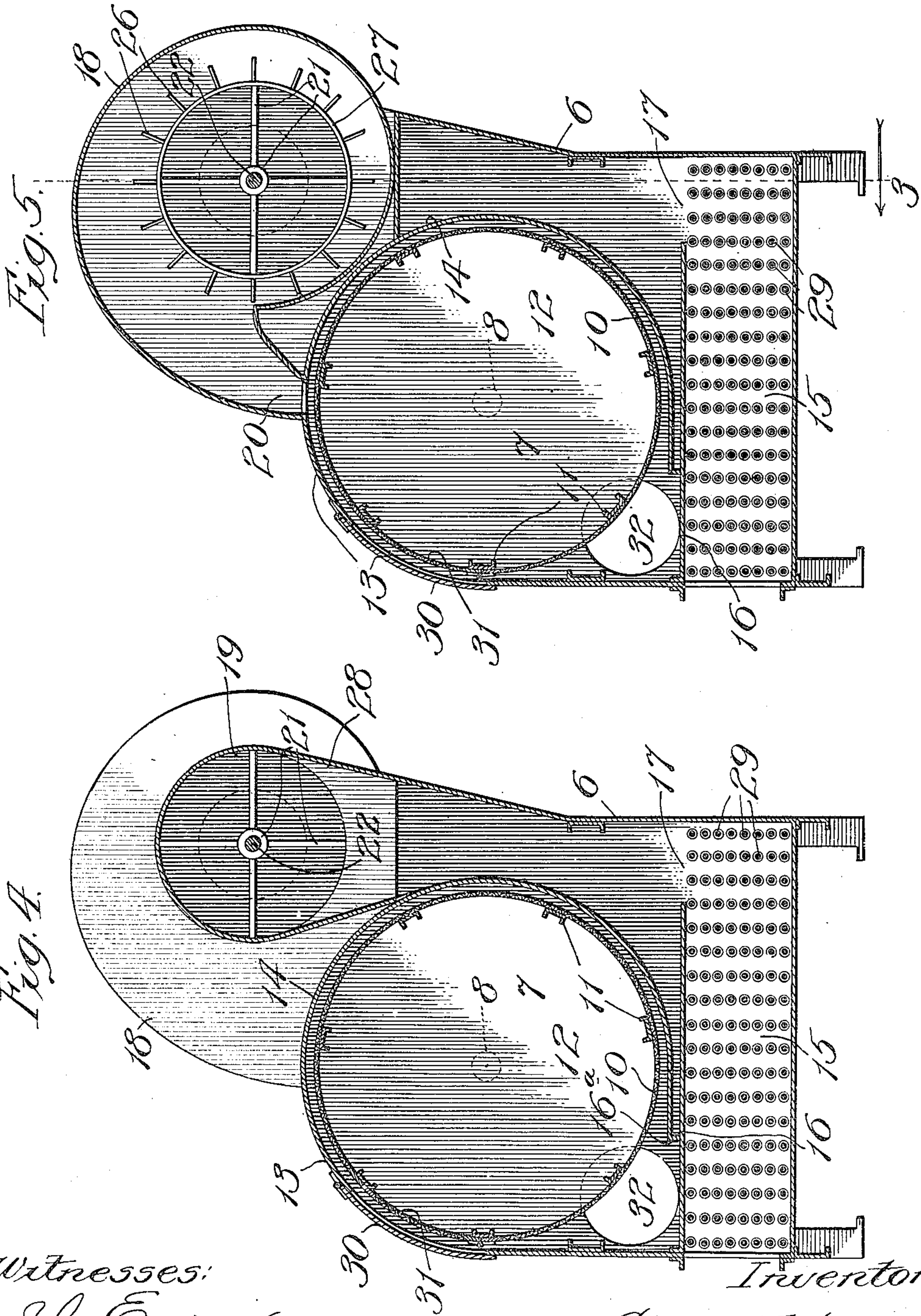
Inventor:
 Charles T. Gilmore
 By *Byrne, Smith, Lee, Christian & Miles*
 Attys.

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3 SHEETS—SHEET 3.



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 Chas. H. Buell.

Inventor:

Charles T. Gilmore.
 By *Bygrenforth, Lee, Chittenden & Wiles*
 Attys.

UNITED STATES PATENT OFFICE.

CHARLES T. GILMORE, OF CHICAGO, ILLINOIS.

DRYING APPARATUS.

No. 929,299.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed October 5, 1908. Serial No. 456,308.

To all whom it may concern:

Be it known that I, CHARLES T. GILMORE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Drying Apparatus, of which the following is a specification.

My invention relates to new and improved means for drying fabrics, which latter in the process of being laundered or dyed become wet and require to be dried.

In the process of laundering fabrics they are either caused to be finished in rough-dry or ironed condition, depending upon the character of the fabric, thus underwear, rough towels, and many other cloth articles are finished rough-dry to prevent, as nearly as possible, matting of the nap; whereas bed linen, table linen, skirts, shirts, and many other articles are finished by ironing them.

Heretofore, so far as I am aware, fabrics to be dried were taken from the extractor, or wringer, while in bunched or crumpled condition, and were then hung on racks in a heated dry-room, with the disadvantage of necessitating the expenditure of great labor and time in so arranging them in the dry-room and of requiring each article to be separated from the others by hand and shaken out to remove, as well as possible, the wrinkles and creases in them. Furthermore, fabrics so hung to dry retain on their surfaces the lint which becomes loosened by washing them, and the nap of the fabric would become matted, which is a serious objection, especially when the articles are to be rough-dried.

My object is to avoid the objections above set forth and to provide a machine which, when the articles to be dried are placed in it, will thoroughly and quickly dry them, and in drying them will cause them to become unfolded and unwrinkled without requiring handling, thereby providing them for the mangle in the case of work to be mangled, or for folding for immediate delivery to customers in case of work not to be mangled.

Referring to the accompanying drawings—Figure 1 is a perspective view of a dryer constructed in accordance with my invention, portions of the casing being broken away to better disclose interior details. Fig. 2 is a view in rear elevation of the machine. Fig. 3 is a vertical sectional elevation, the section being

taken at the line 3 on Fig. 5, and viewed in the direction of the arrow. Fig. 4 is a section taken at the line 4 on Fig. 2 and viewed in the direction of the arrow; and Fig. 5 is a section taken at the line 5 on Fig. 2 and viewed in the direction of the arrow.

The casing of the machine, which is represented at 6, and is preferably made of sheet-metal, contains a rotary, perforated drum 7 for receiving the fabrics to be dried, the drum being preferably cylindrical in shape and journaled toward the front side of the casing at stub-shafts 8, one of the shafts being provided beyond the casing with a gear 9. The drum is preferably formed of sections 10 of wire-mesh with strengthening channel-bars 11 extending longitudinally of the drum and joined at their ends to the drum-heads 12, one only of which is shown. The upper forward portion of the casing is rounded to conform to the shape of the drum, as illustrated at 13, a curved partition 14 extending the full length of the casing and forming an extension of the portion 13 and terminating a short distance from the front wall of the casing 6, as clearly illustrated in Fig. 4, this partition thus forming with the front of the casing a housing for the drum. The casing 6 contains a compartment 15 in its bottom portion open at the front side of the casing, as represented in Fig. 1, and separated from and closed to the chamber in which the drum is located by a horizontal partition 16 which extends the full length of the casing, but reaches short of the rear wall thereof, thereby affording an opening 17 toward the rear side of the casing which communicates with the space between the curved partition 14 and the rear side of the casing 6, the lower forward end of the curved partition 14 being joined to the partition 16 through the medium of a flange 16^a on the partition 14, this flange containing a series of elongated apertures 16^b for a purpose hereinafter explained.

The casing 6 is provided at its top near its rear side and intermediate its ends with a fan-casing 18 of general curved shape, having circular openings 19 at its opposite sides and a restricted discharge-passage 20 extending preferably the entire length of the drum and communicating with the top of the chamber in which the drum is located. The casing 18 contains a rotary fan 21, the axle 22 of which is journaled at opposite ends in bearings 23, 24, the axle at one of its ends carrying a

belt-pulley 25 at which power for rotating the fan may be applied. The type of fan which I prefer to employ is that illustrated, comprising a series of transversely and radially extending blades 26 secured to a rim 27 carried by the axle 22 and adapted to force air introduced into the fan-casing from opposite sides thereof through the discharge 20 and into the top of the drum 7. At opposite sides of the fan-casing are extensions of the casing 6, these extensions, which are represented at 28, opening downwardly at opposite sides of the fan-casing into the space between the partition 14 and the rear side of the casing, and laterally into the fan-casing 18 at the openings 19 in the latter, as most clearly illustrated in Fig. 3.

The drum may be rotated in any desirable manner, it being preferred that the means for rotating it be so constructed as to cause the drum to rotate in alternate directions, preferably three complete rotations in each direction before reversal, the means shown as cooperating with the gear 9 for the above purpose being of a construction well known in the laundry-machinery art.

The chamber 15 contains a group of spaced pipes 29 preferably arranged in horizontal series, as illustrated in Figs. 4 and 5, and connected together at their ends to afford a continuous passage for steam or any other suitable heat-medium which may be introduced therein from any suitable source of supply; and the casing 6 is provided in its front side with a removable closure 30 which permits of access through it to the interior of the drum 7 through a swinging section 31 in the latter.

In the operation of the machine, the fabrics to be dried, which may be clothes, linen or any other cloth articles, may be dumped into the drum and the doors 30 and 31 closed, whereupon the drum 7 and fan 22 may then be rotated in a well-known manner, the fan to rotate in one direction and the drum preferably in opposite direction, as hereinbefore mentioned. Rotation of the fan causes air to be sucked into the chamber 15 through the opening in the front of the casing 6; thence through the spaces between the pipes 29, which latter by reason of the heating medium contained therein, causes the air to become very hot, and up through the casing 6 into the extensions 28, from which latter the air enters the fan-casing through the openings 19 in its opposite sides, all as clearly represented by the arrows in Fig. 4. The air is then forced through the fan-casing, by the rotation of the fan 22, and out through its discharge 20 into the top of the drum 7, as clearly represented by the arrows in Fig. 5. The hot air being forced under pressure into the top of the drum is caused to penetrate the fabrics being tumbled in the drum, taking up moisture from them and discharging

through the drum into the chamber containing the latter, from which it discharges from the machine through openings 32 in the end-walls of the casing 6.

The fabrics by being subjected to the heated air as described, as they are tumbled, not only dry very quickly but in this operation are rendered very soft and pliable and become unfolded from their bunched and crumpled condition, and, therefore, when taken from the machine are neither creased nor wrinkled, which permits them to be immediately delivered to customers, after folding them, when it is desired that they be furnished rough-dry, or to be readily mangled without manual labor for taking out creases, as is usual under the former practices in laundries. Furthermore, the simultaneous action of tumbling the fabrics and forcing heated air through them causes the fabrics to be softened and the nap to be roughed up instead of being matted down. Another advantage of treating fabrics in accordance with my invention is that of removing from them the lint which is produced from operation on the fabrics and which adheres to them when they are taken from the wringers, or separators, the lint being freed from the fabrics as they tumble, and the air taking up the lint and carrying it out through the discharge.

It is manifest that by employing my invention to dry fabrics, the handling of them is reduced to the minimum as compared with the dry-room method in which the fabrics are spread upon racks to dry. Furthermore, as hereinbefore pointed out, fabrics dried in accordance with my invention possess characteristics impossible of attainment when dried on racks.

By providing communication, as by the openings 16^b, between the compartment in which the drum rotates and the space between the partitions 14 and 16, a current of air under low pressure is caused to traverse the upper side of the partition 16 toward the rear of the casing 6 and thus any lint in the air sucked into the casing through the compartment 15 and swirled into the space above the partition 16 is caused to be carried into the main current and up to the fan, thence discharging through the portion 20, drum and outlets 32. The machine is thus rendered automatically cleaned of lint.

What I claim as new, and desire to secure by Letters Patent, is—

1. A machine of the character set forth, comprising a casing, a rotatable perforated drum in the casing, a fan-casing opening into said drum at its outlet, a fan journaled in the fan-casing, the latter containing openings therethrough on opposite sides of its fan, a conduit in said first-named casing opening at one end therethrough and communicating with the openings in the oppo-

site sides of the fan-casing, and means for heating the air before it passes into the drum, for the purpose set forth.

2. A machine of the character set forth, comprising a casing forming a housing, a rotatable perforated drum journaled in the housing, a partition in said casing separating the lower portion of the casing from the housing and affording a compartment therein, heat-conducting pipes in said compartment, a fan-casing discharging through said housing into said drum, a fan in said fan-casing, and a passage in said first-named casing opening at one end into said compartment and at its other end into the fan-casing, for the purpose set forth.

3. A machine of the character set forth, comprising a casing provided with a curved partition forming a housing, a rotatable perforated drum journaled in the housing, a substantially horizontal partition in said casing affording in the lower part thereof a compartment, said partitions being joined together with openings provided in said first-named partition adjacent to said second-named partition, a fan-casing discharging through said housing into said drum, a fan in said fan-casing, a passage in said first-

named casing opening at one end into said compartment beyond the juncture of said partitions with each other and at its other end into the fan-casing, and means for heating the air in said passage.

4. A machine of the character set forth, comprising a casing containing a curved partition which forms with the casing a housing, a rotatable perforated drum journaled in the housing, a substantially horizontal partition in said casing joined to the lower end portion of said first-named partition, said latter partition having openings provided through it adjacent to said horizontal partition, said horizontal partition being spaced from the rear side of the casing and forming a compartment in the lower portion thereof, a fan-casing discharging through said housing into said drum, a fan in said fan-casing, a passage in said first-named casing opening at one end into said compartment near the rear of the casing and at its other end into the fan-casing, and means for heating the air introduced into said passage, for the purpose set forth.

CHARLES T. GILMORE.

In presence of—

A. U. THORIEN,
R. A. SCHAEFER.