

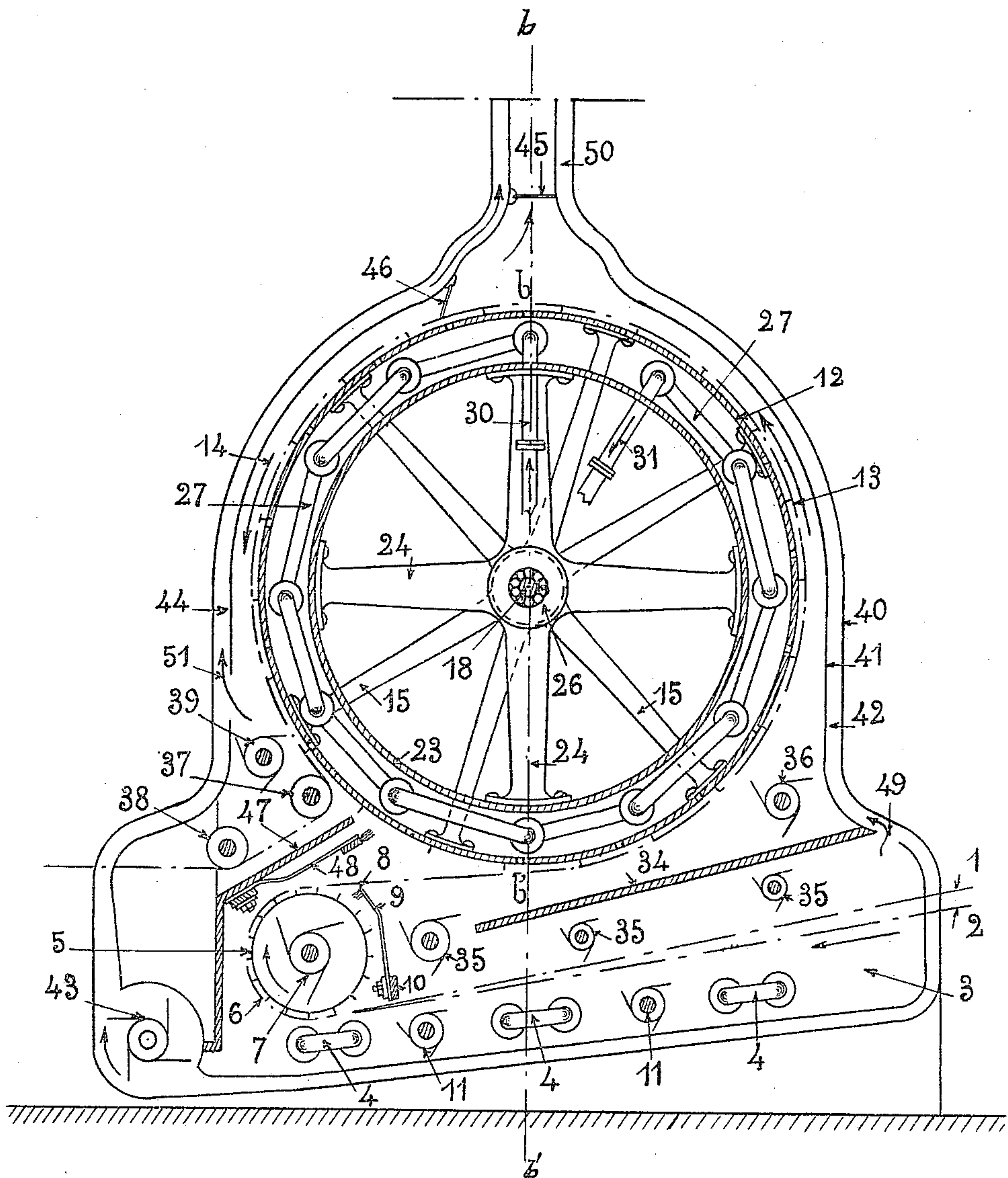
G. MASUREL.
 DRYING MACHINE FOR SIZED WARPS.
 APPLICATION FILED SEPT. 16, 1909.

959,570.

Patented May 31, 1910.

2 SHEETS—SHEET 1.

Fig. 1



Witnesses
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Inventor
Georges Masurel
 per *James Appleman,*

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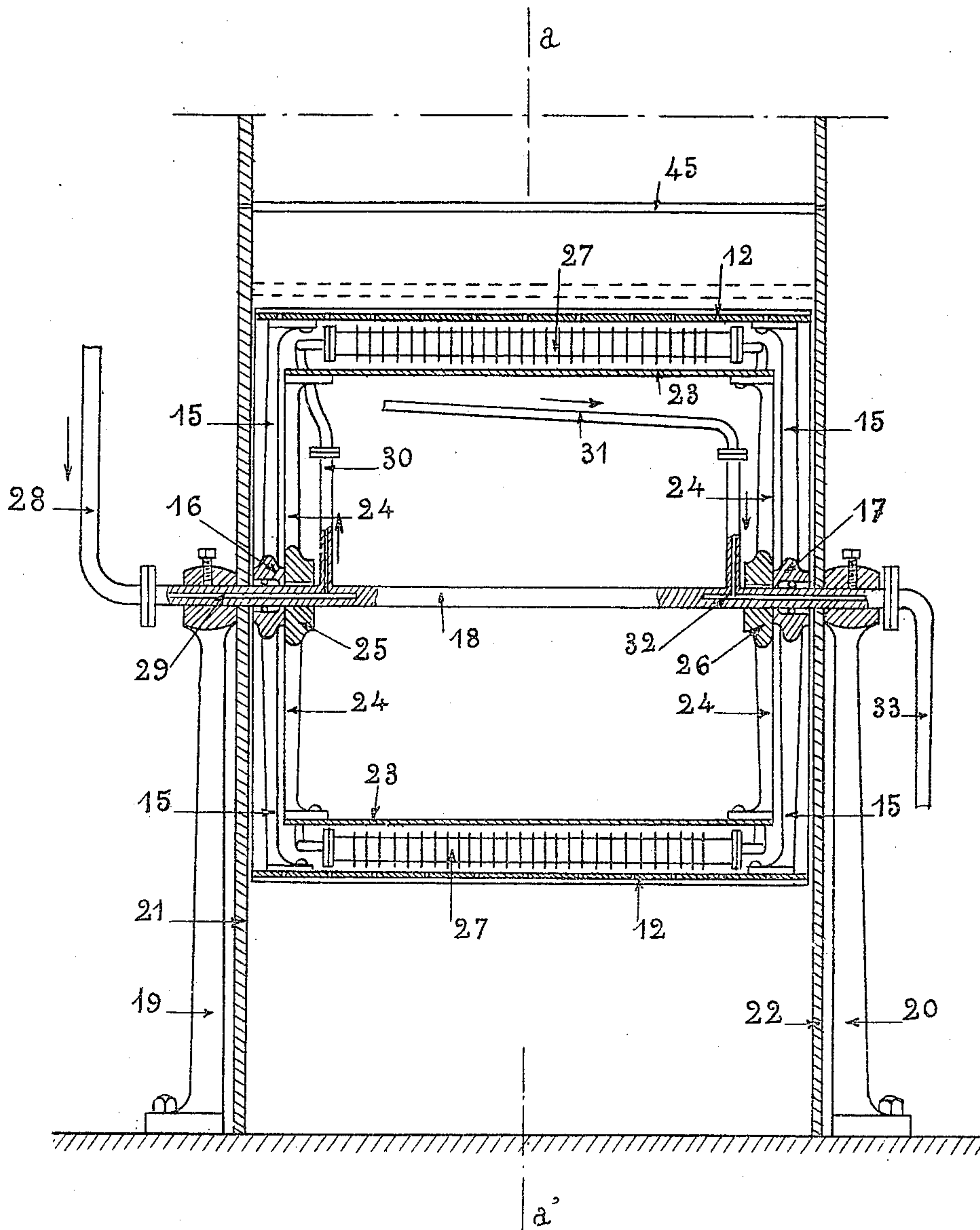
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2 SHEETS—SHEET 2.

Fig. 2



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UNITED STATES PATENT OFFICE.

GEORGES MASUREL, OF ROUBAIX, FRANCE.

DRYING-MACHINE FOR SIZED WARPS.

959,570.

Specification of Letters Patent.

Patented May 31, 1910.

Application filed September 16, 1909. Serial No. 518,036.

To all whom it may concern:

Be it known that I, GEORGES MASUREL, a citizen of the French Republic, residing at 19 Rue du Grand Chemin, Roubaix, in the Department of Nord, France, have invented a new and useful Improved Drying-Machine for Sized Warps, of which the following is a specification.

The present invention refers to a compact circular drying machine for warp-sizing, in which the consumption of steam is reduced to a minimum, the output is high, a perfectly sized warp is obtained, and finally the machine may be used for cotton or wool without causing any felting of these latter textiles.

I shall now describe my invention with reference to the accompanying drawings showing a construction of the present invention, in which—

Figure 1 is a sectional elevation on the line *a a'* of this improved sizing machine; Fig. 2 is a profile section on the line *b b'*.

By referring to these drawings it may be seen that the warp to be sized, in which the threads are supposed to be situated very closely together, is formed by the junction of two layers 1 and 2; the latter then enter the chamber 3 of the machine and pass above a series of steam tubes 4. These layers after a relatively short horizontal course pass around the drum 5 provided with fine projections 6 arranged upon its cylindrical surface; the axial fan 7 accelerates the drying of the layers passing over the drum 5. A brush 8 fitted to the extremity of the spring blade 9 pulverizes any dried sizing adhering to the projections 6 and expels it continuously and automatically; this brush consists of thin flexible steel wires and has a vibratory movement in consequence of its elastic support and periodical contact with the projections on the drum; the support 10 permits of its exact adjustment. Fans 11, situated between the bundles or series of tubes 4, accelerate the drying of the layers before joining together on the drum 5. The layers then pass on to the large open drum 12 provided with thin projections 13 for the purpose of decreasing the adhesion; the said layers rotate this drum, which is mounted so as to rotate with very slight friction, in the direction indicated by the arrow 14. This drum 12 is provided with spokes 15 each fitted at their ends into hubs 16 and 17 respectively, mounted with ball bearings on a fixed hori-

zontal shaft 18; this shaft is held immovably in position by the supports 19 and 20; panels 22 close the sides of the chamber 3 of the machine.

A stationary concentric cylinder 23 is arranged at the interior of the drum 12 and is entirely closed at its extremities by a cloth; this cylinder is provided with arms 24 fitted to bosses 25 and 26 which are keyed to the fixed shaft 18. The said cylinder carries a series of tubes 27, preferably gilled tubes, arranged around the cylinder 23 as a fixed endless series having no contact with the rotary drum 12 nor in any way checking its movement; the steam pipe 28, connected to the shaft 18, supplies steam to the series of tubes 27, the steam passing through the central channel 29 provided in the shaft 18 through the connecting pipe 30, and after circulating through the series of tubes, flows away through the tube 31 connected to the central outlet channel 32 of the shaft 18 to the exhaust pipe 33 connected to the end of the latter.

The drying of the warps is thoroughly effected and there is no danger of felting the material under treatment; beneath the drum 12 is arranged a partition 34 preferably of sheet metal; fans 35 are arranged above the warp threads; a fan 36 is arranged above the partition 34. The warp threads pass through a very long course around the drum 12 and then over the rollers 37 and 38, when they leave the machine and are wound on to a winding beam; a fan 39 is arranged above these rollers 37 and 38 at the interior of the chamber.

A casing 44, preferably of wood, surrounds the warp drying machine and is provided with an interior partition 41; this latter in reality forms a channel communicating with a fan 43; the latter drives the air through the passage 44. By adjusting the upper damper 45 communicating with the chamber 3, the fan can be dispensed with and the vapors discharged direct; the auxiliary damper 46 permits of regulating the escape of hot air from the part on the left where the drying may be less active. The partition 47 prevents the vapors from coming in contact with the warps which come out sized and dried; it is provided with a flexible metallic brush 48 which automatically cleans the thin projections 13 of the drum 12. Finally the interior partition 41 is provided with an opening 49 beneath the

point where it is connected to the partition 34; the passage 50 on the right consequently communicates with the chamber 3; furthermore this partition 41 is provided with an opening 51 above the spot where the sized warps leave the machine; the chamber 3 consequently communicates with the passage 44 on the left.

It is evident that when the apparatus is working the moving warp threads turn the freely rotatable drum 12 being themselves drawn by the usual means, which as they form no part of the invention are not here described or shown in the drawing; the air heated by the tubes 27 passes through them, and completes the drying; at the same time the air saturated with humidity produced on the first drying of the warps passes through the opening 49, finally escaping at 50. This vapor or mist actually forms a screen around the chamber and protects it from losses of heat; the hot air, which is less charged with humidity, on the side of the outlet, passes through the openings 51 and escapes through the passage 44.

What I claim is:

1. Improved drying machine for sized warp, comprising in combination, a double casing, a primary drying drum inside said casing, channels between the casings for carrying away the moisture evaporated from

the warps passing to said drum, a secondary drying drum, a heating apparatus inside said drum, and means for circulating heated air in contact with said warp.

2. Improved drying machine for sized warp, comprising in combination, a double casing, a rotary primary drum, a drying fan on the shaft of said drum, projections on said drum, a spring supported brush adapted to cleanse said projections, a rotatable secondary drum, stationary heating tubes within said drum, guide rolls adapted to draw the warp around said drum and out of the machine, and means for inducing a duplex drying air current, whereof the one portion is compelled by the drying fan of the primary drum to travel in the opposite direction to the incoming warp and to escape through one side of the double casing, while the other portion passes upward over the warp on the secondary drum and escapes at the top of the apparatus from within the inner casing.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGES MASUREL.

Witnesses:

F. DANTZCY,
J. CARPENTER.