

No. 890,782.

PATENTED JUNE 16, 1908.

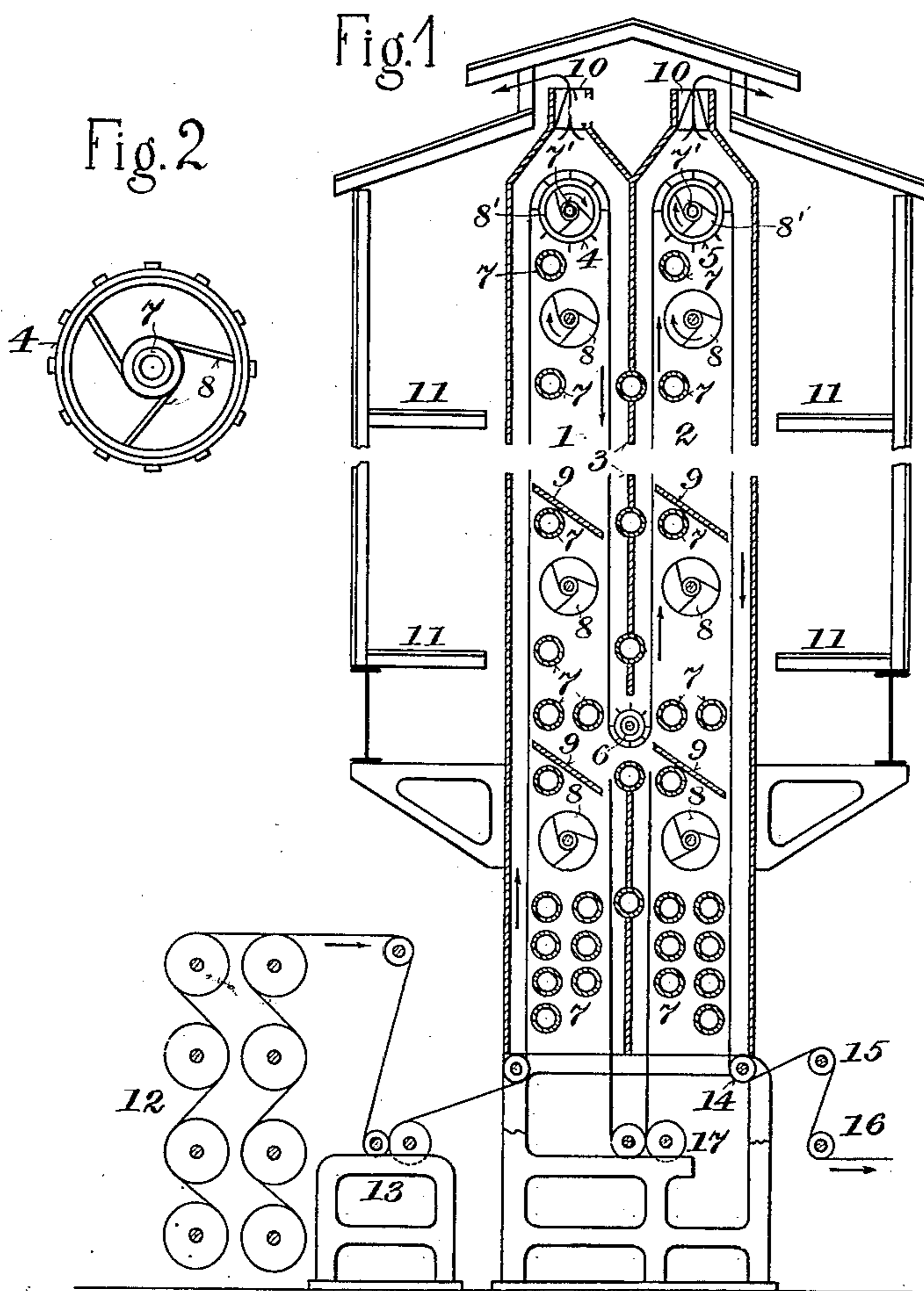
G. MASUREL-LECLERCQ.

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SIZING MACHINE.

APPLICATION FILED JAN. 18, 1905.

3 SHEETS—SHEET 1.



Witnesses:

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 Chas. L. Goss.
 John H. Hurley.

Inventor:

By Winkler, Flanders, Smith, Bettum & Sawsett,
Attorneys.

Attorneys.

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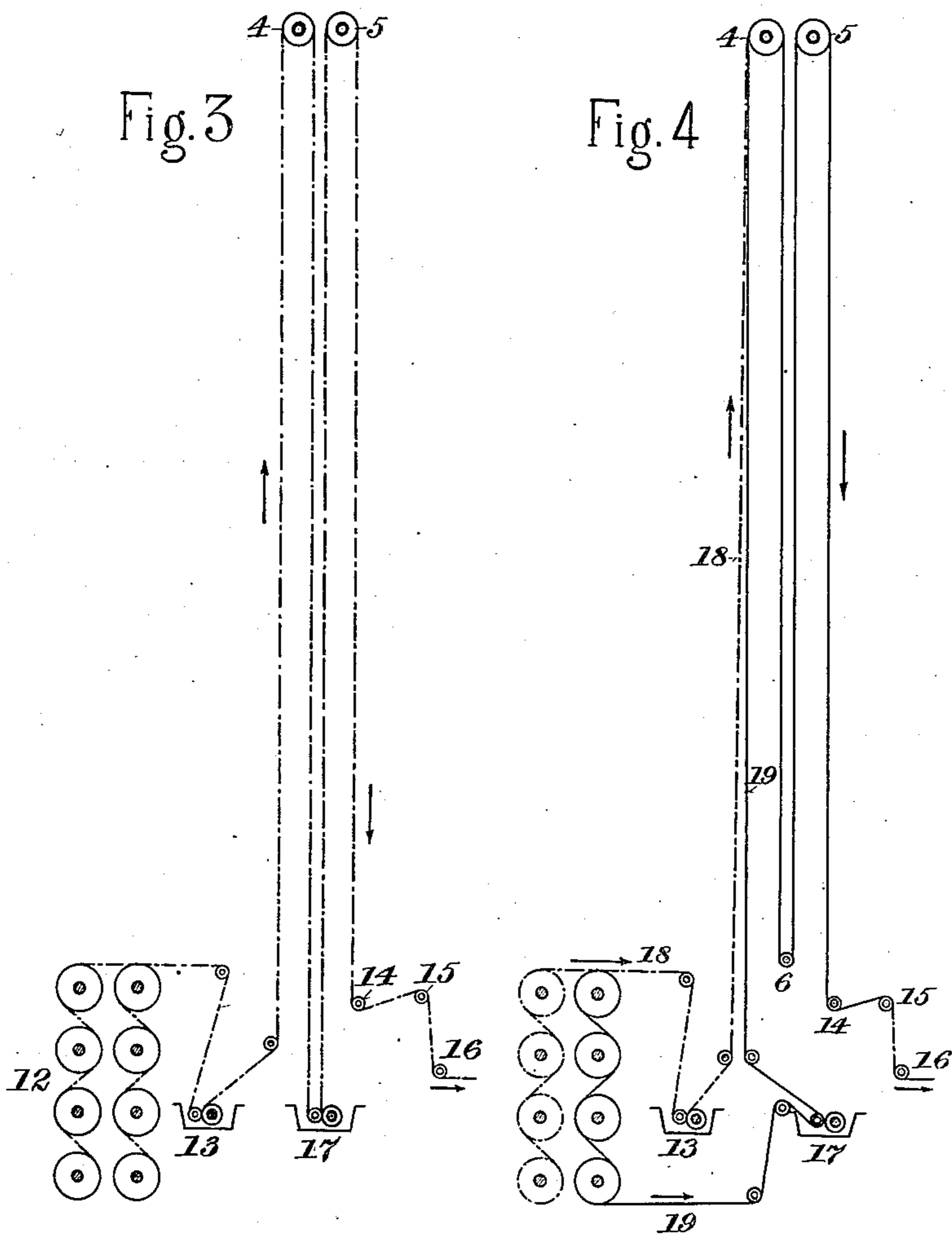
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3 SHEETS—SHEET 2.



Witnesses:

Char. L. Goss.
John H. Hurley.

Inventor:

Georges Masurel-Leclercq.
By Winkler, Flauders, Smith, Potting & Fawcett
Attorneys.

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3 SHEETS—SHEET 3.

Fig. 6.

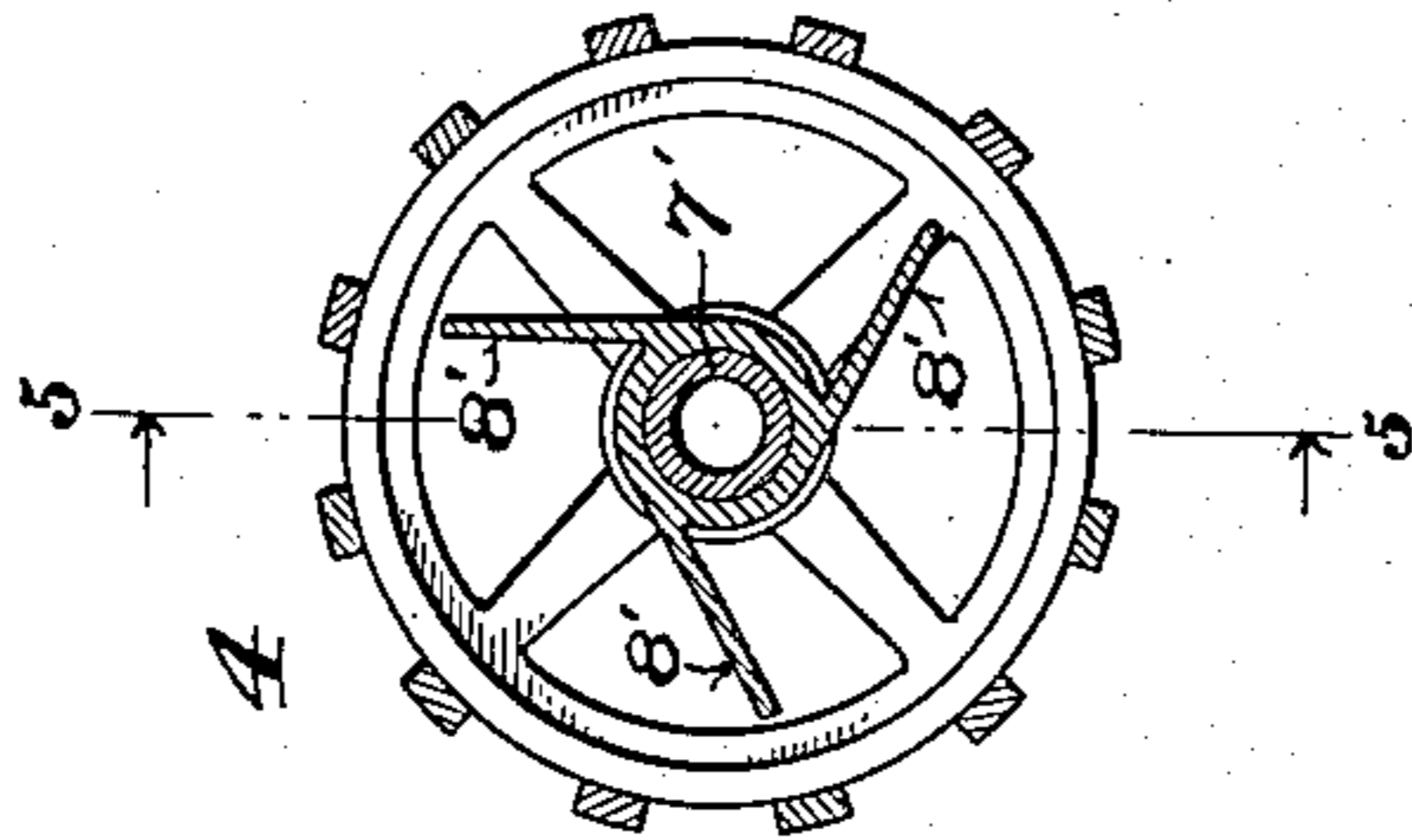
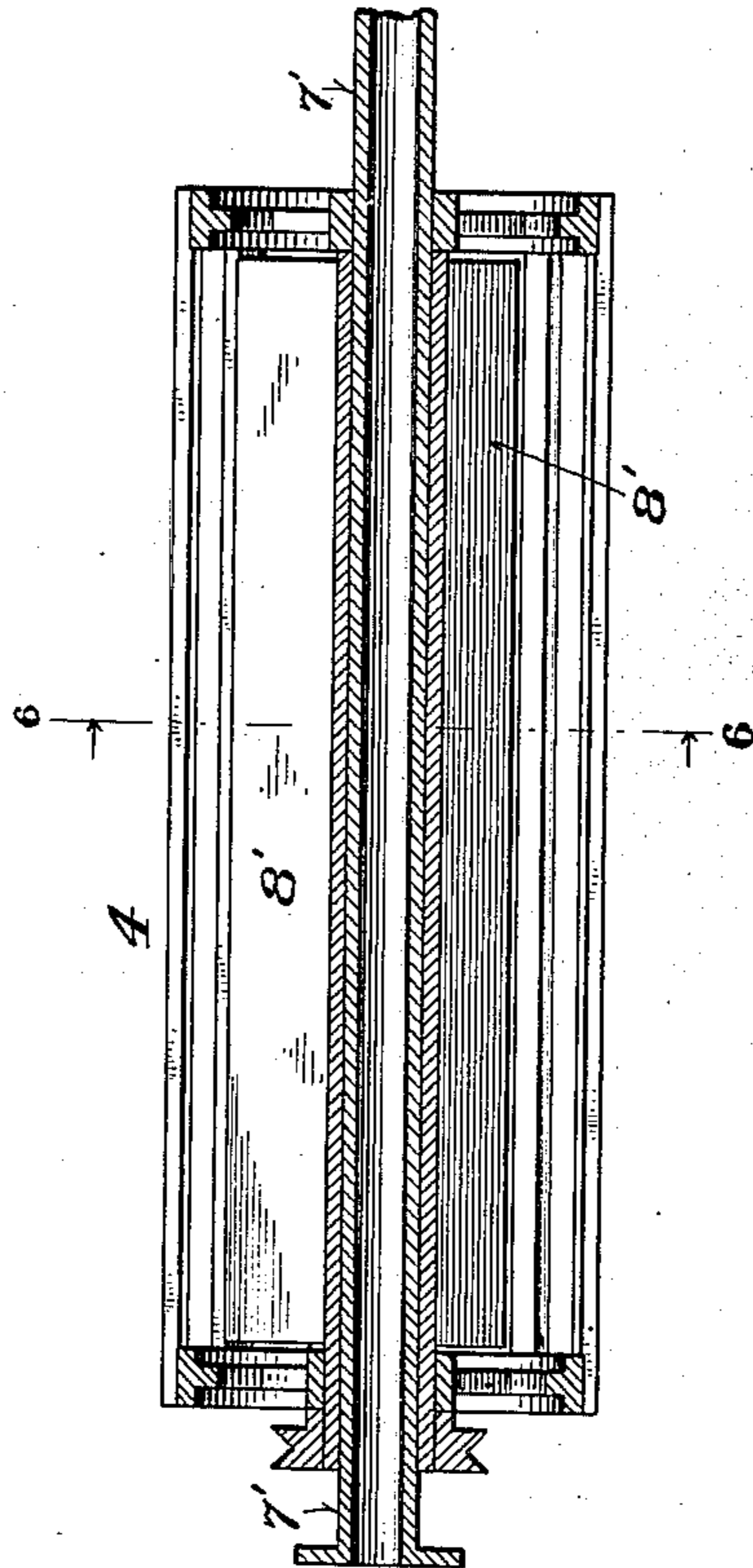


Fig. 5.



Witnesses:

Fred Palm

Alice E. Goss

Inventor:

Georges Masurel-Leclercq.

By Wm. H. Bonders Smith & Wm. H. Bonders

Attorneys.

UNITED STATES PATENT OFFICE.

GEORGES MASUREL-LECLERCQ, OF ROUBAIX, FRANCE.

SIZING-MACHINE.

No. 890,782.

Specification of Letters Patent.

Patented June 16, 1908.

Application filed January 18, 1905. Serial No. 241,583.

To all whom it may concern:

Be it known that I, GEORGES MASUREL-LECLERCQ, a citizen of France, residing at Roubaix, Department of the Nord, France, have invented certain new and useful Improvements in Sizing-Machines, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

10 This invention relates more particularly to means for drying the size after it has been applied. Its main objects are to quickly and effectively dry the size after it is applied; to produce a thick even coating of size by applying the same in a series of sizing operations, each followed by a drying operation; to simultaneously size material of two or more different colors; and generally to improve the construction and operation of apparatus of this class.

20 It consists in certain novel features of construction and in the peculiar combinations and arrangement of parts as hereinafter particularly described and pointed out in the claims.

25 In the accompanying drawing illustrating different arrangements of the apparatus for performing different classes of work, Figure 1 is a vertical section of apparatus embodying the invention as adapted for sizing material either in a single operation or in two operations; Fig. 2 is an end view on an enlarged scale of one of the reels over which the material passes in the upper part of the drying chamber; Fig. 3 is a diagram illustrating the use of the apparatus shown in Fig. 1 in applying the size in a series of operations, to obtain a thick heavy coating; Fig. 4 is a diagram showing a modified arrangement of the apparatus for simultaneously sizing material of different colors, the walls of the drying chamber and other accessories of the apparatus being omitted in Figs. 3 and 4. Fig. 5 is a longitudinal section on the line 5 5, Fig. 6, of the upper reel with the associated heating pipe and fan in one of the drying compartments; and Fig. 6 is a cross section of the same on the line 6 6, Fig. 5.

Referring to Fig. 1, a vertical drying chamber comprising two compartments 1 and 2,

separated from each other by a central partition 3, is located adjacent to the sizing machine. In the upper ends of these compartments are mounted two reels 4 and 5, and in an opening in the partition 3 near the lower end of the drying chamber, is a reel 6. Each compartment is provided with steam coils or pipes 7, fans 8, and inclined deflecting plates 9, arranged at suitable intervals therein. The compartments of the drying chamber are open at the bottom to admit air, and are provided with chimneys or openings 10 at the top for the escape of air and vapor carried off therewith from the drying material. Galleries 11 at the sides of the drying tower afford means for observing the operation of the apparatus and the condition of the work.

In the operation of the apparatus as shown in Fig. 1, for the application of the size in a single coat, the material to be sized passing from the rollers 12 around suitably arranged guide rollers, receives a coating of size as it passes through the sizing vessel or machine 13. From the sizing vessel it is directed by a guide roller into the lower end of the drying compartment 1, passing upwardly therein over the reel 4 in its upper end, thence downwardly around the reel 6, thence upwardly in the compartment 2 over the reel 5, thence downwardly, leaving the drying tower and passing around the guide rollers 14, 15 and 16.

The heating coils or pipes 7 induce upward currents of air through the compartments 1 and 2, and the heated air is blown by the fans 8 and directed by the deflecting plates 9 against the material passing through said compartments, thereby agitating the same and accelerating the drying process. The moisture taken up with the ascending hot air escapes through the chimneys or discharge openings 10 at the upper ends of the compartments.

To prevent the deposit of vapor on the material passing over the reel in the upper part of each compartment, the reel is provided, as shown in Figs. 5 and 6 with an axial steam or heating pipe 7' and with a fan 8,' by which the moisture taken up by the hot air from the material below is blown

away and kept off from the partially dried material passing over the said reel.

In order to obtain a thicker and even coating the size may be applied and dried successively in two or more operations, the apparatus being provided for this purpose with additional sizing devices 17 as shown in Figs. 1 and 3.

The drying tower may be provided with one or more compartments and its height may be varied according to the nature of the work to be done.

Referring to Fig. 3, illustrating the operation of the apparatus in applying the size in a number of successive coats, the material to be sized passes from the rollers 12 through the first sizing receptacle 13, and then ascends and descends through the first compartment of the drying tower, passing over the reel 4 in the upper part thereof. The first coating of size being thus dried in its passage through the first drying compartment, the material passes through the second sizing receptacle 17, where it receives another coat of size. It then ascends and descends again through the second drying compartment, passing over the reel 5 in the upper part thereof. The second coat of size is thus dried upon the first coat. These operations may be repeated as many times as necessary to obtain a coating of the desired thickness. From the lower end of the last drying compartment the material passes out around the guide rollers 14, 15 and 16.

Referring to Fig. 4, illustrating a modification in the arrangement of the apparatus for simultaneously sizing and drying material of different colors, the material of one color indicated by the dotted line 18, passes through and receives a coat of size from the sizing receptacle 13. It then ascends through the first compartment of the drying tower or chamber, passing over the reel 4 in the upper part thereof. Material of another color, indicated by the full line 19, passes at the same time through and receives a coating of size from the receptacle 17. It then passes into and upwardly through the first drying compartment, being guided and held by suitably located rollers away from the sized material of another color while it is in a moist condition. The two materials of different colors being sufficiently dried during their ascent through the first compartment, pass together over the reel 4 and thence downward around the lower reel 6, ascending therefrom again in the second compartment of the drying chamber over the reel 5 therein, and finally descending and passing out of the last compartment around the guide rollers 14, 15 and 16. The different colored materials being simultaneously sized and held apart until they can be brought together without detri-

ment, are simultaneously dried during their passage through the apparatus, in the manner explained in connection with Fig. 1.

I claim:

1. In sizing apparatus the combination with means for applying size to the material, of a vertical chamber having an outlet opening at the top and an inlet opening at the bottom, reels located in the upper and lower parts of said chamber for conducting the sized material up and down through said chamber, and heating pipes, fans and inclined deflecting plates arranged in said chamber to heat, induce and direct an upflowing current of air laterally against the material and agitate the same in its passage through said chamber, substantially as described.

2. In sizing apparatus the combination of a vertical drying chamber having inlet and outlet openings at the lower and upper ends respectively means for conducting the sized material up and down through said chamber comprising an open reel over which the material passes in the upper part of the chamber and which is provided with a heating pipe and with a fan adapted to drive off moisture from the material passing over the reel, substantially as described.

3. In sizing apparatus the combination with means for applying size to the material, of a vertical chamber having an outlet opening at the top and an inlet opening at the bottom, reels located in the upper and lower parts of said chamber for conducting the sized material up and down through said chamber, heating pipes, fans and inclined deflectors arranged in said chamber to heat, induce and direct an up-flowing current of air laterally against the material and agitate the same in its passage through said chamber, and galleries at the side of the chamber for observing the operation of the apparatus and the condition of the material therein, substantially as described.

4. In sizing apparatus the combination with a sizing device, of a drying chamber comprising a number of vertical compartments having inlets at the bottom and outlet openings at the top and provided with heating pipes and with fans and deflecting plates for directing upward currents of heated air against the material passing through said compartments, and guide rollers and reels arranged to direct the material to be sized first through the sizing machine and then successively up and down through each of the several compartments of the drying tower or chamber, substantially as described.

5. In sizing apparatus the combination with a number of sizing devices, of a vertical drying chamber having an outlet opening at the top and an inlet opening at the bottom; means for simultaneously conveying a part

of the material to be sized through one
sizing device, another part through another
sizing device and the several parts then
through said drying chamber, in which they
5 are guided and held apart during a part of
their circuit and brought together during the
remainder of such circuit, and a heating pipe
arranged to induce an upward current of air
through said chamber in contact with the

material passing through the same, substan- 10
tially as described.

In witness whereof I hereto affix my signa-
ture in presence of two witnesses.

GEORGES MASUREL-LECLERCQ.

Witnesses:

JAMES DANTZER,

ALFRED C. HARRISON.