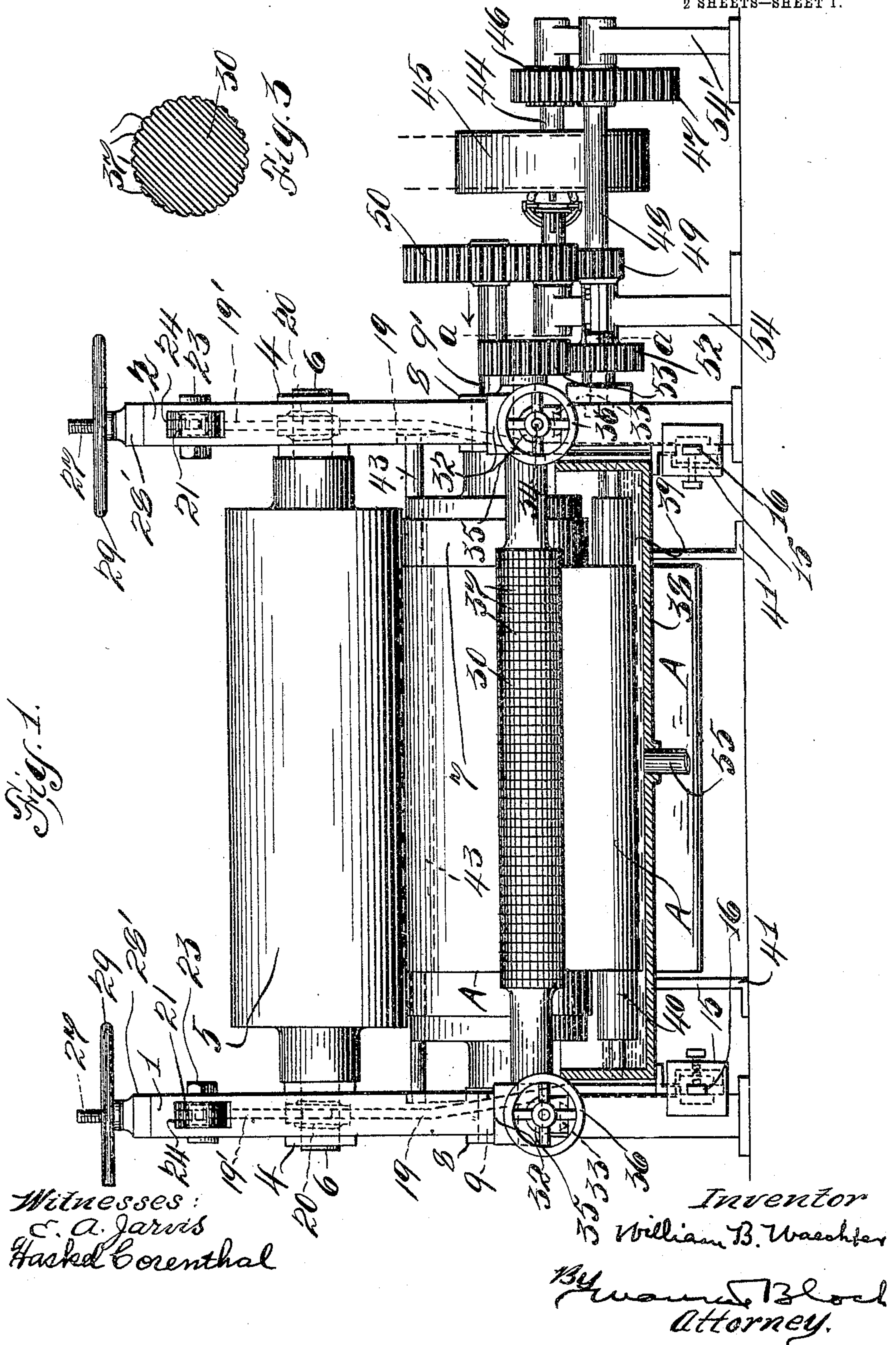


No. 824,455.

PATENTED JUNE 26, 1906.

W. B. WAECHTER.
TRACING CLOTH MANGLE.
APPLICATION FILED FEB. 6, 1906.

2 SHEETS—SHEET 1.

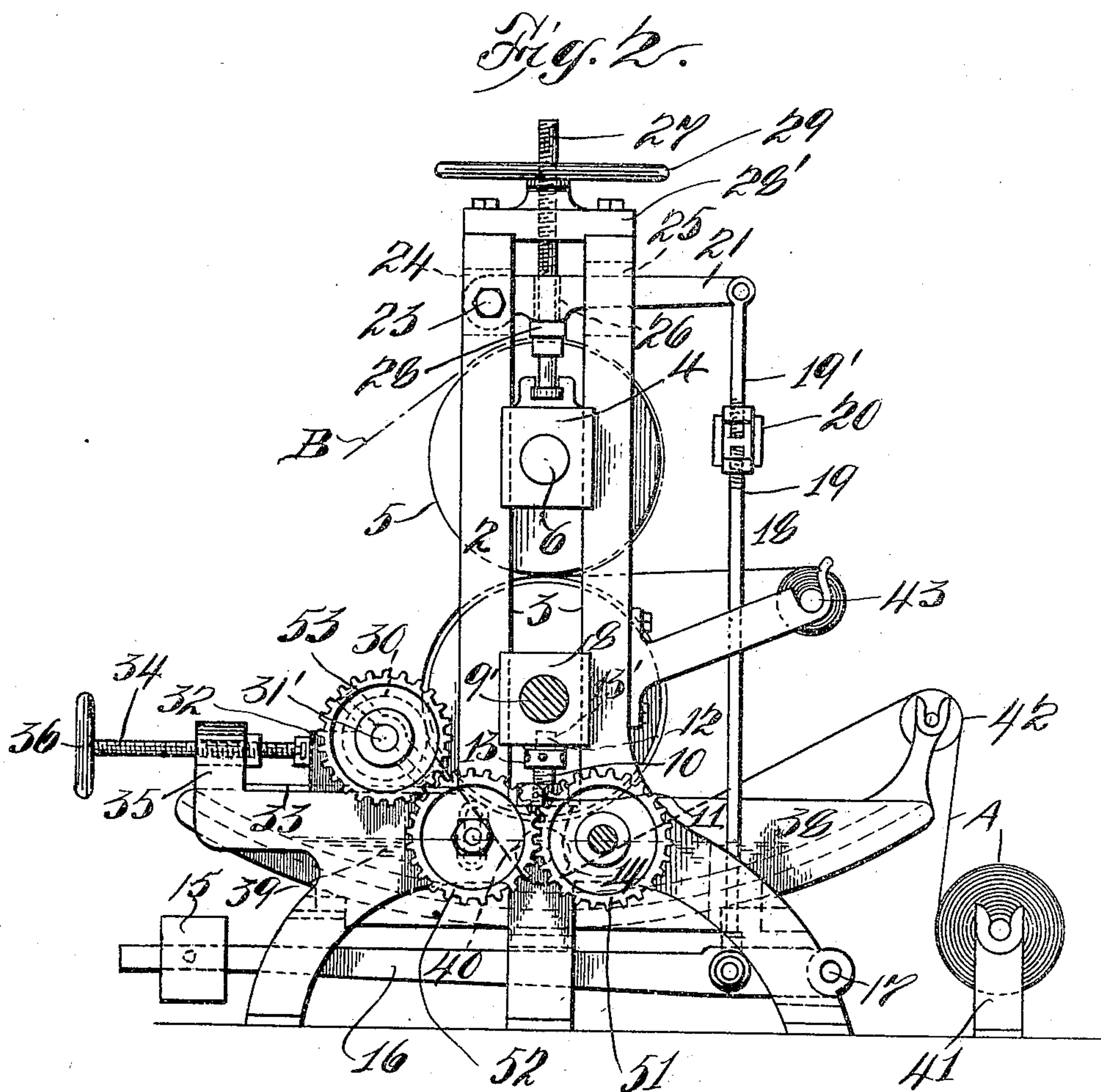


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UNITED STATES PATENT OFFICE.

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AMERICAN TRACING CLOTH COMPANY, OF NEW YORK, N. Y., A
CORPORATION OF NEW YORK.

TRACING-CLOTH MANGLE.

No. 824,455.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed February 6, 1906. Serial No. 299,789.

To all whom it may concern:

Be it known that I, WILLIAM B. WAECHTER, a resident of Garfield, Bergen county, in the State of New Jersey, have invented certain new and useful Improvements in Tracing-Cloth Mangles, of which the following is a specification.

This invention relates to a machine technically known as a "mangler," and is in the present instance used for a special purpose in the manufacture of tracing-cloth or the like in which sizing or starch is employed, it being necessary in order to produce perfect tracing-cloth, that the sizing or starch be thoroughly pressed or forced into the interstices of the fabric, so that the same will become properly impregnated therein and not be liable to erasure, which occurs in ordinarily-prepared tracing-cloth. By means of my improved machine the sizing is so thoroughly forced into the fabric that cracking is less liable, as the sizing and the fabric become practically one, which is not the case when the sizing is confined to the surface of the fabric, as in bending the surface of the fabric has a tendency to work away from the sizing.

To attain the objects before mentioned, I employ the special means which will hereinafter be described and claimed in conjunction with the accompanying drawings, forming part of this specification, wherein—

Figure 1 illustrates my improved machine as viewed from the front, the starch or sizing reservoir being shown in section. Fig. 2 is a sectional end elevation of my improved machine, the section being taken on a line *a a* in Fig. 1; and Fig. 3 is an enlarged cross-sectional view of the mangling-roll, showing the engraved or roughened periphery.

Like numerals and letters of reference indicate corresponding parts in the several views.

Referring to the drawings, the numerals 1 and 2 indicate the frame-standards, which are suitably anchored to the floor or the like. As will be seen by Fig. 2, the standard 2 is provided with a guideway 3, the standard 1 being likewise provided with a guideway. Within said guideways boxes 4 4 are slidably fitted, Fig. 1, and within the boxes 4 4 a wooden pressure-roll 5 is rotatably mounted by means of the trunnions 6 6 thereupon. Below the roll 5 I place a coacting pressure or material roll 7, which is rotatably mounted in

the boxes 8 8 by means of the trunnions 9 9' thereon, the said boxes 8 8 being slidably mounted in the ways 3 in the standards 1 and 2. In order that the roll 7 can be leveled and maintained so, I provide threaded adjusting-jacks 10, one under each box 8. (See Fig. 2.) The jacks 10 engage at their lower extremities a nut 11, while the upper end 12 of the said jack is provided with a spanner-nut 13. The end 12 can enter an opening 13' in the boxes 8 as a security against displacement, the nut 10 resting upon the shelf 14 at the bottom of the ways 3. By means of these jacks the rolls 5 and 7 can be leveled simultaneously and their peripheries always maintained in contact. When the roll 7 is leveled it becomes a fixture, and the contacting pressure of these two rolls is supplied by the upper roll 5, the said pressure being produced by weights 15 15, which are adjustably mounted upon the ends of levers 16 16, which, as will be seen in Fig. 2, are fulcrumed to the standards 1 and 2, as at 17; but the weights 15 may be otherwise applied, if desired. The levers 16 have attached thereto connecting-rods 18 18, which are composed of two members 19 19', connected by turnbuckles 20 20 for the purpose of adjustment. The upper ends 19' of the rods 18 18 are connected to secondary levers 21 21, which are fulcrumed to the standards 1 and 2, as at 23, the said standards being slotted, as at 24 24 to receive the ends of the said levers, and, as at 25 25, for the said levers to pass through, the slots 25 25 being long enough to allow said levers 21 a free up-and-down movement. Through an opening 26 in the levers 21 a threaded spindle 27 freely passes, the lower end of which engages the boxes 4 4, as shown, and is free to rotate therein. The spindles 27 carry shoulders 28, upon which the levers 21 rest, the threaded portion of the spindle 27 passing through the cap 28' on the top of the standards 1 and 2 and has thereupon a hand-wheel 29, which is normally out of contact with the said caps, as shown. From the foregoing description it is obvious that the full weight of the weights 15 15, multiplied by the leverage, acts directly upon the upper roll 5, the amount of pressure being governed by the position of the weights 15 15.

If it should be desired for any reason, such as placing cloth between the rolls or for any

other purpose, the roll 5 can be raised from roll 7 and maintained out of contact therewith by means of the hand-wheels 29, as said wheels may be rotated to contact the caps 5 28', and by rotating still further the spindles 27 will be raised, thereby raising the roll 5. The levers 21, rods 18, levers 16, and weights 15 will of course be raised also. For the purpose of mangling the cloth and forcing the 10 sizing into the weave I use an engraved or roughened mangling-roll 30, which by means of the trunnions 31 31' is rotatably mounted in adjustable boxes 32 32, which are in turn slidably mounted upon ways 33 33 and adjusted toward or away from the roll 7 by 15 means of threaded spindles 34 34, which are screwed into lugs 35 upon the standards 1 and 2, and carrying operating-wheels 36 36. The periphery of the said roll 30 is roughened, as at 37, Fig. 3, and the projections 20 may be of any configuration that does not have a knife-point or a point that would tend to perforate the cloth. Under the roll 7 I place a reservoir 38 for containing the heated 25 sizing material 39, Fig. 1, said reservoir being suitably secured to the standards, and under the rolls 7 and partially or entirely submerged in the sizing 39 I place a small roll 40, which is rotatably supported by the reservoir 38. Said roll 40 is a mule or idler pulley 30 to keep the cloth submerged in the sizing as it passes along to the rolls 5 and 7. The cloth A is held by brackets 41 and is passed over an idler 42, under the roll 40, up between 35 the mangling-roll 30 and roll 7, then between the rolls 7 and 5 at their pressure-points, and onto a receiving-winch 43. A more detailed description will hereinafter appear. As I desire to take advantage of a high belt speed 40 transformed into a slower motion, I employ a system of gearing and shafting comprising a driving-shaft 44, which carries a friction-pulley 45 and a pinion 46, the said pinion meshing with a gear 47 upon a counter-shaft 48. 45 The counter-shaft 48 carries a pinion 49, which meshes with a gear 50 upon the extended trunnion 9' of the roll 7, which is rotated by said gear 50. A larger pinion 51 is also mounted upon the shaft 48 and meshes 50 with an idler 52, adjustably mounted on the standard 2, the said idler in turn meshing with a gear 53 upon the extended trunnion 31' of the mangling-roll 30, which is rotated by the said gear 53. The proportion existing 55 between the diameters of the pinion 49 and its gear 50 and the larger pinion 51 and its gear 53 is such that the peripheral speed of the roll 7 is somewhat slower than that of the mangling-roll 30. The roll 30 therefore 60 tends to lead in peripheral speed the roll 7, which has a grinding effect on the cloth, which acts to force the sizing thereinto. The train of gears is suitably mounted upon standards 54 54', and an outlet 55 for the sizing 65 ing is supplied.

The operation of the machine is as follows: A dry roll of cloth A is placed in the brackets 41 and fed as has been described. When the rolls are rotated, the cloth is drawn 70 through the heated sizing and is covered therewith, and as the sizing-covered cloth passes between the roll 30 and roll 7 the roughened surface of the roll 30, in the manner hereinbefore described, forces the sizing into the weave. It then passes between the 75 rolls 5 and 7, and the sizing is spread through the weave more thoroughly by the pressure of the weights 15 15. The cloth is then rolled on the winch 43. When the roll A has become exhausted, the cloth is then again 80 passed through the machine and over the roll 5 and collected. (See dotted and dash lines B, Fig. 2.) To get a smooth finish, the roll 7 may be replaced by a compressed cotton roll. As hereinbefore stated, one of the prin- 85 cipal objects of this machine is to force or grind the sizing into the weave of the fabric, which is accomplished by the roughened periphery of the mangling-roll 30. The projections upon the said periphery will tend to 90 separate the weave of the fabric, at the same time forcing a large part of the sizing there-through, it being understood that the sizing is placed in the reservoir in a heated condition. The difference in peripheral speed of 95 the material-roll 7 and mangling-roll 30 causes a slip at the point of contact of said roll, which has a grinding effect upon the cloth and sizing. The projections upon the surface of the mangling-roll will not, of course, 100 perforate the fabric, the difference of speed being only sufficient to cause a moderate slip and not enough to tear the material. The pressure of the roll 30 upon the material-roll 7 can be varied, as has been stated. The 105 proportions of the gearing will be such as to give a slight difference in the speed of rolls 7 and 30, and any desired difference in speed may be obtained by changing the gears 51 and 52. 110

My invention is intended to cover any form of device used to grind the sizing into the weave of the fabric, and I do not limit myself to the particular form of machine herein shown and described, as the details thereof may be 115 varied without departing from the spirit and scope of the invention.

For the sake of convenience and clearness I have termed the lower roll the "material-roll" and the upper roll the "pressure-roll;" 120 but these terms are so used in the specification and claims in a relative sense only.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is— 125

1. A mangling-machine, composed of a plurality of rolls, an adjustable mangling-roll having a roughened periphery adapted to bear against one of said rolls, means for passing fabric covered with a sizing material be- 130

tween said mangling-roll and the roll coacting therewith, and means for adjusting the pressure upon said rolls.

2. In a mangling-machine, the combination of a material-roll and a pressure-roll, with means for leveling said rolls, a lever provided with an adjustable weight adapted to exert pressure upon said upper roll, means for passing a fabric covered with a sizing material through said rolls, means for forcing the sizing material into the weave of said fabric as said fabric passes to said pressure-rolls.

3. In a mangling-machine, the combination of material and pressure rolls, with means for leveling the same, a weighted lever adapted to exert pressure upon said material-roll, means for passing a fabric covered with a sizing material between said rolls, a mangling-roll having a roughened surface adapted to bear against said material-roll and said fabric, and means for exerting pressure upon said mangling-roll.

4. A mangling-machine having a material and a pressure roll, an adjustable mangling-roll provided with a roughened surface in contact with said material-roll, means for rotating said material-roll, means for rotating said mangling-roll faster than the material-roll, whereby the periphery of the mangling-roll will slip upon the periphery of the material-roll, and means for passing a fabric covered with sizing between said mangling and material rolls.

5. In a mangling-machine, the combination of a material-roll and a pressure-roll, a weighted lever adapted to exert pressure upon the material-roll, an adjustable mangling-roll having a roughened surface in contact with the material-roll, means for rotating the same, means for rotating the mangling-roll faster than the material-roll, whereby the periphery of the mangling-roll will slip upon the periphery of the material-roll, and means for passing fabric covered with sizing between said mangling and material rolls.

6. In a mangling-machine, the combination of a material-roll and a pressure-roll adapted to receive between their contacting surfaces fabric covered with sizing, means for rotating said roll, means for leveling the same, means for varying the contacting pressure of said rolls, and a mangling device adapted to bear against said material-roll and said fabric, said mangling device adapted for a sliding contact therewith, together with means for varying the pressure of said mangling device.

7. In a mangling-machine, the combination of a material-roll and a pressure-roll adapted to receive between their contacting

surfaces fabric covered with sizing, means for rotating said rolls, means for leveling the same, means for varying the contacting pressure of said rolls, a mangling device adapted to bear against said material-roll and said fabric, the mangling device being adapted for a rotary movement faster than the movement of said material-roll, and means for varying the pressure of said mangling device.

8. In a mangling-machine, the combination of a material-roll and a pressure-roll in contact therewith, means for varying the pressure of said pressure-roll, an adjustable mangling-roll, having a roughened periphery in contact with said material-roll, means adapted to rotate the material-roll and the mangling-roll simultaneously but at different peripheral speeds, and means for adjusting said mangling-roll.

9. In a mangling-machine, the combination of a material-roll and a pressure-roll adapted to receive fabric between their surfaces, means for varying the pressure of the pressure-roll, an adjustable mangling-roll having a roughened periphery adapted to bear against said material-roll and said fabric, means for adjusting the mangling-roll, a reservoir under the material-roll adapted to contain sizing material, a roll in said reservoir partially submerged in the sizing material, said roll adapted to keep the fabric submerged in said sizing material as the fabric is fed to the mangling-roll, and means for rotating the material and mangling rolls simultaneously but at different peripheral speeds.

10. In a mangling-machine, the combination of a material-roll and a pressure-roll adapted to receive fabric between their surfaces, means for varying the pressure of the pressure-roll, an adjustable mangling-roll, having a roughened periphery adapted to bear against said material-roll and the fabric, means for adjusting the mangling-roll, a reservoir under the material-roll adapted to contain sizing material, a roll within the reservoir partially submerged in the sizing material, said roll adapted to keep the fabric submerged in the sizing material as said fabric is fed to the mangling, material and pressure rolls, means for rotating said material and mangling rolls simultaneously but at different peripheral speeds, and means for raising the pressure-roll from the material-roll, said means adapted to hold the pressure-roll in a raised position.

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