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Patented Mar. 19, 1901.

H. F. A. À BRASSARD.

MACHINE FOR MERCERIZING, &c., FIBER AND YARN.

(Application filed Jan. 8, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

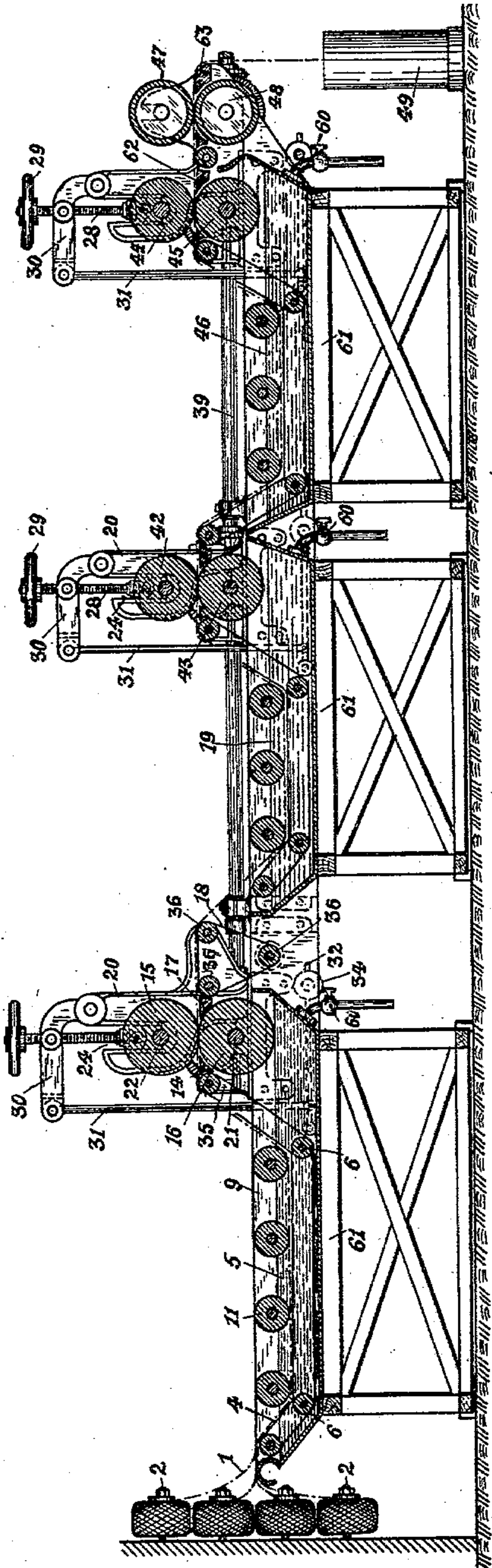
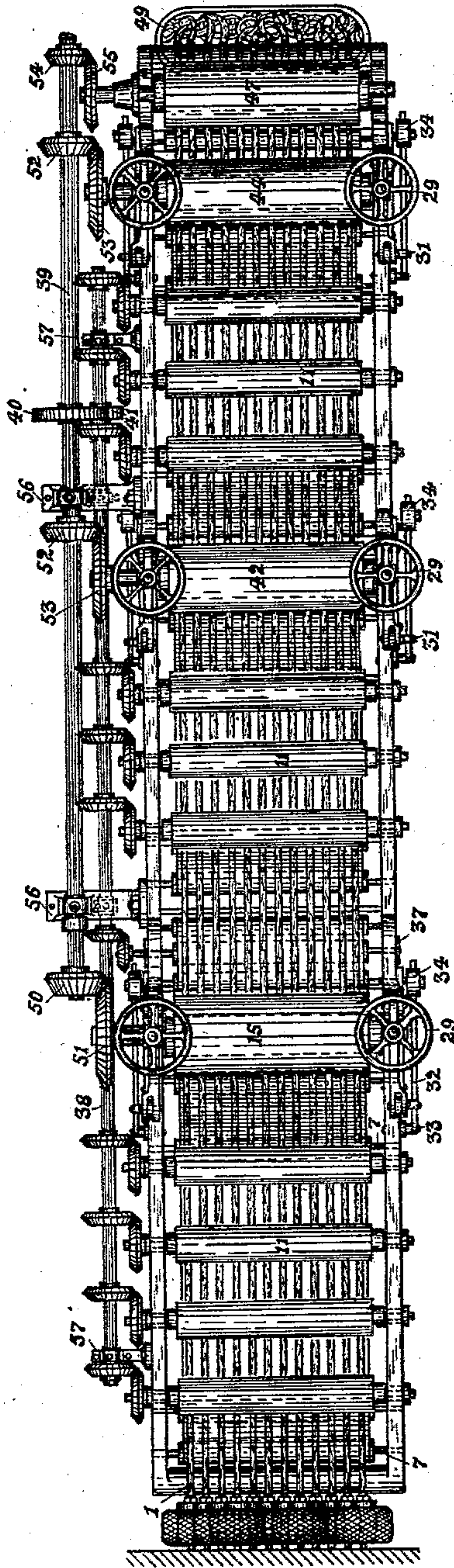


Fig. 2.



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2 Sheets—Sheet 2.

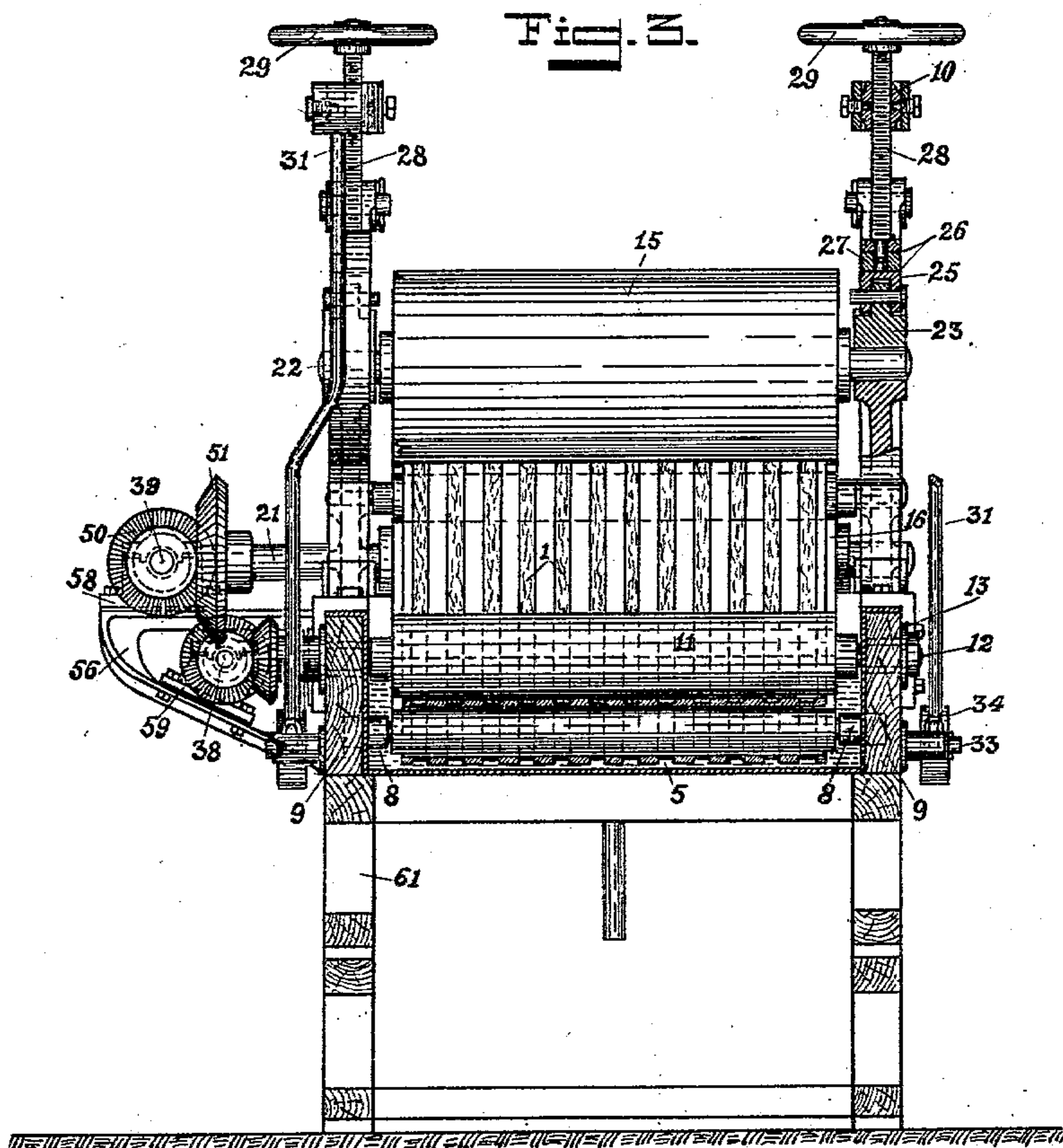


Fig. 4.

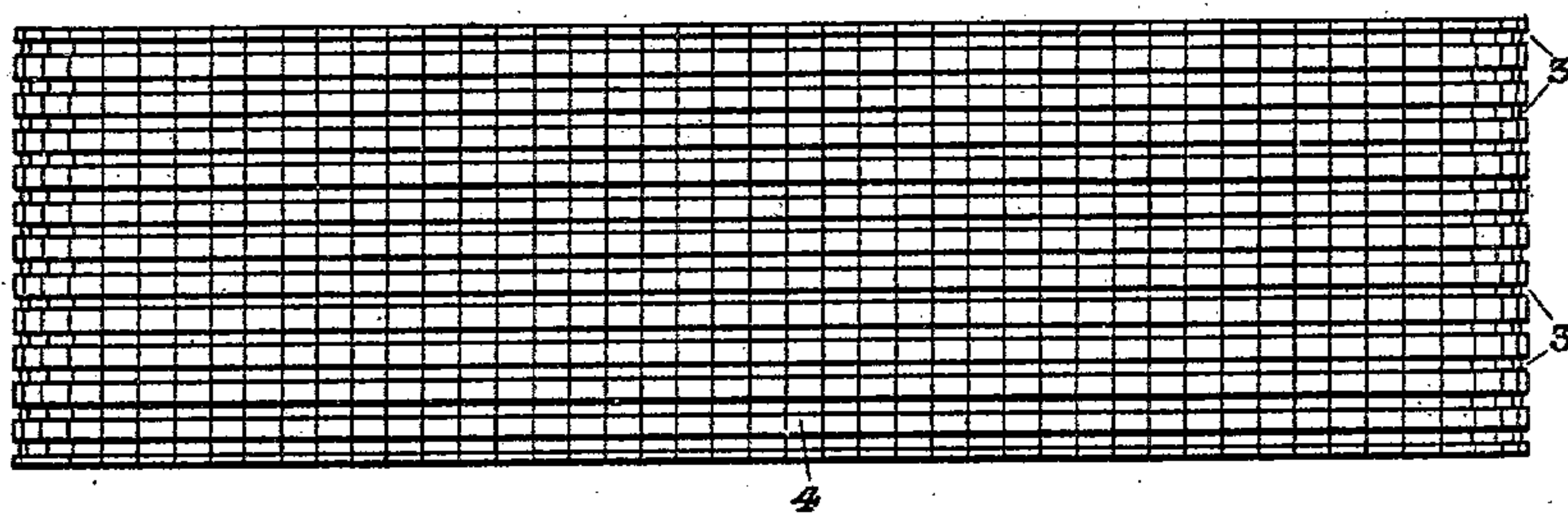
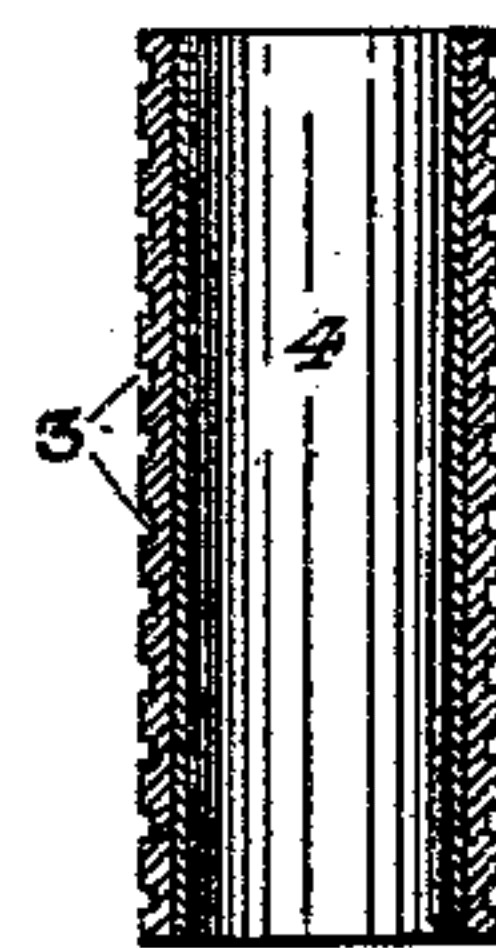


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY FREDERICK AUGUSTUS A BRASSARD, OF BRADFORD, ENGLAND.

MACHINE FOR MERCERIZING, &c., FIBER AND YARN.

SPECIFICATION forming part of Letters Patent No. 670,098, dated March 19, 1901.

Application filed January 8, 1901. Serial No. 42,547. (No model.)

To all whom it may concern:

Be it known that I, HENRY FREDERICK AUGUSTUS A BRASSARD, merchant, residing at 46 Vicar Lane, Bradford, England, have invented certain new and useful Improvements in Machines for Treating Slivers of Fiber and Yarn with Liquids; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to a machine for treating slivers of cotton, wool, and other fiber and yarn with liquids.

15 The machine is especially suitable for mercerizing cotton, but may be employed with equal profit for similar other purposes.

The treatment of the fiber takes place step by step, and to attain the end in view several 20 baths and thereto-belonging mechanisms are arranged one after another, as now will be described and finally claimed.

In the accompanying drawings, Figure 1 is a longitudinal section, Fig. 2 a plan view, 25 and Fig. 3 a cross-section, of the machine. Fig. 4 is a plan view of one of the endless grooved belts on a larger scale, and Fig. 5 a cross-section of the same.

The slivers of fiber or yarn 1 are wound up 30 and placed conveniently near the end of the machine upon pegs 2, from whence the ends of said slivers are lead into the grooves 3 of the endless belt 4. This belt consists of flexible material and is placed in the bath 5 and 35 runs over the rollers 6 upon shafts 7, journaled in boxes 8, sunk into the side parts 9 of the bath 5. The slivers 1 lie in the grooves 3 of belt 4 and are kept therein by the rollers 11, so that the fibers cannot rise while passing through the alkaline liquid. The rollers 40 11 are supported on shafts 12 and journaled in boxes 13, likewise sunk into said side parts 9. As will be observed, the middle part of the endless belt is submerged in the alkaline liquid, but its ends are above the level of said liquid. The rollers 11 drive the endless belt 4. After the slivers have been carried to their highest point by the endless belt 4 they are drawn over the cross-piece 14, provided 45 with the same number of grooves as the belt 4. From here the slivers pass between the rollers 15 and 16, travel over the second cross-

piece 17, likewise provided with a corresponding number of grooves, to the second endless belt 18, also grooved, and thence to the acid 55 or neutralizing bath 19.

The cross-pieces 14 and 17 are suitably fastened to the side frames 20, firmly bolted to the side parts 9. The shaft 21 of roller 16 rests in journal-boxes of said frames without 60 covers, while the shaft 22 of roller 15 is so journaled that the pressure of roller 15 upon the slivers passing between it and roller 16 may be regulated at will. To this end the covers 23 of these journal-boxes are arranged 65 to slide up and down in slots 24 of frames 20. To said covers are pivotally attached the perforated castings 25. In the perforation or opening 26 of each casting is placed a square or rectangular block 27, into which the re- 70 duced end of the adjusting-screw 28 passes and is held therein by the well-known combination of a groove and a pin, so that when said screw is turned by its hand-wheel 29 in one or the other direction the shaft 22 re- 75 ceives more or less play. The screw passes through a nut 10, movably placed within the arm 30 of each frame 20, so that same may turn freely under all conditions. Each arm 30 is attached with one end to frame 20, while 80 its bifurcated free end holds a rod 31, attached to a weighted lever 32, turning upon a pin 33, fastened to the side part 9, while its free end carries the shifting weight 34. The uppermost of rollers 6 is mounted with the 85 cross-piece 13 on detachable parts 35 of the frames 20, so that the lower roller 16 may be removed.

The two upper rollers 36 of the endless belt 18 are journaled in arms of the frames 20, 90 while the lower of rollers 36 is journaled in boxes 37, in line with the rollers 11, all receiving their motion from the shaft 38, rotated by the driving-shaft 39 by means of the spur-wheels 40 and 41. The bevel-wheels upon 95 shaft 38 and those upon the shafts of the rollers 11 and the lower of rollers 36 are so proportioned that the endless belts have the same velocity. The same must be said in regard to the rollers 15 and 16 belonging to the alka- 100 line bath 5, rollers 42 and 43 of the acid or neutralizing bath 19, rollers 44 and 45 of the washing-off bath 46, and the calendering-rollers 47 and 48, between which the slivers

finally pass before they enter the receptacle 49. As the rollers 15 and 16 are larger in diameter than rollers 42, 43, 44, and 45, the bevel-wheels 50 and 51 are larger in proportion than bevel-wheels 52 and 53, driving the last-named pairs of rollers. The calendering-rollers have bevel-wheels 54 and 55 suitable to their diameter.

The shaft 39 is supported by brackets 56 and the shaft 38 partly by brackets 56 and partly by brackets 57, Fig. 2, all secured to the side parts of the baths. The shaft 39 is journaled in the boxes 58 on top of the brackets 56 and receives its motion from a source not shown, while the smaller shaft 38 is journaled on the under side of brackets 56 in boxes 59 and in brackets 57.

Each bath is provided with a cock 60 to empty it and rests upon a stand 61.

As each of the two remaining baths is essentially the same in construction as bath 5, corresponding parts of said baths are marked with like reference-numbers. Existing differences worth mentioning are that in baths 19 and 46 only three of rollers 11 are employed against four in bath 5; also, an endless belt like 18 is absent in bath 19 and its place is taken up in bath 46 by the calendering-rollers 47 and 48 and the two cross-pieces 62 and 63.

The accompanying drawings show at a glance how the slivers pass from one bath to another in succession and how they finally are collected in the receptacle 49, so that a detailed explanation is made superfluous.

I claim—

1. In a machine for treating slivers of fiber and yarn the combination of an alkaline bath, an acid-bath, a washing-off bath, an endless longitudinally-grooved belt in each of said baths, means for carrying said belts, rollers for holding down the slivers in said grooved belts and the liquid, press-rollers, means for adjusting said press-rollers, means for rotating the holding-down rollers and the lower press-rollers, grooved cross-bars adjacent to the lower press-rollers, means for emptying said baths, stands supporting the baths, calendering-rollers connected with the washing-off bath and means for rotating the lower calendering-roller.

2. In a machine for treating slivers of fiber and yarn with liquids the combination of an alkaline bath, an endless longitudinally-grooved belt therein, rollers carrying said belt, larger rollers holding down said slivers, frames for supporting the press-rollers, sliding covers in said frames for the upper press-

rollers, screws for regulating said sliding covers, arms movably attached to said frames and containing the nuts for the adjusting-screws, connecting-rods between said arms and weighted levers, weights on said levers, grooved cross-pieces adjacent to the lower press-roller, an endless grooved belt without said bath, means to rotate the larger rollers in the bath, the lower press-roller and the lower roller of the smaller endless belt.

3. In a machine for treating slivers of fiber and yarn with liquids the combination of an acid-bath, an endless longitudinally-grooved belt therein, rollers carrying said belt, larger rollers for holding down said slivers in the grooves of said belt and in the liquid, frames for supporting the press-rollers, sliding covers in said frames for the upper press-roller, screws for adjusting said covers, arms movably attached to said frames and containing the nuts for the adjusting-screws, rods connecting the free ends of said arms with weighted levers, grooved cross-pieces adjacent to the lower press-roller, means for driving the larger rollers in the bath and the lower press-roller, comprising beveled wheels upon the shafts of the said rollers, wheels upon smaller and heavier shafts, brackets supporting said shafts and spur-wheels upon said shafts.

4. In a machine for treating slivers of fiber and yarn with liquids the combination of a washing-off bath, an endless longitudinally-grooved belt therein, rollers carrying said belt, larger rollers holding down said slivers in said grooves and in the liquid, frames for supporting the press-rollers, means for rotating said press-rollers; comprising sliding covers for the upper press-roller bearings, adjusting-screws, arms pivotally attached to said frames and carrying the nuts for said screws, rods connected with said arms and weighted levers, bevel-wheels upon the shafts of the driven rollers, bevel-wheels upon the driving-shafts, brackets to support said driving-shafts; grooved cross-bars adjacent to the lower press-roller, calendering-rollers, grooved cross-bars adjacent to the lower calendering-roller, and means for driving the latter roller.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

HENRY FREDERICK AUGUSTUS A BRASSARD.

Witnesses:

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