(No Model.) 2 Sheets—Sheet 1.

C. CORRON.

MACHINE FOR DYEING FABRICS.

No. 370,856. Patented Oct. 4, 1887.

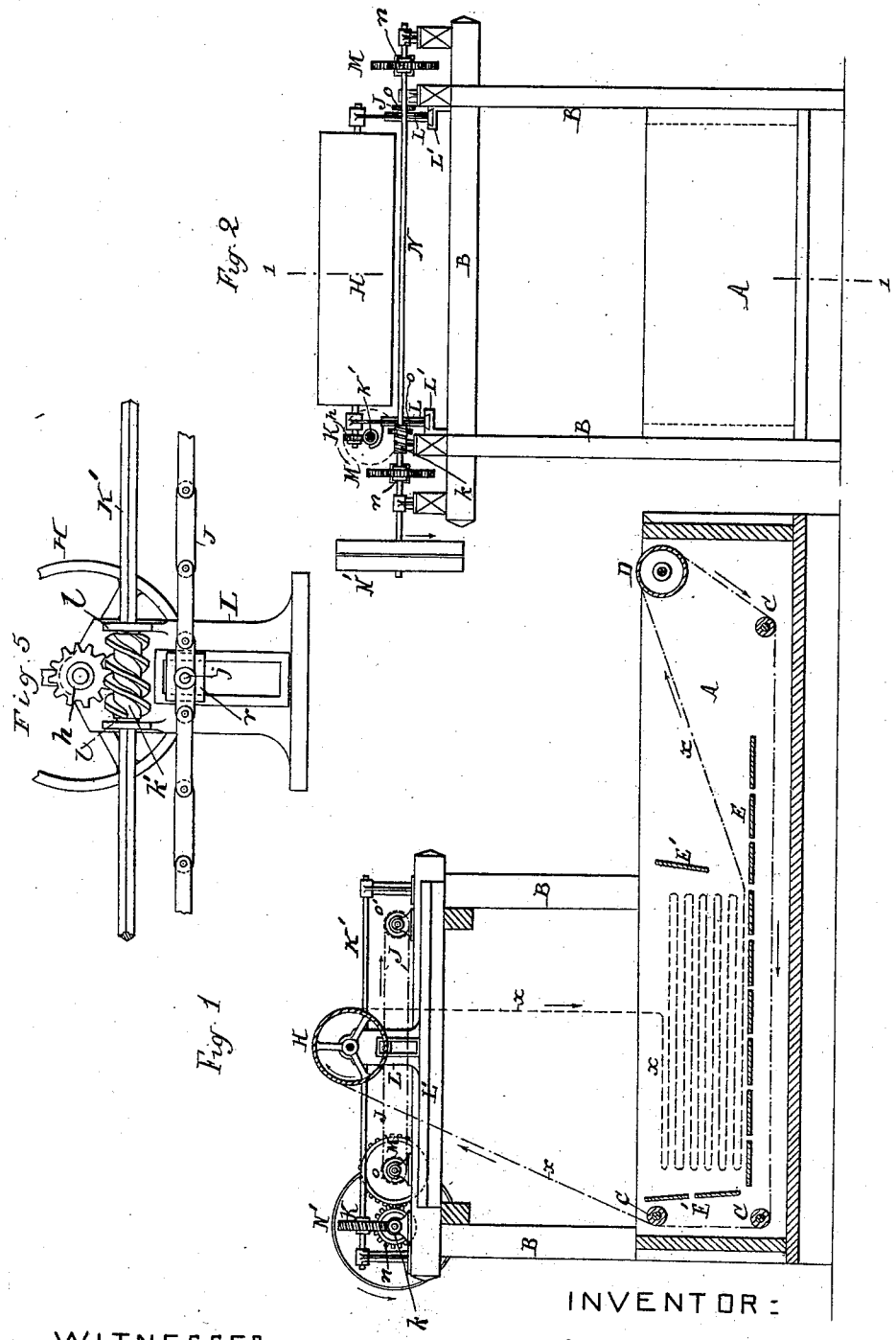


Fig. 2

Fig. 5

Fig. 1

WITNESSES:

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H. Hardinger.

INVENTOR:

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3

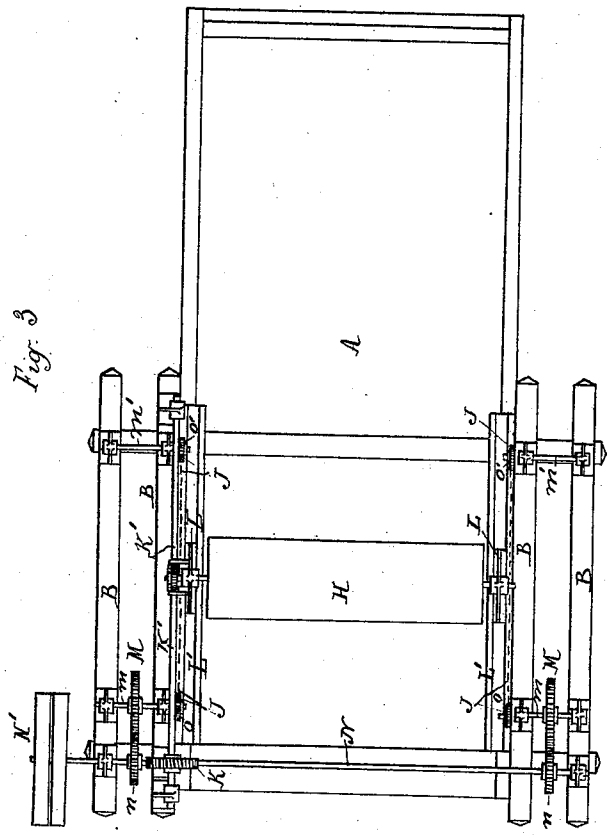
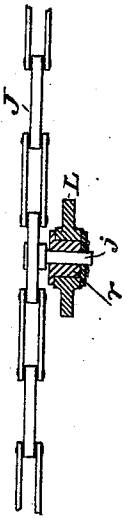


Fig. 4.



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UNITED STATES PATENT OFFICE.

CÉSAR CORRON, OF ST. ETIENNE, LOIRE, FRANCE.

MACHINE FOR DYEING FABRICS.

SPECIFICATION forming part of Letters Patent No. 370,856, dated October 4, 1887.

Application filed May 31, 1887. Serial No. 239,746. (No model.)

To all whom it may concern:

Be it known that I, CÉSAR CORRON, a citizen of the French Republic, and a resident of St. Etienne, Loire, France, have invented certain Improvements in Machines for Dyeing Fabrics, of which the following is a specification.

My invention relates to a machine for dyeing lengths of fabric or material—such as cloth or yarn—and especially where it is desirable to keep an endless strip of fabric moving continuously for a time through the liquid in the dyeing-bath. The characteristic feature of my machine is a delivery drum or cylinder mounted to rotate continuously in one direction in a carriage, and said carriage arranged to move to and fro on a way above the dyeing-bath, whereby the fabric which passes over the delivery-drum is laid in the bath in a pile with regular folds. When the strip of fabric or the yarn is endless, the drum takes the fabric or yarn from the bottom of the pile and deposits it on the top again, thus passing it for any length of time required through the dyeing liquid or bath and at the same time keeping it slightly strained or distended.

My invention will be hereinafter fully described, and its novel features carefully defined in the claims.

In the drawings which serve to illustrate my invention, Figure 1 is a vertical longitudinal section on line 1 1 in Fig. 2. Fig. 2 is a front end elevation, and Fig. 3 is a plan. Figs. 4 and 5 are detail views on a scale about three times that of the principal views.

Let A represent a tank or vessel of any kind to contain the dyeing-bath, and B a suitable frame to support the mechanism over it.

D is a stretching or distending drum in the tank.

C C are guide-rollers for the fabric, also mounted in the tank; and E E′ are slats in the tank, which form a platform to receive the fabric *x* and shields about the pile of fabric.

On the frame B is mounted a delivery cylinder or drum, H, said cylinder having bearings in two like carriages, L L, mounted to slide in ways L′ L′. This drum is rotated on its axis, and its carriages are caused to move to and fro on their ways by mechanism I will now describe.

N is a driving-shaft, mounted in suitable bearings on the frame and driven either by hand or through the medium of the usual tight and loose pulleys, N′. On this shaft is a screw or worm, *k*, which drives a longitudinally-arranged shaft, K′, through the medium of a worm-wheel, K. In Fig. 2 I have designated this worm-wheel K by dotted lines only, to avoid obscuring the parts beyond it. This shaft K′ is square or has a spline, and on it slides a worm or screw, *k′*. (Seen best in Fig. 5, which is a side view of a part of the side of the machine opposite to that seen in Fig. 1.) This worm *k′* is collared between or embraced by two projecting lugs, *l l*, on the outer face of one of the carriages L, and is thus compelled to move along its shaft as said carriage moves. Worm *k′* meshes with a worm-wheel, *h*, on the axis of drum H, and thus imparts rotary motion to said drum.

On the main shaft N is a pinion, *n*, which meshes with and drives a spur-wheel, M, on a shaft, *m*. On shaft *m* is a sprocket-wheel, *o*, and on a shaft, *m′*, at the other end of the frame, is a like sprocket-wheel, *o′*. A chain, J, is mounted on these wheels *o o′*. On one of the links of chain J is a stud, *j*, (seen best in Fig. 4,) and this stud finds a bearing in a vertical slot or way in the carriage L. The sectional view, Fig. 4, shows chain J in plan and the block *r* and carriage L in horizontal section. As chain J moves, it carries carriage L along with it, the block moving down in its slot as the link of chain J, carrying stud *j*, passes down around sprocket-wheel *o′*. Thus the continuous motion of chain J imparts a to-and-fro motion to carriage L. I have described only the mechanism for moving one of the carriages L; but as these carriages cannot conveniently be connected rigidly together, I find it convenient to employ duplicate mechanisms such as described, one on each side of the machine, as shown in Figs. 2 and 3.

The operation of the machine is as follows: A long strip of fabric or material, *x*, to be dyed is passed around the several drums and rollers C D H, and its ends joined together temporarily, as by stitches. The machine is then set in motion and the drum H revolves and moves to and fro, laying the fabric in folds, as indicated in Fig. 1, and piling it on the platform of slats E. When the slack of the fabric has all been taken up and piled, the adhesion of

the fabric to drum H will cause the latter to draw out the fabric from the bottom of the pile, and this will strain the fabric taut between the pile and drum D, and also hold taut that portion of fabric extending between the rollers C C in the bath. This will keep the fabric free from creases or wrinkles, and permits the dye to act on it uniformly. The movement of the fabric may be maintained for any length of time. When it is desired to remove it, the seam joining the ends is brought to a position between drum H and the pile of fabric and the seam ripped. A board or platform is now laid across the top of the tank A, under drum H. The machine is then set in motion and the drum lays the fabric neatly in a pile on said board or platform.

Light fabrics which do not require to be run through the bath continuously may be laid by the machine without joining the ends of the strip. A number of short strips of fabric or material may be joined together and passed through the bath. Where the ends of the strip of fabric are not joined together, the fabric will not, of course, be passed around drum D and rollers C.

My machine has the advantages that any one with very little skill in dyeing may operate the machine, and the punching and stirring of the fabric with sticks are avoided. This is liable to injure the goods and to produce creases or wrinkles, which in turn are liable to produce uneven tints.

Any number of my machines may be run from one shaft.

I have shown a convenient mechanism for rotating the drum H and giving it the proper to-and-fro motion; but I do not wish to limit myself to this particular mechanism. Any known mechanical equivalent of it may be employed.

The carriages L might be mounted on wheels running on tracks, if preferred, and the carriages L L may be connected over the top of drum H to form one.

In my patent, No. 363,949, dated May 31, 1887, I show a machine with a reciprocating carriage for dyeing hanks or skeins of yarn, &c.; but that machine employed no drum extending across the machine over the dyeing-bath, and it was not adapted for dyeing long strips of woven fabric by passing it continuously through the bath, nor for laying such a fabric in a pile. I do not herein claim what was shown in my former patent.

Having thus described my invention, I claim—

1. In a machine for dyeing fabrics or other materials, the combination, with a tank for the dyeing-bath, of a carriage mounted on tracks or ways over said tank, said tracks or ways, a delivery-drum rotatively mounted in said carriage and extending across and over said tank, and mechanism for rotating said drum and imparting to said carriage a to-and-fro motion simultaneously, substantially as set forth.

2. In a machine for dyeing fabrics or other materials, the combination, with a tank for the dyeing-bath, provided with a platform to receive the fabric, a drum, D, and guide-rollers C C, of a carriage mounted on tracks or ways over said tank, said tracks or ways, a delivery-drum, H, rotatively mounted in said carriage and extending across and over said tank, mechanism for rotating said drum, and mechanism for imparting a to-and-fro motion to said carriage, substantially as set forth.

3. The combination, with the vertically-slotted carriage L and its track or way, of the block *r*, mounted in the slot in said carriage, the sprocket-wheels *o o'*, the chain J, provided with a stud, *j*, engaging an aperture in block *r*, the drum H, mounted in said carriage, and mechanism for driving said sprocket-wheels, substantially as set forth.

4. The combination, with the carriage and drum mounted therein and the tracks or ways, of the shaft K', the worm *k'*, mounted to slide longitudinally but not rotate thereon and embraced by lugs *l* on said carriage, the worm-wheel *h* on the drum-axis, said wheel meshing with worm *k'*, mechanism for rotating said shaft K', and mechanism, substantially as described, for moving said carriage on its ways.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CÉSAR CORRON.

Witnesses:
ISIDOR BREUVOIR,
AMAND RITTER.