

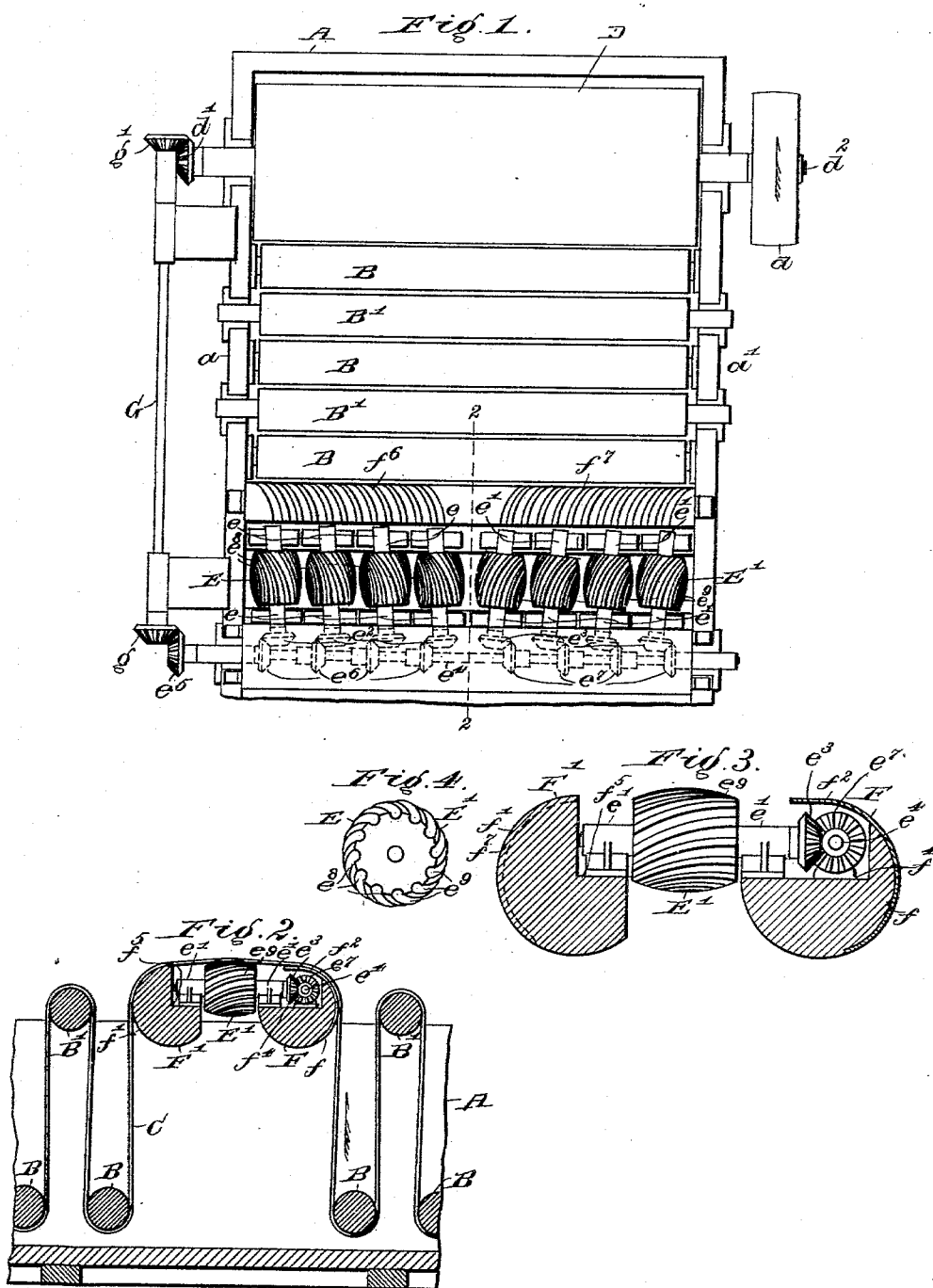
(No Model.)

G. ILES.

CLOTH SPREADER FOR DYEING MACHINES.

No. 562,831.

Patented June 30, 1896.



Witnesses—
Kirkley Hyde.
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UNITED STATES PATENT OFFICE.

GEORGE ILES, OF LOWELL, MASSACHUSETTS.

CLOTH-SPREADER FOR DYEING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 562,831, dated June 30, 1896.

Application filed December 13, 1895. Serial No. 571,978. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ILES, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Cloth-Spreaders for Dyeing and Washing Machines, of which the following is a specification.

My invention relates to cloth-spreaders for dyeing and washing machines; and it consists in the devices and combinations hereinafter described and claimed, the object of the invention being to prevent and remove from the cloth being dyed or washed any folds or creases which might interfere with the uniform action of the dyeing or washing liquors upon the cloth.

The spreader herein described may be used in any machine to prevent or remove folds or creases.

In the accompanying drawings, Figure 1 is a plan of a part of a washing-machine such as is used in calico dyeing and printing establishments, omitting the upper squeeze-roll; Fig. 2, a vertical section on the line 2 2 in Fig. 1; Fig. 3, an enlarged vertical section in the same plane of the spreader; Fig. 4, an end view of one of the spreading-rolls.

The tank or vat A, provided with guide-rolls B B', which submerge and raise the cloth C in the liquid contained in said vat, and the squeeze-rolls D (only the lower squeeze-roll being shown) are of the usual construction and operation, said squeeze-rolls having a positive motion from a belt (not shown) on the band-pulley *d* and the guide-rolls B B' being idle-rolls rotated by the friction of the cloth thereon. Usually such a tank is divided by cross-partitions into a series of smaller tanks or vats, which may contain different liquids, to the action of which the cloth is subjected by a continuous operation, there being squeeze-rolls D at each partition to remove one liquid from the cloth before subjecting the cloth to the action of the next liquid.

A number of pieces of cloth, containing hundreds of yards, are stitched together end to end and passed through the machine, and the cloth is liable, especially near the ends of a piece, to become folded or creased, and the folds or creases once started will run for a long distance in the cloth unless removed. Such

folds or creases have a tendency to prevent the liquids in the machine from acting upon the folded places and to prevent the cloth from acquiring a uniform appearance under the action of said liquids, and sometimes the materials by which the cloth has been treated in a previous printing or dyeing operation are such as to injure the fibers of the same if not completely removed by washing.

Stationary spreaders have been used, provided with ridges of wire laid thereon which diverge from the path of the cloth and from the middle of the spreader in such a manner as to present an appearance like the plan of a united right and left hand screw; but these stationary spreaders have not proved efficient, especially with very heavy cloth. I use, therefore, two series of rolls E E', arranged on opposite sides of the middle line of the tank A, the rolls of one series being given a positive rotation in the opposite direction from that of the other series by means hereinafter described.

Two blocks F F' are arranged to extend horizontally above the tank A and across the same, said blocks being supported by the sides *a a'* of said tank, and being preferably of wood. The block F has a rounded side *f*, up over which the cloth is drawn, said side being preferably covered with suitable sheet metal *f*², and the block F' has a rounded side *f'*, down over which the cloth passes to the next submerging-roll B, said blocks F F' being represented as approximately of the form of cylinders having their adjacent upper portions rabbeted out at *f*¹ *f*⁵ to receive the rolls E E' and their journal-boxes *e e'*, their gears *e*² *e*³, the driving-shaft *e*⁴, and its gears *e*⁵ *e*⁷.

The rolls E E' when used on very light cloth may be smooth; but for other cloth, especially heavy cloth, said rolls are preferably spirally grooved at *e*⁸ *e*⁹, as shown, and are rounded, as shown, so that the cloth will not be caught by the ends of said rolls. The shafts of said rolls E E' turn in suitable journal-boxes *e e'*, supported in the rabbets *f*¹ *f*⁵, and diverge from the center of the tank in the direction taken by the cloth. The shafts of said rolls have bevel-gears *e*² *e*³, engaged by bevel-gears *e*⁶ *e*⁷, fast on the shaft *e*⁴, the arrangement of all said gears being such as to cause the upper sides of the spreader-rolls

E E' to move outward from the center of the tank A.

The shaft e^4 is provided with another bevel-gear e^5 , which is engaged by a bevel-gear g on one end of the side shaft G, and the other end of said shaft G has another bevel-gear g' , which is driven by a gear d' on the shaft d^2 of the lower squeeze-roll D.

By the means above described a sufficient speed is given to the spreader-rolls E E' to smooth out the cloth as it passes over said spreader-rolls, which project above the blocks F F' sufficiently to get a hold on the cloth.

Except when used on very light cloth the operative surface f' of the block F' is provided with grooves $f^6 f^7$, as shown in Figs. 1 and 3, which grooves diverge spirally from the middle of said block F' in the direction taken by the cloth.

The spreader-rolls E E' may be changed for others more or less deeply grooved according to the nature of the work, the lighter the cloth the nearer smooth the spreader-rolls, and on very light cloth said rolls may be entirely without grooves.

I claim as my invention—

1. A cloth-spreading device, consisting of two equal series of rolls, arranged in the same plane to bear upon the same surface of the cloth on opposite sides of the middle line of the same, and means for rotating the rolls of each series in the opposite direction from that of the other series to cause the surfaces of said rolls in contact with the cloth to move from the center of the cloth outward, as and for the purpose specified.

2. In a cloth-spreader, the combination of two equal series of rolls, the axes of each series diverging from the axes of the other series, and means of rotating the rolls of each series in the opposite direction from that taken by the rolls of the other series, as and for the purpose specified.

3. A cloth-spreading device, consisting of two equal series of rolls, having rounded ends

and arranged in the same plane, and means for rotating the rolls of each series in the opposite direction from that taken by the rolls of the other series, as and for the purpose specified.

4. A cloth-spreading device, consisting of two equal series of longitudinally-grooved rolls, having rounded ends and arranged in the same plane, and means for rotating the rolls of each series in the opposite direction from that taken by the rolls of the other series, as and for the purpose specified.

5. A cloth-spreading device, consisting of two equal series of longitudinally-grooved rolls, arranged in the same plane, the axes of each series diverging from the axes of the other series, and means for rotating the rolls of each series in the opposite direction from that of the other series, as and for the purpose specified.

6. A cloth-spreading device, consisting of two equal series of spirally-grooved rolls, arranged in the same plane, the axes of each series diverging from the axes of the other series, and means for rotating the rolls of each series in the opposite direction from that of the other series, as and for the purpose specified.

7. The combination of two parallel blocks, rabbeted as described, spreading-rolls, having shafts, turning in journal-boxes, and said journal-boxes, arranged in the rabbets of said blocks below the tops of said blocks, said rolls projecting above the tops of said blocks and arranged in two oppositely-rotating series from the middle of said blocks, as and for the purpose specified.

In witness whereof I have signed this specification, in the presence of two attesting witnesses, this 7th day of December, A. D. 1895.

GEORGE ILES.

Witnesses:

ALBERT M. MOORE,
GRACE E. HIBBERT.