

(No Model.)

3 Sheets—Sheet 1.

C. GARNIER.

MACHINE FOR SOFTENING FABRICS.

No. 300,964.

Patented June 24, 1884.

Fig. 1.

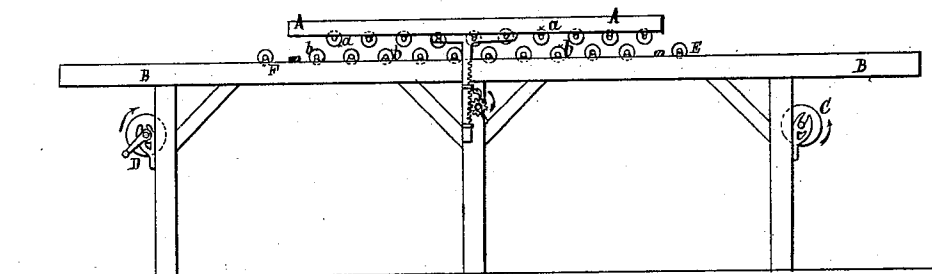


Fig. 2.

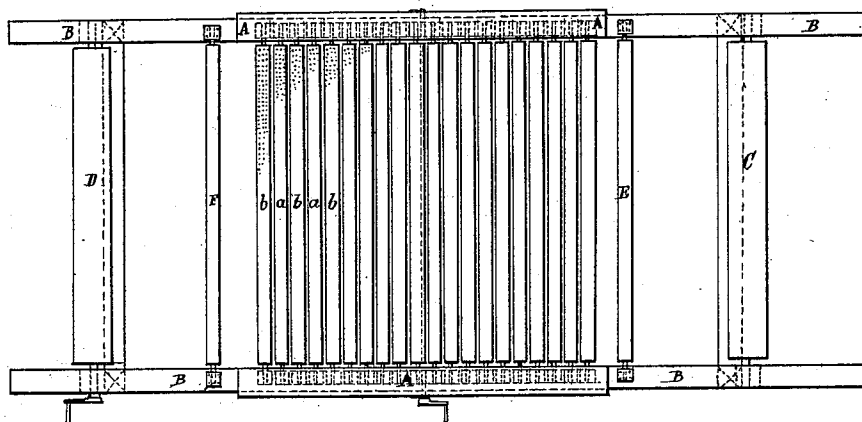
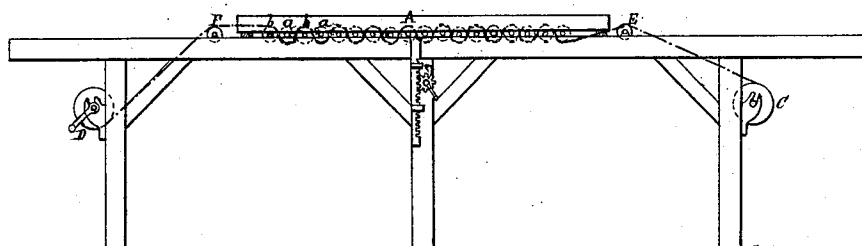


Fig. 3.



Witnesses.

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Inventor
By atty.

John Earle

(No Model.)

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Fig. 4.

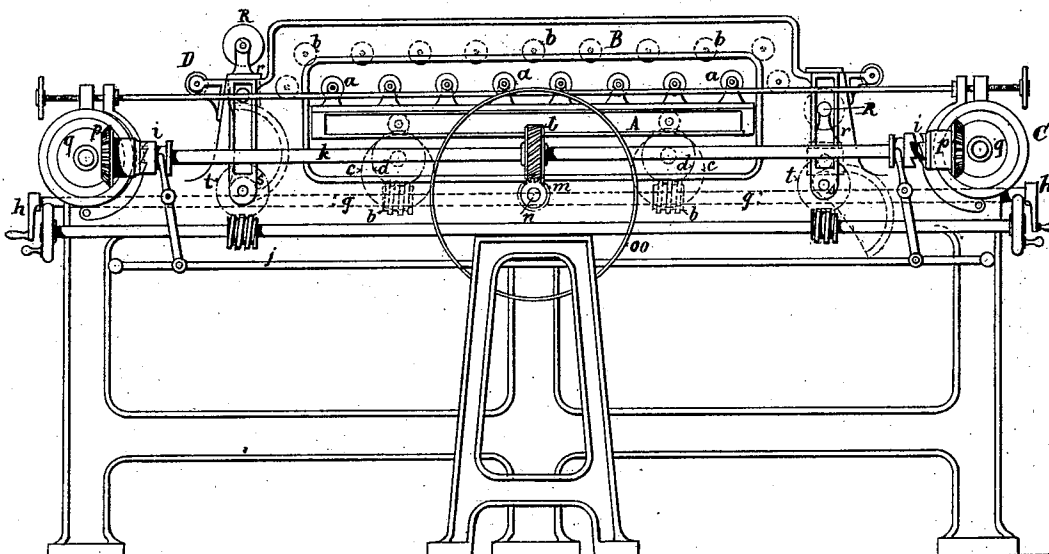
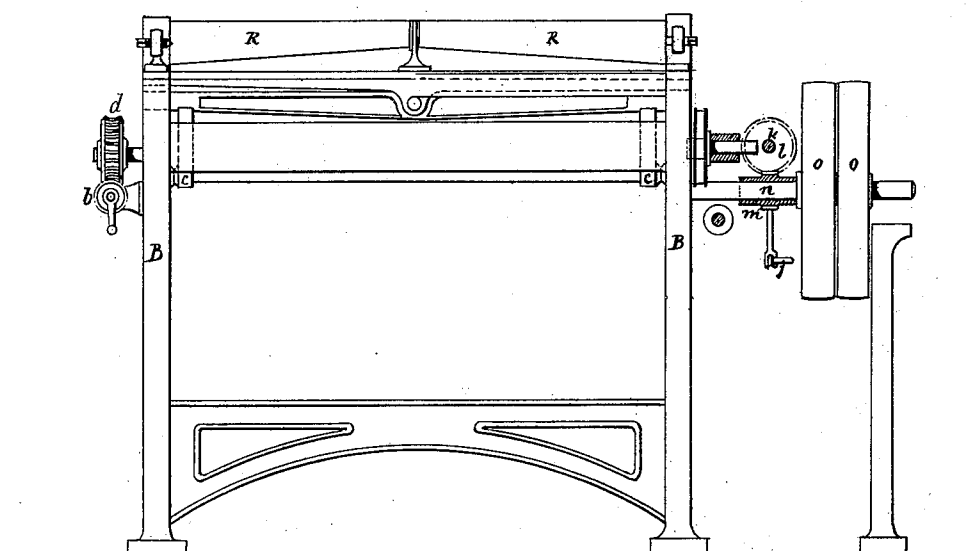


Fig. 5



Witnesses

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(No Model.)

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C. GARNIER.

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Patented June 24, 1884.

Fig. 6.

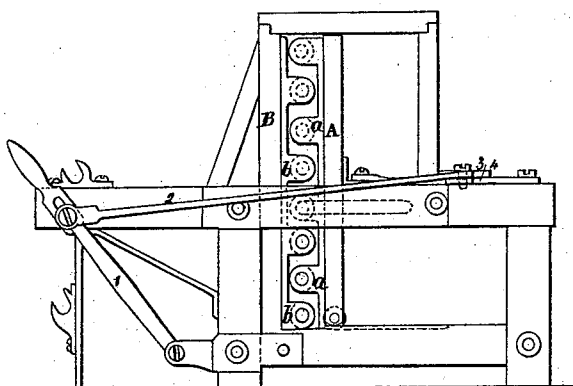


Fig. 7.

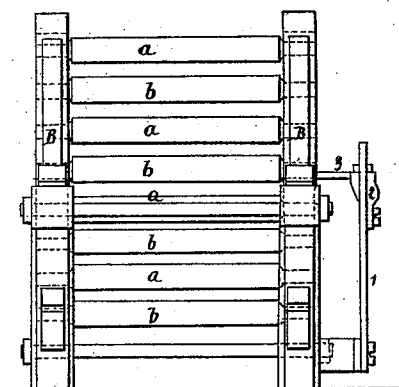
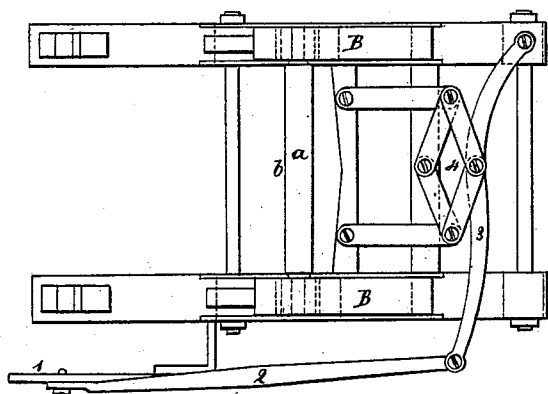


Fig. 8.



Witnesses:
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Jos. C. Earle

Claude Garnier
By atty. *Inventor*
Wm. C. Earle

UNITED STATES PATENT OFFICE.

CLAUDE GARNIER, OF LYONS, FRANCE.

MACHINE FOR SOFTENING FABRICS.

SPECIFICATION forming part of Letters Patent No. 300,964, dated June 24, 1884.

Application filed March 5, 1883. (No model.) Patented in France February 18, 1881, No. 141,209.

To all whom it may concern:

Be it known that I, CLAUDE GARNIER, of Lyons, France, and a resident of Boulevard St. Denis, at Paris, manufacturer, have invented a new Improved Machine for Softening Fabrics, of which the following is a specification.

The "breakage of tissues" is an operation the purpose of which is to break the "card," so called—that is, the excess of dressing that is to be given to the tissues, so that their thickness should be increased. The machines now used for this purpose may rather be called "polishing-machines." They are, moreover, inconvenient when the tissue contains a certain fancy pattern, as they cause the nap or down of the cloth to rise again, while this is exactly what all the operations of the dressing are intended to prevent. Besides, these machines, such as they now exist, require a rather considerable motive power and a very great velocity of motion.

Now, the system of a "breaking-machine" which forms the object of this application for Letters Patent is free of these defects. It consists (see annexed drawings, Figures 1 and 2) of, first, a frame, A A, bearing a series of rollers, *a*, loosely revolving, and placed apart at a greater length than the diameter of each roller. This frame is movable, and may either rise or sink by means of a rack or any convenient device; second, another series of rollers, *b*, mounted upon the very framing of the machine, and so arranged as to either rotate freely or be firmly stopped at their place. These rollers are, besides, placed in such manner as to correspond to the spaces left between rollers *a* of movable frame A A, and so that the latter may enter thereinto when descending, as is shown in Fig. 3; third, a framing, B B, at the end of which are placed on the one side the roller C, on which the stuff is rolled up when required to be "broken," and on the other side roller D, on which the broken stuff will roll up when roller D is set in motion, either by means of a crank movable by hand or by a driving-pulley. Rollers *a* and *b*, made of either wood or metal, have ruggednesses implanted on their outer surfaces, which thus form rounded projections spirally, lozenge-like, or otherwise arranged, the said ruggednesses consisting of nails or pins with

rounded heads in the shape of semicircular flanges, or straps, or screw-rings, or rounded cross-bars, jointed onto the surfaces of the said rollers by bolts, screws, or otherwise, or cast in one piece with the very bodies of said rollers, or cut out on their surfaces by means of suitable tools.

E F are rollers guiding the stuff. To start the machine, frame A A being removed, the stuff from roller C is made to pass successively between rollers *a* and *b*, following their respective outlines, and then attached to roller D. Frame A is then made to descend, so that rollers *a*, when inserted between rollers *b*, give the tissue a higher or lower strain or tension, as the operator may desire. Roller D is then set in motion, and the tissue, carrying rollers *a* and *b* away with it, is broken in a perfect manner by its passage over the ruggednesses on said rollers, as hereinbefore specified.

In Figs. 4 and 5 of the annexed drawings I have represented another arrangement of my system of breaking-machine, in which stationary rollers *b* are arranged at the top upon framing B, while rollers *a*, made to either rise or sink and fall between the former, are placed below upon movable frame A. This frame goes up and down through the medium of eccentric wheels *c c*, governed by wheels *d d*, provided with screw-shaped teeth, and screw-worms *f f*, wedged upon longitudinal shaft *g*, operated by means of cranks *h h* in either direction. The circulation of the stuff is effected—likewise in either direction—by either one or the other of the couplings *i i*, which are engaged and disengaged by lever-rod *j*. These couplings are imparted a rotary motion by shaft *k*, governed by spiral wheel *l*, wheel *m* and shaft *n* being provided with one fast and one loose pulley, *o o*. The transfer of the motion of the respective roller-couplings in one direction or the other—that is, toward either C or D—takes place by means of conical wheels *p p q q*. The conical extending or entering rollers R may be at will, or according to the direction of the stuff, either raised or lowered by means of cams *r r*, operated by shaft *s* and screw worm-gears *t t*.

I have finally shown in Figs. 6, 7, and 8 an arrangement of the same system, in which rollers *a b* are placed, respectively, on a fram-

ing, B, and a frame, A, both constructed vertically instead of horizontally, as in the two aforesaid instances. The insertion of rollers *a a* of frame A between rollers *b b* of framing B is performed by means of a device of levers, 5 1, 2, 3, and 4, the combination of which may, however, be modified in any desirable manner or substituted for by any one of the arrangements described with reference to the 10 former two cases.

Having now fully described all parts of my invention, what I claim as new, and desire to secure by Letters Patent, is—

15 In a machine for softening fabrics, the combination of one series of rollers arranged to revolve in a fixed plane, a second series of

rollers arranged in a plane parallel to the first series and parallel to each other, but the position of each roll of the second series intermediate between the rollers of the first series, 20 and mechanism, substantially such as described, whereby the second series is made movable toward and from the plane of the first series, and the rollers C D, substantially as and for the purpose described. 25

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

C. GARNIER.

Witnesses:

FERNAND DETRAILLE,
ROBT. M. HOOPER.