

(No Model.)

3 Sheets—Sheet 1.

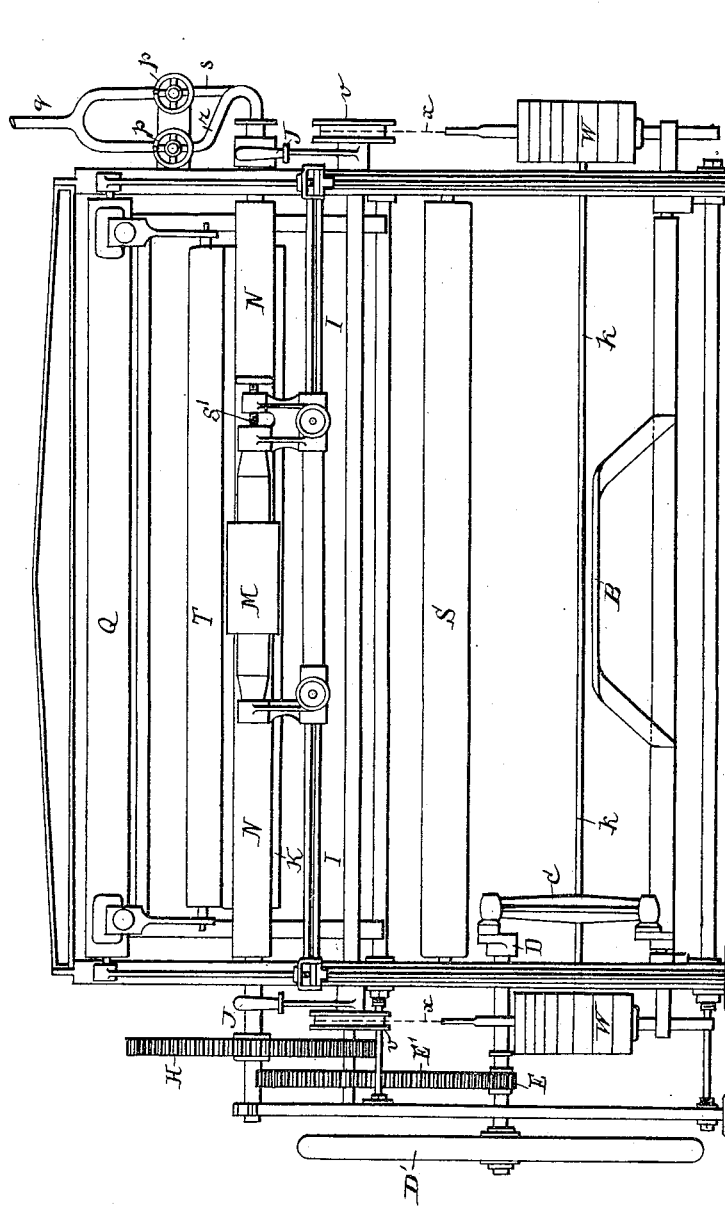
A. VINCENT.

MACHINE FOR FINISHING TEXTILE FABRICS.

No. 344,334.

Patented June 22, 1886.

Fig. 1.



WITNESSES:

Geo. H. Fraser.
C. K. Fraser.

INVENTOR:

Auguste Vincent
By his Attorneys,
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(No Model.)

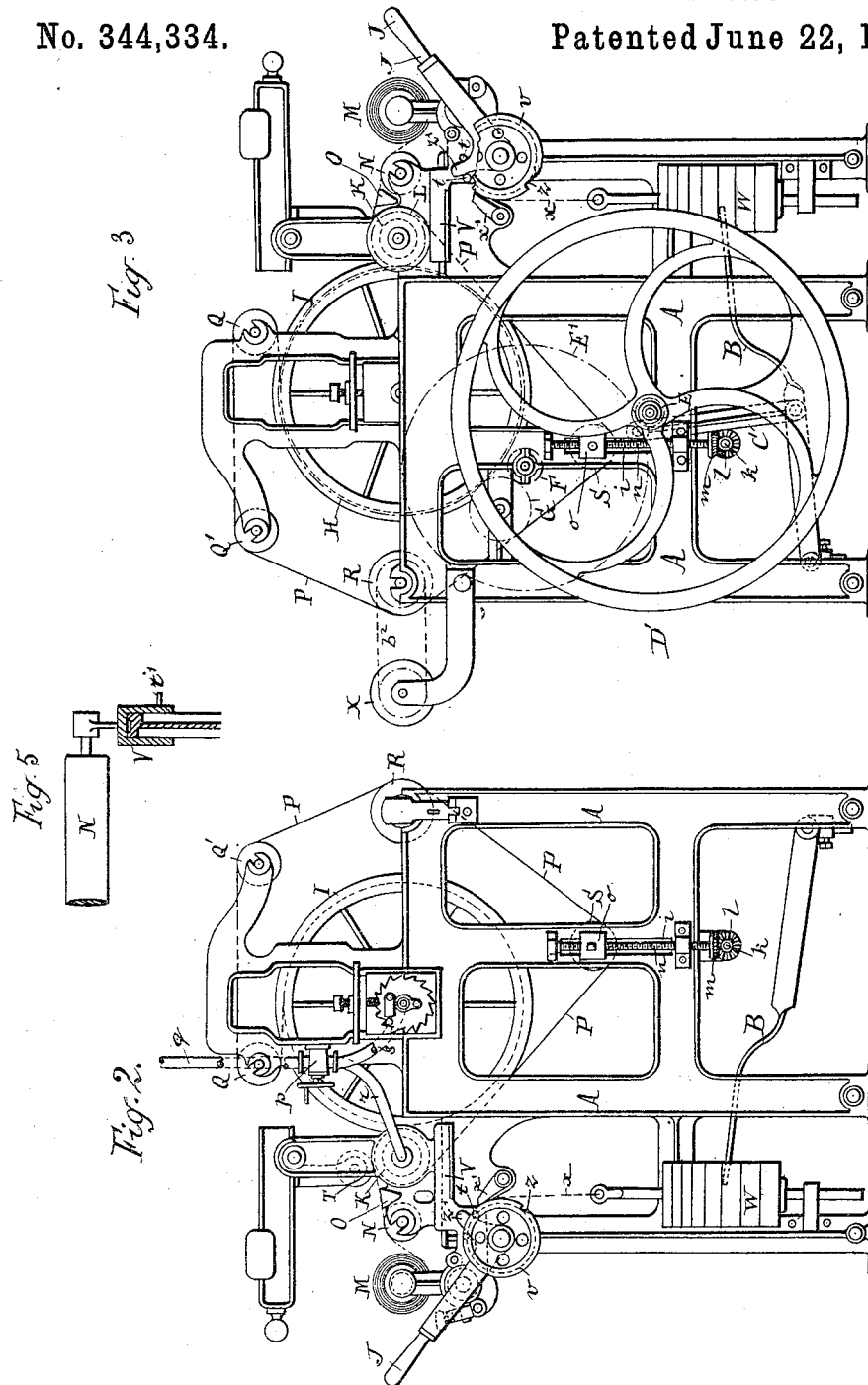
3 Sheets—Sheet 2.

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Fig. 4.

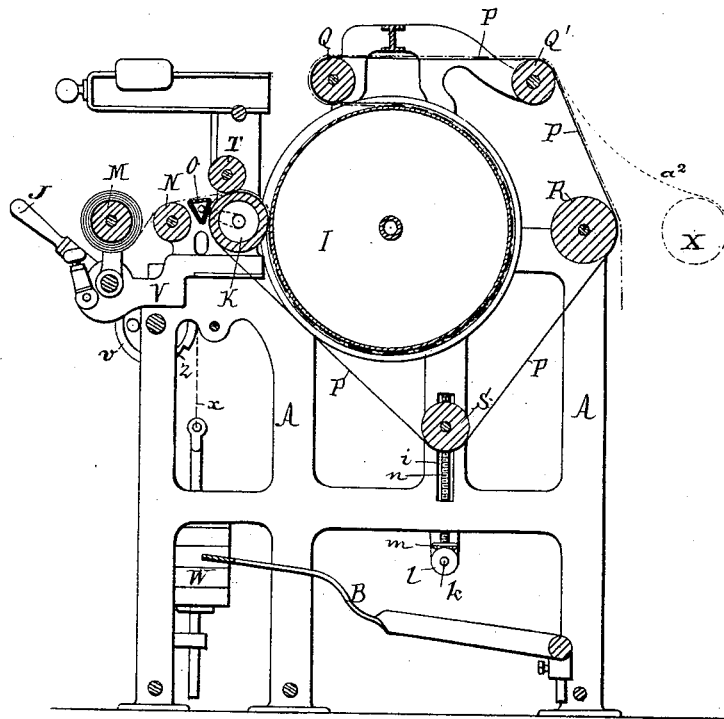


Fig. 6.

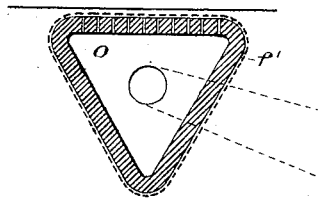
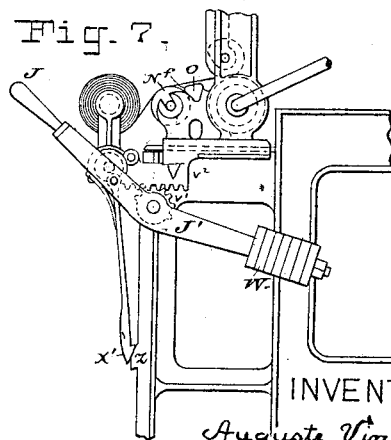


Fig. 7.



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

AUGUSTE VINCENT, OF CHATEAUBRIANT, FRANCE.

MACHINE FOR FINISHING TEXTILE FABRICS.

SPECIFICATION forming part of Letters Patent No. 344,334, dated June 22, 1886.

Application filed August 23, 1884. Serial No. 141,294. (No model.) Patented in France September 26, 1882, No. 151,715, and May 21, 1884, No. 162,772; in England December 18, 1882, No. 6,037; in Belgium June 6, 1884, No. 65,803; in Germany June 12, 1884, No. 30,743; in Italy August 21, 1884, XXXIV, 115; in Spain November 29, 1884, No. 4,847, and in Austria-Hungary March 7, 1885, No. 42,436 and No. 11,354.

To all whom it may concern:

Be it known that I, AUGUSTE VINCENT, a citizen of the French Republic, residing at Chateaubriant, (Loire Inférieure,) France, have invented certain new and useful Improvements in Machines for Finishing Textile Fabrics, of which the following is a specification.

My invention has for its object to provide an improved machine for dressing and finishing woven fabrics.

My machine relates to that class wherein the fabric, after having been moistened, is carried around a heated cylinder, being held against the same by an endless apron of absorbent material, which apron is supported on suitable rollers. The fabric is in this way dried and smoothed, and the desired finish is imparted to it.

Figure 1 of the accompanying drawings is a front elevation of the machine. Fig. 2 is an elevation of the right-hand end of the machine. Fig. 3 is a similar elevation of the left-hand end of the machine. Fig. 4 is a vertical transverse mid-section of the machine. Fig. 5 is a fragmentary sectional detail view. Fig. 6 is an enlarged cross-section of the sprayer; and Fig. 7 is a fragmentary elevation corresponding to part of Fig. 2, and showing a modification.

A A are two cast-iron frames at opposite sides of the machine, bearing the working parts. A large hollow cylinder or drum, I, is mounted between the frames, its journals being hollow and receiving steam to heat the cylinder.

In front of the drying-cylinder I is a roller, K. Above it are two rollers, Q Q', behind it is a roller, R, and beneath it is a roller, S. An endless apron, P, made of absorbent fabric, woolen felt being preferred, is passed almost entirely around the cylinder I, from the roller K to the roller Q, and thence outside of the rollers Q, Q', R, and S back to and around roller K. The apron is kept strained by one of the rollers—the roller S in the construction shown—being provided with sliding bearing-blocks engaged by screws *n n*. To facilitate the turning of these screws to adjust the rollers S, they are geared by bevel-pinions *l* to a hori-

zontal shaft, *k*, which may be turned by any known means, as a crank or key, to move the roller S.

The roll of fabric to be treated is placed in bearings at the front of the machine, as shown at M, and is subjected to tension by means of a screw, *s'*, (seen in Fig. 1,) which may be set up to press more or less against the end of the cylinder upon which the fabric is wound. The fabric passes first over a guiding-roller, N, thence over a sprayer, O, by which it is moistened, and thence it passes around the drying-cylinder I, being held against the same by the apron P. Thus the fabric is first moistened by the sprayer, and then smoothly dried by the heat from the cylinder I, which drives its moisture out, the apron P acting to absorb the moisture from the fabric, and being itself dried again during its passage back over the outer rollers, Q, Q', R, and S. The finished fabric is carried back over the top of the apron, as shown by the dotted line in Fig. 4. The sprayer O consists of a hollow prism or tube fixed immovably in place and perforated on its upper side. It receives steam at its end and discharges it upwardly in jets through these perforations against the fabric which is passing over it.

So far as described, this machine is of the ordinary construction. In machines of this character, as heretofore constructed, the apron P has passed around and over the sprayer O, so that the steam or vapor from the sprayer has had to pass first through the absorbent apron before it could reach the fabric to be treated, whereby the apron was rendered necessarily more moist than the fabric. It is desirable that the steam shall pass through a textile fabric before it reaches the fabric to be treated, but it is not desirable that the apron shall be wetted, for the reason that it is thereby unfitted for absorbing moisture from the fabric under treatment, it being necessary for the heat from the cylinder I to expel both the moisture in the fabric lying next it and that in the apron outside, which requires either a higher degree of heat or a longer time than is desirable.

It is one object of my invention to acceler-

ate the operation by avoiding the wetting of the apron, which I accomplish by arranging the sprayer O outside the apron, and I facilitate the drying of the apron and its absorption of moisture from the fabric under treatment by heating the roller K, and forcing it with considerable pressure against the cylinder I, so that the moist fabric is pressed close against the dry and absorbent apron at their first contact with the cylinder I. I effect the requisite straining of the steam from the sprayer through a fabric before it reaches the fabric under treatment by wrapping it permanently with a textile covering of its own.

I will now proceed to describe the novel features and the construction of my machine more in detail. The sprayer O is made, preferably, of copper and of triangular form in cross-section. Steam is admitted to its interior through a passage (shown in dotted lines in Fig. 4) leading from the bearing of the cylinder K, and its upper side is perforated. The sprayer is wrapped with a thin fabric, *f'*, as shown in Fig. 6, which acts to sift and partially condense the steam as it passes through the perforations and before it comes in contact with the fabric under treatment. The roller or cylinder K is made hollow and receives steam through its journal. It is preferably made of cast-iron, while the cylinder I is preferably made of copper. The steam from these cylinders comes from a pipe, *q*, which is divided into two branches, *r* and *s*, the former leading to the bearing of the cylinder K, the latter to the bearing of the cylinder I, Fig. 2, and each being provided with a valve or stop-cock, *p*, Fig. 1, by which the admission of steam to the cylinders may be controlled. The heated roller or cylinder K is pressed against the cylinder I with a yielding pressure, such as is afforded by weights or springs, and thus acts to squeeze together the hot, dry apron and the moist fabric, which not only accelerates the drying of the latter, but compacts and smooths it. The roller K is mounted movably, so that the operator can draw it away from the cylinder I at will against the pressure which is tending to force it toward the cylinder I. It is necessary to draw the roller K away from cylinder I in entering a new length of fabric and at other times, and at such times it is desirable to have the apron P separated from the cylinder I at the place of entrance of the fabric. This I accomplish by carrying the bight of the apron over the roller K, so that when the latter is moved away from the cylinder the apron moves with it. In prior machines of this class the apron has been carried at the front over two rollers in fixed bearings.

The construction which I have designed for effecting the pressure of the roller K and its retraction will now be described. A frame, V, is arranged at the front of the machine, and is mounted upon tracks or slideways formed upon the frames A A, so that it may slide backward and forward thereon. One side of

this frame is shown in section in Fig. 5. Weights W W, suspended by chains *x x*, are arranged to press the slide-frame V backward, and thus press the cylinder K against the cylinder I. The proper pressure is obtained by increasing or decreasing the weights. The chains *x x* wind partly around wheels *v v*, to which their ends are fixed, and to these wheels are fixed, respectively, two hand-levers, J J, by bearing down on which the wheels *v v* are turned and the weights raised until the notches *z z* in the wheels *v v* are engaged by pawls *x' x'*, pivoted to the fixed frame, and are thus held from turning backward and dropping the weights. Each lever J has an arm, *z*, which takes against a pin or pins, *t*, on the slide-frame V, in order to move the latter forward or press it back. The pins *t* are best shown in Fig. 3, where the wheel *v* is broken away to expose them to view. To drop the weights and press the drying-cylinders together again, the pawls *x'* are withdrawn, and the weights lowered by means of the levers J.

Any other known mechanical connection may be employed for transmitting the pressure of the weights to the slide-frame V, and for drawing forward the slide-frame and holding it. As an instance of one such modification, I show the construction illustrated in Fig. 7, where the weight is placed on the end of a lever, J', extending backward horizontally, which lever is formed at its fulcrum with a toothed pinion, *v'*, engaging a rack, *v''*, upon the frame V. The lever is extended forward to form a handle, J, by pressing down on which the weight may be raised. The pawl or stop *x'*, for holding the slide-frame forward, is here attached to the lever, and engages a fixed tooth, *z*, on the frame.

The cylinder I may be revolved by any suitable known means under the control of the operator. In prior machines of this class the cylinder has sometimes been driven by power through the medium of frictional speed-regulating gearing. I have shown in the drawings a treadle for driving the cylinder by the foot of the attendant. The shaft of the treadle B is mounted between the frames A A, and is connected through a pitman, C, with a crank, D, Fig. 1, on the shaft of which is fixed a pinion, E, and fly-wheel D'. The pinion E drives a gear-wheel, E', fixed on the same shaft with a pinion, F, Fig. 3, which drives an idler-gear, G, and this in turn drives a gear-wheel, H, fixed on the shaft of the cylinder I.

In order to enable fresh pieces of fabric to be dressed, a cylinder, X, Fig. 3, may be added at a distance of fifteen to twenty centimeters to the rear of the roller R, it being made of the same diameter as the latter, and turned at the same speed by means of a belt. (Shown in dotted lines in Fig. 3, lettered *b'*.) The fabric in leaving the machine will then follow the course shown in dotted lines at *a'* in Fig. 4, whereby the roller X serves to facilitate its separation from the apron P.

My machine is to be distinguished from the

finishing-machines which iron or polish the fabric by drawing it between heated polished metal surfaces without any apron. In my machine the apron is essential, and no polishing action takes place, as the drying-cylinders and the fabric travel at the same speed.

I am aware that in ironing or polishing machines for dressed or glazed fabrics the fabric has first been sprayed before passing over the heated surfaces, and that the heated smoothing or polishing irons have been pressed against a heated cylinder by yielding pressure, and that a hand-lever has been arranged to throw off this pressure. I make no claim to these features as my invention.

I claim—

1. The combination, with a heated drying-cylinder, I, rotatively mounted, an endless apron of absorbent fabric passing almost entirely around said cylinder, rollers for supporting and guiding said apron, and a spraying device for moistening the fabric under treatment, of a heated drying-roller, K, arranged against the cylinder I, means for pressing said roller against said cylinder with a yielding pressure, the bight of the apron passing over said roller, whereby the apron is simultaneously heated and pressed with the fabric under treatment against the drying-cylinder I, and mechanism connected to said roller K and adapted, when moved by the operator, to draw said roller away from the cylinder I, thereby parting the bight of the apron therefrom, substantially as and for the purposes set forth.

2. The combination, with a heated drying-cylinder, I, rotatively mounted, an endless apron passing almost entirely around said cylinder, rollers for supporting and guiding said apron, and a spraying device for moistening

the fabric under treatment, of a frame, V, movable toward and from the cylinder I, means for normally pressing said frame toward said cylinder with a yielding pressure, a heated roller, K, mounted in bearings in said frame and arranged to bear against the cylinder I, and a lever connected to said frame and adapted to draw the same away from the cylinder I, substantially as set forth.

3. The combination, with a heated drying-cylinder, I, rotatively mounted, an endless apron passing almost entirely around said cylinder, and rollers for supporting and guiding said apron, of a frame, V, movable toward and from the cylinder I, means for normally pressing said frame toward said cylinder with a yielding pressure, the heated roller K and the spraying device O, for moistening the fabric under treatment, both mounted on and moving with said frame, a lever connected to said frame and adapted to draw the same away from said cylinder, and a latch for retaining said frame when retracted from said cylinder, substantially as set forth.

4. The combination, substantially as set forth, of revolving drying-cylinder I, sliding frame V, capable of motion toward or from said cylinder, cylinder K, borne by said frame, weights W W, wheels *v v*, from which said weights are suspended, levers J J, connected to said wheels and to said frame V, and pawls *x' x'*, adapted to hold the wheels with the weights uplifted.

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

AUGUSTE VINCENT.

Witnesses:

FRANZ CAHORS,
J. BAUDRY.