No. 776,532. PATENTED DEC. 6, 1904.

L. D. MORAND.

MACHINE FOR SIZING AND FINISHING VEILINGS OR OTHER TULLES.

APPLICATION FILED SEPT. 1, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

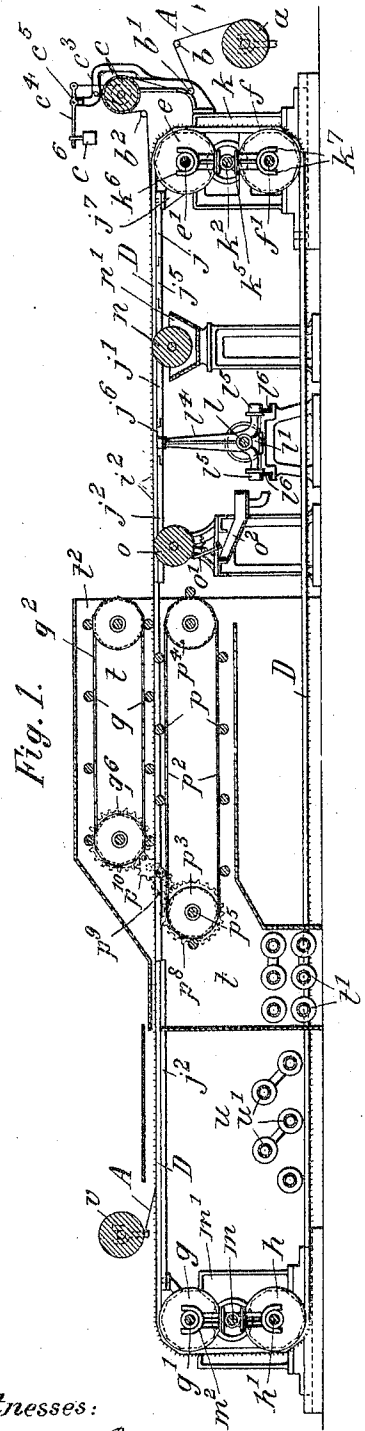
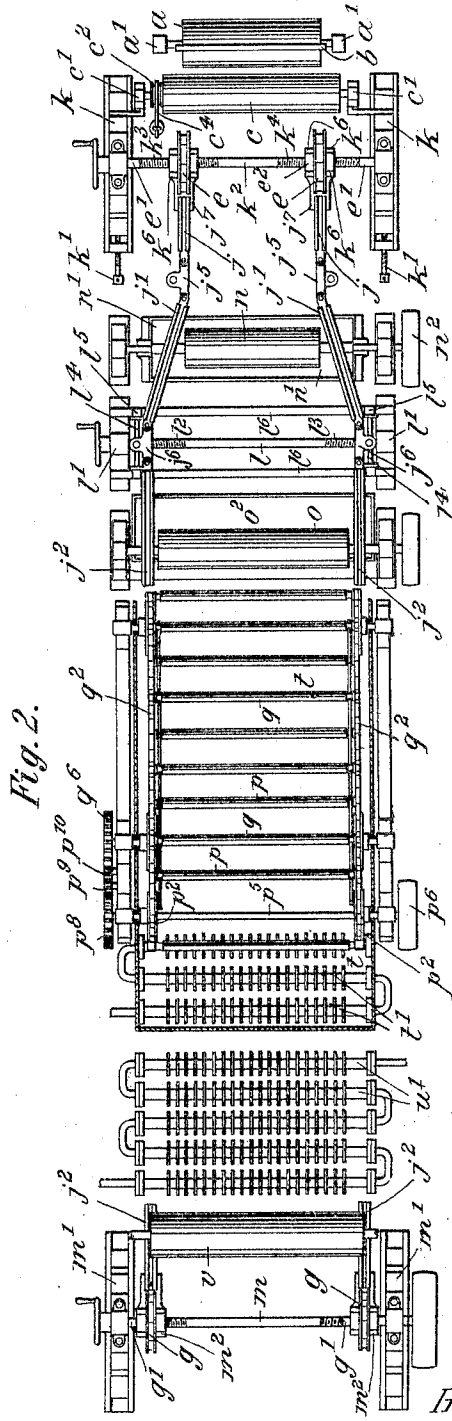


Fig. 2.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

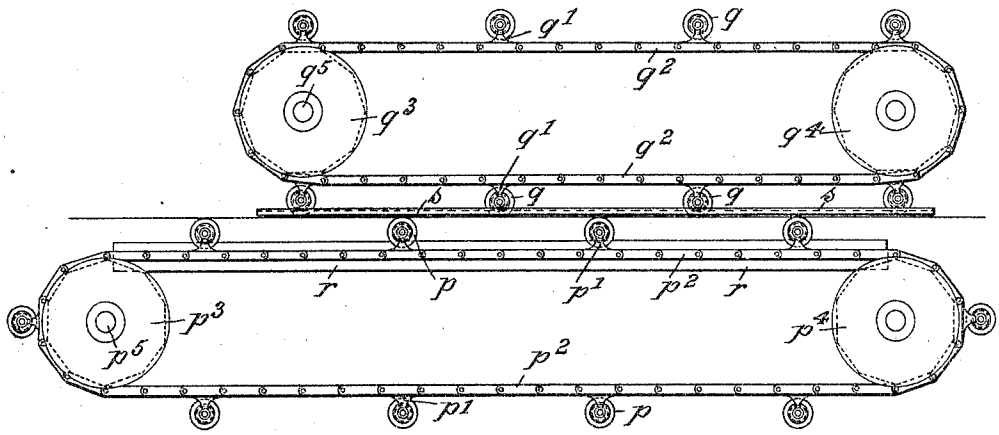


Fig. 4.

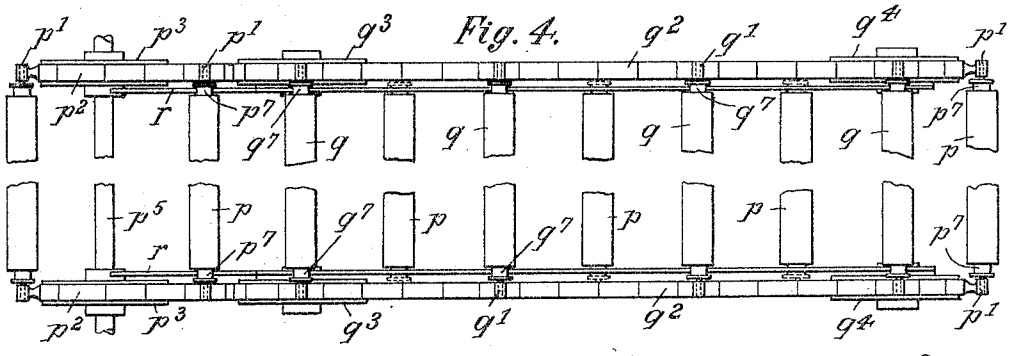


Fig. 5.

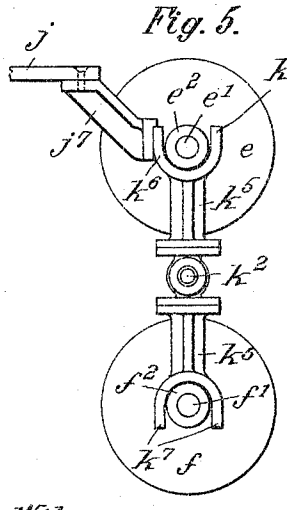


Fig. 6.

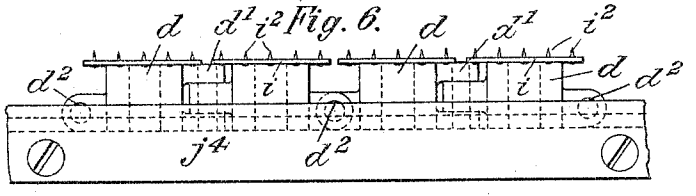


Fig. 7.

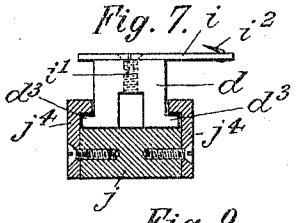


Fig. 8.

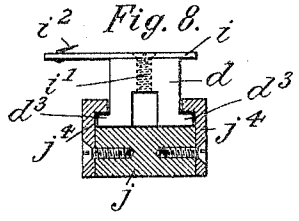
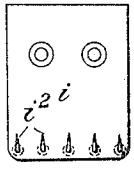


Fig. 9.



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No. 776,532. Patented December 6, 1904.

UNITED STATES PATENT OFFICE.

LOUIS DENIS MORAND, OF PATERSON, NEW JERSEY, ASSIGNOR TO WILLIAM J. URCHS, OF NEW YORK, N. Y.

MACHINE FOR SIZING AND FINISHING VEILINGS OR OTHER TULLES.

SPECIFICATION forming part of Letters Patent No. 776,532, dated December 6, 1904.

Application filed September 1, 1904. Serial No. 222,941. (No model.)

To all whom it may concern:

Be it known that I, LOUIS DENIS MORAND, a citizen of France, residing at Paterson, New Jersey, have invented new and useful Improvements in Machines for Sizing and Finishing Veilings or other Tulles, of which the following is a specification.

This invention relates to a machine for tentering and sizing veilings and other tulles or open-meshed textile fabrics in a quick, uniform, and economical manner.

Briefly stated, the machine embodies a pair of feed-chains having diverging sections and adapted to tenter the material to be treated and feed the same over one or more sizing-rollers. After a suitable sizing has been applied by these rollers the excess is removed by a wiper, and then the sizing still adhering to the fabric is spread over both surfaces of the same by a number of distributing-rollers which advance over the fabric. Finally, the tentered and sized material is dried, when the operation is completed.

In the accompanying drawings, Figure 1 is a longitudinal section of my improved machine; Fig. 2, a plan thereof, partly in section, with the fabric and feed-chains omitted; Fig. 3, a detail side view of the distributing-rollers; Fig. 4, a plan thereof, partly broken away; Fig. 5, a detail of the chain and rail adjusting mechanism; Fig. 6, a detail side view of part of the chain and guide-rail. Figs. 7 and 8 are detail cross-sections through the rail and opposite runs of the chain, and Fig. 9 a detail plan of the gripping-plate.

The letter *a* represents the delivery-reel turning in bearings *a'*. From this reel the veiling or other material A to be treated passes over rod *b*, under rod *b'*, over tension-roller *c*, and under rod b^2. The roller *c* turns in bearings *c'* and carries a brake-disk c^2, engaged by a brake-strap c^3. This strap is connected to one arm of a lever c^4, fulcrumed at c^5 and supporting with its other arm an adjustable counterweight c^6, by which the tension imparted to the fabric may be regulated. After clearing the rod b^2 the selvage of fabric A is connected along each edge to an endless combined tentering and feed chain D. Each chain is composed of a series of links *d*, connected by pivots *d'* d^2, extending alternately at right angles to one another, Fig. 6, so that the chain is capable of universal movement. Each chain D passes over four chain-wheels *e f g h*, mounted on shafts *e' f' g' h'*, one of the shafts—say shaft *g*—being driven in suitable manner to impart continuous movement to the chains. To each link *d* is attached by screws *i'* an inwardly-projecting plate *i*, provided with a series of hooks or grippers i^2, which are adapted to engage the selvage of fabric A.

The upper run of each chain D is supported and guided by three connected rails *j j' j²*, Fig. 2, each provided with flanged side plates j^4, which overlap corresponding projections d^3 of links *d*, Figs. 7 and 8. The two front rails *j j* are parallel and are arranged in comparatively close proximity to one another. They are connected by the pivoted links j^5 to diverging intermediate rails *j'*. The rails *j'* are in turn connected by the pivoted links j^6 to the rear parallel rails j^2, which are placed at a greater distance from each other than intervenes between the front rails *j*. Owing to the engagement of the rails with the chains, the upper runs of the latter will first travel in comparatively close proximity, will then diverge, and will then travel at a comparatively greater distance from each other. The selvage of fabric A is by the hooks i^2 attached to the plates *j* during the narrow forward runs of the chains over rails *j*. While the chains move along the diverging rails *j* the fabric will be tentered or spread laterally and will be held in this stretched condition during the movement of the chains along the distanced rear rails j^2.

The machine is so constructed that it may be set to fabrics of different widths and that the degree of tension imparted to a fabric may be varied. The means for effecting these results are as follows:

k k are a pair of bearings which are longitudinally adjustable by means of set-screws *k'*. In bearings *k* is journaled the upper shaft *e'*, the lower shaft *f'*, and an intermediate spindle k^2, having right and left threads

k^3 k^4. These threads engage, respectively, a pair of laterally-movable tapped frames k^5, Fig. 5, having a pair of upper forks k^6 and a pair of lower forks k^7. Of these the forks k^6 straddle the hubs e^2 of chain-wheels e, while the forks k^7 straddle the hubs f^2 of wheels f. To the upper forks k^6 are connected by arms j^7 the forward ends of rails j. By turning the spindle k^2 in one or the other direction the distance between the rails j, as well as between the wheels e e and between the wheels f f, and consequently between the runs of chains D, may be readily adjusted.

The forward ends of rails j^2 are spaced by spindle l, turning in bearings l', and having right and left threads l^2 l^3. These threads engage the laterally-movable tapped frames l^4, Fig. 1, which are at their upper ends pivoted to the links j^6. The lower ends of frames l^4 carry rollers l^5, movable upon transverse rails l^6 of bearings l'. Thus by manipulating spindle l the links j^6 are made to approach or recede, so as to correspondingly space the rear ends of rails j' and the forward ends of rails j^2.

The rear ends of rails j^2 are adjusted in all respects similar to the front ends of rails j by means of a right-and-left spindle m, turning in bearings m' and engaging forked frames m^2. The forks of these frames straddle the hubs of chain-wheels g h, while the upper forks are, moreover, connected to the rear ends of rails j^2. It will be seen that by the means described a separate adjustment may be given to the rails j from that imparted to rails j^2. In this way the degree to which the fabric is laterally stretched may be readily varied. When the rails j are moved into greater relative proximity than the rails j^2, the bearings k must be moved rearwardly by screws k', and vice versa.

The chains D carry the fabric A into contact with one or more sizing-rollers n. The roller n dips into a basin n' and is driven by pulley n^2. The basin n' contains a sizing of any character desired, which sizing is applied by rollers n to the lower side of the material. After passing the sizing-roller n the fabric passes over a wiping-roller o, the object of which is to remove any excess of sizing applied. The surface of roller o is engaged by a scraper o', which cleans the roller and delivers the separated sizing into a gutter o^2, from which it flows into a suitable receptacle. (Not shown.) From this receptacle the sizing may be poured back into basin n'.

After the fabric has passed the wiper o the sizing is evenly spread over both surfaces of the former by a lower set of distributing-rollers p and an upper set of distributing-rollers q. These rollers are so mounted that they have a combined axial rotation and a longitudinal movement along the fabric, their longitudinal movement being consequently greater than the feed movement imparted to the fabric by the chains D. The object of this longitudinal movement of the distributing-rollers is to evenly rub the sizing into the body of the fabric. The lower rollers p are journaled in bearings p' of a pair of parallel endless chains p^2, arranged below fabric A and passing over chain-wheels p^3 p^4, Fig. 3. Upon shaft p^5 of wheels p^3 is mounted a pulley p^6, which feeds the chains p^2 at a speed greater than that imparted to chains D by shaft g'. Below fabric A are further arranged a pair of parallel rails r, that engage reduced end sections p^7 of rollers p and hold the upper set of rollers against the lower surface of fabric A. The rotation imparted to these rollers by their contact with the fabric is accelerated by the engagement of their reduced sections p^7 with the rails r.

The upper rollers q are journaled in bearings q' of parallel endless chains q^2, arranged above fabric A and passing over chain-wheels q^3 q^4. The wheels q^3 are mounted upon a shaft q^5, intergeared by wheels p^8 p^9 p^{10} q^6 with shaft q^5. Above fabric A are further arranged a pair of parallel rails s, that engage the reduced end sections q^7 of rollers q. The rails s prevent sagging of the lower runs of chains q^2 and accelerate the speed of rotation of rollers q.

The distributing-rollers p and q should operate upon the fabric under an increase of temperature. They are consequently incased within a heating-chamber t, containing heating-coils t'. The air heated by these coils flows forwardly through chamber t and escapes at its open front end t^2, taking with it substantially all the water vaporized from fabric A.

From chamber t the fabric enters a drying-chamber u, arranged back of chamber t and containing heating-coils u'. Within this chamber the complete drying of the fabric takes place. After the fabric has passed through chamber u it is unhooked from chains D and wound upon the receiving-reel v, when the operation is completed.

What I claim is—

1. A machine for treating veilings and similar fabrics provided with a pair of feed-chains, means for attaching the fabric thereto, a set of distributing-rollers, and means for advancing said rollers along the fabric, substantially as specified.

2. A machine for treating veilings and similar fabrics provided with a pair of feed-chains, means for attaching the fabric thereto, a set of distributing-rollers, chains carrying the same, and a rail engaged by the rollers, substantially as specified.

3. A machine for treating veilings and similar fabrics provided with a pair of feed-chains, means for attaching the fabric thereto, an upper set of distributing-rollers, a lower set of distributing-rollers, upper and lower chains carrying the rollers, and upper and lower rails

engaged by the rollers, substantially as specified.

4. A machine for treating veilings and similar fabrics provided with a pair of feed-chains, means for attaching the fabric thereto, a set of distributing-rollers, chains carrying the same, a rail engaged by the rollers, and a heating-chamber incasing the rollers, substantially as specified.

5. In a machine for treating veilings and similar fabrics, the combination of a pair of feed-chains having diverging sections, with rails engaging the chains, means for attaching the fabric to the chains, a sizing-roller, a wiping-roller, upper and lower sets of distributing-rollers, chains carrying said rollers, a heating-chamber incasing the rollers, and a drying-chamber back of the heating-chamber, substantially as specified.

Signed by me at New York city, New York, this 22d day of August, 1904.

LOUIS DENIS MORAND.

Witnesses:
CARL M. VON BAUR,
ARTHUR ZUMPE.