W. R. SCHÜRMANN.

Machine for Winding and Trimming Textile Fabrics, &c.

No. 208,856. Patented Oct. 8, 1878.

Fig. 1.

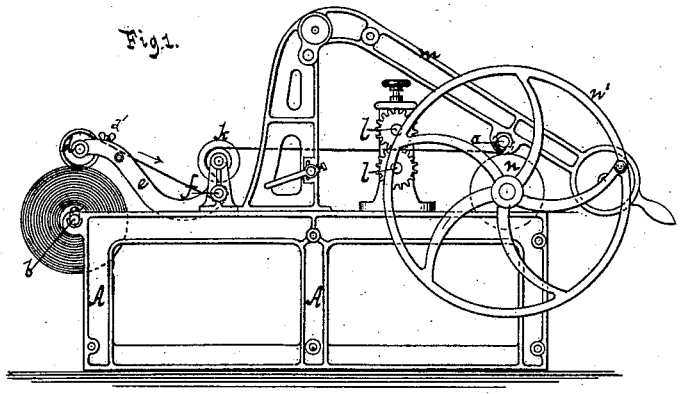


Fig. 2.

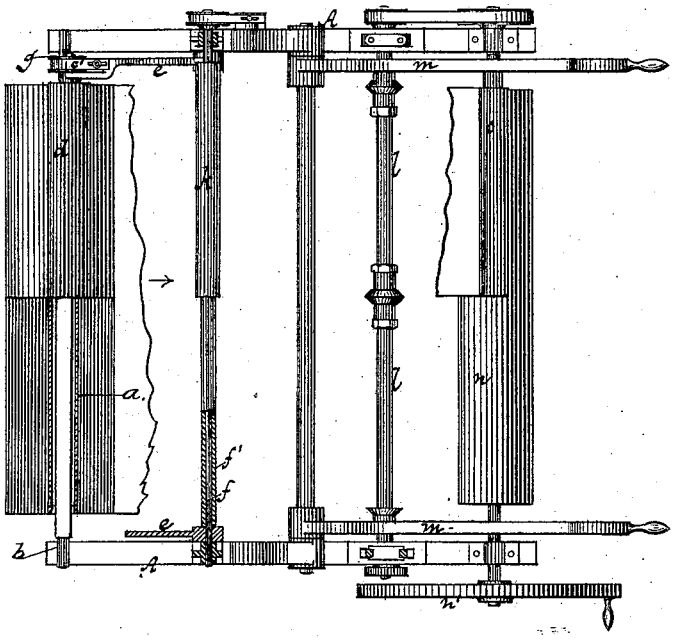


Fig. 2ª

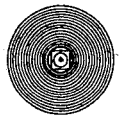


Fig. 3.

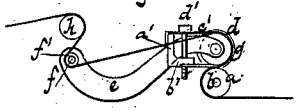


Fig. 4.

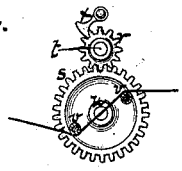
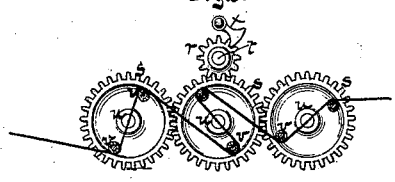


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

WILHELM R. SCHÜRMANN, OF DUSSELDORF, PRUSSIA.

IMPROVEMENT IN MACHINES FOR WINDING AND TRIMMING TEXTILE FABRICS, &c.

Specification forming part of Letters Patent No. **208,856,** dated October 8, 1878; application filed August 1, 1878.

To all whom it may concern:

Be it known that I, WILHELM R. SCHÜRMANN, of Dusseldorf, in the Kingdom of Prussia and Empire of Germany, have invented a new and useful Improvement in Machines for Winding Up and Trimming Textile and other materials, which invention is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 is a side view of my machine. Fig. 2 is a plan view of the same, partly in section. Fig. 2^a is an end view of the roller from which the textile fabric is to be unwound.

The remaining figures are modifications, which will be referred to as the description progresses.

Similar letters indicate corresponding parts.

This invention consists in the combination, in a machine for winding up textile and other materials, of a compression-roller mounted in swinging arms, a tension-roller for smoothing the web, knives for trimming the web, a take-up roller or spool mounted in swinging arms, and a driving-roll for imparting motion to the spool and winding up the web; also in the combination, in a machine for winding up textile and other materials, of a compression-roller, a tension-roller, knives for trimming the web, and a driving-roller for imparting motion to the take-up roller, the compression-roller and tension-roller (either or both) being provided with brakes to regulate the resistance of said rollers, and to adapt the same to smooth fabrics or webs of different degrees of stiffness.

In the drawing, the letter A designates the frame of my machine, which is made of metal or any suitable material. The letter *a* designates a roller, from which roller the textile fabric or web is to be unwound. The ends of said roller *a* are provided with square or polygonal openings, through which openings the axle *b* is passed. Said axle *b* has its bearings in the frame A. On the roller *a* rests a compression-roller, *d*. Said roller *d* has its bearings in swinging arms *e e*, which arms swing on an axle. By this arrangement the roller *d* always rests on the fabric which is being unwound from the roller *a*, and the diameter of which roll is constantly diminishing.

In fabrics which are somewhat stiff and difficult to smooth out, it is desirable that the compression-roller *d* should not revolve too easily in its bearings, because otherwise such fabric would not be thoroughly smoothed out. For this purpose I provide a brake of the following construction: To one end of the axle of the compression-roller *d* is firmly keyed a small pulley, *g*, Figs. 2 and 3. Close to the pulley *g*, and firmly attached to one of the swinging arms *e*, is an L-shaped piece of wood or metal, *a' b'*, Fig. 3. A strong strap or band, *c'*, passes over the pulley *g*, and one end of said strap is firmly fastened to the vertical arm *a'* and the other end to the horizontal arm *b'* of the L-shaped piece of wood or metal. In the horizontal arm *b'* of said L-shaped piece of metal is a hole tapped to fit the thread of a bolt, *d'*. Said bolt *d'* also passes through the band *c'*, and the head of said bolt *d'* presses on said strap or band *c'*. By screwing down the bolt *d'* the head of said bolt presses down the band *c'*, and thus the roller *d* can be made to revolve more or less easily, as may be necessary.

Of course I do not limit myself to this precise form of brake, and I also may attach a brake at both ends of said compression-roller *d*. On the axle *f* of the swinging arms *e e* is a sleeve, *f'*, Figs. 2 and 3 which sleeve revolves loosely on said axle *f*. Above said sleeve *f'* is a tension-roller, *k*, for further smoothing out the fabric. The tension-roller *k* is also provided with a brake, attached to the frame of the machine, similar in construction to that described in connection with the compression-roller *d*, and for a similar purpose.

The operation of the machine is as follows: A roll containing the fabric is placed in the machine. When this is done the compression-roller *d*, which has meanwhile been swung back, is let down so as to rest on the fabric on the roller *a*. The fabric from the roller *a* passes under and around the compression-roller *d*. From thence it moves in the direction of the arrow under and around the sleeve *f'*, which turns loosely on the axle *f*, and also under and around the tension-roller *k*, where it is smoothed out more thoroughly than it has been done by the compression-roller *d*.

From this tension-roller *k* the fabric passes between knives on the axles *l*, where its edges are trimmed off.

If desired, additional knives may be placed at different points along the axle *l*, so as to cut the fabric into strips of any desired breadth. Any of the ordinary rotary knives in common use will serve the purpose.

After being trimmed and cut, the fabric passes to the roller *o*, on which roller it is wound up. Said roller *o* revolves in the swinging arms *m m*, and is caused to revolve by frictional contact with the driving-roll *n*, which roll *n* is driven by steam or any other motor. As the fabric is wound up on the roller *o* said roller, with its arms, gradually rises. When the fabric is all wound up the swinging arms *m* are simply lifted up far enough to lift the bearings or shoulders in said arms off from the roller *o*, when said roller, with the fabric wound upon it, falls onto a table or wagon held ready for that purpose.

If it is desired to turn the machine by hand, which is usually done in first starting the machine, it can be done by a handle attached to a wheel, *n'*, which wheel is keyed to the axle of the driving-roll *n*. Said wheel *n'* may also be connected to an indicator or counter, for indicating the length of the fabric wound on the roller *o*.

Instead of unrolling the fabric from one roller onto another, the machine can also be used to roll up the fabric directly as it comes from the machine. In this operation the compression-roller *d* sinks to the position shown in Fig. 3. The tension apparatus also admits of various modifications, as shown in Figs. 4 and 5.

The letters *s s* represent cogged disks, which revolve on lugs or projections *u u* on the frame A of the machine. Into these disks *s s* gear small toothed wheels *r r*, which are keyed to the axle *t*, so that they are not capable of turning independently of each other. The disks *s s* are connected by cross-bars *v v*, on each of which cross-bars there is a sleeve, which revolves loosely thereon. By turning the toothed wheels *r r* these cross-bars *v v* may be made to assume any inclination, as in Fig. 4, and so any desired amount of tension can be brought to bear on the fabric while the fabric passses through the tension apparatus.

The latch or detent *x* is for preventing retrograde movement of the wheels *r r* and disks *s s*, and for this purpose said latch *x* may be made to catch into either of the toothed disks *s s*.

To produce greater tension, I may employ several of such disks *s s*, as seen in Fig. 5.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a machine for winding up textile and other materials, of a compression-roller mounted in swinging arms, a tension apparatus for smoothing the web, knives for trimming the same, a take-up roller or spool mounted in swinging arms, and a driving-roller for imparting rotary motion to the take-up roller, substantially in the manner for the purpose set forth.

2. The combination, in a machine as above described, of a compression-roller and a tension-roller, either or both provided with brakes, knives for trimming the web, and a driving-roller for imparting motion to the take-up roller by frictional contact, all combined and operating substantially as described.

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