(No Model.)

I. E. PALMER.

DELIVERY APPARATUS FOR MACHINES FOR FINISHING FABRICS.

No. 284,323. Patented Sept. 4, 1883.

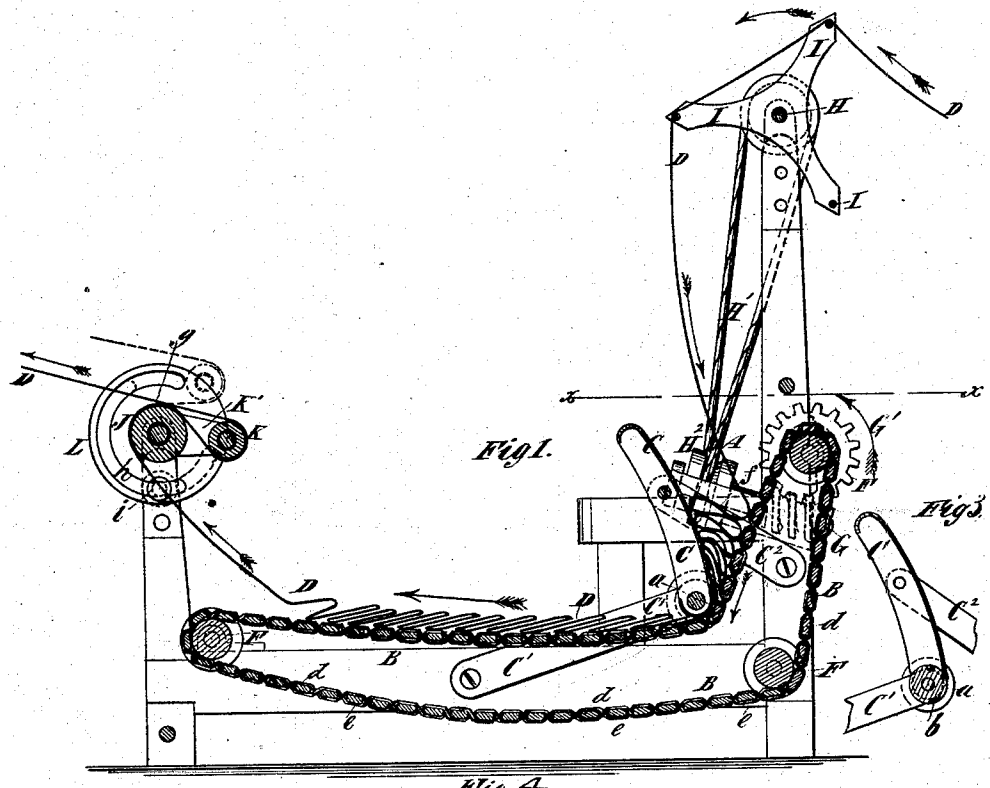


Fig 1.



Fig 4.

Fig 2.

Fig 3.

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UNITED STATES PATENT OFFICE.

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DELIVERY APPARATUS FOR MACHINES FOR FINISHING FABRICS.

SPECIFICATION forming part of Letters Patent No. 284,323, dated September 4, 1883.

Application filed March 27, 1880. (No model.)

To all whom it may concern:

Be it known that I, ISAAC E. PALMER, of Middletown, in the county of Middlesex and State of Connecticut, have invented new and useful Improvements in Delivery Apparatus for Machines for Finishing Fabrics, of which the following is a specification.

In the operation of machines for tentering or finishing fabrics it is desirable that a surplus of the fabric be kept in reserve and arranged so as to admit of its being fed continuously to the tentering or finishing machine, to avoid the stoppage of the feed while connecting the ends of pieces of the fabric. For this purpose delivery apparatus has been employed; and my invention relates to that class of delivery apparatus which comprises a hopper or hopper-like receptacle, one side or wall of which is composed of a movable apron or belt, which by its progressive movement serves to draw the fabric through an opening at the bottom of the hopper, and the other side or wall of which is composed of a retarder or drag which rests upon the fabric. The fabric is delivered into the hopper by a cylinder or reel faster than it is drawn therefrom by the apron or belt, and that portion of the movable apron which supports the fabric after it passes through the hopper is arranged in an approximately horizontal position. The fabric is delivered into the hopper by the cylinder or reel in folds, which are arranged in an approximately horizontal position, one above another, and the retarder or drag, acting in conjunction with the movable apron or belt, serves to turn these folds over, so that the fabric is arranged upon the horizontal portion of the movable apron or belt in a succession of folds, each of which overlaps and rests upon the next succeeding fold in the rear of it.

My invention consists in the combination, with the retarder or drag, in a machine or apparatus of the kind above described, and with the frame of the machine or apparatus, of novel devices for supporting the retarder or drag, so as to permit of its automatic adjustment or movement upward and downward as the fabric passes under it, as more fully hereinafter described.

The invention also consists in a tension device of novel construction, through which the fabric is carried in its passage from the delivery apparatus, and which is hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents a longitudinal vertical section through an apparatus embodying my invention. Fig. 2 represents a horizontal section and plan on the dotted line *x x*, Fig. 1. Fig. 3 represents a modification in the construction of the retarder or drag; and Fig. 4 represents a diagram for illustrating more clearly the advantages of employing apparatus of this kind.

Similar letters of reference designate corresponding parts in all the figures.

A designates a hopper, one side of which is formed by an apron or belt, B, having a continuously-progressive movement imparted to it. This apron or belt should be arranged to travel or move in close proximity to the opening at the bottom of the hopper, and, as here represented, its principal portion is arranged to travel in an approximately horizontal direction. The other side of the said hopper is formed by a retarder or drag, C, which consists of a plate of sheet metal or other material, having its lower edge or foot, *a*, bent or rounded, so as to permit the easy passage of the fabric D under it. The retarder or drag is supported by links or bars C' C², pivoted to the frame of the apparatus, so that it rests with its weight upon the fabric D, and is self-adjusting. If desirable, the retarder or drag C may be provided at the lower edge with a roller, *b*, the periphery of which constitutes the rounded foot *a* thereof, as clearly represented in Fig. 3.

The apron B may consist of a continuous belt, or of slats *d*, connected near each end by means of flexible cords or strings *e*. As here represented, it is supported upon rollers F, and motion may be imparted to it by means of a screw, G, engaging with a worm-wheel, G', mounted on the axis of one of the rollers. H designates a shaft from which the screw G derives its movement through a belt, H', and I designates a reel carried by said shaft, and serving to deliver the fabric D from a "batch," roll, or other source to the hopper A. A roll might be substituted for the reel I; but the reel is preferably employed, as it deposits the fabric D in the hopper A in the form of approximately horizontal folds *f* with greater certainty than a roll or cylinder. As the move-

ment of the apron or belt is so much slower than that of the reel, the fabric will accumulate in folds in the hopper A. The movable apron or belt B, acting in conjunction with the retarder or drag C, gradually turns the folds *f* of the fabric over, so that the fabric rests upon the horizontal portion of the said apron or belt in a succession of folds, each of which overlaps and rests upon the fold immediately behind or succeeding it, thus enabling each fold to be lifted and fed forward without distributing the folds behind it. The advantages of this method of arranging the fabric or presenting it to the tentering or finishing machine may be readily understood by reference to Fig. 4, in which each fold is drawn out from under the succeeding folds, thereby greatly obstructing the feed of the fabric and preventing a smooth, even delivery thereof.

The tension or friction device consists of a cylinder or roller, J, over which the fabric D passes to the tentering or finishing machine, and a second cylinder or roller, K, under which the fabric passes, as clearly shown in Fig. 1. The cylinder or roller K is supported by arms K′, so that it may be swung circumferentially about the cylinder or roller J as a center, and it may be adjusted, as represented in dotted outline in Fig. 1, so that the only resistance offered to the fabric is its friction in passing over the said rollers; or it may be adjusted, as represented in full lines in said figure, so that the resistance offered to the feed of the fabric is increased by the friction of the fabric upon itself at *g*. As here represented, the roller J is provided at one end with a flange or disk, L, in which is a slot, *h*, and to which is secured one of the arms K′. *i* designates a bolt fixed in the frame-work of the machine and fitting loosely in said slot. When the tension device has been properly adjusted, the nut *j* upon the bolt *i* may be manipulated to clamp the disk or flange L upon the frame and hold the roller K in a fixed position relatively to the roller J. The roller K might, however, be made of metal or weighted, so as to gravitate downward, and when this weighted roller is employed the clamping device aforesaid may be dispensed with.

In order to enable the fabric to be straightened or adjusted upon the rollers J K at different points in its width without drawing it over said rollers, I form said rollers in sections loosely arranged upon a central spindle or shaft, and capable of rotation thereon independently of each other, as clearly shown in Fig. 2, so that different parts of the width of the fabric may move at different velocities to produce the evening of the fabric, the sides or center moving faster or slower, as may be necessary.

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

1. The combination, with the retarder or drag C and the frame of the machine or apparatus, of the links or bars C′ C², pivoted to said frame and supporting said retarder or drag, so as to permit of its automatic adjustment upward and downward, substantially as herein specified.

2. The combination, with a delivery apparatus, of a tension or friction device consisting of two rollers around and over which the fabric is passed, one of which is capable of circumferential adjustment about the other, and both of which are composed of short sections, each adapted to rotate independently of the other sections, whereby provision is afforded for the different portions of the width of the fabric moving at different velocities, substantially as herein specified.

3. The combination of the rollers J and K, the frame supporting said rollers, the slotted flange L on the roller J, and the bolt *i*, fitting in the slot in said flange and serving to secure said roller K in different positions, substantially as herein specified.

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