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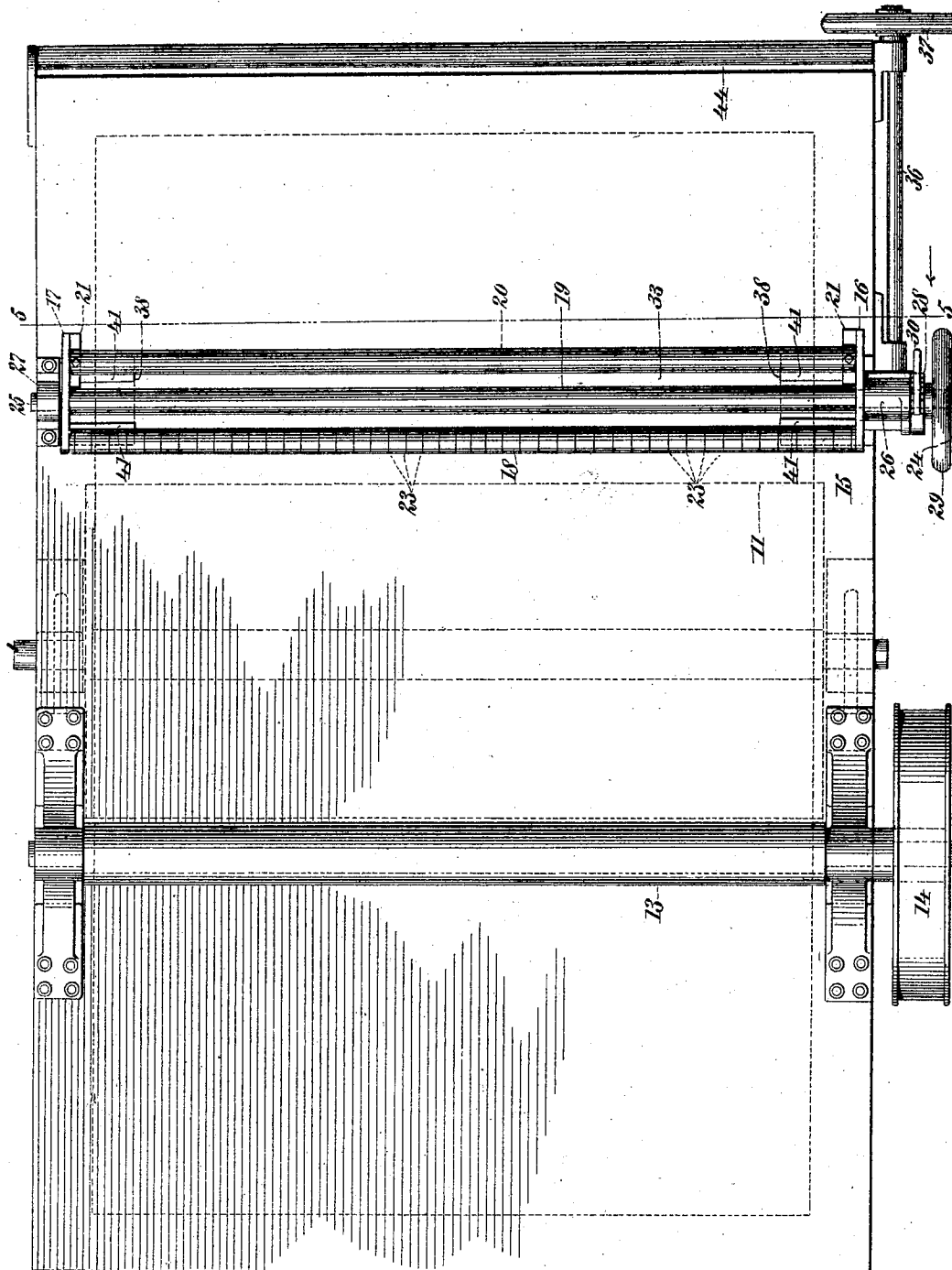
PATENTED MAR. 19, 1907.

J. A. CAMERON.

TENSION AND REGULATING MECHANISM FOR TRAVELING FABRICS.

APPLICATION FILED AUG. 2, 1905.

3 SHEETS—SHEET 1.



WITNESSES:

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Fig. 1.

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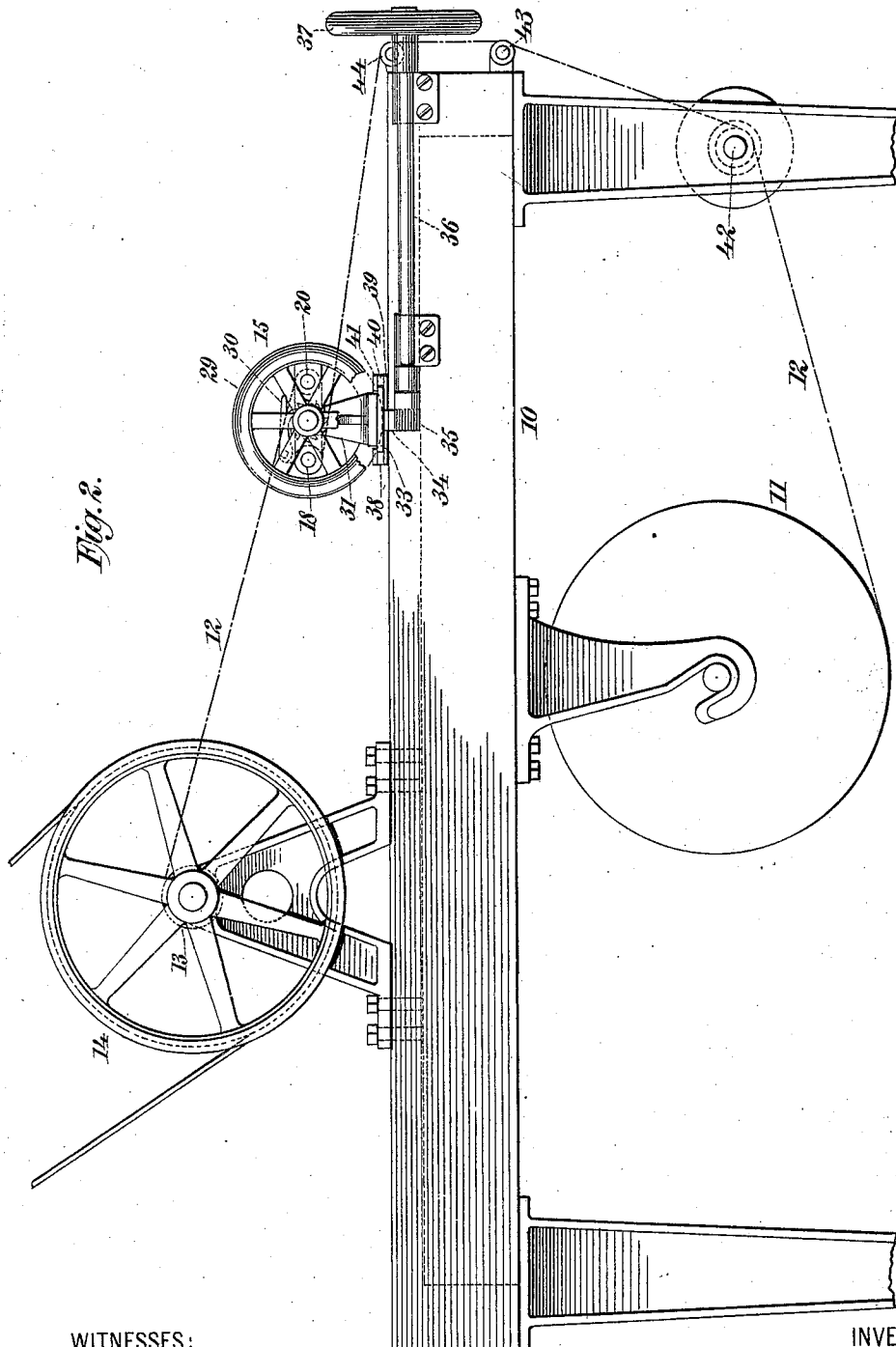
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3 SHEETS—SHEET 3.

Fig. 3.

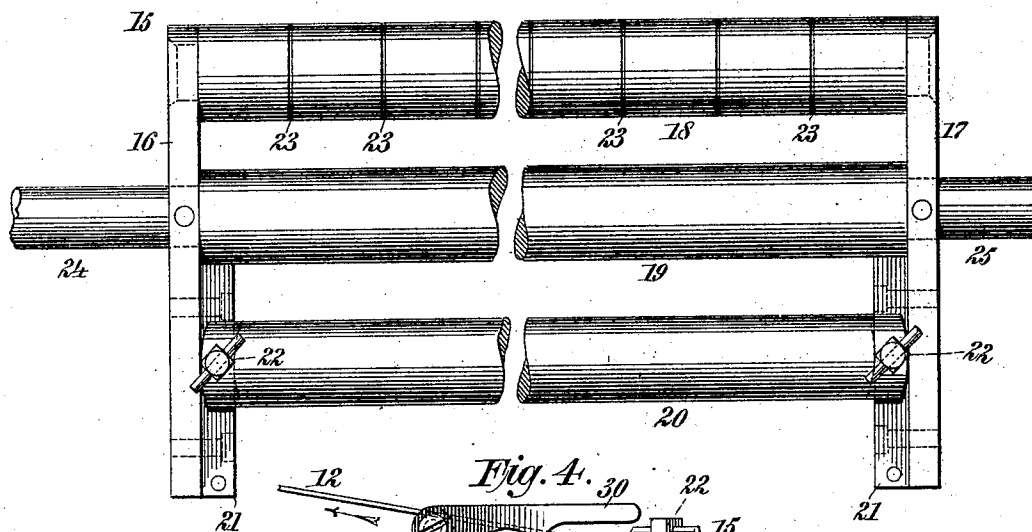


Fig. 4.

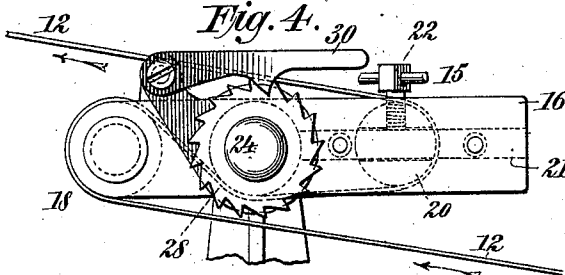
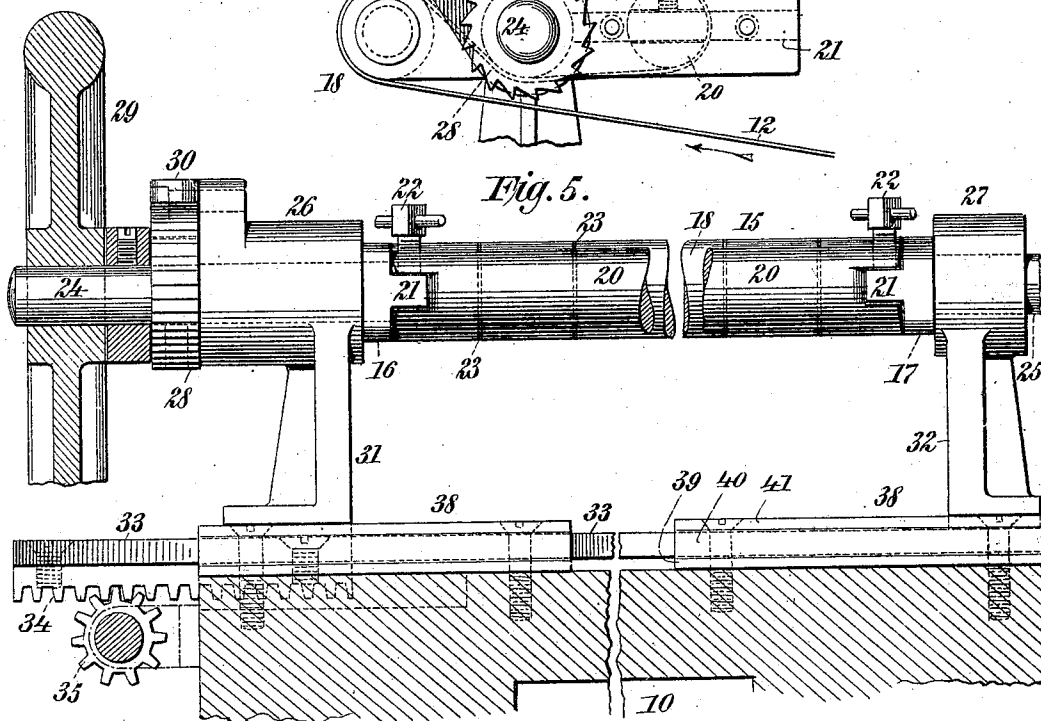


Fig. 5.



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TENSION AND REGULATING MECHANISM FOR TRAVELING FABRICS.

No. 847,315.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed August 2, 1905. Serial No. 272,299.

To all whom it may concern:

Be it known that I, JAMES A. CAMERON, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Tension and Regulating Mechanisms for Traveling Fabrics, of which the following is a specification.

The invention relates to improvements in tension and regulating mechanisms for traveling fabrics in winding, packaging, and other machines; and it consists in the novel features, arrangements, and combinations of parts hereinafter described, and particularly pointed out in the claims.

In machines in which a traveling fabric feeding from a source of supply is wound into a roll or other form, such as upon a flat board, and especially in machines in which the traveling fabric is slit into predetermined widths by blades interposed in its path intermediate such source and the winding roll or rolls, great difficulties have been experienced in keeping the fabric under proper tension and in effecting the movement of the fabric in an approximately true line, due to many causes and frequently because of conditions present in the fabric itself, such as irregularities in the weaving or in the threads, or in the selvage edges, or in the fabric having been pulled or stretched in parts or at one side.

A specimen of a machine in which the traveling fabric is intermediate a source of supply and the winding-rolls and while under tension slit into widths is shown in Letters Patent of the United States No. 697,985, granted April 22, 1902.

The purpose of the present invention is to provide adjustable tension and regulating means to engage the fabric and adapted to the varying natures and conditions of fabrics and which may be set or manipulated to assure the proper tension in and travel of the fabric.

My present invention pertains more especially, therefore, to the means for controlling the tension and travel of the fabric without regard to the other features of the machine or to the employment of same in any special machine.

I present my invention herein as embodied in a machine for winding a fabric into a roll, and the said invention will be fully understood from the detailed description herein-

after presented, reference being had to the accompanying drawings, in which—

Figure 1 is a top view of a machine constructed in accordance with and embodying the invention. Fig. 2 is a side elevation, partly broken away, of same. Fig. 3 is an enlarged top view, partly broken away, of the tension and regulating frame over which the fabric travels on its way from the source thereof to the winding-roll. Fig. 4 is an enlarged side elevation of a portion of the machine and illustrates the means for locking the tension and controlling frame in its adjusted positions; and Fig. 5 is an enlarged vertical transverse section, partly broken away, through the machine on the dotted line 5 5 of Fig. 1.

In the drawings, 10 designates a suitable machine-frame; 11, the roll from which the fabric 12 is drawn; 13, the roll upon which the fabric 12 is to be wound; 14, a driving-wheel for the winding-roll, and 15 the tension and regulating mechanism over and through which the fabric 12 is compelled to travel on its passage from the source of supply 11 to the winding-roll 13.

The frame 15 and parts immediately connected therewith are the only novel features presented, and they embody my invention. The frame 15 comprises side arms 16 17, connected by suitably-spaced cylindrical rods 18 19 20, the latter being bifurcated or grooved at its ends to pass upon flanges 21, secured to the facing sides of the arms 16 17, said rod 20 being thus rendered adjustable on the flanges 21 toward or from the rod 19 and also capable of being inclined with respect to said rod 19. The ends of the rod 20 are of convex form, as shown in Fig. 3, so that either end of the said rod may be moved to a limited extent nearer to the rod 19 than the other end thereof. The rod 20 is thus adjustable directly toward or from the rod 19 and also capable of having either end adjusted toward and from said rod, and the said rod 20 may be secured in its adjusted positions by means of set-screws 22 passing downwardly through the upper end sections of said rod and engaging the flanges 21. The rod 18 is by preference formed with a series of circumferential grooves 23, which enable the fabric to enter into a more or less locking engagement with the roller 19 and prevent thereby the fabric from shifting or creeping laterally during its traveling motion. The grooves 23 are shall-

low and do not prevent the fabric from traveling in a flat condition; but they may engage or be engaged by the natural rough surface of the fabric, so as to retard lateral motion in the latter. The rod 19 is simply a plain rod, whose ends 24 25 are of reduced diameter and project laterally beyond the arms 16 17 and are mounted in the bearings 26 27, respectively, said ends 24 25 forming centers or shafts for mounting the frame 15 in a pivotal manner, it being intended that the frame 15 may be adjusted axially on the shafts 24 25, so that said frame may stand at such inclination as may produce the proper effect on the particular fabric traveling through the machine. The shaft 25 is simply pivotally mounted in its bearing 27, while the shaft 24 projects outwardly beyond its bearing 26 and has secured upon it a ratchet-wheel 28 and hand-wheel 29, the hand-wheel being to enable the operator to readily turn the frame 15, while the ratchet-wheel 28 is provided to cooperate with a dog 30 in locking the frame 15 in its adjusted positions. The dog 30 is pivoted to the bearing 26.

The bearings 26 27 are formed at the upper ends of standards 31 32, which are secured upon a laterally-slidable bar 33, having at one end a rack-bar 34 in engagement with a pinion-wheel 35, carried by a shaft 36, which extends toward the front end of the machine, at which an operator would stand, and is provided with a hand-wheel 37. It is obvious that by turning the hand-wheel 37 the operator may shift the bar 33 laterally and that said bar will carry with it the entire adjusting-frame 15. The adjusting-frame is therefore laterally adjustable, and this is important, in that any divergence in the travel of the fabric may be corrected thereby. Should the fabric diverge from its true course and creep, for instance, toward the right, the frame 15 will be shifted laterally toward the left for the purpose, through the friction of the fabric against the rods 18, 19, and 20, of drawing the fabric from its diverging line back to its true line of travel through the machine, and when it is found that the fabric is creeping or diverging toward the left from its true line of travel the bar 33 and frame 15 will be shifted toward the right for the purpose of returning the traveling fabric to its proper course through the machine. The tension device is thus not only axially adjustable for increasing or diminishing the tension to be placed upon the traveling fabric, but it may be adjusted laterally, so as to correct any tendency of the fabric while moving through the machine to depart from its true course.

The invention is not confined to any special means for guiding the laterally-movable bar 33; but said bar may be mounted within metal housings 38, secured upon the bed of the machine, as shown in Figs. 2

and 5, these metal housings comprising a base-plate 39, sides 40, and inwardly-extending strips 41, the latter extending inwardly above the edges of the bar 33, so as to hold the bar down against the base-plate 39. The bar 33 and standards 31 32 constitute a carriage for permitting the lateral adjustment of the entire frame 15, and the bed-plate of the machine will be recessed or slotted to receive and permit the movement of the rack 34.

The fabric 12, passing from the roll 11 or other source, will travel over usual rollers 42 43, and 44 and thence pass through and over the frame 15 and thence to the winding-roller 13. As shown in Fig. 4, the fabric 12 passes below the rod 18 of the frame 15 and thence upwardly over the rear side of said rod and thence downwardly over the front of said rod and below the rods 19 and 20 and thence turns upwardly over the rod 20 and passes thence directly to the roll 13. The travel of the fabric 12 from the roll 11 to the roll 13 is continuous, due to power applied to the driving-wheel 14. The frame 15 is provided to secure the proper tension upon the traveling fabric for whatever purpose that tension might be needed, and the amount of tension to which the fabric shall be subjected may be regulated at will by axially adjusting the frame 15 upon its pivot-shafts 24 25. Should it be desired to lessen the tension on the fabric, the operator will release the dog 30 from the ratchet-wheel 28 and allow the rod 18 to assume a lower position than that shown in the drawings, and should it be desired to increase the tension on the fabric 12 the operator will by turning the hand-wheel 29 and through it the frame 15 cause the rod 18 to move upwardly and the rod 20 downwardly. The tension on the fabric may also be varied by the adjustment of the rod 20 toward and from the rod 19. Different fabrics, due to variations in texture and natural conditions, require that the tension mechanism shall be adjusted to suit their particular characteristics, and hence I provide for the axial adjustment of the frame 15 or the tilting downwardly or upwardly of the rod 18 and also for the adjustment of the rod 20 in a direction toward and from the rods 18 19. The rod 19 is desirable of employment, because it affords a bearing for the fabric traveling between the rods 18 20; but I do not regard the rod 19 as absolutely essential, since the rods 18 20 may be relied upon to create the proper tension, and they alone are adjustable, the rod 19 being on the axial center of the frame 15. The tension on the fabric when the latter is found to be stretched on one edge or is running irregularly at one edge, due to irregularities of the weaving or the formation of the selvage edges or otherwise, may also be placed under control by the adjustment of the rod 20 on a vertical axis—

that is, the adjustment of one end of the rod 20 inwardly or outwardly, as conditions may require. If a part of a length of fabric has been stretched at one edge, so that that edge of the fabric is longer than the other edge thereof, the end of the rod 20 at said longer edge of the fabric should be adjusted outwardly to meet the condition of the fabric, but without further stretching the same.

The means for compelling the fabric to travel on a true course through the machine involves, of course, the tension mechanism; but in addition the attainment of this result may be greatly facilitated by the fact that said mechanism is mounted upon a laterally-movable carriage, whereby the tension mechanism may be adjusted laterally for the purpose of compelling the fabric should it creep laterally to return to its true course through the machine, as hereinbefore explained. The adjustment of the rod 20 on a vertical axis or by moving one end of said rod inwardly toward or outwardly from the rod 19 also aids in compelling a fabric which has been stretched or is irregular at one edge to keep to its true course through the machine. The grooves 23 in the rod 18 also aid in preventing the traveling fabric from creeping laterally, said grooves creating just sufficient roughness in the rod to oppose the lateral creeping of the fabric upon said rod without retarding the onward travel of the fabric, said grooves being circumferential.

My invention consists, therefore, in novel means for regulating the tension under which the traveling fabric shall move and means cooperating with the tension mechanism for compelling the fabric to travel on a true course through the machine and is not confined to any special details of the machine in which it may be embodied.

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

1. In a machine of the character described, a tension-frame for the traveling fabric comprising the pivotally-mounted side arms, rods 18, 20 connecting said arms, means for locking said frame in its adjusted positions, means permitting the adjustment of one of said rods toward and from the other rod and also of inclining the same with respect thereto, and means for locking said adjustable rod in its given positions; substantially as set forth.

2. In a machine of the character described, a tension-frame for the traveling fabric comprising the pivotally-mounted side arms, rods 18, 20 connecting said arms and means for locking said frame in its adjusted positions, one of said rods being provided with parallel circumferential grooves to retard lateral movement in either direction of the traveling fabric, combined with a laterally-mov-

able carriage carrying said frame, and means for moving said carriage; substantially as set forth.

3. In a machine of the character described, a tension-frame for the traveling fabric comprising the side arms having the guiding-flanges on their facing edges, rods 18, 20 connecting said arms, means for pivotally mounting said frame, and means for locking said frame in its adjusted positions, said rod 20 being recessed at its ends to engage and slide upon said flanges and having set-screws for locking it in its adjusted positions; substantially as set forth.

4. In a machine of the character described, a tension-frame for the traveling fabric comprising the side arms having the guiding-flanges on their facing edges, rods 18, 20 connecting said arms, means for pivotally mounting said frame, and means for locking said frame in its adjusted positions, said rod 20 being recessed at its ends to engage and slide upon said flanges and having set-screws for locking it in its adjusted positions, and said rod 20 also being capable of being inclined with respect to said rod 18; substantially as set forth.

5. In a machine of the character described, a tension-frame for the traveling fabric comprising the side arms, rods 18, 20 connecting the same, means for pivotally mounting said frame, and means for locking said frame in its adjusted positions, combined with a laterally-movable carriage carrying said frame, and means for moving said carriage; substantially as set forth.

6. In a machine of the character described, a tension device for the traveling fabric comprising rods 18, 20, said fabric passing over the rod 18, thence between said rods and thence over the rod 20, combined with a laterally-movable carriage from which said rods are supported, and means for moving said carriage; substantially as set forth.

7. In a machine of the character described, a tension-frame for the traveling fabric comprising the side arms, rods 18, 20 connecting said arms, means pivotally mounting said frame, and means for locking said frame in its adjusted positions, one of said rods being slidably mounted on said arms so that it may be adjusted toward and from the other rod and provided with means whereby it may be locked in its adjusted positions; substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 1st day of August, A. D. 1905.

JAMES A. CAMERON.

Witnesses:

CHAS. C. GILL,
ARTHUR MARION.