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G. DURRANT

1,569,077

MEANS FOR GUIDING FABRICS INTO STENTERING AND OTHER MACHINES

Filed Oct. 14, 1924

2 Sheets-Sheet 1

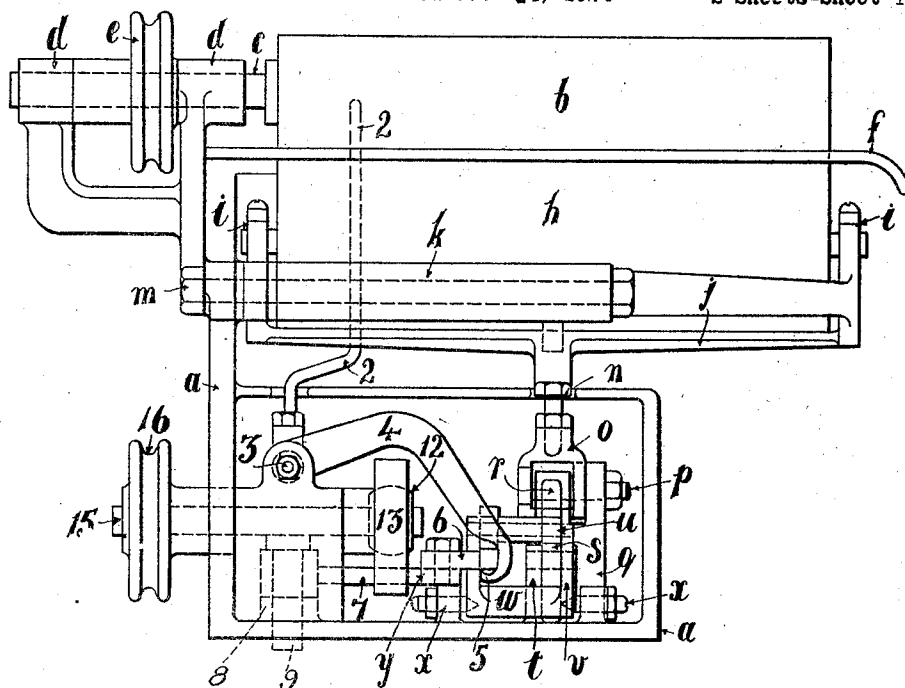
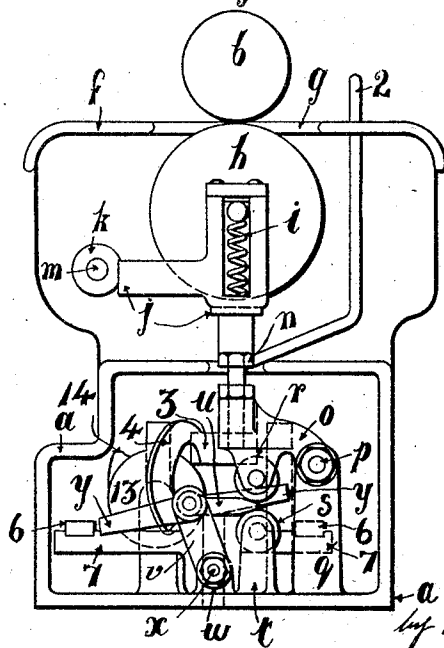


Fig. 1.

Fig. 2.



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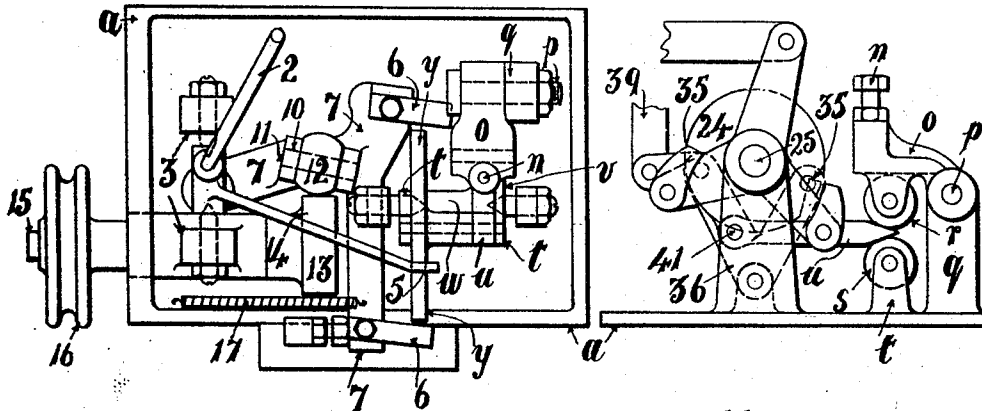


Fig. 3.

Fig. 7.

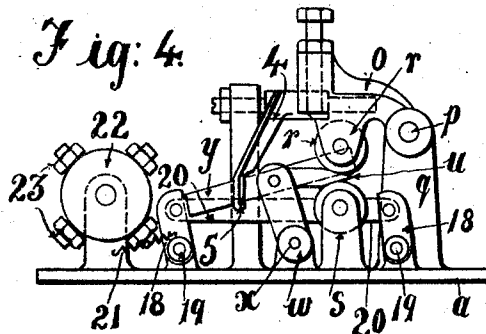


Fig. 4.

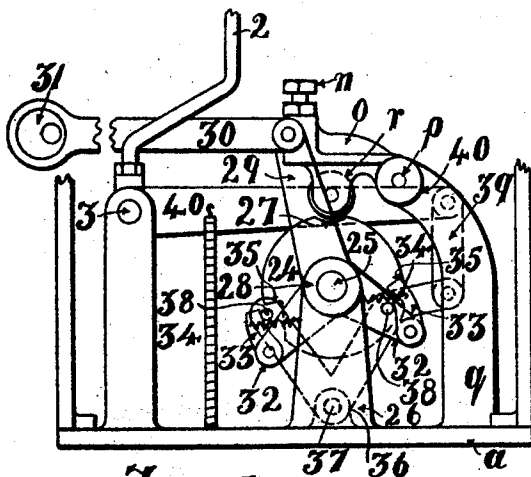


Fig. 5.

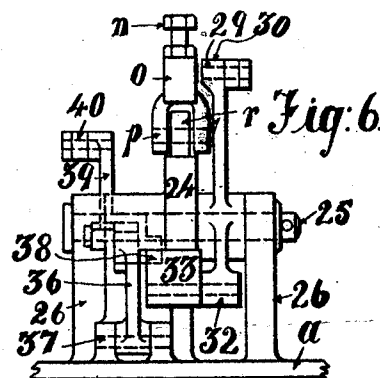


Fig. 6.

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UNITED STATES PATENT OFFICE.

GEORGE DURRANT, OF FAIRFIELD, MANCHESTER, ENGLAND.

MEANS FOR GUIDING FABRICS INTO STENTERING AND OTHER MACHINES.

Application filed October 14, 1924. Serial No. 743,542.

To all whom it may concern:

Be it known that I, GEORGE DURRANT, a subject of the King of Great Britain and Ireland, and resident of Fairfield, Manchester, in the county of Lancaster, England, have invented certain Improvements in Means for Guiding Fabrics into Stentering and Other Machines.

This invention relates to improvements in apparatus for guiding fabrics into stentering and other machines with the object of keeping such fabric in a central position as it travels forward into the machine and has reference to that type of apparatus in which a pair of rollers is employed at each longitudinal side or selvage of the fabric, such rollers having their axes at a slight angle to the weft of the fabric so that if imaginary lines were drawn through the said axes they would bisect at the centre of the fabric. In this type of apparatus one of the rollers of each pair is rotated at a constant speed whilst the other roller is free to revolve by frictional contact with the cloth but only when it is brought into contact therewith, the object of each pair of rollers being to draw the fabric away from the opposite pair when such fabric moves out of the longitudinal centre line of the machine into which it is being guided, each pair of rollers acting independently of the other pair and being brought into action by the lateral movement of the fabric itself.

In the aforesaid type of apparatus my invention consists essentially in improved means for controlling the movement of the movable roller such means consisting of a gravity or spring controlled feeler arm and intermediate mechanism adapted to operate a movable wedge or cam device designed to lift the lower guiding roller into contact with the underside of the fabric near the selvage so as to cause the pair of rollers to grip such fabric and draw it back again to the centre of the machine or from the position to which it has travelled out of the longitudinal centre line and after the fabric has again arrived at the central position to move the lower roller out of contact with the fabric until it again deviates from the centre line.

My invention will be fully described with reference to the accompanying drawing in which,

Fig. 1, is a front elevation of one form of device,

Fig. 2, elevation from the inner end of the device,

Fig. 3, plan of the apparatus below the actual guiding rollers,

Fig. 4, elevation from the inner end of the apparatus indicating modified means for actuating the lower guiding roller,

Fig. 5, similar view to Fig. 4, of a further modified means for actuating the lower guiding roller,

Fig. 6, front elevation of the means shown in Fig. 5, and Fig. 7, front elevation of still further modified means for actuating the lower guiding roller.

In all the figures of the drawings like parts are indicated by similar reference characters but my invention will be first described with reference to the apparatus shown in Figs. 1 to 3. In such figures *a* indicates a suitable base frame to support the whole of the parts of the guiding apparatus, such frame being carried by one of the side frames of the stentering or other machine. At the upper portion of the frame *a* is a roller *b* mounted upon a shaft *c* supported at one end only by bearings *d*, such shaft carrying a driving pulley or wheel *e* for giving constant rotation to the roller *b* which is located above the cloth to be guided into the stentering or other machine, the cloth resting upon a smooth plate *f* carried by the frame *a*. The plate *f* is slotted at *g* and in line with said slot is arranged a vertically movable roller *h* freely mounted in spring-controlled bearings *i*, such bearings being connected together behind the roller by a cross member *j* provided with a long bearing *k* mounted upon a stud *m* to enable the roller to be freely lifted and lowered about such stud. The cross member *j* is provided with a central boss resting upon an adjustable screw *n* by means of which the roller can be set to the required height. The screw *n* is supported in the free end of an arm *o* pivoted at *p* to an upstanding ear *q* forming part of the frame *a*, such arm *o*

supporting a free roller *r* whilst below this roller is another free roller *s* carried by the ears *t* upstanding from the frame *a*. In conjunction with the aforesaid rollers I employ means for separating them so as to lift up the lower guide roller into contact with the underside of the fabric. These means consist of an arm *u* provided with a wedge-shaped end adapted to be pushed between the rollers such arm being freely mounted on an arm *v* forming part of a lever *w* pivoted at *x* to the frame *a* such lever having another arm on which is freely mounted a double-armed lever *y* adapted to be rocked about its pivotal centre through the action of a feeler device which depends for its motion upon the movement of the cloth in a lateral direction. This feeler device consists of an upstanding arm 2 pivoted in bearings at 3 and adapted normally to bear against the selvage of the cloth. The arm overhangs its centre so that it always tends to follow the cloth when the latter moves laterally to the right but it may be assisted in the movement by a light spring. Forming part of the arm 2 is a second arm 4 which is provided with a forked end 5 to freely embrace one arm of the lever *y* so that such lever is rocked about its centre so as to depress one of its arms and raise the other so as to bring its ends alternatively into contact with adjustable projections 6 carried by a lever 7 pivoted on the stud 9 supported by a boss 8 in the machine frame, such lever 7 having an upstanding arm 10 supporting a stud 11 upon which is freely mounted a roller 12. The lever 7 is oscillated about its stud 9 by means of a disc 13 formed with a cam projection 14, such cam being fixed upon a shaft 15 driven by a pulley or wheel 16 from a suitable source. The roller 12 is kept in contact with the disc 13 by means of a spring 17.

The apparatus described acts as follows:—

So long as the cloth is passing into the stentering or other machine correctly the lower guide roller *h* is out of contact with the fabric, but when the latter moves to the right it is followed by the feeler arm 2 which causes the second arm 4 to rock the lever *y* about its pivotal centre so as to bring one of its arms in the path of the left hand projection 6 (Fig. 2) of the lever 7 and consequently as the cam projection 14 on the disc 13 comes round the projection 6 carried by the lever 7 is caused to push the lever *y* endwise so moving the lever *w* about its pivotal centre to push the wedge-shaped end of the arm *u* between the rollers *r* and *s*, lifting the roller *r* and with it the arm *o* and through the latter lifting the cross member *j* so as to bring the roller *h* into contact with the underside of the fabric. The lat-

ter is then gripped between the roller *h* and roller *b* such gripping action causing the fabric to move to the left so as to push back the feeler arm 2 as the fabric reaches its central position. The action of the feeler arm 2 rocks the lever *y* about its pivotal centre in the opposite direction and so brings its other end in the path of the other projection 6 of the lever 7 thereby rocking the lever *w* about its pivotal centre and withdrawing the wedge shaped end of the arm *u* from below the roller *r* so allowing the lower guide roller *h* to descend out of contact with the fabric.

In the modified form of device shown in Fig. 4, the movement of the wedge member *u* is carried out by different mechanism that is to say instead of moving the double armed lever *y* through the action of a pivoted lever operated by a cam disc I employ two arms 18 pivoted at 19, such arms being coupled together by a link 20 to which is connected a spring 21 which normally pulls the arms towards the left position as shown in Fig. 4. In conjunction with these arms I employ a rotating disc 22 provided with radial projections 23 for moving the arms 18 about their pivotal centres. Thus when the left hand end of the lever *y* is depressed as shown in Fig. 4, the rotation of the disc 22 forces the arms 18 towards the right, so that the left hand arm 18 comes in contact with the left hand end of the lever *y* and pushes the lever *w* about its pivotal centre so forcing the wedge member *u* between the rollers *r* and *s*. This action is caused by the initial movement of the feeler arm 2 towards the right as explained in the connection Figs. 1 to 3. When such arm is brought back to its normal position by the centering of the cloth the lever *y* is rocked in the opposite direction about its pivotal centre so bringing its right hand end in contact with the left hand arm 18. The spring 21 then pulls both arms 18 about their pivotal centres to the left so withdrawing the wedge-shaped member *u* away from the rollers *r* and *s* causing the lower guide roller *h* to descend out of contact with the fabric.

In the modified form of device shown in Figs. 5 and 6 the wedge-shaped member *u* is dispensed with and likewise the lower roller *s* and in place of such wedge-shaped member I employ a disc 24 mounted on a shaft 25 or pin, mounted in arms 26 upstanding from the frame *a*. This disc is cut away at 27, the roller *r* normally resting in the depression when the fabric is moving correctly into the machine. The disc however is capable of being turned to the right or left about its pivotal centre. To do this there is freely mounted on the latter a three-armed lever 28, the upper arm 29 of which is coupled by a link 30 with an eccentric 31,

crank pin or the like which is driven at a constant rate so as to oscillate the lever about its pivotal centre. The other two arms 32 of the lever 28 have pivoted to them
 5 pawls 33 which are normally pulled towards the pivotal centre by springs 34 so as to engage with notches 35, forming teeth, in the disc 24. Below the shaft 25 is freely
 10 pivoted a V-shaped lever 36 on centre 37, the arms of said lever having projections 38 located on the inner sides of the pawls 33. This lever 36 has one of its arms coupled by a link 39 to one end of an arm 40 forming
 15 part of the feeler arm 2. This device acts as follows:—When the feeler arm 2 moves to the right as the fabric moves out of its proper centre line the arm 40 and its coupling link 39 descend by gravity so rocking
 20 the lever 36 about its pivotal centre to the right and causing the right hand projection 38 to move the right hand pawl 33 out of the right hand notch 35 of the disc 24 against the influence of the pawl spring and at the same time causing the left hand
 25 projection 38 to allow the left hand pawl 33 to be brought into contact with the left hand notch 35 on disc 24 and as the three-armed lever 28 is constantly reciprocating the next action causes the left hand pawl to
 30 move the disc 24 clock-wise and so causing it to raise the roller *r* and consequently the arm *o* which, in turn, lifts the lower guide roller *h* into contact with the fabric with the result that the latter is pulled back to-
 35 wards the left. As the fabric reaches its central position the left hand pawl is disengaged from the disc and the right hand pawl brought into engagement so moving the disc in the opposite direction and allowing
 40 the roller *r* and arm *o* to descend, thus disengaging the guide roller *h* from the fabric.

In the further modification shown in Fig. 7, arm *o* and rollers *r* and *s* are arranged as
 45 in Figs. 1 to 3 and the separation of the rollers is carried out by wedge shaped member *u* which is pivoted on a pin 41 carried by a disc 24 mounted on a shaft 25 such disc having notches 35 in its periphery as in
 50 Figs. 5 and 6. A three armed lever as in Figs. 5 and 6 is also coupled to an eccentric or like driving device and also carries pawls which are operated as previously described. There is also used a V-shaped lever 36 as in
 55 Figs. 5 and 6 coupled in the same manner as in those figures to the feeler arm 2. This disc 24 is operated as in Figs. 5 and 6 to cause the wedge member *u* to separate the rollers *r* and *s* and move away from them
 60 in the manner previously described.

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

1. Cloth guiding apparatus, comprising a stationary driving roller, a pressure roller
 65 arranged below the driving roller, a pivoted

frame supporting the pressure roller, a pivoted lifting lever provided with an adjusting device which bears on the underside of the said frame and regulates the height of the pressure roller, a pivoted feeler which bears
 70 against one edge of the cloth, and means for automatically raising and lowering the said lifting lever controlled by the said feeler and operating to place the cloth into and
 75 out of contact with the driving roller.

2. Cloth guiding apparatus, comprising a plate for supporting the cloth provided with a slot, a driving roller arranged over the slot and provided with means for revolving
 80 it continuously, a pressure roller arranged under the said slot, a pivoted frame supporting the pressure roller, a pivoted feeler which bears against one edge of the cloth, a pivoted lifting lever provided with means
 85 for raising and lowering the pivoted frame and pressure roller, a second pivoted lever provided with projections and provided with driving mechanism for oscillating it, and a double-armed lever pivoted to the
 90 said lifting lever and controlled by the said feeler and operating to place the double-armed lever in engagement with the said projections alternately to actuate the pivoted lifting lever.

3. In mechanism for guiding fabrics into
 95 stentering and other machines characterized by a constantly driven roller above the selvage of the fabric and by a frictionally-driven roller below the selvage of the fabric the means for raising such second
 100 roller into contact with the fabric and for lowering it out of contact with the fabric comprising a feeler device pivoted so as to move laterally with the fabric, a pivoted
 105 frame carrying the lower guiding roller, a pivoted member supporting said pivoted frame, rollers carried by the pivoted member and a stationary portion of the machine frame and a wedge-shaped member adapted
 110 to be operated through the action of the feeler device to separate said rollers to force the lower guide roller into contact with the cloth and to remove said roller from the cloth by the withdrawal of the
 115 wedge-shaped member.

4. In mechanism for guiding fabrics into
 120 stentering and other machines characterized by a constantly driven roller above the selvage of the fabric and by a frictionally driven roller below the selvage of the fabric, the means for raising such second
 125 roller into contact with the fabric and for lowering it out of contact therewith consisting of a feeler device pivoted so as to move laterally with the fabric, a pivoted
 130 double-armed lever adapted to be rocked about its centre by the feeler device, a pivoted lever carrying the double-armed lever and a pivoted wedge-shaped member, a pivoted frame carrying the lower guiding

roller, a pivoted member supporting said
pivoted frame, rollers carried by the pivoted
member and a stationary portion of the ma-
chine frame respectively to co-act with the
5 wedge-shaped member, and a cam operated
lever carrying projections for moving the
double-armed lever and the lever on which

it is pivoted to force the wedge shaped
member into or out of contact with its co-
acting roller.

In testimony whereof I have hereunto set
my hand.

10

GEORGE DURRANT.