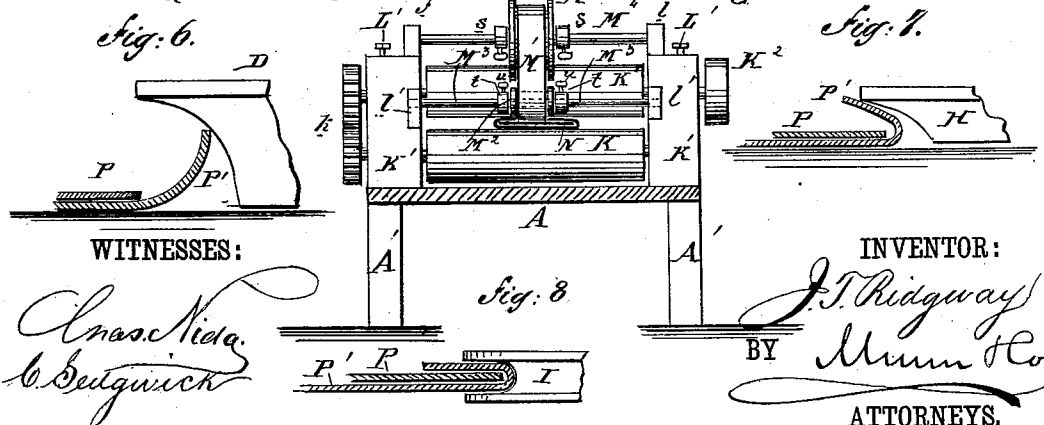
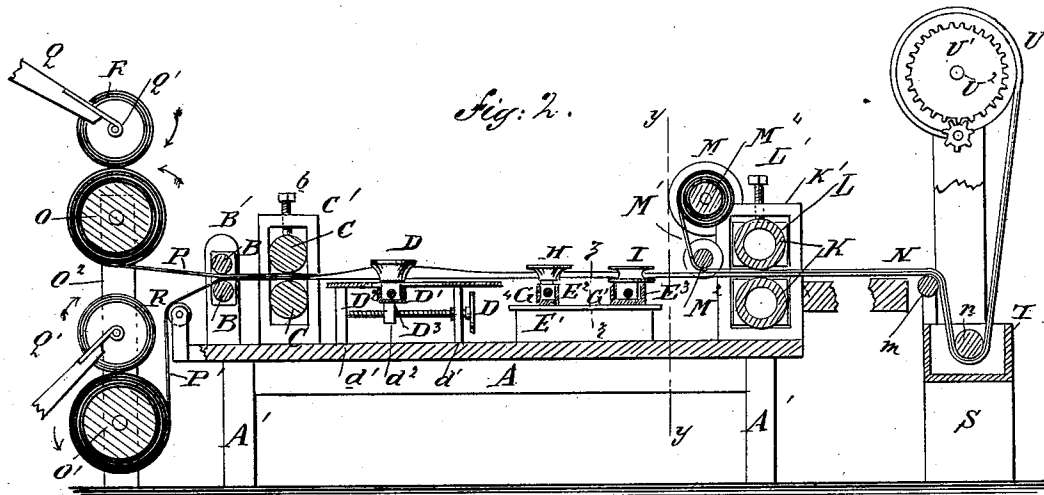


J. T. RIDGWAY.

No. 253,428.

Patented Feb. 7, 1882.



WITNESSES:

INVENTOR:

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOSEPH T. RIDGWAY, OF TRENTON, NEW JERSEY.

MACHINE FOR MAKING RUBBER BELTING.

SPECIFICATION forming part of Letters Patent No. 253,428, dated February 7, 1882.

Application filed July 30, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH T. RIDGWAY, of Trenton, in the county of Mercer and State of New Jersey, have invented a new and Improved Machine for Making Rubber Belting, of which the following is a full, clear, and exact specification.

The object of this invention is to provide a more simple device for folding the covering over and upon the center of the belt—a device that is readily adjustable to belts of any width, and that folds the covering upon the belt-center more smoothly than do other devices now in use, and without distorting or injuring the covering.

The invention consists in the combination, with the bed-plate and the grooved or flanged rollers, of open frames, sliding blocks, and screws, whereby each roller is adapted to have an independent adjustment; in the combination, with the bed-plate and the open frames provided with lugs on their bottoms, of the sliding blocks, the flanged rollers, and screws, whereby the rollers can be adjusted to or from each other, or lengthwise of the bed; in the combination, with the bed-plate and the flanged roller, of the open frame provided with lugs on its bottom and the screw, whereby the said roller is adapted to be adjusted lengthwise of the bed; in the combination, with the standards provided with brackets, of the spool and its shaft and the adjustable guide-roll and its shaft; and in the combination, with the rolls carrying the stock and covering, of the hinged arms and the pressure-rollers, all as hereinafter fully described.

Figure 1 is a plan of the machine with my improvements attached. Fig. 2 is a longitudinal vertical section of the same on line *x x*, Fig. 1. Fig. 3 is a vertical transverse section on line *y y*, Fig. 2. Fig. 4 is an enlarged side elevation of the frame carrying some of the laterally-adjustable wheels or rolls. Fig. 5 is a cross-section of the same on line *z z*, Fig. 2. Figs. 6, 7, and 8 are enlarged elevations of portions of the grooved wheels or rolls, showing their application in the manufacture of the belt.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents the bed of the machine, supported on suitable legs, A' A'.

Fixed upon the bed A, near the front end thereof, are vertical standards B' B', supporting transverse parallel shafts B, that are provided with adjustable gages *a a*, for guiding the center and cover of the belt that is in the process of manufacture, said gages *a a* being held in adjusted positions by set-screws *a' a'*. A little in rear of the gages *a a* are standards C' C', fixed on either side of the bed-plate A, and having journaled in them the pressure-rollers C C, the upper one of which is vertically adjustable by means of set-screws *b b*, for pressing or setting the center of the belt that is being operated on upon the cover thereof. A little in rear of the rollers C C a rectangular open frame, D', is secured across the bed A, supporting sliding blocks D², in which are journaled on upright studs *c c* the wheels, rolls, or sheaves D, against which the edges of the belt-cover are drawn as the belt is passed through the machine, and by which the said cover edges are turned upward and inward, as indicated in Fig. 6. Through said blocks D² is passed a transverse right-and-left screw, D³, whose ends are journaled in the ends of the frame D', and whose squared extremities *d* project beyond the said frame ends, for the convenience of applying a wrench by which said screw D³ may be turned, and thereby the rolls or sheaves D be made to approach to or recede from each other. Said frame D' is also adjustable lengthwise of the machine-bed A by means of a screw, D⁴, that passes through the standards *d' d'* on the bed A and through a screw-threaded lug, *d*², depending from the frame D', the intention being to adjust at will this frame D' and its attached sheaves D relatively to the other rolls or sheaves on the machine.

In rear of the rolls or sheaves D a rectangular frame, E', is rigidly secured on the bed A, supporting two parallel rectangular open frames, E² E³, that extend across said bed A, and respectively support the right and left screws F F', that are journaled in their ends, and that respectively carry the traveling blocks G G' between the sides of the said frames E² E³. The said screws F F' have squared projecting ends *ff*, for the application of a wrench, and the blocks G G' are respectively provided with upward-projecting studs *g h*.

On the studs *g* of the blocks *G* are journaled the rolls or sheaves *H*, that serve to turn the belt-cover edges inward and downward still more upon the belt that is being operated upon, said sheaves *H* being adjustable to and from each other to suit any width of belt by means of the screw *F*.

On the studs *h* of the blocks *G'* are journaled the deeply-grooved double-flanged sheaves or rolls *I*, that are adjustable in the same manner as the rolls or sheaves *H*; and said sheaves *I* are designed to press the belt-cover still more closely down upon the belt that is being operated upon, so that the edges of the cover shall meet, or nearly so, along the central line of the belt.

It will be seen in Fig. 6 that the sheaves *D* stand at a higher elevation than the sheaves *H* *I*, and have shallow curves that are designed to give the first turn or inclination to the belt-cover, while the sheaves *H*, as shown in Fig. 7, are at a lower elevation, and have deeper curves than sheaves *D*, whereby the belt-cover is more thoroughly drawn over the edges and pressed on the face of the belt, and the sheaves *I*, as shown in Fig. 8, are deeply grooved and doubly flanged for the purpose of completing the work of drawing the cover over the belt edges and pressing it down on the face thereof. Thus it will be seen that these rolls, wheels, or sheaves *D* *H* *I* serve as a substitute for the shoe that has been sometimes used in rubber-belting machines for folding the belt-cover upon the belt-center, and as they offer a rolling friction to the said cover the finished belt is not abraded nor blistered along its edges, as are those upon which the shoe is used. Another advantage of this device over the shoe for this purpose is that these sheaves or rolls can be readily adjusted with any desired pressure against belts of any width, whereas a shoe of different width has to be fixed upon the machine for every change in width of belt.

In standards *K'*, fixed on the bed *A*, are journaled the calender-rolls *K* *K*, geared together, as shown at *k*, and provided with a pulley, *K*², for connection with power. The upper roll, *K*, is fitted in sliding blocks *L*, adjustable by a screw, *L'*, so that the desired pressure may be obtained on the belt passing between them.

In front of the calender-rolls *K* *K*, and journaled on a shaft, *M*¹, in brackets *l*, extending from the standards *K'*, is the spool *M*, carrying the strip, *M'*, of material for covering the seam of the belt *N*, and this strip *M'* passes down over a flanged guide-roll, *M*², that revolves on a shaft, *M*³, which is journaled in brackets *l'*, extending from the standards *K'*, so that said strip *M'* may be guided and delivered along the center of the belt *N*, as desired.

The spool *M* is held in place and is longitudinally adjustable by means of collars and screws *s*, and the guide-roll *M*² is held in place and is adjustable by means of collars and screws *t* *u*, respectively.

In front of the bed *A* are fitted standards *O*², which support the rolls *O* *O'*, the upper roll, *O*, carrying the stock *P* for the center of the belt, and the roll *O'* carrying the belt-covering *P'*.

Q *Q* are hinged arms, carrying rollers *Q'* *Q'*, that rest on the stock on the rolls *O* *O'*, for the purpose of taking off or unwinding the lining or cloth *R* from said stock as it is drawn off. At the opposite end of the machine-bed *A*, and supported on standards *S*, is a box, *T*, for containing powdered soapstone, for preventing the rolls or folds of the belt *N* from sticking together as it is rolled up. The belt *N*, moving through the calender-rolls *K* *K* and over the end of the machine-bed *A*, passes over a roll, *m*, and down into the soapstone (not shown) contained in the box *T* beneath a roll, *n*, fitted within said box *T*. Thence the belt *N* passes up around the winding-roller *U*, that is driven by gearing *U'* from a shaft, *U*², that will be connected to power. In the operation the ends of the belt-center *P* and covering *P'* are first attached to the winding-roller *U*, and are caused to pass from the rolls *O* *O'* between the guides *a* *a* and pressure-rollers *C* *C* by the revolution of the said winding-roller. The lining or cloth *R* on the stock, being first caught on the rollers *Q'* *Q'*, is taken up thereafter automatically as the stock *P* *P'* pays off, and the hinged arms *Q* *Q* allow the rollers *Q'* *Q'* to rise as they increase in size. The outer guides *a* direct the covering *P'*, while the inner guides *a* retain the belt-center *P* properly in position until it is pressed or set by the rollers *C* *C*. The belt then passes over the machine-bed *A* between the sheaves or rolls *D* *H* *I*, successively, whereby the cover *P'* is folded over the edges of the center *P* and down upon the face thereof, the edges of said cover *P'* being thereby brought closely together, as shown in Fig. 1. The strip *M'* from the spool *M* passes down over the guide-roll *M*² upon the belt-seam, as shown in Figs. 1 and 3, and the belt *N* then passes between the calendering-rolls *K* *K*, which press the materials closely together and smooth the surfaces. The belt *N* is covered with soapstone as it passes through the box *T*, so that when wound on roller *U* it is ready to be vulcanized.

I am aware that adjustable flanged or grooved rollers have been used for folding the covering over the stock, and therefore do not claim such, broadly; but

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

1. In a machine for making rubber belting, the combination, with the bed-plate *A* and the grooved or flanged rollers *D* *H* *I*, of the open frames *D'* *E*² *E*³, the sliding blocks *D*² *G* *G'*, and screws *D*³ *F* *F'*, whereby each roller is adapted to have an independent adjustment, substantially as and for the purpose set forth.

2. In a machine for making rubber belting, the combination, with the bed-plate *A* and the open frames *D'*, provided with the lugs *d*², of

the blocks D^2 , rollers D , and screws D^3 D^4 , whereby the said rollers can be adjusted to or from each other or lengthwise of the bed, substantially as and for the purpose set forth.

5 3. In a machine for making rubber belting, the combination, with the bed-plate A and the roller D , of the frame D' , provided with the lug d^2 and the screw D^4 , whereby the said roller is adapted to be adjusted lengthwise of the
10 said bed, substantially as set forth.

4. In a machine for making rubber belting, the combination, with the standards K' , provided with brackets l l' , of the shaft M^4 , the

adjustable spool M , shaft M^3 , and adjustable flanged guide-roll M^2 , substantially as and for 15 the purpose set forth.

5. In a machine for making rubber belting, the combination, with the roll O , carrying the stock, and the roll O' , carrying the covering, of the hinged arms Q and the rollers Q' , sub- 20 stantially as and for the purpose set forth.

JOSEPH T. RIDGWAY.

Witnesses:

THEO. C. MAPLE,
I. F. RICHER.