(No Model.) 2 Sheets—Sheet 1.

E. BROWN.

MECHANISM FOR MAKING BELTS, &c.

No. 279,219. Patented June 12, 1883.

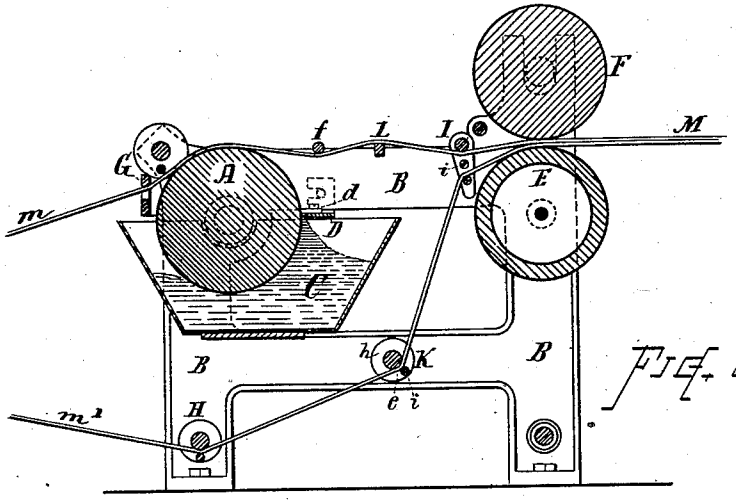

Fig. 2.

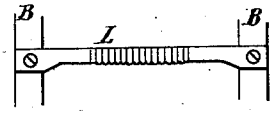

Fig. 3.

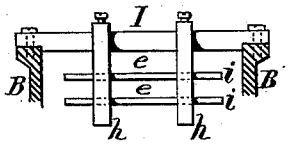

Fig. 4.

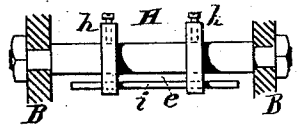

Fig. 5.

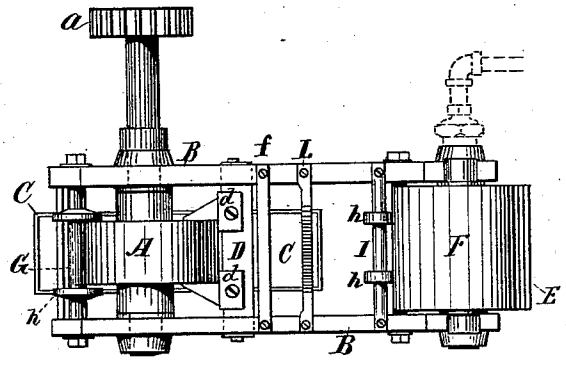

Fig. 1.

Witnesses—

Austin W. Mathews

Chas D. Gay.

Inventor—

Edwin Brown

By Chas. H. Burleigh

Atty

(No Model.) 2 Sheets—Sheet 2.

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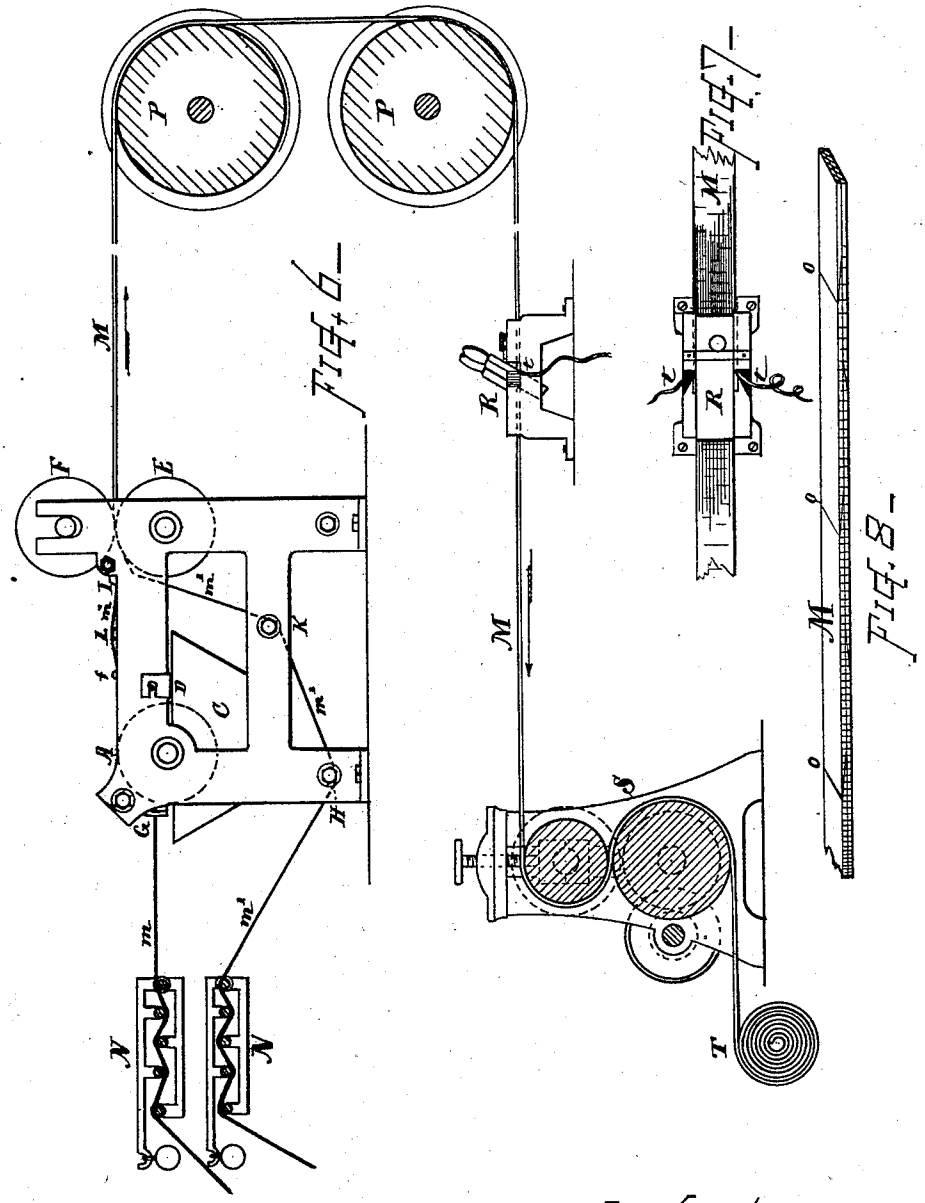

Fig. 6.

Fig. 7.

Fig. 8.

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UNITED STATES PATENT OFFICE.

EDWIN BROWN, OF WORCESTER, MASSACHUSETTS.

MECHANISM FOR MAKING BELTS, &c.

SPECIFICATION forming part of Letters Patent No. 279,219, dated June 12, 1883.

Application filed March 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, EDWIN BROWN, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Mechanism for Cementing and Doubling Card-Clothing Fillets or Belts; and I declare the following to be a description of my said invention sufficiently full, clear, and exact to enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

The objects of my present invention, which relates to the practical, convenient, and economical production of doubled belts or card-fillets in which to set the teeth for making card-clothing, are to provide a simple and desirable mechanism for uniformly and rapidly laying and cementing together separate plies or strips of leather or material to form a single belt or fillet of any desired length, and afford facilities for the continuous doubling, cementing, and finishing of doubled fillets or belts. These objects I attain by mechanism substantially such as illustrated or organized for operation as described, the particular subject-matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a plan view of my improved machine for doubling and cementing fillets or belts. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a top view, on larger scale, of the scraper for removing surplus cement. Figs. 4 and 5 are front views of the adjustable guides. Fig. 6 shows arrangement of mechanism for doubling, trimming, and finishing fillets or belts by continuous process. Fig. 7 is a plan view of an edge-trimming device. Fig. 8 is a view of a piece of doubled fillet or belt such as produced by the means hereinafter described.

My improved cementing and doubling mechanism is constructed of the following-named parts, arranged for operation in the manner set forth.

A denotes the roll for applying the cement. It is mounted in bearings on a suitable frame, B, and is provided with a driving pulley or gear, *a*, for effecting its revolution. The lower side of the roll A runs in a pan or reservoir, C, that contains the glue or other suitable cementing material, which may be liquefied or heated by a suitable burner or lamp placed underneath the reservoir C. A scraper or clearing-bar D, is arranged in connection with the roll A, for removing surplus cement from the face and sides of said roll. Adjustable plates *d* are arranged on said scraper-bar, by means of which the width of the cemented surface and the quantity of cement applied can be regulated according to the requirements of the work.

E indicates a roll mounted at the opposite end of frame B, which serves as a bed for the pressure-roll F, retained in slotted bearings above the roll E in a manner to permit of its pressing on the material as it passes between the rolls. Roll E may be made hollow and be fitted with steam-connection for heating it from the interior; or it can be made solid, as preferred.

Guides G H I K are arranged, as shown, for directing the strips that form the belt or fillet into and through the machine. The course is indicated in the drawings. Said guides are made, as shown in Figs. 4 and 5, with laterally-adjustable side disks or pieces, *h*, which can be moved toward or from each other to accommodate different widths of belt, and with bars *i* to inclose the spaces *e* for the belts. Guide I is made with two spaces, *e e*, for the passage of the strips of material *m m'* and to bring them uniformly together between the pressing-rolls E F.

A scraper-bar, L, is provided between the rolls A and E for spreading or leveling the cement and clearing off any surplus from the surface of the belt *m*. This scraper may be made with a corrugated edge, as shown in Fig. 4, so as to work the surface in fine ridges. A guide-bar, *f*, serves for retaining the belt down upon the scraper L and roll A.

The two bands of material *m m'* are entered into the machine at the different guides G and H, one passing over the roll A and scraper L to the guide I and pressing-rolls E F, the other passing beneath the reservoir C, through the guide K, and thence to the guide I and pressing-rolls E F. The roll A revolves in opposite direction to the movement of the strip *m*, so that the cement brought up by the roll is wiped off from the roll-face onto the belt-strip *m*.

This is then more evenly and uniformly spread by the bar L, and the two strips *m* and *m'* are brought together at the guide I, and the cemented surface of the strip *m* is pressed firmly to the strip *m'* by the action of the rolls E F, causing the two strips to unite and form the belt or fillet M.

In Fig. 6 is shown an arrangement of mechanism for making and finishing doubled fillets or belts by my continuous process. These belts or fillets may be made from short thin pieces of stock, such as are useless for the purposes of card-setting, except when doubled and cemented together; and to render the operation of doubling, cementing, and finishing sufficiently rapid, convenient, and economic for practical purposes, I have devised the within-described method of manufacture. The stock is split to a uniform thickness of about one-half the required thickness of the finished belt. It is cut into strips the required width and the ends scarfed to make the lateral joints *o*. The scarfed ends of these short pieces are cemented together to form the long strips *m m'*. These strips are passed between series of bars N, or devices for giving friction or tension on the strips *m m'*, which are then drawn into and through the doubling and cementing apparatus, where the two strips *m m'* are united, in the manner hereinbefore described, to form the doubled card-fillet or belt M. The parts are placed together, so that the grain-surface of the leather will be outward at both sides of the belt. The belt or piece M is, after leaving the pressing-rolls E F, carried for a sufficient distance to permit the cement to set or harden sufficiently to withstand the subsequent operations, it being supported by drums P or other suitable devices. It is then passed through an edge-trimming device, R, which trims and evens both the edges, as at *t t*, and reduces the fillet to the required width. It is then passed through a set of polishing-rolls, S, which smooth off and finish the surfaces, after which it is rolled into coils T, of any desired size, and is ready for use.

The process is continuous, and the successively-described operations are simultaneously performed as the belt or fillet moves forward with a continuous motion.

The mechanism used for trimming the edges may be of any suitable construction that will effect the desired result as the belt moves forward. The polishing-rolls R may also be of any suitable form adapted for the purpose, as I do not claim the details of construction of said trimming and polishing mechanism.

The cementing and doubling mechanism may, if desired, be employed separate from the other devices, and may be used for making machinery belts as well as for card-filleting.

Among the advantages incident to my invention it may be mentioned that the doubling can be performed more rapidly than by the ordinary methods, the cement or glue is spread more uniformly and thoroughly on the surfaces, and the two pieces are therefore caused to adhere to each other with greater tenacity, while a less quantity of cement is required for a given quantity of stock than in ordinary cases, thus making a saving of about twenty-five per cent. in the cost of cement. Another advantage accruing from the use of less cement is that the fillet or belt has a more uniform pliability, and is better adapted for use than when the cement has been spread on with a brush. The doubling, cementing, and finishing can by my process and mechanism be done with less labor, trouble, and expense, while a handsomer and more perfect product results than by the means heretofore in use for doubling, cementing, and finishing fillets or belting.

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

1. A mechanism for doubling and cementing fillets or belts, consisting of a roll for applying the cement, a spreading bar or device for leveling off the surface and removing surplus cement, a pair of pressing-rolls, and guides for separately directing the strips of material into the machine, and guiding them together between the pressing-rolls, substantially in the manner set forth.

2. In a machine for cementing fillets or belts, the combination of the reservoir C, the roll A, the adjustable clearer-plate D, and the guides G, *f*, and I, substantially as shown and described.

3. In a machine for doubling and cementing fillets or belts, the combination of the roll A, reservoir C, clearer-plate D, leveling-scraper L, presser-rolls E F, and a series of guides for directing the strips of material into and through the machine, substantially as and for the purpose set forth.

4. In a machine for doubling and cementing fillets or belts, the combination, with the cement-applying roll A and pressing-rolls E F, of guides having laterally-adjustable side plates, substantially as and for the purpose set forth.

Witness my hand this 21st day of March, A. D. 1883.

EDWIN BROWN.

Witnesses:
CHAS. H. BURLEIGH,
EDW. R. GATES.