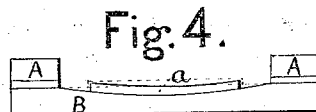
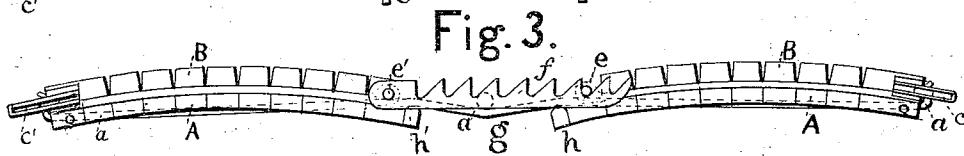
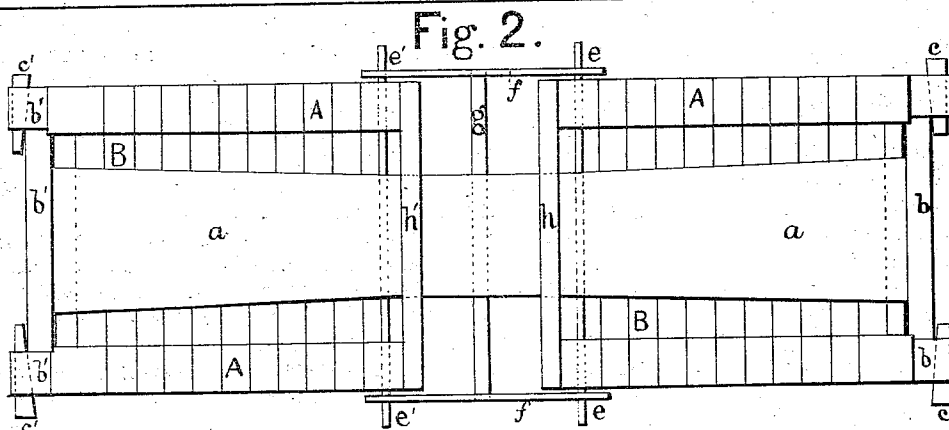
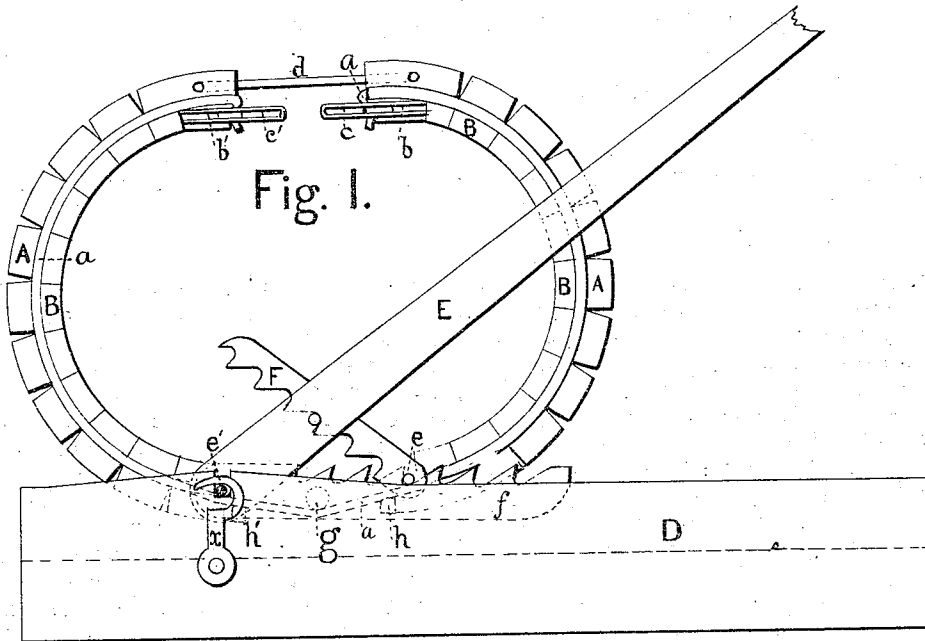


G. E. BURT.
Belt-Stretchers.

No. 153,152.

Patented July 21, 1874.



Witnesses:

E. A. Hildreth.
S. B. Hildreth

Inventor:

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UNITED STATES PATENT OFFICE.

GEORGE E. BURT, OF HARVARD, MASSACHUSETTS.

IMPROVEMENT IN BELT-STRETCHERS.

Specification forming part of Letters Patent No. **153,152**, dated July 21, 1874; application filed January 23, 1873.

To all whom it may concern :

Be it known that I, GEORGE E. BURT, of Harvard, in the county of Worcester and State of Massachusetts, have invented an Improved Belt-Stretcher, or machine for stretching the leather designed for belts, of which the following is a specification :

In making leather belting the leather is cut into strips of any desirable width, and these strips are usually stretched, before making them up into belts, by soaking them with water, then stretching them, and allowing them to dry on the stretchers. If the leather is not thoroughly stretched in all its parts before being made up into belts the belts will stretch when put to work, and will often stretch crooked. The usual way has been to stretch the leather strips between two jaws, one fastened on each end of the leather, and the strain applied by a direct pull or push on these jaws, all parts of the leather strips being subjected to the same strain. The part of the leather near the center is always thicker and more firm than that over the shoulders and neck ; and when the leather is stretched by the above-mentioned direct strain on all its parts, it, of course, gives or yields mostly in the thin and weaker parts, which are usually near the ends, but more particularly the neck and shoulders, so that the thicker and firmer parts are imperfectly stretched, and are liable to stretch in length, and crooked, when put to work running over pulleys. It is desirable to stretch the thick parts more ; but by the methods heretofore employed this could not be done without employing so much force as to injure the thin and spongy parts of the leather.

The object of my invention is to construct a more perfect stretcher, which shall enable the operator to stretch this thick part of the leather harder than the thin part, thereby gaining length of belt, and giving a more permanent belt, and not injuring the thinner or weaker part of the leather. The nature of my invention is such that with my improved stretcher I can stretch the thick and firm part of the leather, which is usually the central portion of the strips, with great force, while one or both ends, if thin, can, in a greater or less degree, be relieved from the strain to which the central part is subjected,

as may be found necessary. In stretching the leather by the methods usually employed heretofore, when the strain is applied the strips tend to curl and wrinkle, which requires the operator to put under, at various places, supports to keep the leather straight and smooth ; but this only imperfectly accomplishes the object. In my improved stretcher the sections of the stretcher itself form a continuous support for the leather, so as to keep it smooth and even while stretching, thus requiring no extra supports to be put in by the operator. For wide belts these supports are made curving or hollow, so as to stretch the edges of the strips more than the center. This causes the belt to run more perfectly on the center of the pulleys, as the center of the belt is thus made tightest.

Figure 1 is a side view of one form in which my improved stretcher can be made, including a frame and rack for applying the stretching force. Fig. 2 is a top view of the stretcher or frame-work for holding the leather after being removed from the frame D, and straightened out as when ready to be packed away to dry. Fig. 3 is a side view of the same parts as shown in Fig. 2. Fig. 4 is a cross-view taken between any of the joints of the stretcher, and showing the sections B curved.

When it is desired to stretch a piece of leather, one end of the piece *a* is placed in the clamp *b*, which is closed by the wedge *c*. The other end of the piece is also placed in the clamp *b'* on the other portion of the stretcher. The two ends of the stretcher are then brought around and are fastened together by the links *d*, as shown in Fig. 1. The two ends of the stretcher are composed of sections B B, either straight or curved, as shown in Fig. 4, with blocks A held in a flexible-jointed frame so constructed that the ends can be brought into the position shown in Fig. 1, or into that shown in Figs. 2 and 3. When the ends of the stretcher are connected, as in Fig. 1, and held by the hooks *d*, the rods *e* and *e'* are held apart by the rack *f*, and by forcing the rods *e* *e'* apart from each other a strain is brought on the leather *a*. This is done in the base D by manipulating the levers E and auxiliary rack F, the hooks *x* holding the rod *e'* in place on the base D. When the rods *e* *e'* are

forced apart the portion of leather between them, which is the thickest and firmest portion of the strip, is stretched with great force, while the two ends, which are thinner and weaker, are supported on the curved sections B of the stretcher, and the friction of the leather on the curved platform B prevents the thin ends from receiving so much strain as the portion of leather between the two sections, the strain being gradually diminished toward each end; and the section-pieces B B, the rods *e e'*, brace-rod *g*, and frame-braces *h h'* hold the leather smooth and straight while stretching. When the leather is stretched out to dry, the brace-bars *h h'* rest on the face of the leather, holding the stretcher firmly in place so that it can be handled, making the whole sufficiently rigid to be packed away to dry. These cross-bars *h h'*, if concave, will assist in giving the desired shape to the leather when the edges are to be stretched the most; if straight, they will assist in holding the leather in a plane suitable for cutting up into narrow belts. If desired, only one support may be used for the thinner end to wrap around, and that need not extend the whole length of the thin end, but can bear against it at any desired point to relieve the strain from that point to the end. When the stretcher is brought into the position shown in Figs. 2 and 3, by removing the hooks *d* the tension of the leather remains the same, by reason of the blocks A and brace-rod *g* and brace-bars *h* and *h'*. The leather then stands off from the sections B, thus allowing a free circulation of air on both sides of the leather to dry it more quickly. The sections B B and braces *h h'* may be made straight or hollowing, as shown in Fig. 4, in which latter case the leather would be stretched more on the edges than in the center, which would make the belt tighter in the center, and thus run more perfectly on the pulleys, especially if they are turned with straight surfaces. These curved supports are especially designed for wide belts, but for

leather to be cut up into narrow belts the straight supports should be used. After the ends of the stretcher are straightened out so as to bring the bars *h h'* against the leather, the central and thick portion of the leather can also be subjected to a greater strain than the other portions by carrying one or both ends on to form an angle with the central portion or with the other end of the stretcher. Thus the leather will be wrapped around the bar *h* or *h'*, or both, which bars, turning with the end of the stretcher to which they are attached, stretch the leather beyond the bar, while the leather between the bar and the clamp, on the end to which the bar is attached, is only stretched so much as the leather may slip on the bar *h* or *h'*. By this operation either end of the leather can be stretched more than the other end by carrying one end only of the stretcher beyond the position where the leather comes against its cross-bar *h* or *h'*.

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

1. In combination with the main frame and clamps of the belt-stretcher, the cross piece or pieces B, so arranged as to retard the leather by friction and cause it to be stretched most in its thickest part.

2. The combination of the main frame of the belt-stretcher with the curved supports B B and *h h'*, substantially as shown, and for the purpose set forth.

3. The combination of the hand-levers E and auxiliary rack F with the main rack *f*, for forcing the two divisions of the belt-stretcher apart, substantially as described.

4. The concave supports B B to stretch the edges of the belt more than the center, substantially as described, for the purpose set forth.

GEORGE E. BURT.

Witnesses:

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