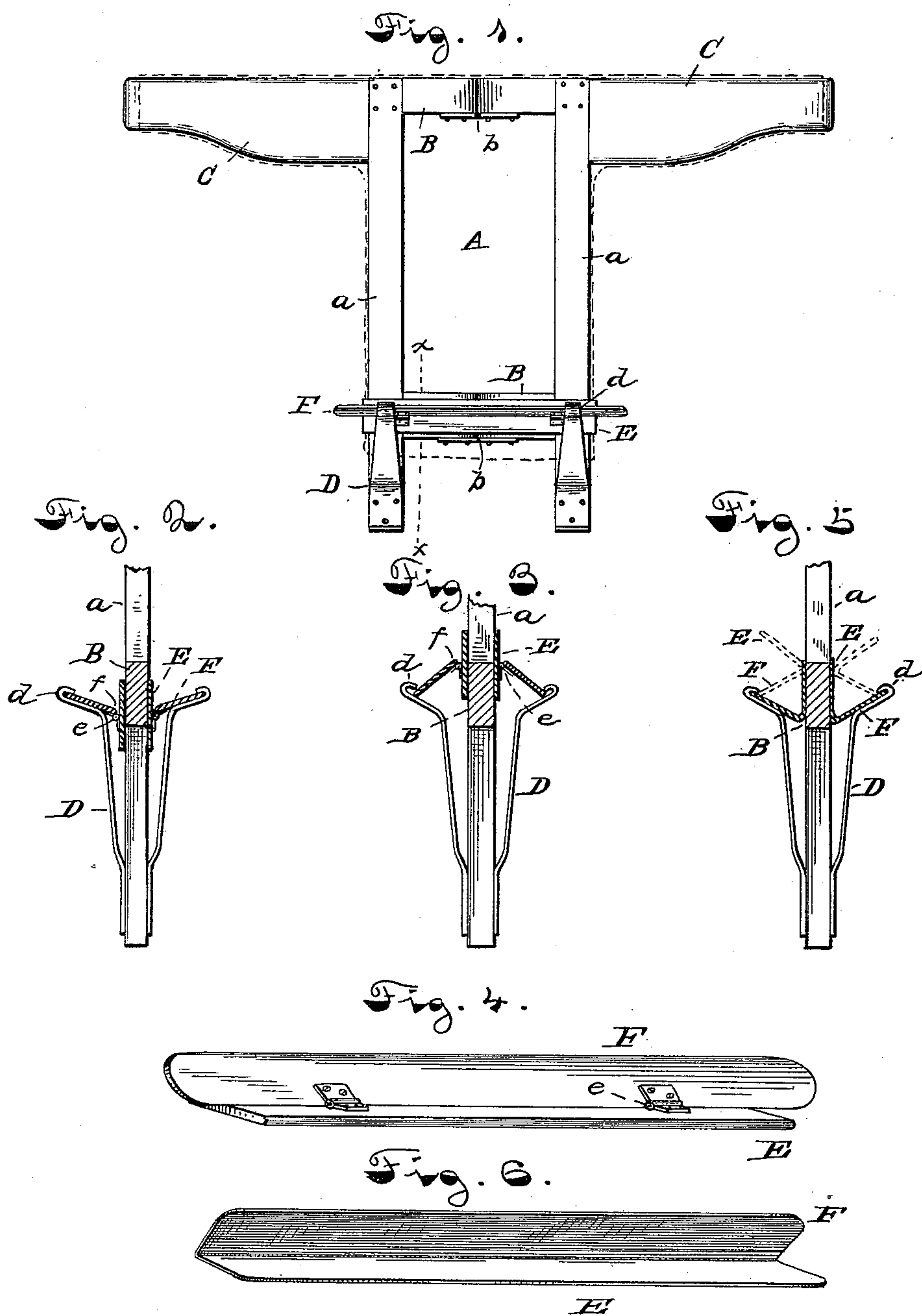


(No Model.)

G. COOPER.
SHIRT STRETCHER.

No. 403,737.

Patented May 21 1889.



Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE COOPER, OF BENNINGTON, VERMONT, ASSIGNOR OF ONE-HALF TO
CHARLES COOPER, OF SAME PLACE.

SHIRT-STRETCHER.

SPECIFICATION forming part of Letters Patent No. 403,737, dated May 21, 1889.

Application filed March 28, 1889. Serial No. 305,084. (No model.)

To all whom it may concern:

Be it known that I, GEORGE COOPER, a citizen of the United States, residing at Bennington, in the county of Bennington and State of Vermont, have invented certain new and useful Improvements in Shirt Stretchers and Formers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will 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 part of this specification.

In the process of finishing all classes of knit goods it is important to the dealer that they be presented in the most attractive shape and of uniform length when they are placed upon the market for sale; and with this end in view my invention relates to that class of devices used for stretching knit fabrics over a former for drying and shaping the goods, and has for its object more especially to provide a frame of substantially the same form as that of a shirt with a device for evenly stretching all parts of the knit garment thereon at the same time, so that the center of the body shall be in direct line with its sides or edges resting upon the body of the frame; and it consists of the construction hereinafter described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side view of the frame with my improved device for stretching the goods attached thereto. Fig. 2 is a vertical section on the line xx of Fig. 1, showing my invention in position with one of the parallel vertical bars broken away. Fig. 3 is a view on the same line showing my improved device in process of insertion and in stretching the garment upon the frame. Fig. 4 is a perspective view of the hinged clamping-bar and shoe. Fig. 5 is a vertical section on the line xx of Fig. 1, with a slightly-modified form of the clamping-bar; and Fig. 6 is a perspective view of the same bar.

Like letters of reference refer to corresponding parts in each figure of the drawings.

A represents a stretcher-frame, made to fit the body and arms of a knit shirt, showing the shirt in dotted lines thereon. The frame consists of two vertical parallel bars, a , sepa-

rated from each other a distance equal to the width of the body of the sized shirt to be stretched. The bars are united at their top and at some distance from their bottom by inwardly-projecting arms B, which are hinged together at b on their inner ends. From the outer edge of the upper ends of the bars a there are arms C projected outward, which are of a form and size to correspond with the other parts of the frame. On each side of the bars a , at their lower ends, there are preferably sheet-metal springs D, though, if desired, they may be made of strong steel wire. These springs are fastened to the bars of the frame by screws or by other convenient means, and extend upward and outward from the bars, admitting the bottom of the garment between them and the bars, until at about the lower edge of the inwardly-projecting arms B, when they are turned outwardly from the bars at an acute angle thereto, at a suitable distance, and then their ends are turned inwardly toward the bars, to form hooks d for holding the clamping-bars in position.

Thin broad strips or bars of wood or metal, forming shoes E, are made of a length somewhat greater than the width of the lower portion of the frame or body of the knit garment to be stretched, which lie flat upon each side of the bars a and are adapted to slide thereon.

At about the center of the width of the shoes E, and on one side thereof, is secured one edge of the clamp-bars F by means of hinges e , which are adapted to fold down upon the shoes. These bars are somewhat larger than the shoes, so that their extended ends form handles for operating them. The hinges e are both secured to the shoe and lower side of the bar, so that when the bar is raised and at rest upon the shoe, with its upper inner edge, f , resting on the shoe, the bar will be extended at an acute angle to the upper part of the shoe.

The knit garment is placed upon the frame A by partially folding the frame in the usual way, and when its body is drawn down upon the bars a the shoes E, having the clamp-bars, are laid upon the sides of the flap of the body at any point and over each side of the bars of the frame near the spring D and partially over the inwardly-projecting hinged

arms B, with their hinged sides downward, and the clamp-bars F extended outward with their outer edges resting against the hooks *d* of the springs, as shown in Fig. 3. The extended ends of the clamp-bars F are then grasped with the hands and its inner edge, *f*, forced downward, carrying with it the shoe, which binds upon the side of the flap of the garment beneath, stretching it downward evenly and alike at all points until the outer edge of the clamp-bar F is seated in the hook *d* and the shoe forced down below the center line or right-angle point with the clamp-bar, as shown in Fig. 2, where it is bound by the laterally-downward pressure of the springs and securely held in place as against all tendency to draw it upward and out of place by the shrinkage of the fabric in drying. I do not, however, confine myself to this particular form of shoe and clamp-bar, as a more simple construction may be made to operate in the hook of the spring D upon the frame in substantially the same way.

In my modified form of clamp-bar and shoe I construct the two parts out of one and the same piece of metal or other suitable hard material, leaving them integral with each other, as shown on Figs. 5 and 6. In making this form of clamp the blank is preferably cut or stamped out of heavy sheet iron or brass and then bent in the center of its width, one part upon the other, until the clamp-bar part F is at an acute angle to the shoe part E, or one part at an acute angle with the other, both being the same, as shown, and being also reversible, as desired. The blank may be cut of sufficient width to form the shoe portion E much wider than the clamp-bar F, if desired, in order to give greater bearing-surface upon the garment in the process of stretching. In such a case the blank would be bent to form the clamp-bar of the same width as before. In applying this form of clamp to the frame the bar F is brought under the hook *d* the same as in the first instance, as shown in dotted lines in Fig. 5, and then the shoe E is turned downward and inward, its angular connection with the clamp-bar pressing against the fabric of the garment over the arms B of the frame and evenly stretching its entire width downward in a smooth position until the flat side of the shoe rests against the fabric and frame and the inner edge of the clamp-bar F, integral with the shoe, has passed below the central point, and the clamp-arm forms an acute angle with the upper part of the frame, thus binding it in position under the hook of the spring and preventing its removal by the or-

dinary traction upward from the shrinkage of the garment.

While I have described my stretching device as applied to a frame for knit shirts, it may with equal advantage be applied both at the top and bottom of a frame for shaping and stretching knit drawers, or to frames for shaping other knit garments, as stockings and jackets.

I am aware that it is not new to form frames upon which to stretch knit garments in their manufacture, and such I do not claim, broadly; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, with a frame for stretching and drying knit garments, of springs secured to the frame, and independent angular clamping-bar working therein and against the side of the flap of the body of the garment at any point near the spring and over the frame to stretch and hold the garment in position, as set forth.

2. The combination, with a frame having downwardly-extending bars, of springs secured on each side of said bars, extending upward and outward, the upper ends being turned inward, forming hooks, with angular clamping-bar working in the hooks and against the sides of the body of the flap of the garment at any point near the springs and over the frame to hold the garment in position, as set forth.

3. The combination, with a hinged frame having bars with upwardly-extending springs with inwardly-turned hooks at their upper ends, of a clamping-bar and shoe with their sides at an acute angle to each other, the edge of the clamp-bar inserted in the hook, and the shoe on the frame adapted to be forced down to stretch and hold a garment on the frame in position, as set forth.

4. The combination, with a hinged stretcher and drier frame having upwardly-extending springs with hooks on its sides, of a shoe-bar sliding on the side of the frame, having a clamp-bar hinged thereto, the outer edge of the clamp-bar engaging the hooks of the springs as the shoe is moved down on the frame and locked, thereby bringing the face of the clamp-bar at an acute angle with the upper portion of the shoe, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE COOPER.

Witnesses:

C. H. DARLING,
CHAS. McDONOUGH.