

(No Model.)

2 Sheets—Sheet 1.

F. W. SMITH, JR. & S. S. WILLIAMSON.

DRESS SHIELD FORMER.

No. 385,645.

Patented July 3, 1888.

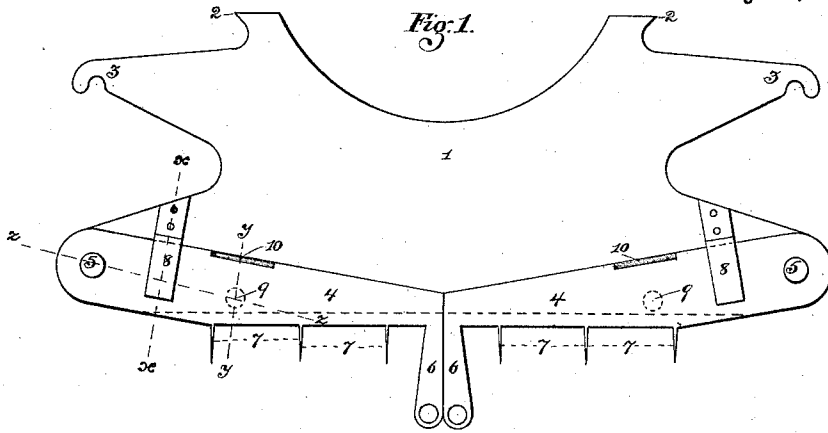


Fig. 2.

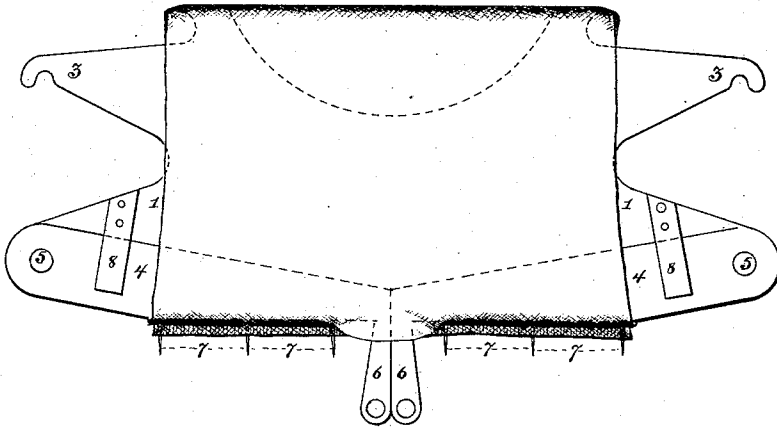
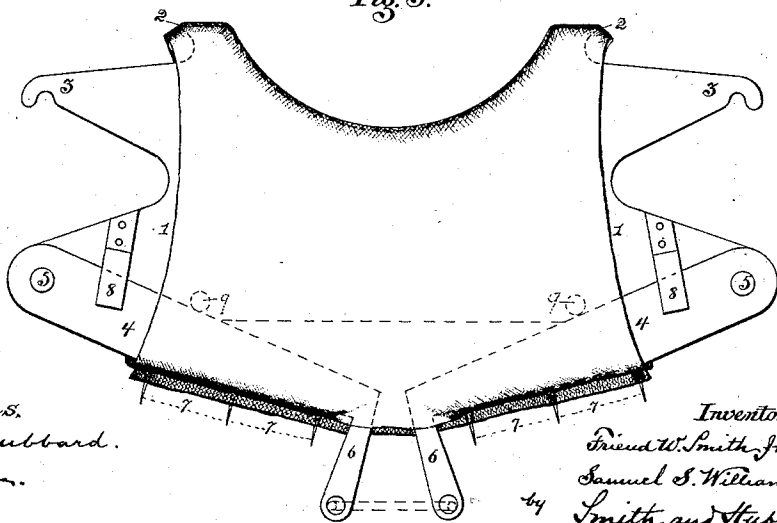


Fig. 3.



Witnesses,  
 C. L. Hubbard.  
 W. R. Form.

Inventors,  
 Fred W. Smith, Jr.  
 Samuel S. Williamson,  
 by Smith and Hubbard.  
 attys.

(No Model.)

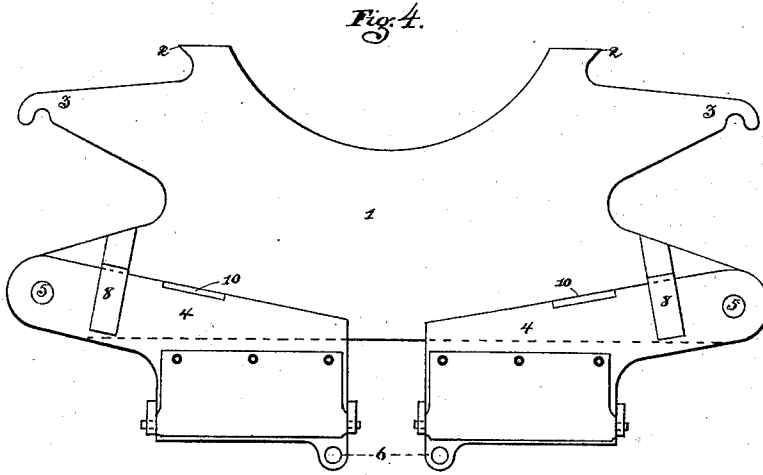
2 Sheets—Sheet 2.

F. W. SMITH, Jr. & S. S. WILLIAMSON.

DRESS SHIELD FORMER.

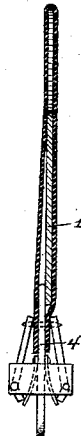
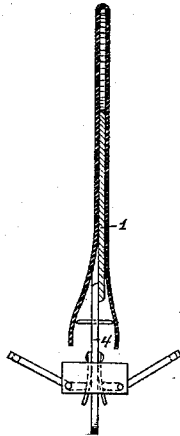
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*Fig. 5.*

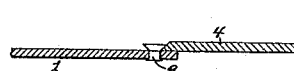
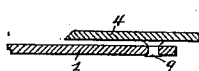
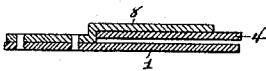
*Fig. 6.*



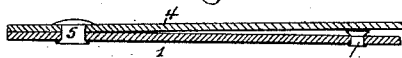
*Fig. 7.*

*Fig. 8.*

*Fig. 9.*



*Fig. 10.*



*Witnesses,*

*C. L. Hubbard,*

*W. P. ...*

*Inventors,*

*Friend W. Smith, Jr.*

*Samuel S. Williamson,*

*by Smith and Hubbard, attys*

# UNITED STATES PATENT OFFICE.

FRIEND W. SMITH, JR., AND SAMUEL S. WILLIAMSON, OF BRIDGEPORT,  
CONNECTICUT, ASSIGNORS TO THE CANFIELD RUBBER COMPANY, OF  
SAME PLACE.

## DRESS-SHIELD FORMER.

SPECIFICATION forming part of Letters Patent No. 385,645, dated July 3, 1888.

Application filed September 26, 1887. Serial No. 250,676. (No model.)

### *To all whom it may concern:*

Be it known that we, FRIEND W. SMITH, JR., and SAMUEL S. WILLIAMSON, citizens of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Dress-Shield Formers; and we 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.

Our invention relates to the manufacture of seamless dress-shields from stockinet-faced rubber or analogous fabrics, and has for its object to provide means which shall be simple and economical in construction and operation whereby the fabric may be stretched into the proper crescent shape at the fold and there held during the process of vulcanization, by means of which latter the curvature is fixed and rendered permanent therein.

With these ends in view our invention consists in the construction and combination of co-operating mechanical elements, which we will hereinafter fully describe, and then designate in the claims which form a part hereof.

In order that those skilled in the art to which our invention appertains may fully understand how to make and use our improvement, we will now describe the same in detail, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is an elevation of our device; Fig. 2, a similar view showing the fabric in proper position prior to the operation of the machine; Fig. 3, a similar view, but showing the fabric stretched to the proper shape on the machine; Fig. 4, an elevation showing a modification of the grasping elements; Figs. 5 and 6, sections of the modified grasping-clamps shown at Fig. 4 in their open and closed positions, respectively; Fig. 7, a section at the line *x x* of Fig. 1; Fig. 8, a section at the line *y y* of Fig. 1; Fig. 9, a similar view, but showing the stretching-lever locked against the detent; and Fig. 10, a section at the line *z z* of Fig. 1.

Like reference-numbers denote the same parts in all the figures.

1 is the former, which is crescent-shaped at its top to a greater or less degree, according to the shape desired to be imparted to the product. At either side of the crescent are points 2, whose purpose will presently appear.

3 are hooked and outwardly-extending arms, which are used to support the device, as we will hereinafter explain.

4 are levers, which are pivoted to the lower corners of the former, as at 5, said levers being provided with operating-handles 6, and with a series of needle-points, 7, at their lower edges.

8 are guides secured to the face of the former; and beneath which the levers are held, and which also limit the upward movement of said levers.

9 are detents, which are adapted to engage with the edges of the levers, which latter are beveled, as seen at 10, and lock them in position, as seen in dotted lines at Fig. 3, whereby the fabric is held properly distended. The arrangement of the guides and detents is shown at Figs. 7, 8, and 9, respectively.

Our improvement is operated and utilized as follows: A piece of stockinet-faced rubber or other suitable fabric is doubled over the crescent-shaped top edge of the former and its edges impaled upon the needle-points, as is shown at Fig. 2. The levers are then pulled downward to the position shown at Fig. 3. This movement of the levers draws the fabric down against the crescent-shaped top edge of the former. The points 2 have sufficient grasp upon the fabric to prevent it from slipping inward. When the levers have been sufficiently depressed to effect the proper stretching of the fabric, they fall behind the detents 9, and are thereby held as against return movement. The fabric thus stretched is, as to its curvature, perfect for dress-shield purposes; but vulcanization is necessary in order that when the shield is removed from the former the fabric may have no tendency to return to its original shape. To effect this we insert the former with the fabric thereon into a proper vulcanizer, where said fabric is set permanently in its stretched shape. The object of the hooked arms is for the purpose of providing means for en-

gaging with suitable pins or other suitable devices, whereby the former is held stationary during the depression of the levers. When the vulcanization is complete, the shields are removed from the formers and their edges trimmed according to the style most desirable for the market.

We have shown needle-points for the attachment of the fabric to the levers, and we have also shown in the modification clamps for the same purpose; but we do not wish to be understood as laying claim to any particular clamping device, since it is merely necessary to hold the edges of the fabric so that the latter will oppose the draft of the levers, and accordingly any suitable and ordinary device may be used for this purpose.

We claim—

1. A machine for making seamless dress-shields, consisting of a sheet-metal former crescent shaped along its top and having grasping-points at the extremities of said crescent, in

combination with a pair of levers pivoted each to opposite extremities of said former, said levers having fastening devices—such as pin-points—at their outer edges and adapted to have a throw greatest at their inner ends, whereby the fabric of the shield is stretched the greatest at the center of the crescent and the least at the extreme ends thereof, substantially as set forth.

2. The stationary former having a concave top edge, in combination with the stretching-levers pivoted to said former on each side of a line projected at right angles to a tangent to the curve of said concave, substantially as shown.

In testimony whereof we affix our signatures in presence of two witnesses.

FRIEND W. SMITH, JR.

SAMUEL S. WILLIAMSON.

Witnesses:

S. H. HUBBARD,

L. PACK.