

No. 712,507.

Patented Nov. 4, 1902.

T. DAVIS.

PROCESS OF MAKING DRESS SHIELDS OR OTHER WATERPROOF ARTICLES.

(Application filed Dec. 9, 1901.)

(No Model.)

Fig. 1.

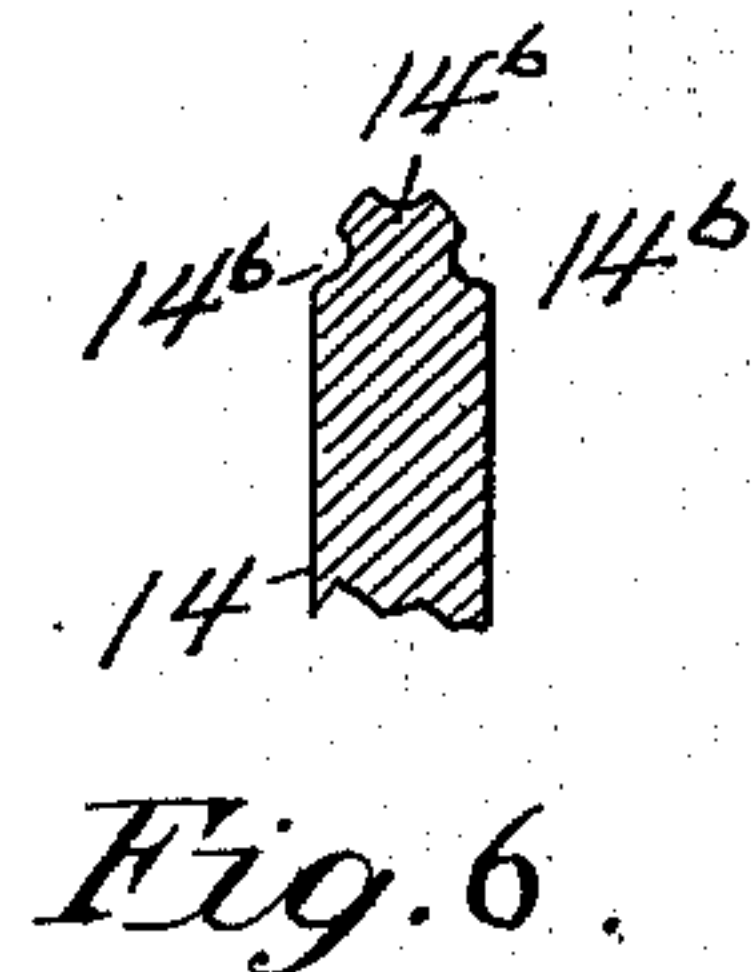
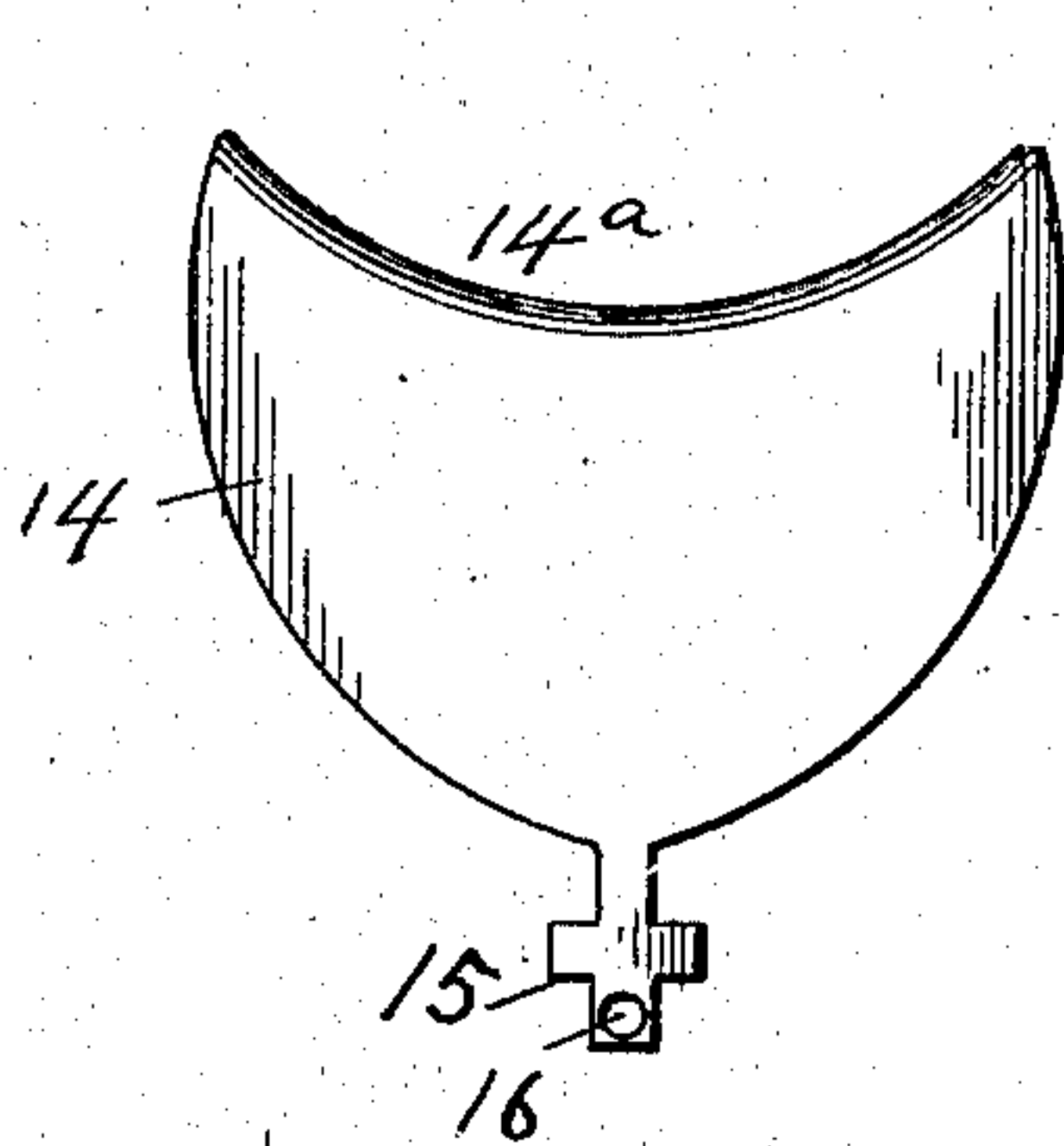


Fig. 2.

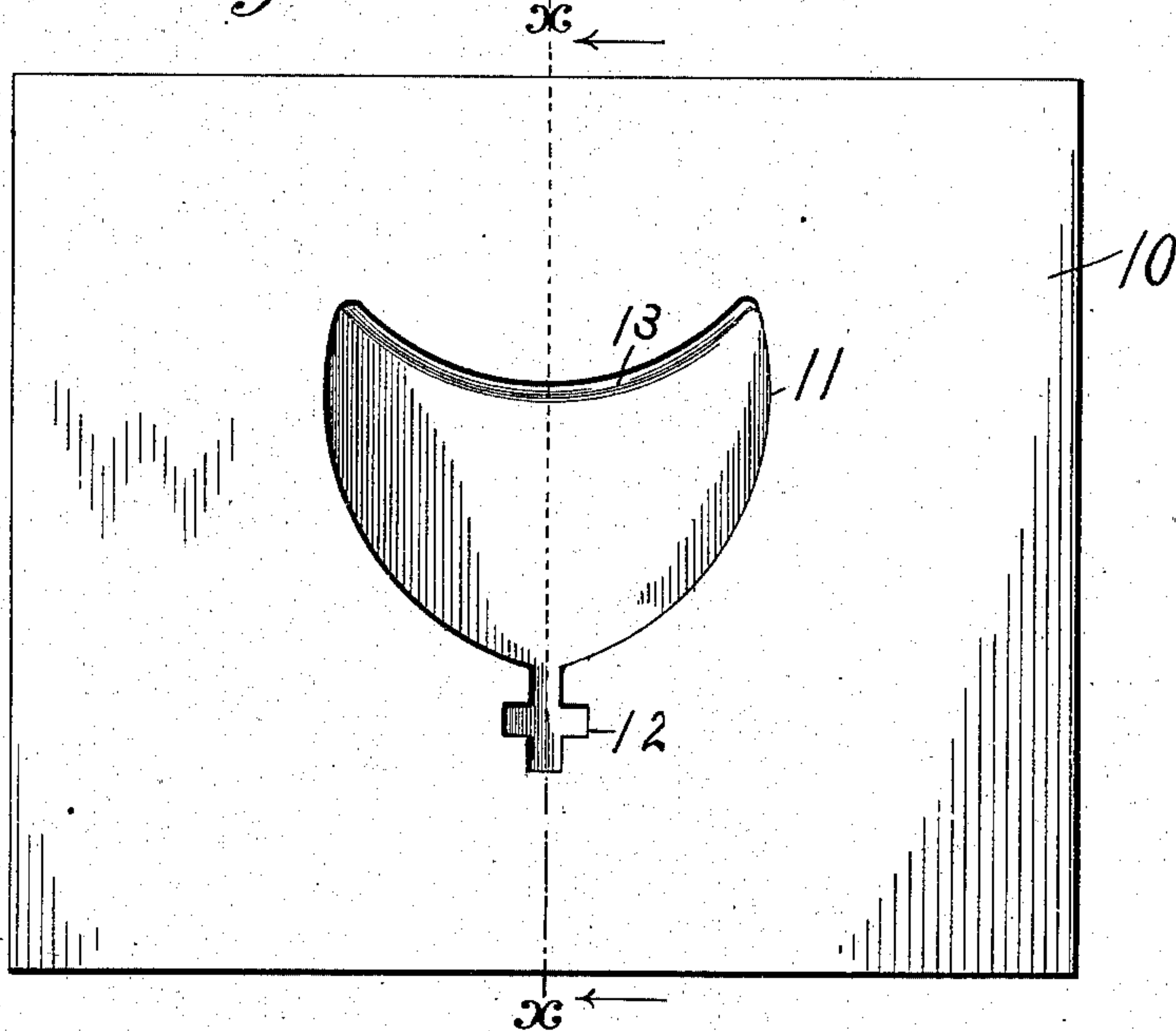


Fig. 3.

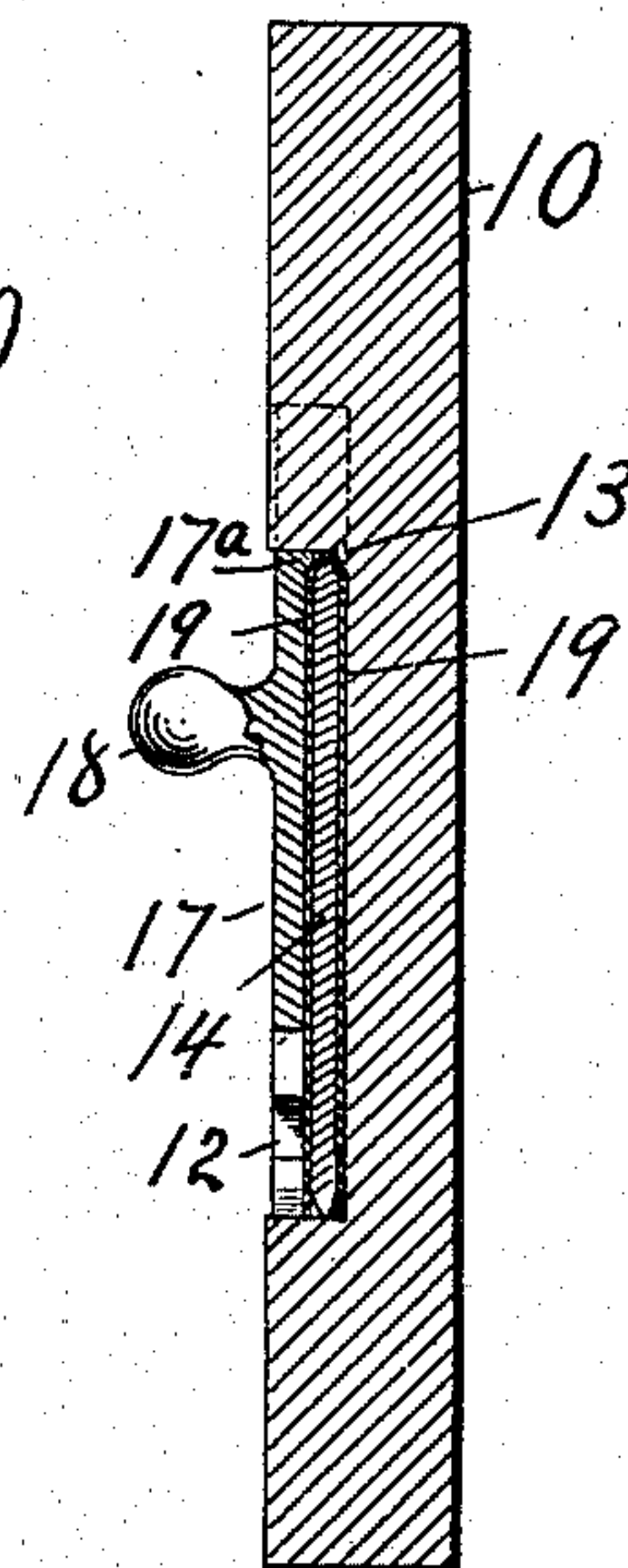


Fig. 4.

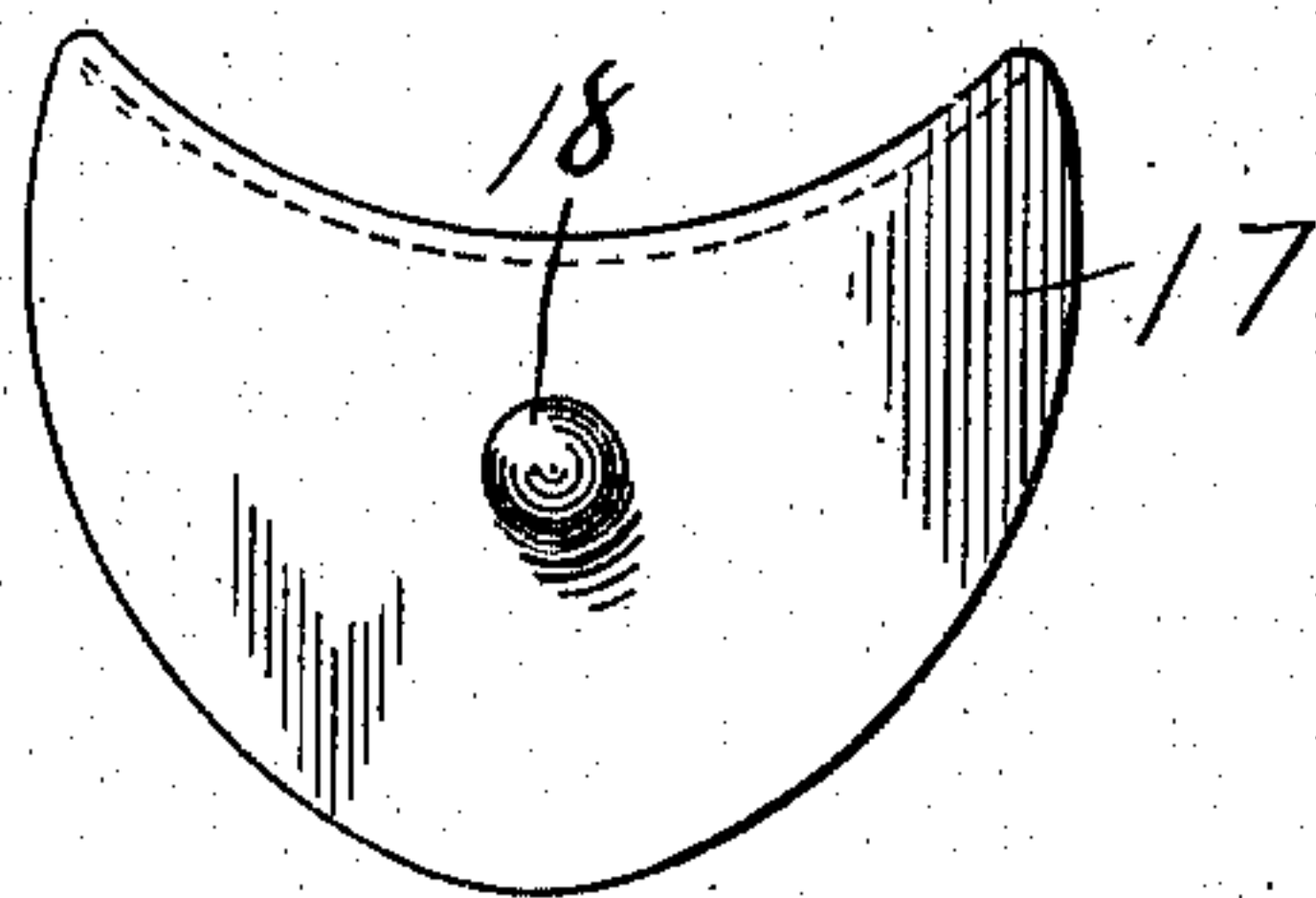
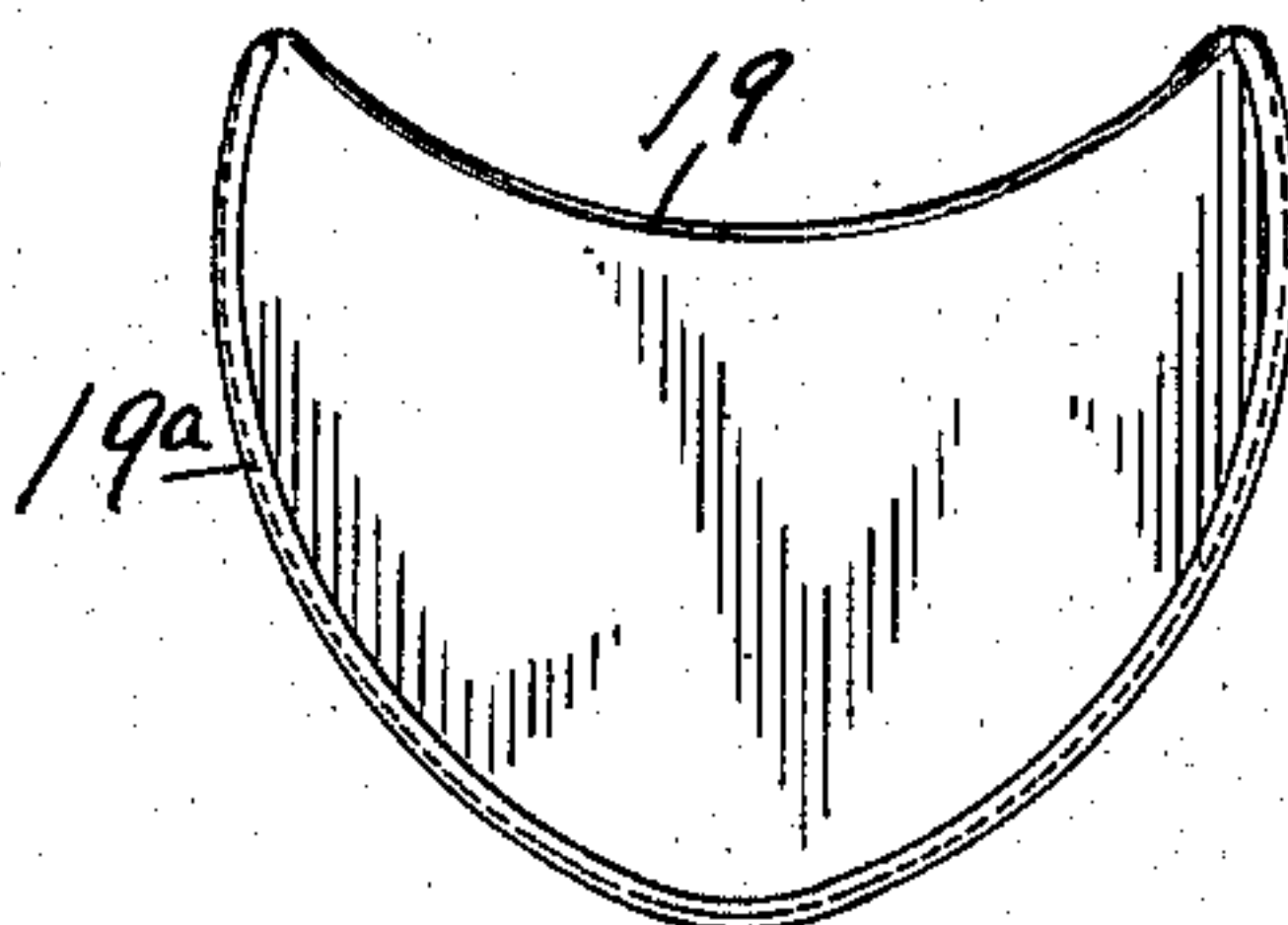


Fig. 5.



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THERON DAVIS, OF NEW YORK, N. Y.

PROCESS OF MAKING DRESS-SHIELDS OR OTHER WATERPROOF ARTICLES.

SPECIFICATION forming part of Letters Patent No. 712,507, dated November 4, 1902.

Application filed December 9, 1901. Serial No. 85,171. (No specimens.)

To all whom it may concern:

Be it known that I, THERON DAVIS, of the city, county, and State of New York, have invented certain new and useful Improvements in Processes of Making Dress-Shields or other Waterproof Articles, of which the following is a full, clear, and exact description.

My invention relates to improvements in the art of making dress-shields and other things which are composed, essentially, of a fabric coated with a waterproof substance, such as rubber, to render them waterproof. It is a common practice to line or cover such articles with a thin sheet or film of waterproof substance, such as rubber, the fabric and the waterproof material being connected at the edges, but unattached elsewhere, and where the waterproof substance is firmly attached to the cloth or other fabric it is sometimes done by calendering. In either case the article is rendered unnecessarily heavy, is rather expensive to make, and where calenders are used the fiber of the waterproofing substance is injured.

The object of my invention is to produce a dress-shield or other article in such a way that the article will be lighter and cheaper than when made in the usual manner and will also be smoother, better finished, and more durable.

A further object of my invention is to provide means for thoroughly coating a fabric, so as to render it waterproof, but to do it with the least possible amount of rubber or waterproof material, to the end that the article may not only be light, but that a saving will be effected in the waterproofing substance, which is the most expensive part of the article.

To these ends my invention consists of a process of rendering waterproof fabric articles, which process will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar figures of reference refer to similar parts throughout the several views.

Figure 1 is a detail plan of a dipping-form used in carrying out my process. Fig. 2 is a plan view of the die or mold which I employ. Fig. 3 is a cross-section on the line xx of

Fig. 2. Fig. 4 is a detail plan of the top piece or cover of the mold. Fig. 5 is a view of the finished dress-shield, and Fig. 6 is an enlarged detail sectional view of one edge of the dipping-form.

As will hereinafter appear, no specific form of apparatus is necessary in carrying my process into effect; but I have shown an apparatus which is convenient and well suited for the purpose. As illustrated, I form in a plate or board 10 a countersunk recess or mold 11, which corresponds in shape to the article to be made and which, as shown, is in the shape of a dress-shield. This recess has at one edge a recess 12, which is in the form of a cross, but which can be of any irregular shape, so as to anchor the form, to be presently referred to, and prevent the same from being displaced or slipped. The bottom of the recess 11 is also raised at one edge, as shown at 13, this raised portion coming opposite the edges of the two parts of the dress-shields which are to be united, as will presently appear. A dipping-form 14, which is thinned at the edges and is shaped like one-half of an ordinary dress-shield, is adapted to fit rather loosely in the recess 11, this form having at one edge a cross-shaped anchor 15, which fits in the recess 12, so as to guard against displacing the form 14, and through this anchor is a hole 16, by which the form may be suspended after it has been dipped in the waterproof solution, as hereinafter described. The ordinary commercial dress-shield consists of two parts or halves, which are united in the center and at corresponding edges of each half-section, and in order that sufficient of the adhesive and waterproofing compositions may be supplied at the edges to be united I make the edge 14^a of the form 14 with parallel grooves 14^b, one being on the extreme edge and the others at the sides, and when the form is dipped an extra supply will stick in the grooves and so provide material enough to cause the two parts of the shield which are united at this point to be held firmly. To form the outside of the mold, I use a top piece or cover 17, which corresponds to the general shape of the recess 11 and which at one edge is thickened on the inner side, as shown at 17^a, this thickened portion coming opposite the raised portion or bead

13 in the recess 11, as will be seen by referring to Fig. 3. For convenience the top piece or cover 17 is provided with a knob or handle 18.

5 In practice the cloth to be used in forming the shield is preferably treated with a solution containing sulfur, as that assists in the process of vulcanization. The ordinary rubber solution is used, such as is customarily
10 employed in coating dress-shields and similar articles. One-half the cloth of the dress-shield is laid in the mold or recess 11, the form 14 is dipped in the rubber solution, the part 15 being used as a handle, and, if nec-
15 essary, the form can be twice dipped. As the material is to a certain extent adhesive even after it is dry, a thin film of it adheres to the form when the latter is raised from the bath, and the form is then, as soon as the
20 solution is dry, laid flat in the mold 11 upon the piece 19 of cloth which has been placed in the mold. The second half 19 of the cloth of the dress-shield is then laid over the mold, as in Fig. 3, and the top piece or
25 cover 18 pressed firmly into the recess 11. The film of rubber will adhere to the cloth, the extra supply in the grooves 14^b will come at the edges of the two parts of the shield which are to be united, and this edge will be
30 formed between the parts 13 and 17^a, so that this portion of the dress-shield will be as strong as any part. After a proper interval the top piece 17 is removed, the form 14 hung up to dry, and when the film of rubber is
35 properly set the shield can be vulcanized as usual. This vulcanization can be carried on when the shield is still on the form 14 or the shield can be removed and afterward vulcanized. After the shield is vulcanized the
40 cloth edges are turned over and stitched in the ordinary way, as at 19^a, or the edge can be bound or scalloped in any approved style.

45 It will be found that by this process an extremely light and durable article is made, that very little of the waterproofing material is used, and that the fabric and waterproof

substance are so firmly united as to form to all intents a single sheet of material.

It will be clearly understood that this process can be carried out in making other things 50 and that the shape of the mold and its accessories is only incidental, although it is desirable to have the opposed thickened parts where edges are to be united and to use the means illustrated or equivalent means for 55 getting a little excess of material at this point.

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

1. The herein-described process of forming 60 waterproof dress-shields which consists in producing a film of predetermined form from a waterproof solution, pressing upon said film a fabric of substantially the shape desired, and then vulcanizing the united material. 65

2. The herein-described process of forming waterproof dress-shields which consists in producing films of a predetermined form from a waterproof solution, providing an excess of the solution at the edges of the films which 70 are to be united, pressing upon said films a fabric of substantially the shape desired, and producing a specific pressure upon the edges having the extra solution to the end that the films and fabric will unite and that the edges 75 shall be firmly united by the specific pressure.

3. The herein-described process of forming waterproof dress-shields of a predetermined shape, which consists in producing a film of the desired shape from a waterproof solution, 80 then uniting the film and a similarly-shaped fabric by pressing the two together, then when the two are firmly united vulcanizing the united materials.

In testimony whereof I have signed my 85 name to this specification in the presence of two subscribing witnesses.

THERON DAVIS.

Witnesses:

THOMAS T. SEELYE,
WARREN B. HUTCHINSON.