

W. F. SPINNEY,  
Heel-Stiffener.

No. 165,961.

Patented July 27, 1875.

Fig. 1.

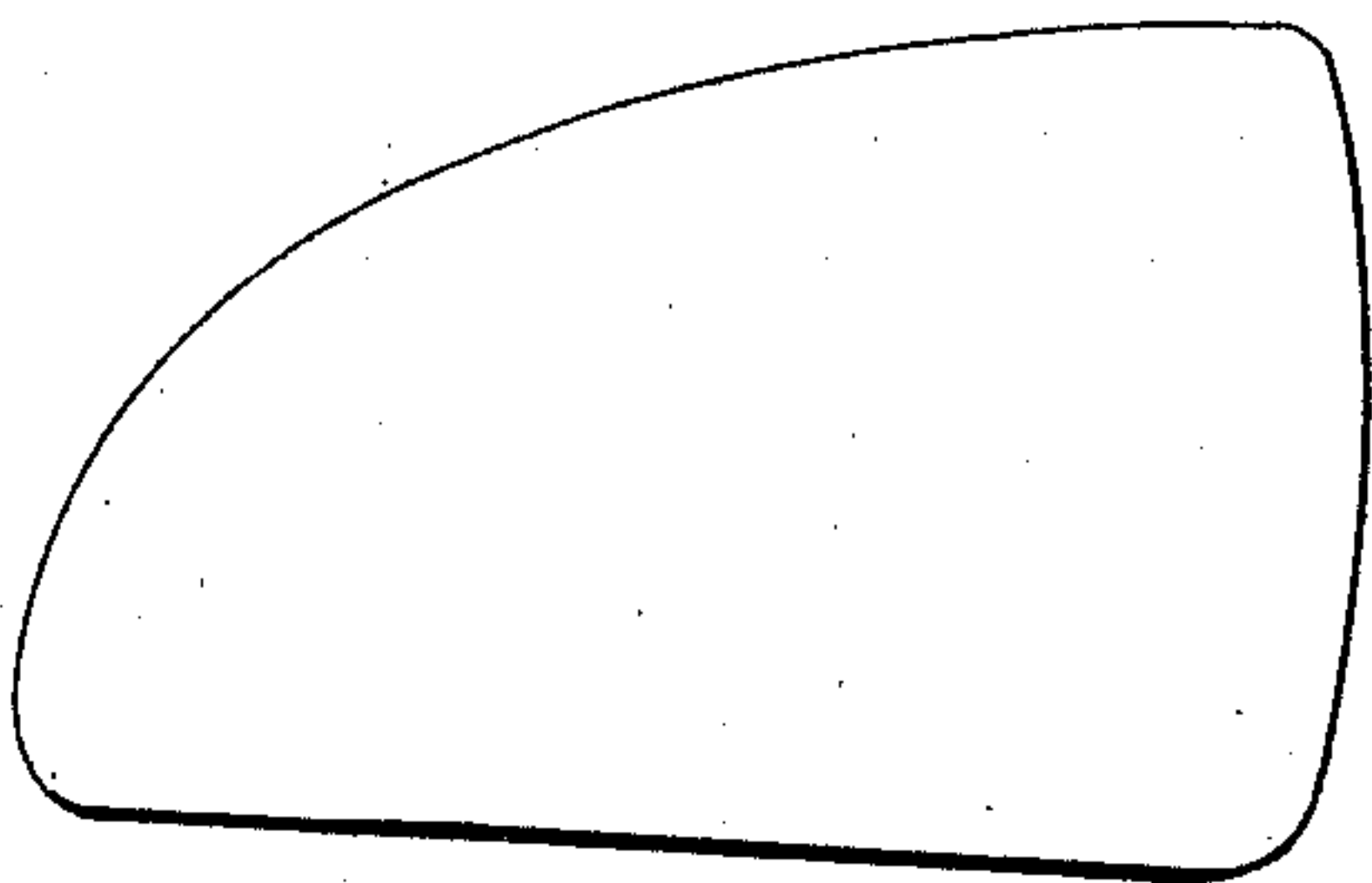


Fig. 2.

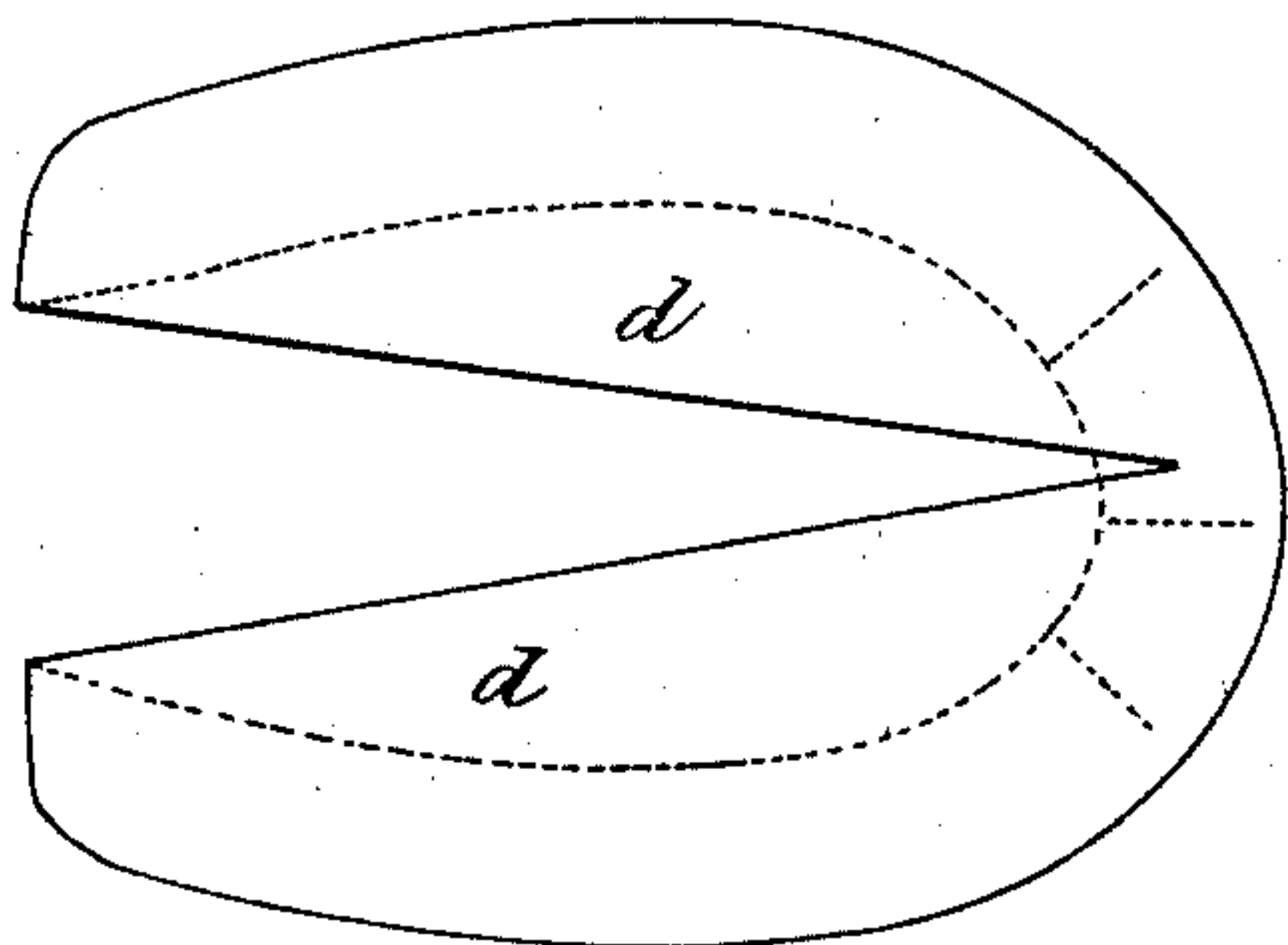


Fig. 3.

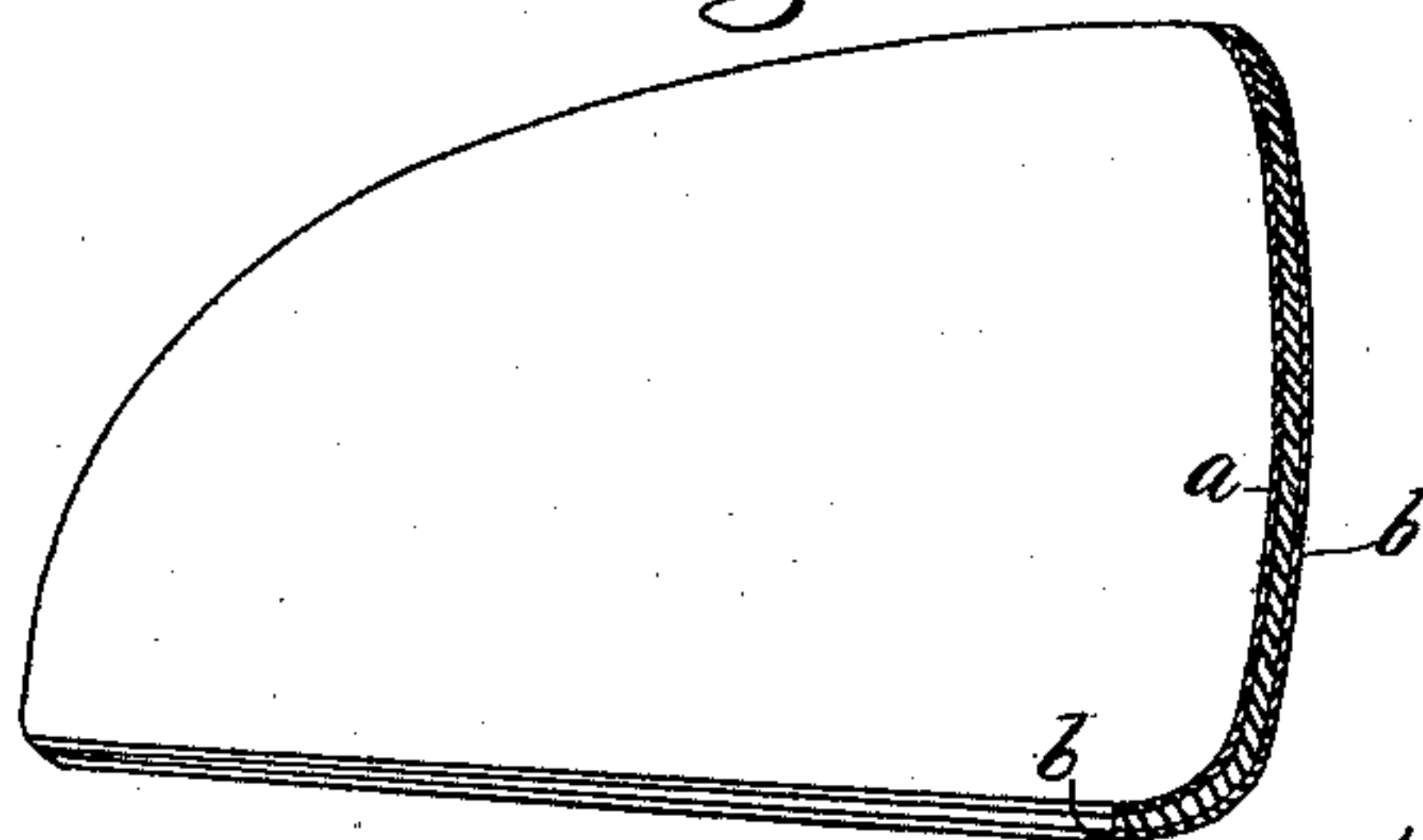
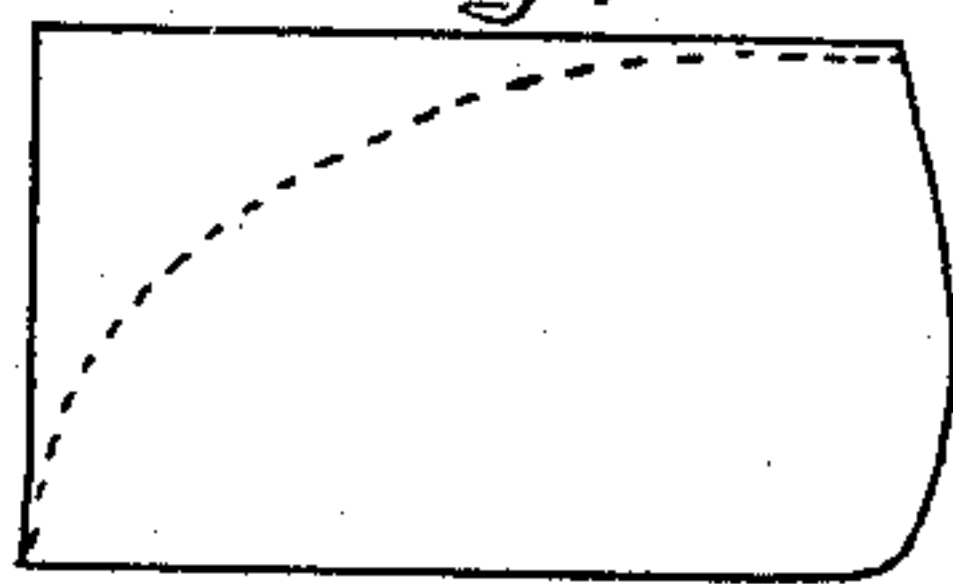


Fig. 4.



Witnesses.  
L. H. Latimer.  
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# UNITED STATES PATENT OFFICE.

WILLIAM F. SPINNEY, OF CHELSEA, MASSACHUSETTS.

## IMPROVEMENT IN HEEL-STIFFENERS.

Specification forming part of Letters Patent No. **165,961**, dated July 27, 1875; application filed June 14, 1875.

*To all whom it may concern:*

Be it known that I, WILLIAM F. SPINNEY, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Heel-Stiffeners, of which the following is a specification:

This invention relates to heel-stiffeners for boots and shoes; and consists of a stiffener formed of a compound of rubber, sulphur, and palm-oil, with or without rosin, tar, or rosin-oil, and contained between two pieces of muslin, cotton cloth, or other compact fabric.

Prior to my invention, heel-stiffeners have been made of a compound or mixture of old rubber, linseed-oil, manganese, and sulphur, placed between layers of coarse textile fabric, and united under pressure. Such stiffeners are found objectionable, because the linseed-oil, as well as the manganese, tends to make the compound in which they enter hard. The linseed-oil dries out quickly and leaves the compound without elasticity, and with but little cohesion or tenacity, and in such dry state the stiffeners are easily broken down. Further, these stiffeners have been faced with a very coarse and bungling cloth, one not sufficiently compact to furnish a hold for the pegs, nails, or stitches passing through the stiffener-flange, and the flange is therefore easily raveled or broken out, and this compound has so little cohesion that it will not adhere to a smooth-faced muslin or cotton cloth, but has to be crowded or embedded into the interstices of the coarse cloth.

The object of this invention is to produce a stiffening the body of which, while it is composed chiefly of old rubber, shall be sufficiently adhesive and cohesive to unite with a fine or closely-woven muslin or cotton fabric. The fabric receives the pegs, nails, or stitches, and affords a holding-surface to assist in keeping the stiffener in place.

Figure 1 is a side view of my improved stiffener. Fig. 2 is a bottom view, and Fig. 3 a section. Fig. 4 is a side view of the stiffener as it comes from the mold, and before its upper edges are trimmed.

This stiffener is composed of waste rubber, obtained chiefly by grinding up old rubber boots and shoes. Prior to grinding, these boots and shoes are usually steamed for two

or three days, and after they are ground between the usual rolls, there is added, to every forty pounds of ground rubber, about twenty pounds of the trimmings from other stiffeners, three pounds of flour of sulphur, and two pounds of palm-oil, and, after again grinding the mixture, it is passed through calenders, which form the compound or mixture into sheets, from which the blanks for the interiors of the stiffeners are cut.

Instead of steaming the old rubbers they may be ground and mixed as before described, and then have added to the mixture a portion of tar, rosin, or rosin-oil, and, after being thoroughly incorporated, the mixture may be rolled into sheets. The tar, rosin, or rosin-oil takes the place of steaming, and serves as a vehicle to cause the old and ground rubber to form a mixture which shall be sufficiently tenacious to be rolled into a sheet, and with either mixture, if desired to make the sheet more elastic and sticky, some new rubber—a small quantity—may be added. The cotton or other cloth for the outer portions of the stiffener is run through the calenders with a thin sheet of this rubber compound spread thereon, and the two are incorporated together under pressure, and caused to adhere the one to the other; then it is cut into pieces suitable for stiffenings. Each stiffener consists of an internal blank cut from the sheet of rubber compound described, and two external blanks cut from the fibrous sheet having a thin veneer of the compound incorporated with it, and placed together. The parts are placed in a mold and molded with heat and pressure into the shape shown in Fig. 4, after which the surplus stock is trimmed away, leaving the stiffening finished, as in Fig. 1.

In the drawing, *a a* are the external layers of fibrous material, such as closely-woven cotton cloth, having connected therewith, as described, a thin layer of the rubber compound, and that face of the cloth having the rubber attached is placed in contact with the layer of rubber compound *b*, rolled into blanks, as above described, and the parts are then molded into the form shown in the drawings, in which *c* is the upright portion of the stiffener, and *d* the flange. The palm-oil does not dry out, and the stiffener remains more pliable,



tenacious, and elastic, and, owing to its tenacity, the compound may be made thinner and lighter than when linseed-oil and manganese are used, and when the tar, rosin, or rosin-oil are added, the compound yet remains quite adhesive.

It is not desired to limit this invention to the exact quantity of rubber, sulphur, and palm-oil mentioned, but the proportions stated are those which it is considered best to employ.

I claim—

A heel-stiffener composed of an internal layer formed of the materials compounded as herein described, and of external layers of muslin or closely-woven cotton fabric, all united substantially as described.

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

WM. F. SPINNEY.

Witnesses:

S. B. KIDDER,  
L. H. LATIMER.