Dec. 22, 1931. L. DAUGY 1,837,899

TOOL FOR USE IN INSERTING THE SWELLING TUBE OF AIR BLADDERS INTO THE COVERS OF FOOTBALLS

Filed June 11, 1929

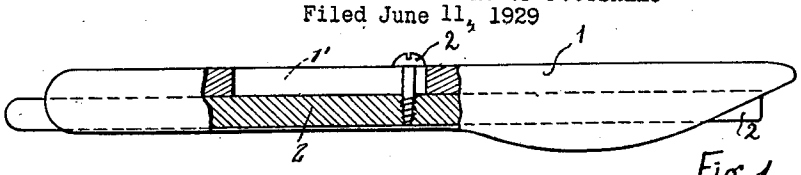


Fig. 1.

Fig. 2.

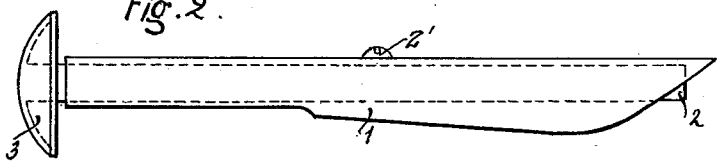


Fig. 3.

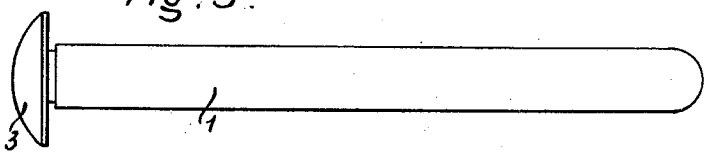


Fig. 4.

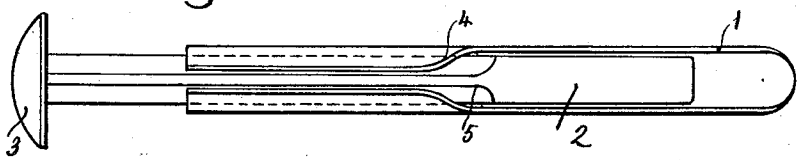


Fig. 5.

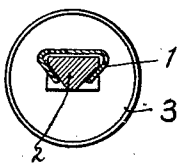


Fig. 6.

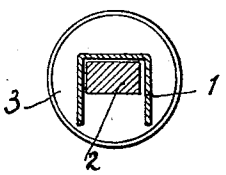
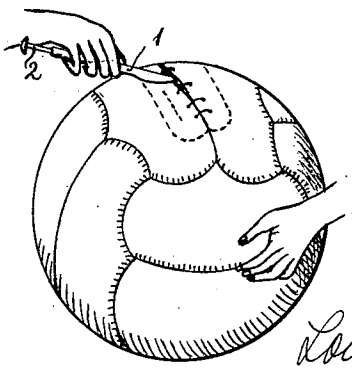


Fig. 7.



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UNITED STATES PATENT OFFICE

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TOOL FOR USE IN INSERTING THE SWELLING TUBE OF AIR BLADDERS INTO THE COVERS OF FOOTBALLS

Application filed June 11, 1929, Serial No. 370,142, and in France July 25, 1928.

The swelling of foot-balls is effected by a series of successive operations comprising especially the introduction of the swelling tube of the air-bladder into the leather envelope or cover of the ball after swelling. This latter operation is somewhat difficult and when defective may likely cause deteriorations of the swelling tube and of the air-bladder itself.

The object of this invention is to provide a tool of improved construction by means of which this operation may be rapidly and properly effected.

Figure 1 is a side elevation partly in section of a tool constructed and arranged in accordance with this invention.

Figure 2 is a similar view of a slightly modified form of the tool.

Figure 3 is a plan of the tool shown in Figure 2.

Figure 4 is an inverted plan of the same.

Figure 5 is a transverse sectional view on a plane intersecting the cross-sectionally triangular portions of the gutter and plunger.

Figure 6 is a similar view on a plane intersecting the cross-sectionally rectangular portions of the gutter and plunger.

Figure 7 shows the application of the tool to a foot-ball.

The improved tool, for example according to Fig. 1 comprises: the gutter 1 and the plunger piston 2. The gutter has three walls, two of them being widened sufficiently to adapt the tool to open the ball to the extent required for the introduction of the swelling tube.

The third or bottom wall, is terminated by a rounded off part.

The plunger corresponds in cross section with the gutter and slides in the same freely and may be provided with a slot 1′ which receives a stop screw 2′ secured to the gutter for limiting the stroke of the plunger.

The Figs. 2 to 6 represent an embodiment suitable for the manufacture and for the employment of the tool. 1 is the gutter of light pressed metal, presenting three pressed walls, two of which are parallel and provided with swelled out parts directed inwardly, the third wall, viz. the bottom being rounded off so as to form a beak. 2 is the plunger constituted by a cast body of light metal, presenting a mushroom-like head 3 for pushing by hand. The greatest part of the length of this plunger has a triangular section, the remaining part being either of rectangular section or flat so as to penetrate below the leather covering of the ball when the mushroom-head of the plunger is pushed in order to drive back the swelling tube into the ball.

The parallel walls of the gutter are bent over the half of the length of the gutter and folded upon the inclined sides of the cross-sectionally triangular portion of the plunger. Hence a guide is constituted for guiding the plunger, and at the same time an abutment is formed by the bent parts 4 of the gutter and the shoulders 5 of the triangular portion of the plunger where it passes into the rectangular section, which embodiment replaces advantageously the screw and the slot provided in the form of the tool shown in Fig. 1.

Fig. 7 shows the application of the tool to a foot-ball and illustrates its mode of operation.

Supposing that the ball has been swelled, laced and that the swelling tube is closed, the tool is used as follows:

1. The plunger is drawn back, as far as possible;

2. The swelling tube of the bladder of the ball is placed at the side of the opening where the valve-piece is stitched, and the swelling tube is placed into the gutter, with its part left free by the rearwardly drawn plunger (the open side of the gutter being situated in the lower part) whereupon the beak of the gutter is introduced below the lower part of the opening, in a depth of three to four centimeters;

3. The plunger is now pushed home so as to introduce the swelling tube into the interior of the ball, the mushroom-head of the tool reposing in the palm of the hand for this purpose;

4. The tool kept horizontally is slightly withdrawn and the swelling tube of the bladder is now appropriately lodged within the ball.

What I claim is:

A tool for use in inserting the swelling

tube of an air bladder into the cover of a ball, comprising a cross sectionally channel shaped gutter having a back wall and side walls, said back wall being rounded at the inner end to form a beak and said side walls being widened near said end, and a plunger movable longitudinally in said gutter, the outer end portions of said side walls of the gutter converging as they recede from the back wall and the corresponding portion of the plunger being triangular in cross-section so that abutments are formed in the gutter and plunger to limit the extent of movement of the plunger in the gutter.

In witness whereof I affix my signature.

LOUIS DAUGY.