July 23, 1929. P. W. SANDERSON 1,721,975

APPARATUS FOR MAKING TIRE TUBES

Filed Sept. 12, 1928

Fig. 1.

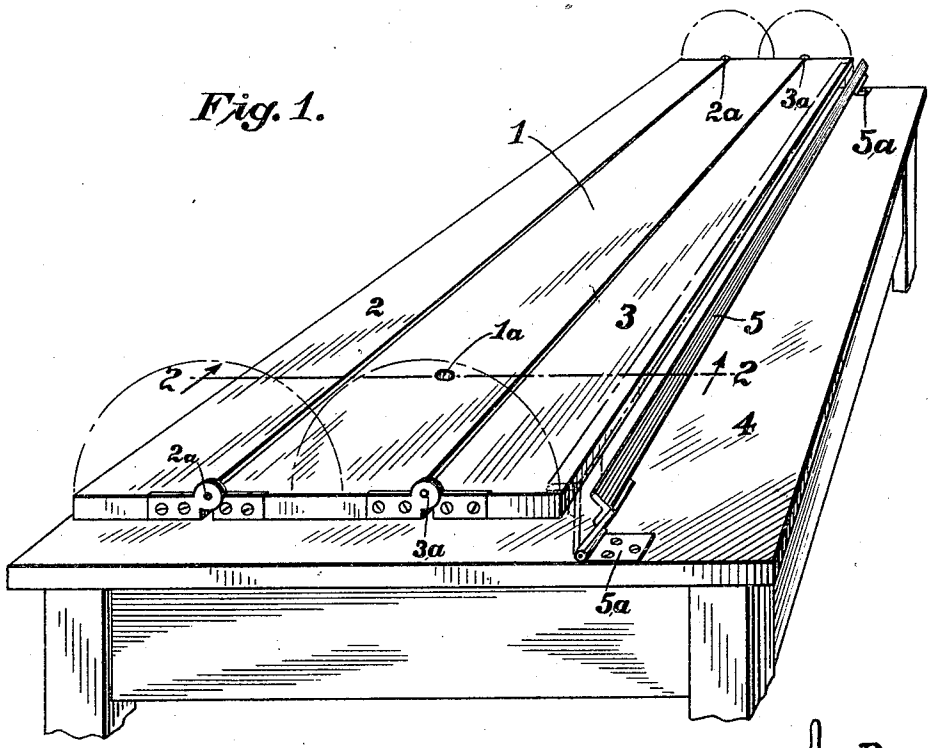


Fig. 2.

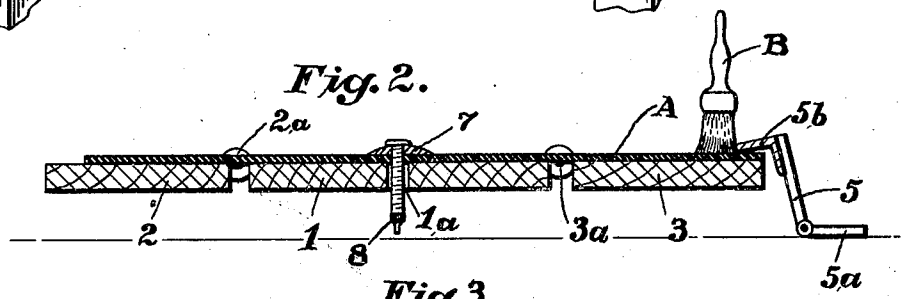


Fig. 3.

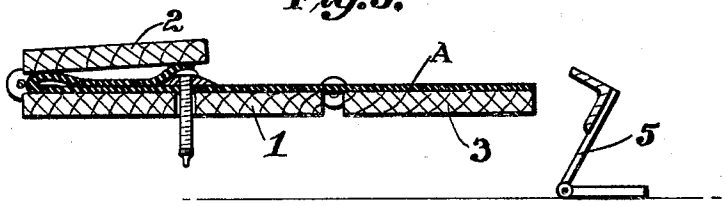
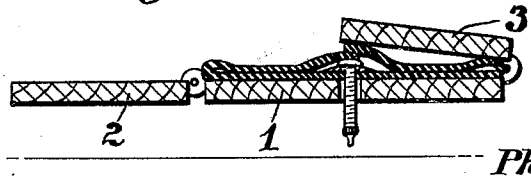


Fig. 4.



Inventor;

Phillip William Sanderson,

by Spear, Middleton, Donnelly & Spear

Attys.

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UNITED STATES PATENT OFFICE.

PHILLIP WILLIAM SANDERSON, OF AKRON, OHIO, ASSIGNOR TO THE MILLER RUBBER COMPANY, OF AKRON, OHIO, A CORPORATION OF OHIO.

APPARATUS FOR MAKING TIRE TUBES.

Application filed September 12, 1928. Serial No. 305,559.

My said invention concerns an improved apparatus for making rubber tubes, and particularly tubes such as are used within the outer casings of pneumatic tires.

The invention aims to provide an apparatus which will be simple, economical, and easily operated and which will dispense with the necessity of the forming cores or mandrels customarily used.

The invention includes the novel apparatus hereinafter described and particularly defined by the appended claims.

My novel apparatus is illustrated in the accompanying drawings in which:

Figure 1 is a perspective view thereof.

Fig. 2 is a transverse section on line 2—2 of Fig. 1 showing the tube forming sheet in place preparatory to forming the tube, the supporting table being omitted for convenience of illustration.

Fig. 3 is a view similar to Fig. 2 with one side wing swung over and the margin protector removed.

Fig. 4 is a similar section illustrating the completion of the folding operation.

Referring by reference characters to these drawings, the apparatus comprises a flat tube blank supporting device of platform shape comprising a central section or member 1 and side sections 2 and 3 pivotally connected to the intermediate sections by hinges at the ends as indicated at 2^a and 3^a. This platform is, when unfolded, slightly longer and preferably slightly wider than the rubber blank from which the tube is to be made, and the central member is provided with a valve stem receiving aperture 1^a.

The forming device above described may be conveniently supported upon a table indicated at 4 with one edge adjacent a guard or protector 5 which for convenience is made in the form of an angle bar pivotally connected to the table by hinges 5^a so that the laterally turned edge may be swung back away from the adjacent edge of board or member 3 as shown in Figs. 1 and 3 or into overlapping relation thereto as shown in Fig. 2.

In using the described apparatus a sheet A of uncured calendered rubber of tube forming size is laid upon the opened out supporting member in the position shown in Fig. 2 with its right hand edge alined with the right hand edge of board 3 and the angle member or guard 5 is then swung over so that its flange 5^b overlaps and rests upon the rubber sheet, serving to protect the margin from the non-adhesive coating hereinafter described and also to clamp the strip in place. The operator then takes a valve pad 7 with its attached stem 8 and pushes the valve stem through the rubber sheet and into the opening in board or member 1 (as shown in Fig. 2), and presses the pad down until it adhesively contacts with and joins the surface of the sheet A. Then by suitable means, such as a brush B, the operator applies a liquid, to the upper surface of the sheet, of such nature that it will prevent adhesion. Obviously, instead of liquid, powder might be sprinkled on by any suitable means, such as a dust bag, such liquids and powders being well known to those skilled in the art.

The overlapping flange 5^b of the angle iron or member 5 serves, however, as a protector and prevents any liquid or dust from coming in contact with the underlying surface of the rubber sheet and therefore preserves its tacky condition.

Having thus prepared the surface of the sheet or blank, the operator, as the next step of the process, grasps the board or member 2 and swings it from the position shown in Fig. 1 to that illustrated in Fig. 3, whereby the margin or portion of the sheet overlying board 2 is folded over upon the left hand portion of the sheet supported by the intermediate board 1. Board or member 2 is then swung back into the position shown in Fig. 4, the guard member 5 is swung back free from the edge of the sheet (Fig. 3), and the right hand board or member 3 is swung over into the position shown in Fig. 4, causing the sheet portion carried thereby to be folded over the right hand portion of the sheet on board 1 and the tacky margin to be superimposed on the margin of the previously folded over portion of said sheet, the tacky condition of the protected margin causing it to adhere to the margin of the other portion, which, due to its inverted position, is likewise tacky. This adhesion may be increased or made more effective by the operator pressing the margins together conveniently by means of a hand roller.

The folded slab is now in the form of a tube of the proper size and length and the operator may now proceed to splice the ends of the tube together in any desired manner to form an endless unvulcanized tube suitable for use in tire casings.

A moderate amount of air may be introduced into the tube through the valve stem to facilitate handling after which, the tube may be placed in a mold and vulcanized under requisite internal pressure in the customary manner.

Having thus described my invention, what I claim is:

1. Apparatus for forming tubes of plastic material comprising a flat sheet support including an intermediate member and side members pivoted thereto, and a protector movable into and out of overlapping relation to the free margin of one of the side sections.

2. Apparatus according to claim 1 in which the protector is in the shape of an angle bar mounted on swinging arms fulcrumed on fixed pivots and has one flange adapted to overlie the free edge of one of the sections and contact with the sheet supported thereby.

3. Apparatus according to claim 1 in which the intermediate member has a hole for the insertion of the stem of a valve pad.

In testimony whereof I affix my signature.

PHILLIP WILLIAM SANDERSON.