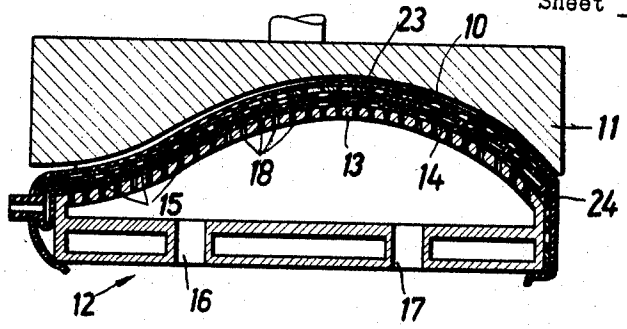
March 25, 1969 H. KANNEGIESSER ET AL 3,434,910

GLUING PRESS FOR TEXTILE PIECES

Filed Sept. 7, 1965 Sheet 1 of 2

Fig. 1



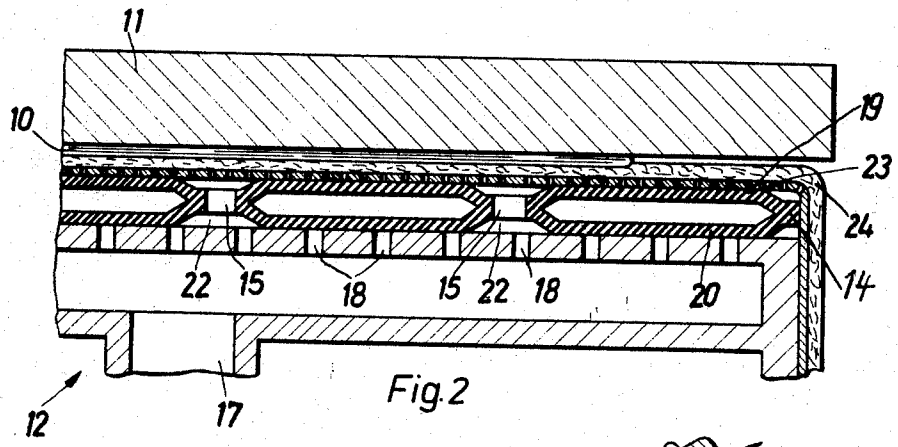


Fig. 2

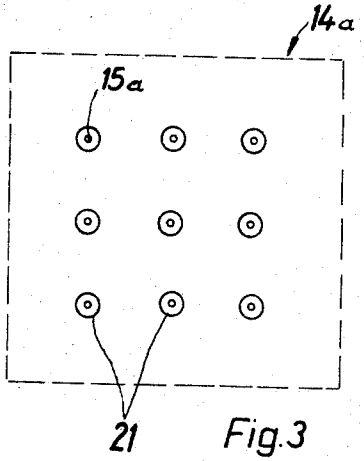


Fig. 3

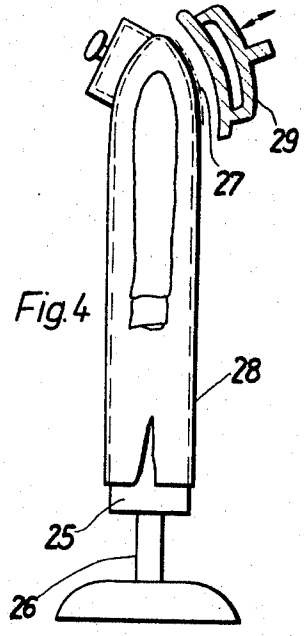


Fig. 4

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GLUING PRESS FOR TEXTILE PIECES

Filed Sept. 7, 1965 Sheet 2 of 2

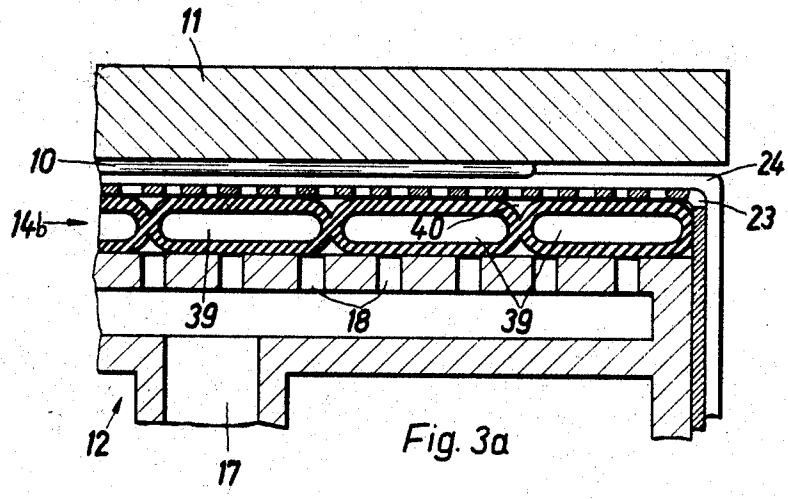


Fig. 3a

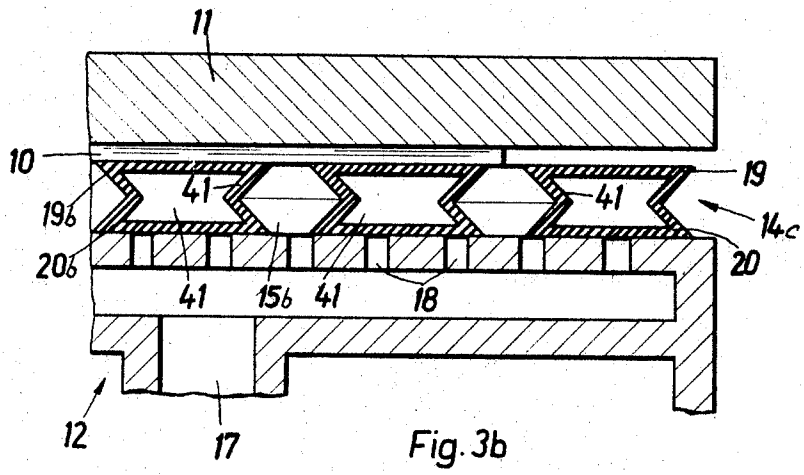


Fig. 3b

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GLUING PRESS FOR TEXTILE PIECES

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Int. Cl. B30b 15/06
U.S. Cl. 156—583 14 Claims

ABSTRACT OF THE DISCLOSURE

This provides a press for the gluing of textile pieces laminated with a thermoplastic adhesive. The press comprises a heatable pressing plate shaped in conformity with the configuration of the textile pieces to be glued together, a die means and an elastic pressure medium filled counterpressing member located between the pressing plate and the die means to insure the application of uniform heat and uniform surface pressure to the textile pieces placed in the press. The counterpressing member includes two opposite walls, means connecting the walls at a plurality of individual connecting points distributed over the entire surface of the member and holes for supplying a treating media to the textile pieces.

Background of the invention

In the clothing industry it is known to glue together textile pieces coated with thermoplastic adhesives, such as paddings of every description, by the application of pressure and heat. Such gluing of textile pieces, especially where arcuate pieces are concerned, involves particular problems and difficulties. To obtain a good clean gluing of the textile pieces it is a basic requirement that the pressure applied thereto is uniformly distributed over the whole surface area thereof. The gluing of textile pieces has been hitherto effected by means of heated rigid pressing plates. So far as plane textile pieces are concerned, it is not too difficult to achieve a uniformly distributed pressure with such rigid pressing plates. However, it is difficult to meet this requirement also with arcuate textile pieces such as are needed in the outer garments industry for breast parts and shoulder and back paddings, since it involves considerable expenditure to make pressing plates for arcuate surfaces that match with sufficient accuracy.

The use of specific adhesives involves additional difficulties. Textile pieces coated with adhesives on the basis of polyethylene and polyvinyl chloride for being glued to other textile pieces normally require dry heat in addition to pressure to activate the adhesive. However, if the adhesive used has a composition based on polyamide, moist heat in the form of steam is required in addition to pressure, and such moist heat must be supplied to the textile pieces during the pressing operation. Moreover, it is of advantage to the quality and life of the gluing effected, if the connected textile pieces are left to cool down to ambient temperature in their pressed shape without changing their position.

Summary of the invention

Accordingly, it is the object of the present invention to obtain a sufficiently uniform distribution of pressure in the pressure gluing of textile pieces, even of complicated arcuate textile pieces, by relatively simple technical means.

To attain this object, the invention provides a gluing press for the gluing of textile pieces, particularly arcuate textile pieces, which comprises a heatable pressing means shaped in conformity with the configuration of the textile pieces to be glued together and a resilient pressure fluid filled counterpressing member adapted to apply uniform heat and surface pressure to said textile pieces placed between said heatable pressing means and said counterpressing member.

The invention starts from the fact that the making of two rigid pressing plates not only corresponding to the shape of the textile pieces to be glued together but also having accurately matching surfaces involves great expenditure. The invention uses only a pressing plate corresponding to the shape of the textile pieces to be glued together and a counter pressing member which is adapted to conform by itself with sufficient accuracy to the shapes of both the textile pieces and the pressing plate.

In accordance with a further feature of the invention, the pressure fluid filled counterpressing member may be disposed on a lower die means having an upper surface shaped to correspond approximately to the matching surface of the pressing plate. In this arrangement, the substantial difference by which the present gluing press is distinguished from the prior art gluing presses is that the upper surface of the lower die member need not be shaped to accurately fit the matching surface of the pressing plate, as has been hitherto the custom, because such fitting is obtained by the pressure fluid filled counterpressing member.

Another essential feature of the invention consists in that flow passages for media such as hot air, cold air, steam and the like are provided in the pressure fluid filled counterpressing member. This feature is of particular importance because it enables the gluing press proposed by the invention to be employed also with adhesives which for their activation also need moisture, air or the like in addition to pressure and heat. Such flow passages may be formed in various ways, e.g. by uniformly distributed hollow rivets. In this case, depressions will be formed in the counterpressing member in the region of the flow passages. Generally, such depressions can be neglected. However, in cases where these depressions result in disadvantages, the pressure fluid fllled counterpressing member may be covered by a compensating sheet of any suitable material such as metal, plastic, textile fabric or the like, which is permeable to steam and air. Moreover, a padding layer permeable to air and steam may be additionally provided on top of such compensating sheet.

The invention further suggests to make the counterpressing member of extensible material so that it can be inflated by compressed air or the like supplied thereto. For the gluing of garments such as shirts, blouses or the like the article will be pulled over the counterpressing member when this is limp. Upon inflation of the counterpressing member the article of wear applied thereto will become tight and smooth.

It is to be understood that the invention not only consists in the individual features claimed but also in any possible combination thereof.

Brief description of drawings

Further features and advantages of the invention will become apparent from the following description of various embodiments thereof with reference to the accompanying drawings, in which:

FIG. 1 is a section through a gluing press according to the invention;

FIG. 2 is a section, on an enlarged scale, through a detail of the press of FIG. 1;

FIG. 3 is a top plan view of an embodiment of a counterpressing member according to the invention;

FIGS. 3*a* and 3*b* are sectional views of further embodiments of the counterpressing member; and

FIG. 4 is a diagrammatic side elevational view of a gluing press according to the invention which is adapted to be used for gluing textile pieces to shirts.

Description of specific embodiment

In the embodiment illustrated in FIGS. 1 and 2, the gluing press substantially comprises a heatable upper pressing means **11** and a lower die means **12**. The surface of the lower die means **12** facing the upper pressing means **11**, which is designated by the reference numeral **13**, is made to substantially conform with the matching surface of the upper pressing means **11**, allowing however of tolerances that would normally not permit to obtain a uniform pressure over the whole surface area. To obtain in spite of this the necessary uniform surface pressure, a counterpressing member **14** is arranged on the surface **13** of the lower die means **12**, i.e. between the lower die means **12** and the upper pressing means **11**. Such counterpressing member **14** is made of resilient material such as rubber and is filled with a suitable pressure fluid which may be gaseous or liquid. Reference numeral **10** indicates textile pieces to be glued together and placed, for this purpose, between the counterpressing member **14** and the upper pressing means **11**. The latter accurately corresponds in shape to the arcuate shape of the textile pieces **10**. When the upper pressing means **11**, which e.g. may be vertically displaceable, is lowered onto the textile pieces **10**, the counterpressing member **14** by the pressure fluid contained therein produces a uniform pressure distribution over the whole surfaces of the textile pieces **10**, whereby the desired uniform gluing of the whole surfaces of the textile pieces is achieved.

For adhesives on a polyethylene and polyvinyl chloride base, dry heat is required in addition to the pressure for activating the adhesive. Other adhesives, e.g. adhesives based on polyamide, additionally require moist heat in the form of steam. To enable during the pressing operation hot air or steam to be supplied to the textile pieces to be glued together, the invention provides a plurality of preferably uniformly distributed flow passages **15** in the counterpressing member **14**. In this arrangement, the lower die means **12** is hollow and provided with connection pieces **16** and **17** for the hot air or steam supply. The arcuate surface **13** of the lower die means **12** has a plurality of bores **18** providing steam or air passages, respectively. In this manner, hot air or steam, respectively, can be supplied to the textile pieces **10** while being pressed. Moreover, there is the advantageous possibility of cooling the textile pieces **10** upon termination of the gluing process within the gluing press to ambient temperature by supplying cold air, without the textile pieces just glued together changing their shape within the gluing press.

The flow passages **15** for steam, hot air or cold air can be formed, according to the invention, in different ways in the counterpressing member **14**. As shown in FIG. 2, the walls **19** and **20** of the counterpressing member **14** are united in the zone of the flow passages **15** so that a double wall is formed which permits the application of the flow passages **15**. The flow passages **15**, however, can also be provided in the region of a web.

FIG. 3 shows an arrangement in which hollow rivets **21** are provided to form flow passages **15***a* in a counterpressing member **14***a*.

FIGS. 3*a* and 3*b* show further advantageous embodiments of counterpressing members. In FIG. 3*a* a counterpressing member **14***b* is illustrated which is formed by individual hose-like chambers **39** extending in the longitudinal or transverse direction of the counterpressing member **14***b*. Such individual hose-like chambers **39** are conveniently interconnected and form individual channels **40** on the upper side of the counterpressing member **14***b*. Contrary thereto, funnel-shaped recesses **22** are formed in the embodiment of FIG. 2. The recesses **22** and the channels **40** are for the most cases of application not unfavorable to the gluing process. In particular cases, however, it might be suitable to provide a compensating sheet **23** permeable to air and steam on the side of the counterpressing member facing the textile pieces **10** to be glued together. This compensating sheet **23** may consist of metal, plastic or textile material. In the embodiment of FIGS. 1 and 2 as well as in that of FIG. 3*a* a padding **24** permeable to air and steam is additionally provided which covers the compensating sheet **23**.

In the embodiment illustrated in FIG. 3*b* a compensating sheet can be dispensed with. In this arrangement, flow passages **15***b* are provided in a counterpressing member **14***c* which are defined by bellows type walls **41** causing parallel displacement of the upper and lower walls **19***b* and **20***b*, respectively, of the counterpressing member **14***c* when this latter is being filled with a pressure fluid, without there being produced any depressions or the like in the region of the flow passages **15***b*. Hence, the upper wall **19***b* to which the textile pieces **10** to be glued together are applied is completely plane.

The counterpressing members may be made of various materials. Thus, in the embodiment of FIGS. 1 and 2 the rubber walls **19** and **20** may be vulcanized together in the regions of the flow passages **15** and, if necessary, along their edges. In the embodiment of FIG. 3 using hollow rivets **21**, a textile fabric coated with rubber or silicon may be employed.

FIG. 4 shows a gluing press particularly adapted to be used for garments such as shirts and the like and comprising a counterpressing member **25** of extensible, resilient material which is mounted on a supporting structure **26**. The garment, such as a shirt **28**, to which a textile piece **27** is to be glued will be pulled over the counterpressing member **25** while this is substantially limp. Upon inflation of the counterpressing member **25** the shirt **28** and especially the zone involved in the gluing operation are smoothly tightened. To effect the gluing operation, an appropriately shaped pressing member **29** is lowered onto the textile piece **27** to be glued to the shirt **28**. Due to the pressure fluid filled counterpressing member **25**, the advantages of uniform pressure distribution on curved surfaces are thus obtained also in this embodiment of the invention.

We claim:

1. A press for the gluing of textile pieces laminated with a thermoplastic adhesive, especially arcuate textile pieces, comprising:

(a) a heatable pressing plate shaped in conformity with the configuration of the textile pieces to be glued together,

(b) a die means, and

(c) an elastic pressure medium filled counterpressing member located between the pressing plate and the die means to apply uniform heat and uniform surface pressure to said textile pieces placed between said pressing plate and said counterpressing member,

(d) said counterpressing member including two opposite walls, means connecting said walls at a plurality of individual connecting points distributed over the surface of the counterpressing member and passages for supplying a flow of treating media to the textile pieces.

2. A press as defined in claim **1** wherein the surface shape of the die means which faces the pressing plate corresponds substantially with the surface shape of the pressing plate.

3. A press as defined in claim **2** wherein the wall connecting means are hollow rivets which also form the said treating media supplying passages.

4. A press as defined in claim **3** wherein the rivets are substantially equally distantly distributed over said counterpressing member surface.

5. A press as defined in claim **2** wherein the composition forming the counterpressing member consists of a resilient, elastic material.

6. A press as defined in claim **5** wherein said resilient, elastic material is selected from the group consisting of rubber, rubber coated textile fabric and silicon coated textile fabric.

7. A press as defined in claim 2 wherein the said counterpressing member includes depressions located at said connecting points and said supply passages are positioned in said depressions.

8. A press as defined in claim 7 wherein vulcanization means form the said depressions.

9. A press as defined in claim 2 wherein the flow passages are defined by bellows-type walls.

10. A press as defined in claim 2 further including a compensating sheet means permeable to said flow of treating media and covering said pressure medium filled counterpressing member.

11. A press as defined in claim 2 further including a padding means permeable to said flow of treating media and located on said counterpressing member.

12. A press as defined in claim 10 further including a padding means permeable to said flow of treating media and located on said compensating sheet.

13. A press as defined in claim 12 wherein the composition forming the counterpressing member consists of a resilient, elastic material.

14. A press as defined in claim 13 wherein the said resilient, elastic material is selected from the group consisting of rubber, rubber coated textile fabric and silicon coated textile fabric.

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U.S. Cl. X.R.

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