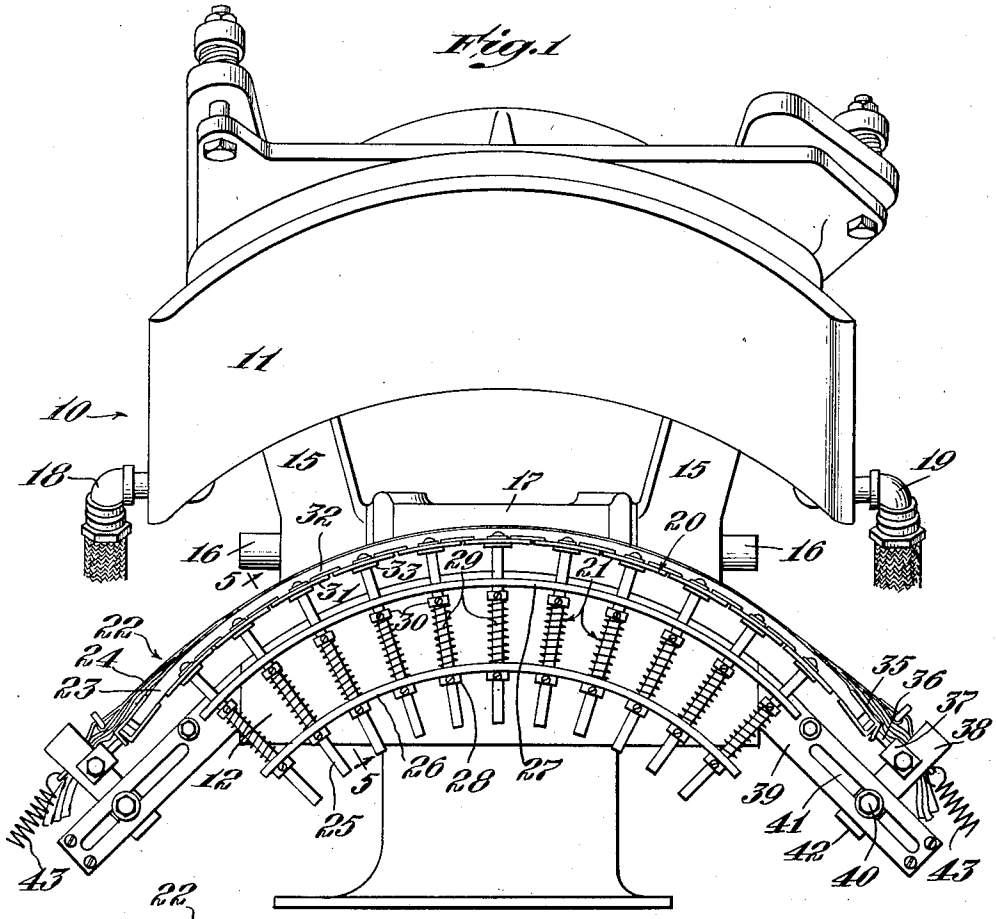
May 18, 1943 S. L. CLUETT ET AL 2,319,211

MANUFACTURE OF COLLARS AND THE LIKE

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Fig. 1



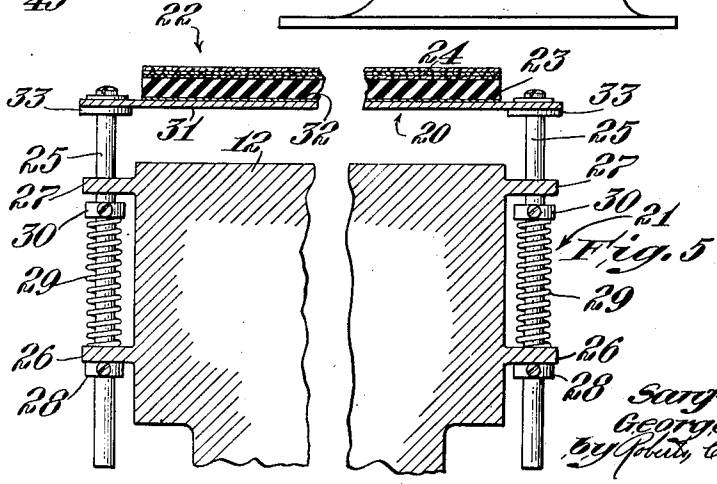


Fig. 5

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MANUFACTURE OF COLLARS AND THE LIKE

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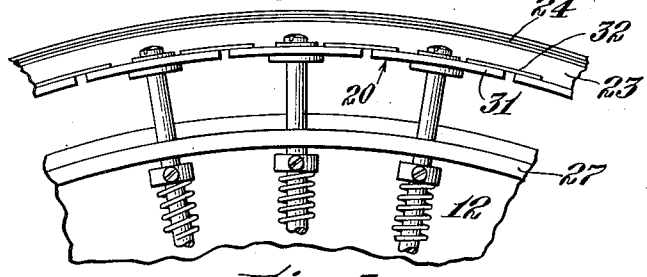


Fig. 3

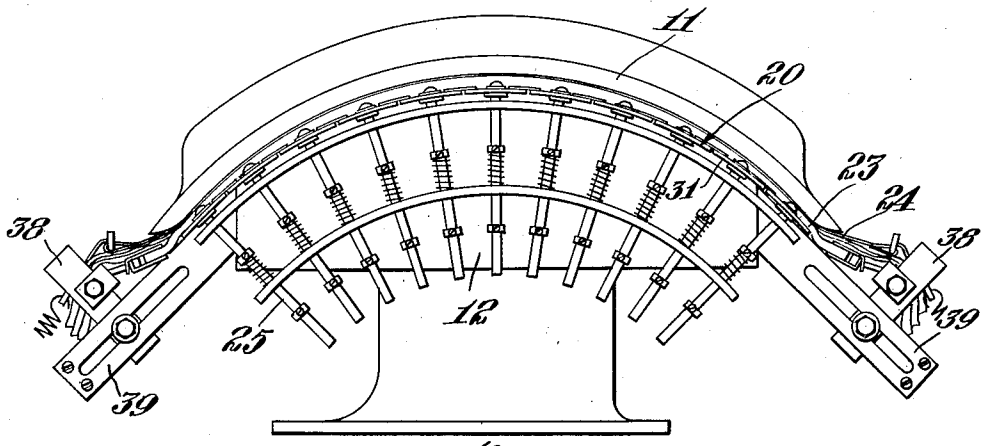


Fig. 2

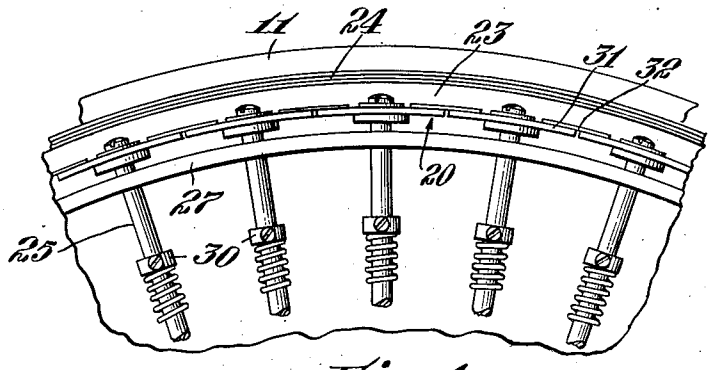


Fig. 4

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MANUFACTURE OF COLLARS AND THE LIKE

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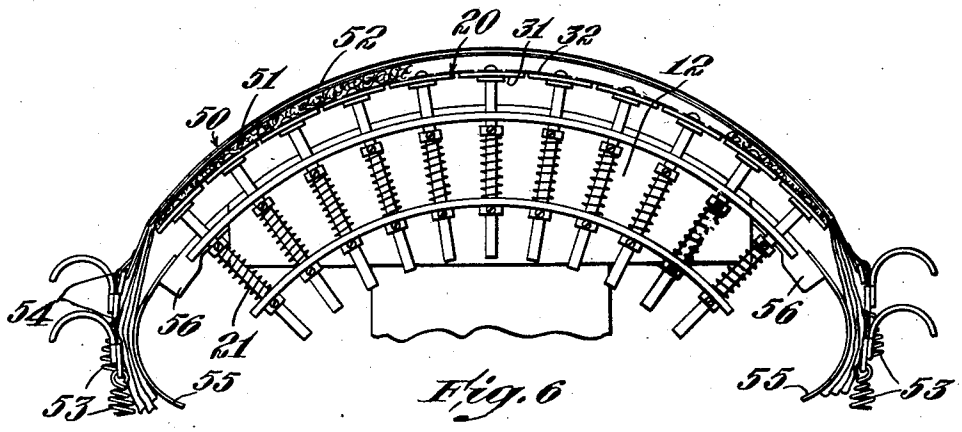


Fig. 6

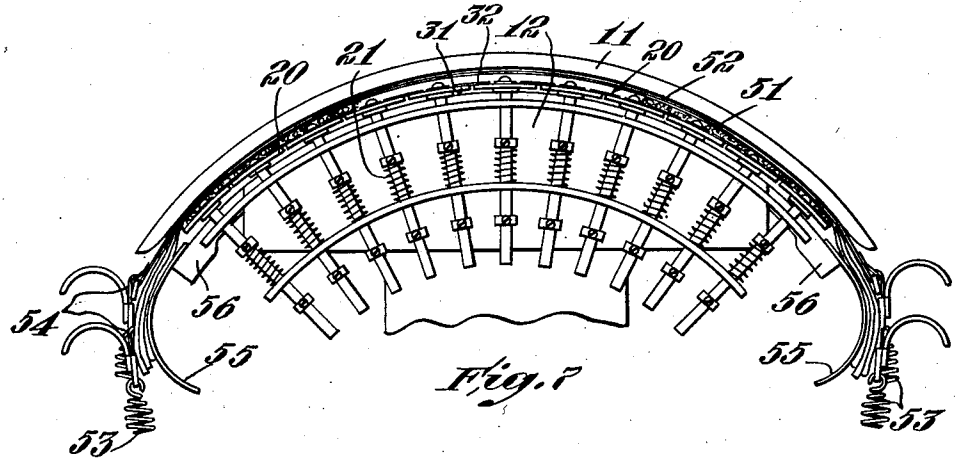


Fig. 7

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MANUFACTURE OF COLLARS AND THE LIKE

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Fig. 8

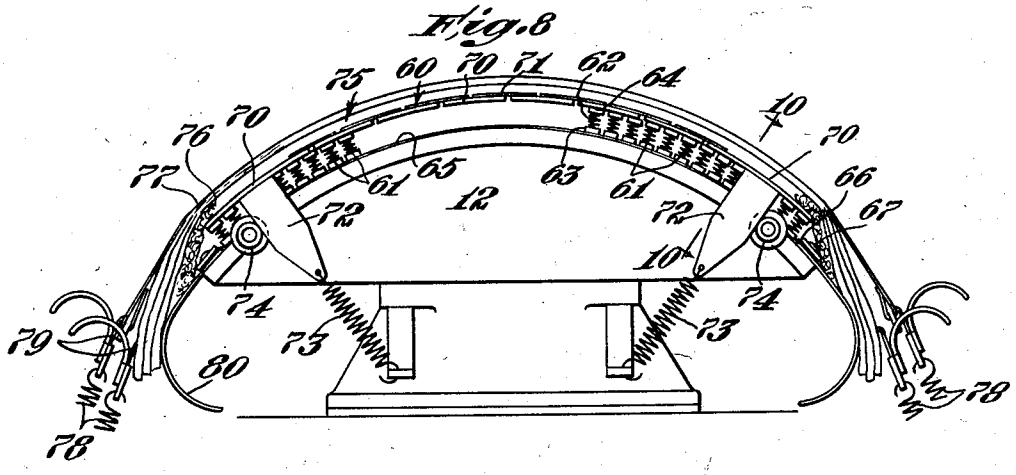
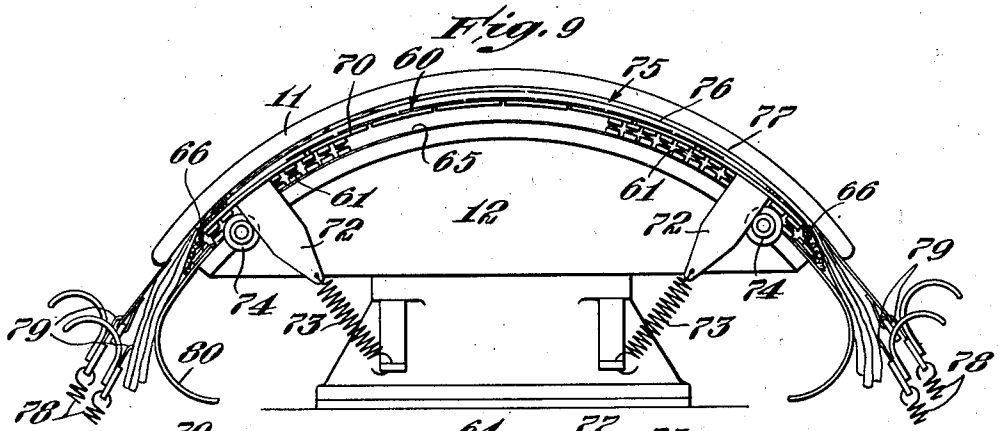


Fig. 9



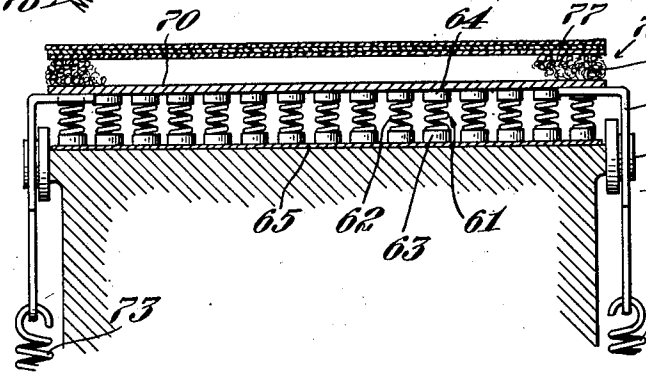


Fig. 10

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Patented May 18, 1943 2,319,211

UNITED STATES PATENT OFFICE

2,319,211

MANUFACTURE OF COLLARS AND THE LIKE

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Application April 24, 1941, Serial No. 390,056
In Canada February 1, 1941

17 Claims. (Cl. 223—57)

This invention relates to the manufacture of collars and more particularly to soft or partially soft collars of the kind which are attached to shirts, and is a further development of that set forth in our copending application Serial No. 330,290 filed April 18, 1940. While the invention may obviously be applied also to analogous garments or parts of garments, it is herein described as applied to collars because the problem of securing accurate fit is probably more acute in the case of collars attached to shirts than in any other part of a garment.

Through a series of experiments it develops that while laundry shrinkage of most every part of a shirt can be effectively prevented by making the shirt of an already shrunk fabric, a special problem arises in the case of a collar of the type customarily attached to the shirt. Here, although the collar be made mainly or entirely of previously completely shrunk fabric, much trouble has been experienced with the collars shrinking in the first laundering after use.

One important cause of this difficulty arises from the several rows of stitches which are a part of the collar, and which are used for such purposes as to fasten or bind the several layers of the collar, to secure the edge seams, and in some cases partially for stiffening or ornamentation, or both. The thread with which the stitches are formed tends to shrink when the collar is first laundered after use, and under the influence of water the shape of the stitches also alters in such a way as to draw the included fabric together longitudinally of the rows of stitches. In a collar or collar band, the concentration of a considerable amount of stitching within a relatively small strip of fabric thus tends to cause objectionable shrinking when the collar is laundered.

A further contributing cause of the difficulty appears to be the tendency of some fabrics, especially those having a relatively loose weave, to elongate when damp, particularly when being handled as in the final ironing operation on the collar. Elongation of this type, due to dampness and handling, will be reflected in a corresponding shrinkage when the shirt is fully laundered after use.

Still another factor increasing shrinkage in laundering is present in the case of collars having a fused interlining in the collar top. In this case, during the handling of the shirt in manufacture and in the dampening and ironing, the stiffness of collar top due to the fused stiffener apparently causes strains in the adjoining parts of the collar and band which tend to elongate these parts.

Collars are treated according to the disclosure in the above-mentioned application to prevent shrinking when laundered after use by pressing the manufactured over-size collars containing most or all of the ultimate stitching, and at the same time subjecting them to a mechanical action which causes the longitudinal rows of stitching and the portions of fabric penetrated by the stitching to relax and contract endwise to a dimension approximately such as these stitchings and fabric would assume if the collar were laundered.

Various mechanisms for carrying out this treatment are disclosed in that application, including a press comprising a head and a buck in which the collars are pressed and simultaneously subjected to such mechanical action. Both head and buck are cylindrical in shape. The concave surface of the head is highly polished while the surface of the buck carries a bed of compressible material. When the press is actuated the head descending upon the bed so compresses the bed that its initially curved surface is forced inwardly with a generally radial motion, each small arc of such curved surface being thereby forced radially inwardly so that the length of the arc is reduced.

The compressible bed disclosed in said application comprises a compressible element and one or more fabric layers held fairly taut over such element by suitable yieldable clamping means, such as clamps and springs. The compressible bed element is such as to be contractible both longitudinally and radially, and has moreover the property of resuming its original shape and size when pressure is withdrawn.

Objects of the present invention are to increase the shrinking capacity, increase the sensitivity and accuracy, and improve the durability of machines such as the above-described machines disclosed in said application Serial No. 330,290, which may be referred to for many of the details of construction of this general form of device.

One desirable feature of the present invention consists in the inclusion, as part of the bed structure, of a platform comprised of a plurality of sections which are severally constrained to movement in an approximately radial path.

Several types of such presses will be set forth in the following description and illustrated in the accompanying drawings, in which:

Fig. 1 is a view in front elevation of a press

embodying one form of this invention with the press open ready to receive the collar;

Fig. 2 is a similar view of the head and buck of the press shown in Fig. 1, with the press closed and the collar under pressure;

Figs. 3 and 4 are detail views, on an enlarged scale, of a portion of the platform under the conditions shown in Figs. 1 and 2, respectively;

Fig. 5 is a sectional view taken along the line 5—5 in Fig. 1;

Figs. 6 and 7 illustrate the buck of a press embodying another form of this invention, the buck being shown in Fig. 6 relieved from pressure, and in Fig. 7 under pressure;

Figs. 8 and 9 are views similar to Figs. 6 and 7 of the buck of a press embodying still another form of this invention; and

Fig. 10 is a sectional view taken along the line 10—10 in Fig. 8.

This invention is shown as installed upon a press 10 which includes a pivotally mounted concave head 11 and a stationary convex buck 12, the opposed surfaces of both head and buck being approximately cylindrical in shape.

United States Letters Patent No. 1,688,920 discloses a press of this type, and reference may be made thereto for description of the mechanism not shown. It may, however, be pointed out here that as shown in Fig. 1 the head 11 is carried by arms 15 pivoted upon the ends of a stud shaft 16 supported by a pedestal 17, while the buck 12 is stationary. The head 11, in accordance with the usual practice in presses of this type, is hollow and is heated by steam, hot water or the like, through inlet and outlet pipes 18 and 19, respectively. The concave face of the head 11 is highly polished.

The various embodiments of the invention illustrated in the drawings differ from each other in the structure and mounting of the bed carried by the buck 12. In each embodiment the surfaces of the head and bed have cross sections corresponding approximately to arcs of circles. The collar-receiving surface of the bed is arcuate, preferably having a radius substantially greater than that of the head so that the lateral edge portions of the head may first contact with the surface of the bed. As the head continues to descend, contact over the entire surface of the bed is completed and thereafter the entire surface of the bed is compressed radially.

The buck 12 of the embodiment shown in Figs. 1 to 5, inclusive, carries a platform 20 supported by a plurality of radially acting plungers 21, and a bed 22 which rests upon the platform 20 and which in this embodiment comprises a blanket 23 of suitably longitudinally contractible material, for example, rubber, and a plurality of fabric strips 24 which cover the blanket 23 and form the outer surface of the bed 22.

The plungers 21 each comprise a post 25 radially supported in arcuate flanges 26 and 27 secured in any suitable manner to the walls of the buck or integral with the buck. A collar 28 fixed to the post 25 limits the outward movement thereof by its engagement with the under face of the flange 26. An expansion spring 29 surrounding the post 25, acting at one end upon the upper face of the flange 26 and at the other end upon a collar 30 fixed to the post between the flanges, holds the plunger at the limit of its outward movement and resists yieldably any retraction of the plunger from such position.

The platform 20 consists of a series of parallel plates 31 and a second series of plates 32. The plates 31 are secured at each end to the heads 33 of pairs of posts 25 at front and back of the buck 12, and are so spaced apart that they do not come into contact with each other at any time. These spaces between the plates are closed by the second series of plates 32, each of which is carried by and secured to one of the plates 31 and slidably overlaps the next adjacent plate 31.

Each end of the blanket 23 is connected to a stationary bracket by means which permit a tensioning of the blanket to any desired extent. In the drawings, such means comprise a bar 35 of U-shaped section consisting of a pair of overlapping angle plates secured to the top and bottom of the blanket, bolts 36 passed through holes in the bar, crossbars 37 having holes in which the bolts are received, and posts 38 on which the ends of the bars 37 are mounted. The posts 38 are carried by brackets 39 secured to the ends of the buck and projecting therefrom. Each post 38 is secured to its bracket 39 by a stud 40 passed through a slot 41 in the bracket 39, so that adjustment of the tension longitudinally set up in the blanket can be made. The foot 42 of the post is extended outwardly below the lower edge of the bracket to prevent any shifting or turning thereof during adjustment or as a result of longitudinally exerted tension. The fabric strips 24 are held taut over the blanket 23 by a plurality of springs 43 secured to the ends of the strips and to the base of the machine.

The embodiment shown in Figs. 6 and 7 differs from that just described with respect to the construction of the bed which rests upon the platform 20 supported by the spring plungers 21. The bed, which is designated as 50 in this embodiment, consists of a plurality of layers of metal wool padding 51, preferably steel wool, covered by any suitable fabric covering layers 52 held fairly taut over the steel wool by springs 53 attached in a suitable manner to the ends of the layers 52, as by hooks 54. The ends of the fabric layers rest on curved plates 55 carried by brackets 56 attached to the ends of the buck 12, these plates also serving to direct the application of the tension set up by the springs 53. As disclosed in said application Serial No. 330,290, each of the separate layers of the metal wool padding is preferably composed of bundles of steel wool constituting wefts, held together by knitted loops of longitudinally or warpwise extending binding wire, the padding being so disposed in the press that the bundles of steel wool extend from front to back of the press; i. e., transversely to the length of a collar to be shrunk in the press. This construction of padding is preferred because of its ready compressibility both lengthwise and radially, coupled with its ability to resume its original shape and size when the pressure of the head is released, and its porosity which facilitates drying the collar.

The embodiment shown in Figs. 8, 9, and 10 includes a buck 12 provided with a platform 60 supported by radially acting spring plungers 61 and a compressible goods-carrying bed 75 resting upon such platform.

The radially acting spring plungers 61 by which the platform 60 is supported comprise a plurality of expansible springs 62 enclosed at each end by cups 63 and 64. The cups 63 which receive the lower ends of the springs 62 are welded, soldered or otherwise secured to a flexible perforated plate 65 rigidly mounted upon the upper surface of the buck in any suitable way,

as by means of cross-strips 66 and screws 67. The platform 60 supported by the spring plungers 61 comprises a plurality of parallel plates 70 extending from front to back of the buck and spaced apart to form spaces which are covered by a plurality of parallel plates 71, each carried by one of the plates 70 and overlapping an adjacent plate 70. The plates 70 at the ends of the row are much wider than the other plates of the row and carry generally radially extending straps 72 which are kept directed in this generally radial position by springs 73. Rollers 74, which are carried by the front and rear walls of the buck and against which one edge of the strap 72 bears, constrain the strap, and hence the associated platform of which it is a part, to travel in such radial direction when the platform and bed are subjected to the pressure of the head of the press. The cups 64 which receive the upper ends of the springs 62 are welded, soldered, or otherwise secured to the lower surfaces of the plates 70.

The compressible bed 75 is similar in construction and mounting to the bed 50 in the embodiment illustrated in Figs. 6 and 7, consisting preferably of layers of steel wool padding 76 such as described above in connection with said figures, and covered by any suitable fabric covering layers 77 held fairly taut over the steel wool by springs 78 attached, as by hooks 79, to the ends of the layers 77. Curved plates 80, secured to the buck 12 by the strips 66 and screws 67, guide the ends of the layers 77 in their travel.

The collar, neckband, sleeve band or other goods to be finished in a machine of the type hereinabove described, is placed on the surface of the compressible bed and pressure is applied thereto. Where, as is preferable, the surface of the bed has a larger radius than the concave surface of the head, the ends of the head first contact with the bed and as the pressure continues the entire surface of the bed is brought under pressure.

The bed is so constructed that in response to such pressure its surface shortens longitudinally and the collar thereon is shrunk longitudinally. The shortening of the surface is the result of the inward radial movement of the surface of the bed which is the sum of the compression of the bed and of the inward movement of the plunger-supported platform. The platform on which the bed rests is also arcuate and contractible due to the movement of the plates toward each other, and furthermore each plate is independently supported by radially acting spring plungers so that the platform, like the bed, has the properties of contracting longitudinally and radially. It will be noted that since the radially acting spring plungers are the support for both the platform and the bed, these two will also move as a unit inwardly toward the buck in response to the pressure of the head, thus further shortening the collar-receiving surface of the bed.

Continued effective operation of a machine embodying the principles of this application and of said copending application Serial No. 330,290 requires that the contractible surface which applies longitudinal shrinking pressure to the collar shall be restored to its longitudinally uncontracted condition after each operation. This restoring action is aided by the provision of the fabric layers 24 of Figs. 1 to 5, 52 of Figs. 6 and 7, and 77 of Figs. 8 to 10 equipped with means for longitudinally tensioning them when the press is open. It will be observed that when the press closes and compresses the surfaces of the bed radially, the fabric layer is shortened longitudinally and temporarily shrunk. The starch which is normally used to a greater or lesser degree in collars has a tendency, especially under the heat and pressure of the pressing operation, to fix the fabric layers in their shortened dimension. This tendency is, however, overcome by the springs which apply a relatively strong tension to all the parts of the fabric layers when the press opens.

The restoration of the surface of the bed to its uncontracted condition is further aided in the devices of this specification by the material of the bed and by the radially expanding action of the plungers. In Figs. 1 to 5 in which the bed may for example comprise a rubber blanket held under tension, this tension restores the rubber bed to its uncontracted condition and thus assists in similarly restoring the overlying fabric layers. In the devices of Figs. 6, 7, and 8 to 10 where the bed may for example be formed of the transversely extending and longitudinally tied bundles of steel wool described above, the longitudinal resiliency of the bed serves to restore the bed to its uncontracted condition and similarly extend the overlying fabric layers. In addition the spring plungers in all the forms of the press shown in the specification act on the bed to expand it radially and hence increase its circumference and the circumference of the overlying fabric layers, aiding in restoring these elements to their uncontracted condition when the head of the press is raised.

In the devices of this specification wherein use is made of the downward force of the head to effect a radial compression of an arcuate bed, it is desirable to prevent the bed portion from shifting in a circumferential sense relative to its underlying buck. That is, the downward movement of the head should not be allowed to cause any material shifting of the bed material outwardly from the middle toward its lateral edges, but on the contrary, each portion of the bed should, in so far as possible, move radially inward. The spring plungers of the various forms of the press shown in this application aid in preventing the undesired circumferential shift of the bed material and likewise aid in constraining each portion of the bed to radial movement. In addition, the preferred feature of having the expanded surface of the bed of a larger diameter than the concave surface of the head, aids in this same way by insuring that the lateral edge portions of the head will initially nip against the bed and thus tend to prevent circumferential shifting of the bed material out beyond the edges of the head, before the full force of the head is brought into play over the main portion of the surface of the bed. Likewise, in Figs. 8 and 10, the straps 72 and their guide rollers 74 effectively prevent undesired circumferential shifting of the bed material and constrain the bed material to approximately radial movement.

The presses described in this specification are particularly adapted for use in the method of manufacturing collars described and claimed in the said application Serial No. 330,290. For example, in manufacturing a given lot of collars, the constituent parts may first be cut out, using sufficient fabric for these parts so that when laundered the collar will not shrink below a certain longitudinal dimension. In a typical case, this dimension may be for example 15½" from

button to the buttonhole. The collar parts may then be assembled and longitudinal rows of stitches applied to the collar. Then in pressing the collar in a press as described in this specification, the longitudinal rows of stitches and the fabric included thereby are caused to draw together to an extent such that the collar attains substantially the predetermined longitudinal dimension; that is, in this example, 15½" from button to buttonhole. It will be understood that at the time of reception by the press the collar will be substantially larger than its desired final dimension. Adjustments in the amount of longitudinal shrinking performed by the press may be made by varying the extent to which the collar-receiving surface of the bed is moved in radially during the pressing. Thus lighter spring plungers or a thicker or more readily radially compressible bed will tend to increase the amount of shrinking action.

As pointed out in the said application Serial No. 330,290 in treating a typical kind of collar, it may be desirable that an 18" length of the bed surface should contract to approximately $17\frac{5}{16}$" (which is equivalent to about 3.8%) during the downward pressing movement of the head.

While certain embodiments of the invention have been shown and described, it will be understood that the invention is not limited thereto and that other embodiments may be made without departing from the spirit and scope of the invention as set forth in the following claims.

For example, while we have shown eleven platform plates **31** in the devices of Figs. 1 to 7 and eight platform plates **70** in the device of Figs. 8 to 10, it will be understood that the invention is not limited to these numbers of plates but that the number of such plates can be increased or decreased.

We claim:

1. A collar press comprising opposed relatively movable pressure members, a bed of arcuate shape, the bed being longitudinally contractible throughout its thickness, the outer surface of the bed and the opposed surface of one pressure member being adapted to receive between them a collar to be finished, the cross sections of said surfaces each corresponding approximately to arcs of circles, and radially yieldable spacing means disposed between the inner contractible surface of the bed and the other said pressure member and comprising radially movable members having their outer ends engaged with the contractible bed so that as the bed is pressed inwardly the places of engagement of the radially movable members with the contracting bed approach each other longitudinally of the bed.

2. A collar press comprising opposed relatively movable pressure members, a bed of arcuate shape, the bed being longitudinally contractible throughout its thickness, the outer surface of the bed and the opposed surface of one pressure member being adapted to receive between them a collar to be finished, the cross sections of said surfaces each corresponding approximately to arcs of circles, the radius of the said outer surface of the bed being substantially greater than the radius of the surface of said one pressure member, and radially yieldable spacing means disposed between the inner contractible surface of the bed and the other said pressure member and comprising radially movable members having their outer ends engaged with the contractible bed so that as the bed is pressed inwardly the places of engagement of the radially movable members with the contracting bed approach each other longitudinally of the bed.

3. A collar press comprising opposed relatively movable pressure members between which a collar to be finished is received, a longitudinally contractible bed of arcuate shape associated with one of said pressure members, the cross sections of the cooperating outer surface of the bed and surface of the pressure member opposed thereto each corresponding approximately to arcs of circles, and radially yieldable spacing means including a longitudinally contractible platform and a plurality of radially yieldable plungers between the bed and its said associated member, whereby, in response to the application of pressure, the bed is moved radially and contracted longitudinally to shrink a collar.

4. A collar press comprising a head and a bed relatively movable with respect to each other to receive and press a collar between them, the cross sections of the cooperating surfaces of the said head and bed corresponding approximately to arcs of circles, a longitudinally contractible platform on which said bed rests and a plurality of plungers yieldable radially with respect to the bed and supporting said platform.

5. A collar press comprising a head and a bed relatively movable with respect to each other to receive and press a collar between them, the cross sections of the cooperating surfaces of the said head and bed corresponding approximately to arcs of circles, a longitudinally contractible platform on which said bed rests and a plurality of spring plungers on which said platform is supported, said plungers being so located and arranged that their movement of contraction is radial of the surface of the bed.

6. A collar press comprising a head and a bed relatively movable with respect to each other to receive and press a collar between them, the cross sections of the cooperating surfaces of the said head and bed corresponding approximately to arcs of circles, the radius of said surface of the bed being substantially greater than the radius of the said surface of the head, and a plurality of radially yieldable plungers acting to support said bed in its arcuate position.

7. A collar press comprising a head and a bed relatively movable with respect to each other to receive and press a collar between them, the cross sections of the cooperating surfaces of the said head and bed corresponding approximately to arcs of circles, a longitudinally contractible platform on which said bed rests and a plurality of spring plungers on which said platform is supported, said platform including a plurality of transversely extending, parallel plates normally spaced apart and movable toward one another lengthwise of the arcuate shaped bed in response to the application of pressure.

8. A collar press comprising a head and a bed relatively movable with respect to each other to receive and press a collar between them, the cross sections of the cooperating surfaces of the said head and bed corresponding approximately to arcs of circles, a longitudinally contractible platform on which said bed rests and a plurality of spring plungers on which said platform is supported, said platform including a plurality of transversely extending parallel plates normally spaced apart and movable toward one another lengthwise of the arcuate shaped bed in response to the application of pressure, and said plungers being so located and arranged that their move-

ment of contraction is radial of the surface of the bed.

9. A collar press comprising a buck and a head relatively movable with respect to each other to press a collar therebetween, the cross sections of the cooperating surfaces of said buck and head corresponding approximately to arcs of circles, a compressible bed on the buck of material capable of contracting both longitudinally and radially, and a platform intermediate the bed and the buck, which platform is contractible longitudinally, and means for yieldingly resisting said contraction of the platform whereby in response to the pressure of the head the bed contracts longitudinally and radially and the platform contracts lengthwise of the arcuate shaped bed so that the surface of the bed is shortened and the collar thereon is shrunk longitudinally.

10. A collar press comprising a buck and a head relatively movable with respect to each other to press a collar therebetween, the buck and the head each having surfaces having cross sections corresponding approximately to arcs of circles, a compressible bed on the buck of material capable of contracting both longitudinally and radially, a platform on which said bed rests and which is contractible longitudinally, and a plurality of spring plungers so located and arranged between the platform and the surface of the buck as to support the platform and to contract radially of the buck, whereby in response to the pressure of the head the bed contracts longitudinally and radially, the platform contracts longitudinally and the bed and platform move radially toward the buck so that the surface of the bed is shortened and the collar thereon is shrunk longitudinally.

11. A collar press comprising a buck and a head relatively movable with respect to each other to press a collar therebetween, the buck and the head each having surfaces having cross sections corresponding approximately to arcs of circles, a compressible bed on the buck of material capable of contracting both longitudinally and radially, and a platform, intermediate the bed and the surface of the buck, on which said bed rests and which comprises a plurality of transverse parallel plates normally spaced apart and adapted to approach each other to contract the platform longitudinally, whereby in response to the pressure of the head the bed contracts longitudinally and radially and the platform contracts longitudinally so that the surface of the bed is shortened and the collar thereon is shrunk longitudinally.

12. A collar press comprising a buck and a head relatively movable with respect to each other to press a collar therebetween, the buck and the head each having surfaces having cross sections corresponding approximately to arcs of circles, a compressible bed on the buck of material capable of contracting both longitudinally and radially, a platform, intermediate the bed and the surface of the buck, on which said bed rests and which comprises a plurality of transverse parallel plates normally spaced apart and adapted to approach each other to contract the platform longitudinally, and a plurality of spring plungers so located and arranged between the platform and the surface of the buck as to support the platform and to contract radially of the buck, whereby in response to the pressure of the head the bed contracts longitudinally and radially, the platform contracts longitudinally and the bed and platform move radially toward the buck so that the surface of the bed is shortened and the collar thereon is shrunk longitudinally.

13. A collar press comprising a buck and a head relatively movable with respect to each other to press a collar therebetween, the buck and the head each having surfaces having cross sections corresponding approximately to arcs of circles, a compressible bed on the buck of material capable of contracting both longitudinally and radially, a platform, intermediate the bed and the surface of the buck, on which said bed rests and which comprises a plurality of transverse parallel plates normally spaced apart and adapted to approach each other to contract the platform longitudinally, and a plurality of spring plungers so located and arranged between the platform and the surface of the buck as to support the plates of the platform independently and to contract radially of the buck, whereby, in response to the pressure of the head, the bed contracts longitudinally and radially, the platform contracts longitudinally and the bed and platform move radially toward the buck so that the surface of the bed is shortened and the collar thereon is shrunk longitudinally.

14. A collar press comprising a buck and a head relatively movable with respect to each other to press a collar therebetween, the buck and the head each having surfaces having cross sections corresponding approximately to arcs of circles, a compressible bed on the buck of material capable of contracting both longitudinally and radially, a platform, intermediate the bed and the surface of the buck, on which said bed rests and which comprises a plurality of transverse parallel plates normally spaced apart and adapted to approach each other to contract the platform longitudinally, and a plurality of spring plungers carried by the buck and in contact with the under faces of the plates to support them independently, said plungers being arranged to contract radially of the buck, whereby in response to the pressure of the head the bed contracts longitudinally and radially, the platform contracts longitudinally and the bed and platform move radially toward the buck so that the surface of the bed is shortened and the collar thereon is shrunk longitudinally.

15. A collar press comprising a buck and a head relatively movable with respect to each other to press a collar therebetween, the buck and the head each having surfaces having cross sections corresponding approximately to arcs of circles, a compressible bed on the buck of material capable of contracting both longitudinally and radially, a platform, intermediate the bed and the surface of the buck, on which said bed rests and which comprises a plurality of transverse parallel plates normally spaced apart and adapted to approach each other to contract the platform longitudinally, and a plurality of spring plungers carried by the buck and bearing upon the under faces of the plates to support them independently, said plungers being arranged to contract radially of the buck, whereby in response to the pressure of the head the bed contracts longitudinally and radially, the platform contracts longitudinally and the bed and platform move radially toward the buck so that the surface of the bed is shortened and the collar thereon is shrunk longitudinally.

16. A collar press comprising a buck and a head relatively movable with respect to each other to press a collar therebetween, the buck and the head each having surfaces having cross

sections corresponding approximately to arcs of circles, a compressible bed on the buck of material capable of contracting both longitudinally and radially, a platform, intermediate the bed and the surface of the buck, on which said bed rests and which comprises a plurality of transverse parallel plates normally spaced apart and adapted to approach each other to contract the platform longitudinally, certain of said plates being wider than the others, a plurality of spring plungers carried by the buck and bearing upon the under faces of the plates to support them independently, said plungers being arranged to contract independently, and guiding means by which the said wider plates are constrained to radial movement, whereby in response to the pressure of the head the bed contracts longitudinally and radially, the platform contracts longitudinally and the bed and platform move radially toward the buck so that the surface of the bed is shortened and the collar thereon is shrunk longitudinally.

17. A collar press comprising a buck and a head relatively movable with respect to each other to press a collar therebetween, the buck and the head each having surfaces having cross sections corresponding approximately to arcs of circles, a compressible bed on the buck of material capable of contracting both longitudinally and radially, a platform, intermediate the bed and the surface of the buck, on which said bed rests and which comprises a plurality of transversely extending plates normally spaced apart and adapted to approach each other and thereby contract the platform longitudinally, the end plates of the platform being wider than the other plates, a plurality of spring plungers carried by the buck and bearing upon the under faces of the plates to support them independently, and guiding means by which the said wider end plates are constrained to radial movement, whereby in response to the pressure of the head the bed contracts longitudinally and radially, the platform contracts longitudinally and the bed and platform move radially toward the buck so that the surface of the bed is shortened and the collar thereon is shrunk longitudinally.

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