Feb. 20, 1951 H. W. HUNTER 2,542,676

METHOD OF AND APPARATUS FOR BLOCKING HATS OF FELTED MATERIAL

Filed Nov. 17, 1948 2 Sheets-Sheet 1

FIG. 1

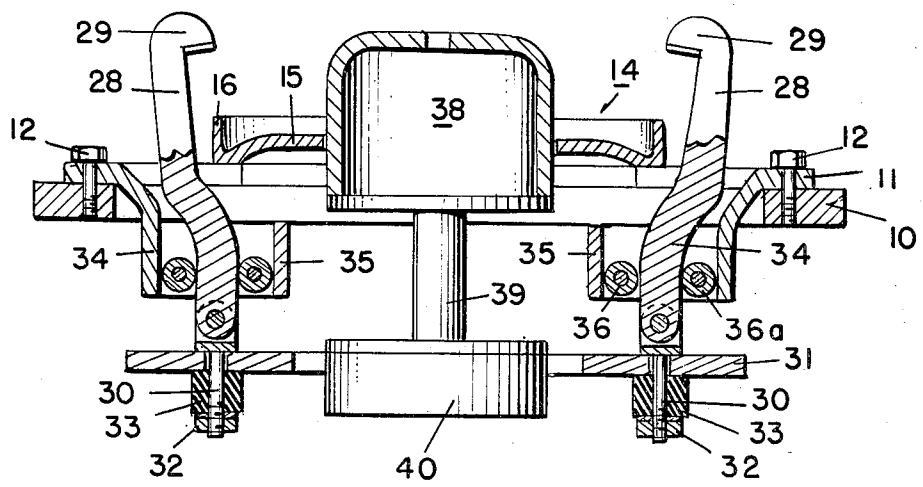
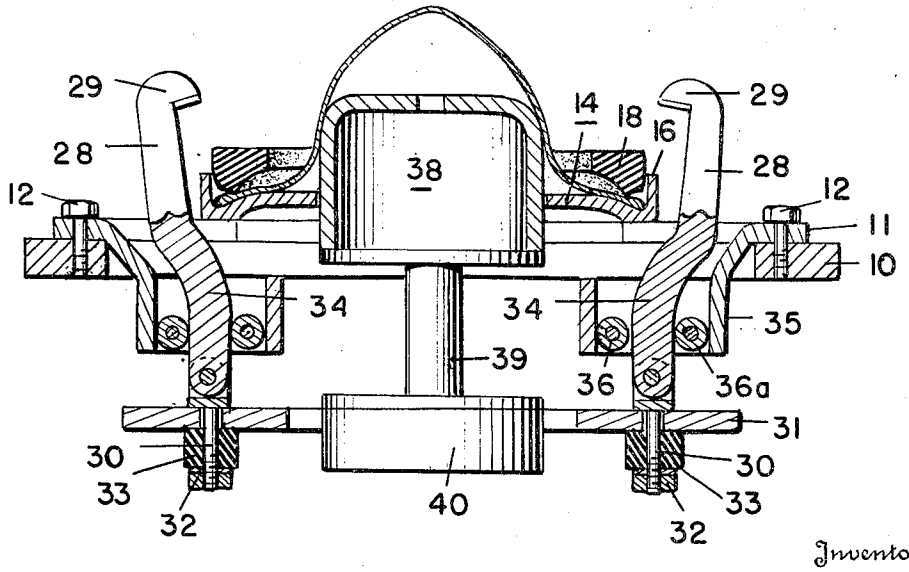


FIG. 2



Inventor

HUGH W. HUNTER,

By J. Harold Kiecoyne

ATTORNEY

Feb. 20, 1951 H. W. HUNTER 2,542,676

METHOD OF AND APPARATUS FOR BLOCKING HATS OF FELTED MATERIAL

Filed Nov. 17, 1948 2 Sheets-Sheet 2

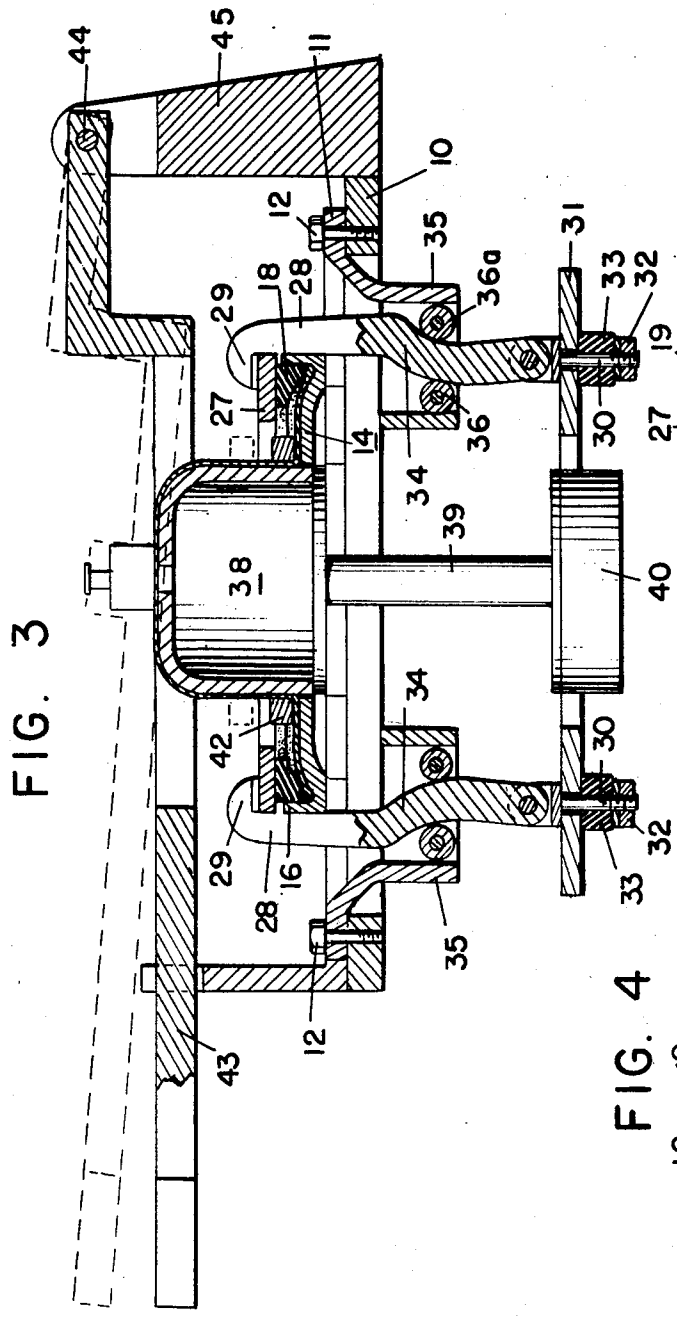


FIG. 3

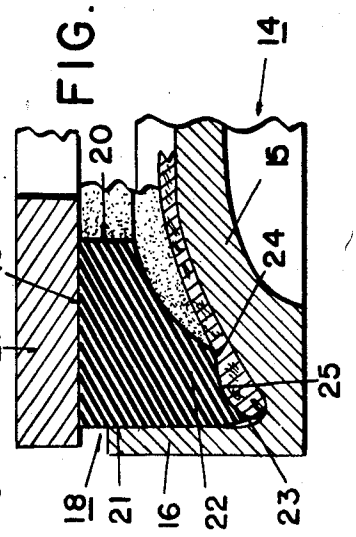


FIG. 5

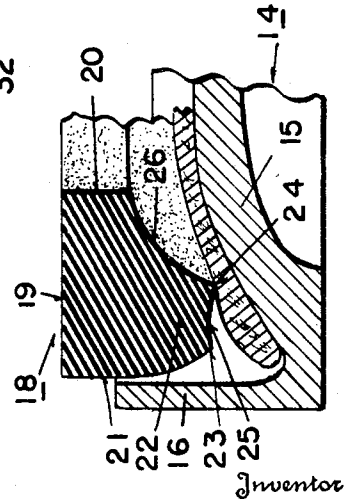


FIG. 4

Inventor

HUGH W. HUNTER,

By J. Harold Kiesow

ATTORNEY

Patented Feb. 20, 1951 2,542,676

UNITED STATES PATENT OFFICE

2,542,676

METHOD OF AND APPARATUS FOR BLOCKING HATS OF FELTED MATERIAL

Hugh Walker Hunter, Danbury, Conn., assignor to H. McLachlan & Co. Incorporated, Danbury, Conn., a corporation of Connecticut

Application November 17, 1948, Serial No. 60,608

22 Claims. (Cl. 223—12)

1

This invention relates to methods of and apparatus for blocking hats of felted material whose brims are provided with a felted-in welt or beaded edge.

In the manufacture of hats having a so-called welt or beaded edge, the hat bats are formed conical as usual and are put through a "starting" operation which effects a preliminary felting and shrinking of the cone-shaped bat. The usual procedure for obtaining the welt edge is now to fold back the edge of the bat on the bat proper and to secure same to the bat by sewing in a chain-stitching machine which also trims off the rough marginal edge from the bat. The cone-shaped bat with folded-over and secured edge is then put through the usual felting and shrinking operations which reduces the bat to the required body size and at the same time felts the folded-over edge to the material of the body. The hat bodies with felted-in welt are now colored, and are thereupon "stretched" in a so-called stretching operation which is preliminary to the blocking operation, which latter affects definition of the crown and brim.

Bearing in mind that the felted-in welt edge of the hat body provided by the foregoing procedures forms the final edge of the finished hat, that is to say, it is not rounded, trimmed or otherwise processed, it becomes apparent that the machine-blocking of the bodies whose brims are provided with a welt edge has not heretofore been permissible, due to the fact that in machine-blocking as normally practiced, the edge of the brim-forming portion of the body is clamped with substantial pressure at a multiplicity of points along its oval and the body is pulled against the clamped edge in the definition of the crown, which operations would seriously impair if not destroy the appearance sought to be imparted by the brim welt or bead. As a result thereof hand-blocking was resorted to, with consequent high cost and slow production. And even the hand-blocking operation, unless carefully practiced, may result in an irregular brim edge, as well as in a non-uniform width of brim.

To overcome the high cost and slow rate of production entailed in hand-blocking hat bodies whose brims are provided with the welt edge, it has been suggested in Patent 2,278,865, dated April 7, 1942, to mold the welt into the brim edge during the blocking operation. Another suggestion for providing the welt edge is contained in Patent 2,209,011, dated July 23, 1940, wherein the welt is formed by rolling the same into the brim

2

edge after the hat has been blocked. However, hats formed in accordance with the welting methods of the aforesaid patents have never met with trade acceptance, so that in the main the art has relied on the hand-blocking procedure despite its disadvantages as explained in the foregoing.

Stated broadly, the stated invention has for its principal object the provision of simple, effective and thoroughly dependable apparatus for effecting the machine blocking of hats of felted material whose brims are provided prior to blocking with a felted-in welt or beaded edge.

A further object of the invention is the provision of apparatus for blocking hat bodies characterized as in the foregoing, by which such hats may be blocked at a vastly increased rate and very inexpensively and in a simple manner, as compared with the prior hand-blocking operation, and without requiring highly skilled workers as heretofore.

Yet another object of the invention is the provision of a simple and effective means for blocking hat bodies provided with a felted-in welt or beaded edge, whose operation is such as not only to make feasible the machine blocking of such hat bodies but which also provides adequate protection for the previously formed welt during the blocking operation, and which further improves the appearance and regularity of the welt, while at the same time insuring uniform width of brim throughout its full oval.

Another principal object of the invention is the provision of a novel method of blocking hat bodies provided in a prior operation with a felted-in welt edge, which, in addition to defining the crown and brim of the hat, also protects the welt edge, sets both the welt and brim edge in such manner as to insure uniform width of both welt and brim throughout the full oval of the brim, and at the same time effects the flanging of the brim, thus to simplify subsequent finishing operations.

An equally important object of the invention is the provision of a novel method of blocking hat bodies provided along their edge with a felted-in welt or beaded edge, by the practice of which the blocking operation can be carried on at substantially higher rate of production and at a lesser cost than heretofore, the appearance of the welt is improved, the width of the brim is made uniform, and both the brim and the welt are set and their overall appearance is improved.

The above and other objects and features of

advantage of the invention will be apparent from the following detailed description, taken with the accompanying drawings illustrating more or less diagrammatically the essential parts of a blocking machine according to the invention, in which

Fig. 1 is a transverse vertical section taken through the blocking machine;

Fig. 2 is a similar view further illustrating a hat body inserted in the machine and said machine ready for the start of the blocking operation;

Fig. 3 is a longitudinal vertical section taken through the machine illustrating the action of machine in gripping the brim and defining the crown; and

Figs. 4 and 5 are detail views illustrating the action of the rubber and metal ring combination of the invention in gripping the welt edge of the brim, in effecting stretching of the brim, and in setting the welt and flanging the brim.

Referring to the drawings, reference character 10 designates a horizontal bed member suitably shaped to provide a working opening for the operating parts to be described, and which supports a horizontal table or shelf 11 secured to the bed member as by bolts 12 and which is provided with an opening which may be oval-shaped. The table 11 removably supports an oval-shaped metal ring general designated 14 which may be and preferably is cast from a light weight metal such as aluminum whereby it may be readily handled in mounting it on and removing it from the table 11. Suitable means (not shown) are provided to detachably secure the metal ring 14 in fixed position to the table and to permit its removal when a different size of ring is to be substituted, it being observed that the size of the metal ring used depends on the width of brim desired for a particular run of hats.

The metal ring consists of a generally horizontal body portion 15 provided with an oval-shaped opening for the reception of the crown block to be described, and with an upstanding flange 16 extending along the outer margin of the body portion and following the oval contour of the hat brim to be blocked, the flange serving in one of its functions as a confining means for the mating rubber ring to be described. By reference to the Figs. 4 and 5, it will be observed that the upper face of the ring body portion 15 is curved downwardly in its outer portion, to merge into a small radius corner connecting with the inner vertical wall of the flange 16. It will thus be seen that the metal ring 14 provides a recess for the insertion of the brim-forming portion of a hat body to be blocked, which is laid on the upper face of the ring body 15, with its crown up. In inserting the hat body into the recess, suitable means such as a bladed tool may be employed to turn or snap the brim downwardly to the position thereof indicated in Fig. 4, it being further observed that prior to the commencement of the blocking operation, the outer or marginal edge of the brim terminates a short distance inwardly of the inner vertical wall of the flange 16, by reason of the flange being slightly oversize relative to the brim.

According to the invention, the brim of the hat being blocked is clamped along its outer edge against the metal ring by a rubber ring 18 of oval contour, which is adapted to fit into the metal ring recess with suitable clearance as provides for its ready insertion in and removal from said recess. Although the ring 18 is referred to as a "rubber ring," it can be made of any flexible or resilient material which deforms under pressure and returns to its initial unstressed shape upon release of said pressure.

By reference particularly to Figs. 4 and 5, the rubber ring 18 has a horizontal top face 19, an inner edge 20 which may be formed vertical as shown, and an outer edge 21 which is substantially vertical in its upper portion but which is curved or inclined inwardly in its lower portion. Moreover, the rubber ring 19 has greater thickness (axial depth) in its outer portion, the thickened outer portion in effect providing an under face marginal rib-like formation having appreciable radial dimension and being defined, when viewed in transverse section, by angled edges 23, 24, of which the inner edge 24 is more sharply angled and is disposed at a somewhat lower level than the outer edge 23. The under face 25 of the rib, i. e. the face extending between the edge corners 23, 24, is preferably curved inwardly and downwardly as shown, along an arc of gentle curvature. From the inner edge 24, the under face of the rubber ring is sharply curved upwardly as at 26 to meet the inner vertical edge 20 of the rubber ring, such curvature weakening the ring in its inner portion.

It is a feature of the invention that the inner edge or corner 24 of the rib 22 is spaced from the inner vertical wall of the flange 16 of the metal ring 14 by an amount closely approximating the distance that the inner line of a welt formed along the edge of the brim of the unblocked body is spaced from the said inner wall of flange 16. That is to say, when the rubber ring 18 is inserted into the metal ring recess to engage against the brim of a hat body previously inserted in said recess, the edge 24 engages with line contact against the brim along the inner line of the welt.

The rubber ring 18 is adapted to be placed under axial compression upon limited lowering movement being imparted to a pressure ring 27 (Fig. 3) which as shown may consist of a flat oval-shaped ring adapted to engage flat against the horizontal top face 19 of the rubber ring. Illustratively, the means for lowering the pressure ring 27 comprises a plurality of vertically disposed arms 28 arranged at regularly spaced intervals along the oval contour of the ring assembly. The upper ends of said arms are formed as claws 29 which are adapted to bear on the pressure ring when the arms are actuated inwardly from their normally retracted position and thereupon given lowering movement. At their lower ends, the arms 28 are pivotally connected to the bifurcated heads of bolts 30 whose shanks extend through an actuating ring 31, the bolts being secured by nuts 32 which are spaced from the under face of the actuating ring as by rubber cushioning blocks 33. Intermediate their ends, the arms are inwardly offset as at 34, and in their offset region they extend through sleeve-like extensions 35 which may be formed integral with the table 11 and depend therefrom. Each said extension mounts a pair of rollers 36, 36a which together form a track for the arm 28 extending therethrough, in its lowering movement. Suitable operator-control means (not shown) are provided to impart lowering movement to the actuating ring 31, whereupon arms 28 are given corresponding lowering movement. Due to the offsetting 34 of said arms, the latter are cammed inwardly by the rollers 36, 36a during their lowering movement whereupon the claws 29 engage on

the pressure ring 27 and place the rubber ring 18 under axial compression.

Consequent to such compression, the edge 24 formed on the under surface of the rubber ring engages with substantial downward pressure against the brim of a hat supported on the body 15 of the metal ring 14, along the inner line of the welt or bead of the brim, and thereupon expands to exert radially outward and downward pressure to the welt also. This results from the fact that in the outer zone of the metal ring body 15, its upper face is sloped downwardly; hence the natural tendency of the rubber ring 18 is to spread and flow downwardly in its outer lower region, this tendency being augmented by the gradually decreasing axial dimension of the ring between the edge 24 and its inner edge 20, which in effect weakens the ring in its inner region. Accordingly, the edge 24 spreads radially outwardly and moves downwardly as well, and in so doing not only clamps the brim of the body along the inner line of its welt against the upper face of the metal ring 14, but also pushes the welt radially outwardly and downwardly, thus to effect expansion of the welt and stretching of the brim in its outer edge portion, and eventually coincides the outer line of the welt with the inner wall of the flange 16 of the metal ring 14, with the result that the outer line of the welt is made regular and uniform by virtue of its pressure engagement with the flange 16.

During such spreading action of the edge 24 under pressure exerted from above, the downward flow of the material of the ring 18 in its outer rim portion 22 as aforesaid results in the curved under face portion 25 of the rim lowering on to the upper surface of the welt, in effect forming with the outer margin of the metal ring body 15 a resilient mold cavity in which the welt is received under resilient pressure. This latter action of the rubber ring exercises a shaping and setting action on the welt as a whole and improves its appearance in that the welt is made regular throughout the full oval of the brim. It will be observed that in its upper portion, the rubber ring is confined by the flange 16 of the metal ring 14, so that deformation of the former is controlled and takes place only within the recess formed by the body portion and the flange of said metal ring.

Upon compression of the rubber ring 18 as aforesaid, the brim is of course firmly and adequately secured along its outer or marginal edge portion, as is required in the shaping of the crown of the hat body. To effect crown shaping, there is provided a crown block 38 which normally extends into the opening of the metal ring 14 to a level permitting ready insertion of the brim of a hat body in the recess of the metal ring 14. The crown block is carried on a vertical post 39 in turn mounted on a supporting member 40 to which raising and lowering movement may be imparted by means (not shown) under the control of the operator. Thus, following gripping of the brim along its edge, the crown block 38 is forcibly projected upwardly into the stretched crown portion of the body wherein it is temporarily held stationary.

To effect final definition of the crown, a banding ring 42 carried by a lever 43 mounted to swing in a vertical plane on the axis of a horizontal pin 44 which connects the lever to a fixed machine part 45, is lowered to its full line position shown in Fig. 3. The effective diameter of the banding ring is chosen to conform to the head size of the hat being blocked, as is the size of the crown block also so selected. Although the details of the mounting of the banding ring 42 have not been illustrated, such preferably comprises a yoke member whose legs straddle the crown, i. e. extend downwardly along both sides thereof and to the ends of which the banding ring is affixed. Said yoke member has a swinging mount on the lever 43, whereby it may "float" when lowered over the crown block, and is also coupled thereto for quick detachment whereby banding rings of the various required sizes may be used interchangeably.

Following initial lowering of the banding ring to its approximate full-line position shown in Fig. 3, the lever 43 may be "pumped" up and down a number of times by the operator, thus to overcome the resistance of the felt of the body to conform to the shape of the crown block, with the result that the banding ring eventually lowers to its full line position thereby tightly stretching the hat body over the crown, as well as defining a permanent line of junction between crown and brim as is necessary. It will be observed further that as the crown is shaped, the brim of the hat is pulled against its clamped outer edge portion. Due to the curvature of the upper face 15 of the metal ring 14, such results in the brim being set to a curvature which when reversed is substantially the curvature imparted by the conventional flanging operation.

Upon completion of the aforesaid operation, the lever 43 is raised, thus to raise the banding ring 42 above the crown block and the actuating ring 31 is then raised, thus to release the claws 29. Pressure ring 27 is now lifted from the rubber ring 18 and finally the latter is lifted from the metal ring 14, whereupon the blocked hat body may be simply lifted out of the metal ring recess and removed from the machine.

Although the rubber ring 18 has been shown as a solid ring which is deformable (spreadable) under axial compression, it is also contemplated to make said ring hollow and to effect its deformation pneumatically as by supplying compressed air to the ring at the beginning of each blocking cycle.

While the blocking machine and method of the invention has particular application to the "wet-blocking" of hat bodies as aforesaid in a back-shop operation wherein the hat bodies are softened by hot water prior to and/or during blocking, and are thereupon "set" by the application of cold water, its principle is applicable to the dry-blocking of hats having the welt-edge brim in a front-shop operation wherein equivalent softening is obtained through the use of steam.

It will thus be seen that there has been provided by this invention a novel machine and method for blocking hat bodies whose brim portions are formed with a felted-in welt edge in a prior operation. The apparatus is simple to operate and results in a machine-blocked hat body whose brim is provided with a welt edge having improved definition and regularity and which is characterized by uniform brim width along the full oval of the hat. Moreover, a hat blocked in an apparatus as described has its brim "scoped" or flanged to substantially its final curvature so that subsequent finishing operations as were heretofore necessary to flange the brim may be reduced if not completely eliminated.

The herein described method of blocking hat bodies whose brim edges are formed with a felted-

in welt or beaded edge results not only in a superior edge but it is extremely fast and very inexpensive as compared to the prior methods of hand-blocking welt edge bodies and moreover it is capable of being practiced by relatively non-skilled operators.

As many changes could be made in carrying out the above constructions and method without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. Apparatus for blocking hat bodies having a felted-in welt edge comprising, in combination, horizontal supporting means, a metal ring detachably supported on said means and having a crown block opening, said ring providing an oval-shaped supporting surface for a hat body laid crown-up thereon and having an upstanding vertical flange extending along its margin, said flange forming with said surface an oval-shaped recess and being oversize by a small amount relative to the oval of the brim of the hat body being blocked, a deformable oval-shaped ring disposed in said recess and adapted to rest on a hat body supported on said metal ring, the under surface of said deformable ring being provided with downwardly directed means extending along its outer margin but spaced inwardly therefrom by an amount such that said means is adapted to engage the upper face of the hat body along substantially the inner line of the welt, means for effecting deformation of the deformable ring in such manner that said downwardly directed means clamps the welt edge of the body against said supporting surface and pushes the welt outwardly against the inner wall of the flange, a crown block extending into the opening of the metal ring, means for forcibly projecting the crown block upwardly through said opening into the crown space of the body whose edge is clamped as aforesaid, a banding ring adapted to be lowered over the crown block when the latter is in its raised position thereby to progressively stretch the crown portion of the hat body over the crown block while pulling the brim inwardly from its clamped welt edge and finally to define the permanent angular junction of crown and brim, and means for lowering the banding ring as aforesaid.

2. Apparatus for blocking hat bodies having a felted-in welt edge comprising, in combination, horizontal supporting means, a metal ring detachably supported on said means and having a crown block opening, said ring providing an oval-shaped supporting surface for a hat body laid crown-up thereon and having an upstanding vertical flange extending along its margin, said flange forming with said surface an oval-shaped recess and being oversize by a small amount relative to the oval of the brim of the hat body being blocked, a deformable oval-shaped ring disposed in said recess and adapted to rest on a hat body supported on said metal ring, the under surface of said deformable ring being provided with downwardly directed means extending along its outer margin but spaced inwardly therefrom by an amount such that said means is adapted to engage the upper face of the hat body along substantially the inner line of the welt, a pressure ring adapted to be superimposed on the deformable ring, means operative through the pressure ring to effect deformation of the deformable ring in such manner that said downwardly directed means clamps the welt edge of the body against the said supporting surface and pushes the welt outwardly against the inner wall of the flange, a crown block extending into the opening of the metal ring, means for forcibly projecting the crown block upwardly through said opening into the crown space of the hat body whose edge is clamped as aforesaid, a banding ring adapted to be lowered over the crown block when the latter is in its raised position thereby to progressively stretch the crown portion of the hat body over the crown block while pulling the brim inwardly from its clamped welt edge and finally to define the permanent angular junction of crown and brim, and means for lowering and banding ring as aforesaid.

3. Apparatus for blocking hat bodies having a felted-in welt edge as set forth in claim 1, wherein said downwardly directed means comprises an under-face angled edge adapted to make line contact with the upper face of the hat body along substantially the inner line of the welt.

4. Apparatus for blocking hat bodies having a felted-in welt edge as set forth in claim 1, wherein said downwardly directed means comprises a rib-like formation having edge corners, of which the inner edge corner is disposed at a slightly lower level than the outer edge corner and is angled so as to make line contact with the upper face of the hat body along substantially the inner line of the welt.

5. Apparatus for blocking hat bodies having a felted-in welt edge as set forth in claim 1, wherein said downwardly directed means comprises a rib-like formation defined by two angled edge corners, of which the outer edge corner is spaced inwardly from the outer periphery of the ring and the inner edge corner is spaced inwardly from the outer edge corner an amount such that it is adapted to make line contact with the upper surface of the brim along substantially the inner line of the welt.

6. Apparatus for blocking hat bodies having a felted-in welt edge as set forth in claim 1, wherein said deformable ring is made of flexible resilient material and said downwardly directed means consists of an under-face angled edge adapted to make line contact with the upper face of the hat body along substantially the inner line of the welt.

7. Apparatus for blocking hat bodies having a felted-in welt edge as set forth in claim 1, wherein the supporting surface provided by the metal ring is curved downwardly towards its outer margin, whereby deformation of the deformable ring and its clamping action on the brim effects flanging of the brim portion of the hat body.

8. Apparatus for blocking hat bodies having a felted-in welt edge as set forth in claim 2, wherein said deformable ring is made of resilient flexible material of the order of rubber, and said downwardly directed means comprises a thickened rim portion providing an under-face angled edge adapted to make line contact with the upper face of the hat body along substantially the inner line of the welt.

9. Apparatus for blocking hat bodies having a felted-in welt edge as set forth in claim 2, wherein said deformable ring is made of rubber and said downwardly directed means comprises a thickened rim portion providing an under-face edge adapted to make line contact with the upper face of the hat body along substantially the inner line of the welt, and wherein the supporting surface

provided by the metal ring is curved downwardly towards its outer margin whereby deformation of the rubber ring and its clamping action on the edge of the hat body effects flanging of the brim portion of the body.

10. In apparatus for blocking hat bodies having a felted-in welt edge, means for clamping the body along its welt edge prior to shaping of the crown, comprising the combination of a metal ring having a body portion whose upper surface provides for the support of the hat body laid crown-up thereon and an upstanding vertical flange extending along the margin of said surface and forming with said surface an oval-shaped recess, said flange being slightly oversize relative to the oval of the hat body being blocked, an oval-shaped ring made of rubber-like material fitting with working clearance in said recess and adapted to rest against the upper face of the hat body supported on said upper surface, said last-named ring having greater axial thickness in its outer portion than in its inner portion and having an underface angled edge spaced inwardly from its outer margin by an amount such that it is adapted to make line contact with the hat body along substantially the inner line of the welt, and means for compressing said last-named ring axially by pressure applied from above, whereby to cause said edge to clamp the hat body against the supporting surface along substantially the inner line of the welt and to effect limited spreading of said edge in radially outward direction.

11. In apparatus for blocking hat bodies having a felted-in welt edge, means for clamping the body along its welt edge prior to shaping of the crown, comprising the combination of a metal ring having a body portion whose upper surface provides for the support of a hat body laid crown-up thereon and an upstanding vertical flange extending along the margin of said surface and forming with said surface an oval-shaped recess, said flange being slightly oversize relative to the oval of the hat body being blocked, an oval-shaped ring made of rubber-like material fitting with working clearance in said recess and adapted to rest against the upper face of the hat body supported on said upper surface, said last named ring having an under-face rib formation extending along its margin and being spaced inwardly a small amount from said margin, said rib being defined in part by an angled inner edge which is adapted to make line contact with the hat body along substantially the inner line of the welt, and means for compressing said last-named ring axially by pressure applied from above, whereby to cause said edge to clamp the hat body against the supporting surface along substantially the inner line of the welt and to effect limited spreading of said edge in radially outward direction.

12. In apparatus for blocking hat bodies having a felted-in welt edge, means for clamping the body along its welt edge prior to shaping of the crown, comprising the combination of a metal ring having a body portion whose upper surface provides for the support of a hat body laid crown-up thereon and an upstanding vertical flange extending along the margin of said surface and forming with said surface an oval-shaped recess, said flange being slightly oversize relative to the oval of the hat body being blocked, an oval-shaped ring made of rubber-like material fitting with working clearance in said recess and adapted to rest against the upper face of the hat body supported on said upper surface, said last-named ring having an under-face rib formation extending along its margin and being spaced inwardly a small amount from said margin, said rib being defined by inner and outer edge corners of which the inner corner is slightly lower than the outer corner and is angled to provide an edge adapted to make line contact with the hat body along substantially the inner line of the welt, the underface of the rib between inner and outer corners being curved to bear on the upper surface of the welt upon pressure being applied to the ring from above, and means for compressing said last-named ring axially by pressure applied from above, whereby to cause said edge to clamp the hat body against the supporting surface along substantially the inner line of the welt and to effect limited spreading of said edge in radially outward direction.

13. In apparatus for blocking hat bodies having a felted-in welt edge, the ring combination specified in claim 10, wherein the upper surface of the metal ring body portion is downwardly curved towards its outer margin whereby, upon pressure being exerted on the ring of rubber-like material from above to clamp the body along its edge and which results in spreading of the under-face angled edge, the brim edge portion of the body is conformed to the curvature of the metal ring upper surface.

14. The method of blocking hat bodies having a felted-in welt edge including the steps of supporting a hat body crown-up on an oval-shaped substantially horizontal supporting surface having an upstanding marginal flange which is slightly oversize relative to the oval of the hat body being blocked, clamping the hat body against said surface with resilient pressure and along a line which is substantially the inner line of the welt, and pushing the welt in radially outward direction under resilient pressure thereby to expand the welt the limited amount necessary to engage the outer line of the welt with the inner wall of the flange.

15. The method of blocking hat bodies having a felted-in welt edge, including the steps of supporting a hat body crown-up on an oval-shaped substantially horizontal supporting surface having an upstanding marginal flange which is slightly oversize relative to the oval of the hat body being blocked, and simultaneously clamping the body against said surface with resilient pressure along a line which is substantially the inner line of the welt and pushing the welt radially outwardly under resilient pressure thereby to expand the welt the limited amount such as to engage the outer line of the welt with the inner wall of the flange.

16. The mehod of blocking hat bodies having a felted-in welt edge, including the steps of supporting a hat body crown-up on an oval-shaped substantially horizontal supporting surface having an upstanding marginal flange which is slightly oversize relative to the oval of the hat body being blocked, clamping the body against said surface with resilient pressure along a line which is substantially the inner line of the welt, and simultaneously therewith pushing the welt in radially outward and downward direction under resilient pressure thereby to expand the welt and bring its outer line into engagement with the inner wall of the flange and to conform the outer brim portion of the body to the curvature of said supporting surface.

17. The method of blocking hat bodies having a felted-in welt edge which comprises the steps set forth in claim 14 and the additional step of shap-

ing the crown and brim by pull exerted against the so-clamped welt edge of the hat body.

18. The method of blocking hat bodies having a felted-in welt edge which comprises the steps set forth in claim 15 and the additional step of shaping the crown and brim by pull exerted against the so-clamped welt edge of the hat body.

19. The method of blocking hat bodies having a felted-in welt edge which comprises the steps set forth in claim 16 and the additional step of shaping the crown and brim by pull exerted against the so-clamped welt edge of the hat body.

20. The method of blocking hat bodies having a felted-in welt edge including the steps of supporting a hat body crown-up on an oval-shaped, substantially horizontal supporting surface having an upstanding marginal flange which is slightly over-size relative to the oval of the hat body being blocked, and applying resilient pressure in radially outward direction to the brim along the inner line of the welt, thereby to expand the welt and bring its outer edge line into engagement with the inner wall of the flange.

21. The method of blocking hat bodies having a felted-in welt edge including the steps of supporting a hat body crown-up on an oval-shaped, substantially horizontal supporting surface having an upstanding marginal flange which is slightly over-size relative to the oval of the hat body being blocked, and applying resilient clamping pressure to the brim along the inner line of the welt first in downward direction and then in radially outward direction, thereby to expand the welt and bring its outer edge line into engagement with the inner wall of the flange.

22. The method of blocking hat bodies having a felted-in welt edge including the steps of supporting a hat body crown-up on an oval-shaped, substantially horizontal supporting surface which is downwardly curved in its outer zone and having an upstanding marginal flange which is slightly over-size relative to the oval of the hat body being blocked, and applying resilient pressure to the brim along the inner line of the welt first in downward and then in radially outward and downward directions, thereby both to expand the welt and bring its outer edge line into engagement with the inner wall of the flange and to conform the outer brim portion of the body to the curvature of the outer zone of said supporting surface.

HUGH WALKER HUNTER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
201,351	Lees	Mar. 19, 1878
2,091,429	Cipriano	Aug. 31, 1937
2,186,663	Blount	Jan. 9, 1940
2,268,555	Adler	Jan. 6, 1942
2,278,865	Cipriano	Apr. 7, 1942