

June 12, 1956

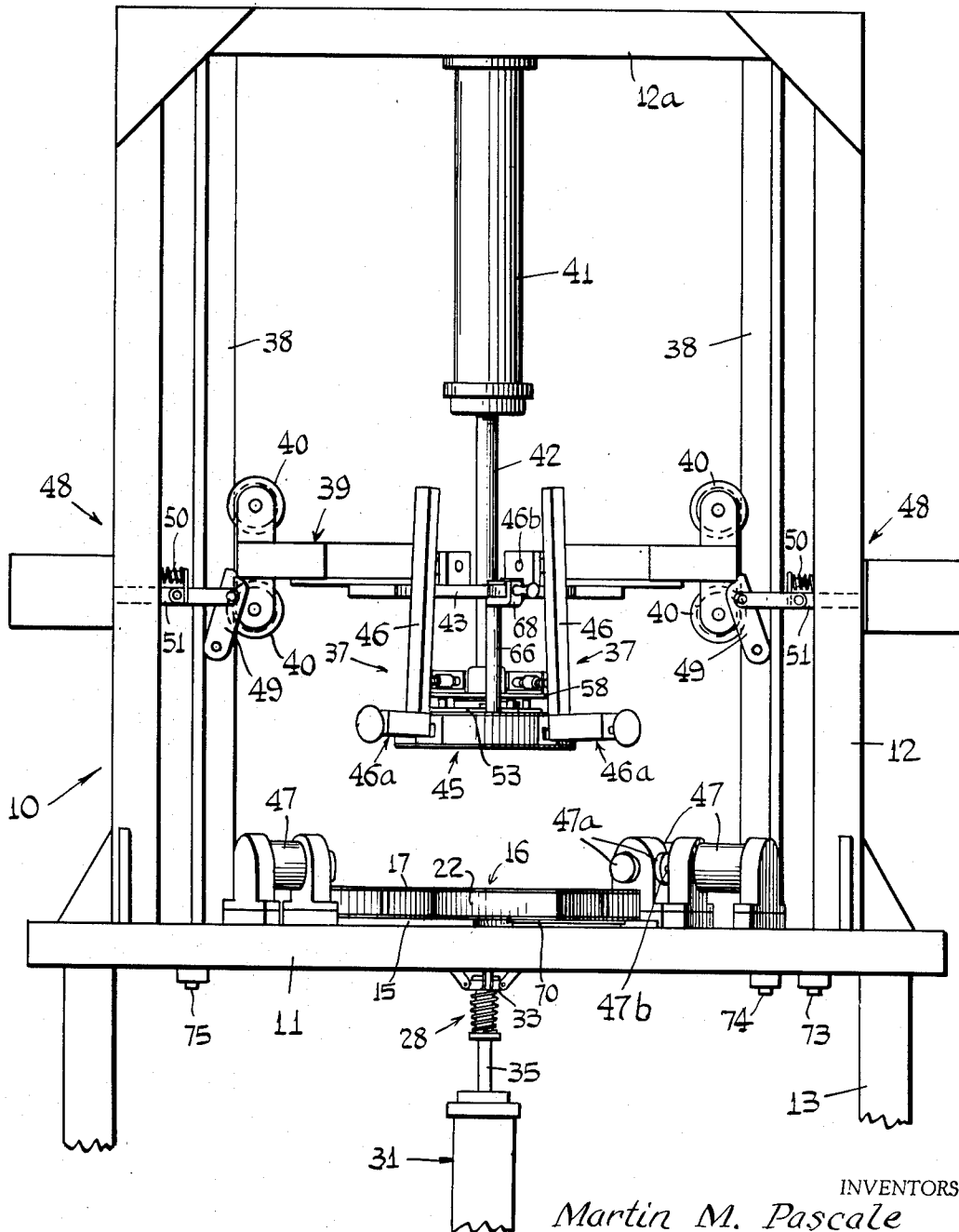
M. M. PASCALE ET AL
STAPLING MACHINE

2,749,546

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3 Sheets-Sheet 1

Fig. 1



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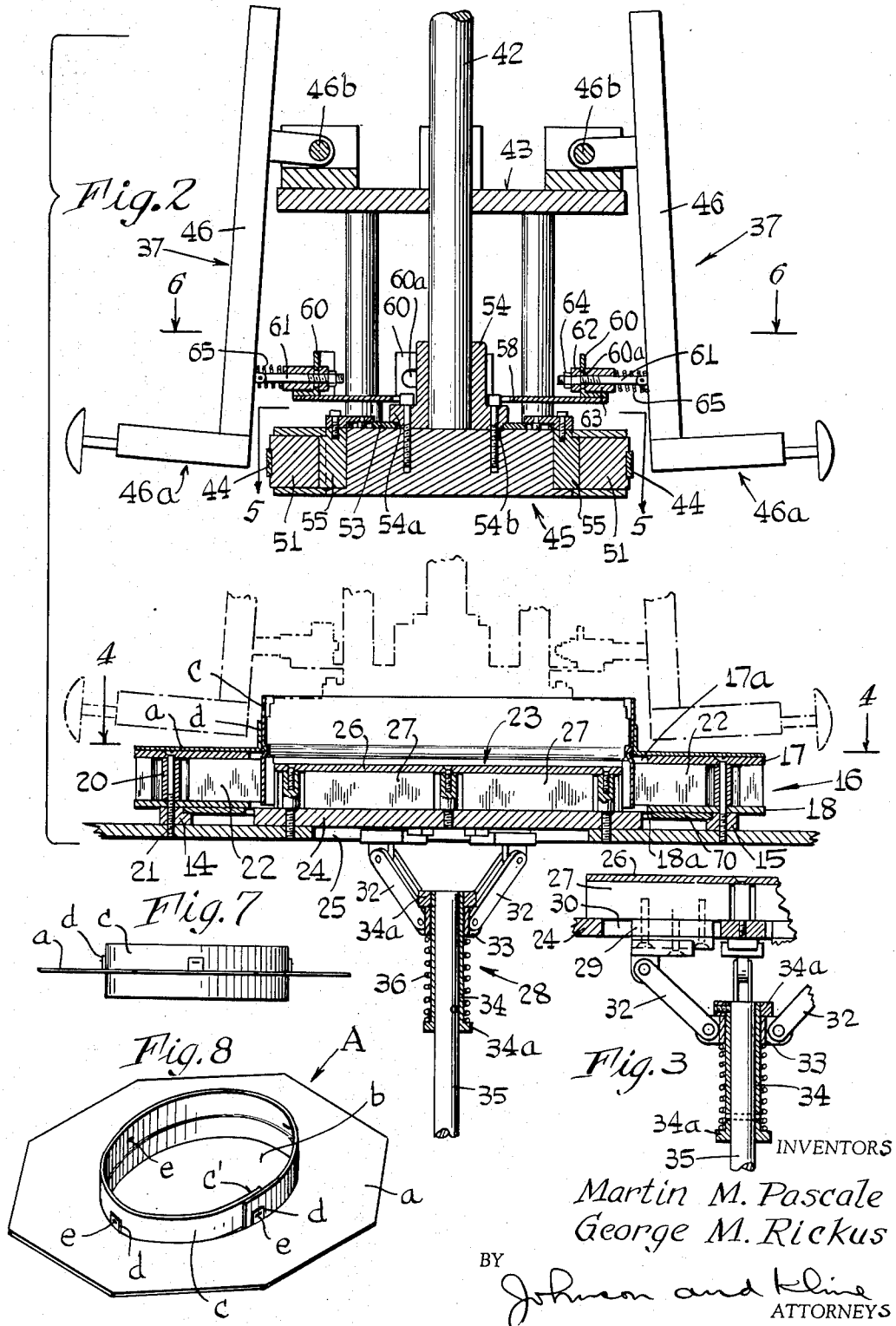
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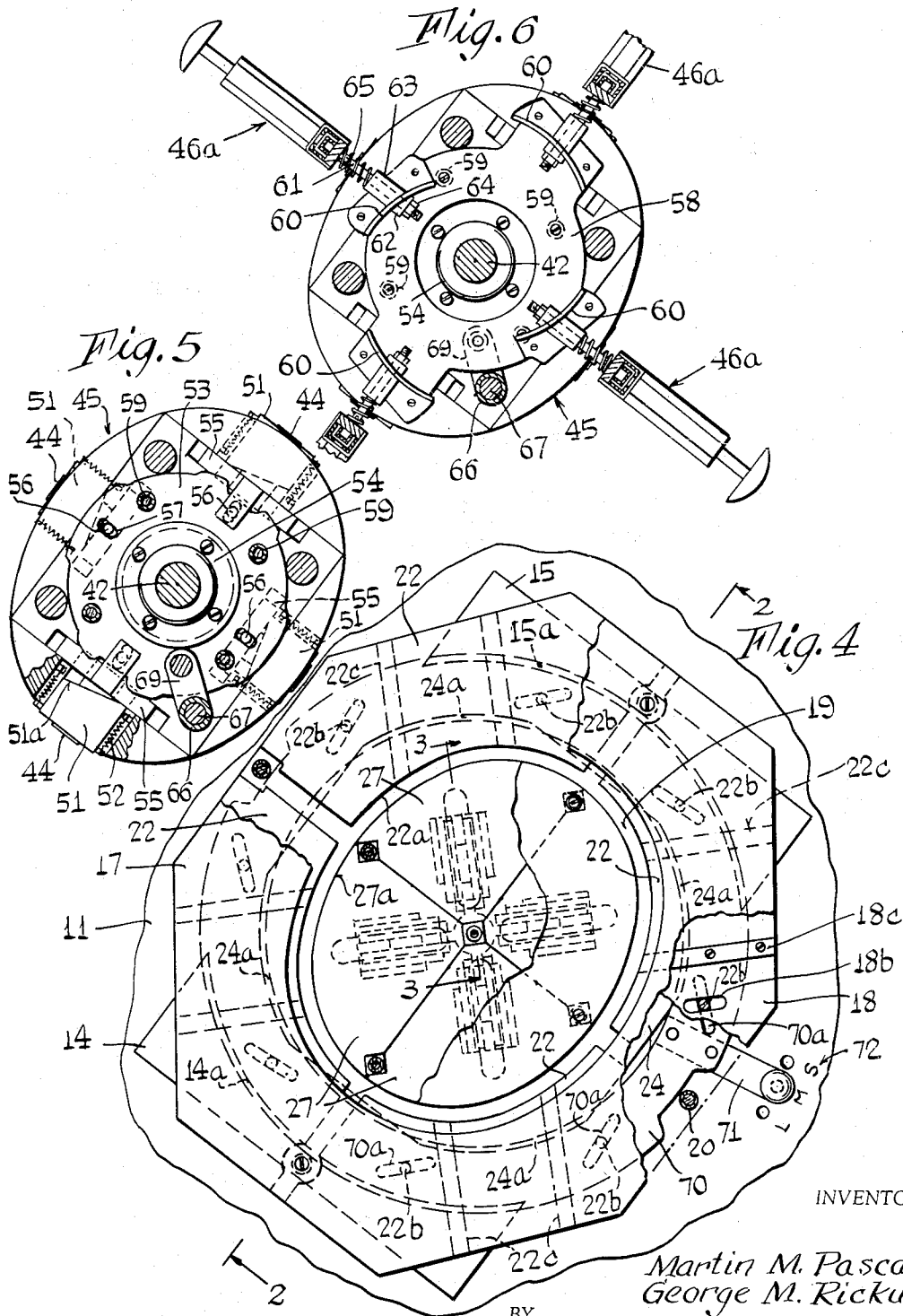
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3 Sheets-Sheet 3



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STAPLING MACHINE

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16 Claims. (Cl. 1—3)

The present invention relates to a fastening machine and a novel hat ring formed thereby and more particularly to a stapling machine for positively securing together assembled elements of a hat ring used for supporting hats in a hat box.

An object of the present invention is to provide a novel hat ring for supporting hats in a hat box or the like which is rugged but of simple construction.

Another object of the invention is to provide a machine which quickly and accurately secures together the pre-assembled elements of a hat ring.

Another object of this invention is to provide a machine for fastening together the elements of a hat ring having varying band sizes on a single machine.

Another object is to provide a machine which is semi-automatic and operated in such a manner that it is rendered impossible for an operator to negligently injure himself in the working parts thereof.

In accordance with the present invention, the novel hat ring comprises a stiff flat sheet of material having an opening therein and which is provided with spaced tabs extending therearound; and an annular band positioned in the opening with the tabs overlying and positively secured to the band, preferably by staples passing through the tabs and band to provide a rugged hat ring which can be quickly and accurately secured together by the machine of the present invention.

The machine of the present invention includes means for supporting the assembled flat sheet and band and a fastening means adapted to be moved into cooperating relation for securing the tabs on the flat sheet of the hat ring to the band by a fastener projected through the tabs and the band. In the form herein illustrated, the fastening means is movable into fastening position relative to a support means.

A feature of the present invention resides in the provision of holding means on the supporting means adapted to hold the band of the hat ring in position during the fastening operation. Preferably, the holding means is yieldingly urged into holding relation.

If desired, the machine of the present invention can be made adjustable to secure together the elements of hat rings of different sizes. This is accomplished by providing the supporting means with adjustable shoes, adjustable to engage and support bands of different sizes and/or providing fastening means which are correspondingly adjustable so as to properly locate the elements of the fastening means in proper position with respect to the bands of various sizes to properly secure the elements thereof together.

While the machine herein illustrated can be provided with a fully automatic cycle of operation, it is preferred that the machine be semi-automatically operated in such a manner that the operator's hands be pre-occupied by a control system requiring sequential operation thereof to carry out the operations of the machine.

A feature of the invention resides in the provision of an adjustable anvil in the fastening means which is adapted

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to be adjusted to positions adjacent the inner face portion of the bands of various sizes and in an adjustable staple supply and driving head which is automatically, simultaneously adjusted to proper positions adjacent the outer face of the band.

Another feature of the invention resides in the provision of an adjustable supporting means for the band which can be readily adjusted to engage the outer surface of bands of different sizes to accurately support them on the supporting means during the staple driving operation.

Another feature of this invention is the provision of a yielding connection in the holding means operatively associated with the supporting means whereby the said holding means automatically adjusts itself to the particular size band supported on the said supporting means to securely clamp the hat ring thereon during the fastening operation.

Other features and advantages will be apparent from the specifications and claims when considered with the drawings in which:

Figure 1 is a front view of a fastening machine having a portion thereof broken away.

Fig. 2 is an enlarged fragmentational view of the moving parts of the fastening machine shown partly in section, taken along plane 2—2 of Fig. 4, the dotted lines illustrating the fastening position of the machine.

Fig. 3 is an enlarged fragmentary sectional view of the yielding connection in the holding means taken along line 3—3 of Fig. 4.

Fig. 4 is a plan view of the support means partly broken away taken along line 4—4 of Fig. 2.

Fig. 5 is a plan view of the anvil means partly broken away taken along line 5—5 of Fig. 2.

Fig. 6 is a plan view taken along line 6—6 of Fig. 2.

Fig. 7 is a front view of the novel hat ring.

Fig. 8 is a perspective view of the new and improved hat ring.

As shown in the drawings, the present invention provides a novel hat ring A which is of rugged construction and is adapted to securely hold and support a hat in position in a hat box.

In contradistinction to prior hat rings in which the elements were frictionally held together, the present ring, which comprises a relatively rigid, flat sheet of material *a* having an opening *b* therein corresponding to the shape and size of the hat to be packed, has the supporting band *c* permanently secured thereto. While the band may be made in various ways, it is herein illustrated as comprising a strip of material, such as light cardboard, and preferably of a fixed length. The strip has its ends *c'* overlapped, as shown in Fig. 8, and is adapted to be positioned within the opening in the flat sheet so as to project above and below the sheet, the overlapped ends *c'* permitting the band to be inserted in openings *b* of various sizes to accommodate hats of such sizes. The band *c* is secured rigidly to the sheet by having spaced tabs or ears *d* on the sheet adjacent the opening and projecting upwardly from the sheet to overlie the outer surface of the band. In the preferred form of the invention, the tabs *d* are secured to the band by means of staples *e* passing through the tabs and band and securing the same together. As shown in Fig. 8, it is at present preferred to have at least one of the tabs located at the point of overlap in the band so that the staple *e* not only secures the tab to the band but also secures the ends of the band together.

Although the hat ring A may be secured together by hand, this invention provides a novel stapling machine for this purpose. As shown in the drawings, the stapling machine of the present invention includes a frame member 10 having a base 11 portion extending transversely of the frame dividing it into an upper frame portion 12 and a low-

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er frame portion 13. Mounted on the base 11 by means of a pair of bearing plates 14 and 15 is a hat ring supporting means 16 which comprises a body made up of a pair of spaced plate members 17 and 18, the upper plate 17 providing a flat upper surface on the body to support the flat sheet *a* of the hat ring. Spaced plates 17 and 18 have aligned openings 17*a* and 18*a* respectively forming a well or recess 19, Figs. 2 and 4, for accommodating the lower portion of the band *c* when the hat ring is supported on the support means 16. A plurality of spacer sleeves 20 circumferentially spaced about the support body spaces the upper plate 17 from the lower plate 18, and screws 21 extending through the plates 17 and 18 and the sleeve 20 secure the body to the base.

Preferably the space between the plates is provided with support shoes 22 whose inner faces 22*a* are shaped to form the outer wall of the recess 19 so as to engage and support the outer face of the band *c* when in supported position.

If desired, to firmly hold the hat ring in place on the supporting means 16 during a fastening operation for insuring a more accurate fastening thereof, a holding means 23 is provided to cooperate with the supporting shoes 22 to clamp the hat ring thereon. As illustrated in Figs. 2 and 3, the holding means is positioned within the well 19 so as to form the inner part of the recess and includes a second bearing plate 24 which overlies an opening 25 in the base 11 and supports a top plate 26 in spaced relation. A plurality of radially movable holding blocks 27 are disposed between plates 24 and 26. Although the number of holding blocks 27 required may vary, the preferred form illustrates four such blocks which when in the retracted position form quadrants and as illustrated in Fig. 4, the periphery 27*a* thereof are contoured to substantially conform to the shape of the recess formed by the support shoes to form the inner wall of the recess 19.

The holding blocks 27 are preferably moved into projecting clamping position by yieldable means 28 to securely hold the band against the faces of support shoes 22. This is accomplished by providing each holding block 27 with a depending lug 29 which projects through radially extending slots 30 in the second bearing plate 24 as shown in Fig. 3. The slots 30 in the bearing plate 24 are positioned within the aperture 25 of the base member so that the lug 29 depending therethrough may be operatively connected to an actuating means 31 situated on the lower frame portion 13. In order to actuate the holding blocks 27 to the clamping position, the depending lugs 29 are connected by connecting links 32 to a spider 33 slidably mounted on a sleeve 34 fixed to a piston rod 35 of a suitable actuating means 31, for example, a hydraulic piston shown in part in Fig. 1. The sleeve 34 has a flange 34*a* at each end and a spring 36 is interposed between one of the flanges and the spider 33. As shown, the spring 36 is positioned between the lower flange and the spider. Thus it will be seen that the reciprocal displacement of the piston rod 35 during the fastening operation enables the spider 33 to flatten or retract the connecting links 32 in such a manner as to cause the holding blocks 27 to move radially inwardly or outwardly to clamp or unclamp the hat ring against the supporting shoes. Since the stroke of the piston is uniform, the spring 36 acts to provide a yielding means or buffer to absorb excessive overtravel of the piston rod 35 when the larger size hat rings are being secured and therefore prevents binding between the holding blocks 27 and the support shoes 22. The action of the holding blocks are coordinated with the movement of the fastener means so that the holder clamps the hat ring on the support means to facilitate the fastening operation.

To fasten the flat sheet of the hat ring to the band, a fastening means 37 is provided to cooperate with the support means 16 whereby all of the ears or tabs *d* on the flat sheet may be simultaneously secured to the annular band. Although either the support means or the fastening means may be made removable relative to the other, or

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to each other, the present preferred form of the invention provides for the fastening means to move relative to the support means.

This is accomplished by providing the upper frame 12 with a pair of spaced guide or rail means 38 on which are movably mounted a carrier or carriage 39 for supporting and positioning the fastening means in the operative or fastening position. Wheels 40 at the end of the carrier, guided by the rails, facilitate movement of the carrier. Although the carriage 39 may be actuated by any suitable means, it is herein illustrated that the carriage be actuated by a hydraulic piston 41. It is presently preferred that the piston be mounted on the top 12*a* of the frame 10 wherein a reciprocating piston rod 42 extending downwardly therefrom is connected to a center plate 43 of the carrier so that the carrier supporting the fastening means may be aligned with the supporting means.

A fastening means includes spaced anvils 44 carried by a housing 45 secured to the carrier so as to depend therefrom and a plurality of staple storage arms 46 with driving heads pivoted at 46*b* to the carrier and predeterminedly spaced therearound to cooperate with the anvils. The anvils and driving heads are so arranged that as the carrier is moved into fastening position, as shown in dotted lines in Fig. 2, the anvils are positioned closely adjacent the inner face of the hat band, while the stapler driving heads 46*a* are positioned on the opposite side of the band adjacent the turned-up ears on the flat sheet. To facilitate the fastening operation, it is desirable to have as many stapler driving heads positioned around the anvils as there are ears on the flat sheet so that the hat band can be fastened to the ears in one operation. Upon actuation of the stapler driving heads, a staple fastener is driven through the hat band and overlying ear or tab to positively secure the ears to the hat band.

The fastening means, i. e. the staplers, are preferably of the Bostitch type having a supply arm and driving head which are connected to the carrier center plate so that the staple supply arm projects downwardly to space the driving head from the anvils as shown in Figs. 1 and 2.

To facilitate the actuation of the fastening means a plurality of strikers 47 are mounted on the base in position to strike the stapling heads to effect the driving of a staple from the staple supply means. The strikers comprise a striker head 47*a* carried by the rod 47*b* of a piston and cylinder drive means which is preferably controlled by the usual solenoid controlled valve (not shown) in such a manner that the striker head is normally retracted and when the solenoid is actuated by a suitable control circuit, the valve is shifted to energize the piston and cylinder means to forcefully move the striker head against the staple driver to cause it to drive the staple.

To prevent inadvertent movement of the fastening means into fastening position while the hat ring is being manually applied or removed from the support means, the present invention further provides for a blocking means 48 mounted on the upper frame. As shown in Fig. 1, the blocking means comprises a blocking member 49 pivotally mounted on the upper frame and is urged by spring 50 so as to normally project into the path of movement of the carrier. In order to withdraw the blocking means so that the carrier can be properly moved to fastening position, the blocking means is connected to a solenoid plunger 51. Thus, when the solenoid is energized by a suitable control circuit, the plunger will move the blocking means out of the path of movement of the carriage, thereby allowing the carriage to be free for movement to the fastening position. The carriage in returning to the normally raised position overrides the blocking member, and the spring 51 urges the member 49 outwardly to automatically block the carriage as best seen in Fig. 1. Thus the blocking means provides an important safety feature.

In order that the fastening means can operate on various size hat rings, an adjusting means is provided

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whereby the anvil and the staple driving heads are simultaneously adjusted to accommodate the various hat sizes. This is accomplished by providing the anvil blocks 51 with an inclined rear face 51a and slidably mounting the anvil blocks 51 on the housing 45 so that the blocks 51 can be adjusted on the housing so as to be located adjacent the inner surface of the band.

In the illustrated form of the invention, the blocks 51 are urged to a retracted position in which the outer faces line up with the edge of the housing by springs 52. The blocks 51 in this position are located adjacent the inner surface of the band for the smallest hat ring. In order to adjust the position of the blocks for medium and large rings, a control member in the form of an annular plate or cam actuating ring 53 is mounted on top of the anvil housing 45 and is rotatably secured thereon by a hub 54 having a flange 54a with an annular shoulder 54b portion to confine the movement of the member 53. The control member 53 is connected to sliding actuator bars 55 located behind the anvil blocks 51 by means of a pin 56 and a slot 57 connection so that rotation of the control member 53 causes the bars 55 to slide transversely of the blocks 51. The bars 55 have block engaging members which cooperate with the inclined rear portions 51a of the blocks to shift the blocks in accordance with the adjusted position of the control member.

In order to maintain the spaced relation between the anvil and the staple driving heads, the stapler driving heads are simultaneously adjusted with the anvil blocks 51 for each particular hat size to be formed on the machine. This is accomplished by pivoting the stapler supply arm to depend from the carriage center plate and arranged to cooperate with a second plate member 58 spaced from and connected to said control member 53 by means of a plurality of connecting spacers 59. The second plate is provided with a plurality of upwardly projecting camming shoes 60, one for each staple supply arm. The camming shoes 60 have a substantially horizontal slotted opening 60a therein through which a rod 61 having one end fixed to the supply arm of the stapler extends. A pair of collars 62 and 63 are mounted on the rod to engage the opposite faces of the shoes 60 with the collars held in place by a nut 64 on the end of the rod. A spring 65 is positioned between the end of the collar and the stapler arm to permit movement of the arm into stapling position while at the same time causing the arms to be adjusted with the adjustment of the anvils when the plates 53 and 58 are rotated.

The control member 53 and second plate 58 can be rotated in many ways. As herein illustrated, a sleeve 66 is rotatably mounted on post 67 and has a handle 68 at one end and an arm 69 at the other end which is so connected to the control member 53 so that movement of the handle into either of three positions corresponding to the size of the hat ring will automatically shift the control member 53 and connected second plate 58 so as to cause the anvil 51 and staple supply arms 56 to be simultaneously adjusted to a proper position for the band to be fastened.

Under some circumstances it may be preferred to vary the size of the recess opening 19 for accommodating therein various size hat bands such as small, medium, or large hats. This is accomplished by making the plurality of shoes 22 radially adjustable, so as to engage the outer surfaces of the bands of various sizes. This is accomplished by means of an adjustable cam ring 70 rotatably supported below the support body and operatively associated with the supporting shoes 22 to simultaneously slide the shoes radially inwardly or outwardly so that location of the outer wall of the recess may be varied.

As shown in Figs. 2 and 4, the cam ring is positioned immediately adjacent the lower face of the lower housing plate 18 and the outer periphery of the cam ring is supported on shoulders 14a and 15a formed on the pair

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of bearing plates 14 and 15 respectively. The inner periphery of the cam ring is supported in shoulders 24a formed on a second bearing plate or lower holding plate 24, see Fig. 4. Thus, the cam ring is mounted so that it may be easily rotated either clockwise or counterclockwise, as desired.

For rendering the sliding movement of the shoe 22 responsive to the adjustment of the cam ring 70 to adjust the size of the recess, each supporting shoe is provided with pins 22b projecting through an aperture 18b in the lower housing plate 18. The cam ring 70 is also provided with a plurality of slotted openings 70a angularly positioned and circumferentially spaced therearound, as shown in Fig. 4, so that slotted opening 70a of the cam ring 70 coincides with an aperture 18b in the lower housing plate for receiving the pin 22b on the support shoes. As seen in Fig. 4, the angularly disposed slotted opening in the cam ring functions as a cam when the cam ring is rotated in either direction to displace the pin and thereby moving the supporting shoes a corresponding amount inwardly or outwardly. If desired channels 22c in the shoes and corresponding guide-ways 18c on the lower plate are provided to guide the shoes during movement thereon.

To facilitate movement of the cam ring, a handle 71 is provided to rotate it in the desired direction. Suitable indicia 72 mark the position of the cam ring for various band sizes. Thus it will be noted that hat bands of varying sizes can be supported in the support body by simply positioning the handle to the desired hat size indicia and positioning the hat ring on the support so that the flat sheet a is supported on the upper housing plate 17 and the lower portion of the hat band seated in the adjusted recess. If the holding device is used with the adjustable support means, the yieldable connection formed by spring means will automatically permit the holding blocks to move to the position determined by the location of the shoes to properly grip and hold the band during the fastening operation.

In order to properly predeterminedly position the hat ring on the support housing, it is desirable to have the body plates and the recess therein conform to the shape of the flat sheet and hat band respectively. For purposes of illustration, the flat sheet and support housing plates are octagonal and the band and recess are oval.

Although the machine described may be made to operate automatically, the preferred form of the invention includes a control means which is semi-automatic in operation and requires sequential operation thereof so that the operator is protected from negligently coming into contact with the moving parts of the machine. This is accomplished by positioning a plurality of sequentially manually operated buttons controlling suitable driving means of the machine, as for example a hydraulic system, on the base of the machine so that the operator's hands are preoccupied during the operation of the machine; for example, by having a button 73 controlling the blocking means circuit and the button 74 operating the striker circuit sequentially operated by one hand, and a carriage circuit operating button 75 to be sequentially actuated by the other hand.

Since the carriage 39 carrying the fastening means 37 is unable to move as long as the blocking means 48 engages the carriage, it is necessary in starting the operation of the machine for the operator to actuate the blocking release button 73 located in the suitable circuit for actuating the blocking means 48 to disengage the block link from the carriage. This allows the carriage to be free to move and will do so only when the operator actuates a carriage operating button 75 controlling the suitable circuit for operating the carriage. This button is positioned within reach of the hand opposite the hand required to actuate the block release button 73. Actuation of this button 75 causes the fastener means to descend into fastening position, as shown in dotted lines in Fig. 2, and

also operates the holding means for clamping the band. The cycle of the machine is such that the fastening means remains in the fastening position and the holding means grips the band so long as the operating button 75 remains actuated. Therefore, it is necessary for the operator to manually hold the button 75 while the carriage is moving to fastening position and to continue to hold the button during the fastening operation. A third button 74 controlling the striker circuit positioned adjacent the safety release button 73 is then required to be actuated by the operator to operate strikers to actuate the stapler drive heads 46a to drive the staple through the band. After this has been done, the operator releases the holding button 75 to return the fastening means to the up or inoperative position. As the carriage raises it rides over the block link, the spring 50 urging the block member outwardly as the carriage rides over it to automatically lock the carriage in the up position. Thus it will be seen that the sequential operation of the machine's control buttons requires the use of both of the operator's hands during the entire operation of the machine. As a result, it becomes impossible for the operator to negligently contact the moving parts thereof.

Although this machine has been illustrated for use in securing elements of a hat ring, it is understood that this stapling machine herein made may be equally suitable for fastening various other articles of manufacture.

Variations and modifications may be made within the scope of the claims and portions of the improvements may be used without others.

We claim:

1. A machine for fastening together a flat sheet having an opening therein and spaced ears around the opening to receive and engage a wide annular band disposed therein wherein said sheet lies intermediate the width of the band with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, supporting means on said base for receiving and supporting said band and its surrounding perpendicularly related flat sheet in unfastened assembled relationship, and fastening means movably mounted on said frame to be moved into fastening position for securing the ears of the flat sheet to the band.

2. A machine for fastening together a flat sheet having an opening therein and spaced ears around the opening to receive and engage a wide annular band disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, supporting means on said base for receiving and supporting said band and its surrounding flat sheet in unfastened assembled relationship, and fastening means movably mounted on said frame to be moved into fastening position for securing the ears of the flat sheet to the band, said supporting means having a body provided with a sheet supporting surface and a recess into which the part of the band below the sheet extends, and having means to clamp said lower part of the band to the body to hold the band during the fastening operation.

3. A machine for fastening together a flat sheet having an opening therein and spaced ears around the opening to receive and engage a wide annular band disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, supporting means on said base for receiving and supporting said band and its surrounding flat sheet in unfastened assembled relationship, and fastening means movably mounted on said frame to be moved into fastening position for securing the ears of the flat

sheet to the band, and releasable blocking means on said frame for preventing improper movement of the fastening means to the fastening position thereby providing a safety device for the machine.

4. A machine for fastening together a flat sheet having an opening therein and spaced ears around the opening to receive and engage a wide annular band disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, supporting means on said base for receiving and supporting said band and its surrounding flat sheet in unfastened assembled relationship, and fastening means movably mounted on said frame to be moved into fastening position for securing the ears of the flat sheet to the band, manually operated actuating means for moving and holding said fastening means in fastening position, and spaced manually actuated drive means to actuate the fastening means when in the fastening position to secure the flat sheet to the annular band, said actuating means and drive means requiring simultaneous use of both of the operator's hands so that it is rendered impossible for the operator to injure his hands in the machine.

5. A machine for fastening together a flat sheet having an opening and spaced ears around the opening to receive and engage a wide annular band of varying sizes disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, supporting means on said base having adjustable means thereon for receiving and supporting various band sizes and their surrounding flat sheet in unfastened assembled relationship, a carrier having fastening means movably mounted on said frame and adapted to be moved into fastening position to locate the said fastening means in overlying relation to the ears of the flat sheet for securing the ears to the band, and means for adjusting the position of the fastening means to correspond to the adjustment of the support means to accommodate bands of various sizes.

6. A machine for fastening together a flat sheet having an opening and spaced ears around the opening to receive and engage a wide annular band of varying sizes disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, supporting means on said base having adjustable means thereon for receiving and supporting various band sizes and their surrounding flat sheet in unfastened assembled relationship, a holding means co-operating with said supporting means to secure said hat ring in position, a carrier having fastening means movably mounted on said frame and adapted to be moved into fastening position to position the said fastening means in overlying relation to the ears of the flat sheet for securing the said ears to the band, and means for adjusting the position of said fastening means to correspond to the adjustment of the support means to accommodate bands of various sizes.

7. A machine for fastening together a flat sheet having an opening and spaced ears around the opening to receive and engage a wide annular band of varying sizes disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, supporting means including a body mounted on said base and provided with a sheet supporting surface and a recess into which the part of the band below the sheet extends, a plurality of shoe members adjustably mounted on said body cooperating to form the

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outer wall of the recess and being adjustable to accommodate bands of various sizes in unfastened assembled relationship, holding means cooperating with said shoe members to secure said hat ring in position, a carrier having fastening means movably mounted on said frame and adapted to be moved into fastening position to position the said fastening means in overlying relation to the ears of the flat sheet for securing said ears to the band, and means for adjusting the position of said fastening means to correspond to the adjustment of the shoe members of the support means.

8. A machine for fastening together a flat sheet having an opening and spaced ears around the opening to receive and engage a wide annular band of varying sizes disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, supporting means including a body mounted on said base and provided with a sheet supporting surface and a recess into which the part of the band below the sheet extends, a plurality of shoe members adjustably mounted on said body cooperating to form the outer wall of the recess and being adjustable to accommodate bands of various sizes in unfastened assembled relationship, holding means on the body including a plurality of holding blocks forming the inner wall of the recess and slidably mounted in said body for radial movement to clamp the band below the sheet against the shoes to hold the hat ring in position, and control means simultaneously actuating the holding means and carriage moving means.

9. A machine for fastening together a flat sheet having an opening and spaced ears around the opening to receive and engage a wide annular band of varying sizes disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, supporting means including a body mounted on said base and provided with a sheet supporting surface and a recess into which the part of the band below the sheet extends, a plurality of shoe members adjustably mounted on said body cooperating to form an adjustable recess for accommodating and supporting bands of various sizes and its surrounding flat sheet in unfastened assembled relationship, holding means on the body including a plurality of holding blocks forming the inner wall of the recess and slidably mounted in said body for radial movement, means including a yielding connection for moving said blocks to clamp the band below the sheet against the shoes to hold the hat ring in position, a carrier movably mounted on said frame and having fastening means carried thereby, means for adjusting the position of the fastening means to correspond to the adjustment of the shoe members, means for moving said carrier on said frame into fastening position to locate the said fastening means in overlying relation to the ear formed on the flat sheet of the hat ring and for moving said holding means into engaging position to hold said hat ring in said recess in order that the ears on the flat sheet may be secured to the band.

10. A machine for fastening together a flat sheet having an opening and spaced ears around the opening to receive and engage a wide annular band of varying sizes disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, supporting means on said base for supporting various band sizes and their surrounding flat sheet in unfastened assembled relationship, a carrier mounted on said frame; fastener means including anvils secured to said carrier and a plurality of staple

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storing and driving means pivotally mounted on said carrier to cooperate with said anvils, said carrier being movably mounted on said frame and adapted to be moved into fastening position to locate the anvils closely adjacent the inner face of the annular band and the stapler driving means on the opposite side of the band adjacent the ears of the flat sheet for fastening said ears to the band, and means for adjusting the position of the fastening means to correspond to the particular band size.

11. A machine for fastening together a flat sheet having an opening and spaced ears around the opening to receive and engage a wide annular band of varying sizes disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, supporting means having a body mounted on said base and provided with a sheet supporting surface and a recess into which the part of the band below the sheet extends for supporting various band sizes and their surrounding flat sheet in unfastened assembled relationship, a carrier mounted on said frame; a housing secured to said carrier and depending therefrom; anvils slidably mounted in said housing and a plurality of staple storing and driving means pivotally mounted on said carrier with the driving heads thereof depending from said carrier and spaced around said anvils, means for simultaneously adjusting the position of the staple driving heads and anvils relative to housing to correspond to the particular band size, said carrier being movably mounted on said frame and adapted to be moved into fastening position to locate the said stapler driving heads and anvils in overlying relation to the hat ring with the anvil positioned closely adjacent the inner face of the annular band and the driving heads positioned on the opposite side thereof adjacent the ears of the flat sheet for fastening said ears to the band.

12. A machine for fastening together a flat sheet having an opening and spaced ears around the opening to receive and engage a wide annular band of varying sizes disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, adjustable supporting means having a body mounted on said base and provided with a sheet supporting surface and a recess into which the part of the band below the sheet extends for supporting various band sizes and their surrounding flat sheet in unfastened assembled relationship, a carrier mounted on said frame; a housing secured to said carrier and depending therefrom; a plurality of slidably adjustable anvil blocks mounted in said housing, a cam plate connecting said blocks for adjusting said anvil blocks to correspond to the adjustment of the support means, a plurality of staple storing and driving means mounted on said carrier to depend therefrom in spaced relation around said housing with the driving heads thereof opposite said anvil blocks, a second cam plate having a cam projection thereon cooperating with said staple storing and driving means, said first and second cam plates being connected so that the anvil blocks and driving heads are adjusted simultaneously to correspond with the adjustment of the support means, said carrier being movably mounted on said frame and adapted to be moved into fastening position to locate the said staple driving heads and anvil in overlying relation to the hat ring with the anvils positioned closely adjacent the inner face of the annular band and the driving heads positioned on the opposite side thereof adjacent the ears of the flat sheet for fastening said ears to the band.

13. A machine for fastening together a flat sheet having an opening and spaced ears around the opening to receive and engage a wide annular band of varying sizes disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the

band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, hat ring supporting means comprising a body mounted on said base and provided with a sheet supporting surface and a recess into which the part of the band below the sheet extends and having means for adjusting the outer wall of the recess to receive and support the various band sizes and their surrounding flat sheet in unfastened assembled relationship, a holding means on the body including a plurality of holding blocks forming an inner wall of the recess and slidably mounted in said body for radial movement, means including a yieldable connection for moving the blocks to clamp the band below the sheet against the support means to hold the hat in position, a carrier mounted on said frame; fastener means including spaced anvils movably mounted on said carrier, and a plurality of staple storing and driving means pivotally mounted on said carrier in cooperative relation with said anvils, means for adjusting the position of the fastening means to correspond to the adjustment of the support means, said carrier being movably mounted on said frame and adapted to be moved into fastening position to locate the said fastening means in overlying relation to the hat ring with the anvils positioned closely adjacent the inner face of the annular band and the staple driving means positioned on the opposite side thereof adjacent the ears of the flat sheet for fastening said ears to the band.

14. A machine for fastening together a flat sheet having an opening and spaced ears around the opening to receive and engage a wide annular band of varying sizes disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, supporting means including a body mounted on said base and provided with a sheet supporting surface and a recess into which the part of the band below the sheet extends, a plurality of shoe members adjustably mounted on said body cooperating to form the outer wall of the recess and being adjustable to accommodate bands of various sizes and their surrounding flat sheets in unfastened assembled relationship, holding means cooperating with the said shoe members to secure said hat ring in position, a carrier mounted on said frame; fastener means including spaced anvils movably mounted on said carrier and a plurality of staple storing and driving means pivotally mounted on said carrier in cooperative relation with said anvils, means for adjusting the fastening means to correspond to the adjustment of the shoe members on said body, said carrier being movably mounted on said frame and adapted to be moved into fastening position to locate the said fastening means in overlying relation to the position of the hat ring with the anvils positioned closely adjacent the inner face of the annular band and the staple driving means positioned on the opposite side thereof adjacent the ears of the flat sheet for fastening said ears to the band.

15. A machine for fastening together a flat sheet having an opening and spaced ears around the opening to receive and engage a wide annular band of varying sizes disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, supporting means including a body mounted on said base and provided with a sheet supporting surface and a recess into which the lower portion of the band extends, a plurality of shoe members adjustably mounted on said body cooperating to form an adjustable recess for accommodating and supporting particular band sizes and their surrounding flat sheet in unfastened assembled relationship, holding means on the body including a plurality of holding blocks

forming the inner wall of the recess and slidably mounted on said body for radial movement, means yieldably urging the blocks radially outward to clamp the band portion below the sheet against the shoes to hold the hat ring in position, a carrier mounted on said frame; fastener means including spaced anvils movably mounted on said carrier, and a plurality of staple storing and driving means pivotally mounted on said carrier in cooperative relation with said anvils, means for adjusting the position of the fastening means to correspond to the adjustment of the shoe members, means for moving said carrier on said frame and into fastening position to locate the said fastening means in overlying relation to the ear and for moving said holding means into engaging position to clamp said hat ring in the recess formed by said shoes with the anvils positioned closely adjacent the inner face of the annular band and the staple driving means positioned on the opposite side thereof adjacent the ears of the flat sheet for fastening said ears to the band.

16. A machine for fastening together a flat sheet having an opening and spaced ears around the opening to receive and engage a wide annular band of varying sizes disposed therein wherein said sheet lies intermediate the width thereof with the ears overlying portions of the band to form a hat ring for supporting a hat in a hat box comprising a frame, a base mounted on said frame to extend transversely thereof, supporting means including a body mounted on said base and provided with a sheet supporting surface and a recess into which the lower portion of the band extends, a plurality of shoe members adjustably mounted on said body cooperating to form an adjustable recess for accommodating and supporting particular band sizes and their surrounding flat sheet in unfastened assembled relationship, holding means on the body including a plurality of holding blocks forming the inner wall of the recess and slidably mounted in said body for radial movement to clamp the band below the sheet against the shoes to hold the hat ring in position, a carrier mounted on said frame; a housing secured to said carrier and depending therefrom, a plurality of slidably adjustable anvil blocks spacially positioned in said housing, a cam plate connecting said blocks for adjusting said anvil blocks to correspond to the adjustment of the support shoes, a plurality of staple storing and driving means mounted on said carrier to depend therefrom in spaced relation around said housing with the driving heads thereof opposite said anvil blocks, a second cam plate having a cam projection thereon cooperating with said staple storing and driving means, said first and second cam plates being connected so that the anvil blocks and driving heads are adjusted simultaneously to correspond with the adjustment of the support shoes, means for moving said carrier on said frame and into fastening position to locate the said driving heads and anvil blocks in overlying relation to the hat ring, means for moving said holding means into engaging position to hold said hat ring in the recess formed by said shoes with the anvils positioned closely adjacent the inner wall of the annular band supported in said recess and the driving heads positioned on the opposite side thereof adjacent the ears of the flat sheet, strikers mounted on said base adjacent said driving heads when in the fastening position and means actuating said strikers to cause said heads to fasten said ears to the band.

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