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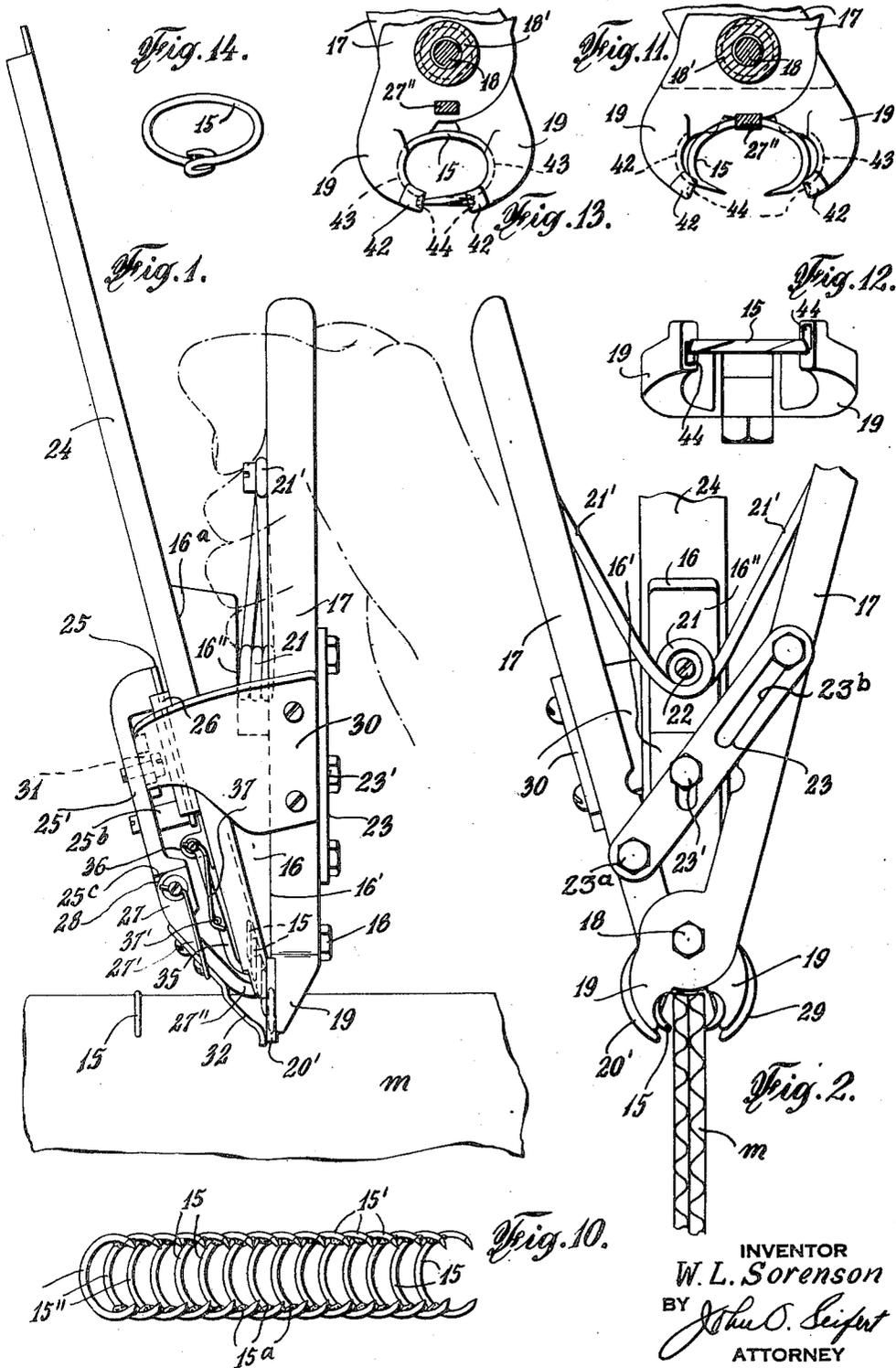
W. L. SORENSON

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METHOD OF AND MEANS FOR STAPLING

Filed July 22, 1938

2 Sheets-Sheet 1



INVENTOR
W. L. Sorenson
BY *John O. Seifert*
ATTORNEY

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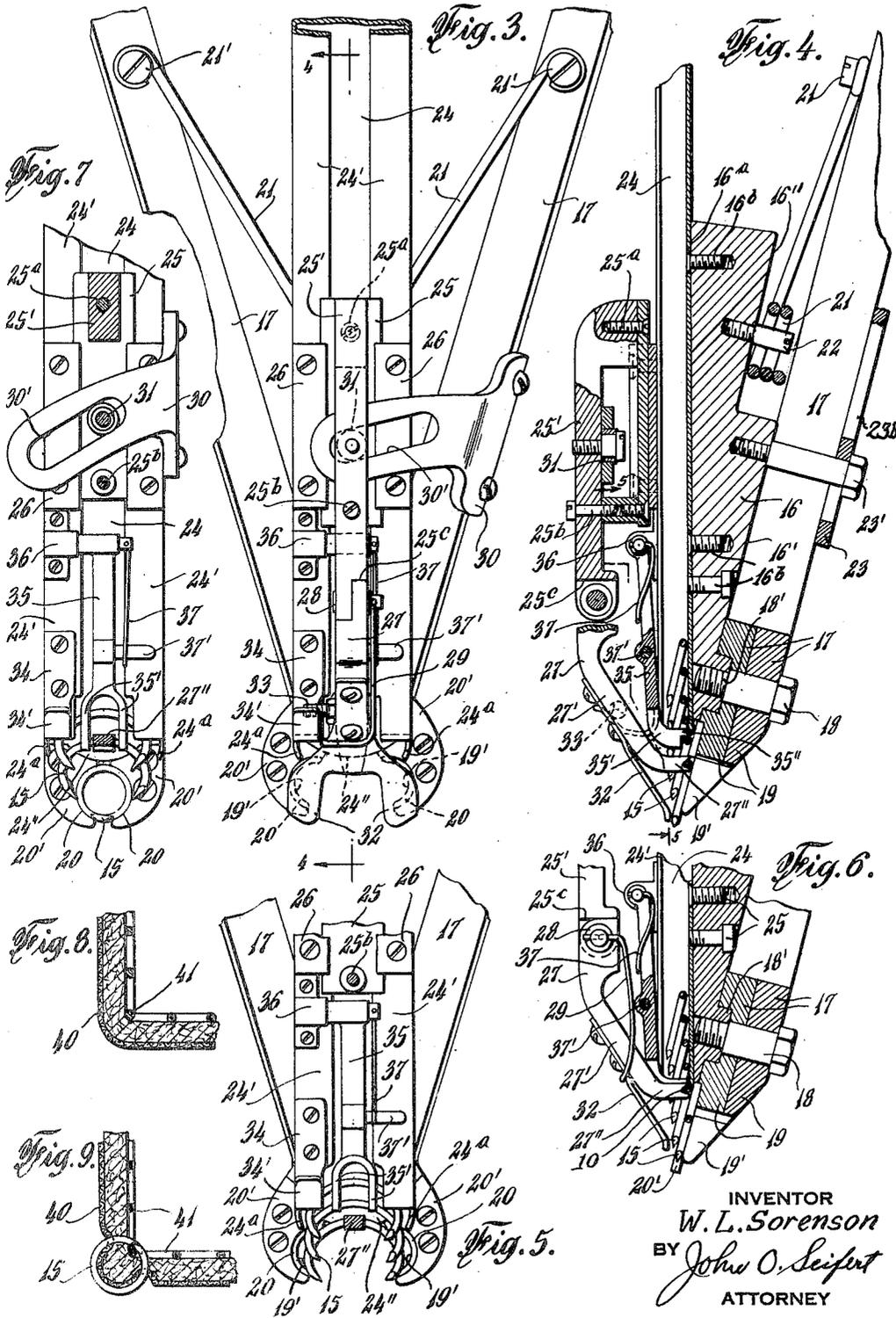
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INVENTOR
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BY John O. Seifert
ATTORNEY

UNITED STATES PATENT OFFICE

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METHOD OF AND MEANS FOR STAPLING

Wendell L. Sorenson, Brooklyn, N. Y., assignor
to Elvira J. Sorenson, Brooklyn, N. Y.

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This invention relates to staple or fastener applying means for use in securing together material, such as sheets of paper, cardboard, fabric and the like, to secure in closed condition the juxtaposed material at the opening of bags, and to secure material to a support therefor. Staples for use in such stapling or fastener applying means are usually arranged in what are known as staple clips, consisting of a series of like staples connected in sidewise relation, as by an adhesive or cement, or they may consist of a gang of staples formed by slitting a strip of material inwardly from the opposite side edges to adjacent the center of the strip, and then the strip is shaped so that the slitted portions of the strip constitute staple legs connected by the unsevered portion centrally of the strip.

In apparatus utilizing such form of staple clip to staple material a staple driver is operable in a driving channel arranged substantially at a right angle to a staple clip engaging channel. The staple clip is urged in a direction to position the leading staple of the clip in the path of movement of the driver in the driver channel. The material to be stapled is placed relative to the outlet of the driver channel and the driver when actuated separates the leading staple from the staple clip and forces the staple legs into the material, the staple legs subsequently being clenched to the material by engagement with an anvil positioned at the side of the material opposite the driver channel.

As the staple is separated from the staple clip the adhesive or cement adhering the staples together is often broken with the result that the edge is uneven instead of in a straight shearing cut, with the result that a portion of the adhesive or the cement will project from or lodge in front of the forward staple of the staple clip with the result that the staple will not be entirely positioned within the driver channel and as the driver is actuated the staple instead of being separated from the staple clip is distorted with a consequent jamming of the driver channel. This is also the result when the staples are formed from a strip of metal and integrally united by an intermediate portion of the strip and the staple is broken from the clip instead of severed therefrom by a shearing action of the staple driver.

It is an object of the invention to provide an improved method of and means for securing together material by staples to overcome the above disadvantages, including an improved method of and means for positively feeding the staple

clip to position and holding the forward or leading staple, while united to the clip, in the plane of movement of means to apply pressure to the staple to cause the staple legs to pierce the material and separate the staple from the staple clip, and in continuous sequence clench the staple legs to the material.

In apparatus for securing together material by staples so far as is known to me it has been impossible to position the staple in a desired position relative to the material which is to be secured or stapled together or relative to a support to which the material is to be secured, since the staple is at all times retained within a driver channel of the apparatus. It is a further object of the invention to provide in apparatus for securing together material by staples, means to feed a staple clip to position and hold the forward staple forward of and in the plane of movement of the staple applying means and in position to be engaged with the surface of the material to be stapled together, or positioned with the material to be stapled engaged within the staple legs.

In the assembling of a staple clip it has heretofore been the practice to assemble and adhere the staples together with the legs and leg connecting webs in contiguous sidewise relation. In a staple clip with the staples so assembled it is impossible to positively feed the staple clip to position and hold the forward or leading staple of the clip forwardly of and in the plane of movement of staple applying means whereby the apparatus may be manipulated to position the staple with the material to be stapled engaged within the staple legs, and it is a further object of the invention to provide an improved staple clip and method of assembling the same.

It is a further object of the invention to provide an improved apparatus, to secure together material by staples, provided with pincher jaws to apply a force to a staple to cause the staple legs to pierce the material and pinch the staple legs together, and to provide an improved arrangement of pincher jaws operative in continuous sequence for pinching the staple legs together to bend the extremities of the staple legs upon themselves and clench the same to the material.

In the drawings accompanying and forming a part of this application, Figure 1 is a side elevation of apparatus for securing material together by staples and showing the apparatus as carried and positioned by the hand in operative relation to the material with the material engaging

within the staple legs and in position preparatory to securing the material together by a staple.

Figure 2 is a view looking at the right of Figure 3, partly broken away.

5 Figure 3 is a plan view looking at the right of Figure 1 and partly broken away.

Figure 4 is a longitudinal sectional view taken on the line 4—4 of Figure 3 looking in the direction of the arrows.

10 Figure 5 is a view taken substantially on the line 5—5 of Figure 4 looking in the direction of the arrows.

Figure 6 is a sectional view similar to the lower portion of Figure 4 and showing the parts in another position.

Figure 7 is a view similar to Figure 5 but showing the parts in another position.

Figure 8 is a sectional detail view showing the relation of upholstery to a support thereto.

20 Figure 9 is a view similar to Figure 8 and showing the upholstery secured to its supporting frame by a staple applied thereto by the apparatus of the present application.

Figure 10 is a plan view of my improved staple clip.

Figure 11 is a plan view of a modified construction of pincher jaws of levers showing a staple in relation thereto preparatory to securing material together by the staple.

30 Figure 12 is a view looking at the bottom of Figure 11.

Figure 13 is a view similar to Figure 3 but showing the pincher jaws operated to cause the staple legs to pierce the material and the extremities of the staple legs bent reversely to clench the same to the material; and

Figure 14 is a plan view of a staple showing the form it will assume when applied to material as shown in Figure 13.

40 While the apparatus of the present application is shown as including pincher jaws with driving means for causing the staple legs of a staple to pierce material and then the staple legs pinched together to secure the material by the staple, it is also applicable for use in apparatus utilizing a driver in the form of a plunger to apply force to a staple to cause the staple legs to pierce the material. Furthermore, while the apparatus has been shown as adapted to be particularly used in connection with a staple of circular form with the extremities of the staple legs extended inwardly for securing material together, it is also adapted for use with staples of other form, for instance wherein the leg connecting web portion of the staple is of different angular form with the extremities of the staple legs directed inwardly.

In carrying out the invention there is provided an improved staple clip and method of assembling the same, as shown in Figure 10, and comprising a series of staples 15 assembled in side-wise relation with the legs of successive staples contiguous and superposed to the preceding staple, and when the staple is of circular form, as shown, the legs of the staple intersecting the preceding staple, as shown at 15'. The staples are offset longitudinally with the leg connecting web portion 15'' of successive staples spaced equidistantly from the leg connecting web portion of a preceding staple and extending parallel to a line extended centrally to the leg connecting web portions and arranging the same in rack formation, as shown in Figures 1, 4 and 6, with the leg connecting web portion of successive staples adapted to extend in the plane of the bottom of

a channel member carrying the staple clip. It will be obvious that the staples may have straight and parallel legs in which case the legs of successive staples in assembling the staples are arranged contiguous to the preceding staples and the leg connecting portion of successive staples spaced from the preceding staples and arranging the same to rack form. The staples are adhered together in assembled relation by adhesive or cement applied to the assembled staples, as in a spray, and shown as applied to the pockets formed at the point at which the legs of successive staples intersect the preceding staple, as at 15^a.

In the embodiment of the apparatus shown for carrying out the invention there is provided a base in the form of a block 16 with one face 16' inclining at an acute angle to the opposite face 16^a, and the face 16' being undercut, as at 16''. A pair of levers 17 are pivotally mounted in juxtaposed and intersecting relation contiguous to the face 16' of the block by a headed stud 18 extended through openings in the levers and having a threaded end portion of reduced diameter screw threaded into an opening in a circular boss projecting from the face 16' with the shoulder formed by the reduced threaded portion abutting said boss and the boss engaging in a correspondingly formed recess in one of the levers, as shown at 18' in Figures 4 and 6. One end of each lever is arranged as a pincher jaw 19 extended beyond and a flat side face thereof intersecting the end of the face 16^a of the base 16, as shown in Figures 1, 4 and 6. The opposed faces 19' of the jaws within the ends thereof are arranged to conform to the shape of a staple in the pinched together condition of the legs thereof. As shown, said faces are of like circular form to conform in the closed condition of the jaws to the circular form of the pinched together legs of a circular staple. The jaws are arranged with a correspondingly formed circular seat at the flat side face thereof for the engagement of a staple, as at 20', which may be formed by recessing the face of the jaws, or as shown, formed by recesses in the opposed edges of plates 20' secured to the side of the jaws by screws, the recesses in the plates being in an arc of a circle having a greater radius than the recesses 19' in the faces of the jaws, as shown in Figures 3, 5 and 7. The opposite ends of the levers are elongated and adapted to be grasped by the hand to support the device and manipulate the levers to move the pincher jaws toward each other. The levers are normally urged to position to spread the pincher jaws by a spring 21 coiled about a bushing mounted on the undercut portion 16'' of the face 16' by a screw, as shown at 22 in Figures 2 and 4, the opposite ends of the spring being elongated and each end secured to a lever, as at 21'. The outward movement of the levers is limited by a link 23 pivotally connected at the opposite ends to the levers and having a pin and slot connection 23' intermediate the ends with the face 16' of the base 16, as shown in Figures 1 and 2.

A channel member 24 is secured at the bottom wall on the face 16^a of the base 16 by screws 16^b with the channel opening outward from said base and the channel legs flanged inwardly, as at 24'. The inner end 24'' of the bottom of the channel is arranged of convex form and extends beyond the face 16^a of the base contiguous to the outer face of the pincher jaws or plates 20' secured

to the jaws, and the bottom of the channel extending at an obtuse angle to the face of the jaws, as shown in Figure 4. The ends of the side wall of the channel member extend beyond the bottom wall and inwardly flanged portion and side walls and are curved inwardly, as shown at 24^a in Figures 3, 5 and 7. By the arrangement of the staple seat 20 on the pincher jaws and the inclination of the bottom of the channel member relative thereto a staple clip is adapted to be supported in the channel member with the racked staple leg connecting webs in engagement therewith and the forward or leading staple of the staple clip is adapted to be engaged in the staple seat and positioned relative to and extend in the plane of the staple seat of the pincher jaws, as shown in Figures 4 and 6.

Means are provided, operative from the action of the lever 17, to successively and positively feed the staple clip to position the forward or leading staple thereof into engagement with the staple seat 20 of the pincher jaws and hold the staple to said seat during the operation of the pincher jaws and during the period of separating said staple from the staple clip and applying pressure to the staple to cause the staple legs to pierce the material. As shown, this feeding means comprises a carriage including a plate 25 and a member 25' of less width and greater length than the plate having a laterally projecting portion at one end to abut the plate at the outer end and midway the side edges of the plate and secured thereto by a screw, as at 25a. The opposite end of the member 25' extends beyond the opposite end of the plate and is secured in spaced relation to the plate by screws and a spacer, as shown at 25b. One side of the free end of the member 25' is undercut and provided with a transverse shoulder 25c. The carriage is mounted on the inwardly flanged portions 24' of the side walls of the channel member 24 to have longitudinal sliding movement thereon by gibs 26, shown as secured by screws on said inwardly flanged portions 24' of the channel member and arranged to overhang the side marginal portions of the plate 25 to hold the carriage to the channel member.

A feeding pawl having a portion 27' at one end of a width substantially equal to the width of the member 25' of the carriage, is undercut at one side to fit and have mating connection with the undercut end of the member 25'. The pawl is pivotally supported from the member 25' by a pin 28 extended through openings in the undercut portions of the pawl and member 25'. As shown in Figure 6, the end and bottom edge of the portion 27' of the pawl are arranged to extend at a right angle to each other whereby the end of the pawl is adapted to abut the end wall of the undercut portion of the carriage member 25' and limit the downward movement of the pawl. The corner at the top edge and end of the pawl is rounded whereby the pawl is adapted to be moved upwardly relative to the carriage member 25'.

The pawl has a part 27' inclined relative to the portion 27 toward the pincher jaws, and the extremity 27'' of the pawl is arranged in angular relation to said portion 27' to extend in the operative position of the pawl substantially at a right angle to the bottom of the channel member 24 and has a transverse recess in the end thereof. The pawl is urged downwardly toward the pincher jaws by a spring 29 having one end mounted in a transverse opening in the pivot pin

28 of the pawl and the opposite end portion engaged over the pawl, as shown in Figures 1, 3 and 6.

To operatively connect the staple clip feeding pawl to the lever 17 to reciprocate the feeding pawl by the actuation of the levers, a plate 30 is fixed by screws to the outer side edge of the lever 17, shown as the lever 17 at the right as shown in Figure 3. The plate has a portion extended upwardly from the lever and laterally transversely of and between the members 25, 25' of the pawl carrying carriage and is arranged with a cam slot 30' engaged by a roller 31 rotatably carried by a screw on the under side of the member 25', as shown in Figures 1, 3 and 5. With the levers actuated to normal position by the spring 21, as shown in Figure 3, and the pincher jaws open the cam following roller is positioned at the outer end with the cam slot 30' and the pawl carrying carriage actuated to its forward position. In this position of the carriage the recessed end of the pawl portion 27' is engaged with the leg connecting web midway the staple legs of the forward or leading staple of the staple clip positioned on the staple engaging seat 20 of the pincher jaws. With the parts of the device in this position it may be supported and manipulated by grasping the levers 17 within the hand, as shown in Figure 1, and the leading staple of the staple clip upon the staple seat 20 of the pincher jaws positioned directly on the material to be secured together, as by engaging the edge portion of the material M within or between the staple jaws and the edge of the material abutting the staple leg connecting web, as shown in Figures 1 and 2. In which position the levers are actuated against the action of the spring 21 to move the pincher jaws together and pinch the staple legs on the staple seat 20 together, the inward movement of the pincher jaws causing the ends of the staple legs, which may be arranged with chisel points, to pierce the material and simultaneously separate the staple from the successive staple of the staple clip and in continuous sequence pinch the ends of the staple legs together arranging the staple substantially to circular form, as shown in Figure 7. During the staple pinching movement of the pincher jaws the plate 30 is moved to the position shown in Figure 7 and by the engagement of the cam following roller 31 engaging the cam slot in said plate return movement is imparted to the pawl with the pawl carriage and causing the pawl to engage the leg connecting web portion of the successive staple of the staple clip, as shown in Figure 6. As the levers 17 are actuated by the spring 21 to position to spread the pincher jaws the pawl carriage, and thereby the pawl, is moved forward positioning the successive leading staple of the staple clip in engagement with the staple seat on the pincher jaws, as shown in Figure 4.

To positively seat the staples upon the staple seat 20 the legs of a bifurcated member 32 fixed upon and extending forwardly of the staple engaging portion 27'' of the pawl are caused to firmly engage the staple legs of the staple as the staple is positioned upon the staple seat. To cause the bifurcation legs of said member 32 to firmly hold the staple legs to the staple seat during the initial staple pincher movement of the staple pincher jaws, the forward end of a plate 34 of resilient material fixed upon an inwardly flanged portion 24' of the wall of the channel

member 24 relative to the side of the pawl is curved upwardly and rearwardly and arranged with a cam face, as at 34'. Just prior to the termination of the forward movement of the pawl a pin 33 fixed in and extending laterally from the pawl is engaged with and moved relative to the under cam face 34' of said plate, the pawl and the member 32 thereby being sprung downwardly and firmly engaged with the staple on the staple seat. To retain the pawl and member 32 in said position during the initial staple pinching movement of the staple jaws the outer end of the cam slot 30' in plate 30 is arranged to have a slight lost movement relative to the cam following roller 31.

To hold and prevent the return movement of the pawl 27 imparting retrograde movement to the staple clip 15 in the channel member 24 and permit forward feeding of the staple clip by the pawl, spring influenced detent means is provided, and shown in the form of a pawl or arm 35 pivotally supported at the rear end upon a pin fixed in a bracket mounted upon the inwardly flanged wall of the channel member 24 upon which the plate 34 is mounted, as shown at 36 in Figures 1 and 3 to 7, inclusive.

The forward end 35' of the detent arm is bifurcated with the bifurcation legs extending substantially at a right angle to the body of the arm toward the channel member 24, and the arm urged to position with the bifurcation legs engaging the bottom wall of the channel member by a spring 37 fixed at one end to the arm supporting pivot pin 36 and the opposite end portion engaged upon a pin 37' extended laterally from the arm. The ends of the bifurcation legs 35' of the detent arm 35 are undercut at the ends, as at 35'', to provide the end of the legs with a portion projecting beyond a portion forwardly thereof and said undercut portions being adapted to engage the leg connecting web portion at the opposite sides of the center of the staple of the staple clip successive to the forward staple engaged by the feeding pawl upon the staple seat of the pincher jaws with the projecting wall of the undercuts engaging at the rear of the leg connecting web portion of the staple and the other wall of the undercuts engaging upon the staple, as shown in Figure 4. By this arrangement any force of the feeding pawl in the return movement thereof that may be transmitted to the staple clip to move it rearwardly exerts a force on the projecting portions of the bifurcation legs of the detent arm to move it downwardly and thus holding the staple clip against rearward movement in the channel member 24. The feeding pawl is arranged to extend substantially centrally of the bifurcation legs 35' of the detent arm 35 and the staple feeding movement of the pawl is equal to the spacing of the leg connecting webs of the staples in the staple clip. As the feeding pawl is returned to initial position the recess 10 in the end thereof will engage the leg connecting web of the staple engaged by the bifurcation legs 35' between said legs, as shown in Figure 6, and when feeding movement is imparted to the feeding pawl it will move the staple clip longitudinally therewith and move the staple engaged by the bifurcation legs of the detent forwardly out of engagement therewith and position said staple on the staple seat of the pincher jaws. As the staple clip is fed by the feeding pawl the successive staple at the rear of the bifurcation legs 35' will engage the projections of said bifurcation legs and move the detent arm upwardly against the

tension of the spring 37, the staple by the continued movement of the staple clip riding under said projections and as said projections ride off from the staple they are caused to engage rearwardly of the staple under the influence of said spring, the parts assuming the positions shown in Figures 4 and 5.

While the staple applying means carrying a staple clip as described may be grasping the lever 17 by the hand be manipulated to position the forward or leading staple of the staple clip upon and with the material to be secured together engaged within the legs of such staple, as shown in Figures 1 and 2, to secure layers or plies of material together at a marginal edge portion, it is also adapted for other uses such as securing together the closed and folded end of a bag and to secure material upon a support therefor, such as sheet material to a supporting frame, or upholstery material to the supporting frame and springs of furniture and the seat and backrest of motor vehicles. As shown in Figures 8 and 9, the padding and covering 40 of upholstery material is engaged about a corner portion of a support or frame 41 therefor, and the upholstery material secured to such corner by a staple of the form shown and applied by the staple applying means herein described.

In Figures 11 to 13 there is shown a modified arrangement of the pincher jaws 19 to effect lateral bending and clenching of the extremity of the staple legs to the material after the staple legs have been pinched together, as shown in Figure 14. The pincher jaws are of increased thickness relative to the pincher jaws shown in Figures 1 to 7, inclusive, and are arranged at the ends of increased thickness by providing the jaws with a portion 42 extended laterally from the side of the jaws relative to which the leading staple of the staple clip is positioned for action thereon by the pincher jaws. For this purpose the jaws at the inner ends are arranged of reduced thickness and said face of the jaws outwardly from said portion shaped to conform to the shape of a pinched together staple, in the present instance arranged in arcs of circles to adapt the jaws to apply staples of circular form. The arcuate faces of the jaws outwardly from the portion of reduced thickness are provided with a staple engaging seat in the form of a recess 43 extended through the end of the jaws. The ends of the jaws of increased thickness are provided with a recess 44, the recess in one jaw, shown as the jaw at the left, being located below and in communication at the upper end with the staple engaging recess 43 and the recess 44 in the end of the other jaw being arranged above and communicating at the lower end with the recess 43 in said jaw, as clearly shown in Figure 12. As the jaws are moved to spread or open position by the levers 17 the feed dog 27 positions the leading staple of the staple clip relative to the portion of reduced thickness of the jaws, as shown in Figure 11. As the jaws are moved together and pressure applied to the staple to cause the staple legs to pierce the material the pointed ends of the staples are caused to pass relative to each other and engage the jaw recesses 44 and by the continued closing movement of the jaws the staple ends are caused to be bent reversely upon themselves substantially as shown in Figure 14, the reverse bending of the staple ends clenching the same to the material to which the staple is applied.

It will be obvious that modifications may be made in the construction and arrangement of

the parts without departing from the scope of the invention and that portions of the invention may be used without others and come within the scope of the invention.

Having described my invention, I claim:

1. A method of stapling material, which comprises providing a staple clip including a series of staples adhered together in contiguous side-wise and longitudinal racked relation with the leg connecting portions of the staples spaced from each other, positioning the staple clip with the legs of the forward staple embracing the material to be stapled, then simultaneously causing the legs of said staple to pierce the material and separate the staple from the staple clip and in continuous sequence clenching the staple legs to the material.

2. A method of stapling material, which comprises providing a clip of circular staples adhered together in contiguous side-wise and longitudinal racked relation with the leg connecting portions of the staples spaced from each other, positioning the forward staple of the staple clip relative to and with the material to be stapled engaged within the legs thereof, then applying pressure to the staple legs to cause the staple legs to pierce the material separate the staple from the staple clip and shape the staple to ring form.

3. A method of stapling material, which comprises providing a clip of circular staples adhered together in contiguous side-wise and longitudinal racked relation with the leg connecting portions of the staples spaced from each other, positioning the forward staple of the staple clip relative to and with the material to be stapled engaged within the legs thereof, then simultaneously causing the legs of said staple to pierce the material separate the staple from the staple clip and shaping the staple to ring form and then reversely bending and clenching the extremity of the staple legs to the material.

4. In means for stapling material, staple applying means including a pair of staple clenching jaws arranged with a seat at a side thereof adapted for the engagement and supporting of a staple in the plane of the staple clenching movement of said jaws, means to actuate the jaws, a channel member arranged with the outlet adjacent the staple seat of the staple clenching jaws adapted to carry a staple clip, means operative to feed the staple clip in the channel and position the leading staple of the staple clip in engagement with and retain it on the staple seat, and means to hold the staple clip against retrograde movement and prevent movement of the staple from the staple seat.

5. In means for stapling material, staple applying means including a pair of staple clenching jaws arranged with a seat at a side thereof adapted for engagement and supporting of a staple in the plane of the staple clenching movement of the jaws, means to actuate the jaws, a channel member arranged with the outlet adjacent the staple seat of the jaws and adapted for engagement of a clip of staples assembled in contiguous side-wise and inclined relation with the leg connecting portion of the staples longitudinally offset in spaced relation, and means operative alternately with the operation of the staple applying movement of the jaws to feed the staple clip to position the leading staple on the staple seat and hold the staple clip against retrograde movement in the channel.

6. In means for stapling material, a support, staple applying means mounted on the support

including a pair of staple clenching jaws arranged with a seat for the sidewise engagement of a staple and means to actuate the jaws to apply a force to a staple on the staple seat to cause the staple legs to pierce and clench the staple to the material, a channel member mounted on the support to extend at an obtuse angle to and with the channel outlet adjacent the staple seat of the jaws, and said channel member adapted for the engagement of a clip of staples adhered together in contiguous side-wise relation and the leg connecting portion of the staples spaced from each other, means to feed the staple clip and position the forward staple in the staple seat of the jaws, said staple being adapted to be separated from the staple clip by the actuation of the jaws to cause the staple legs to pierce the material, and means to operatively connect and actuate the staple feeding means from the actuating means for the jaws.

7. In means for stapling material as claimed in claim 6, means to hold the staple clip against rearward movement in the channel during the return movement of the feeding means and permit feeding the staple clip.

8. In material stapling means, a support, a pair of levers pivotally mounted on the support one end of the levers constituting hand grips and the other ends pincher jaws arranged with a staple seat at a side thereof for engagement of a staple side-wise therein, a channel member for a clip of adhere together staples mounted on the pivot support of the levers with the outlet of the channel adjacent the staple seat of the pincher jaws and extending at an obtuse angle to the staple seat, and means mounted on the channel member operative from the actuation of the levers to feed the staple clip and position the forward staple of the staple clip on the staple seat of the pincher jaws and retain the staple in said position during the operation of the levers to actuate the pincher jaws to separate said staple from the staple clip and apply the staple to the material, and means to hold the staple clip against retrograde movement in the channel during the return movement of the means to feed the staple clip.

9. In stapling means, a pair of pivotally connected levers one end of the levers constituting hand grips and the other ends pincher jaws, arranged to receive and pinch together the legs of the staple, a member on which the levers are pivotally mounted arranged with a staple carrying channel arranged with the outlet adjacent and the bottom of the channel extending at an obtuse angle to the side of the pincher jaws and intermediate the levers, and means mounted on said member operatively connected to and operative from the actuation of the levers to feed a staple from the channel and hold it side-wise relative to the pincher jaws.

10. In stapling means, a base arranged with a channel member extending longitudinally of one side thereof adapted to carry a clip of adhered together staples assembled in side-wise contiguous and longitudinal racked relation, a pair of levers arranged as pincher jaws at one end and hand grips at the opposite end, said levers being pivotally mounted on the side of the base opposite the channel member with the pincher jaws extending beyond and a side intersecting the end of the channel having a staple seat therein adapted to receive the end staple of the staple clip in the open position of the jaws, and means carried by the base connected

to and operative from the actuation of the levers to open the pincher jaws to feed the staple clip and position the forward staple relative to and retain it in the staple seat in the pincher jaws, and the staple in said position adapted to be placed into engagement with the material to be stapled by the stapling means preparatory to actuating the pincher jaws and said levers imparting retrograde movement to the feeding means by the actuation of the levers to move the pincher jaws together to cause the staple to pierce the material and clench the staple thereto.

11. In stapling means as claimed in claim 10, means urged toward the staple clip in the channel adapted to engage the staple clip and prevent participating movement of the staple clip with the staple feeding means during the retrograde movement thereof and permit passage of the staple clip during the feeding of the same.

12. In portable material staple means, a base, staple applying means mounted on a side of said base operative to apply pressure to and cause a staple to pierce material to be stapled and clench the staple thereto, a channel member on the opposite side of said base with the outlet adjacent and inclining at an acute angle relative to the staple applying means and adapted to carry a clip of adhered together staples, and means to feed the staple clip in the channel member to position and hold the leading staple relative to and for action thereon by the staple applying means and releasably hold the staple clip against retrograde movement in the channel member during the return movement of the feeding means.

13. In material stapling means, staple applying means arranged with manual manipulating means, a channel member carried at a side of and extending at an acute angle to the staple applying means with the outlet spaced rearwardly from the staple applying means and adapted to carry a staple clip, and means carried by the staple applying means juxtaposed to the channel member opposite the staple applying means connected to and operative by the actuation of the staple applying means to feed the staple clip and position the leading staple sidewise in the plane of movement of and for action thereon by the staple applying means.

14. In material stapling means, a block arranged with opposite faces converging from one end to the opposite end of the block, a pair of levers pivotally mounted on one face of the block, one end of the levers being arranged as pincher jaws extending beyond the converging end of the other face of the block, and the opposite end adapted for manually manipulating the levers and transporting the stapling means, a channel member mounted on and extending longitudinally of the face of the block opposite the levers with the outlet end arranged within the ends of the pincher jaws and adapted to carry an adhered together staple clip, means mounted on the latter face of the block juxtaposed to the channel member operatively connected to and operative by the actuation of the levers to spread the pincher jaws to feed the staple clip and position the leading staple of the clip between the pincher jaws and the actuation of the levers to close

the pincher jaws imparting returned movement to the feeding means, and means to permit the feeding movement of the staple clip and to hold and prevent the staple clip participating in the return movement of the feeding means.

15. In stapling means, a block having one face arranged to extend at an acute angle to and converge toward an end of the opposite face, staple pinching levers arranged with pincher jaws at one end pivotally mounted on the block at one face thereof with the pincher jaws extending beyond the opposite face of the block and a side of the jaws inclining at an obtuse angle thereto and arranged with a seat therein for the sidewise engagement of a staple, a channel member mounted on the opposite face of the block with the outlet arranged within the staple seat of the pincher jaws, said channel adapted to carry a clip of staples adhered together in sidewise inclined relation and the leg connecting web portions longitudinally racked, a carriage slidably mounted on the channel member, a pawl pivotally carried by said carriage urged in a direction toward the channel, and means to connect and reciprocate said carriage with the pawl from the actuation of the levers to engage the pawl with the connecting web of a staple of the staple clip to feed the staple clip and position the leading staple in the staple seat in the side of the pincher jaws, means carried by the pawl to engage and hold the staple legs to the staple seat in the pincher jaws, and a detent pivotally carried by the channel member and yieldingly urged in a direction to engage in the channel member and adapted to engage a staple to hold the staple clip against retrograde movement in the channel member during the return movement of the pawl with the carriage.

16. Stapling means as claimed in claim 15, wherein the means to connect and reciprocate the pawl carrier from the actuation of the pincher levers comprises a member fixed to and extending laterally from one of said levers and transversely of the carriage and arranged with a cam slot engaged by a roller mounted on the carriage.

17. Stapling means as claimed in claim 15, wherein the detent is bifurcated at the end urged into the channel member and adapted to engage the leg connecting web portion of a staple of the staple clip to prevent retrograde movement of the staple clip in the channel member, and the feeding pawl is adapted to engage the leg connecting portion of the staple engaged by and between the detent bifurcation preparatory to feeding the staple clip.

18. Stapling means as claimed in claim 15, wherein the means fixed to the feeding pawl to engage and hold the staple legs to the staple seat comprises a bifurcated member of resilient material fixed to and extending forwardly of the pawl, and said member and the feeding pawl yieldingly urged into engagement with the staple on the staple seat of the pincher jaw as the pawl approaches the terminus of its feeding movement by a pin fixed in and extending laterally from the pawl engaging a cam member fixed to the channel member to extend upwardly therefrom and curved rearwardly.

WENDELL L. SORENSON