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STAPLE BENDING DIE FOR STAPLE APPLYING INSTRUMENTS

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2 Sheets-Sheet 2

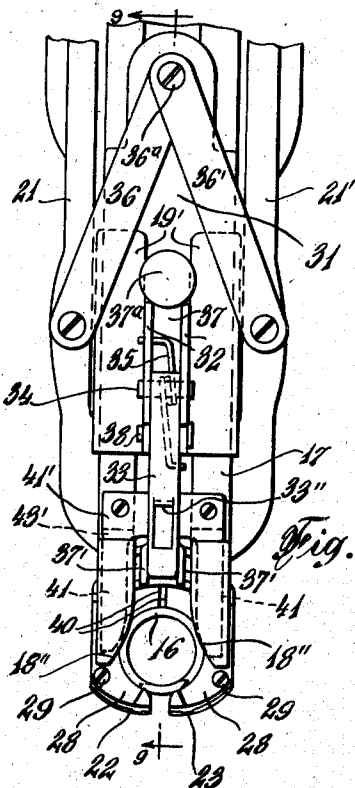


Fig. 7.

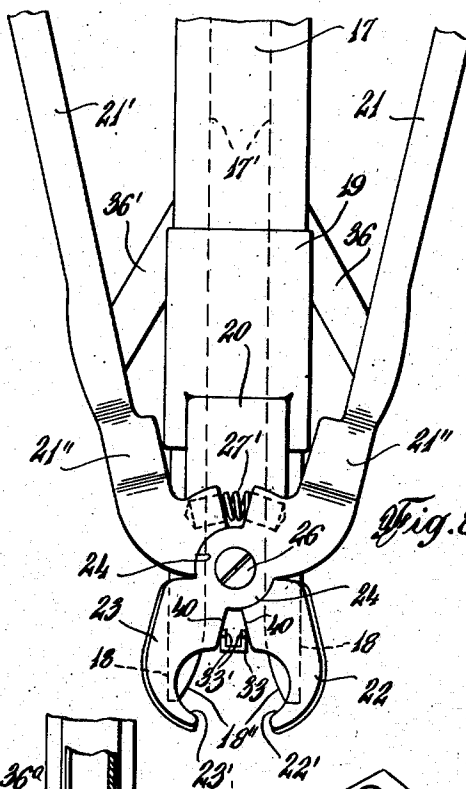
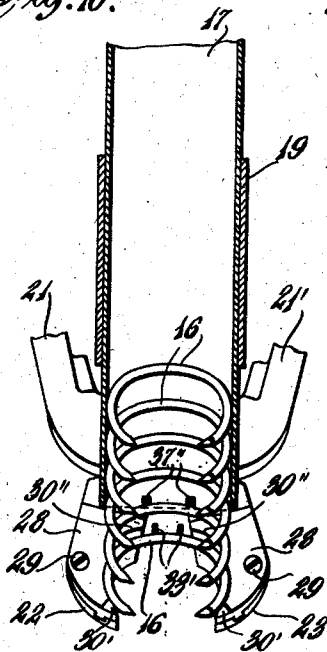


Fig. 8.

Fig. 10.



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STAPLE BENDING DIE FOR STAPLE
APPLYING INSTRUMENTSWendell L. Sorenson, Great Neck, N. Y., assignor
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7 Claims. (Cl. 1—49)

This invention relates to staple applying devices for use in connecting various sheet materials, such as paper, cardboard, fabric or the like, or for connecting such materials to a support therefor, and is for improvements in staple applying devices as disclosed in my co-pending application Serial No. 220,613.

It is the primary object of the invention to provide an improved stapling device of this character wherein the parts are constructed and arranged in a more simplified and compact manner to facilitate the manipulation of the device in applying staples and effect a more efficient operation thereof.

While the device is adapted for applying staples of various forms, it is particularly adapted for use in connection with staples of arcuate form wherein the staple legs are extended inwardly toward each other and a series of staples are assembled in a staple clip by juxtaposing the staples in sidewise relation with the legs of successive staples intersecting the legs of preceding staples and the leg connecting web portion of the staples offset longitudinally and spaced from each other and arranging the staples in the staple clip in rack form, the staples in the staple clip being adhered together in assembled relation by a fragile material, such as adhesive or cement, applied to the leg intersecting portions of the staples.

The staple applying device of my co-pending application includes a pair of pivotally connected levers, one end of the levers constituting manipulating hand grips and the other staple clenching jaws. The levers are mounted on the face of a base member which extends at an acute angle to the opposite face thereof and upon which latter face there is mounted a channel member for engagement of a staple clip, the levers and channel member extending at an acute angle relative to each other. The bottom of the channel member extends at an obtuse angle to and terminates at a side of the clincher jaws whereby the leading staple of the staple clip in the channel member is adapted to engage a seat in said side of said jaws to be positioned relative to material to be secured by the staple by grasping the hand grips and manipulating the device.

It is an object of the invention to provide an improved construction and arrangement of levers and means to mount the staple clip carrying channel member thereon with the manipulating hand grips of the levers positioned in the plane of and at the opposite sides of the chan-

nel member providing a compact arrangement of the parts and permit the manipulating grips to be grasped in different positions by the hand facilitating the manipulating and positioning of the device in various angular positions relative to the material to which staples are to be applied, and providing a staple applying device that is more efficient in use.

To feed the staple clip and engage the leading staple on the staple seat of the jaws, a pawl is slidably mounted on the channel member and operatively connected to the levers to transmit the movement of the levers to reciprocatory movement of the pawl. The feeding pawl is yieldingly urged toward the channel member and adapted to engage at the rear of the leading staple and feed the staple clip as the pawl is moved forwardly and ride over and engage at the rear of the successive staple of the staple clip as the pawl is moved in the opposite direction. To prevent transmitting the retrograde movement of the feeding pawl to the staple clip a spring influenced detent urged toward the channel member is adapted to engage the staple of the staple clip successive to the leading staple and said staple adapted to be moved out of engagement with said detent and the detent caused to ride over and engage the successive staple of the staple clip when the staple clip is fed by the feeding pawl. As the staple clip is engaged in the channel member the feeding pawl and detent obstruct the passage of the staple clip and it is necessary to move the feeding pawl and holding detent out of the path of movement of the staple clip to permit it to move to position with the leading staple engaging the seat at the side of the clincher jaws.

It is another object of the invention to provide an improved construction and arrangement of feeding pawl and detent and means to slidably mount the feeding pawl on the channel member whereby the feeding pawl and detent may be readily manipulated out of the path of movement of the staple clip and held in said position to permit the staple clip when it is engaged in the channel member to move to position with the leading staple engaging the seat at the side of the clincher jaws.

In the staple applying device of my co-pending application as the clincher jaws are actuated to separate the staple from the staple clip and bend it about the material retrograde movement is imparted to the feeding pawl out of engagement with the staple and there is a possibility retrograde movement will be imparted

to the staple by the clincher jaws with the result the staple will not be properly applied to the material.

It is another object of the invention to provide the clincher jaws, or dies mounted thereon, with a staple seat arranged so that a staple positioned relative to said seat as staple bending movement is imparted to the jaws will be moved toward and held against retrograde movement on its seat.

It is a further object of the invention to provide an improved construction and arrangement of staple bending jaws in a staple applying device adapted to cause the extremities of the staple legs to pass by and lie contiguous to each other when staple bending movement is imparted to the jaws to secure the material together, or secure it to a support therefor by a staple.

Other objects and advantages of the invention will hereinafter appear.

In the drawings accompanying and forming a part of this application, Figure 1 is a plan view of a staple applying device embodying my invention and showing the parts in normal position with the clincher jaws spaced apart to receive a staple on the staple seat of the jaws.

Figure 2 is a side elevation looking at the right of Figure 1.

Figure 3 is a plan view of the staple bending and clinching jaws of the device showing the same in open or spread position to receive a staple on the staple seat of the jaws or dies attached to the jaws.

Figure 4 is a front elevation of the staple bending and clinching jaws looking at the bottom of Figure 3.

Figure 5 is a view similar to Figure 3 but showing the jaws in partly closed condition to partly bend and cause the staple legs to pierce the material to be secured by the staple and preparatory to reversely bending the extremities of the staple legs to clinch them to the material to which the staple is applied.

Figure 6 is a perspective view of a staple showing the condition of the staple after it has been operated upon by the staple bending and clinching jaws of the device shown in Figures 3 to 5.

Figure 7 is a view similar to Figure 1 showing the levers actuated to position with the jaws in staple applying position.

Figure 8 is a view looking at the bottom of the forward end portion of the device shown in Figure 1.

Figure 9 is a longitudinal sectional view taken on the line 9—9 of Figure 7 looking in the direction of the arrows.

Figure 10 is a sectional view taken on the line 10—10 of Figure 2 looking in the direction of the arrows and showing a staple clip engaged in the channel member with the leading staple seated in the seat of the dies of the clincher jaws.

Figure 11 is a perspective view of means to retain the staple on the staple seat of the die members of the clinching jaws.

Figure 12 is a perspective view of one of the jaw dies.

Figure 13 is a view similar to Figure 4 but showing a modified arrangement of the staple seat of the jaw dies.

Figure 14 is a side elevation of a staple showing the arrangement of the ends of the staple legs as they are bent to material securing position by the jaws shown in Figure 13; and

Figure 15 is a view similar to Figure 14 show-

ing a modified arrangement of bent ends of the staple legs.

In carrying out the invention there is provided a staple clip comprising, as shown in Figures 9 and 10, a series of staples 16 assembled in side-wise relation and when the staples are of circular form, as shown, the legs of a successive staple intersecting the legs of a preceding staple. The staples are offset longitudinally with the leg connecting web portion of successive staples spaced equidistantly from the leg connecting web portion of preceding staples and arranging the staples in the staple clip in rack form whereby the leg connecting web portion of the staples are adapted to extend in the plane of and engage the bottom of a channel member carrying the staple clip, as shown in Figure 9. It will be obvious that the staples may have straight and parallel legs in which case the legs of successive staples when assembled in the staple clip will be arranged contiguous to the legs of preceding staples and the leg connecting web of successive staples spaced from the preceding staples and arranging the staples to rack form in the staple clip. The staples are adhered together in assembled relation by a material more fragile than the material of the staples, which material is applied to the intersecting portions of the staple legs whereby as the legs are bent around the work or material the staple adhering material will be readily fractured or broken and the staple separated from the staple clip.

In the embodiment of the invention shown there is provided a channel member 17 the side walls of which member are flanged inwardly, as at 17'. The side walls 18 of the channel member are extended forwardly of the bottom at the forward end and the lower edge of said extended side wall portions inclined upwardly at an obtuse angle to the bottom of the channel member, as shown at 18' in Figure 2, and the inwardly flanged portion of said extended side walls curved outwardly, as at 18''. A bracket has an end portion 19 of channel shape in cross section with the side walls flanged inwardly, as shown at 19', whereby it is mounted upon and rearwardly of the forward end of the channel member 17 to embrace the bottom and side walls thereof and the inwardly extending flange 19' of the side walls of the bracket spaced from the flanges 17' of the channel member providing a slideway between said flanges. The bottom of the bracket extends forwardly of the channel portion 19 and is offset laterally to bulbous form, as shown at 20 in Figure 9, with a wall portion opposed to the bottom of the channel member inclining upwardly at substantially the same angle as the edge 18' of the extended side walls of the channel member and at an acute angle to the bottom of the channel member, as shown at 20', and terminates substantially in line with the end of the bottom of the channel member. The bracket is fixed to the channel member by suitable means, as by welding.

A pair of pivotally connected staple bending levers are provided, one end 21, 21' being arranged to constitute manipulating hand grips and the opposite end offset laterally from the hand grips, as at 21'', and the offset portion arranged to incline at an acute angle to a plane extending longitudinally through the hand grips and substantially at the same angle as the inclined wall portion 20' of the bracket and the edges 18' of the side walls of the channel member. The extremity of the offset portion of the

levers is arranged as a jaw 22, 23, and the outer portion of the inner surface of the jaws being arranged of arcuate form, as shown at 22' and 23' in Figure 8. The levers are pivotally connected intermediate the offset portions by reducing the thickness of a portion at the inner end of the jaws and arranging the diametrically opposite surfaces thereof in arcs of a circle having the same radius, as shown at 24 in Figure 8, and said portions 24 engaging in correspondingly formed recesses in the inclined offset portion of the levers, the recesses being of a depth equal to the thickness of the parts 24 and the parts 24 having aligned bearing openings extending therethrough at a right angle to the inclined top surface of the offset portion of the levers and jaws. To pivotally connect the levers and mount the channel member on the levers, a headed pivot screw 26 the stem of which has two diameters and the portion of smaller diameter screw threaded, is inserted in the aligned bearing openings in the offset portion of the levers. The opening in the lever 21' has two diameters for the engagement of the screw head and the portion of larger diameter of the screw stem whereby the head is seated against a shoulder formed in said opening, and the shoulder formed at the juncture of the portion of the stem of larger diameter with the portion of smaller diameter abutting the recessed portion of the lever 21'. The threaded portion of the screw stem has screw threaded connection with a nut 27 having a reduced portion extended through an opening in the part 20' of the bracket 20 and engages in an enlargement of the bearing opening in the offset end of lever 21', the shoulder formed by said reduced portion abutting the inner face of the part 20' of the bracket and the end arranged to abut the bottom of the channel member, as clearly shown in Figure 9. By arranging the offset portion of the levers to incline at substantially the same angle as the portion 20' of the bracket 20 they are adapted to lie contiguous to and are supported by the portion 20' of the bracket. The bottom of the channel member 17 terminates at the rear of the lever jaws and the lever jaws extend forwardly and upwardly at an obtuse angle to the bottom of the channel member, as shown in Figure 9, relative to and slightly spaced below the inclined edges of the side wall extensions 18 of the channel member, as shown in Figure 2. The levers are normally urged to position with the jaws spread apart to receive a staple at the side thereof by a coiled spring 27' the ends of which are anchored in sockets in opposed faces of the levers, as shown in Figure 8.

The top side of the lever jaws extend at an obtuse angle to and beyond the bottom of the channel member are provided with a staple engaging recess or seat, and while said recess or seat may be arranged in the jaws they are preferably arranged in dies 28, which are in the nature of anvils, mounted in said face of each jaw. These dies, as shown in Figure 12, are of like shape but opposite hand and are shaped to conform to the jaws. The dies are mounted in recesses 23'' in the side of the lever jaws disposed relative to the end of the channel member with lugs 28' extended from the bottom 22^b thereof engaging in corresponding depressions in the bottom surface of the jaw recesses 23'' and are secured to the jaws by screws 29. The inner surface 28^a of the dies is of arcuate shape conforming to and extending parallel to the arcuate inner surface 22', 23' of the lever jaws and an ar-

cuate recess 30 of angular form in cross section is extended into said arcuate surface 28^a at the top 28^c of the die. The bottom surface 30^f of the recesses 30 (Fig. 12) extends in an even plane parallel to the top 28^c and bottom 28^b of the jaws and at an obtuse angle to the bottom of the channel member 17. The side surface of the recesses 30, as shown at 30^e in Figure 12 converges from said bottom surface 30^f to the top or upper surface 28^c of the dies and is arranged with portions of increased width at the opposite ends relative to the portion intermediate said ends, the portion of increased width at the forward end being provided by increasing the thickness of the jaw at said end, as at 30', and at the rear end by diverging the top or upper surface 28^c from the rear end of the die toward the converging side wall 30^e of the recess, as at 30'', and said latter end arranged to project above the upper surface of the bottom of the channel member 17. By this arrangement of the side surface or wall of the staple engaging recess or seat 30 in the dies or jaws as the legs of a staple in said staple seat are bent to cause the staple legs to pierce and be bent around the material or work when the lever jaws are moved toward each other the inclination of the side wall of the recesses 30 exerts a force on the staple to urge it to and hold it on the bottom surface or wall 30^f of the recesses. By increasing the width of the side surface at the rear of the dies, as at 30'', said wall is caused to overhang the leg connecting web portion of a staple engaged on the staple recess 30 to a greater extent than the portion of the side wall intermediate the ends 30', 30'' and prevents said portion of the staple from being sprung out from the staple seat 30 should there be any tendency of the staple to cant due to an irregularity in the structure of the staple or otherwise. By increasing the width of the side surface at the forward end 30' of the die recesses 30 as the staple is bent around the work or material and the end of the staple legs engage said surface the extremities of the staple legs by the continued staple bending movement of the lever jaws 22, 23 are offset and pass into contiguous overlapped relation to each other, as shown at 16' in Figure 14. Should it be desired to cause the extremities of the legs as they are bent around the work to be bent reversely upon themselves and thereby clamped to the material to which the staple is applied, as shown at 16^a in Figure 6, the forward portion 30' of increased width of the side surface of the recesses 30 is provided with elongated recesses, as shown at 30^a and 30^b in Figures 3 and 4, the recess 30^a being positioned adjacent the bottom or lower surface 28^b of one of the dies and the recess 30^b arranged adjacent the top or upper surface 28^c of the other die. The staples are formed from sections severed from a wire strand diagonally of the wire thus arranging the staples with piercing points and as the staples are bent the ends of the staple legs engage the recesses 30^a and 30^b and are caused to be bent reversely upon themselves.

To feed the staple clip in the channel member 17 and position the leading staple upon the staple recess or seat 30 in the lever jaws or dies, a slide 31 (Figures 1 and 9) of plate form is mounted upon the inwardly extending flanges 17' of the side walls of the channel member 17 with the marginal side portions of the plate slidably engaging in the slideway between said flanges and the inwardly extending flanges 19' of the side wall 19 of the bracket, the slide being of greater

length than the portion 19 of the bracket. The slide has a pair of spaced parallel arms 32 extending upwardly from and forwardly of the slide. A pawl 33 of channel shape in cross section and of substantially right angular form in longitudinal section is pivotally mounted at one end on a pin 34 extending between and mounted at the ends in the slide arms 32, the opposite end of the pawl extending toward and urged into the channel member 17 by a spring 35. The end of the laterally extending portion of the pawl is cut away with one wall of the cut away portion extending in a plane longitudinally of said end of the pawl and arranging the pawl with a pair of spaced parallel pallets 33' the front edges of which pallets extend substantially perpendicular to the bottom of the channel member and the rear edge at the ends rounded, as shown. The pawl carrying slide is operatively connected to the levers to be reciprocated thereby longitudinally of the channel member by a pair of links 36, 36'. The link 36 is pivotally connected at one end to the hand grip 21 of one lever and the link 36' pivotally connected at one end to the hand grip 21' of the other lever and the opposite ends connected to the slide 31 by a headed stud having a screw threaded connection with the end of the slide opposite to that from which the pawl extends, as shown at 36^a in Figure 9. In the normal position of the parts with the staple clip engaged in the channel member and the leading staple engaging the staple seat at the side of the lever jaws, the pawl pallets 33' engage at the rear of the leg connecting web of the leading staple of the staple clip positioned on the staple seat of the spread lever jaws at opposite sides of a line extending centrally longitudinally through the staples of the staple clip, as shown in dot and dash lines in Figure 9. In this position of the parts the device is grasped by the hand grips of the levers and manipulated to position the staple on the staple seat of the jaws to embrace the material or work when the levers are actuated by pressing together the hand grip ends of the levers and imparting staple bending movement to the lever jaws. Due to the connection of the lever by the links with the pawl carrying slide the slide is actuated rearwardly away from the lever jaws to the full line position shown in Figure 9, the rounded ends of the pawl pallets during said movement of the pawl causing the pawl to ride over the leg connecting web of the successive staple of the staple clip and cause the pawl pallets to engage at the rear of said staple by the spring 35. As the levers are moved to normal position under the influence of the spring 27' forward movement is imparted to the pawl carrying slide and the pawl to the dot and dash line position shown in Figure 9, and thereby feeding the staple clip and positioning the leading staple engaged by the pawl pallet on the staple seat of the lever jaws.

To hold the staple clip against rearward movement in the channel during the return or retrograde movement of the pawl there is provided a staple clip holding detent 37, said detent being of channel shape in cross section and of greater width than the pawl. One end of the detent is extended laterally and the channel leg connecting portion of said end of the detent cut away, as at 37', as well as a portion of the channel walls providing a recess extended into the forward edge and end of the channel legs, one surface of which recesses extend in the plane of the laterally extending portion of the detent. The corner at the

end and rear edge is rounded arranging the detent with pallets 39'' (Fig. 2) similar to the pallets 33' of the feeding pawl. The detent is pivotally mounted intermediate the ends upon a pin 38 extended between and mounted at the ends in ears 38' projecting upwardly above the channel member 17 from the side walls of the channel portion 19 of the bracket. The end of the detent arranged with the pallets is urged in a direction toward the bottom of the channel member 17 by a spring 39. The opposite end of the detent is extended beyond the pawl and arranged as a finger engaging portion 37^a. In the normal position of the parts with the leading staple of the staple clip seated upon the lever jaws by the feeding pawl 33 the detent pallets engage at the rear of the leg connecting web of the next successive staple of the staple clip and are retained in said position by the spring 39 during the movement of the feeding pawl from the dot and dash line position to the full line position shown in Figure 9 with the pawl pallets engaging at the rear of the leg connecting web of the staple engaged forward of the pallets of the detent, the feeding pawl being adapted to move to said position due to the greater width of the detent and thereby spacing the detent pallets farther apart than the pawl pallets. As staple clip feeding movement is imparted to the feeding pawl the staple forward of the detent pallets is moved forwardly of the detent and as the successive staple engages the rounded end of the detent pallets the detent is moved against the action of the spring 39 and permits said staple to pass below the detent pallets, which are immediately engaged in the rear of said staple as it rides off from the rounded end of the detent pallets by the spring 39. To permit a staple clip engaged in the channel member to be properly and readily positioned therein with the leading staple seated upon the staple seat of the lever jaws the detent is adapted to be moved out of the channel member as shown by dot and dash lines in Figure 2 by placing the finger on the finger engaging end 37^a of the detent and applying pressure thereto, and simultaneously with this movement of the detent the feeding pawl is moved out of the channel member by the detent engaging a part 33'' severed from and bent laterally of the feeding pawl. The detent normally assumes a position inclining downwardly in a direction toward the forward end of the channel member whereby as feeding movement is imparted to the pawl the pawl will have movement imparted thereto in a direction toward the channel member. As stated, the side surface of increased depth of the staple engaging recess at the rear of the jaws or dies projects above the bottom of the channel member and during the feeding of the staple clip the leg connecting web of the leading staple is caused to ride over said portion of the dies and engage the staple seat therein by the movement of the pawl under the influence of a spring 35 in a direction toward the channel member, the pallets of the pawl moving relative to the inner diverging surfaces 40 of the lever jaws and dies within the inner arcuate surfaces thereof, the pawl assuming the dot and dash line position shown in Figure 9 with the end surface of the cut away portion forming the pallets engaging the staple on the staple seat.

To cause the staple legs to be seated in the recesses in the lever jaws or dies means are provided to yieldingly engage and urge the staple to the seat. As shown in Figure 11, this means

comprises a bifurcated member 41 of resilient material the leg connecting portion of which member is offset laterally from the bifurcation legs. This member is mounted at the leg connecting portion on a bar 42 fixed at the ends upon upwardly pressed portions 43 (Figure 2) of the inwardly extending flange of the side walls of the channel member. The bifurcated legs extend downwardly through slots 43' extended inwardly from the edge of the flanges 17' to the side walls 17 of the channel member, as shown in Figure 7, and extend below the inwardly extended flanges of the wall extensions 18 of the side walls of the channel member, the inner marginal edge portion 41' at the ends of the bifurcated legs being deflected downwardly from the flanges of the channel wall extensions toward the lever jaws, as clearly shown in Figures 2 and 9.

To facilitate offsetting the extremities of the legs and cause them to pass each other to assume a predetermined overlapped position, for instance as shown in Figure 15, with the diagonal cut edge disposed outwardly and thus providing a greater contacting surface between the extremities of the staple legs, the bottom surface 30^f of the staple engaging recess 30 in one jaw or die 28 in the present instance the jaw at the right in Figure 13 is arranged to extend in an even plane parallel to the inclination of the lever jaws, as shown at 30^e in Figure 13, and adapted for the engagement of the staple leg 16^b, as shown in Figure 15. The bottom surface 30^f of the staple engaging recess 30 in the other lever jaw or die inclines upwardly from the rear end 30'' to the forward end 30', as shown at 30^d in Figure 13, whereby as the lever jaws are actuated to bend the staple legs around the material or work the opposite leg of the staple is directed laterally and caused to pass and lie contiguous to the other staple leg, as shown at 16^c in Figure 15.

Having described my invention, what I claim is:

1. In a staple applying device, a pair of pivotally connected levers, each lever having one end arranged as a manipulating hand grip and the opposite end as a staple bending jaw with the top surface arranged to extend at a right angle to the pivot connection of the levers, each jaw having an arcuate inner surface arranged with a staple engaging recess at the top of the jaw of angle form in cross section, the bottom surface of each staple engaging recess extending in the plane of the top surface of the jaw and the side surface of the staple engaging recess conforming substantially to the curvature of the arcuate inner surface of the jaw and extending at an acute angle to said bottom surface and adapted by the staple bending movement of the jaws to urge a staple in said jaw recesses toward the bottom surface of the jaw recesses and retain the staple in said staple engaging recesses of the jaws.

2. In a staple applying device, a pair of pivotally connected levers, each lever having one end arranged as a manipulating hand grip and the opposite end as a jaw, each jaw having an arcuate inner surface, a die mounted sidewise on a side of each jaw and each jaw having an arcuate inner surface extending parallel to the inner arcuate surface of the jaw and arranged with a staple engaging recess of acute angular form in cross section in the corner at the outer side and inner arcuate surface of the die, the side surface of the staple engaging recess being in an arc conforming substantially to the curvature of the arcuate inner surface of the die and converging

from the bottom surface of the staple engaging recess to the top of the die, and said side surface of the staple engaging recess adapted by the staple bending movement of the jaws to retain the staple seated in the staple engaging recess of each die.

3. A staple applying device as claimed in claim 2, wherein the end portions of each die are of increased thickness relative to the portion intermediate said ends and arranging the side surface of each staple engaging recess at the ends of the die of increased width relative to the portion of said surface intermediate the ends, said side surface of the staple engaging recess of increased width at the rear end of the dies being adapted to hold the staple against rearward displacement from the staple engaging recess, and the portion of said side surface of the staple engaging recess of increased width at the forward end of the dies adapted to be engaged by and cause the extremities of the staple legs to move into overlapping relation as the lever jaws are actuated to bend the staple legs around the work.

4. A staple applying device as claimed in claim 2, wherein the bottom surface of the staple engaging recess in one die extends in an even plane at a right angle to the pivot connection of the levers and the bottom surface of the recess in the other die inclines upwardly from the rear end to the forward end of the die and adapted to cause the extremity of the staple leg resting on said inclined surface to move into overlapped relation and lie contiguous to the extremity of the other staple leg as the staple legs are bent about the work by the actuation of the lever jaws.

5. A staple applying device as claimed in claim 2, wherein the forward end portion of the side surface of each staple engaging recess is arranged of increased width relative to the remaining portion of said surface and said end portion of increased width having a recess therein adapted to be engaged by an extremity of each staple leg of a staple in the staple engaging recess in successive sequence to the bending of the staple leg around the work by the actuation of the jaws and bend said extremity of the staple legs reversely upon themselves.

6. A staple applying device as claimed in claim 2, wherein the bottom surface of the staple engaging recess of each die extend in the same plane from the rear end to the forward end of the dies and the forward end portion of the side surface of each staple engaging recess is arranged of increased width relative to the remaining portion of said surface and said end portion of increased width of each die having a recess therein, the recess in said surface of one die extending from above to below the bottom surface of the recess and the recess in said surface of the other die extending upwardly from adjacent the bottom surface of the recess, and said recesses adapted to be engaged by the extremity of the staple legs of a staple in the staple engaging recesses in successive sequence to bending the staple legs around the work by the jaws and bend the extremity of the staple legs reversely upon themselves.

7. In a staple applying device, a pair of pivotally connected levers arranged as hand grips at one end and the opposite ends arranged as staple bending jaws, said jaws being arranged with a staple engaging seat of acute angle form in cross section in the top thereof with the bottom surface of the seat in one jaw extending in

a plane parallel to the top of the jaw and the bottom surface of the recess in the other jaw inclining upwardly from the rear end to the forward end of the jaw, and the side surface of the seat arranged in an arc of a circle and to converge from the bottom surface of the seats to the top surface of the jaws, and said side and bottom

surfaces of the staple engaging seats adapted by the staple bending movement of the jaws to retain the staple in the seats and cause the extremities of the staple legs to move into overlapped contiguous relation as the staple legs are bent about the work.

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