Oct. 8, 1929. C. M. MacCHESNEY ET AL 1,730,669

SEALING DEVICE

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Fig. 1.

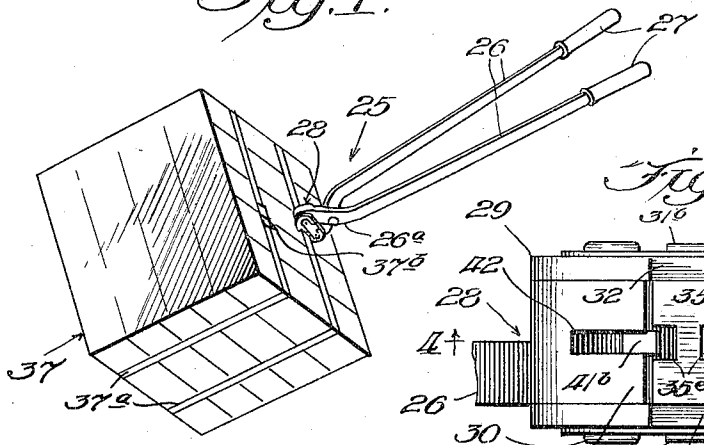


Fig. 2.

Fig. 4.

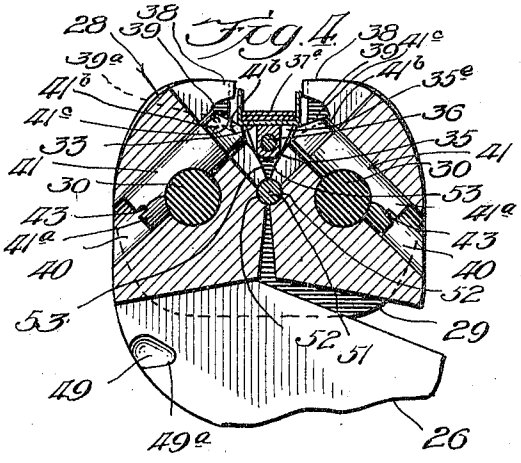


Fig. 3.

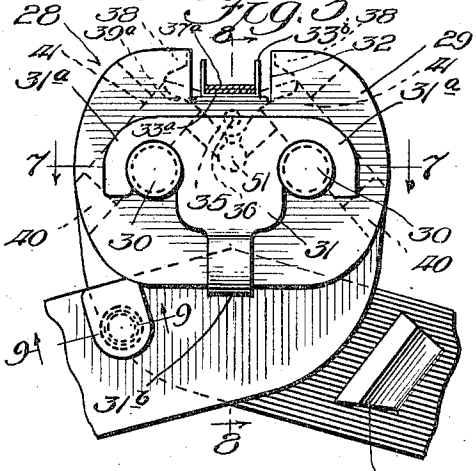


Fig. 5.

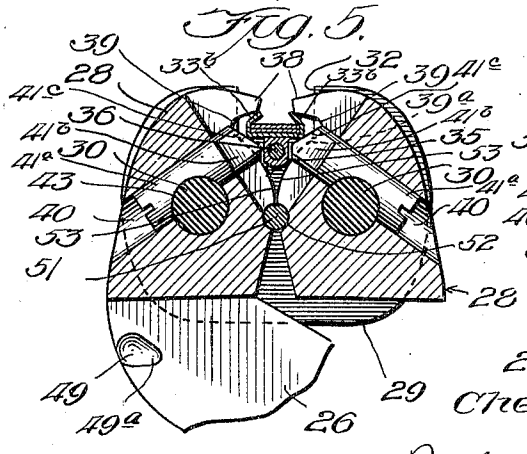
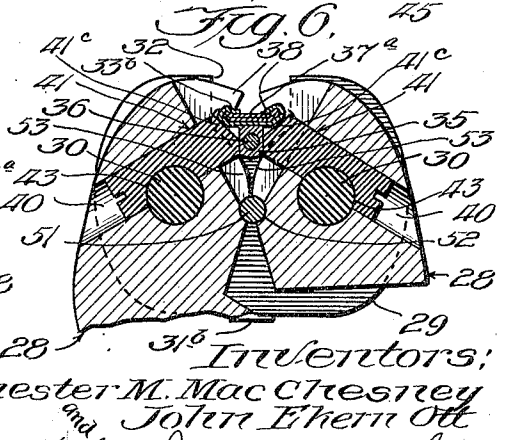


Fig. 6.



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SEALING DEVICE

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Fig. 7.

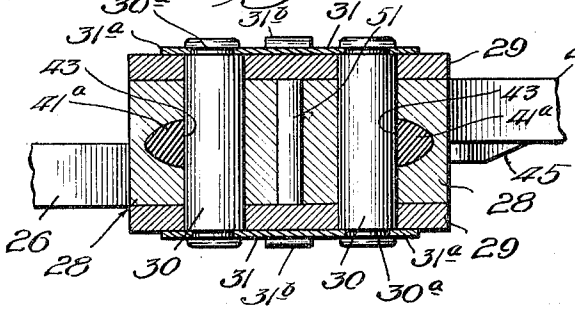


Fig. 8.

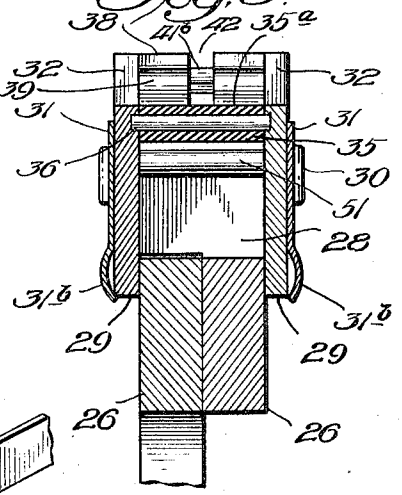


Fig. 9.

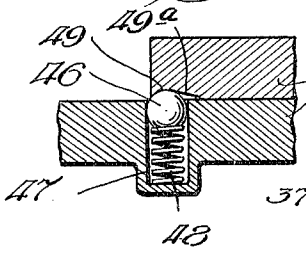


Fig. 13.

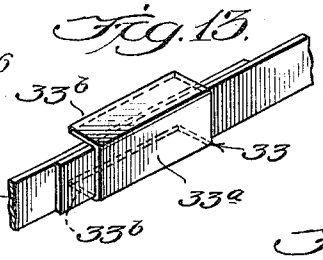


Fig. 14.

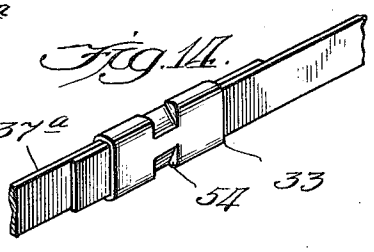


Fig. 10.

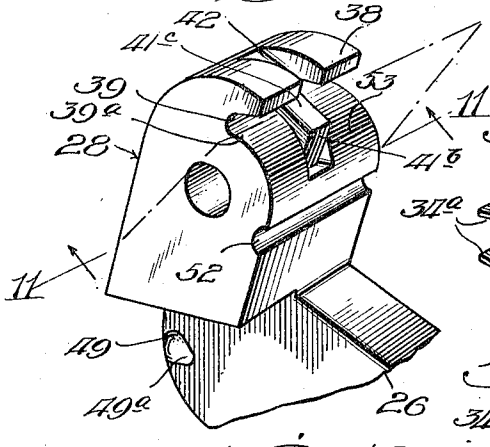


Fig. 15

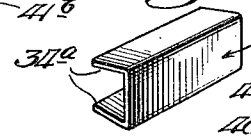


Fig. 11.

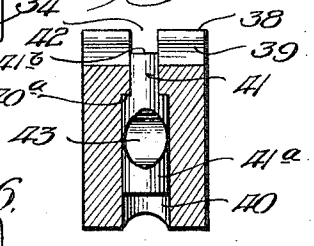


Fig. 16.

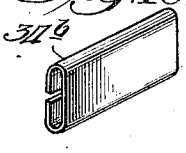
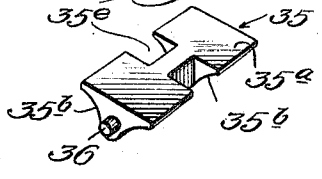


Fig. 12.



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SEALING DEVICE

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Fig. 17.

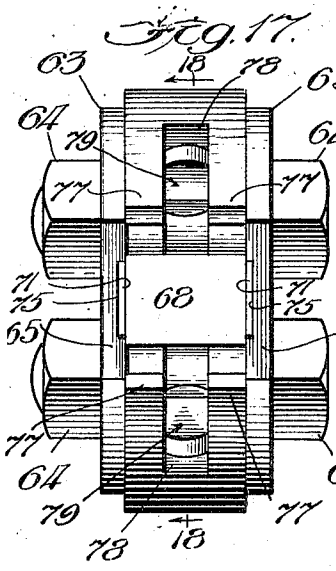


Fig. 18.

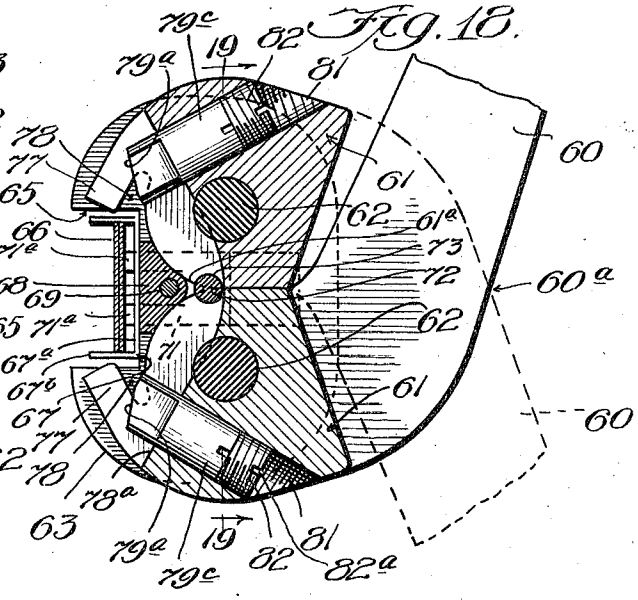
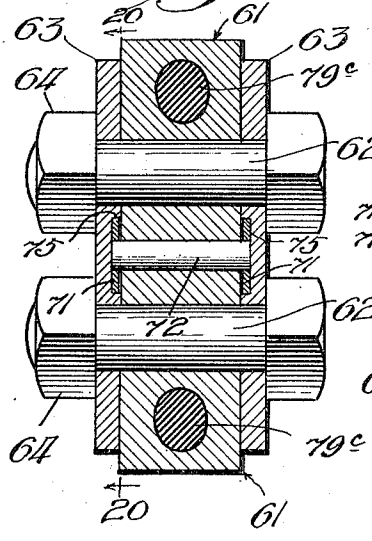


Fig. 19.



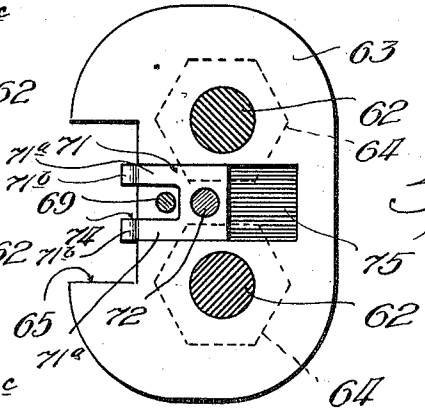


Fig. 20.

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Oct. 8, 1929. C. M. MacCHESNEY ET AL 1,730,669

SEALING DEVICE

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Fig. 21.

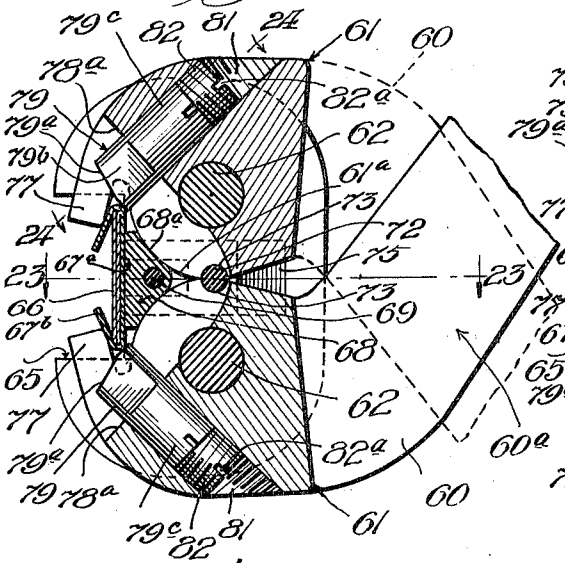


Fig. 22.

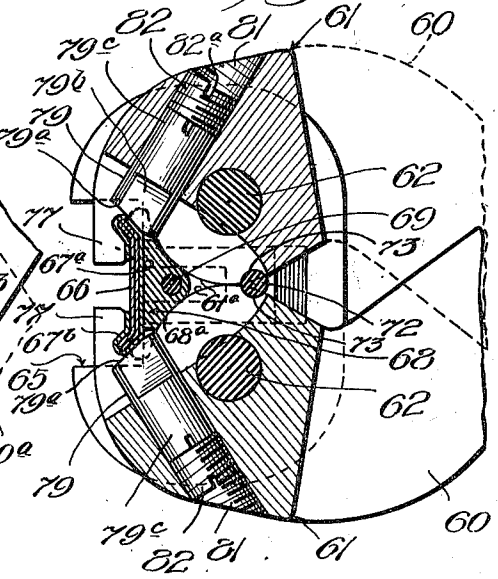


Fig. 23.

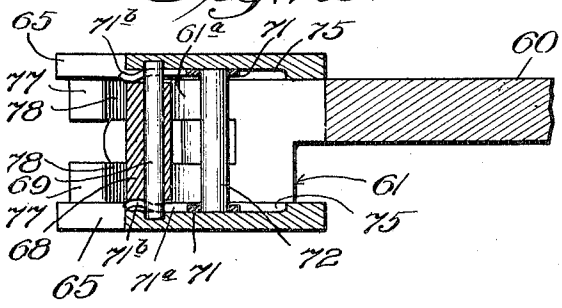


Fig. 24.

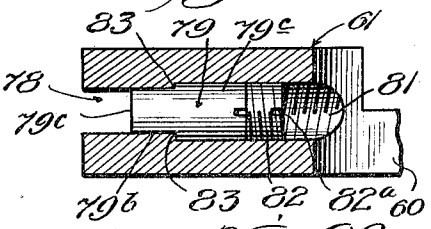


Fig. 26.

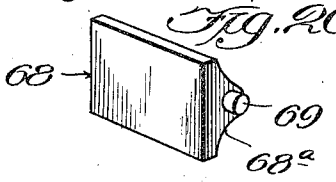
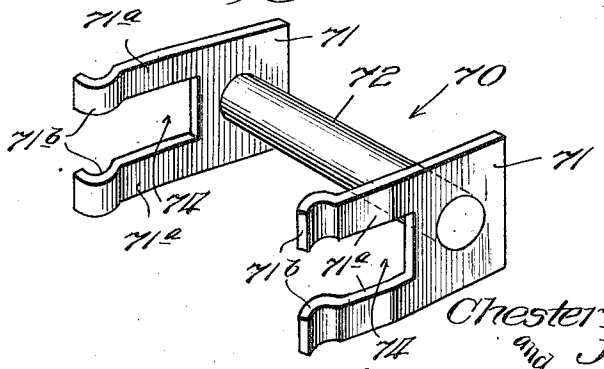


Fig. 25



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Patented Oct. 8, 1929 1,730,669

UNITED STATES PATENT OFFICE

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SEALING DEVICE

Application filed November 19, 1926. Serial No. 149,307.

This invention relates to improvements in sealing divices and its purpose is to provide improved means for applying and manipulating a seal on the overlapping ends of a strap or the like for the purpose of securing said ends together. The principal object of the invention is to provide a sealing device adapted to hold a seal during the operation of applying the device to a strap and having means for bending the seal around the strap and shearing both the strap and the seal to effect a tigh union of the overlapping ends of the strap. Another object of the invention is to provide improved means for automatically holding the sealing blank in preliminary position in the sealing device before the sealing operation is performed. Still another object of the invention is to provide a sealing device having improved die members for bending the sealing member into tight frictional engagement with the strap and for effecting a shearing action on the seal and the strap transversely to the direction in which tension is applied in the strap. A further object of the invention is to provide improved means for guiding the bending and cutting dies of the sealing device so that a symmetrical seal is formed. Another feature is the provision of a sealing device having cooperating cutting edges which are relatively fixed when the shearing force is applied to the seal. A further feature is the provision of a device capable of use in applying various forms of seals such as tubular seals or channel shaped seals having straight or tapered sides. Other objects relate to various features of construction and arrangement which will appear more fully hereinafter.

The nature of the invention will be understood from the following specification taken with the accompanying drawings in which two embodiments are illustrated. In the drawings, Figure 1 is a perspective view showing a box and the improved sealing device of the present invention applied to a reinforced strap extending around the box for the purpose of sealing the overlapping ends of the strap; Fig. 2 shows a plan view of the relatively movable heads which carry the bending and cutting dies of the device; Fig. 3 shows a side elevation of the heads of the sealing device and associated parts, illustrating the heads or jaws in their most widely separated positions; Fig 4 is a sectional view taken on the line 4—4 of Fig. 2 illustrating the arrangement of the parts corresponding to that illustrated in Fig. 3; Fig. 5 is a sectional view similar to that of Fig. 4 illustrating an intermediate position of the arms and the jaws or heads, the walls or legs of the seal being partially bent over the overlapping ends of the strap; Fig. 6 is a sectional view similar to that of Fig. 4 illustrating the final position of the jaws or heads of the device after the dies have operated to bend the sides or legs of the seal and shear the seal as well as the strap; Fig. 7 is a sectional view taken on the line 7—7 of Fig. 3; Fig. 8 is a sectional view taken on the line 8—8 of Fig. 3; Fig. 9 is a detail sectional view taken on the line 9—9 of Fig. 3 illustrating one means of holding the heads and jaws in predetermined relative positions; Fig. 10 is a perspective view of one of the heads and its jaws with the cutting die mounted in position therein; Fig. 11 is a sectional view taken on the line 11—11 of Fig. 10; Fig. 12 is a perspective view of the saddle on which the seal is seated during its application to the strap; Fig. 13 is a perspective view of the overlapping ends of the strap showing the sealing blank of U-shape cross-section applied thereto, illustrating the relative positions of the parts before the sealing blank is operated on by the die members; Fig. 14 is a perspective view similar to that of Fig. 13 illustrating the resulting seal after the sealing device has operated on the blank and the strap; Fig. 15 is a perspective view of another form of channel seal having tapered sides which may be used with the improved sealing device; Fig. 16 is a perspective view of a closed or tubular seal with which the sealing device may also be employed; Fig. 17 shows an elevation of the die carrying heads of a modified form of the invention; Fig. 18 is a sectional view taken on the line 18—18 of Fig. 17 showing the interior construction of the device; Fig. 19 is a sectional view taken on the line 19—19 of Fig. 18; Fig. 20 is a sectional view taken on the line 20—20 of Fig. 19; Fig.

21 is a sectional view similar to that of Fig. 18, illustrating an intermediate position of the parts with the arms of the sealing blank partially bent toward their final positions; Fig. 22 is a sectional view similar to those of Figs. 18 and 21, illustrating the positions of the parts after the dies have moved the parts of the seal to their final positions. Fig. 23 is a sectional view taken on the line 23—23 of Fig. 21; Fig. 24 is a perspective view of the holding slide of which the sealing blank is held in position preliminary to applying it to the strap; and Fig. 25 is a perspective view of the anvil embodied in the device of Figs. 17 to 24, inclusive.

Referring to Figs. 1 to 12, inclusive, the first form of the invention, designated generally by the numeral 25, comprises two similar operating levers 26 which are provided with handles 27 and which are bent transversely at their other ends, as shown at 26a, so that the two levers cross each other as illustrated in Fig. 1, terminating beyond the point of intersection in enlarged heads 28 adapted to carry the bending and cutting jaws which engage the sealing blank to be operated on by the device. The levers 26 are not connected at the point of intersection but have a pivotal connection to each other through two cheek plates 29 which are located on opposite sides of the heads 28 and which are pivoted to each of said heads by pins 30. The pins 30 are provided at their opposite ends with grooves 30a adapted to receive spring clips 31 located in contact with the surfaces of the cheek plates, as shown in Figs. 2 and 3, and having U-shaped parts 31a adapted to enter the annular grooves 30a in the pins to retain the pins in assembled relation with respect to the other parts of the device. Each of the spring clips 31 is provided with an angularly disposed resilient extension 31b adapted to contact with the adjacent cheek plate with sufficient pressure to prevent accidental removal of the spring clips from the ends of the pins. The spring clips preferably have the extensions 31b extending slightly over the edges of the cheek plates, as illustrated in Fig. 8. The outermost edges of the cheek plates 29 are provided with oppositely disposed rectangular notches 32 adapted to receive the strap or other member to which the seal is to be attached by the operation of the device. The sealing blank, formed separately of sheet metal, may be in the form of a channel-shaped member 33, as shown particularly in Figs. 3 and 13, having a base 33a and two transversely extending legs or walls 33b. The sealing blank may also be in the form shown in Fig. 15 where the side walls or legs 34a of the blank 34 are shown as converging slightly toward their outer ends, or the blank may be of the closed or flat tubular form 34b shown in Fig. 16, in which case the blank must be threaded on the ends of the strap before applying the sealing device. The blank 33 or other sealing blank is adapted to be received in the space between the rectangular notches 32 and is adapted to seat upon a saddle 35 having the form shown particularly in Fig. 12, being provided with an outer flat surface 35a which contacts with the sealing blank and with oppositely disposed downwardly converging concaved surfaces 35b which extend partially between the heads 28 of the lever arms 26. The saddle 35 is provided at opposite ends with trunnions 36 which engage suitable bearing apertures or recesses formed on the inner sides of the cheek plates 29, as illustrated in Fig. 8.

In using the device to apply a seal to a strap or the like, the seal 33 is first placed in the device 25 in the position illustrated in Figs. 3 and 4 and, with the sealing blank held in the device in the manner hereinafter described, the operator brings the device into proximity to the overlapping portions of the strap to be sealed, as illustrated in Fig. 1, where a box 37 is shown as having two sheet metal straps 37a extending around it. The sealing device 25 has been operated to form a seal 37b on one of the straps and is in position to form the seal on the other strap.

The heads 28 of the sealing device are offset laterally as shown in Fig. 2 with respect to the body portions of the levers 26, to permit the inclined portions 26a of the levers to cross each other as shown in Fig. 1, and upon relative movement of the heads 28 about the pivot pins 30, the walls or legs 33b of the sealing blank 33 are bent inwardly over the overlapping portions of the strap. This inward bending is effected by means of jaws or bending dies 38 which are formed on the upper and inner sides of the heads 28, leaving undercut recesses 39 beneath the jaws, as shown, for example, in Fig. 4. Extending downwardly and outwardly from the lower walls 39a of each recess 39 is a channel 40 of circular cross-section adapted to receive the cylindrical portion 41a of a cutting die 41. The channels 40 are circular in cross-secton to receive the cylindrical body portions 41a of the dies which terminate in cutting portions 41b of rectangular cross-section arranged to project into the notches 42 by which the jaw 38 on each head is divided into two parts. Each notch 42 extends inwardly beyond the lower surface 39a of the adjacent recess and has a flat bottom wall extending radially outward from the traveling pin hereinafter described. The parallel side walls of the notches 42 engage the side walls of the portions 41b of the dies and the shoulders at the inner ends of the portion 41a of the dies engage the shoulders 40a at the inner ends of the channels 40, these shoulders being in line with the bottom walls of the respective notches 42. The part 41b of each die is provided with a transversely extending notch

43 of substantially semi-circular form which is adapted to receive and be closely fitted by one of the pivot pins 30. The pins 30 thus serve to retain the dies 41 in position within the channels 40 and permit the dies to be readily replaced when desired. The cutting portions 41[b] of the dies project inwardly beyond the surfaces 39[a] of the recesses beneath the jaws and the notches are of the same width as the projecting portions of the dies 41, so that when a cutting die 41 is brought into contact with the seal, the metal on the opposite side of the seal can be forced upwardly into the opposite notch 42, the edges of which form complementary cutting dies. The sides of the saddle 35 are similarly provided with notches 35[c] adapted to receive the dies 41 when they are moved upwardly.

When the sealing blank 33 or other sealing blank is placed in the sealing device 25, the jaws are widely separated as shown in Fig. 3, the extent of this separation being limited by a projecting lug 45 on one of the levers engaging the laterally projecting head 28 on the other lever. After the seal has been inserted, the levers 26 are adapted to be returned automatically to a position wherein the sides of the seal will be gripped by the opposed jaws with sufficient pressure to retain the seal in place during the application of the seal and sealing device to the overlapping ends of a strap in the manner illustrated, for example, in Fig. 1. This operation of the lever arms 26 is effected by the operation of a ball 46 mounted in a bore 47 which extends through one of the levers 26 and partially into the lug 45, as shown in Fig. 9, the ball 46 being pressed by a coil spring 48 so that it engages a recess 49 formed in the face of the opposite lever 26 when that recess is brought into alignment with the ball by the location of the levers in that relative angular position which will cause the sides of the seal to be gripped by the jaws as explained above. One side of the recess 49 is tapered as shown at 49[a] to permit the ball 46 to ride partially out of the recess during the operation of separating the levers 26 to the extreme position wherein the lug 45 engages the head 28 of the opposite lever. When the levers and jaws have thus been separated to the extreme position and the seal has been inserted, the pressure of the ball 46 on the inclined surface 49[a] will automatically return the ball to engagement with the bottom of the recess 49 and thus move the jaws inwardly to the position wherein they engage the sides of the seal, such as the walls or legs 33[b] of the sealing blank 33. The sealing device may then be conveniently moved by the operator to cause the overlapping ends of the strap to be received by the seal in the recess between the jaws 38. In case the tubular type of seal shown in Fig. 16 is employed, the ends of the strap are threaded through the seal before the sealing device is applied but the seal 34 shown in Fig. 15 may be applied to the sealing device before engagement with the strap as in the operation of the sealing device with the form of seal shown in Fig. 13.

The relative arrangement of the jaws 38 wherein the legs of the sealing blank 33 are gripped by the jaws and are in engagement with the overlapping ends of the strap 37[a], is illustrated in the sectional view of Fig. 4. After the parts have been placed in this position, a pressure upon the lever arms 26, imparted through the handles 27, will overcome the resistance afforded by the engagement of the ball 46 with the recess 49, and upon further movement of the lever arms 26 inwardly toward each other, the jaws 38 will bend the legs 33[b] of the sealing blank inwardly over the edges of the strap 37[a], as illustrated in Fig. 5. During this operation, the two heads 28 and the two jaws 38 are retained in symmetrical arrangement with respect to the cheek plates 29, and the parts carried thereby, by means of a traveling pin 51 which is located between the heads 28 and between the cheek plates 29. This pin is of symmetrical form and the curved surfaces thereof are engaged on opposite sides by recesses 52 which are formed in the oppositely disposed curved faces 53 of the heads 28. These curved surfaces 53 are adapted to coact with the similarly curved surfaces 35[b] of the saddle 35 and these surfaces are concentric with the axes of the pins 30 so that in all positions of the jaws, any pressure received on the saddle 35 is transmitted to the heads 28, thereby preventing any undue strain on the trunnions 36 which retain the saddle in position. As the heads 28 are rocked about the pivot pins 30, the traveling pin 51 moves downwardly as viewed in Fig. 5, so that the jaws 38 are retained in symmetrical position with respect to the blank 33, and the legs 33[b] of the blank are bent inwardly in unison and to the same extent over the top surfaces of the strap. During this bending operation, the legs 33[b] are brought into tight frictional engagement with the lateral edges of the strap and the bottom wall of the seal is retained in close engagement with the strap by the underlying saddle 35 so that as the bending operation continues the legs 33[b] are forced downwardly into contact with the top surfaces of the strap and at the same time the cutting dies 41 are brought into action so that the inclined cutting edges 41[c] of these dies engage the lower outer corners of the seal 33, as shown in Fig. 5, and then force the seal and oppositely disposed portions of the strap upwardly with the result that the seal and the strap are sheared by the dies against the cutting edges formed by the walls of the notches 42, as shown in Fig. 6, thereby forming a sealing joint having the form illustrated in Fig. 14 where it will be seen that the opposite sides

of the seal 33, on the side thereof opposite the walls or legs 33^b, are provided with notches 54 which are formed by the action of the cutting dies 41 in shearing the seal 33 and also the lateral edge portions of the strap 37^a. This shearing action thus produces abutting edges on the seal and strap which effectually prevent relative separation of the overlapping ends of the strap in the manner indicated more fully in United States Patent No. 1,260,016, granted March 19, 1918, on the application of Ralph H. Norton. The inward movement of the heads 28 and the extent of the shearing action is limited by a lug 45 on one of the levers 26 engaging the edge of the other lever.

When the sealing device is employed with the sealing blank 34 shown in Fig. 15, the seal is retained in initial engagement with the strap by the inclination of the legs of the seal and in the subsequent operation of the sealing device the legs of the seal are bent inwardly as in the operation of the device upon the seal 33. When the sealing device is used with the seal 34^b shown in Fig. 16, it is unnecessary for the jaws of the sealing device to perform the preliminary bending operation but after the jaws have been moved inwardly to the necessary extent, the edges of the seal and strap are sheared as in the operation explained above, to form a tight joint uniting the overlapping ends of the strap.

It will be apparent that by the operation of this invention, the overlapping ends of a strap or the like may be rigidly and permanently secured to each other in a convenient manner and that the overlapping ends of the strap are held together not only by frictional contact with the seal, but also by the abutting edges of those portions of the seal and strap which have been sheared by the operation of the cutting dies. The manipulation of the parts which permits the sealing blank to be retained in position within the sealing device during the process of applying the sealing device to the strap, makes it possible to operate the device with great convenience and with great speed in applying seals to straps which have been passed or stretched around boxes or other packages by means of other tools which may be employed for that purpose.

The modified form of the invention illustrated in Figs. 15 to 23, inclusive, differs from the form first described chiefly in the different character of the means for holding the sealing blank in position within the sealing device preliminarily to applying the blank to the strap and in the means for holding the cutting dies in place. In this form of the invention, there are two levers 60 which cross each other at 60^a, being provided at their operating ends with enlarged heads 61. These heads are offset laterally as in the first form of the invention so that they permit the operating levers to cross each other in the manner illustrated. The heads 61 of the levers are connected by pivot pins 62 with cheek plates 63 having a form similar to the previously mentioned cheek plates, the pivots 62 in this case being in the form of bolts which are secured by nuts 64 to hold the cheek plates in assembled relation on opposite sides of the heads 61. The cheek plates 63 are provided with notches 65 of rectangular cross-section adapted to receive the overlapping portions of the strap 66 to be connected by the sealing blank 67 which may preferably be of channel form, having a base 67^a and parallel side walls 67^b, as shown in Fig. 16, although other forms of blanks may be employed. When the sealing blank 67 is in position, between the outer portions of the head 61, it is seated on a saddle 68 having the form illustrated particularly in Fig. 23, the saddle being provided at its ends with trunnions 69 which pivotally engage suitable recesses formed on the inner sides of the cheek plates 63.

In this form of the invention, the sealing blank 67, when placed on the saddle 68, is held in position during the operation of applying the sealing device to the strap by means of a retaining device 70 comprising two plates 71 connected by a cross-pin 72, as shown particularly in Fig. 22. The cross-pin 72 forms a traveling member which engages semi-circular notches 73 formed in the adjacent curved faces 61^a of the heads 61, thereby maintaining a symmetrical arrangement of the heads 61 with respect to the cheek plates 63 when the levers 60 are manipulated. The plates 71 of the retaining device are provided with notches 74 which are adapted to receive the trunnions 69 of the saddle and the tongues 71^a which are thus formed on opposite sides of the notches 74 have their ends 71^b bent inwardly to engage frictionally the ends of the channel-shaped sealing blank 67. The plates 71 of the retaining device are mounted to slide in grooves 75 which are formed on the inner sides of the cheek plates 63 so that when the levers 60 are operated to move the heads 61 in the bending and shearing operations, the retaining device 70 is drawn inwardly by the movement of the traveling pins 72, thus withdrawing the ends of the fingers 71^a and permitting the strap 66 to pass into engagement with the base 67^a of the sealing member seated on the saddle. The lateral concaved faces 68^a of the saddle coact with the curved faces 61^a of the heads so that the saddle is supported independently of the trunnions.

The heads 61 of the levers are provided at their outer ends with inwardly directed inclined jaws 77 having spaces 78 located beneath them and these jaws serve as the bending dies for turning the legs 67^b of the sealing blank inwardly over the sides of the strap

opposite the base 67ª of the sealing member. The jaw 77 on each head is divided into two parts by a notch 78 having a lower wall 78ª located well below the curved faces 61ª of the heads. The shearing of the sealing member and the strap is effected by means of cutting dies 79 having inclined cutting faces 79ª adapted to engage the edges of the seal and strap when the jaws 77 are closed toward each other. The notches 78 are of substantially the same width as the cutting portions 79ᵇ of the dies 79 and the edges of the notches 78 serve as complementary cutting dies for partially shearing the seal and the strap. The cutting dies 79 are provided with cylindrical stems 79ᵉ which fit into channels 81 formed in the heads 61 and these stems are normally retained in place by plugs 82 which threadedly engage the outer ends of the channels 81 and which have grooves 82ª for engagement by a screw driver. The cylindrical portions 79ᵉ of the dies engage shoulders 83 which are in the planes of the bottom walls 78ª of the notches 78 which are engaged by the narrower cutting portions 79ᵇ, as shown in Fig. 24. The movements of the heads 61 by the operation of the levers 60 are limited, as in the first form of the invention, by means of lugs attached to the handles and engaging the heads.

In the operation of the second form of the invention, the sealing blank is first placed in position within the retaining member 70 and in contact with the saddle 68, whereupon the operator moves the sealing device bodily until the arms 67ᵇ of the seal are projected on opposite sides of the strap 66, the strap being engaged on one side by the projecting ends of the fingers 71ª of the retaining members, as shown in Fig. 18. Upon relative movement of the handles 60 to effect a movement of the heads 61 toward each other, the jaws 77 move inwardly and, at the same time, the cross-pin 72 moves toward the handles of the levers with the result that the plates 71 are withdrawn and the overlapping ends of the strap 66 are permitted to pass into engagement with the base 67ª of the sealing blank. At the same time, the inwardly moving jaws 77 bend the arms 67ª of the sealing member, over the edges of the strap, as shown in Fig. 21. As the movement of the levers continues, a position is finally reached where the arms 67ᵇ of the sealing member are bent downwardly into contact with the strap as shown in Fig. 22 and, in this extreme position, the cutting dies 79 will have forced the outer edges of the sealing member and strap against the jaws with the result that the edges of the strap and seal are sheared, thus forming an interlocking joint which prevents longitudinal relative movement of the overlapping ends of the strap.

Although certain embodiments of the invention have been shown and described by way of illustration, it will be understood that other forms of the invention may be constructed within the scope of the appended claims.

We claim:

1. A sealing device comprising a pair of relatively movable handle members, and means carried by said members for engaging and bending an open sealing member applied to a strap and then shearing the sealing member.

2. A sealing device comprising relatively movable handle members, and means carried by said members for moving transversely to a strap to bend an open seal about the strap and then to shear the edges of said seal and said strap.

3. A sealing device comprising a pair of relatively movable handle members, means carried by said members for bending a seal about a strap upon movement of said members, and means operated by the movement of said members for shearing said seal.

4. A sealing device comprising relatively movable members, separate bending and cutting dies carried by said members for engagement with a seal to bend and then shear the seal, and means for effecting movement of said members.

5. A sealing device comprising a pair of pivotally connected levers, heads mounted on said levers for movement toward and from each other, said heads being adapted to receive a seal and a strap between them, and means carried by said heads for first bending said seal and then shearing the edges of said seal and said strap.

6. A sealing device comprising a pair of levers having oppositely disposed heads, means including a pair of plates for pivotally connecting said levers, said plates having notches therein to receive a strap, said heads being adapted to receive between them a seal applied to said strap, and means carried by said heads for shearing the edges of said seal upon relative movement of said levers.

7. A sealing device comprising a pair of levers having oppositely disposed heads, means including a pair of plates for pivotally connecting said levers, said plates having notches therein to receive a strap, said heads being adapted to receive between them a seal applied to said strap, and bending and cutting dies carried by said heads for bending said seal about the strap and shearing the edges of the seal and strap.

8. A sealing device comprising relatively movable members, means for holding an open sealing blank between parts of said members, and means carried by said members for bending and closing said blank upon relative movement of said members and then shearing the edges of the strap and the seal.

9. A sealing device comprising relatively movable members, oppositely disposed jaws

carried by said members, and means carried by said members for effecting the resiliently holding of an open sealing blank between said jaws during the application of said device to a strap.

10. A sealing device comprising a pair of relatively movable handles having oppositely disposed heads, and means operative in certain relative positions of said handles for automatically holding an open sealing blank between said heads.

11. A sealing device comprising relatively movable members having oppositely disposed jaws, and means cooperating with said members for normally maintaining a predetermined relative separation of said jaws, said means being operative upon a further separation of said jaws for holding a sealing blank between said jaws.

12. A sealing device comprising a pair of pivotally connected levers having oppositely disposed jaws, and means tending normally to maintain a predetermined separation of said jaws, said means being operative upon further separation of said levers for holding a sealing blank between said jaws.

13. A sealing device comprising a pair of pivotally connected levers having oppositely disposed jaws adapted to receive a seal between them, one of said levers having a recess, and a resiliently mounted member carried by the other lever for automatic engagement with said recess upon a predetermined separation of said levers.

14. A sealing device comprising a pair of pivotally connected levers having oppositely disposed jaws adapted to receive a seal between them, one of said levers having a recess, and a resiliently mounted member carried by the other lever for engagement with said recess upon a predetermined separation of said levers, said recess being inclined on one side to permit further separation of said levers and said jaws under the restraint of said resiliently mounted member.

15. A sealing device comprising relatively movable heads having inwardly directed jaws arranged to engage and close the side of an open seal, cutitng dies located beneath and spaced downwardly from said jaws, and means for effecting relative movement of said heads.

16. A sealing device comprising relatively movable heads having inwardly directed jaws, cutting dies located beneath said jaws, and means for effecting relative movement of said heads, said jaws being provided with notches located opposite said cutting dies.

17. A sealing device comprising relatively movable heads having inwardly directed jaws, cutting dies located beneath said jaws, and a seal supporting saddle located between said cutting dies.

18. A sealing device comprising relatively movable members having an opening therebetween to receive a sealing blank consisting of a base and side legs, jaws carried by said relatively movable members for engaging said side legs and bending them inwardly to close said side legs of the blank, and separate cutting dies located beneath said jaws for shearing the edges of the closed seal.

19. A sealing device comprising relatively movable heads having inwardly directed relatively movable jaws adapted to effect the inward bending of the legs of a channel-shaped sealing blank into parallel relation with the base of the blank, and cutting dies carried by said heads for engaging and shearing said seal after a predetermined movement of said jaws.

20. A sealing device comprising a pair of relatively movable heads having inwardly directed relatively movable bending jaws adapted to engage and bend the sides of an open seal, said jaws having notches therein, and cutting dies located opposite said notches for cooperation therewith to effect the cutting of said seal upon inward movement of said bending jaws.

21. A sealing device comprising a pair of relatively movable heads having inwardly directed bending jaws with recesses beneath them, said bending jaws being adapted to engage the side legs of an open channel-shaped seal, said jaws having notches therein, and cutting dies carried by said heads opposite said notches for cooperation with the edges of said notches to effect the shearing of the edges of said seal after the sides thereof have been bent inwardly by relative inward movement of said bending jaws.

22. A sealing device for applying a seal to a strap, comprising a pair of relatively movable heads having inwardly directed bending jaws adapted to engage and bend the side legs of a channel-shaped seal, said heads having passages formed therein, cutting dies removably located in said passages and having their cutting edges located beneath said jaws, and means for operating said heads to effect the cutting of a seal by said cutting dies and the bending of the seal by said jaws.

23. A sealing device for applying a seal to a strap, comprisng a pair of heads having passages therein, a pair of cheek plates, pivot pins engaging said heads and said cheek plates, cutting dies mounted in said passages, said dies having notches therein to be engaged by said pins.

24. A sealing device for applying a seal to a strap, comprising a pair of relatively movable heads, a pair of cheek plates mounted on opposite sides of said heads, a pair of pivot pins each engaging one of said heads and both of said cheek plates, and retaining plates mounted on the outer sides of said cheek plates, said pins having grooves adapted to be engaged by parts of said retaining plates.

25. A sealing device for applying a seal to a strap, comprising a pair of relatively movable heads, a pair of cheek plates mounted on opposite sides of said heads, a pair of pivot pins each engaging one of said heads and both of said cheek plates, and retaining plates mounted on the outer sides of said cheek plates, said pins having grooves adapted to be engaged by parts of said retaining plates, said retaining plates having resilient portions adapted to extend over the edges of said cheek plates.

26. A sealing device for applying a seal to a strap, comprising a pair of relatively movable heads having oppositely disposed passages therein with shoulders at the inner ends of said passages, cutting dies mounted in said passages and having parts engaging said shoulders, said cutting dies being insertable in said passages only from the ends thereof opposite said shoulders, and means for detachably retaining said cutting dies in said passages.

27. A sealing device for applying a seal to a strap, comprising a pair of relatively movable heads having inner curved faces, said faces being provided with oppositely disposed recesses, a traveling pin mounted in said oppositely disposed recesses, a cheek plate pivotally connected to each of said heads, and means for effecting relative angular movement of said heads.

28. A sealing device for applying a seal to a strap, comprising a pair of relatively movable heads having inner curved faces, means for pivotally connecting said heads, said curved faces being provided with oppositely disposed recesses, a traveling pin mounted in said oppositely disposed recesses, and means for effecting relative angular movement of said heads.

29. A sealing device comprising a pair of relatively movable heads having inwardly directed jaws for engaging the sides of a seal, a saddle member pivotally mounted always midway between said heads for engaging the bottom of said seal, and means for effecting relative angular movement of said heads.

30. A sealing device comprising a pair of relatively movable heads having seal engaging parts and provided with oppositely disposed curved surfaces, a saddle member mounted between said heads for engaging the bottom of said seal, said saddle member having curved surfaces adapted to coact with the curved surfaces of said heads, and means for effecting relative angular movement of said heads.

31. A sealing device comprising a pair of relatively movable heads having inwardly directed seal engaging parts, a pivot pin engaging each of said heads, a connecting plate engaging said pivot pins, said heads each having a curved surface concentric with its pivot pin, a saddle member mounted between said heads for engaging the bottom of said seal, said saddle member having curved surfaces adapted to ride on said curved surfaces of said heads, and means for effecting relative angular movement of said heads.

32. A sealing device comprising a pair of relatively movable heads having inwardly directed seal engaging parts, a pivot pin engaging each of said heads, a connecting plate engaging said pivot pins, said heads each having a curved surface concentric with its pivot pin, a saddle member mounted between said heads for engaging the bottom of said seal, said saddle member having curved surfaces adapted to ride on said curved surfaces of said heads, means for effecting relative angular movement of said heads, and means independently of said curved surfaces for retaining said saddle member between said heads.

33. A sealing device for applying a seal to a strap, comprising a pair of relatively movable heads having inwardly directed jaws adapted to engage the sides of a channel-shaped sealing blank, cheek plates pivotally connecting said heads, a saddle member pivotally connected to said cheek plates and located between said heads for engaging the bottom wall of said sealing blank, means for effecting relative angular movement of said heads, and means for guiding said heads in symmetrical relation to said saddle and said sealing blank during said relative movement.

34. A sealing device comprising a pair of relatively movable members, connecting means on which each of said members is separately pivoted, said members being adapted to receive an open seal and a strap between them, and means carried by said members and adapted upon relative movement thereof to bend the seal about the strap and then shear the edges of the seal and the strap.

35. A sealing device comprising relatively movable heads having inwardly directed jaws adapted to receive a seal between them, cutting dies located beneath said jaws, means located between said dies for supporting a seal, and means for effecting movement of said heads inwardly toward each other.

In testimony whereof, we have subscribed our names.

CHESTER M. MacCHESNEY.
JOHN EKERN OTT.