

Dec. 9, 1947.

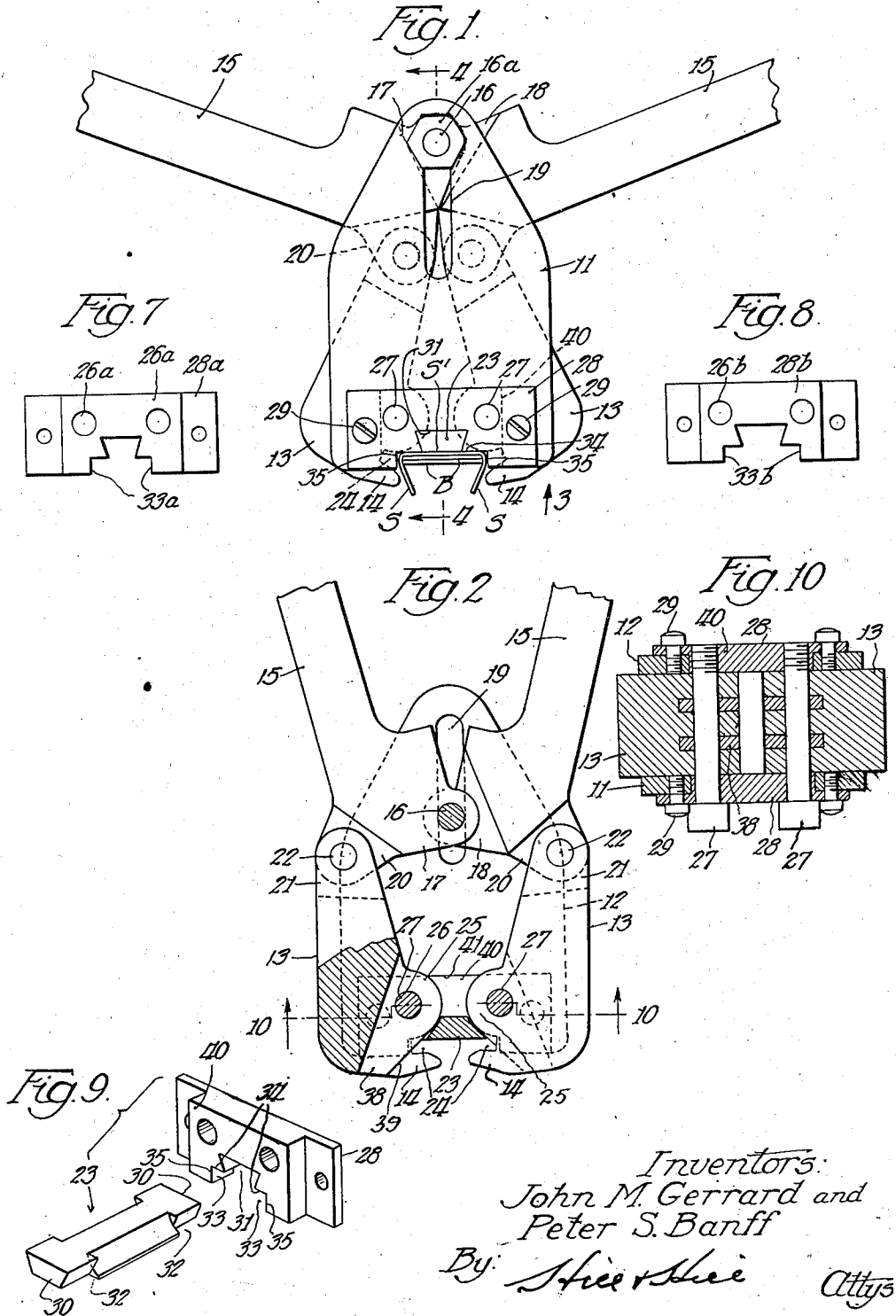
J. M. GERRARD ET AL

2,432,306

SEALING TOOL FOR FASTENING THE OVERLAPPED ENDS OF A BAND

Filed March 8, 1944

2 Sheets-Sheet 1



Inventors:
John M. Gerrard and
Peter S. Barff

By *Steele & Steele* Attys

Dec. 9, 1947.

J. M. GERRARD ET AL

2,432,306

SEALING TOOL FOR FASTENING THE OVERLAPPED ENDS OF A BAND

Filed March 8, 1944

2 Sheets-Sheet 2

Fig. 3

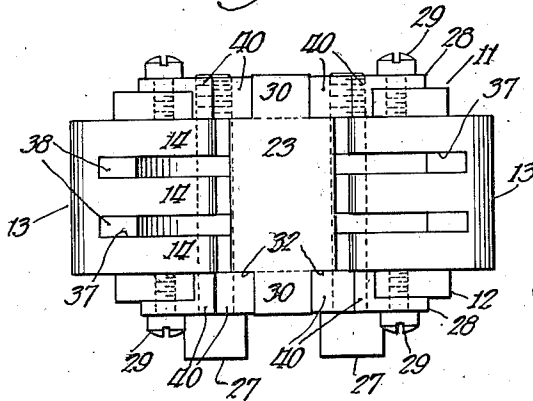


Fig. 5

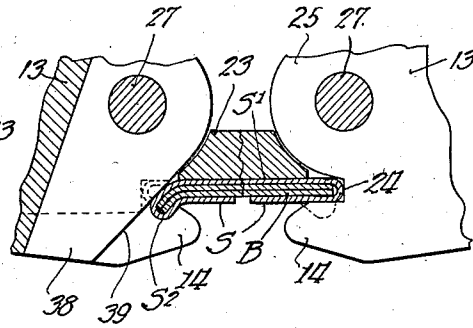


Fig. 4

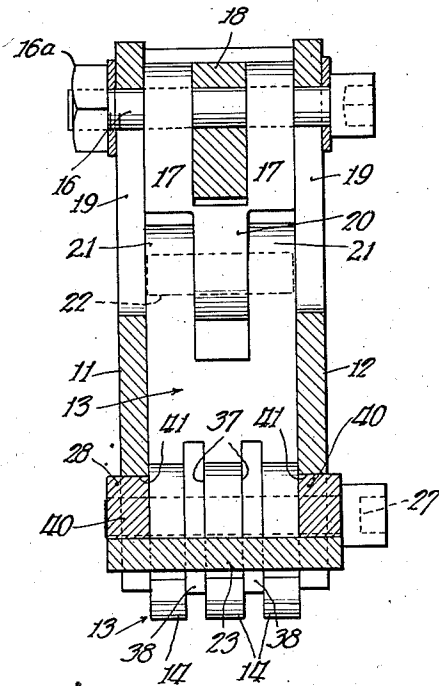
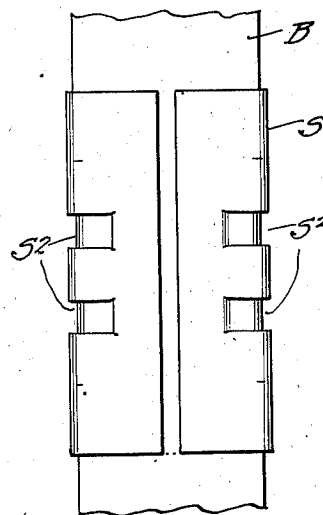


Fig. 6



Inventors:
John M. Gerrard and
Peter S. Barff

By: *Shie & Shie* Attys.

UNITED STATES PATENT OFFICE

2,432,306

SEALING TOOL FOR FASTENING THE
OVERLAPPED ENDS OF BANDS

John M. Gerrard and Peter S. Banff, Chicago,
Ill., assignors to A. J. Gerrard & Company,
Chicago, Ill., a partnership

Application March 8, 1944, Serial No. 525,486

4 Claims. (Cl. 81—9.1)

1

This invention relates to a sealing tool of that character adapted for fastening a seal upon the overlapping ends of a band surrounding a crate, box, package or the like. As is well known at the present time, one or more bands are employed for securing such articles during shipment, especially heavy and cumbersome articles.

Ordinarily a band tensioning device is employed for tightening the band upon the article and a sealing tool is employed for fastening the seal upon the overlapping ends of the band. There are several widths of standard bands upon the market used for this purpose, and heretofore it was found necessary to provide a separate sealing tool capable of operating upon each width of band. Many concerns use several widths of bands for securing crates, boxes, packages, all different kinds, sizes and weights, consequently these concerns were required to have a sealing tool for each width of band.

One of the objects of the present invention is to provide a sealing tool capable of use in connection with bands of various widths, within certain given limits. To this end several pairs of interchangeable gauge plates are associated with each of the present sealing tools, which pairs of gauge plates have variously spaced seal positioning shoulders for positioning the seal in co-operative relation to the clenching jaws of the tool and have variously spaced pin receiving apertures for the fulcrum pins of the jaws whereby the effective clenching action of the jaws may be varied to conform to the width of the seal that is to be applied to the band.

Another object is to provide removable and replaceable interchangeable gauge plates which may be adapted to sealing tools of various types. Another object is to provide pairs of interchangeable gauge plates cooperating with clenching jaws having shearing teeth for deforming edge portions of the seal whereby to positively fasten it upon the overlapping ends of a band. Another object is to provide pairs of interchangeable gauge plates having differently spaced seal positioning shoulders and fulcrum pin apertures for the fulcrum pins of the jaws, which gauge plates may be quickly and readily removed from the tool and replaced by another pair having a different width between the seal positioning shoulders, and between the fulcrum pin apertures.

Other objects and advantages will occur in the course of this specification and with all of said objects and advantages in view this invention consists in the several novel features of construction, arrangement and combination of parts hereinafter fully described and claimed.

The invention is clearly illustrated in the drawings accompanying this specification in which:

Fig. 1 is a side elevation of a sealing tool embodying a simple form of the present invention, showing the jaw actuating levers partly broken

2

away and showing the parts in the position occupied with the jaws in open position, with a seal and overlapping band ends between them.

Fig. 2 is a side elevation of the tool seen in Fig. 1 with one of the side plates removed to more clearly illustrate the jaws and jaw actuating levers, certain elements of the tool being illustrated in cross section.

Fig. 3 is a slightly enlarged end elevation looking in the direction of the arrow 3, in Fig. 1.

Fig. 4 is an enlarged vertical longitudinal section taken on the line 4—4 in Fig. 1.

Fig. 5 is a greatly enlarged fragmental view, partly in side elevation and partly in vertical longitudinal section of the jaws and anvil and showing a seal and overlapping ends of a band as these parts appear when the seal has been fastened upon the band.

Fig. 6 is a plan of fragments of the band with the seal applied thereto.

Fig. 7 is a side elevation of one of a second pair of gauge plates associated with the sealing tool.

Fig. 8 is a side elevation of one of a third pair of gauge plates.

Fig. 9 is a perspective view of the anvil and a gauge plate disconnected from each other, and

Fig. 10 is a detail horizontal section taken on the broken line 10—10 of Fig. 2.

Referring to said drawings, which are merely illustrative of one embodiment of the invention, the reference characters 11, 12 designate two side plates of the sealing tool, which side plates may comprise the supporting members for the operating parts thereof. Extending between said side plates and fulcrumed to rock therebetween, is a pair of clenching jaws, 13, 13 which are provided with teeth 14, that function to bend or clench the legs of the seal upon the overlapping ends of the band.

Suitable jaw actuating means is provided for actuating the jaws and as shown, said means comprise a pair of levers 15 having their adjacent ends disposed between the side plates, 11, 12 and each having a toggle lever connection with its respective jaw. The levers 15 are pivotally connected together by a headed pin 16 which passes through ears 17, 18, formed on the levers and through slots 19 which extend through the side plates in a direction longitudinally thereof. A nut 16a threaded upon the pin 16 fastens the parts together. At their adjacent ends the levers are formed with ears 20 which are pivotally connected to the tail ends 21 of the jaws by pins 22. Conveniently the tail ends of the jaws may be forked and the ears 20 of the levers may extend between the furcations of the jaws. Manifestly other equivalent operating connections may be provided for rocking the jaws upon their fulcrums.

The type of seal employed is illustrated at S

3

and the overlapping ends of the band at B. The position occupied by these parts when the seal is about to be fastened upon the band is illustrated in Fig. 1 where it will be seen that the legs S of the seal project downwardly from the base S' of the seal and converge toward each other.

In order to properly position the seal, together with the overlapping end portions of the band, with respect to the clenching teeth 14 of the jaws 13, an anvil 23 is employed which extends between the side plates 11, 12 at a place slightly inward from the lower edges of the side plates as viewed in Fig. 1 with its lower side approximately flush with the upper edges of notches 24 that are formed in the jaws 13 between their teeth 14 and their ears 25 which are provided with apertures 26 to receive the fulcrum pins 27 upon which the jaws are fulcrumed. It will be observed from an inspection of Figs. 1 and 5, that the sealing tool is placed upon the base S1 of the seal with the anvil contacting therewith and that as the teeth of the jaws are closed upon the legs of the seal, the legs are clenched upwardly against the lower side of the lowermost overlapping end of the band and clenched thereagainst as is seen in Fig. 5.

In accordance with the present disclosure, pairs of removable and replaceable interchangeable gauge plates 28 are provided which are removably secured to the outer sides of the two side plates 11, 12 by screws 29 in position to support the anvil in cooperative position relative to the clenching teeth. Each gauge plate is formed with a laterally projecting rectangular block 40 which fits in a rectangular notch 41 formed in the side plate. As shown the anvil 23 is formed at both ends with reduced dovetailed neck portions 30 which seat in dovetailed notches 31 that extend inward in the gauge plates at places beyond the lower edges thereof. The body of the anvil between the neck portions 30 is wider at its lower side as viewed in Figs. 1 and 2, and said under part provides shoulders 32 that bear against the inner faces of the gauge plate blocks 40.

Each gauge plate is further provided with notches 33 extending laterally from the dovetailed notch 31, the horizontal edges 34 of which are flush with the lower side of the anvil and the vertical edges 35 form shoulders that are spaced part approximately the same distance as the width of the seal.

In Fig. 7 is illustrated one gauge plate 28a of another pair of interchangeable gauge plates which accompanies the tool and in this plate are shoulders 33a set closer than the shoulders 33 of the corresponding plate 28 and the fulcrum pin apertures 26a are set closer. The gauge plates 28a accommodate seals of a predetermined lesser width than do the gauge plates 28. By spacing the apertures closer than those of the plates 28 the fulcrum points of the jaws are brought closer and therewith the teeth 14 are brought closer. In other respects the gauge plate illustrated in Fig. 7 is exactly the same in construction as the gauge plate 28.

In Fig. 8 is illustrated a one gauge plate 28b of a third pair of gauge plates in which the shoulders 33b are spaced a distance apart intermediate the distance between the shoulders 33 of the gauge plate 28 and the distance between the shoulders 33a of the gauge plate 28a and the fulcrum apertures 26b are likewise spaced apart a distance intermediate the distance between the apertures 26 and 26a. More gauge plates may

4

accompany the sealing tool if desired with variously spaced shoulders and fulcrum pin apertures to accompany band seals of various widths.

The fulcrum pins 27 extend through the apertures in the gauge plates and are threadedly secured in one of said plates. These pins form the fulcrums upon which jaws 13 are rocked or oscillated by the levers 15 from the position shown in Fig. 1 to the position shown in Fig. 2 in closing the jaws upon the seal. As has been explained, the teeth 14 of the jaws bend the legs of the seal up against the underside of the lower one of the overlapping ends of the band. In order to more effectively prevent the seal from slipping on the overlapping ends of the band the jaws are formed with slots 37 extending inward from the lower edge as shown in Fig. 3, and shearing teeth 38 are secured in said slots by the fulcrum pins 27. The effective edges 39 of the shearing teeth are disposed at predetermined angles with respect to the major axes of the jaws and when the jaws are impinged upon the legs of the seal, the edges 39 of the shearing teeth cut into the edge portions of the seal and band ends and deform them downwardly as seen at S2 in Figs. 5 and 6.

From the above it will be apparent that we have provided a sealing tool capable of operating upon seals of various widths by merely changing the gauge plates to fit the particular width of seal. Furthermore we have provided a sealing tool from which the gauge plates may be readily removed and replaced by other gauge plates. Furthermore the gauge plates may be employed in sealing tools having other means for actuating the jaws.

Having thus described our invention, it is obvious that various modifications may be made in the same without departing from the spirit of our invention; hence, we do not wish to be understood as limiting ourselves to the exact form, arrangement, and combination of parts herein shown and described or uses mentioned.

What we claim as new and desire to secure by Letters Patent is:

1. In a sealing tool the combination with spaced side plates, a pair of clenching jaws provided with clenching teeth and movable between said side plates, and jaw actuating levers, of an anvil disposed between and adjacent said teeth and cooperating with said jaws to clench a seal upon the overlapping ends of a band, pairs of removable and replaceable interchangeable gauge plates removably secured to said side plates, the several pairs of gauge plates having variously spaced seal positioning shoulders adapted to position seals of various widths in a cooperative relation to the jaws, the several pairs of gauge plates having also variously spaced apertures therein for varying the spacing of the fulcrum points of the jaws, and fulcrum pins removably secured in said apertures and connecting said gauge plates and therewith the side plates, the jaws being fulcrumed upon said pins.

2. In a sealing tool the combination with notched side plates, a pair of clenching jaws movable therebetween and jaw actuating levers, of an anvil cooperating with said jaws to clench a seal upon the overlapping ends of a band, pairs of removable and replaceable and interchangeable gauge plates, removably secured to said side plates and formed with blocks fitting in the notches of the side plates, each pair of gauge plates having notches to receive anvil extensions and hold said anvil in operative relation to said jaws, and hav-

5

ing also seal positioning shoulders and fulcrum pin apertures, the shoulders and apertures of each pair of gauge plates being differently spaced from those on the other pairs of gauge plates, and fulcrum pins removably secured in and connecting the gauge plates and therewith the supporting plates, the jaws being fulcrumed upon said fulcrum pins.

3. In a sealing tool the combination with spaced side plates, a pair of clenching jaws movable therebetween, and jaw actuating levers, of an anvil cooperating with said jaws to clench a seal upon the overlapping ends of a band, pairs of removable and replaceable interchangeable gauge plates removably secured to said side plates, the several gauge plates having notches in one of their edges adapted to receive and hold end portions of the anvil, the several pairs of plates having also variously spaced seal positioning shoulders adapted to position seals of various widths in cooperative relation to the jaws, the several pairs of gauge plates having also variously spaced apertures therein for varying the spacing of the fulcrum points of the jaws, and fulcrum pins removably secured in said apertures and connecting said gauge plates and therewith the side plates, the jaws being fulcrumed upon said fulcrum pins.

4. In a sealing tool the combination with side plates, a pair of clenching jaws movable therebetween, and jaw actuating levers having toggle

6

joint connections with said jaws, of an anvil cooperating with said jaws to clench a seal upon the overlapping ends of a band, pairs of removable and replaceable interchangeable gauge plates removably secured to said side plates, each pair of gauge plates having dovetailed notches to receive dovetailed end portions of said anvil and thereby hold the latter in cooperative relation to said jaws, said gauge plates having also seal positioning shoulders and pin receiving apertures, the shoulders and apertures of each pair of gauge plates being differently spaced from those of the other gauge plates, and fulcrum pins removably secured in said apertures and connecting said gauge plates and therewith the side plates, the jaws being fulcrumed upon said pins.

JOHN M. GERRARD.
PETER S. BANFF.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,893,901	McGregor et al.	Jan. 10, 1933
1,901,903	Edwards	Mar. 21, 1933
1,972,236	Ornston	Sept. 4, 1934
2,315,596	Childress	Apr. 6, 1943
602,880	Smith	Apr. 26, 1898