Aug. 1, 1933. F. L. McGARY 1,920,413

DEVICE FOR APPLYING BOX STRAPS

Original Filed May 28, 1928

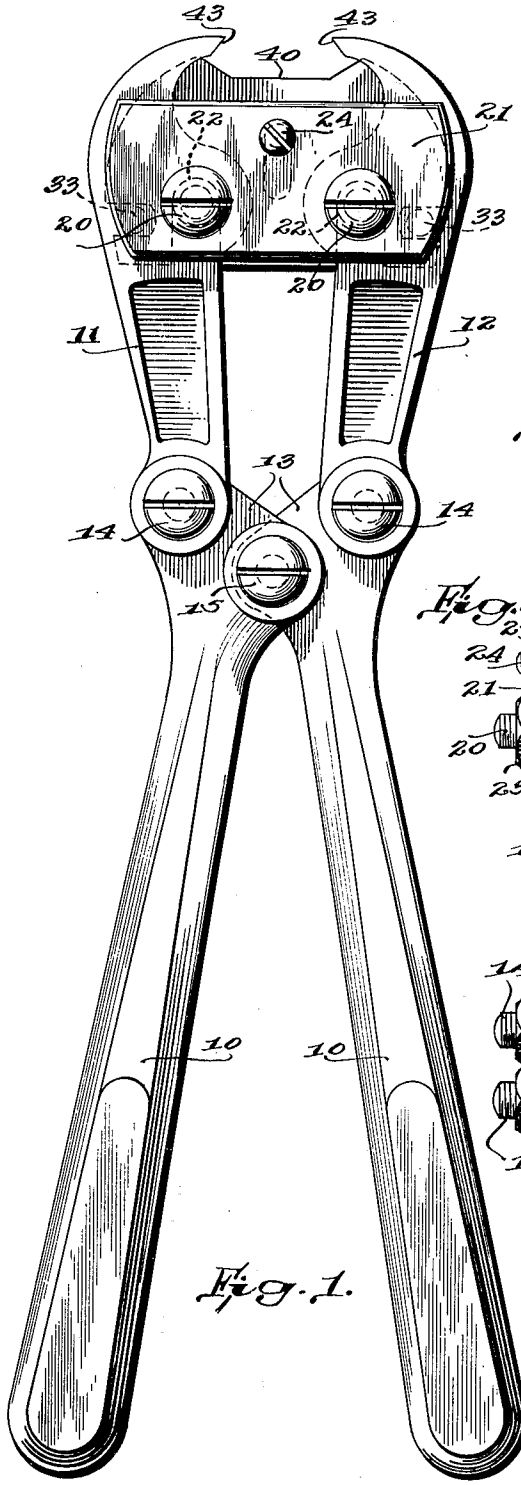


Fig. 1.

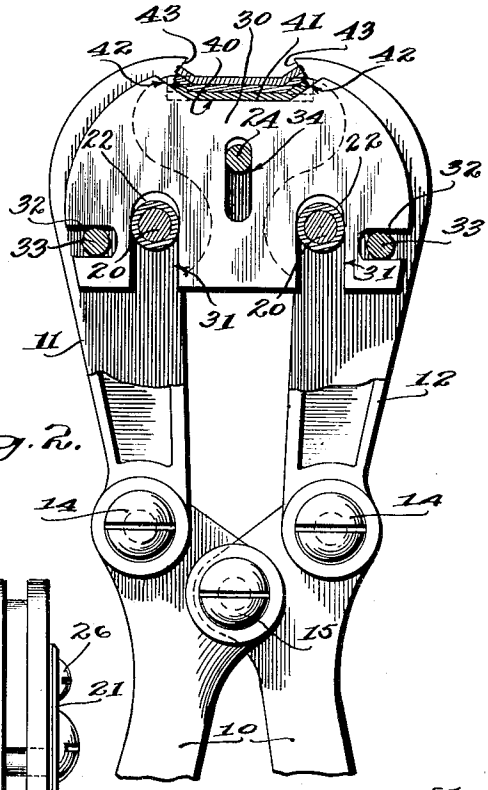


Fig. 2.

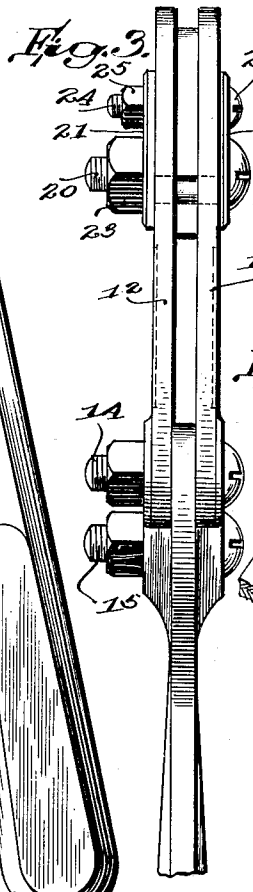


Fig. 3.

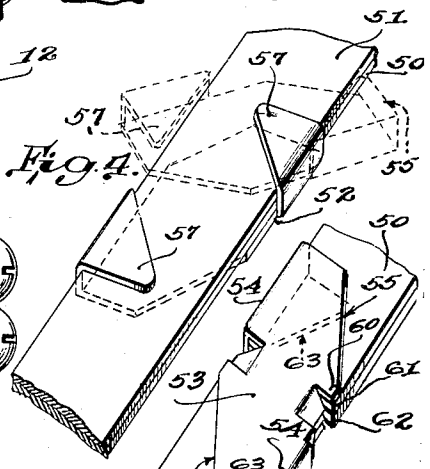


Fig. 4.

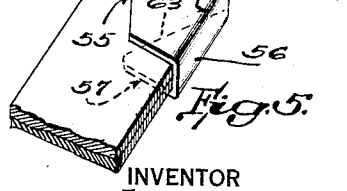


Fig. 5.

INVENTOR
FRANCIS L. McGARY
BY
ATTORNEY

Patented Aug. 1, 1933 1,920,413

UNITED STATES PATENT OFFICE

1,920,413

DEVICE FOR APPLYING BOX STRAPS

Francis L. McGary, Hardinsburg, Ky.

Application May 28, 1928. Serial No. 281,126
Renewed June 18, 1931

7 Claims. (Cl. 81—9.1)

This invention relates to a device for applying box straps or barrel hoop seals.

An object of the invention is the provision of a device for applying box straps or barrel hoop seals in which a die plate is movable in conjunction with pivotally mounted jaws for cutting a seal and the overlapped ends and locking the seal and strap ends together.

Another object of the invention is the provision of a device for applying box straps and barrel hoop seals with which movable jaws are adapted to simultaneously engage the opposite side edges of the seal and are movable in conjunction with the die plate for cutting portions of the edges of the seal and overlapped strap ends to lock the strap ends against separation, the die plate being adapted to be positively moved when the jaws are actuated for forcing the die plate into rigid relation with the sealed and overlapped strap ends.

A further object of the invention is the provision of a device for applying box straps or barrel hoop seals in which pivotally mounted jaws are provided with cutting edges cooperating with proximately disposed cutting edges on a die plate, the cutting edges of the die plate being moved towards the jaws when the jaws are actuated, and when the cutting edges of the jaws are moved into operative relation with the seal assembled on a pair of strap ends.

A still further object of the invention is the provision of a seal or sleeve which may be applied directly to a pair of overlapped strap ends without requiring the insertion of the opposite ends of the strap ends through the sleeve.

This invention will be best understood from a consideration of the following detailed description in connection with the accompanying drawing; nevertheless, it is to be understood that the invention is not confined to the disclosure, being susceptible of such changes and modifications as shall define no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:—

Figure 1 is a plan view of device for applying box straps or barrel seals constructed in accordance with the principles of my invention,

Figure 2 is a horizontal section of the device showing the removably mounted die plate on the cutting jaws,

Figure 3 is a side edge view of the device,

Figure 4 is a fragmentary view in perspective of a sleeve or seal applied to a pair of overlapped strap ends,

Figure 5 is a similar view showing portions along the edges of the sleeve and overlapped strap ends cut to form locking lugs.

Referring more particularly to the drawing, 10 designates a pair of actuating arms for pairs of jaws 11 and 12, pivotally connected to extensions 13 by means of bolts 14. The operating arms 10 through their extensions 13 are pivotally connected together by means of a bolt 15.

A pair of bolts 20 are passed through perforations in a pair of supporting plates 21 and also through perforations in the pairs of spaced jaws 11 and 12. The perforations or passages in the jaws are of sufficient diameter to receive sleeves 22. The ends of these sleeves abut the inner faces of the plates 21 and rigidly engage the inner faces of the plates 21 when the nuts 23 are drawn up tight on the bolts 20. The sleeves 22 and the bolts 20 provide a pivotal mounting for the jaws 11 and 12. A smaller bolt 24 is passed through perforations in the supporting plates 21 between the upper ends of the jaws 11 and 12 and is held in position by means of a nut 25 threaded onto the bolt and a head 26 formed integrally therewith.

A die plate 30 is located between the pairs of jaws 11 and 12 and is movable relative to the jaws and is positively moved by said jaws. This plate contains a pair of open ended slots 31 which receive the sleeve 22. A pair of open ended slots 32 located at right angles to the slots 31 are adapted to receive pins 33 supported by the jaws 11 and 12. The outer ends of the pins 33 abut the inner faces of the plates 21 whereby said pins are maintained in position within bearings in said jaws. The die plate has an elongated slot 34 which receives the bolt 24. The sleeve 22 and the bolt 24 moving in their respective slots guide the die plate upwardly and in line with the longitudinal axis of the device for applying the box straps.

The die plate is provided with a countersunk portion 40 which is adapted to engage the outer face of a seal or sleeve 41. The outer end of the countersunk portion or socket is provided with inclined cutting edges 42 which cooperate with cutting edges 43 of the movable jaws for shearing the assembled sleeve and overlapped strap ends. It will be noted that the cutting edges 43 of the jaws 11 and 12 are inclined inwardly towards the outer end of the die plate while the cutting edges 42 of the die plate are located substantially at right angles to the edges 43, while being inclined in the opposite direction to the inclination of the cutting edges 43. The

shearing device just described may be employed in connection with any type of assembled sleeve and strap ends and also may be employed in connection with a pair of strap ends 50 and 51 and a seal 52. The seal 52 has a particular advantage, however, of being applied directly to the strap ends when said ends are in overlapped position without necessitating the insertion of the strap ends through the seal as is usually required. This seal consists of a flat plate 53 having portions of its opposite edges, as shown at 54, parallel with the edges of the strap ends 50 and 51. The remaining portions, as shown at 55, are cut away at an angle in order to reduce the quantity of the metal required for the production of the seal. From the straight edges 54 of the seal 52 depend right angularly disposed flanges 56. From the outer end of said flanges extend another flange 57 located in parallel relation with the body plate 53 with the inner free end of the flange 57 terminating adjacent the outer end of the inclined portion 55. Punched out lugs 60, 61 and 62 are formed respectively on the plate 52 and strap ends 50 and 51.

The seal 52 being of such construction may be placed directly on the strap ends 50 and 51 without necessitating the insertion of the strap ends through the sleeve or seal, as shown in Fig. 4 in dotted lines. The flanges 57 are cut off at an angle as shown at 63, whereby the edges 63 may be moved, whereby these edges 63 are spaced sufficiently apart to permit the strap ends to drop through the space and rest upon the body member or plate 53. The body member is then turned at an angle to its position of insertion, as shown in Fig. 4 in full lines, whence the flanges 57 will be moved over the opposite outer faces of the strap ends 50 and 51. The sleeve or seal is then in position for the application of the device illustrated in Figs. 1 to 3, inclusive.

The operation of my device is as follows:

After the sleeve or seal 52 has been positioned over the overlapped strap ends, or any other form of seal has been applied, the device for cutting the assembled sleeve and overlapped strap ends is pressed downwardly upon the shell with the operating arms 10 moved apart for opening the jaws 11 and 12 sufficiently for the cutting edges 43 to engage over the opposite edges of the shell or sleeve 52. At this time the outer edge or base of the socket of the die plate 30 engages over the strap end 51 with the cutting edges 43 of the jaws engaging beneath the outer edges of the plate 52 and the opposite edges of the overlapped strap ends.

The arms 10 are then moved towards each other whence the inner ends of the jaws 11 and 12 will be moved outwardly causing the cutting edges 433 to be moved inwardly into cutting relation with the assembled sleeve and overlapped strap ends. However, rocking of the jaws 11 and 12 by the arms 10 causes the pins 33 to move against the outer edges of the slots 32 forcing the die plate 30 outwardly and cooperating with the cutting edges 43 to exert a clamping action between the jaws and the outer end of the die plate. At this time the die plate 30 is guided by the sleeve 22 and the pin 24 cooperating with the slot 34. When sufficient pressure is exerted on the operating arms 10 the cutting edges 43 of the jaws are moved inwardly as the cutting edges 42 are moved outwardly, thereby shearing the metal of the sleeve and overlapped strap ends to produce the locking lugs 60, 61 and 62.

It will be noted by this construction that the movement of the cutting edges 42, and 43 respectively of the die plate 30, and the jaws 11 and 12 is simultaneous and the cutting edges 43 similarly grip the opposite side edges of the sleeve or seal and the overlapped strap ends. The lugs 60, 61 and 62 are moved outwardly and the operation is complete without elevating the strap ends and without creating any slack whatever in the assembled strap ends, so that when the sleeve or seal is locked in place by the punching or cutting of the lugs 60 to 62 inclusive, the strap will be retained on the box or barrel in frictional contact with the same throughout the entire length.

It can be seen from the construction just described that the utility of the movement of the die plates as well as that of the jaws is due to the difference in the direction of the two movements. The movement of the jaws is circumferential of their pivots while the movement of the die plate is tangential of the pivots so that the seal is being sheared by a drawing cutting action.

I claim:—

1. A device for applying box straps comprising a pair of supporting plates, jaws pivotally mounted on the plates and provided at their inner faces with cutting edges, a die plate removably mounted on the supporting plates and cooperating with the jaws and moved by the movement thereof for shearing by a draw cut the metal of an assembled sleeve and overlapped strap ends, and means for actuating the jaws.

2. A device for applying box straps comprising jaws, means for pivotally mounting the jaws, a die plate positively actuated by the jaws tangentially of the pivots of said jaws and cooperating with the jaws for shearing the metal of an assembled sleeve and overlapped strap ends, and means for moving the jaws circumferentially of their pivots.

3. A device of the character described for applying box straps comprising jaws having cutting edges, a die plate positively actuated by the jaws tangentially of the pivots of said jaws and provided with cutting edges movable in close association with the cutting edges of the jaws for shearing the metal of an assembled sleeve and overlapped strap ends, and means for moving the jaws circumferentially of their pivots.

4. A device for applying box straps comprising jaws having cutting edges, a die plate positively actuated by the jaws tangentially of the pivots of said jaws and provided with cutting edges movable in close association with the cutting edges of the jaws for shearing the metal of an assembled sleeve and overlapped strap ends, means for moving the jaws circumferentially of their pivots, the cutting edges of the die plate being inclined away from the cutting edges of the jaws.

5. A device for applying box straps comprising a pair of supporting plates, bolts connecting the plates together, jaws pivotally mounted on the bolts, a die plate having slots to receive the bolts to permit movement of the die plate relative to the supporting plates, and cooperating means on the die plate and jaws for causing movement of the die plate towards the jaws when the jaws are actuated.

6. A device for applying box straps comprising a pair of supporting plates, bolts connecting the plates together, jaws pivotally mounted on the bolts, a die plate having slots to receive the bolts to permit movement of the die plate relative to the supporting plates, said jaws having

cutting edges associated with the outer end of the die plate, and cooperating means on the die plate and jaws for causing movement of the plate towards the cutting edges of the jaws when the jaws are actuated.

7. A device for applying box straps comprising a pair of supporting plates, bolts connecting the plates together, jaws pivotally mounted on the bolts, a die plate having slots to receive the bolts to permit movement of the die plate relative to the supporting plates, said jaws having cutting edges, said die plate having slots, pins carried by the jaws and received within the slots and adapted to be actuated by the jaws for moving the die plate in cooperative relation with the cutting edges of the jaws for shearing the metal of an assembled sleeve and overlapped strap ends, and means for actuating the jaws.

FRANCIS L. McGARY.