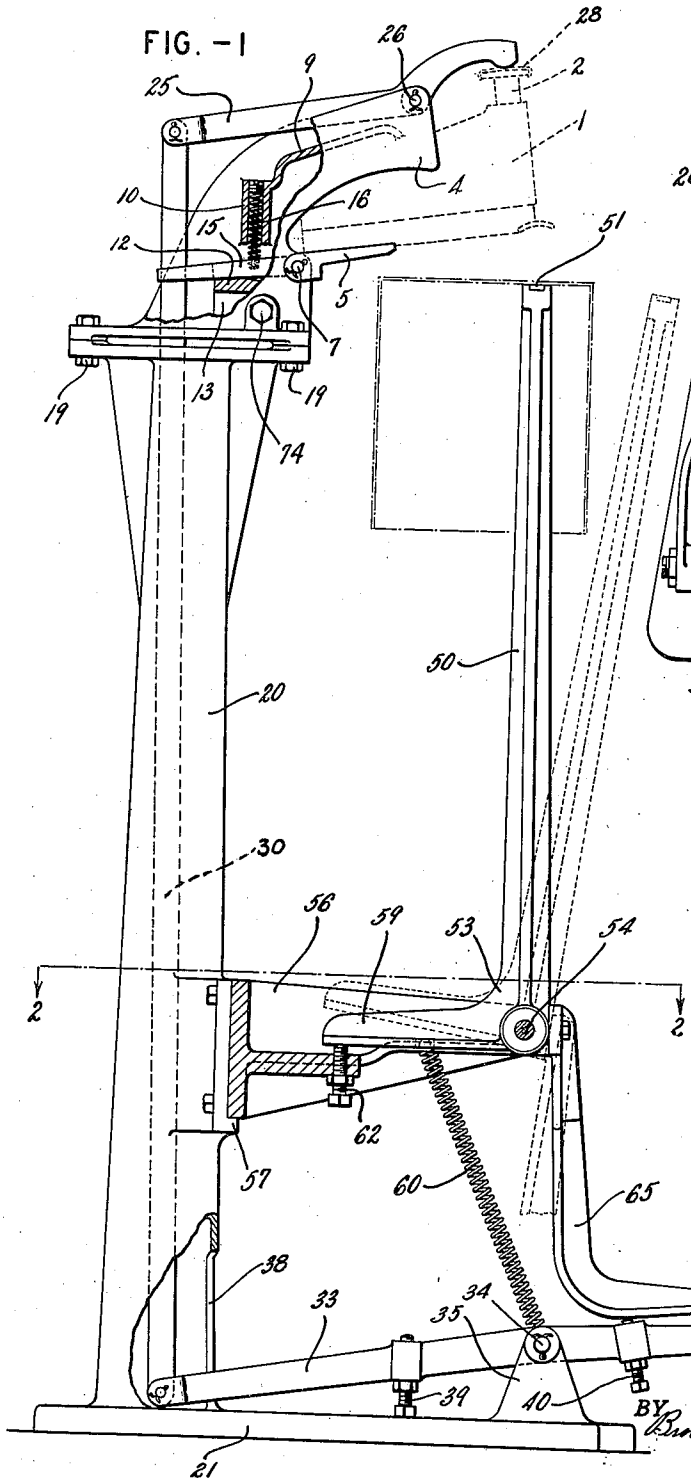
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STAPLING APPARATUS

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FIG. -1



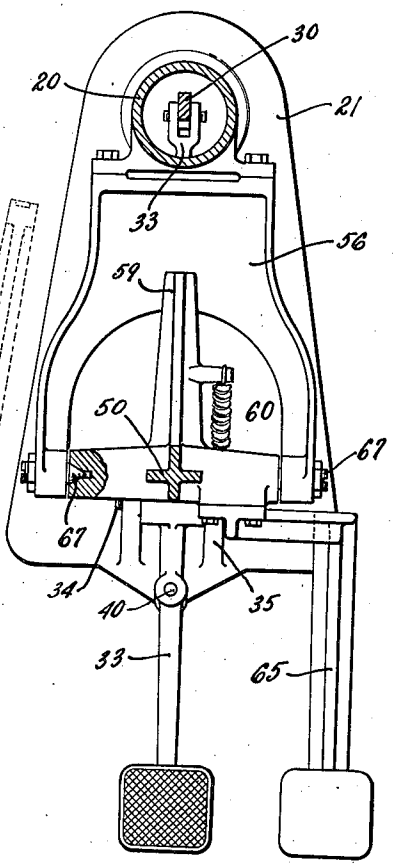


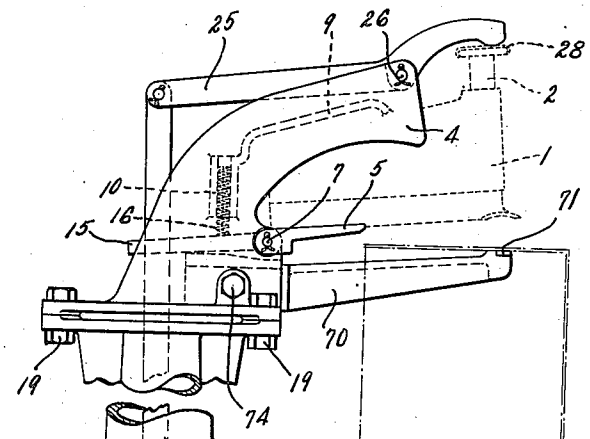
FIG. -2

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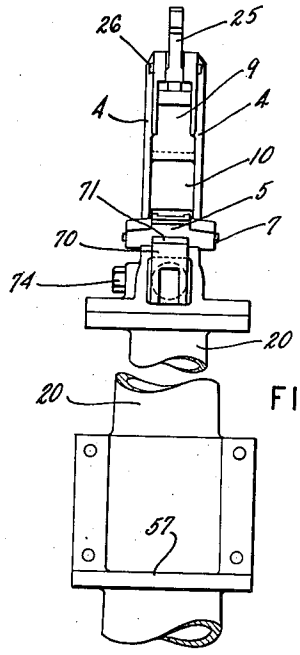


FIG.-4

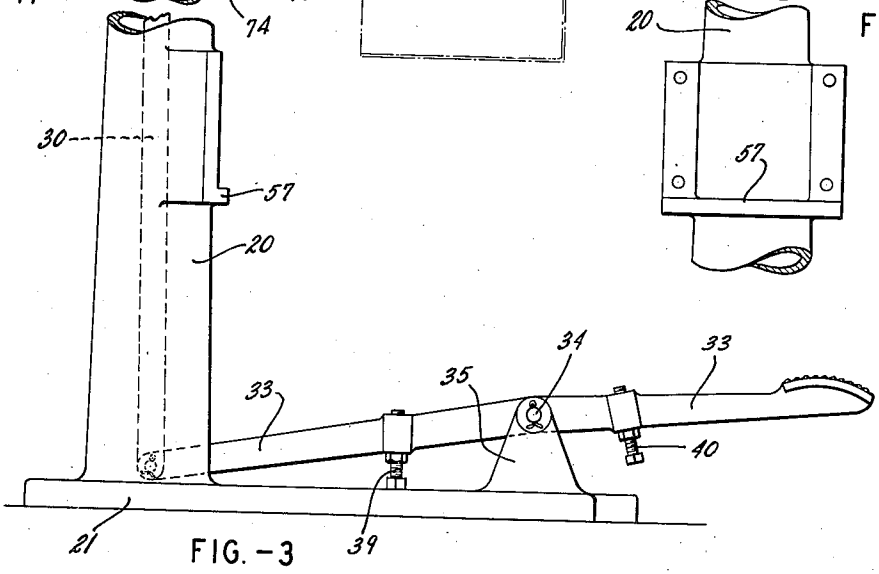


FIG.-3

FIG.-5

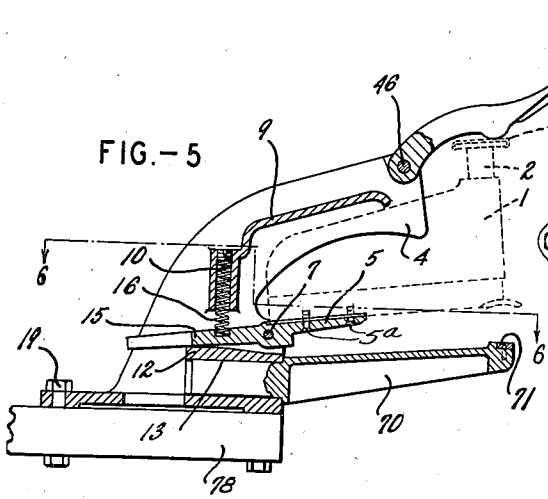
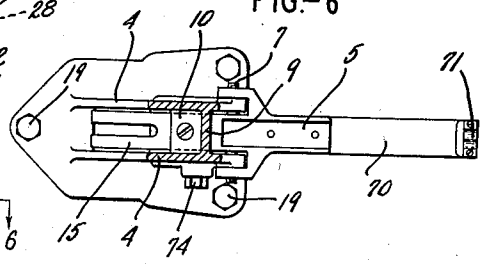


FIG.-6



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2,130,129

STAPLING APPARATUS

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Application April 10, 1935, Serial No. 15,555

6 Claims. (Cl. 1—13)

This invention relates to stapling apparatus and more particularly, to apparatus which comprises a portable, hand-operable stapling machine, such as the machine in Patent No. 1,996,640, granted April 2, 1935, and a structure cooperating therewith and having supporting means for such a machine, actuating means for the hand-operable staple-driving plunger thereof, and anvil means for said plunger.

The general object of the present invention is the provision, for cooperation with such a stapling machine, of a structure which ingeniously embodies the aforesaid supporting, actuating and anvil means, said structure being of simple and inexpensive construction, of strong and sturdy character, and of such design that the aforesaid means thereof are each capable of performing its intended functions in a particularly satisfactory and effective manner.

A more specific object of the present invention is the provision, for cooperation with such a stapling machine, of a structure having removably associated therewith, for interchangeable use, as desired, two independent anvil means for the staple-driving plunger of said stapling machine, one of said anvil means being adapted for use in inter-connecting the bottom portions of cartons or the like and the other of said anvil means being adapted for use in inter-connecting the side portions of cartons or the like.

Another more specific object of the present invention is the provision, for cooperation with such a stapling machine, of a structure having two independent anvil means for the staple-driving plunger of said stapling machine, one of said anvil means being adapted to be removably secured to said structure in a substantially horizontal position, below and in alignment with said stapling machine, and the other of said anvil means being pivotally mounted on said structure for movement in a vertical plane between an operative position, below and in alignment with the staple-driving plunger of the stapling machine, and an inoperative position out of vertical alignment with such stapling machine, said anvil means when in such inoperative position being readily accessible to permit work to be applied thereto or removed therefrom.

Another more specific object of the present invention is the provision, for cooperation with such a stapling machine, of a structure having removably associated therewith, for interchangeable use, as desired, two independent actuating means for the staple-driving plunger of said stapling machine, one of said actuating means being foot-operable and the other one thereof being hand-operable.

Further objects of the present invention and further features and advantages thereof will be apparent from the following description of said invention, reference being had to the accompanying drawings in which

Fig. 1 is a side elevation of stapling apparatus embodying the present invention, parts thereof being broken away and in section to more clearly illustrate certain details of its construction; Fig. 2 is a cross-sectional view thereof on the line 2—2, Fig. 1; Fig. 3 is a view similar to Fig. 1, but with horizontally disposed anvil means replacing the vertically disposed anvil means of Figs. 1 and 2; Fig. 4 is a front view of the upper parts of the apparatus shown in Fig. 3; Fig. 5 is a vertical sectional view of the machine-supporting head of the present apparatus, with hand-operable actuating means substituted for the foot-operable actuating means of Figs. 1 to 4 inclusive; and Fig. 6 is a detail cross-sectional view of said supporting head means, the view being on the line 6—6, Fig. 5.

In said drawings, 1 designates a portable stapling machine having a hand-operable staple-driving plunger 2. Although said machine may be of any suitable construction, the one here shown is identical with that forming the subject matter of the aforesaid Patent No. 1,996,640, to which patent reference may be had, if desired. For the purposes of the present application, it is sufficient to say that the sheet metal staples of the machine are automatically fed, one at a time, to a position below the plunger thereof, and that downward movement of said plunger is effective to drive said staples, one after another, into the work. Upward or return movement of said plunger is automatically effected by suitable spring means (not shown) arranged within the machine casing.

Co-operating with said stapling machine and forming the novel subject matter of the present application is a suitable structure having (*a*) a supporting head for such a machine, (*b*) a pedestal for said head, (*c*) two independent and interchangeable actuating means for the staple-driving plunger of said machine, and (*d*) two independent and interchangeable anvil means for said plunger.

The head of said structure, for supporting the stapling machine, is here shown as a one-piece metal casting and includes a pair of vertically disposed and generally parallel side wall por-

tions 4 between which the stapling machine is confined and a suitable bottom portion 5 on which said stapling machine rests and to which it is removably secured, such as by screws 5a, said bottom portion being pivoted at 7 to said side wall portions.

As best shown in Figs. 1, 5 and 6, said two side wall portions 4 of said supporting head are inter-connected by two transversely disposed webs, an upper web 9 having its rear end portion formed to provide a suitable spring socket 10 and a lower web 12 which forms the top wall of a suitable socket 13 for receiving one of the hereinafter described anvil means for the staple-driving plunger of the stapling machine. In order to normally maintain the stapling machine in raised position, in spaced relation relative to the anvil means for its plunger, the pivoted supporting bottom portion 5 for said machine is provided with a rearward extension 15, against which bears the lower end of a compression spring 16, the upper end portion of which is arranged within the socket 10 of the upper web 9, the effect of said spring being to normally urge the machine-supporting bottom portion 5 and its extension 15 in a counter-clockwise direction, with consequent normal elevation of the stapling machine.

As shown in Figs. 1 to 4 inclusive, said machine-supporting head is removably secured, by the bolts 19, to the upper end of a hollow pedestal 20, the base 21 of which is of sufficient size to give said pedestal proper stability, etc.

As before mentioned, two independent and interchangeable actuating means are provided for the staple-driving plunger 2 of the stapling machine, one of said actuating means being foot-operable and the other one thereof being manually operable. When the machine-supporting head is mounted on the pedestal 20, the foot-operable plunger actuating means is probably the preferred one, and it will first be described.

As shown in Figs. 1 to 4 inclusive, said foot-operable actuating means comprises a lever 25 pivoted intermediate its ends, as at 26, to the side wall portions 4 of the machine-supporting head, the front end of said lever being adapted to overlie and constantly engage the plunger 2 of the stapling machine, the head of said plunger being preferably provided with a hardened, wear-resisting contact cap 28. Pinned or otherwise suitably connected to the rear end of said lever is the upper end of a link 30, the major portion of which link lies within the pedestal 20. Pinned or otherwise suitably connected to the lower end of said link is the rear end of a treadle 33, an intermediate portion of which is pivotally mounted, by means of a pin 34, to a pair of brackets 35 with which the pedestal base 21 is integrally or otherwise suitably provided.

As shown in Fig. 1, the lower end of the pedestal 20 is provided at the front thereof with a vertically disposed slot 38, through which extends and in which moves the rear end portion of the treadle 33, the weight of which is so distributed that it normally assumes the position shown in the drawings, its rear end being in lowered position and its front or foot-engaging end being in raised position. For limiting counter-clockwise movement of said treadle, the rear end portion thereof is provided with a suitable adjusting screw 39 and for limiting clockwise movement of said treadle, the front end portion thereof is provided with a suitable adjusting screw 40, said screws being adapted for engagement with the pedestal base 21. If desired, and as shown, the extension 15 of the pivoted machine-supporting bottom part 5 may be of such length as to constitute a guide for the link 30, said extension being of bifurcated form for such guiding purposes.

As will be readily understood, foot depression of the front end of the treadle 33 effects downward clockwise movement of the stapling machine into yielding engagement with the work to be stapled and downward staple-driving movement of the plunger of said machine, the hands of the operator being free to hold said work on the hereinafter described anvil means. Upon release of said treadle, the parts automatically return to their idle or normal positions shown in the drawings, with the stapling machine elevated and its plunger in raised position.

The hand-operable plunger actuating means shown in Figs. 5 and 6 comprises a suitable lever 45, the rear end of which is pivoted at 46 to the side wall portions 4 of the machine-supporting head and an intermediate portion of which overlies and constantly engages the wear-resisting contact cap 28 of the head of the machine plunger 2. By manually depressing the front end of said lever, yielding downwardly movement of the stapling machine into engagement with the work to be stapled, and downward staple-driving movement of the plunger of said machine, can be conveniently effected, as will be readily understood. Upon release of said lever, the compression spring 16 automatically elevates said machine and raises the plunger thereof.

Either actuating means for the machine plunger may be used, the foot-operable one being preferable as it leaves the operator's hands free for manipulation of the work, etc. As will be noted, the foot-operable plunger-actuating lever 25 of Figs. 1 to 4 inclusive and the hand-operable plunger-actuating lever 45 of Figs. 5 and 6, are connectable to the side wall portions 4 at the same point, the same pivot pin being used with each.

Two anvil means are preferably provided for use with the plunger 2 of the stapling machine, one of said anvil means being generally vertically disposed and being adapted for use when the bottom portions of cartons or the like are to be inter-connected and the other of said anvil means being generally horizontally disposed and being adapted for use when the side portions of cartons or the like are to be inter-connected.

The generally vertically disposed anvil means is shown in Figs. 1 and 2 and includes a generally vertically disposed anvil arm 50 provided at its upper end with a suitable wear-resisting anvil member 51. Said arm is part of a bell-crank lever 53 pivotally mounted at 54 on a generally U-shaped bracket 56 having its intermediate portion bolted or otherwise suitably secured to an intermediate portion of the pedestal 20, said pedestal being provided with a forwardly extending ledge 57 on which said bracket rests, as shown. The other arm 59 of said lever has suitably connected thereto the upper end of a tension spring 60, the lower end of which is suitably connected to the treadle pivot pin 34. The effect of said spring is to normally move the bell-crank lever in a counter-clockwise direction so as to position the anvil arm 50 thereof in operative position below and in alignment with the plunger 2 of the stapling machine when said plunger is in staple-driving position. For limiting such counter-clockwise movement of said bell-crank lever and thus insure such operative positioning of the an-

vil arm 50 thereof, the lever-carrying bracket 56 is provided with a suitable adjusting screw 62 which co-operates with the arm 59 of said lever in bringing about such a limiting effect, as will be readily understood.

For moving said bell-crank lever in a clockwise direction, to locate its anvil arm 50 in the inoperative position shown in dotted lines, Fig. 1, a suitable treadle 65 is connected to said lever, adjacent the pivot portion thereof, the foot-receiving front portion of said treadle 65 being conveniently located adjacent the foot-receiving front portion of the plunger operating treadle 33. When the anvil arm 50 of said lever is in its inoperative position, as shown in Fig. 1, cartons or the like may be easily and conveniently applied thereto or removed therefrom, the tension spring 60 automatically returning said anvil arm to its operative position whenever said treadle 65 is released, all as will be readily understood.

As indicated in Fig. 2, the bell-crank lever 53, of which the anvil arm 50 is a part, is pivotally mounted on the bracket 56 by means of two adjustable pivot pins 67, the adjustment of which enables any play in said lever to be easily and quickly taken up.

The generally horizontally disposed anvil means is shown in Figs. 3 to 6 inclusive and comprises a suitable anvil arm 70 provided at its front end with a wear-resisting anvil member 71. The rear end portion of said arm is adapted to be removably secured in the socket 13 of the machine-supporting head, said head being provided with a clamping screw 74 for effecting such removable securement. This horizontally disposed anvil arm 70 is especially useful when the side wall portions of cartons or the like are to be inter-connected, such a carton being shown on said arm in Fig. 3.

As will be readily understood, either anvil means may be used with the stapling machine plunger, it being a simple matter to install or remove either one. The character of the work to be done will probably determine which one is selected for use.

If desired and as shown in Figs. 5 and 6, the machine-supporting head may be bolted or otherwise removably mounted on a bench 78 or the like, rather than on the pedestal 20, in which event the hand-operable plunger-actuating lever 45 and the horizontally disposed anvil arm 70 would be used therewith, as will be readily understood.

Having described my invention, I claim:

1. In combination with a portable stapling machine having a staple-driving plunger, of structure comprising pivotally mounted supporting means for such a machine, and actuating means for the plunger thereof, said supporting means being provided with an extension which constitutes a guide for a portion of said actuating means.

2. In combination with a portable stapling machine having a staple-driving plunger, of a generally vertically disposed pedestal, a base for said pedestal, a supporting head removably mounted on the upper end of said pedestal and having a socket for the removable reception of an anvil-carrying arm for said stapling machine, a support for said stapling machine pivotally mounted on said head above said socket, and actuating means for the plunger of said stapling machine pivotally mounted on said head above said support.

3. In combination with a portable stapling machine having a staple-driving plunger, of a generally vertically disposed pedestal, a base for said pedestal, a supporting head removably mounted on the upper end of said pedestal and having a socket for the removable reception of an anvil-carrying arm for said stapling machine, a support for said stapling machine pivotally mounted on said head above said socket, actuating means for the plunger of said stapling machine pivotally mounted on said head above said support, a bracket removably mounted on said pedestal intermediate the ends thereof, an anvil-carrying arm for said stapling machine pivotally mounted on said bracket, and an actuating member for said arm located adjacent the base of said pedestal.

4. In combination with a portable stapling machine having a staple-driving plunger, of a generally vertically disposed pedestal, a base for said pedestal, a supporting head removably mounted on the upper end of said pedestal, a support for said stapling machine pivotally mounted on said head, actuating means for the plunger of said stapling machine pivotally mounted on said head above said support, a bracket removably mounted on said pedestal intermediate the ends thereof, an anvil-carrying arm for said stapling machine pivotally mounted on said bracket, spring means for normally moving said anvil-carrying arm in one direction, means carried by said bracket and engageable by said anvil-carrying arm for limiting the movement in said one direction, and a treadle carried by said anvil-carrying arm and located adjacent said pedestal base for moving said anvil-carrying arm in the opposite direction.

5. In combination with a portable stapling machine having a staple-driving plunger, of a supporting head for said stapling machine, a supporting member pivotally mounted intermediate its ends on said head and adapted to have said stapling machine mounted on the front end portion thereof, a compression spring having its lower end engaging the rear end portion of said supporting member and normally tending to swing upwardly the upper front end portion of said member and hence the stapling machine mounted thereon, said head being provided with means for supporting the upper end portion of said spring, and means mounted on said head for actuating the plunger of said stapling machine.

6. The combination with a portable stapling machine having a staple-driving plunger, of a supporting head for said stapling machine, a supporting member pivotally mounted on said head and having said stapling machine detachably mounted thereon for oscillation about said pivot toward and from stapling position, means biasing said supporting member and hence said stapling machine away from stapling position, and means mounted on said head for actuating the plunger of said stapling machine.

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