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MAIL STRAP-OUT MACHINE

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FIG. 2.

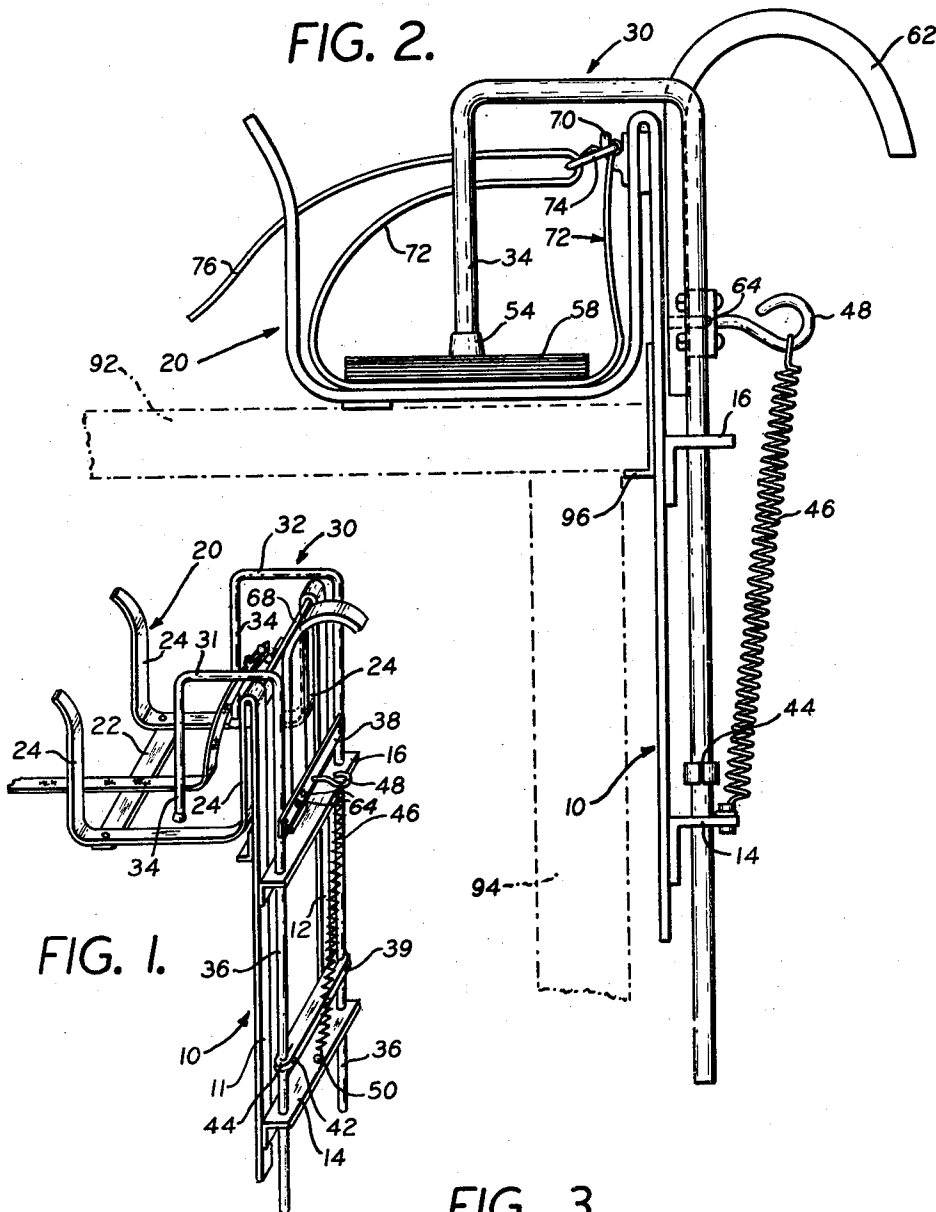
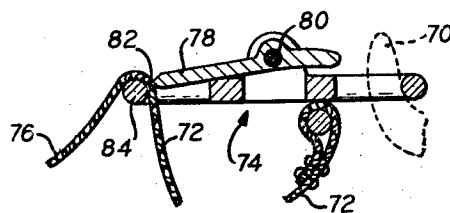


FIG. 1.

FIG. 3.



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MAIL STRAP-OUT MACHINE

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10 Claims. (Cl. 100-34)

This invention relates to the strapping of mail for delivery by mail carriers. More especially the invention relates to a machine by which a substantial portion of the strap-out operation can be performed mechanically.

In the operation of Post Offices having carrier delivery, it is the practice to assemble mail for adjacent houses and offices in small bundles that are held together by straps. These straps have buckles that lock automatically to keep the strap tight as desired as mail is removed from the stack at successive destinations.

It is an object of the invention to provide apparatus for holding letter mail or the like in a receptacle during assembly of the stack of mail and to pull a strap tightly around the mail whenever all of the mail for an intended area has been assembled.

Another object is to provide an adjustable frame, for holding the stack of letter mail, or the like, assembled together and with operator-actuated means for raising the frame to and to the top of the stack, and to provide a strap extending around the space occupied by the stack, the frame being open above and in front of the strap whereby the strap can be pulled tight to wrap around the mail at any time that the stack of mail is completed and without obstruction by the frame.

Other objects, features and advantages of the invention will appear or be pointed out as the description proceeds.

In the drawing, forming a part hereof, in which like reference characters indicate corresponding parts in all the views:

FIGURE 1 is a perspective view showing a strap-out machine made in accordance with this invention;

FIGURE 2 is an enlarged elevational view of the strap-out machine shown in FIGURE 1, and with some mail assembled in the receptacle and with the strap in position to be pulled around the mail whenever the stack of mail is completed; and

FIGURE 3 is a diagrammatic sectional view showing the buckle of the strap, illustrated in FIGURES 1 and 2.

The strap-out machine includes a support 10, made of two pieces 11 and 12 of flat material connected together by transversely extending angle sections 14 and 16. At the upper part of the support 10, the pieces 11 and 12 are bent to form a receptacle or holder 20.

The holder 20 has the flat pieces 11 and 12 connected together by a bottom piece 22 and the flat pieces have upwardly extending portions 24 which form sides for the holder. Both ends of the holder are open so that mail can be inserted endwise into the holder.

There is a frame 30 consisting of two U-shaped elements 31 and 32. These U-shaped elements have legs of different length. Each of the U-shaped elements 31 and 32 has one short leg 34 and one long leg 36. The long legs 36 are parallel to one another and they are connected together by cross elements 38 and 39.

The long legs 36 slide in bearings in the angular sections 14 and 16. These angular sections 14 and 16 are rigidly and preferably permanently secured to the flat pieces 11 and 12. The cross piece 38 is permanently secured to the long legs 36 of the frame 30; but the cross piece 39 is preferably detachably secured to the long legs 36 so that it will not interfere with the removal of the frame 30 from the bearings in the angular section 16. The simplest way of making the cross piece 39 detachable is to provide it with slits at its ends forming clamps

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which can be tightened by clamping screws 42 to grip the legs 36 of the frame 30. When these clamps are released by loosening the clamping screws 42 and inserting a screw driver or other tool into the slit end 44 of the cross piece 32, the leg 36 can be withdrawn freely from the cross piece 39.

The legs 36 are preferably round in cross section and so are the openings through the angle sections 14 and 16 which serve as bearings in which the legs 36 of the frame slide.

There is a tension spring 46 that connects at its upper end to an eye 48 which is secured to the cross piece 38 of the frame 30. The lower end of the spring 46 is attached to the angle section 14, by a connection 15. The tension of the spring 46 pulls the frame 30 downwardly and moves the short legs 34 of the frame downwardly in the holder 20.

There are soft feet 54 on the lower ends of the short legs 34 of the frame 30. These feet 54 contact with the top of a stack of mail 58 (FIGURE 2) assembled in the holder 20.

There is a handle 62 attached to the frame 30 by rivets or other fastening means 64. In the construction illustrated, the handle 62 is formed with a long arc so that an operator can place his fore arm under the handle 62 to lift the handle and thereby raise the feet 54 of the frame 30 from the stack of mail 58. Additional pieces of mail can then be inserted through the end of the holder 20 and can be placed on top of the stack 58. When the operator releases the force against the handle 62, the spring 46 moves the frame 30 downwardly to again clamp the stack 58 against the bottom of the holder 20 so that the stack is held against tilting and remains in position until another piece of mail is to be inserted.

There is another cross piece 68 located at the top of the support 10 at a place where the flat pieces 11 and 12 are bent with a reverse bend to form the sides 24 at the right hand side of the holder 20. This cross piece 68, like the other cross pieces 14, 16 and 22, is an integral part of the support 10 and it supports a hook 70 in a position near the top of the holder 20. A strap 72 has a buckle 74 which is supported on the hook 70. From the hook 70 the strap 72 extends downwardly and across the space at the bottom of the holder 20 and then extends upwardly, across the space that is to be occupied by the stack of mail 58, through the buckle 74 and then forwardly to a free end 76 of the stack.

From an inspection of FIGURE 2, it will be apparent that mail can be inserted into the holder 20 until the stack 58 builds up to a level which strikes the strap 72. Ordinarily the strap 72 would be thick enough so that with one portion supported by the buckle 74, the part of the strap across the stack 58 will lie in a long arc as shown in FIGURE 2. If the strap is limp and tends to sag, it is still supported by the buckle 74 and mail can be inserted under it by pushing one end of the mail against the part of the strap near the buckle 74 and then swinging the piece of mail toward the left so as to lift the stack.

FIGURE 3 is a diagrammatic sectional view through the buckle 74 and shows the buckle with a tongue 78 supported on a pin 80 and with an edge 82 of the tongue 78 in position to jam a portion of the strap 72 against an end 84 of the buckle to lock the strap tightly around a stack of mail whenever the free end 76 is pulled to move all slack of the strap past the tongue 78. These mail straps are well known and no further explanation of the construction is necessary for complete understanding of this invention.

In the operation of the invention, the operator lifts the frame 30 by the handle 62 whenever there is additional mail to be added to the top of the stack 58. As soon as all of the mail for a particular route has been assembled

in the stack 58, then the operator lifts the handle 62 with one hand and pulls upwardly on the free end 76 of the strap 72 with the other hand. This causes the strap 72 to lift the stack 58 against the downwardly hanging portion of the strap 72 below the hook 70, and as the strap wraps around the stack 58 all of the slack in the strap is taken up and further upward pull on the strap causes the buckle 74 to lift off the hook 70. This leaves the stack 58 free to slide out from under the frame 30 and to be pulled to the left out of the holder 20. The frame 30 is allowed to drop back into its original position and a buckle 74 of a new strap 72 is placed on the hook 70. The machine is then ready for the assembly of another stack of mail.

The embodiment of the invention illustrated in the drawing is simple and inexpensive. It is also convenient to use with a table 92 (FIGURE 2) by placing the holder 20 on top of the table and permitting the long portion of the support 10 to extend downwardly at one end of the table; for example, along a leg 94 of the table. Brackets 96, attached to the support 10, can be used for securing the support to the table 92.

The vertical spacing of the angle sections 14 and 16 should be sufficient to permit the use of short bearing surfaces in these angular sections without cocking of the long legs 36 of the frame 30. When there is a cross piece 39 between the legs 36 and above the angle section 14, then the angle sections 14 and 16 must be vertically spaced from one another by a distance somewhat greater than the maximum vertical stroke of the frame 30.

Numerous changes can be made in the illustrated construction, such as the substitution of a foot pedal for the handle 62 and various changes in the shape and dimensions of the parts. Although a manually operated device is simpler and fairly satisfactory, the raising and lowering of the frame can, of course, be motorized. Various other changes and modifications can be made without departing from the invention as defined in the claims.

What is claimed is:

1. A strap-out machine for strapping together bundles of letter mail or the like including in combination a holder having an open top defining a space for receiving letters that are to be assembled together in the holder into a stack, a relatively fixed holding means on the holder above the bottom of the space and positioned to one side thereof for holding one end of a mail strap in position with said one end of the strap at a level above the bottom of said space and with the strap extending downwardly along at least one side of said space adjacent to the holder where the letters are assembled, and a support for the other end of the strap which extends across the bottom of said space under and beyond the stack of letters, a frame operably connected to the holder and being vertically movable toward and away from the bottom of said space, said frame having a portion for holding the stack of letters together by pressing them downwardly onto the holder, the frame being biased downward, and an operator-actuated means attached to the frame for moving the frame upwardly against said bias to accommodate additions to the stack of mail in said space, the holding portion of said frame being positioned above and in front of the loading location of the strap whereby the other end of the strap can be wrapped around the assembled stack of mail and fastened to said one end without obstruction by the holder and frame.

2. The strap-out machine described in claim 1, and in which the frame and holder are connected with a common support with respect to which the frame is movable.

3. A strap-out machine described in claim 2, and in which the frame has a longitudinally extending part and there is a bearing in the common support in which the longitudinally extending part of the frame slides up and down to raise and lower the frame with respect to the bottom of the space in which the letter mail is assembled.

4. The strap-out machine described in claim 3, and in which the holder is a receptacle and the frame has the shape of an inverted U with legs of different length including a shorter leg that extends down into the receptacle and a longer leg that constitutes the longitudinal-extending part of the frame.

5. The strap-out machine described in claim 4, and in which the frame includes two parts that have the shape of inverted Us with legs of different length, both of the shorter legs extending downwardly into the receptacle, and both of the longer legs being parallel and there are two bearings on the common support and in which the parallel legs slide, and structure connecting the inverted Us together for operation as a unit.

6. The strap-out machine described in claim 5, and in which the two parts of the frame are on different sides of the strap and the space between said two parts leaves the frame open above and in front of the location of the strap.

7. The strap-out machine described in claim 6, and in which the holder is a receptacle open at both ends, whereby successive pieces of mail can be inserted endwise into a stack of mail within the receptacle whenever the frame is moved upwardly above the top of the stack of mail, the machine including also a stud extending upwardly and constituting the holding means on the holder, a strap extending loosely around the space on the holder that is to be occupied by the mail, the strap having a buckle at one end and the other end of the strap passing through the buckle and occupying a position ready to be pulled to tighten the strap around any stack of mail on the holder, the buckle of the strap being hooked over the stud so that the other end of the strap can be pulled through the buckle with the buckle held on the stud to tighten the strap around the stack of mail.

8. A strap-out machine for strapping together bundles of letter mail or the like including in combination a holder defining a space for receiving letters that are assembled together on the holder in a stack, a connection at a relatively fixed point on the holder for retaining a mail strap in position with one part of the strap at a high level of said space and with the strap extending downwardly along at least one side of said space adjacent the holder where the letters are assembled and across a bottom of said space under and beyond the stack of letters, a frame independent of the connection on the holder for retaining the strap and movable toward and from the bottom of said space for holding a stack of letters together by pressing them downwardly on the holder, the frame having a bias downward, and operator-actuated means attached to the frame for moving the frame against said bias to accommodate higher stacks of mail, the frame being open above and in front of the location of the strap whereby the strap can be wrapped around the stack of mail without obstruction by the frame, and in which there is a strap attached to said connection and the strap is bent loosely around the space in the holder that is to be occupied by the mail, there is a buckle on one end of the strap, and the other end of the strap passes through the buckle and occupies a position ready to be pulled up tightly around any stack of mail in the holder.

9. The strap-out machine described in claim 8, and in which said connection is a stud extending upward from a fixed part of the machine and the buckle of the strap is hooked over the stud so that the other end of the strap can be pulled through the buckle when the buckle is held on the stud to tighten the strap around a stack of mail on the holder.

10. The strap-out machine described in claim 9, and in which the holder is a receptacle open at both ends whereby successive pieces of mail can be inserted endwise into a stack in the receptacle whenever the frame is moved upward above the top of the stack of mail in the receptacle.

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References Cited in the file of this patent

UNITED STATES PATENTS

174,580	Sheppard -----	Mar. 7, 1876	1,201,688
525,029	Reilly -----	Aug. 28, 1894	1,272,296
577,080	Solt -----	Feb. 16, 1897	1,459,445
904,223	Pickens -----	Nov. 17, 1908	1,972,173
956,387	Magson -----	Apr. 26, 1910	2,316,290

5

192,826

6

Bunn et al. -----	Oct. 17, 1916
Moreland -----	July 9, 1918
Elderton et al. -----	June 19, 1923
Spoor et al. -----	Sept. 4, 1934
Schenbeck -----	Apr. 13, 1943

FOREIGN PATENTS

Great Britain -----	Feb. 15, 1923
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