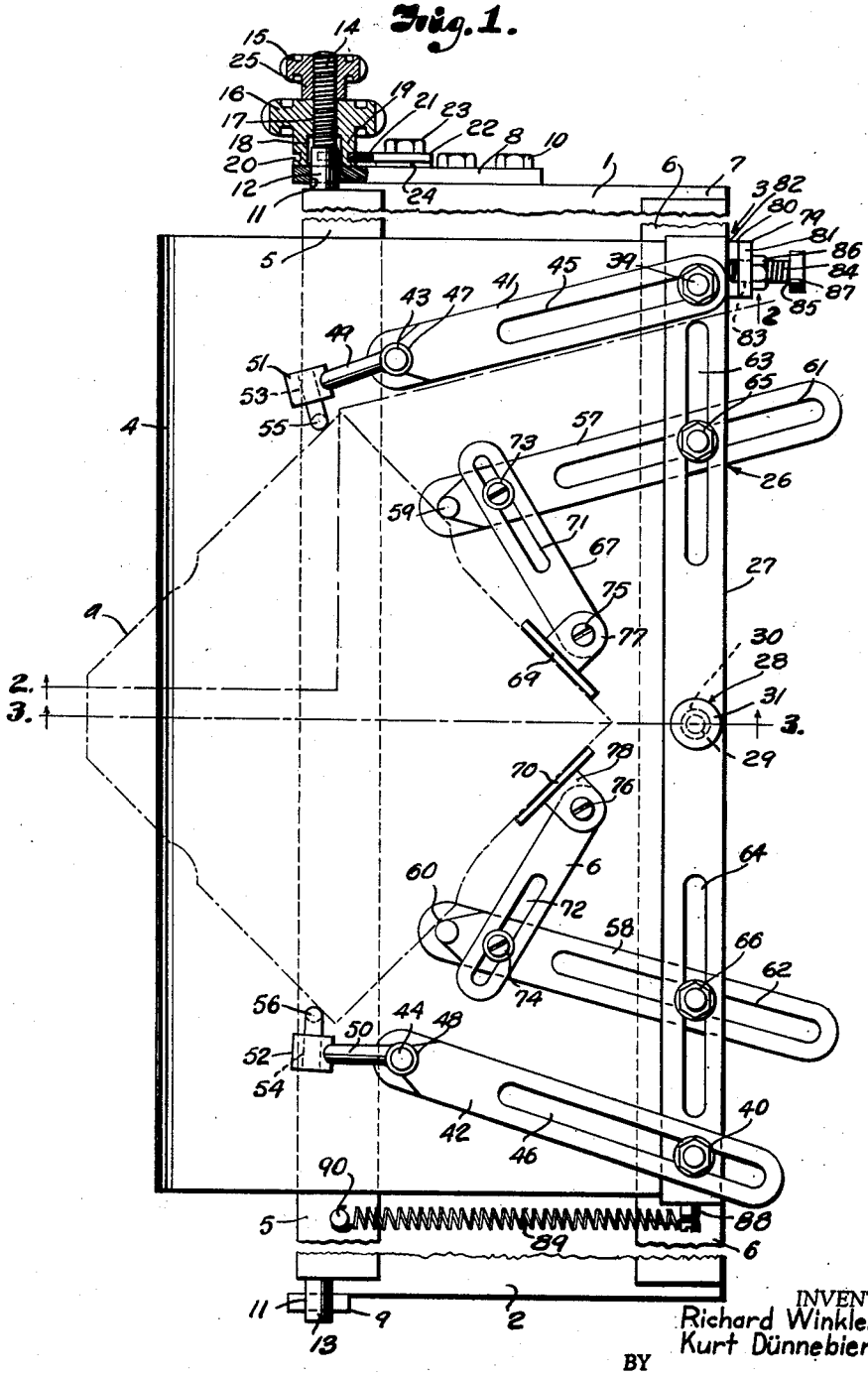
July 7, 1964 R. WINKLER ETAL 3,140,090

HOLDER FOR SUPPORTING A STACK OF BLANKS IN AN ENVELOPE MAKING MACHINE

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Fig. 1.



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Fig. 2.

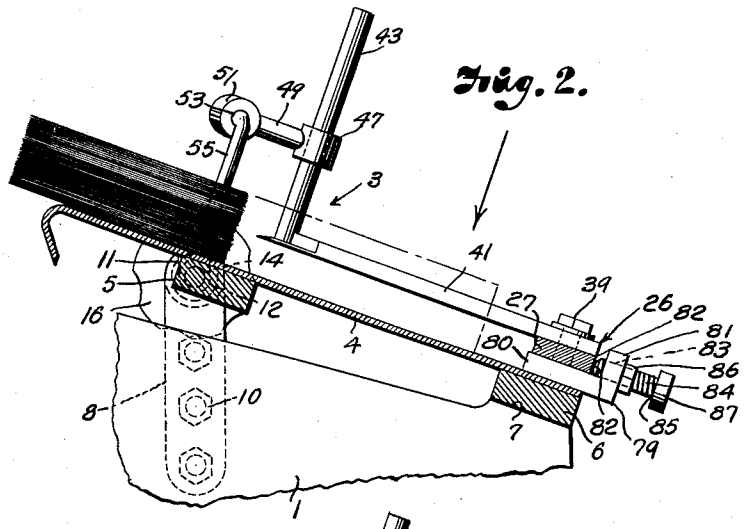


Fig. 3.

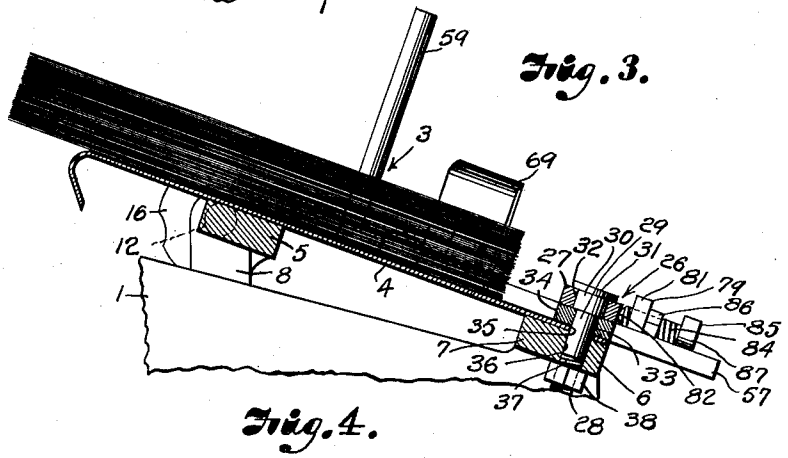
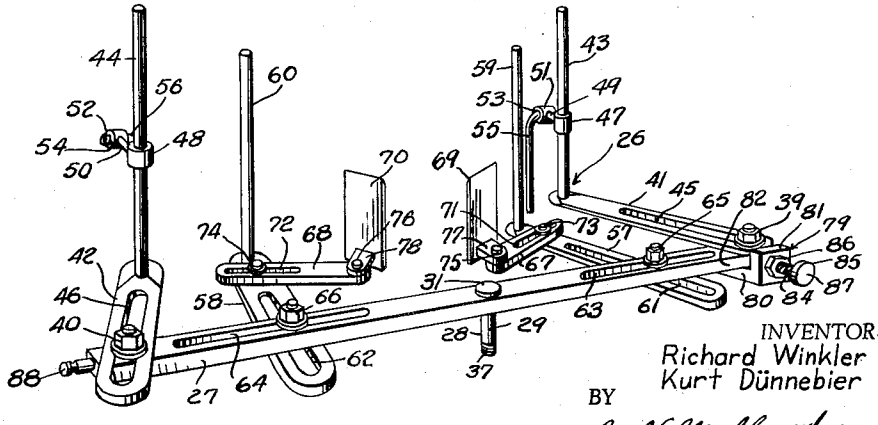


Fig. 4.



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HOLDER FOR SUPPORTING A STACK OF BLANKS IN AN ENVELOPE MAKING MACHINE

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8 Claims. (Cl. 271—61)

This invention relates to a holder for a stack or pile of sheets or blanks that are to be withdrawn in successive order into a machine in which the blanks are processed.

For example, in the manufacture of envelopes, the blanks from which the envelopes are formed are carried in a stack and the blanks are fed one at a time into the envelope making machine, so that the blanks travel in a definite course. The stack of blanks is usually held upon an inclined surface and between adjustable stops that align sides of the stack and position the stack in alignment with the path of travel of the blanks into the machine; consequently, it is essential that each stop be adjusted to locate and correctly position the stack upon the inclined surface.

When the envelope making machine is changed over from one envelope format to another, each of the stops must be readjusted to accommodate the new format. The adjustments consume a considerable amount of time. This is particularly true when the envelope making machine is making envelopes with glued-in linings, because the machine must be equipped with two stack holders, one for the stack of linings and the second for the stack of envelope blanks. This requires that the stops for both holders must be readjusted on each change of format.

In addition to the initial adjustments required at the time of starting a certain format, frequent adjustments are required during running of the machine, because of irregularity in stamping out of the blanks, and particularly when the blanks are of very thin material. These irregularities result when the blanks are punched out in a pile of sheets by means of contour dies. When the blanks are thus cut, there is considerable difference in size between the blanks situated at the top and at the bottom of the pile during the punching operation. Therefore, when the blanks of varying size are positioned in a stack, an adjustment of the stops is required during running of the envelope making machine; however, with present stack holders, it is impossible to make this sort of adjustment while the machine is in operation.

Therefore, principal objects of the present invention are to provide a stack holder wherein the stops are easily and quickly adjusted when changing over from one format to another, and to provide a stack holder that is adjustable while the envelope making machine is in operation.

In accomplishing these and other objects of the invention as hereinafter described, we have provided improved structure, the preferred form of which is illustrated in the accompanying drawings, wherein:

FIG. 1 is a plan view of a stack or pile holder constructed in accordance with the present invention, viewed from the direction indicated by the arrow, and a stack of blanks being shown in dot and dash lines.

FIG. 2 is a section through the holder on the line 2—2 of FIG. 1, and showing the rear portion of a stack of blanks broken away to better illustrate an outermost stop.

FIG. 3 is a central section through the holder on the line 3—3 of FIG. 1.

FIG. 4 is a perspective view of the stop assembly, showing the mounting thereof on a common adjusting bar or rail, in accordance with the present invention.

Referring more in detail to the drawings:

1 and 2 show portions of the side frames of an envelope making machine to which the stack holding mechanism is mounted, since the present invention relates only to the stack holder and adjustment thereof, no other parts of the envelope making machine being illustrated.

The stack holder 3 includes a plate or platform 4 that is carried upon front and rear transverse rails 5 and 6 that are fixed thereto. The rear rail 6 has its ends resting freely upon appropriate surfaces 7 on the side frames 1 and 2 of the envelope making machine; however, the front rail 5 is carried above the rear rail 6 on brackets 8 and 9, to slant the plate 4. The brackets 8 and 9 are attached, respectively, to the side frames 1 and 2 of the envelope making machine by fastening devices 10. The upper ends of the brackets project above the side frames of the machine and have upwardly opening slots 11 mounting trunnions 12 and 13 that project from the respective ends of the rail 5, as best shown in FIG. 1. The rail 5 is adjustably supported in the longitudinal direction thereof, as now to be described.

Projecting from the trunnion 12 is a threaded terminal 14, and mounted on the terminal are nuts 15 and 16. The nut 16 serves as the adjustment for the rail, and the nut 15 serves as a jam or lock nut to maintain the adjustment of the nut 16. The adjusting nut 16 has an internally threaded bore 17 engaging the threads of the terminal 14 and registering with a counterbore 18 in the hub 19 thereof. The counterbore 18 is of larger size than the trunnion 12, so that the trunnion is freely movable upon turning of the nut 16 upon the threaded terminal 14.

In order to anchor the nut 16, the hub 19 has an annular groove 20, and engaging therein is the forked end 21 of a keeper plate 22 that is secured to the side of the frame 1 by a fastening device 23 passing through the keeper plate spacer 24 and into a threaded socket in the side of the frame 1. The jam nut 15 has a hub 25 provided with an internally threaded bore also accommodating the threads of the trunnion 14.

The plate 22 is thus anchored relatively to the bracket 8 so that by loosening the nut 15 and turning the nut 16 in one or the other direction, the plate 4 may be adjusted laterally, with the trunnions 12 and 13 sliding in the brackets 8 and 9. After the adjustment is made, the nut 15 is turned against the nut 16 to lock the nuts in holding the adjustment.

Adjustment of the plate 4 locates a pivot point of a stop assembly 26 relatively to the line of travel of the blanks in the machine.

The assembly 26 includes a bar or rail 27 that is carried above the plate 4 on a pivot pin 28 which includes a shank 29, a shoulder portion 30, and a head 31. The shoulder portion 30 passes through an opening 32 substantially midway of the length of the rail 27, and the shank portion 29 passes through an opening 33 in a spacer 34, an opening 35 in the plate 4, and an opening 36 in the rail 6. The end of the shank projects below the rail 6 and has threads 37 for mounting a nut 38 by which the shoulder portion 30 is drawn tightly against the spacer 34. The shoulder portion 30 is of a size to allow the rail 27 to turn snugly thereon, for a purpose later described.

The outer ends of the rail 27 carry fastening devices such as bolts 39 and 40, to connect arms 41 and 42 having upstanding posts 43 and 44. The arms 41 and 42 have slots 45 and 46 to accommodate the bolts 39 and 40 therein, whereby the posts 43 and 44 are positioned to and from the rail 27. The posts 43 and 44 carry collars 47 and 48 having radially projecting arms 49 and 50 that terminate in collars 51 and 52 having axial openings 53 and 54 extending at right angles to the posts 43 and

44 to carry depending stops 55 and 56 for engaging sides of the stack.

Adjustable along the rail between the pivot and the attachment point of the arms 41 and 42 are arms 57 and 58, carrying on their forward ends vertical stops 59 and 60. The arms 57 and 58 have elongated slots 61 and 62 cooperating with elongated slots 63 and 64 that are provided in the rail 27. Extending through the slots 61 and 62 and through the slots 63 and 64 are clamping devices such as bolts 65 and 66. Pivotally fixed to the outer ends of the arms 57 and 58 are arms 67 and 68 which carry, on the outer ends thereof, stack engaging plates 69 and 70. The arms 67 and 68 have slots 71 and 72 through which screws 73 and 74 pass to adjustably clamp the arms 67 and 68 to the arms 57 and 58. The free ends of the arms are connected to the stop plates 69 and 70 by screws 75 and 76 threaded into lugs 77 and 78 projecting from the back of the stop plates. The arms of all of the stop members are secured to the rail 27, so that all of the stops may be moved simultaneously relatively to the pivot pin 28.

In order to facilitate pivotal adjustment of the rail 27, to shift the stack shown by the dot and dash lines of FIG. 1 slightly angularly, one of the rear corner portions of the plate 4 carries an angle-shaped bracket 79, having one leg 80 extending under the rail 27 and fixed to the plate 4. The other leg 81 of the bracket 79 extends upwardly along the rear edge 82 of the rail and is provided with a threaded opening 83 in registry with the rail. Mounted in the opening 83 is the threaded shank 84 of an adjusting screw 85 having a lock nut 86 and a knurled head 87 by which the forward end of the shank 80 is turned to push the rail 27 in a counterclockwise direction (FIG. 1). In order to retain the rail 27 in contact with the shank 84 of the screw, the opposite end of the rail 27 carries a pin 88 for connecting one end of a tension spring 89 (FIG. 1). The other end of the tension spring 89 is fixed to the rail 5 by a similar pin 90.

Assuming that the stack holder is constructed and attached to a machine as described, for example, an envelope making machine, the stops 55–56, 59–60, and 69–70 are adjusted to the size of stack indicated by the dot and dash line designed "a" in FIG. 1, so that the stack is positioned between the stops 55–59–69 and the stops 56–60–70, to locate the stack as near as possible to a position from which the blanks are withdrawn into the machine.

The stack may be adjusted laterally relatively to the point of withdrawal, which is usually on the longitudinal axis of the machine. The initial adjustment may be by way of the stops, but a closer adjustment is obtained by sliding the platform toward one side or the other of the longitudinal axis of the machine by manipulating the adjusting nut 16, as follows:

The jam nut 15 is backed off from contact with the nut 16. The nut 16 is now free to be turned in one or the other direction about the threads of the terminal 14 to slide the trunnions 12 and 13 in the notches or slots 11 and 12 of the brackets 8 and 9, and correspondingly move the platform and stop assembly 26 as a unit. This adjustment may be accomplished with the machine in operation, if desired.

Another procedure is to assure that the blanks in the stack are aligned so that the folds to be produced in the blanks are square with the folding mechanism of the machine. This is a trim adjustment of the position of the stack upon the platform relatively to the pivotal axis of the rail 27, so that the blanks are properly withdrawn from the bottom of the stack with the side edges thereof positioned so that the lines of fold to be made in the blanks are squared with the machine. This adjustment can also be made while the machine is in operation by slacking off the lock nut 81 and turning the screw 85 to move the pivoted rail 27. If the stack is to be moved toward the side in the direction of the side frame 2, the screw will be turned to move the rail in a counterclockwise direction (FIG. 1) by turning the screw 85 to cause the end thereof to bear upon the edge 82 of the rail to stretch the spring 89. If the stack is to be moved toward the side frame 1, the screw is slacked off so that the rail may move in a clockwise direction under action of the spring 89. After either adjustment, the lock nut 86 is tightened against the leg 81 of the angle bracket 79 to hold the adjustment. Pivotal movement of the rail jointly moves all of the stops, so that no individual adjustment of the stops is necessary. If it is necessary to bring the leadoff point of the blanks back to the line of travel of the blanks through the machine, this may be readily accomplished by a lateral trim adjustment of the platform through manipulation of the adjusting nut 16, as previously described.

The pivoted rail may be readjusted from time to time while the machine is in operation, to compensate for variation in the blanks as above described and which results from the die punching thereof.

From the foregoing, it is obvious that the present invention permits the operator of the machine to correctly position the blanks with precision to compensate for variation resulting from the dieing out of the blanks, particularly when the blanks are formed of relatively thin stock.

While we have not particularly illustrated the holder in conjunction with liners and the like, the structure of the holder is the same and enables correct uniform spacing of the edges of the lining with respect to the edges of the envelope blanks to which they are to be glued in subsequent operations of the machine.

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

1. A holder for a stack of blanks from which the blanks are to be withdrawn in consecutive order, said holder including

a platform on which the stack of blanks is supported,

stops for engaging sides of the stack,

a common member on which all of said stops are mounted,

means pivotally mounting said common member on the platform, and

adjusting means fixed to the platform and engaging said common member for pivoting said common member to angularly shift the stack of blanks upon said platform.

2. A holder for a stack of blanks from which the blanks are to be withdrawn in consecutive order, said holder including

a platform on which the stack of blanks is supported,

stops for engaging sides of the stack,

a rail,

means for adjustably mounting said stops on the rail, and

means fixed with respect to the platform and pivotally mounting the rail for pivoting the rail in a plane substantially parallel with the platform for jointly shifting said stops for adjusting the position of the stack upon the platform.

3. A holder for a stack of blanks from which the blanks are to be withdrawn individually in consecutive order into a machine for processing the blanks, said holder including

a platform for support on the machine for supporting the stack of blanks and having a forward edge portion across which the blanks are withdrawn into the machine,

a pivot pin on the platform to the rear of the stack,

a transverse rail having its midportion pivotally mounted upon the pivot pin to swing in a plane parallel with the platform,

stops carried by the rail on the respective sides of the pivot pin and having portions engaging sides of the

stack to position the stack on said platform responsive to pivoting the rail,

an adjusting screw on the platform for pivoting the rail, and

a spring engaging the rail for holding tension on the pivoted rail.

4. A holder for a stack of blanks from which the blanks are to be withdrawn individually in consecutive order in a fixed line of travel, said holder including

a platform on which the stack of blanks is supported,

means for laterally adjusting position of the platform to shift the stack of blanks laterally, and

a single adjusting means for shifting the stack slightly angularly upon the platform.

5. In an envelope making machine,

a holder for a stack of blanks from which the blanks are to be withdrawn in consecutive order into the machine in a fixed line of travel, said holder including

a platform carried by the envelope making machine and on which the stack of blanks is supported,

stops for engaging sides of the stack,

means for shifting the platform laterally on the machine to trim the lateral adjustment of the stack relatively to the fixed line of travel,

means for jointly holding the stops with the stack engaged between the stops, and

means for adjusting the stop holding means on the platform for adjusting the position of the stack slightly angularly upon the platform.

6. In an envelope making machine,

a platform for supporting a stack of blanks thereon,

stops for engaging opposite sides of the stack,

a transverse rail for jointly carrying the stops in contact with the stack,

means for pivoting the rail for angularly shifting the stack on the platform, and

precision means for pivoting the stop-carrying rail upon said pivot means to adjust said angular positioning of the stack upon the platform.

7. In an envelope making machine,

means for holding a stack of blanks, including

a transverse rail having movable support on the envelope making machine,

a transverse rail spaced forwardly of the first rail and having trunnions projecting from ends thereof with one of the trunnions having a threaded terminal projecting axially therefrom,

brackets on the envelope making machine having bearing portions mounting the trunnions for movement transversely therein,

a plate carried by the rails to provide a platform for supporting the stack of blanks thereon,

a nut having internal threads mounted on the terminal and having a hub portion provided with an annular groove,

a keeper fixed with respect to the bracket that mounts the trunnion having the threaded terminal and having an end engaging in the groove of the nut,

stops for engaging opposite sides of the stack,

a transverse rail for jointly carrying the stops in contact with the stack, and

precision means for positioning the stop-carrying rail to adjust the stack upon the plate on which the stack is supported.

8. In an envelope making machine,

means for holding a stack of blanks, including

a transverse rail having movable support on the envelope making machine,

a transverse rail spaced forwardly of the first rail and having trunnions projecting from ends thereof with one of the trunnions having a threaded terminal projecting axially therefrom,

brackets on the envelope making machine having bearing portions mounting the trunnions for movement transversely,

a plate carried by the rails to provide a platform for supporting the stack of blanks thereon,

a nut having internal threads mounted on the terminal and having a hub portion provided with an annular groove,

a keeper fixed with respect to the bracket that mounts the trunnion having the threaded terminal and having an end engaging in the groove of the nut,

stops for engaging sides of the stack,

a transverse rail for jointly carrying the stops in contact with the stack,

precision means for positioning the stop-carrying rail to adjust the stack upon the plate on which the stack is supported, and

means for applying tension to move the bar in one pivotal direction.

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