United States Patent

[11] **3,572,690**

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[54] **STUFFING MACHINE ATTACHMENT**
1 Claim, 4 Drawing Figs.

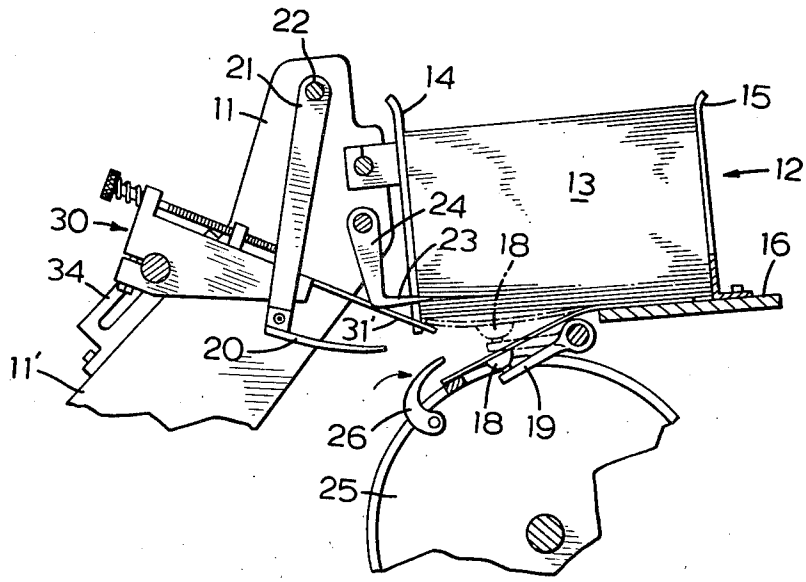
[52] **U.S. Cl.** **271/19,** 271/61
[51] **Int. Cl.** **B65h 1/06,** B65h 5/08
[50] **Field of Search** 271/23, 29, 32, 19, 61

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ABSTRACT: A stuffing machine attachment comprises a rigid support block which is universally adjustable in position with respect to the stuffing machine, and a resilient blade carried by the support block, the blade having a free unsupported end which is adapted to engage the bottom edge of a stack of inserts. The blade is located in a guideway provided in the support block and is adjustable therealong for varying the effective length of the free, unsupported portion of the blade.



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2 Sheets-Sheet 1

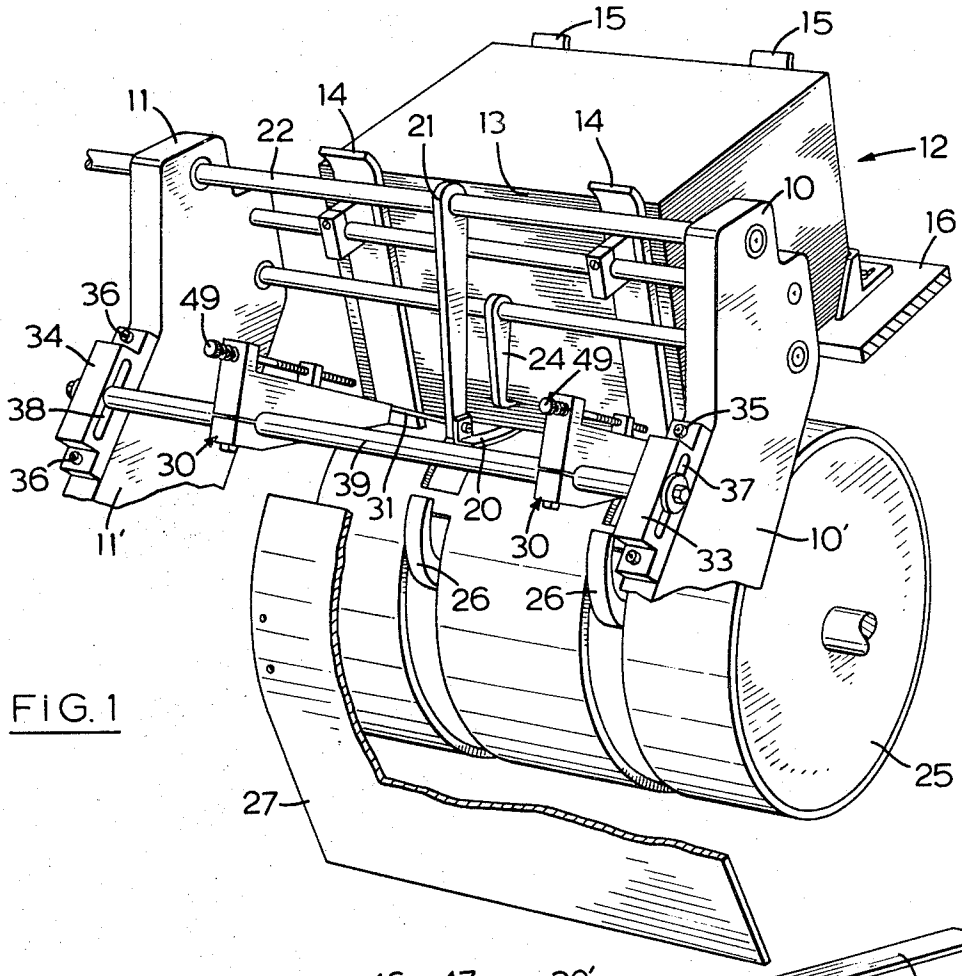


FIG. 1

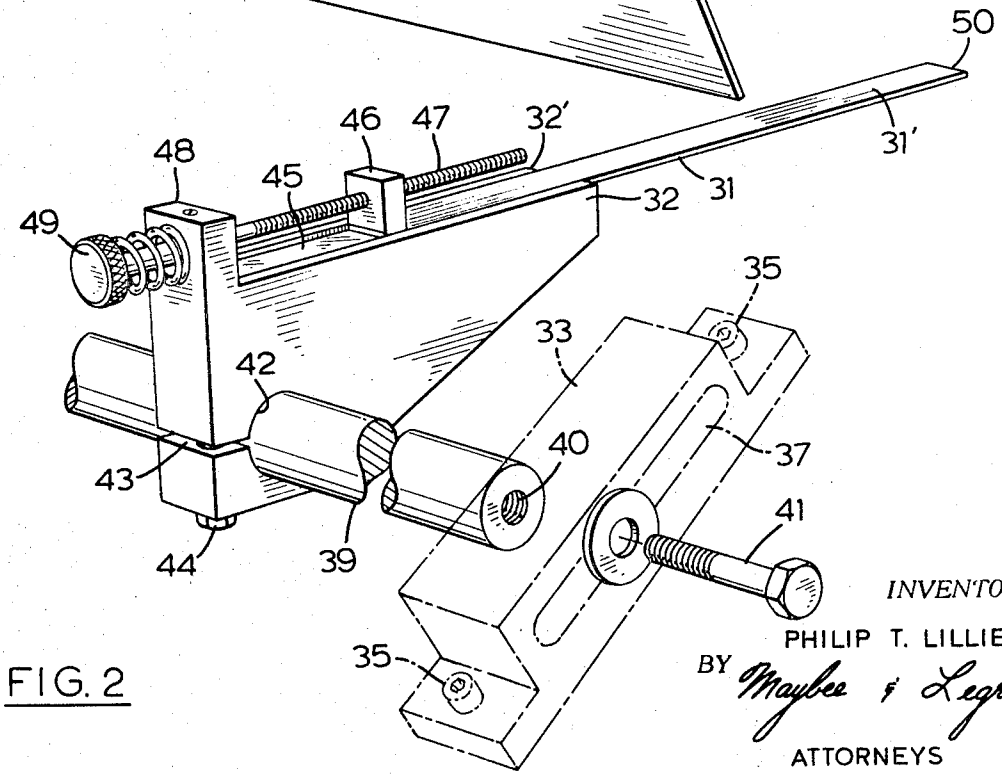


FIG. 2

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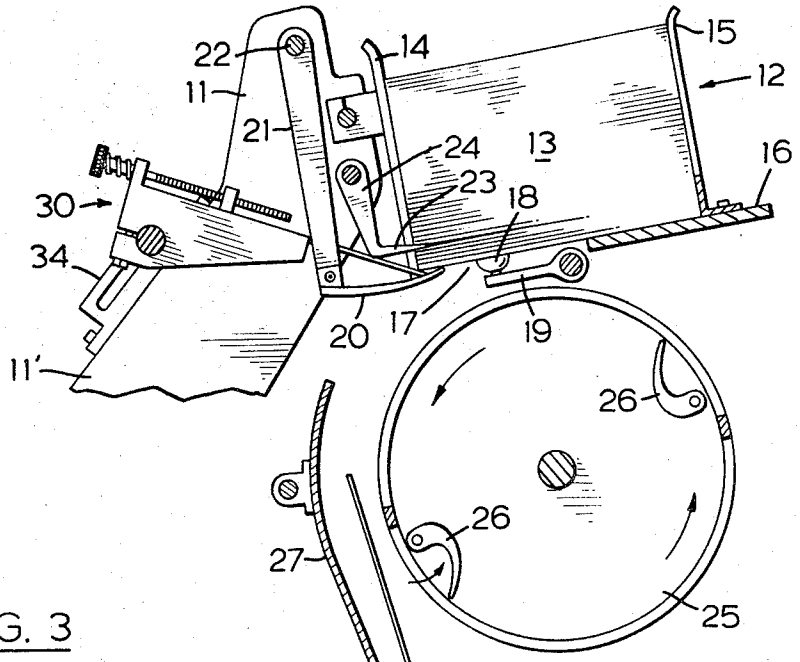
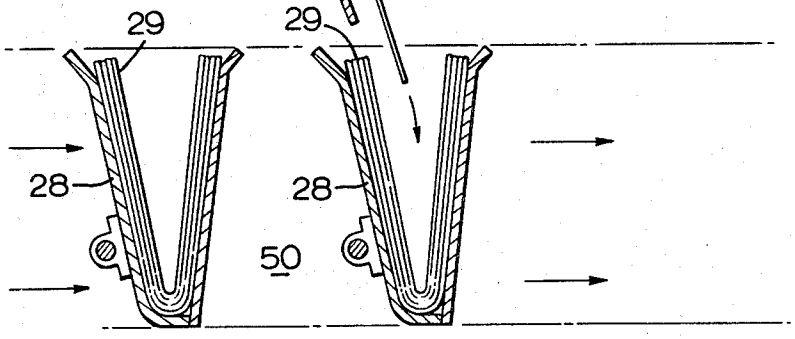


FIG. 3



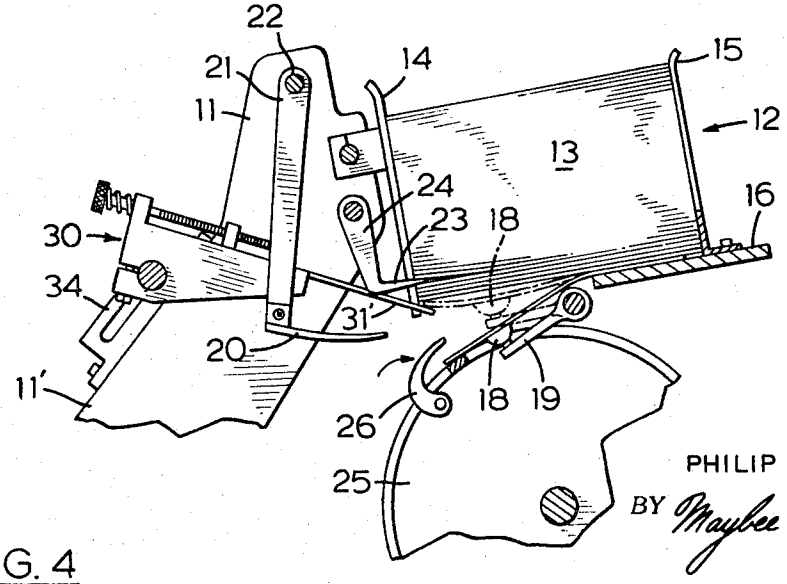


FIG. 4

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STUFFING MACHINE ATTACHMENT

BACKGROUND OF THE INVENTION

This invention relates to stuffing machines of the kind which are used for stuffing inserts into assemblages of newspaper sections. Such inserts usually comprise single sheets or cards on which advertising matter is printed and these are deposited one at a time into newspaper assemblages in carriers which are moved successively to a loading or stuffing position. Generally, a stuffing machine includes a hopper for receiving a stack of inserts and intermittent means are provided for engaging and withdrawing the lowermost insert of the stack and depositing the same in a carrier. Such intermittent means include a vacuum sucker mounted on an arm, which offsets the lowermost insert of the stack, and a set of grabbers which engage and withdraw the insert.

Owing to the high speeds of operation of such machines it is important that the weight of stock on which advertising matter is printed should lie within a certain range; with known machines it is found that inserts may be deposited more than one at a time, or may not be deposited at all, if the stock weight is too great or too small. To avoid malfunctioning the speed of operation of the machine must be carefully adjusted to suit the particular weight of stock.

It is an object of the present invention to provide a stuffing machine attachment which can be used to control the stripping of inserts from a stack so as to ensure proper functioning of the machine irrespective of the weight of the inserts.

SUMMARY OF THE INVENTION

Basically, a stripper control device or stuffing machine attachment according to the present invention comprises a resilient blade or finger having a free end which is adapted to engage the lowermost insert of the stack adjacent one edge thereof, the lowermost insert of the stack being disengaged from the tip of the blade or finger as it is offset. The resilient blade or finger is supported by a rigid support block adjustably mounted on the stuffing machine, and has a free unsupported portion terminating at said free end; by adjustably positioning the blade on the support block the effective length of the free unsupported portion of the blade can be varied and so the operating characteristics of the blade attachment can be preset.

BRIEF DESCRIPTION OF THE DRAWINGS

One embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:

FIG. 1 is a general perspective view showing a detail of the stuffing machine with a stripper control attachment according to the invention;

FIG. 2 is a fragmentary perspective view of the stripper control attachment;

FIG. 3 is a schematic view illustrating the manner of operation of the machine with its attachment; and

FIG. 4 shows a detail of FIG. 3 a particular stage in the machine operation.

Referring to the drawings, the stuffing machine comprises a machine frame providing a pair of rigid side support members 10, 11, and a hopper 12 for receiving and holding a stack of inserts 13. The hopper 12 comprises front and rear bars 14, 15 between which the inserts are stacked, and a platform 16 which extends under the rear edge of the stack and supports the stack. At the bottom of the hopper is an opening 17 through which inserts are withdrawn. The lowermost insert of the stack is offset and withdrawn in known manner by means of a vacuum sucker or cup 18 mounted on a pivoted arm 19. Prior to the lowermost insert being withdrawn, the forward edge of the stack is supported by means of a finger 20 mounted at the lower end of an arm 21 which is reciprocated in timed relation with the arm 19 to release the stack intermittently. The arm 21 is carried by a rotatable shaft 22 which is reciprocated about its axis by a cam drive not shown. A

second finger 23 mounted at the end of a second reciprocating arm 24 is inserted into the stack so as to take part of the weight of the stack.

The arms 21 and 24, and the arm 19 are driven in timed relation with a gripper drum 25 having a number of cam-driven grippers 26 which are pivotally movable through slots from the inoperative position shown in FIG. 3 to the gripping position shown in FIG. 4. In operation of the machine, at each stroke of the insert stripping mechanism the vacuum sucker 18 is brought into engagement with the lowermost insert; the finger 20 is withdrawn from the stack, to the position shown in FIG. 4, and the vacuum sucker 18 is moved down to withdraw the insert from the stack. At this position a gripper 26 is moved to its gripping position to grip the insert, which is thereby stripped from the vacuum sucker and carried by the drum 25 to a position from which it falls via a guide plate 27 into a carrier. FIG. 3 shows a series of carriers 28 each containing a newspaper assemblage 29. The carriers are spaced equally along a conveyor 50 which brings each carrier in turn to an insert receiving position at the appropriate instant.

The mechanism described above does not differ from conventional stuffing mechanisms. The present invention however is characterized by an attachment 30 comprising a universally adjustable, resilient support blade for supporting the forward edge of a stack of inserts and ensuring that the inserts are correctly withdrawn from the stack one at a time. The details of this attachment are best shown in FIG. 2.

The attachment 30 essentially comprises a resilient blade or finger 31, a rigid support block 32 for the blade 31, and means for adjustably mounting the support block on the stuffing machine. Each of the rigid side support members 10, 11 has a sloping front face 10', 11', to which a respective bracket 33, 34 is screwed by screws 35, 36. The brackets 33, 34 are formed with elongated parallel slots 37, 38. A cylindrical crossbar 39 extends between the side support members 10, 11 in a direction transverse to the machine, and is provided with threaded axial holes 40. Screws 41 passing transversely through the slots 37, 38 engage in the holes 40 to clamp the crossbar in any position to which it has been adjusted with respect to the machine. The support block 32 has a transverse hole 42 through which the crossbar 39 extends, the support block being adjustable in position along the length of the crossbar and angularly adjustable about the axis of the crossbar. The support block has a slot 43 and a clamping screw 44 by which the block may be secured or clamped to the crossbar in any position to which it has been adjusted. The upper face of the support block 32 is formed with a straight, recessed, guideway 45 terminating at the rear edge 32' of the block. The resilient blade 31 is located in the guideway 44 for longitudinal sliding movement therealong. A screw-threaded collar 46 secured to one end of the blade is engaged by a threaded rod 47; the latter is freely rotatable with respect to a bush support 48 of the support block, and is provided with a knurled finger nut 49 for rotating the rod whereby to move the blade in either direction along the guideway 45.

It will be seen that the blade 31 is rigidly supported along part of its length by the support block 32, but has a free unsupported projecting portion 31' terminating in a free end 50 which is adapted to engage and support the lowermost insert of the stack. As each insert is stripped from the stack by the action of the vacuum sucker 18, the edge of the insert is deflected round the tip of the blade 31, which continues to support the remainder of the inserts. It will be noted however that the blade 31 not only provides a resilient support at one edge of the stack, but is universally adjustable to suit a wide range of operating conditions. The mounting of the crossbar 39 by the slotted brackets 33, 34 permits the crossbar to be adjustably positioned with respect to the stuffing machine. The blade 31 is itself adjustable in a direction transverse to the crossbar, and the support block 32 on which it is mounted can be adjusted angularly with respect to the axis of the crossbar and linearly along the length of the crossbar.

In the embodiment of the invention described and illustrated the resilient finger, which may be of metal or plastic, is constructed as a flexible blade having flat upper and lower surfaces. However, it will be appreciated that the finger need not be in the form of a blade but could be simply a flexible needlelike member. Moreover it is found advantageous under certain conditions, such as conditions of high humidity in which thin sheets from the hopper tend to stick together, to provide a roughened upper surface to the finger or blade. This may be achieved by roughening the upper surface of the finger or blade itself, or by affixing a small piece of sandpaper to it. The roughened surface is found to be effective in separating the individual sheets of stock under such conditions.

I claim:

1. In combination in a stuffing machine including a hopper for receiving a stack of inserts and means for engaging and withdrawing the lowermost insert of the stack and depositing same in a carrier, the machine having a frame providing a pair of rigid side support members:

a. a crossbar extending between the side support members, the crossbar providing an axis transverse to the machine;

b. means for releasably securing the ends of the crossbar to the side support members to permit adjustment of the crossbar with respect to the machine;

c. a support block mounted on the crossbar, the support block being adjustable in position along the length of the crossbar and angularly adjustable about the axis thereof;

d. the support block providing an elongated guideway terminating at an edge of the support block and extending in a direction transverse to said crossbar axis;

e. clamping means for securing the support block on the crossbar in a position to which it has been adjusted;

f. a resilient blade supported by the support block, the blade being located in the guideway for longitudinal sliding movement therealong and having a free unsupported portion projecting from the guideway beyond said edge of the block, the free unsupported portion terminating at a free end adapted to engage the lowermost insert of the stack adjacent one edge thereof; and

g. means for adjustably positioning the blade along the guideway to vary the unsupported length of said free projecting portion.