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A. C. GANNON
SHEET HOLDING DEVICE

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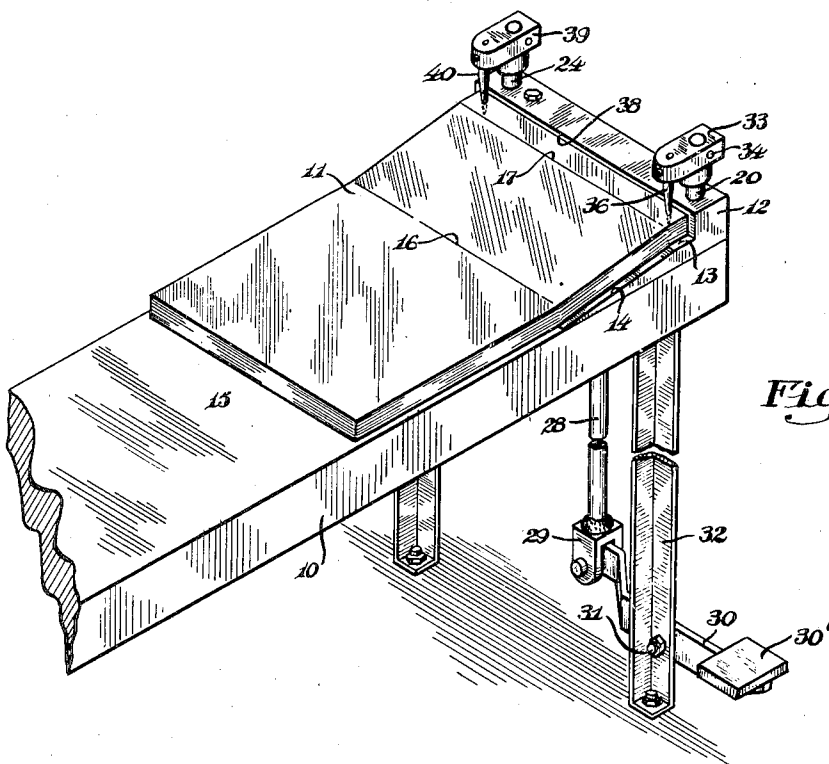


Fig. 1.

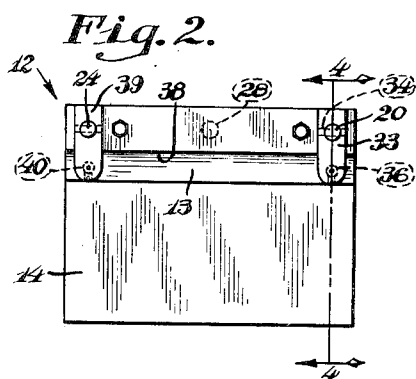


Fig. 2.

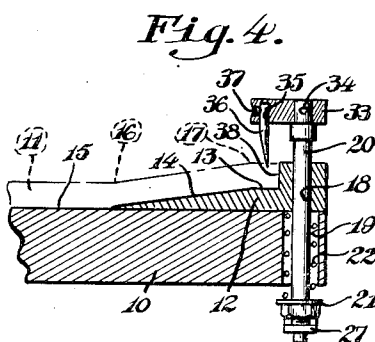


Fig. 4.

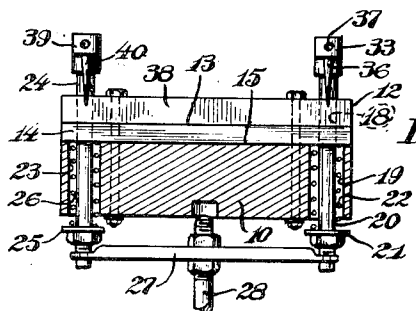


Fig. 3.

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SHEET HOLDING DEVICE

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5 Claims. (Cl. 271-61)

1

2

The present invention relates to a sheet holding device, and is particularly concerned with the provision of means for retaining a stack of paper sheets in such a fashion that a force applied by hand to the top sheet of the stack, substantially in the plane of that sheet, will separate the top sheet from the stack and from the holding device. The primary object of the invention is to provide means which will permit the above suggested manipulation, and which will prevent the entrainment, with the top sheet, of subjacent sheets.

A further object of the invention is to provide foot-operated means for releasing the grip of the holding means upon the stack, in order to permit removal of the stack as a whole, or recharging of the device.

Further objects will appear as the description proceeds.

To the accomplishment of the above and related objects, my invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that change may be made in the specific construction illustrated and described, so long as the scope of the appended claims is not violated.

Fig. 1 is a perspective view of an end of a wrapping table with which my holding device is associated;

Fig. 2 is a plan view of the holding device;

Fig. 3 is a transverse section through the table, providing a front elevation of the holding device; and

Fig. 4 is a longitudinal section, taken substantially on the line 4-4 of Fig. 2 and looking in the direction of the arrows.

While my invention is applicable wherever individual sheets are to be removed from a stack for separate use, I am particularly concerned with the wrapping of sliced bacon; and the invention has been illustrated, and will be described, in connection with a bacon wrapping station.

According to standard practice, bacon is sliced upon an automatic machine which deposits the slices in overlapping parallelism on a traveling support. The bacon is removed from that support in batches of substantially a predetermined number of slices, and each batch is placed on a suitable wrapper sheet. Each batch of bacon slices, on its sheet, then moves, upon a suitable conveyor, to a weighing station where the batch is adjusted to optimum weight, and then at a further station the batch of bacon is wrapped in its supporting sheet. According to standard

practice, the wrapping material may be vegetable parchment, grease proof paper, cellophane, combinations of these; or specially coated papers; but my invention is applicable to all such wrappers and is not limited to use with any particular kind of sheet wrapping material.

The individual sheets of a stack of paper frequently tend to adhere together. It is impossible, without some sort of holding means, to separate one sheet consistently from a stack by force applied substantially in the plane of the sheet. Separation of the sheets is definitely a two-handed job; and it has been found that it is impossible for the batching operator to keep up with the batching, weighing, and wrapping line, if she is required to separate her sheets of paper. Therefore, it is standard practice to provide one operator to separate the sheets and another operator to lift the batches of bacon slices off the receiving tray and place them on the sheets positioned by the first operator.

The device of my invention makes it possible for a single operator to lift batches of bacon slices from the receiving tray, place each batch upon the top of a stack of wrapper sheets, and then, pressing down on the top-most sheet of the stack with one hand and applying force in the plane of the sheet, separate the top sheet only from the stack, with its burden of bacon slices, and push the unit onto the conveyor.

Referring more particularly to the drawings it will be seen that I have illustrated a table adapted to support a stack of wrapper sheets. Mounted at one end of the table is a pillow block formed to provide a high-level surface, and a downwardly inclined surface leading from said high-level surface, to the parallel, low-level surface of the table. This arrangement produces a break or fold in the stack of sheets, substantially at the foot of the surface, and an opposite break or fold in the stack substantially at the top of the inclined surface. While I am not able at present to state a theoretical explanation therefor, I find that the provision of these breaks materially facilitates the desired individual separation of the sheets in operation.

At its head end, the pillow block is formed with a perforation registering with an opening through the table, and said perforation serves as a guideway for a rod reciprocally mounted therein. Said rod carries an adjustable abutment at its lower end for a coiled spring sleeved about said rod, re-

3

ceived in the opening 19, and abutting against the base of the pillow block 12.

A similar guideway is formed in the block 12 adjacent its opposite side and registering with an opening 23 in the table 10, a rod 24 similar to the rod 20 being reciprocally mounted and guided therein. The rod 24 carries an adjustable abutment 25 adjacent its lower end, and a spring 26, sleeved on said rod and received in the opening 23, is confined between said abutment and the bottom of the block 12.

It will be seen that the springs 22 and 26 resiliently urge the rods 20 and 24 downwardly.

A stretcher 27 operatively connects the rods 20 and 24 to move together; and a link 28 is adjustably connected to said stretcher substantially at its mid-point. At its lower end, the link 28 carries a shackle 29 to which is pivotally connected one end of a treadle 30 pivotally mounted at 31 upon one leg 32 of the table 10. Obviously, depression of the pedal 30' will lift the rods 20 and 24 against the tendency of their springs 22 and 26.

At its upper end, and above the pillow block 12, the rod 20 carries a head 33 which reaches forward, beyond the vertical abutment surface 38 provided at that edge of the surface 13 remote from the surface 14. Said head may be secured to the rod 20 by a pin 34, and is formed in its forward end with a downwardly opening socket 35 in which is supported a needle 36, located substantially vertically above the surface 13 and pointing toward said surface. A set screw 37 retains the needle 36 in the socket.

A similar head 39 is similarly mounted upon the rod 24 and similarly carries a needle 40 arranged in the same manner.

In use, the operator charges the device by depressing the pedal 30' to raise the needles 36 and 40, and sliding a stack 11 of sheets into position beneath the needles, with an end of said stack in abutment with the surface 38. Now the treadle is released, and the springs 22 and 26 press the rods 20 and 24 downwardly, whereby the points of the needles 36 and 40 penetrate the uppermost sheets of the stack.

It will now be found that, if pressure is applied, by hand, to the topmost sheet of the stack, and if a force is exerted, in the plane of the sheet, and in a direction away from the abutment surface 38, a topmost sheet of the stack will be torn from engagement with the needles, but will be separated from the next subjacent sheet, which is retained by the penetration of the needles therethrough.

I claim as my invention:

1. In a device of the class described, a platform for supporting a stack of sheets, said platform being provided with a pair of spaced guideways adjacent an end thereof, a pair of rods guided for reciprocation in said guideways, a needle carried by each of said rods above said platform and pointing toward said platform, and a coiled spring sleeved on each of said rods and urging said rods downwardly to press the points of said needles through the topmost sheet of a stack supported on said platform.

2. In a device of the class described, a platform for supporting a stack of sheets, said platform being provided with a pair of spaced guideways adjacent an end thereof, a pair of rods guided for reciprocation in said guideways, a needle

4

carried by each of said rods above said platform and pointing toward said platform, a coiled spring sleeved on each of said rods and urging said rods downwardly to press the points of said needles through the topmost sheet of a stack supported on said platform, a stretcher connecting said rods to move together, a lever pivotally associated with said platform, and means operatively connecting said lever with said stretcher to shift said needles against the bias of said springs in response to actuation of said lever.

3. In a device of the class described, a platform formed to provide a low-level surface, a high-level surface, and an inclined surface joining said high-level surface with said low-level surface, said platform being adapted to support a stack of sheets, means mounted for reciprocation adjacent said platform, and a pair of needles carried by said reciprocatory means vertically above said high-level platform surface, said reciprocatory means biased to move downwardly to force said needles to penetrate the topmost sheet of a stack supported on said platform.

4. In a device of the class described, a platform formed to provide a low-level surface, a high-level surface, and an inclined surface joining said high-level surface with said low-level surface, said platform being adapted to support a stack of sheets, means mounted for reciprocation adjacent said platform, a pair of needles carried by said reciprocatory means vertically above said high-level platform surface, and spring means urging said reciprocatory means to move downwardly to force said needles to penetrate the topmost sheet of a stack supported on said platform.

5. In a device of the class described, a platform formed to provide a low-level surface, a high-level surface, an inclined surface joining said high-level surface with said low-level surface, and an abutment surface substantially perpendicular to said high-level surface and located at that boundary of said high-level surface remote from said low-level surface, means reciprocally mounted on said platform at a point separated from said high-level surface by said abutment surface, a pair of needles, means carried by said reciprocable means and supporting said needles vertically above said high-level surface, said platform being adapted to support a stack of sheets with one edge of said stack abutting with said abutment surface, a portion of said stack supported on said high-level surface, and a portion of said stack supported on said low-level surface, and means biasing said reciprocable means to move downwardly to force said needles to penetrate the topmost sheet of a stack supported on said platform.

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