April 24, 1956 W. E. SEATON 2,742,747

HASSOCK MANUFACTURE

Filed March 13, 1953 3 Sheets-Sheet 1

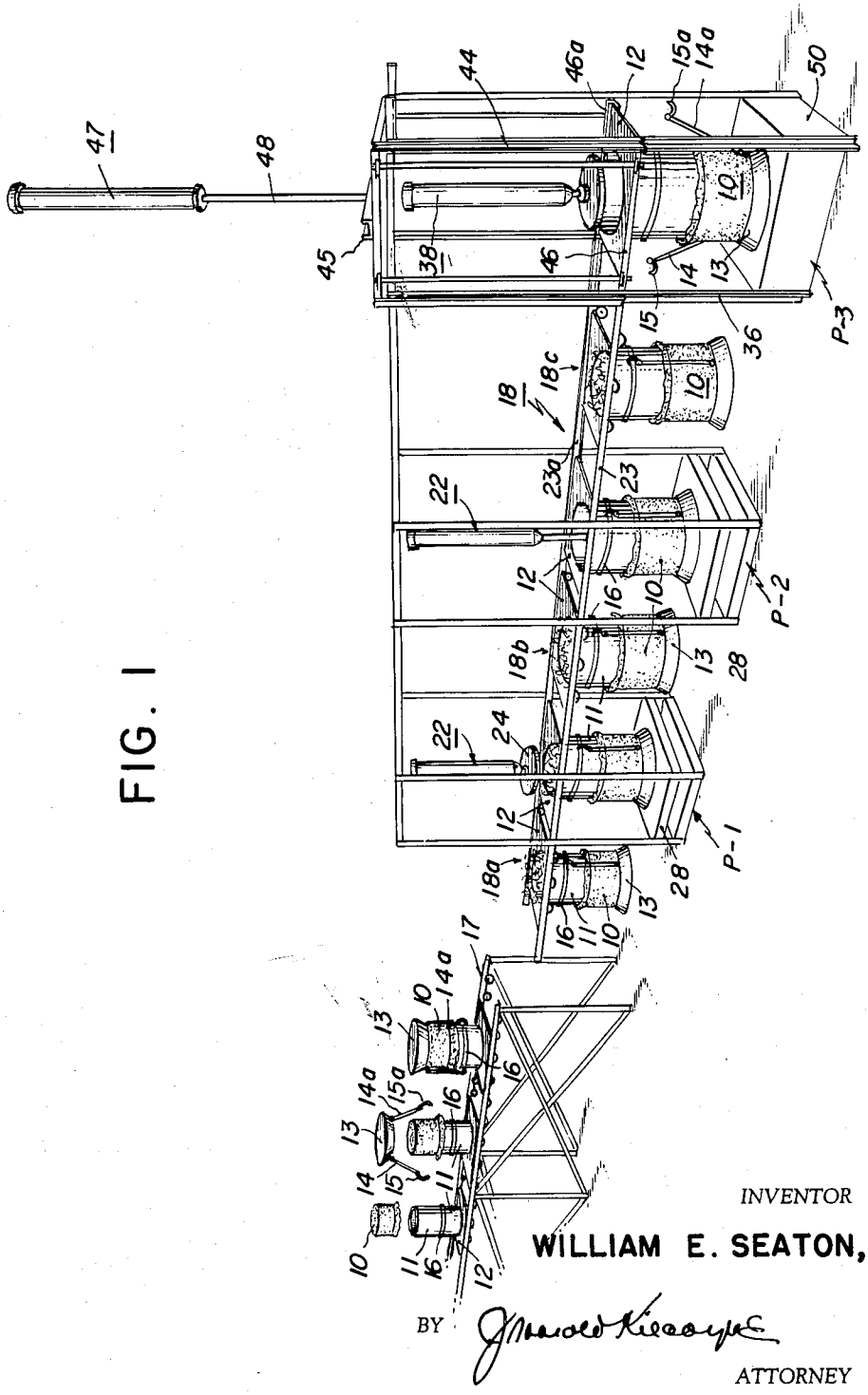


FIG. 1

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April 24, 1956 W. E. SEATON 2,742,747

HASSOCK MANUFACTURE

Filed March 13, 1953 3 Sheets-Sheet 2

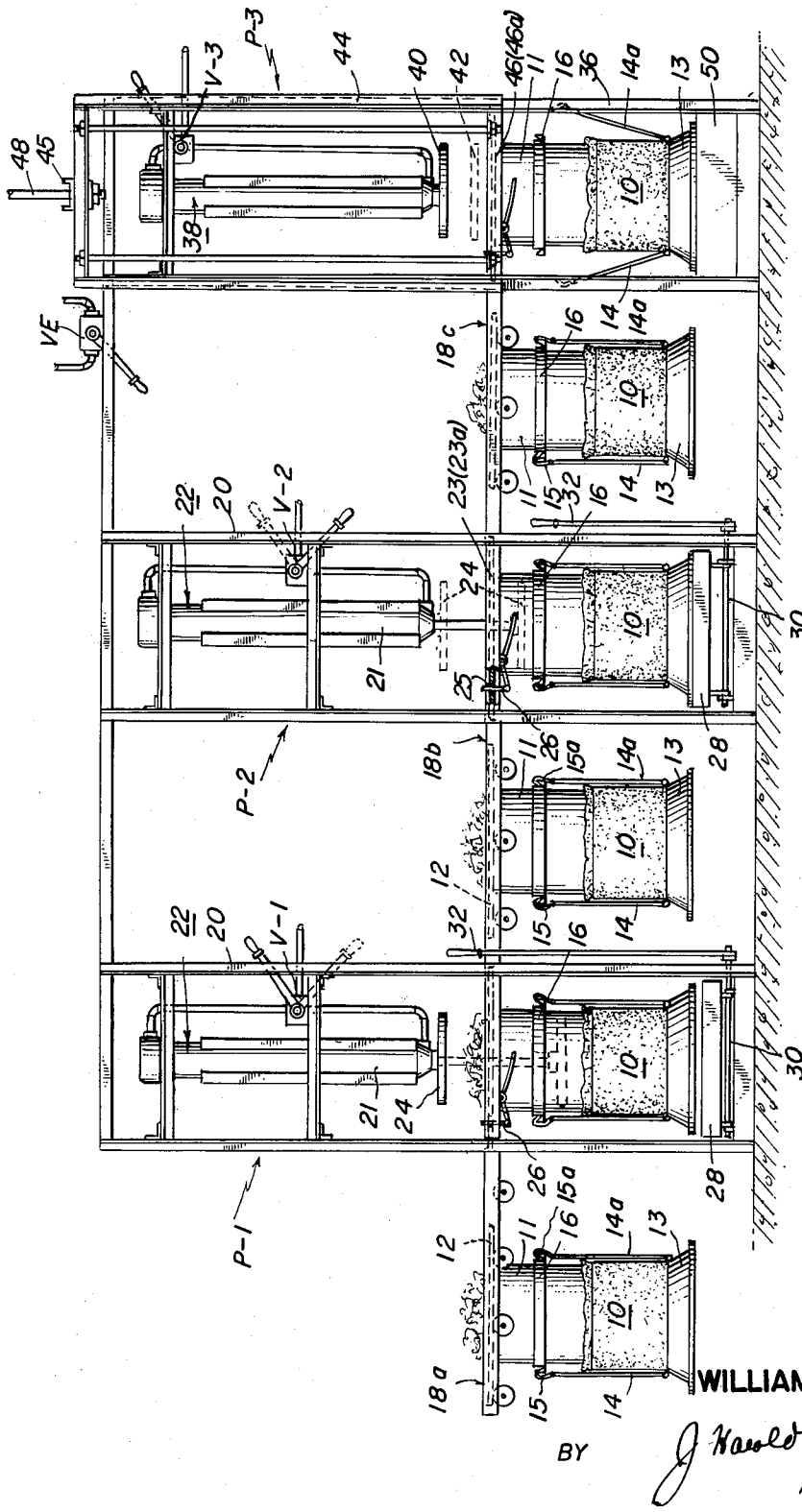


FIG. 2

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HASSOCK MANUFACTURE

Filed March 13, 1953 3 Sheets-Sheet 3

FIG. 3

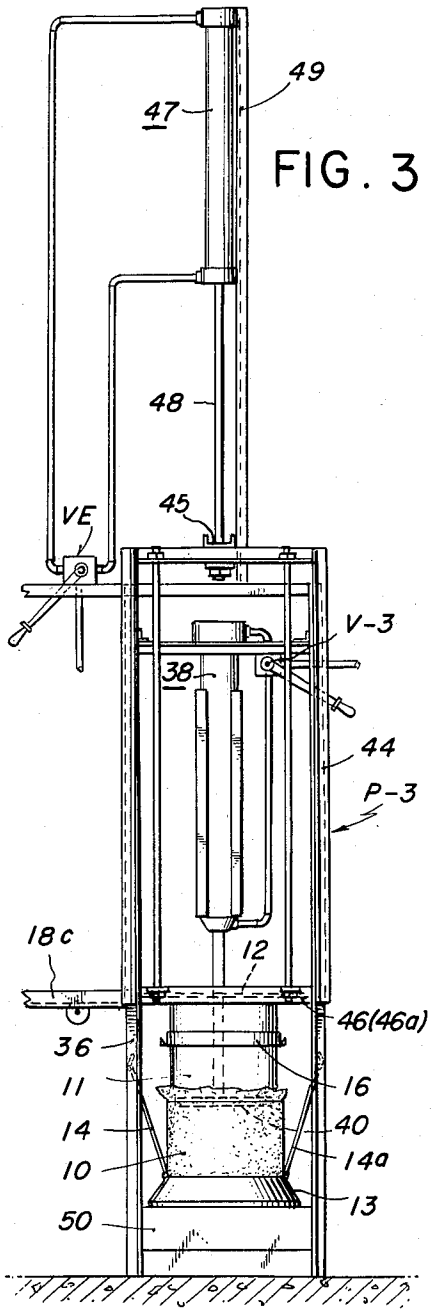
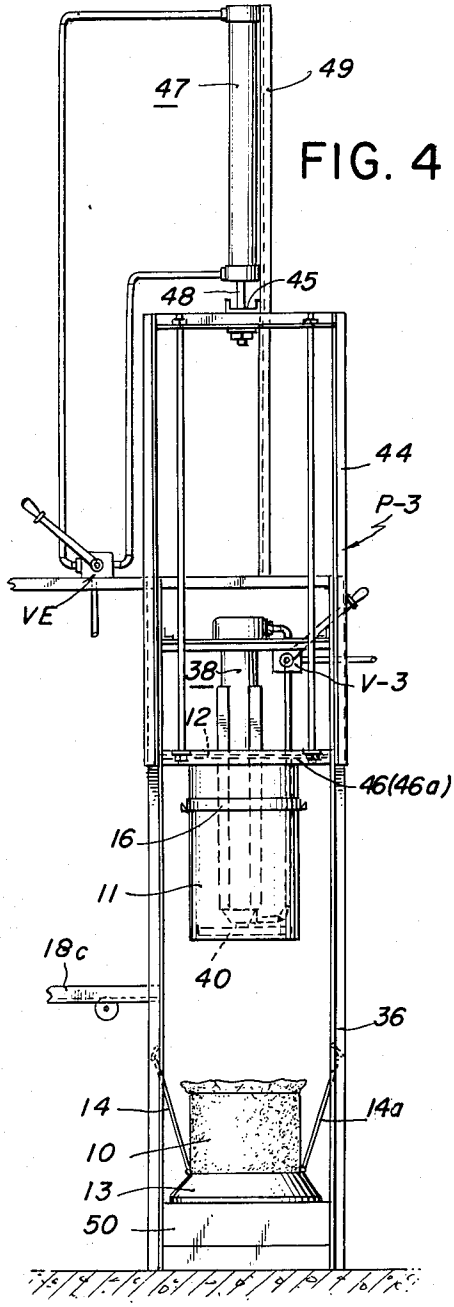


FIG. 4



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2,742,747

HASSOCK MANUFACTURE

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Application March 13, 1953, Serial No. 342,247

9 Claims. (Cl. 53—24)

This invention relates to improvements in hassock manufacture, and more particularly to a method of stuffing hassocks, as the term "stuffing hassocks" is used herein to include the operations of filling the hassock cover with a stuffing material, usually excelsior, compacting the same to the density required in the finished hassock, and applying the bottom to the stuffed hassock cover.

Heretofore, the operation of stuffing hassocks was carried out in a single press having provision for mounting an empty hassock cover supported on a hollow form and for compacting the stuffing material inserted in the form by means of a ram. Since it is not good practice to fill the form with the requisite amount of stuffing material in a single charge and thereupon to effect its compaction with a single stroke of the ram, it was customary to fill the form with an initial charge of the stuffing material, compact the same by a stroke of the ram, repeat such charging and compacting operations until the proper amount of stuffing material of the required density has been supplied to the hassock cover, and, in a final stroke of the ram, to insert the hassock bottom, usually a cardboard disc, in place.

From the above, it will be seen that in terms of "press time" the operation of stuffing a hassock is a relatively time-consuming operation since it requires not only multiple strokes of the press ram, but, also it necessitates time intervals between said strokes to enable the press operator to add the successive charges of the stuffing material following each compacting stroke of the ram. It will also be observed that a substantial fraction of the press operator's time is taken up by the menial filling operations and hence the present method of stuffing hassocks is wasteful of the working time of the skilled press operator. Moreover, the single stuffing press as used heretofore is an expensive and bulky piece of equipment which utilizes plant space out of proportion to its slow rate of production, with the results that high production is attainable only at the substantial cost of a battery of single presses and the extensive plant space required for their installation.

Broadly stated, a principal object of the invention is the provision of an improved method of stuffing hassocks and like articles at a substantially faster rate and at an appreciably lower cost per unit hassock than possible with the prior methods built around the single stuffing press.

A more specific object of the invention is the provision of a "press line" method of stuffing hassocks by which the production rate of one hassock per each press stroke is achieved.

Another object of the invention is the provision of a press-line method of stuffing hassocks providing for the multi-stage filling and compaction of a hassock cover as it moves along a line of presses, which not only speeds up the rate of production of hassocks as compared to that attainable through the use of the single stuffing press as heretofore employed for this purpose, but also, in terms of equality of production with a battery of the prior single stuffing presses, effects a substantial reduction in the cost of production per unit hassock.

Yet another object of the invention is the provision of a method of stuffing hassocks involving the use of multiple presses arranged in horizontally spaced relation and being each preceded by conveyor sections which define a linear path of movement for the hassock cover, according to which the stuffing material is applied to the cover in advance of the same moving to the presses, "press time" is utilized exclusively in the compacting operation, and the compacting operation is effectively achieved at the uniform rate of one hassock per single press stroke.

The above and other objects and advantages of the invention will be explained from the following detailed description of the present new method of stuffing hassocks, taken with the accompanying drawings illustrating typical apparatus by which the method may be carried out in practice, wherein:

Fig. 1 is a perspective view diagrammatically illustrating the so-called "press line" method of stuffing hassocks according to the present invention;

Fig. 2 is an enlarged side elevation illustrating a typical assembly of presses and conveyor means by which the aforesaid method may be put into practice; and

Figs. 3 and 4 are front elevations of the third stage or finishing press of the press line illustrated in Fig. 2, Fig. 3 showing the elevator lowered and final compaction in progress, and Fig. 4 showing the elevator raised and the form stripped from the stuffed and bottomed hassock cover.

Referring to Fig. 1, which is illustrative of the so-called press line method of stuffing hassocks according to the invention, reference numeral **10** designates the hassock cover to be stuffed. Illustratively, such has circular section characterizing the cylindrical hassock, but it may have other section such as square, rectangular, oval, etc., depending upon the style and shape of the hassock being produced. As is well known, a hassock cover ready for stuffing has a top attached to the hollow body thereof, the bottom being left open to receive the stuffing and the hassock bottom, the latter usually having the form of a cardboard disc which is inserted following compaction of the stuffing.

In a preliminary operation, the hassock cover **10** is slipped over one end of an open-ended hassock form **11** into which the stuffing material is to be inserted, the form functioning as usual to take the high radial forces occurring during compaction of the stuffing. Illustratively, the form has greater axial length than the hassock cover **10**, and attached to the end thereof opposite that which is closed by the hassock top is a supporting or carrying plate **12** of lightweight material, such as aluminum. The supporting plate **12** is shown to be square and it functions to support the form **11** with hassock cover **10** applied thereto during its travel through the conveyors and presses comprising the press line to be described.

Since the end of the form **11** to which the hassock cover is applied is open except for the hassock top spanning the same, it is necessary to provide a temporary end for the form both to protect the top against marring and to enable it to withstand the axial compacting pressure applied to the stuffing material with which the form is filled. Such a temporary end is designated **13** and it functions to cover and back up the hassock top when attached to the form. As more clearly seen in Figs. 2–4, the temporary end **13** is detachably secured to the form **11** as by a pair of straps **14**, **14***a* pivotally or hingedly connected to the end **13** and carrying detachable clamps **15**, **15***a* at their free ends adapted to be detachably secured to a clamp band **16** encircling and affixed to the external surface of the form **11**.

As diagrammatically illustrated in Fig. 1, the aforesaid preliminary operations may be carried out on a

raised platform 17 disposed in advance of the press line proper, and preferably such platform is provided by a length of a roller conveyor, enabling forms 11 resting thereon to be readily advanced toward the press line as needed.

According to the invention, the so mounted and reinforced hassock cover is now inverted (resulting in the supporting plate 12 of the form and the open bottom end of the latter being upwardly disposed) and is caused to move in a horizontal linear path through a press line during the course of which the stuffing material, usually excelsior, is progressively applied thereto and compacted, the hassock bottom is applied, and, finally, the cover stripped from the finished hassock. Such linear path, which is shown to be straight but which may be curved or circular, is defined by a length of conveyor generally designated 18, in which a plurality of compacting presses are interposed. Illustratively, three compacting presses P–1, P–2, and P–3 are employed and the conveyor line 18 is so related thereto as to provide a conveyor section 18*a* in advance of press P–1, a conveyor section 18*b* connecting presses P–1, P–2, and a conveyor section 18*c* connecting presses P–2, P–3. The aforesaid conveyor sections are each of length at least sufficient to enable a person standing abreast thereof to fill the form 11 with stuffing material through the open end thereof.

With the above brief description of a press line as herein contemplated, a hassock cover supported through its form on section 18*a* of the conveyor line may be filled with stuffing material by an operator standing abreast of said section and moved into press P–1. The operator thereof immediately sets the same into operation, resulting in a single down and return stroke of the press ram, the single down stroke effecting the requisite compaction of the first charge of stuffing material. The form and now partially stuffed hassock cover is advanced onto conveyor section 18*b* where an operator standing abreast thereof fills the form with a second charge of stuffing material. The form is then advanced to press P–2, which is immediately placed into operation, resulting in compaction of the added stuffing material being provided by a single stroke of its ram. The form is thereupon moved on to conveyor section 18*c*, where an operator standing abreast of same may add a third or final charge of stuffing material if such is required, although usually the two charges of stuffing material applied on conveyor sections 18*a*, 18*b* suffice to fill the cover with the requisite quantity of the stuffing material.

From conveyor section 18*c*, the form is advanced to press P–3 which, as will be more fully described in connection with Figs. 2–4, functions not only to compact any final charge of the stuffing material added on conveyor section 18*c*, but also to insert the hassock bottom into the stuffed hassock body, and, finally, to strip the form from the finished hassock body.

From the above, it will be appreciated that the rate of hassock production according to the present method is governed by the relatively short time that the third-stage finishing press P–3 is in operation, and that this time is but a fraction of the time required for the operation of the prior single stuffing press, principally because of the fact that the filling and compacting operations are completed or substantially completed when the hassock cover arrives at said finishing press. Thus, the present method gives the highly desirable result of speeding up to a substantial degree the production rate of hassocks. Moreover, since the filling and the first and second compacting operations may be simply performed, no skilled operators are required for their attainment. While a skilled operator is required at the finishing press P–3, his time may be devoted exclusively to press operation as distinguished from the more time-consuming and menial operations of filling the form with stuffing material and of preliminary compaction.

Referring now to Figs. 2 and 3 illustrating in some detail one typical apparatus for carrying out the method of stuffing hassocks described in the foregoing, the conveyor sections 18*a*, 18*b*, 18*c* are shown to comprise simple roller conveyors which support the form end plates 12 on rollers. Said sections are arranged at a convenient height as to suspend the forms above the floor level, and hence they may be readily propelled along the press line. To facilitate form travel, the sections may be arranged at a slight incline so as to function as gravity conveyors. It is also within the scope of the invention to power the forms along the press line, in which case the conveyor sections 18*a*, 18*b*, 18*c* would be of the powered type.

Presses P–1 and P–2 are preferably of identical construction and illustratively each comprises a rectangular open frame 20 made up of simple angle irons, the frame fixedly supporting the cylinder 21 of a conventional double-acting hydraulic ram 22 in vertical position above the path of the form supporting plates 12. The ram cylinders may be supplied with hydraulic fluid at the requisite pressure from a single source of hydraulic fluid supplying all three cylinders of the presses P–1, P–2, P–3, or from a pump individual to each cylinder. The presses P–1, P–2 are individually controlled as by control valves V–1 and V–2 located within easy reach of the press operators, whereby each of the presses P–1 and P–2 may be operated in accordance with the rate at which the hassock forms are supplied thereto.

Each press frame 20 includes as a fixed part thereof front and rear L-angle rails 23—23*a* (Fig. 1) which are arranged in facing relation to one another and at the same level as the side rails of the adjacent conveyor sections. Said angles 23, 23*a* thus provide a cradle-like support for the form plates 12 while the forms are positioned in the press. Means are also provided to center the forms in the press so that the form opening is axially aligned with the ram plunger 24. For this purpose, each form supporting plate may be provided along its front edge with a hole 25 adapted to receive a locking pin or equivalent detent means 26 carried by the front plate supporting rail 23. Thus, when the hole 25 registers with locking pin 26, the latter is projected through the holes, and the operator is assured that the form is properly positioned in axial alignment with the press ram.

Since the axial force which each ram plunger 24 exerts on the form and its temporary end 13 is substantial, it is desirable to provide means to withstand this force, thus to safeguard against the form, form end, and/or top of the hassock cover mounted on the form being damaged. For this purpose, each of the press rams P–1, P–2 is provided with a raisable platform 28 having a normal position at which its upper surface is some distance below the outer (under) face of the form end 13, thus to provide adequate clearance for movement of the form into and through the press. However, said platform 28 is supported on toggle mechanism generally designated 30 which, when extended, acts to raise the platform against the temporary form end 13. Extension of the toggle mechanism and corresponding raising movement of the platform are effected by means of a hand lever 32 preferably disposed to one side of the press frame and operating forwardly of the path of the following conveyor section. By this arrangement, the platform 28 may be raised by swinging the hand lever 32 in one direction (forwardly) and lowered by handle movement in the opposite direction.

From the above, it will be seen that operation of each of the presses P–1 and P–2 requires merely centering the form on the press, actuation of the handle 32 to effect raising of the platform 28, and actuation of the control valve V–1 (or V–2) as required to cause the plunger 24 of ram 22 to complete its single down and return stroke cycle of movement, resulting in a one-stroke compaction of the stuffing material previously supplied to the form locked in the press. Thereupon, the form may be un-

locked from and moved out of the press and advanced to the following press by suitably propelling it along conveyor sections 18*b* or 18*c*.

As forecast above, the third stage or finishing press P–3 performs two main functions, namely, that of pressing the hassock bottom in place within the hassock cover, and that of stripping or separating the hassock form from the fully stuffed hassock with bottom in place. It will be noted that any final charge of stuffing material added during the course of movement of the form along conveyor section 18*c* is compacted simultaneously with the placing of the hassock bottom, since the bottom in effect acts to drive the added stuffing material before it. That is to say, the same stroke which effects placing of the bottom also compacts any stuffing material added as the form moves between presses P–2 and P–3.

In order to fulfill its first function aforesaid, press P–3 comprises a rectangular open frame 36 corresponding generally to the frame 20 of presses P–1 and P–2 and which mounts a ram 38 beneath whose plunger 40 the hassock bottom 42 (which it will be understood for the cylindrical hassock may comprise a circular cardboard disc) is placed. When hydraulic fluid is supplied to the cylinder of ram 38, as by operation of a suitable control valve V–3 (similar to valves V–1, V–2), the single down stroke of the ram operates to insert the hassock bottom 42 in place, and also to compact any final charge of stuffing material added between presses P–2, P–3 during movement of the form.

Press P–3 also includes an elevator frame 44 telescoped for vertical travel on to the main press frame 36, the elevator frame including means such as front and rear L-angle rails 46, 46*a* disposed in facing relation and which together serve as a cradle for the form supporting plate 12 when the elevator frame is in its normal lowered position and upon a form being moved into working position within the main press frame.

Illustratively, the elevator frame 44 is raised and lowered by means of an elevating ram 47 whose plunger 48 is secured to an upper cross member 45 of said frame, the ram cylinder being supported from a suitable fixed superstructure 49 extending above the fixed press frame 36. Operation of the elevating ram 47 is under the control of a valve VE positioned within easy reach of the press operator. Normally, the elevator frame 44 assumes a lowered position in which the front and rear rails 46, 46*a* of the elevator frame are at the same level as the side rails of the conveyor section 18*c*. However, upon operation of elevator control valve VE, elevating ram 47 effects raising of the elevator frame 44 and of the form 11, 12 cradled therein. Assuming the form to be disconnected from the stuffed hassock body and the latter held down by the plunger 40 of ram 38, raising movement of the elevator frame results in separating or stripping of the form 11 from the filled hassock.

To effect such separation of the form from the stuffed hassock cover, it is of course necessary to first disengage the strap clamps 15, 15*a* from the clamp band 16 of the hassock form, thus to release the temporary end 13 from said form. Preferably, such separation is effected immediately upon the form moving into operative position within the finishing or third-stage press P–3, it being understood that the latter is also provided with locking pin or detent means engaging in the hole 24 of the form supporting plate 12, although it will be understood that for press P–3 said detent means is carried by the front rail 46 of the elevator frame on which the form is supported in said press. It is also preferable to provide the third stage press P–3 with a fixed level platform 50 whose upper surface is arranged at a level corresponding to that of the temporary end 13 of the form upon the latter being positioned in the press.

Summarizing the operation of the third stage press P–3, a form and its filled and compacted hassock cover advancing from the last conveyor section 18*c* is moved into the press and locked in proper position therein. The plunger of the main press ram 38 being raised, adequate space is provided for laying the hassock bottom disc 40 in proper position on the finally compacted stuffing contained within the form or on the stuffing added on conveyor section 18*c*. The form and stuffed hassock being now supported on the fixed level platform 50, the form is uncoupled from the hassock by disengaging the clamps 15, 15*a* from the clamp band 16. Operation of press control valve V–3 effects lowering of the ram plunger and consequent forcing of the bottom disc 40 into the form opening to a level somewhat below that of the upwardly disposed bottom edge of the hassock cover. With the ram held down, elevator control valve VE is now operated, resulting in elevation of the elevator frame 44 and a corresponding lifting of the form from the stuffed hassock cover, i. e. a stripping of the form from the hassock. The plunger of ram 38 is thereupon raised by suitable operation of the valve V–3 and, in a final operation, the hassock bottom disc 40 is secured as by stapling to the bottom welt of the hassock cover, as required to hold the bottom disc in place until the final gluing operation.

Without further analysis, it will be seen that by the practice of a so-called press line method of stuffing hassocks as described in the foregoing, the "press time" required per unit hassock is but a fraction of the time required by the prior methods utilizing a single stuffing press. Thus, as compared to the prior methods requiring multiple strokes of the ram and time intervals between strokes for filling the form with successive charges of the stuffing material, the present method achieves production at a rate of a single operation of press P-3 and hence at a rate not substantially exceeding the relatively short time required for its ram plunger to complete a single cycle of operation. While the present method requires plural presses rather than a single press as heretofore, it will be observed that the presses employed according to the present invention may be of simple and inexpensive construction and represent "light equipment" as contrasted with a heavy-type equipment involved in the manufacture of the prior single stuffing press. Another advantage of the present invention is that its practice requires a skilled operator only at the final or third-stage press since filling of the hassock form may be performed by unskilled labor and the first and second-stage presses are so simple that their operation requires no special skill. As to the requirement of a skilled operator at the third-stage press only, it will be observed that the substantial reduction in "press time" achieved according to the invention enables such operator to produce at an exceptionally fast rate, since he is not required to perform the relatively menial preliminary operations of filling and compacting.

While the invention has been illustrated and described as applying specifically to the stuffing of hassocks, it may be applied also to the stuffing of cushions generally. Hence, the terms "stuffing hassocks," "hassocks" and "hassock covers" as employed in the appended claims are to be interpreted accordingly.

As many changes could be made in carrying out the above method without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. The method of stuffing hassocks and the like, which includes the steps of causing a hassock cover positioned to receive stuffing material to move in a substantially linear path, and successively filling the cover with stuffing material and compacting the same within the cover following each filling operation, as said cover moves along said path.

2. The method of stuffing hassocks and the like, which includes the steps of causing a hassock cover positioned

to receive stuffing material to move in a substantially linear path, filling the hassock cover with a first charge of stuffing material adjacent the beginning of its movement, compacting the charge within the cover at a following portion of its path of movement, and repeating the filling and compacting operations during the remainder of its path of movement as required to stuff the hassock cover.

3. The method of stuffing hassocks and the like, which includes the steps of causing a hassock cover positioned to receive stuffing material to move in a substantially linear path, filling the hassock with a first charge of stuffing material near the beginning of its path of movement, compacting said charge at a following portion of its path of movement and with a single application of a compacting force thereto, and repeating said filling and compacting operations as said cover proceeds throughout its path of movement as required to stuff the hassock cover.

4. The method of stuffing hassocks and the like, which includes the steps of causing a hassock cover positioned to receive stuffing material to move in a substantially linear path, filling the hassock cover with an initial charge of stuffing material near the beginning of its path of movement, applying a single compacting force to said charge, repeating said filling and compacting operations as required to stuff the hassock, and applying a bottom to the stuffed hassock cover upon the stuffed hassock reaching the final portion of its path of movement.

5. The method of stuffing hassocks and the like comprising the steps of supporting a hassock cover having its bottom end open in inverted position and against internal compacting forces applied radially and against its top, causing the so-supported cover to move in a linear path, filling said cover with successive charges of stuffing material and progressively compacting said charges as the hassock cover moves along its path of movement, and placing a bottom closure in the stuffed hassock cover during the final portion of its movement.

6. The method of stuffing hassocks and the like comprising the steps of supporting a hassock cover having its bottom end open in inverted position and against internal compacting forces applied radially and against its top, causing the so-supported cover to move in a linear path, filling the hassock cover with successive charges of stuffing material as it moves along said path, and compacting

said stuffing material between the filling operations by the single application of a compacting force thereto.

7. The method of stuffing hassocks and the like comprising the steps of supporting a hassock cover having its bottom end open in inverted position and against internal compacting forces applied radially and against its top, causing the so-supported cover to move in a linear path, filling the hassock cover with successive charges of stuffing material as it moves along said path, compacting said stuffing material between the filling operations by the single application of a compacting force thereto, and inserting a bottom through the open end of the stuffed hassock cover upon the latter reaching the end of its path of travel, whereby the rate of stuffed hassock production is controlled by the time required to apply said bottom.

8. A "press line" method of stuffing hassocks and the like, which comprises the steps of mounting a hassock cover in inverted position on an open-ended form, causing said form to move along a linear path through a line of presses, filling the form with a charge of stuffing material in advance of at least the first presses of said line, compacting said stuffing material by a one-time application of a compacting force in said first presses, and inserting the hassock bottom into the stuffed hassock cover and stripping the form therefrom by a one-time operation of the final press.

9. A multi-stage method of filling and compacting hassocks and the like comprising causing a hassock cover to move along a linear path, filling and compacting the hassock cover in successive stages while said cover is actuated along said path, and in a final stage inserting a bottom into the filled and compacted cover, whereby the rate of producing the hassocks is determined solely by the time required to complete the final stage.

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