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2,629,520

METHOD AND MEANS FOR FOLDING SHIRTS

Filed Sept. 26, 1950

2 SHEETS—SHEET 1

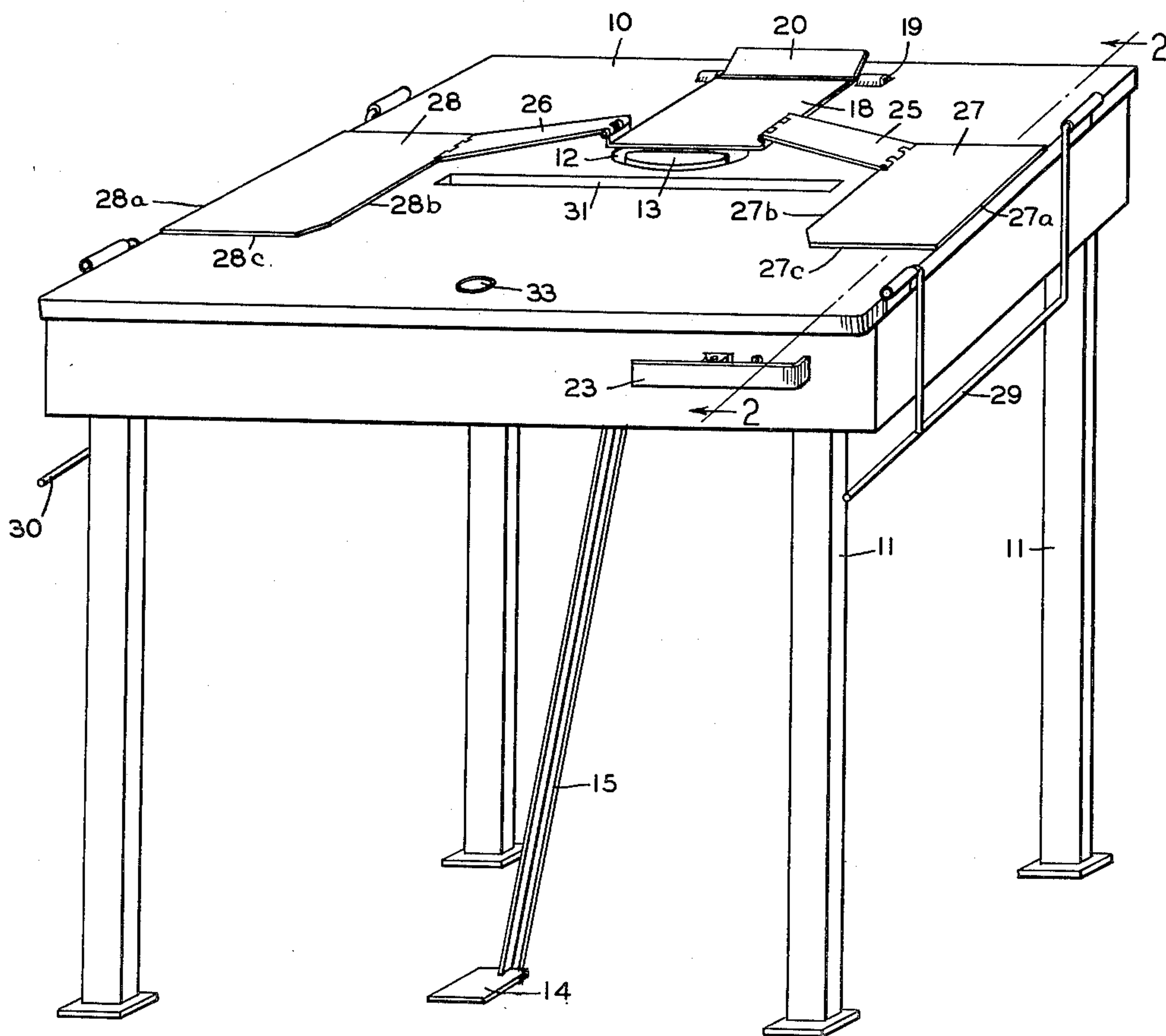


FIG. 1

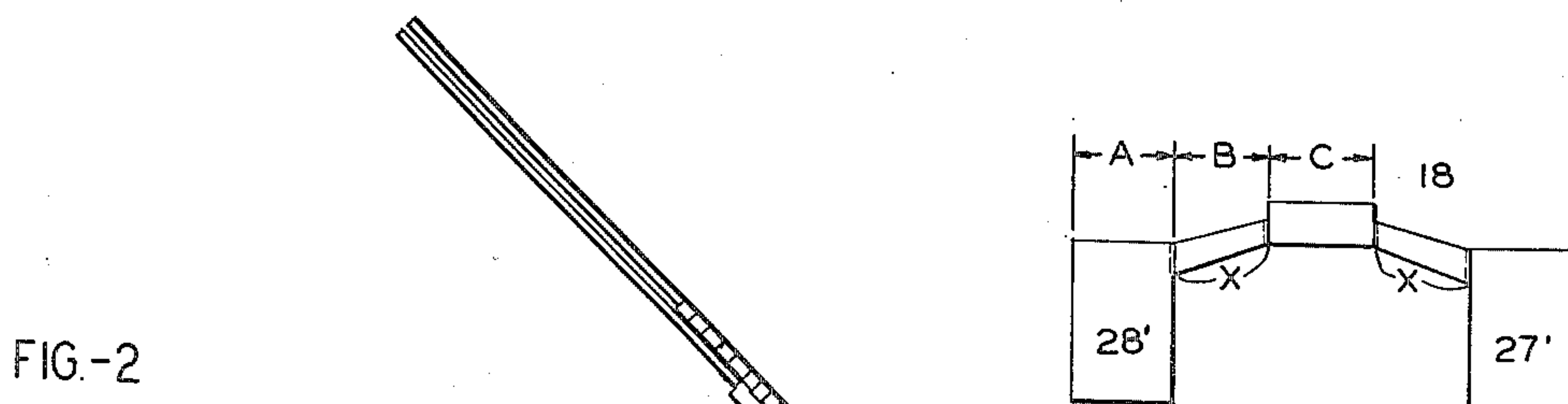


FIG. 2

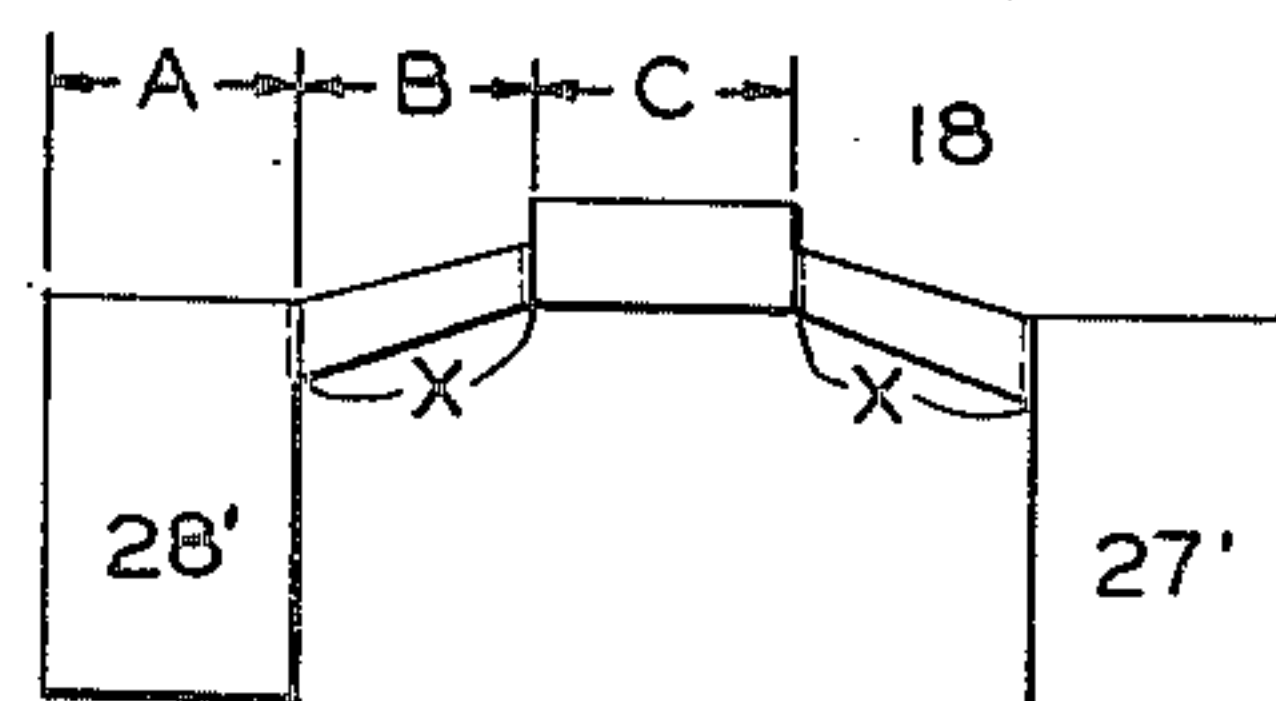
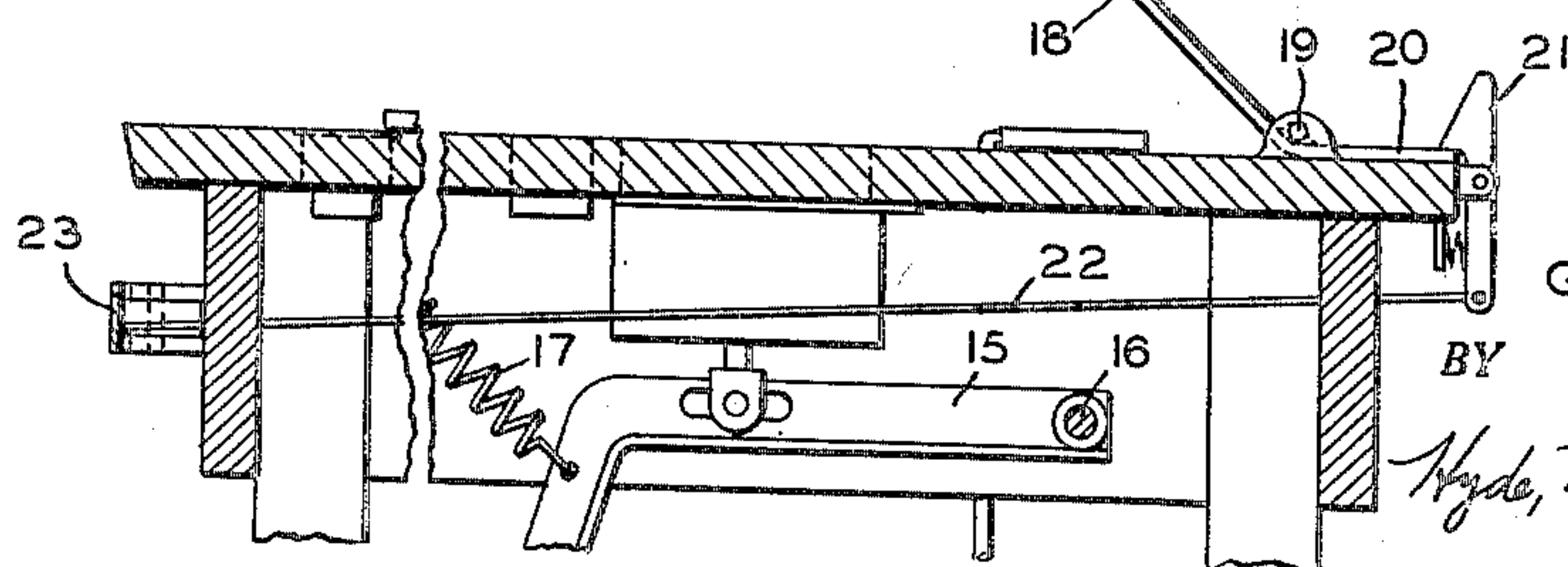


FIG. 3



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2 SHEETS—SHEET 2

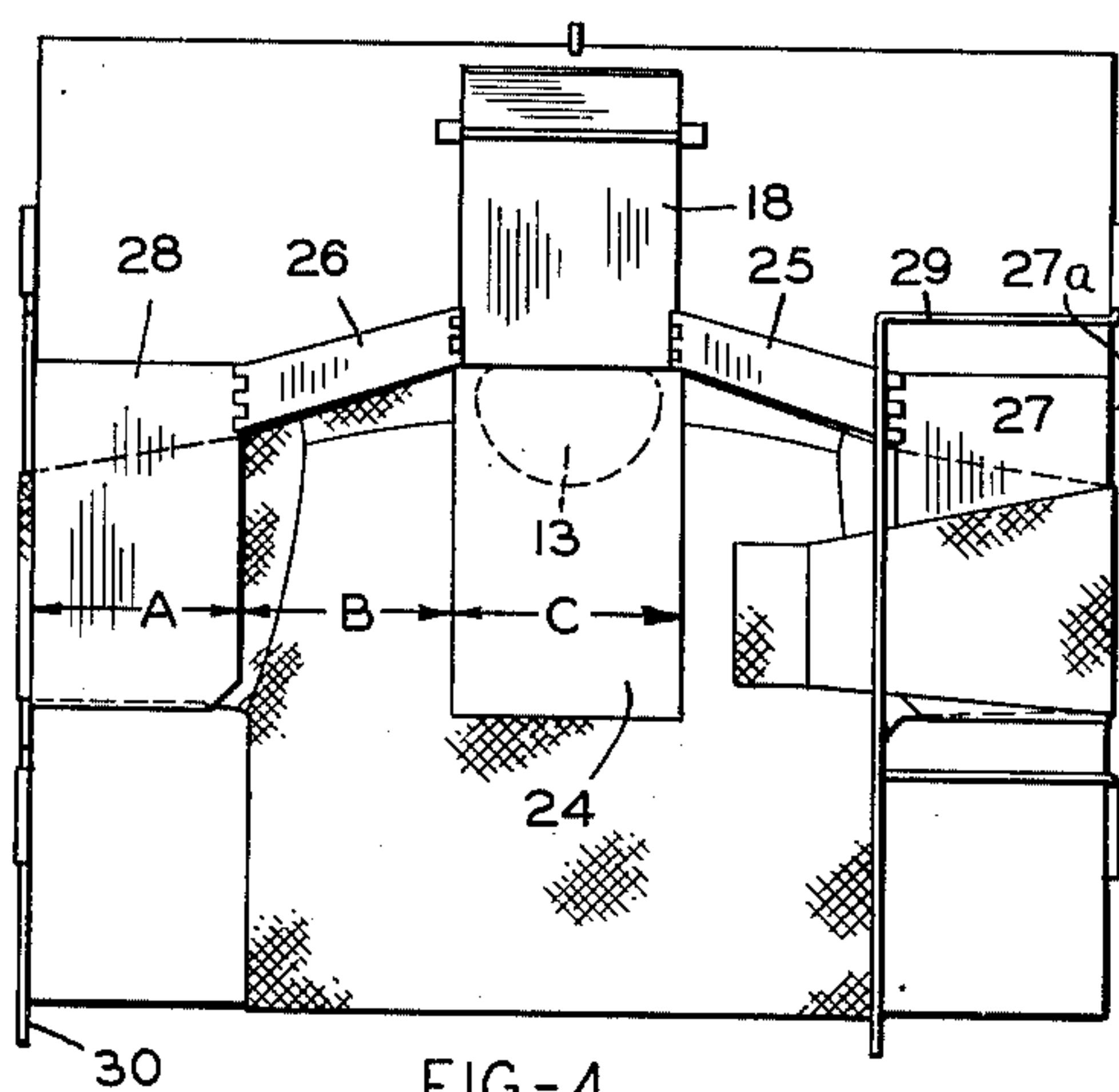


FIG.-4

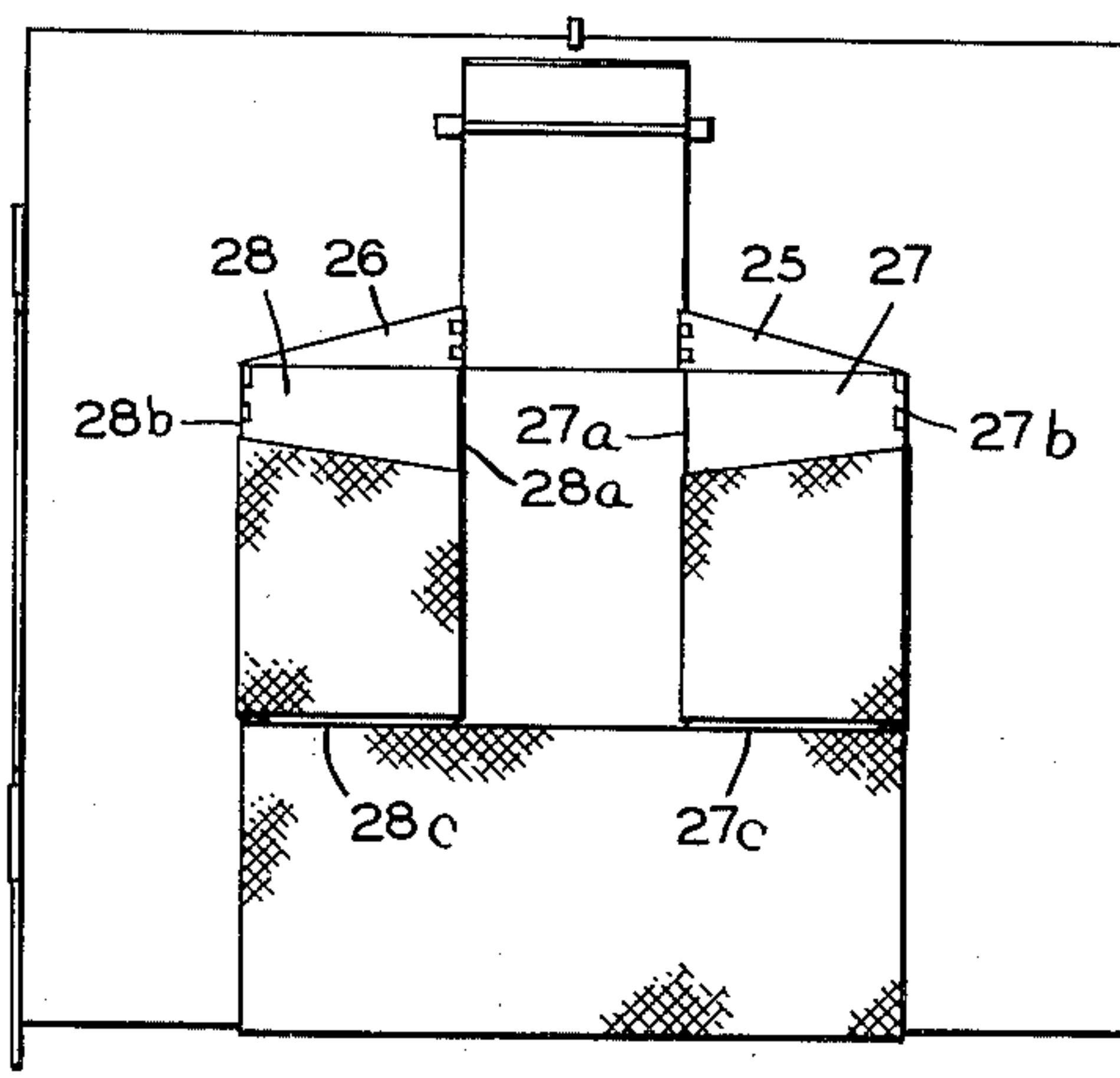


FIG.-5

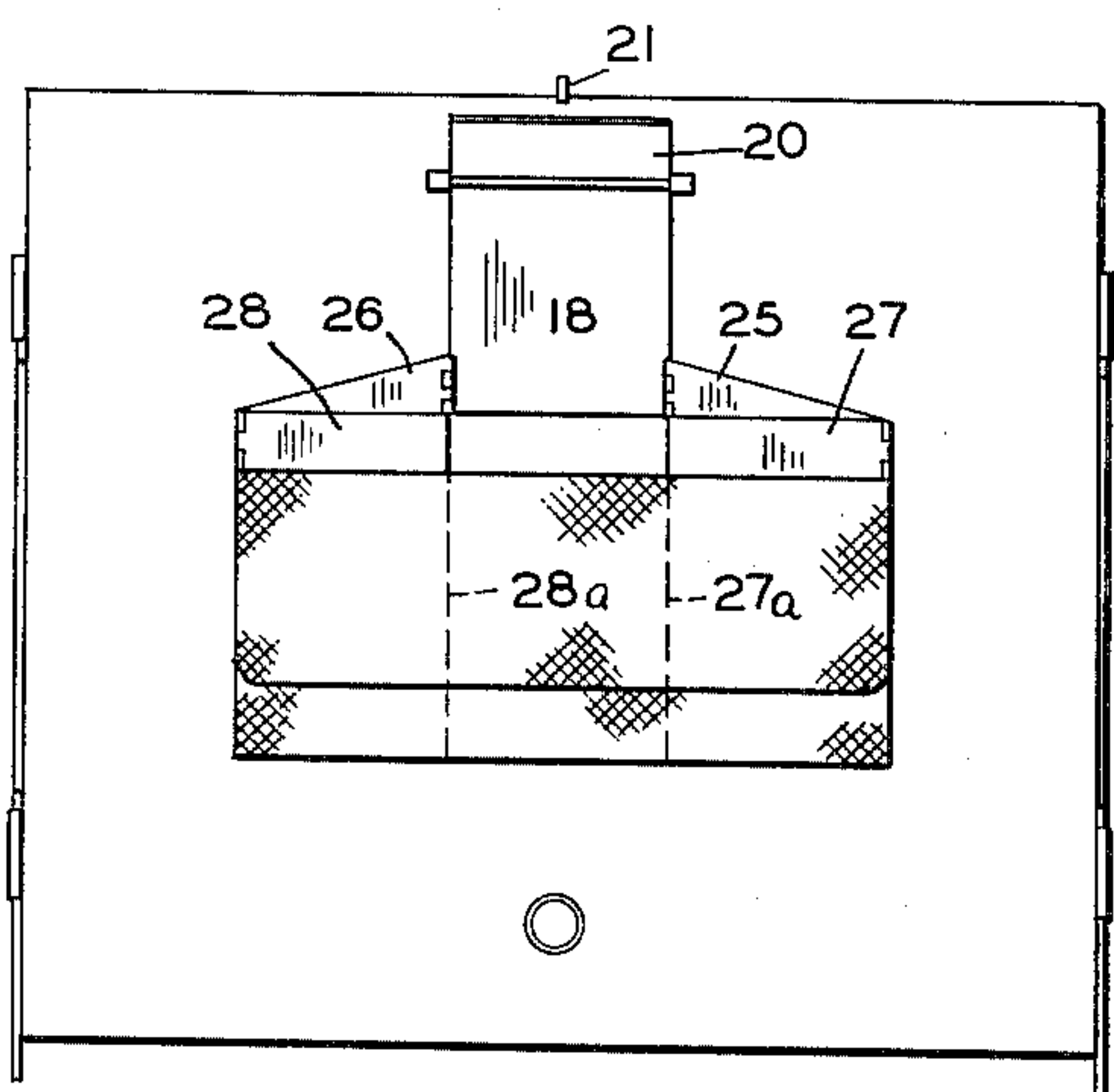


FIG.-6

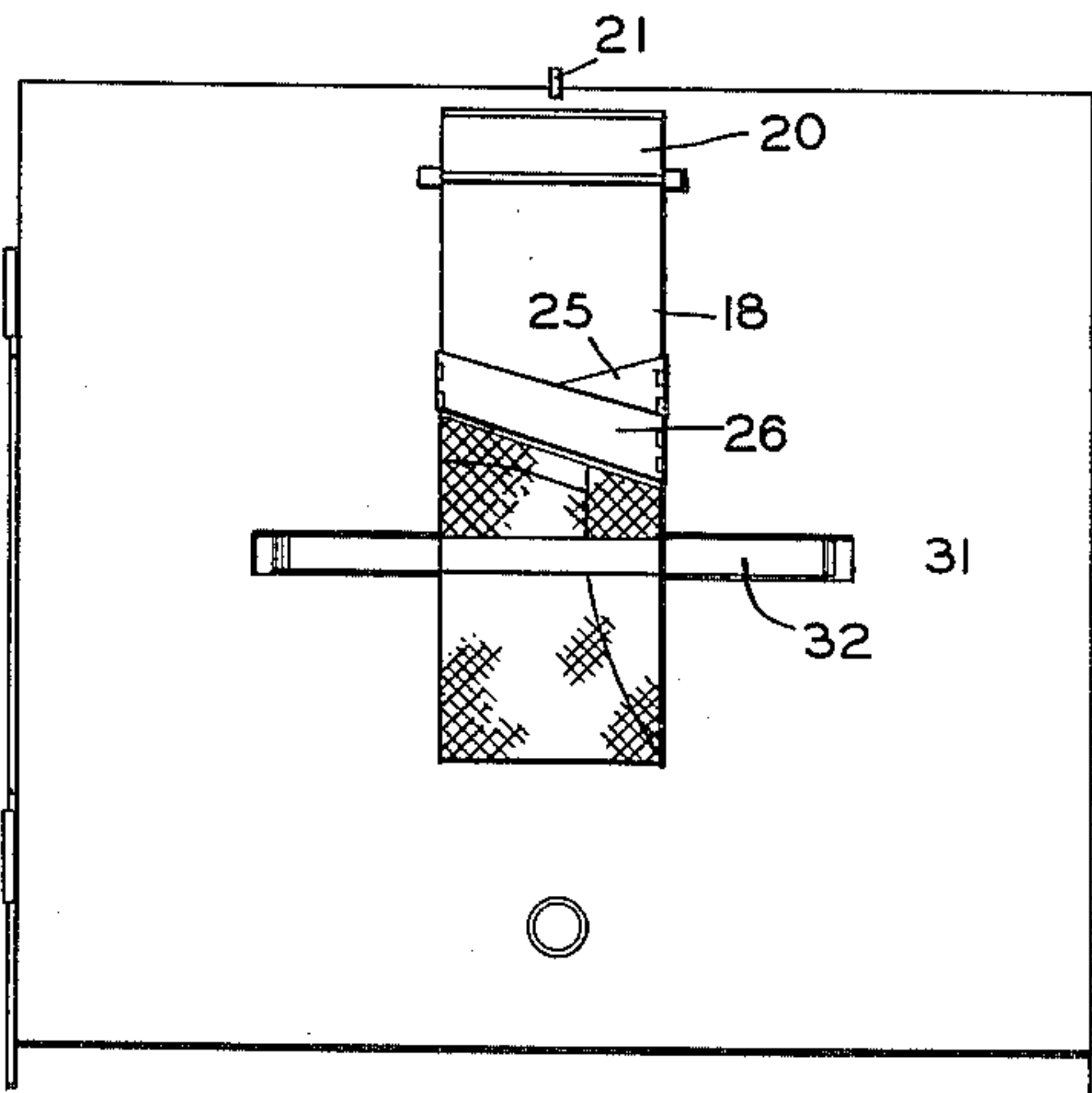


FIG.-7

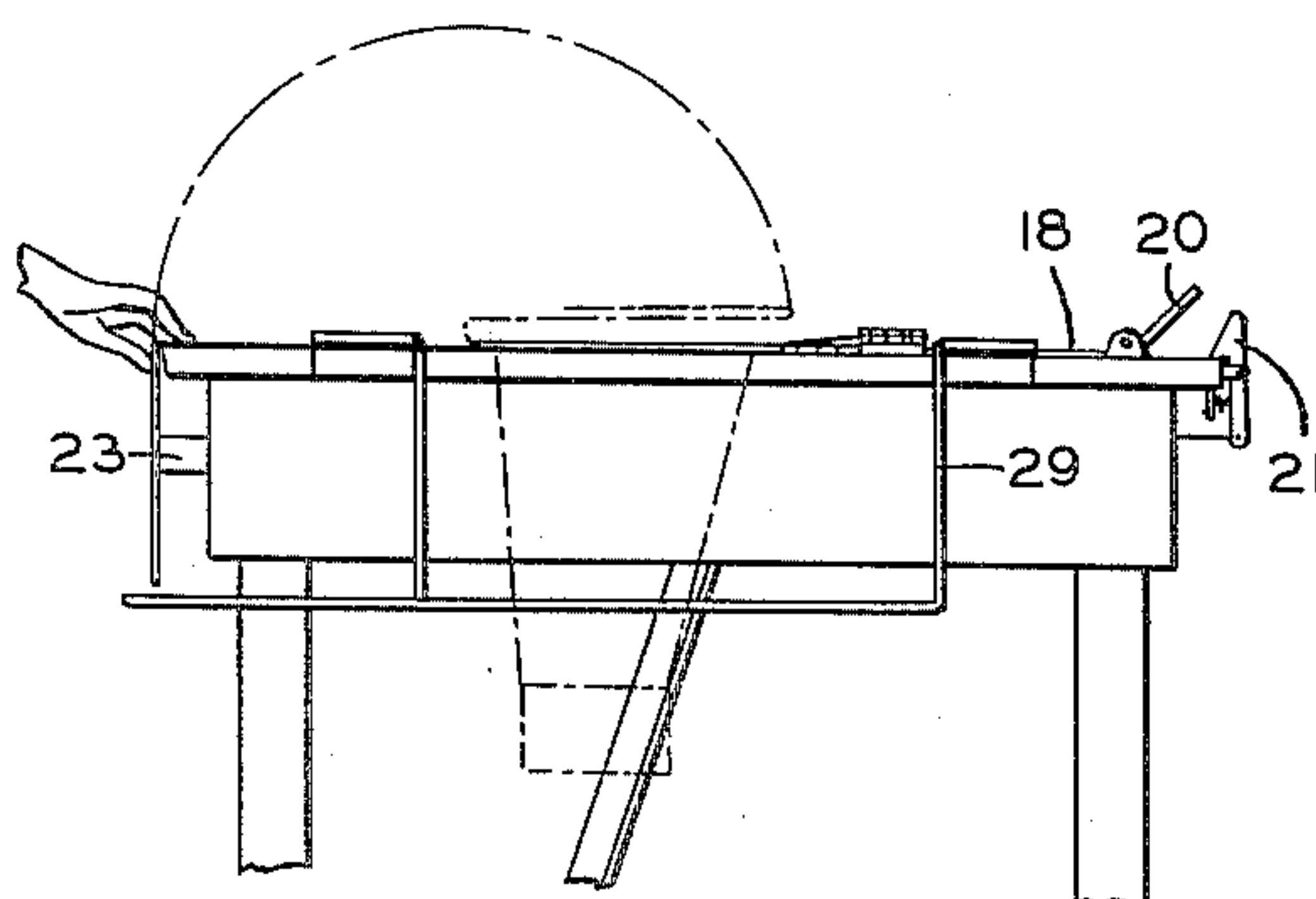


FIG.-8

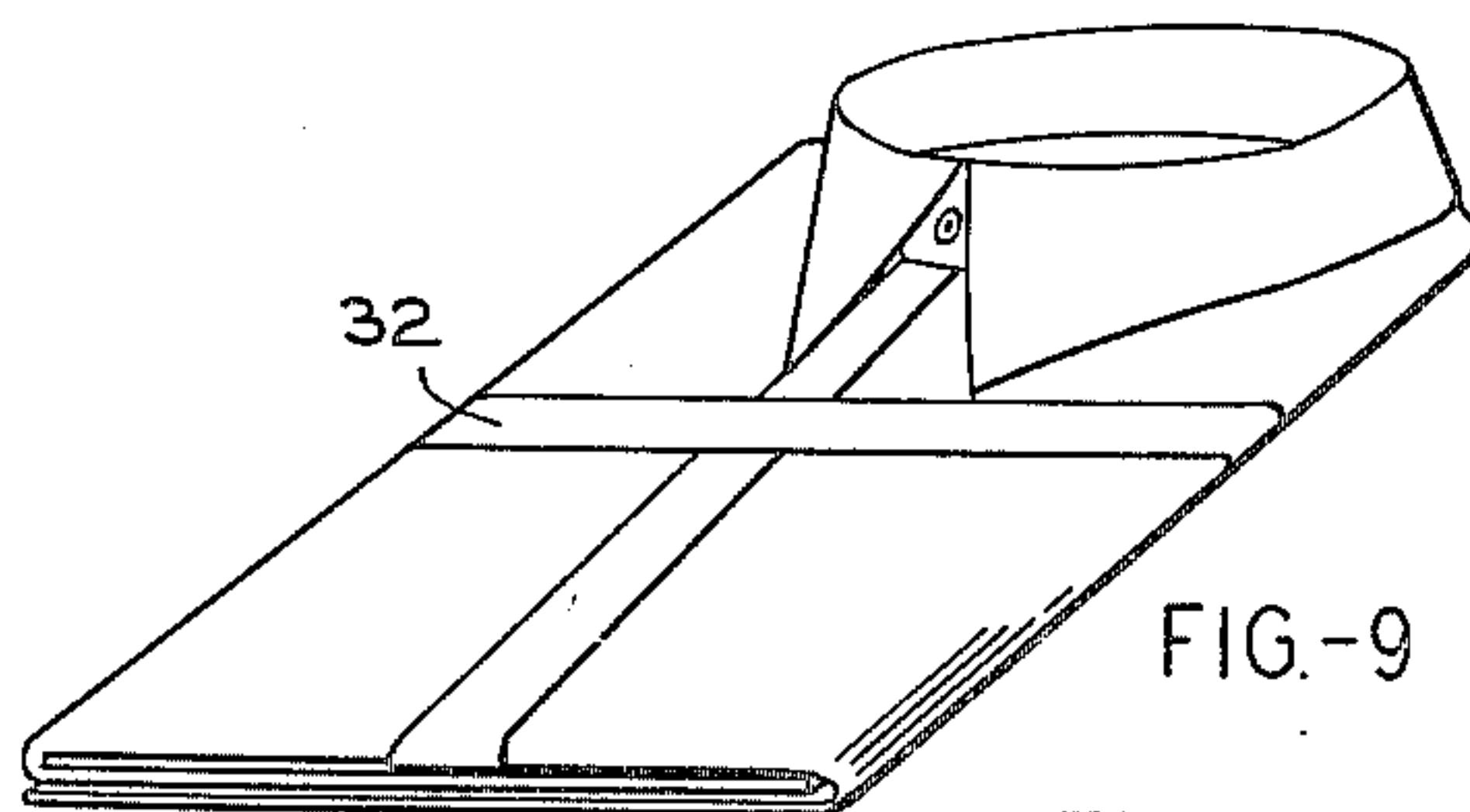


FIG.-9

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METHOD AND MEANS FOR FOLDING SHIRTS

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13 Claims. (Cl. 223-37)

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The invention relates to novel and improved methods and means for folding laundered garments of the nature of shirts and the like.

An object of the invention is to provide a method of the character indicated comprising a novel sequence of steps for folding a laundered shirt to a size suitable for wrapping, handling and delivery.

A further object of the invention is to provide novel and improved hinged or bendable means for facilitating the execution of the steps mentioned in the last preceding paragraph.

A further object of the invention is to provide novel and improved means as defined in the last preceding paragraph for facilitating the manual operations performed by an operator in folding a shirt.

A further object of the invention is to provide shirt-folding guide means which can be simply and cheaply manufactured, and which can be used successfully by a practically unskilled operator after a very brief period of instruction.

A further object of the invention is to avoid heretofore conventional methods and means for shirt folding wherein visual proportioning of the folds was necessary, and the neatness of the final result depended to a substantial extent on the skill and judgment of the operator.

A further object of the invention is to provide shirt-folding guide means whereby correct fold lines are automatically defined in correct sequence irrespective of the skill, or lack thereof, of the operator.

Other objects and advantages will be apparent from a study of the following specification, in conjunction with the accompanying drawings, in which:

Fig. 1 is a perspective view of one form of apparatus embodying the invention;

Fig. 2 is a fragmentary vertical sectional view taken approximately on the line 2-2 of Fig. 1;

Fig. 3 is a top plan view of a simplified shirt-folding guide means;

Figs. 4, 5, 6 and 7 are top plan views showing the results of successive shirt-folding steps in the accomplishment of the present invention;

Fig. 8 is a fragmentary side elevational view as seen from the right of Fig. 1;

Fig. 9 is a perspective view of the shirt as removed from the folding means.

In previous shirt folding devices which have been commercially used, a centrally disposed folding plate of generally rectangular shape is customarily used as a form around which the folding operation is performed. By means of the device now to be described, the need for such folding plate is eliminated.

Referring now to Figs. 1 and 2 there is shown a folding table 10 supported on legs 11. The table is provided with a depressed or cut away

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zone 12 in which a conventional collar form 13 is disposed. As is known to those skilled in the art such form is contractable sufficiently to permit dressing thereon of a buttoned collar, after which the form is caused or permitted to expand so as to internally frictionally hold the collar. The collar form operation or structure forms no part of the present invention but it may be stated that in the illustrated device the said operation is effected by a foot pedal 14 on a lever 15 pivoted at 16 at its upper end and normally biased to form expanding position by spring 17. The operator steps on the pedal when dressing a shirt collar on the form, and releases the pedal during the subsequent folding operation.

Disposed centrally and rearwardly on the table top is a body member 18 which for convenience is hinged on a pivotal axis 19 fixed with respect to the table top. Rearwardly beyond said axis is an inclined extension 20 fixed to the body member 18 which extension of course swings downwardly to contact with the table when the body 18 is raised. As best shown in Fig. 2 a spring biased latch finger 21 is disposed to retain said inclined extension so as to hold the body member (and associated elements to be soon described) in such inclined position. Release of the latch finger is accomplished by means of a pull-rod, cord, or other control means 22 which extends beneath the table top to a release lever 23 at the operator's position.

A pair of arms 25 and 26 are hingedly connected respectively to the right and left sides of body member 18. The swingable ends of said arms are in turn hingedly connected to wings 27 and 28 which are of generally rectangular form, and are termed "wings" merely for convenience of reference. These wings are of approximately the same size, and are slightly smaller than the extent of the folded shirt since, as will appear, the shirt folding operation is actually effected around said wings. As will also appear a completely satisfactory form of the device could be assembled by connecting the inner hinged ends of arms 25 and 26 to the table top at properly spaced positions. The body member 18 finds a useful function in holding the cardboard stiffener down so as to maintain the shirt collar in the collar form depression 12. The hinged structure of the body member also facilitates original positioning and final removal of the shirt.

A pair of flipper arms 29 and 30 are pivotally suspended at the opposed lateral edges of the table and in idle position they depend as shown. They are not necessary to a successful operation of the folding means, but, as will appear, they are of convenience in initiating the folding operation. The slot 31 holds paper strips 32 (Fig. 9) for binding the folded shirt. Recessed in the front central portion of the table top is a light

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33 as an aid to the operator in centrally aligning the button strip of the shirt so that the folding operation will be symmetrical with respect to said strip.

The function of the described device in the manual folding of a shirt is illustrated by means of the following description of a folding operation. The arms 25 and 26 and the wings 27 and 28 are folded inwardly in any compact way on body member 18, and the assembly is raised to the position shown in Fig. 2, and is latched by finger 21. The operator lays an ironed shirt, button strip down, on the table top, while contracting the collar form 13 by operation of foot pedal 14. The collar is dressed on form 13 and the button strip is aligned by means of light 33. The operator then releases pedal 14, so that collar form 13 expands. The operator now disengages the latch 21 by means of lever 23 so that body member 18 drops to contact with the edge of the cardboard stiffener 24 which has been laid on the shirt. The arms and wings are swung outwardly to the position shown in Fig. 1 in which position the arms 25 and 26 lie approximately along the shoulder parts of the shirt and the wings 27 and 28 overlie the upper shirt sleeves, in the elbow-to-shoulder neighborhood. The cuffs and lower sleeve portions hang downwardly over flipper arms 29 and 30. The specific dimensional aspects of the various parts will later be more fully discussed.

Referring now to the sequence of drawings showing successive steps in the folding operation, namely Figs. 4, 5, 6 and 7, the flipper arm 29 is swung upwardly throwing the right sleeve and cuff upwardly and inwardly, and folding the sleeve around the edge 27a of wing 27. The other flipper arm 30 is usually swung upwardly simultaneously, though not so shown in Fig. 4. The flipper arms are then returned to their idle position (Fig. 1).

Wings 27 and 28 are next swung inwardly to the position shown in Fig. 5 in which a second fold is effected around edges 27b and 28b of the respective wings. This fold, as determined by the width of the wings, usually is made in the zone of connection of the sleeves with the body member. The operator then effects a multiple transverse folding operation, familiarly known as an "S" fold, by pinching the shirt along the transverse line of the table edge (Fig. 8), and swinging the pinched zone forwardly to effect another fold along the nearest edges 27c and 28c of wings 27 and 28, and the edge of stiffener 24. The result of this step of the operation is shown in Fig. 6.

The operator now swings the overlapped wing 27 and arm 25 inwardly to execute a longitudinal fold around edge 27a of wing 27. Finally the operator swings the overlapped wing 28 and arm 26 inwardly to execute a longitudinal fold around the edge 28a of wing 28. The final folded result is shown in Fig. 7. The ends of the strip 32 are swung upwardly and adhesively united.

The collar form is now released and the operator raises the shirt and wings, body, etc., and slips the shirt off said elements.

The S fold of the tail portion is conveniently made as indicated hereinabove, since it permits the tail to be snugly enfolded, and a definite full width transverse fold line is effected in this way. If desired, however, the tail may be folded between the operations shown in Figs. 4 and 5, or even after the longitudinal folds have been com-

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pleted. The present invention is concerned mainly with execution of the longitudinal folds.

An extremely simple and inexpensive embodiment of the basic concept of the invention is shown in Fig. 3. This shows a form made in this instance, from cardboard, and bendable along the four lines "X," "X." The housewife, for example, could lay a shirt beneath this embodiment, begin by turning upwardly and inwardly the cuffs and lower sleeve portions as before and thereafter proceed with the exact sequence of steps hereinabove described with respect to Figs. 4, 5, 6 and 7. The portion 18' has a rearwardly extending edge extension which can slip under the rear edge of the collar for stability in starting the folding operation. As before, the folding operation is executed around wings 27' and 28'. The device may remain in the shirt as a stiffener, or may be slipped out and used over and over.

The dimensions of the various parts of the folding means may be arbitrarily chosen, having in mind average shirt dimensions, and the final size desired for the finished folded shirt. The distances "A," "B" and "C" (Figs. 3 and 4) must however be substantially equal to each other. The hinge point between arm 26 and body member 18 should be slightly higher than that between arm 25 and body 18 (Fig. 1) to prevent binding of the shirt by the mechanical elements, and to facilitate removal of the shirt.

By means of the present folding process and apparatus the conventional central folding plate has been eliminated. In ordinary folding tables the shirt has heretofore been folded about an overlying central plate, the plate being of a width corresponding to that of the ultimate folded shirt. In achieving the fold the operator grasped the sleeves (or other shirt section, depending on the type of fold selected) and moved them inwardly towards or across the central plate, judging the various proportional distances required, and making the necessary number of overlaps for the final desired result. Such visual proportioning is obviated by the present method and means, since the present invention insures an automatic sequence of correct fold lines around two spaced, hinged plates.

What I claim is:

1. Longitudinal shirt folding means adapted to be superposed on a shirt to be folded comprising a right and a left swingable member, central spacing means for maintaining said swingable members separated by an amount approximately equal to the width of the final folded shirt, said swingable members being hinged along their inner edges to said spacing means, a right and a left folding wing each hinged along its inner edge to the respective outer edge of the right and the left swingable member, whereby, when a shirt to be folded is disposed with its respective upper sleeve portions beneath said folding wings the end portions of said sleeves may first be folded inwardly at fold lines along the outer edges of said wings, said wings may then be turned inwardly to overlap said swingable members, and said wings and members may then be turned inwardly to a mutually overlapped position above said spacing member.

2. Longitudinal shirt folding means comprising a central spacing member, a right arm and a left arm having their inner ends hinged to respective opposed right and left edges of said spacing member, a right and a left wing having their inner edges hinged to respective outer ends of

said right and left arms, the inner and outer edges of each of said wings being generally parallel, and said wings and said arms and said spacing member being each of a width approximately equal to the width of the folded shirt whereby, when a shirt to be folded is disposed with its respective upper sleeve portions beneath said wings, the ends of said sleeves may first be folded inwardly at fold lines along the outer edges of said wings, said wings may then be turned inwardly to overlap said arms, and said wings and arms may then be turned inwardly to a mutually overlapped position above said spacing member.

3. Shirt folding apparatus, comprising a support, a pair of arms swingably connected at spaced axes to said support by means of respective arm hinges, a left side folding member hinged to one said arm along a left folding member hinge, a right side folding member hinged to the other said arm along a right folding member hinge, at least portions of said folding members being adapted to overlie respective portions of the shirt to be folded, and said folding members being swingable inwardly about their folding member hinges towards each other and into overlapping relation with respect to their arms for one shirt folding operation, and said arms with their folding members in overlapping relation thereto being swingable inwardly toward each other about their respective arm hinges for a second shirt folding operation.

4. Apparatus as defined in claim 3 wherein said arms are of substantially the same length, and said arm hinges are spaced apart laterally by a distance at least equal to the length of an arm.

5. Apparatus for folding a shirt longitudinally comprising spacing means, a right and a left connecting member, means for swingably attaching the inner edges of said connecting members with the spaced right and left edges of said spacing means, a right and a left folding wing, and means for hingedly attaching the inner edge of each said folding wing to the outer edge of a respective connecting member.

6. Apparatus for folding a shirt longitudinally comprising a support, a right and a left connecting arm, means for swingably attaching the inner ends of said arms at laterally spaced fixed points on said support, a right and a left folding wing, and means for hingedly connecting the inner edges of said wings with the outer ends of said arms.

7. Shirt folding apparatus comprising a centrally disposed spacing member, left and right connecting members hinged along their inner edges to respective left and right edges of said spacing member, and left and right folding members hinged along their inner edges to respective left and right outer edge portions of said connecting members, whereby the left and right folding members may be swung inwardly upon, respectively, the right and left connecting members, and thereafter the right and left folding and connecting members may be swung inwardly to effect an overlapped relationship of said folding members.

8. Shirt folding means as defined in claim 7 wherein left and right sleeve flipping members are provided adjacent respectively said left and right folding members, each said left and right flipping member being hingedly supported whereby to be swingable inwardly over its respective folding member for initiating sleeve folding.

9. Shirt folding means as defined in claim 8 wherein said sleeve flipping members are hingedly attached along the outer respective edges of the folding members.

10. A method of longitudinally folding a shirt comprising providing a right and a left folding member, each such folding member being of plate-like character and of a width approximately equal to the lateral dimension of a folded shirt, disposing the shirt on a layout table with the sleeves extending laterally therefrom, disposing said members on the upper sleeve portions one on each side, turning the sleeves inwardly over said members, swinging said members upwardly and inwardly whereby to cause said members and enwrapped sleeves to overlie the side portions of the shirt, again swinging said members upwardly and inwardly to a mutual overlap, and then sliding such longitudinally folded shirt off said members.

11. Longitudinal shirt folding means adapted to be superposed on a shirt to be folded, said means comprising a centrally disposed member, a right and a left connecting member swingably attached, at respectively spaced locations, to said centrally disposed member, and a right and a left folding member swingably attached each to its respective right and left connecting member.

12. In shirt folding means as defined in claim 11, the combination therewith of right and left sleeve flipping means, each adjacent the outer edge of its respective folding member, each said flipping means being swingable inwardly over its respective folding member for turning the respective end portions of the sleeves of a superposed shirt inwardly over said folding members.

13. Longitudinal shirt folding means adapted to be superposed on a shirt to be folded, comprising a central body member, a right arm and a left arm, hinge means for connecting said arms to said body member along inner fold lines located respectively along the right and left edges of said body member, a right wing and a left wing hinged to said right and left arms along intermediate fold lines located respectively on the outer right and left edges of said right and left arms, and swingable sleeve flipping means hingedly mounted adjacent the outer edges of said wings on a support fixed with respect to said body member, whereby, when a shirt to be folded is disposed with its respective upper sleeve portions beneath said wings, the ends of said sleeves are first folded inwardly at outer fold lines along the outer edges of said wings, said wings are then turned inwardly along said intermediate fold lines, so as to overlie said arms, and said arms and wings are then turned inwardly along said inner fold lines whereby to overlie said central body member, the axis of each said hinge means substantially coinciding with said inner fold lines.

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