May 20, 1952 R. W. E. NASH 2,597,364

BAG FILLING DEVICE

Filed Jan. 21, 1948 3 Sheets-Sheet 1

FIG 1

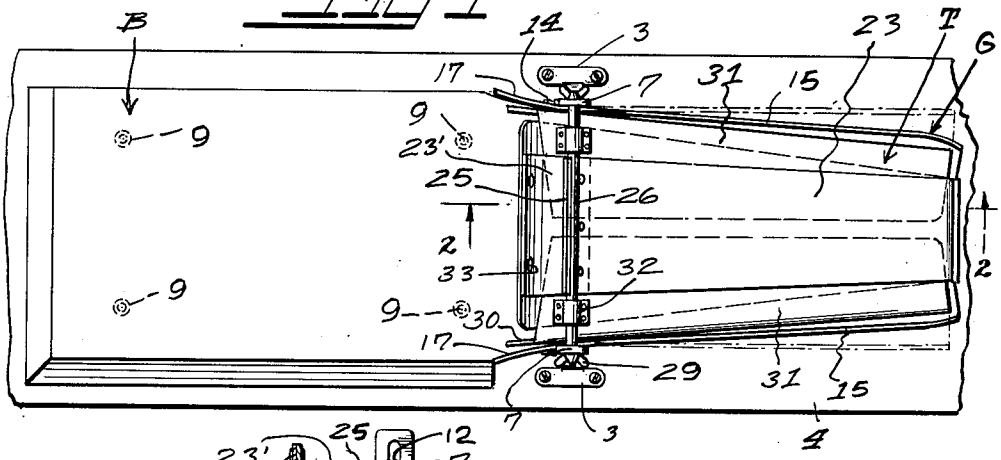


FIG 2

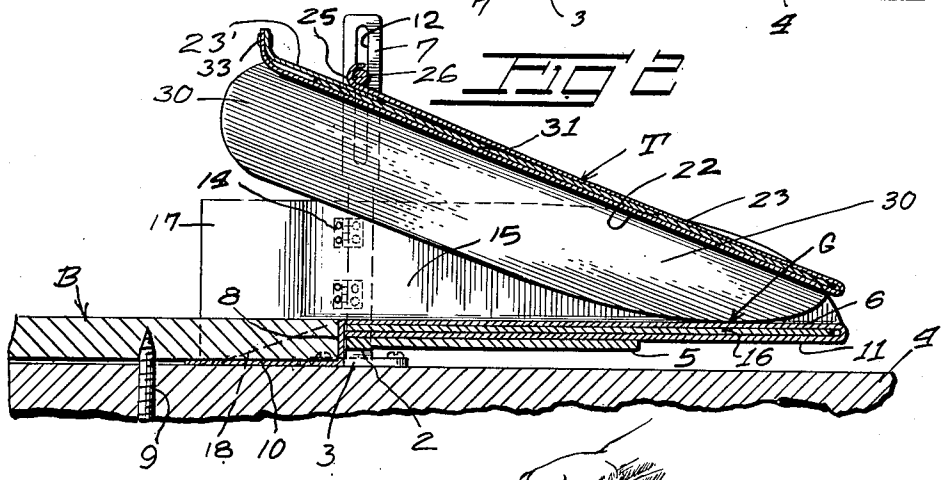
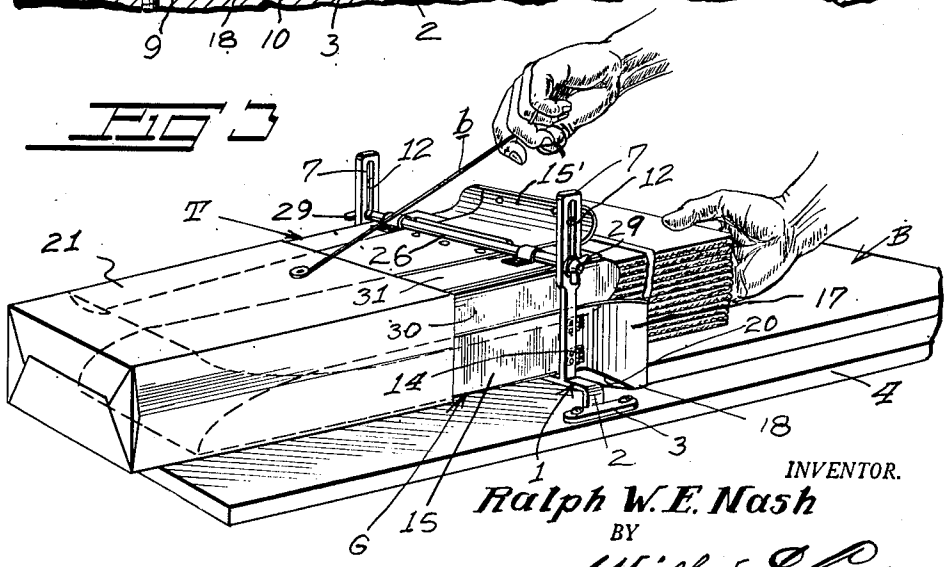


FIG 3



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BAG FILLING DEVICE

Filed Jan. 21, 1948 3 Sheets-Sheet 2

FIG 4

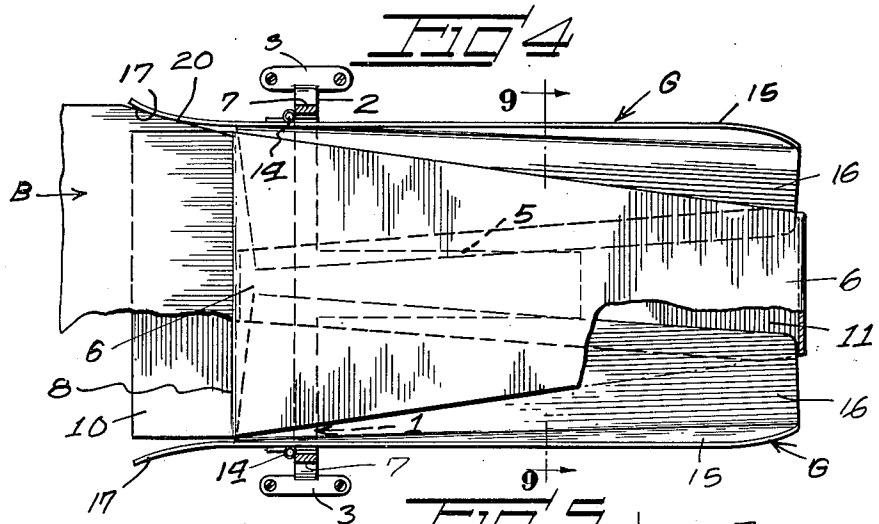


FIG 5

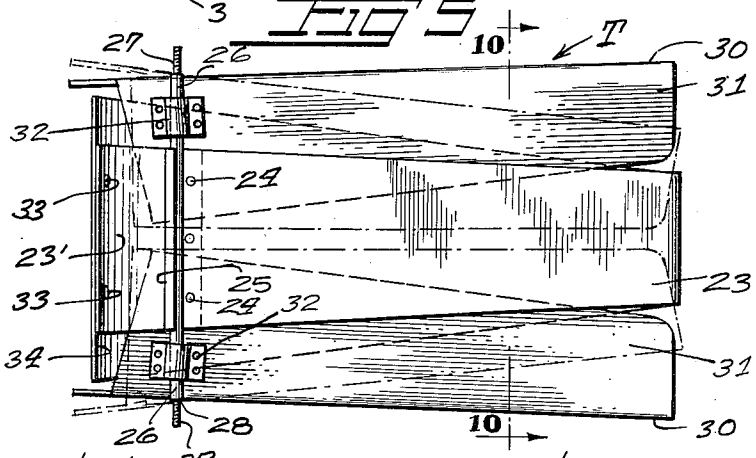


FIG 6

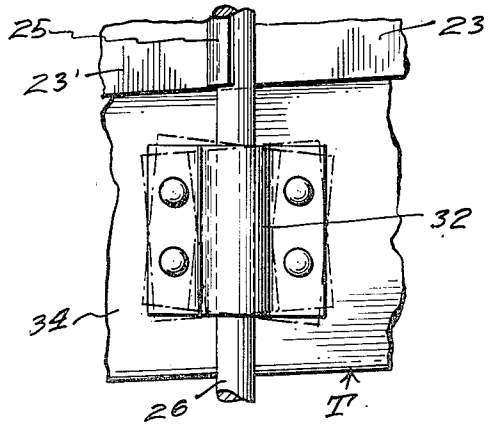
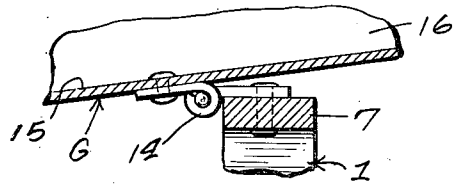


FIG 7



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May 20, 1952 R. W. E. NASH 2,597,364

BAG FILLING DEVICE

Filed Jan. 21, 1948 3 Sheets-Sheet 3

Fig 8

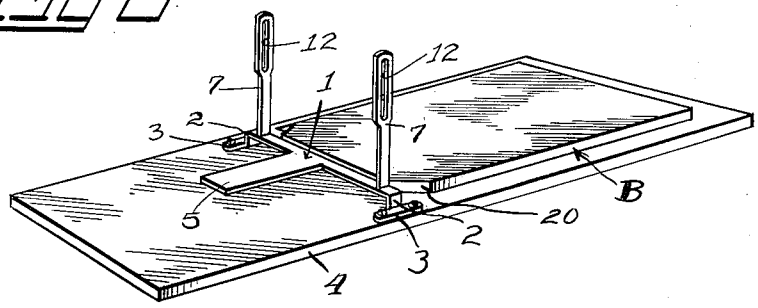


Fig 9

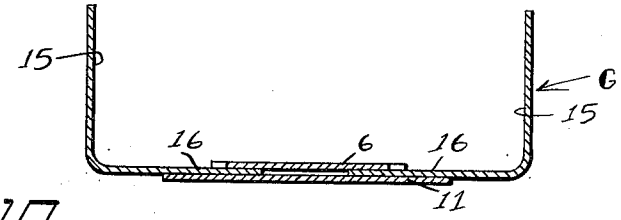


Fig 10

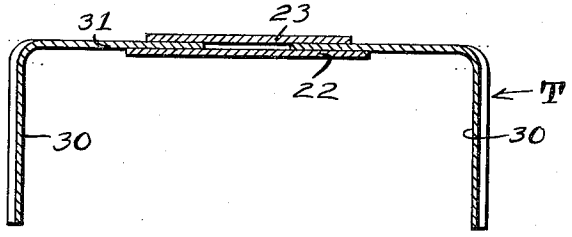


Fig 11

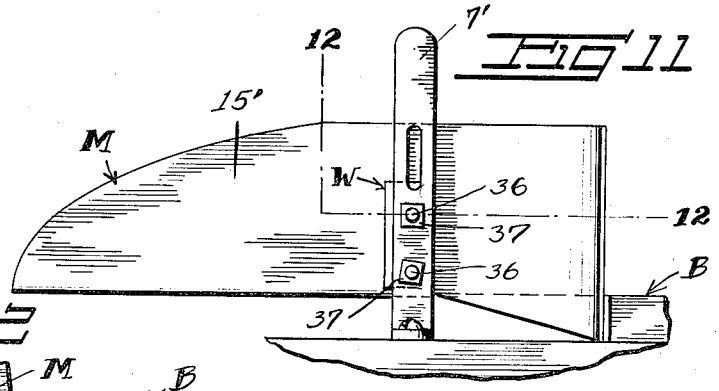
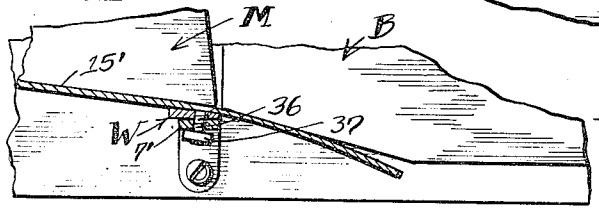


Fig 12



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BAG-FILLING DEVICE

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Application January 21, 1948, Serial No. 3,446

3 Claims. (Cl. 226—18)

1

This invention relates to a bag loading or filling device and it is primarily an object of the invention to provide a device of this kind of a character whereby the same may be changed for various size inserts or loads as a result of the operator making only a single adjustment.

Another object of the invention is to provide a device of this kind including a loading assembly comprising two units mounted for selective adjustment, one toward the other, and wherein each unit is adjustable as to width within certain limitations.

A further object of the invention is to provide a device of the kind including two units, one superimposed over the other, and wherein the units automatically expand laterally to grip a bag applied to the units before the load or insert enters the bag, the expansion of the units holding the bag in a manner to facilitate the movement of the load or insert to the bottom of the bag.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved bag loading or filling device whereby certain advantages are attained, as will be hereinafter more fully set forth.

In order that my invention may be better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a view in top plan of a bag loading or filling device constructed in accordance with an embodiment of the invention, an associated supporting element being shown in fragment;

Figure 2 is an enlarged fragmentary detail view taken substantially on the line 2—2 of Figure 1;

Figure 3 is a view in perspective of the device and showing the manner of placing an insert or load within a bag;

Figure 4 is a view partly in top plan and partly in sectional, illustrating in detail the bottom unit of the loading assembly as herein embodied;

Figure 5 is a view in top plan of the top unit of the loading assembly unapplied with a second position of certain of the parts being indicated by broken lines;

Figure 6 is an enlarged view in top plan showing the mountings for one of the side members and the central member of the top unit;

Figure 7 is a detail sectional view illustrating a hinged mounting for one of the side members of the bottom unit;

Figure 8 is a view in perspective of the device with the bottom and top units omitted;

2

Figure 9 is a sectional view taken substantially on the line 9—9 of Figure 4;

Figure 10 is a sectional view taken substantially on the line 10—10 of Figure 5;

Figure 11 is a fragmentary view in side elevation illustrating another embodiment of the invention; and

Figure 12 is a sectional view taken substantially on the line 12—12 of Figure 11.

As disclosed in the accompanying drawings, 1 denotes a base supporting bar of desired length and which is provided at each extremity with a depending arm 2. The arm 2 carries a foot plate 3 to be secured to a suitable supporting table or base board 4.

The central portion of the bar 1 has rigidly connected therewith a forwardly disposed holding plate or shelf 5 which is inflexible. As herein embodied, this plate or shelf 5 is relatively wide and oblong in plan and extends a considerable distance in advance of the bar 1.

Resting from above upon the plate or table 5 is the rear portion of a bottom plate 6, comprising a guide unit G. This plate is of a length to extend a material distance in advance of the bar 1 and its rear portion is of a width closely approximating the space between the upstanding posts 7 at the outer extremities of the bar 1. This plate 6 is gradually reduced in width from the inner end of the plate to the outer end thereof.

The rear end of the plate 6 is defined by a depending flange 8 of a length substantially equal to the thickness of the feeding board B resting on the table or base board 4 and held thereto by a suitably positioned screw 9. The lower marginal portion of the flange 8 is continued by the extension plate 10 which is disposed between the forward portion of the board B and the table or base board 4. The flange 8 abuts the forward edge face of the board B and the applied bar 1 is so positioned with respect thereto to maintain the desired placement of the plate 6.

The plate 6 possesses a certain degree of inherent resiliency and the outer end thereof is continued by a reverted plate extension 11 which by its own resiliency lies close to the plate 6. This reverted plate 11 is also shown gradually reduced in width from its outer end to its inner or free end.

The posts 7 are herein disclosed as flat and of considerable length with the upper portions thereof provided with the elongated and longitudinally disposed slots. Immediately above the bar 1, the posts 7 have hingedly connected therewith as at 14, the rear extremities of the side

walls 15 comprised in the unit G. These walls 15 extend forwardly from the bar 1 at a distance substantially equal to the length of the plate 6 and are inwardly of the posts 7. The lower margins of the wall 15 are defined by the inwardly directed plates 16 of material width and which are freely and slidably received between the plates 6 and 11.

The hinged portions of the side walls 15 are continued by the rearwardly and outwardly inclined wings 17 which provide a relatively wide entrance mouth for guiding a bundle or stack of folded articles or the like into the unit G. Each of the wings 17 has its lower marginal portion outwardly and downwardly inclined to provide depending portions 18 to overlie and contact with the beveled corner edges 20 at the forward end of the board B.

As is clearly shown in Figure 2, the top surface of the plate is substantially flush with the top surface of the board B so that a stack or bundle to be bagged will have unhampered passage from the board B upon the plate 6. It is also to be noted in Figure 2, that the plate or table 5 and the plate 11 are so spaced from the underlying surface of the table or base board 4, to permit readily the application of a bag 21 upon the unit G and the associated top unit T.

The top unit T, as herein embodied, comprises an elongated plate 22 of a length substantially equal to the length of the plate 6. The plate 22 is gradually reduced in width from its rear end to its forward end with the rear end of a width closely approaching the width between the upper portion of the posts 7 between which said end portion is arranged. The forward end of the plate 22 is continued by an elongated return extension plate 23 overlying the plate 22. This plate 23 is of material width of substantially the same width as through its length. The plate 23 terminates a predetermined distance inwardly of the rear end of the plate 22 and said rear extremity of the plate 23 is secured to the plate 22 by the rivets 24 with a supplement plate 23' in advance of such connection as at 24 being free of attachment to the plate 22.

The inner or connected end of the plate 23 is formed to provide a depending flange 25 arcuate in cross section from end to end and which hooks or engages over a supporting shaft 26 for the top unit T. The shaft 26 is of a length to bridge the space between the upper portions of the posts 7 and is provided with the reduced threaded extensions 27 at its ends which are disposed through the slots 12 of the posts 7. The ends of the shaft 26 surrounding the extensions 27 provide shoulders 28 for contact with the inner or opposed faces of the posts 7 at opposite sides of the slots 12 as the diameters of the rod 26 at the ends are greater than the widths of the slots 12.

Threading on the extensions 27 outwardly of the posts 7 are the clamping or holding nuts 29 for contact from without with the posts 7 whereby the top unit T may be maintained a desired selective height with respect to the unit G within the limitations of the slots 12.

The top unit T also includes the side walls 30 of lengths substantially the same as the length of the plate 22 and the forward free marginal portions of the walls 30 are rounded or otherwise reduced to assure desired effective cooperation between the units G and T.

The upper margins of the side walls 30 are defined by the inwardly directed flanges 31 which are of considerable width and which are freely

received between the plates 22 and 23 whereby the side walls 30 have free lateral movement with respect to the plate 22.

The rear portions of the flanges 31 at the outer corner portions thereof having fixed thereon from above the bearing member 32 through the shaft 26 is loosely disposed. The looseness afforded by the bearing member 32 is such to allow for the desired lateral swing movement of the side walls 30.

The supplemental plate 23' is riveted as at 33, to the upwardly and outwardly curved portion 34 at the rear of the plate 22.

In practice, the shaft 26 of the top unit T is raised up along the post 7 to a selected position as determined by the size of the bag 21 or kindred container to receive the insert. After such adjustment, the nuts 29 are properly turned to effect a clamping of the shaft 26 in such position. Before an insert is applied, the top unit T will be disposed outwardly and downwardly, as shown in Figure 2, with the outer portions of the walls 30 in contact with the outer portion of the plate 6. The required adjustment of the top unit T as hereinbefore mentioned is preferably obtained by placing the insert upon the plate 6, and then lowering the top unit T until the plate or panel 22 is in reasonably close or snug contact with the top of the insert.

The bag 21 is applied over the outer ends of the units G and T while the unit T is in a position as shown in Figure 2 with the bag extended a material distance inwardly of said members G and T.

After the bag 21 or the like has been applied, the insert is placed on the board B and then pushed outwardly between the units G and T (Figure 3), the operator holding the bag in place as by the string *b* or otherwise as may be preferred.

It is to be explained that the smaller the diameter of the bag 21 or the like, the less distance it is to be pulled on to the units G and T.

As the insert moves outwardly, it lifts the top unit T (Figure 3) so that the bag 21 is effectively gripped when the insert reaches the bottom of the bag.

The loader as herein embodied may be used with equal facility with bags of varying sizes within certain limitations as determined by the size of the insert. It is only required that the operator adjust the angle of the top unit T by adjusting the shaft 26 along the slots 12 as required.

When going from a small size insert to a larger, the insert as it enters between the units G and T by outward pressure on the walls 15 and 30, will automatically adjust the members G and T laterally.

The board or ramp B is provided with the beveled margins 35 to facilitate the moving of the insert from the base board or table 4 upon the board B so that the insert will be on substantially the same level as the upper surface of the plate 6 of the unit G.

The plate 6 is also preferably held to the board B by any preferred means but preferably by a screw and this screw may be passed through the flange 8 into the adjacent end of the board or other location as desired.

It is to be pointed out that the inwardly directed flanges 16 are tapered from the rear outside edge toward the forward inside edge so that such flanges will not contact the flange 8 of the plate 6 when the unit G is in its fully closed

adjustment. The inwardly directed flanges 16 are also tapered from the rear inside edge toward the forward outside edge so that there will not be any overlap when the unit G is closed fully and thus assure free working between plates 6 and 11.

The inwardly directed flanges 31 are tapered from the rear inside edge toward the forward outside edge so that such flanges will not overlap when the unit T is fully closed and to permit the same to work freely between the plates 22 and 23.

In the embodiment of the invention as illustrated in Figures 11 and 12, each of the members M of the body unit is not hingedly connected to the associated post but in this embodiment there is interposed between the side wall 15' of the member M and the upright or post 7' an elongated wedge member W and this member W, together with the adjacent side plate 15' is held to the upright or post 7' by the bolts 36 which are herein diseclosed as inserted through such elements from within and have associated therewith the conventional holding nuts 37. It is to be noted that the high portion of the wedge member W is disposed toward the forward end of the member M to assure the side wall 15' to be normally disposed inwardly at the limit of such movement of the member M. It is to be stated, however, that the inherent resiliency of the material from which the member M is produced will allow the top and bottom units to open up to maximum when loading large size bags.

From the foregoing description it is thought to be obvious that a bag loading or filling device constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated.

I claim:

1. In a loading device for bags and the like, a flat elongated base, a feed board superimposed on said base and extending inwardly from an end thereof a distance approximately one-half of the length of the base, two overlying elongated units positioned above said base beyond the inner end of said feed board means for supporting the bottom unit in a substantially fixed position from adjacent the inner end of said feed board and in slightly spaced relation with respect to the surface of the underlying portion of the base, the top surfaces of said feed board and said bottom unit lying in a common plane, means adjacent the front end for supporting the same for swinging movement toward or from the bottom unit, each of the units comprising a flat member and side walls freely slidable relative thereto to permit the unit to expand or retract laterally said walls of one unit overlapping the side walls of the other unit, the bottom unit embodying the central member comprising two registered overlying plates, side walls, inwardly disposed flanges carried by the lower marginal portions of the side walls and extending freely between the plates of the central member, and means for hingedly mounting the side walls at

the front ends thereof for swinging movement toward or from the central member.

2. In a loading device for bags and the like, a flat elongated base, a feed board superimposed on said base and extending inwardly from an end thereof a distance approximately one-half of the length of the base, two overlying elongated units positioned above said base beyond the inner end of said feed board means for supporting the bottom unit in a substantially fixed position from adjacent the inner end of said feed board and in slightly spaced relation with respect to the surface of the underlying portion of the base, the top surfaces of said feed board and said bottom unit lying in a common plane, means adjacent the front end for supporting the same for swinging movement toward or from the bottom unit, each of the units comprising a flat member and side walls freely slidable relative thereto to permit the unit to expand or retract laterally, said side walls of one unit overlapping the side walls of the other unit, the bottom unit embodying a central plate, side walls extending upwardly above the central plate, and means for hingedly mounting the side walls for swinging movement toward or from the central plate.

3. In a loading device for bags and the like, a flat elongated base, a feed board superimposed on said base and extending inwardly from an end thereof a distance approximately one-half of the length of the base, two overlying elongated units positioned above said base beyond the inner end of said feed board means for supporting the bottom unit in a substantially fixed position from adjacent the inner end of said feed board and in slightly spaced relation with respect to the surface of the underlying portion of the base, the top surfaces of said feed board and said bottom unit lying in a common plane, means adjacent the front end for supporting the same for swinging movement toward or from the bottom unit, each of the units comprising a flat member and side walls freely slidable relative thereto to permit the unit to expand or retract laterally, said side walls of one unit overlapping the side walls of the other unit, the top unit embodying a central panel, side walls extending therebelow, flanges carried by the upper portions of the walls overlying the central panel, a shaft disposed across the top unit at the receiving end portion of the unit and comprised in the means for supporting the top unit, bearings carried by the flanges through which the shaft is loosely directed, and a part carried by the central panel freely engaging the shaft from the rear.

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