Sept. 28, 1965 A. A. QUIMPER 3,208,809

CLOSURE APPARATUS

Filed Nov. 12, 1963 3 Sheets-Sheet 1

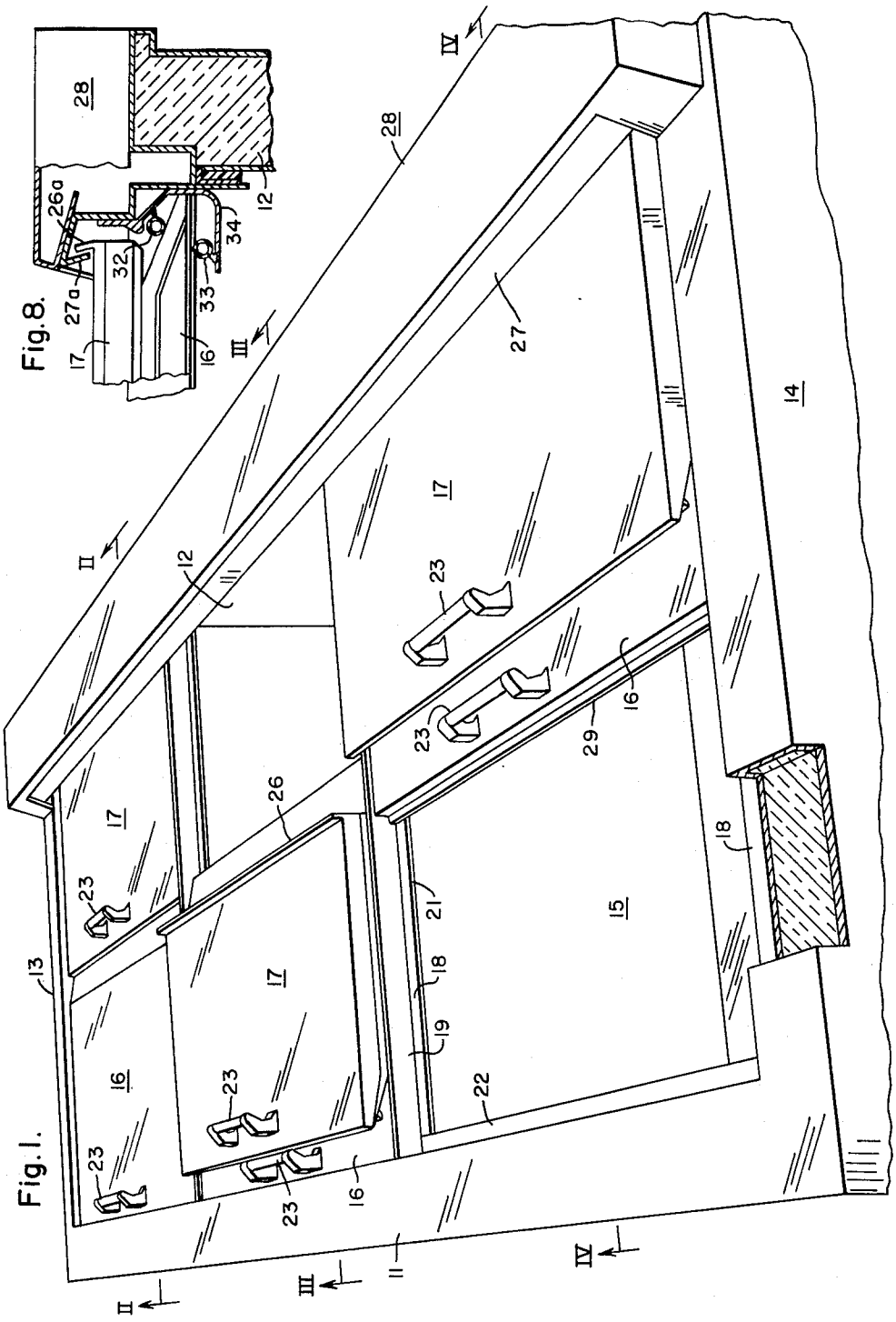


Fig. 8.

Fig. 1.

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CLOSURE APPARATUS

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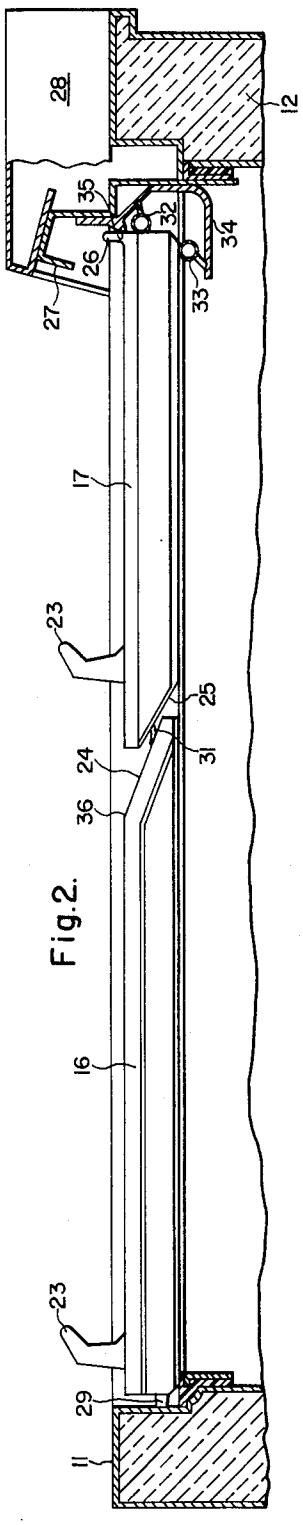


Fig.2.

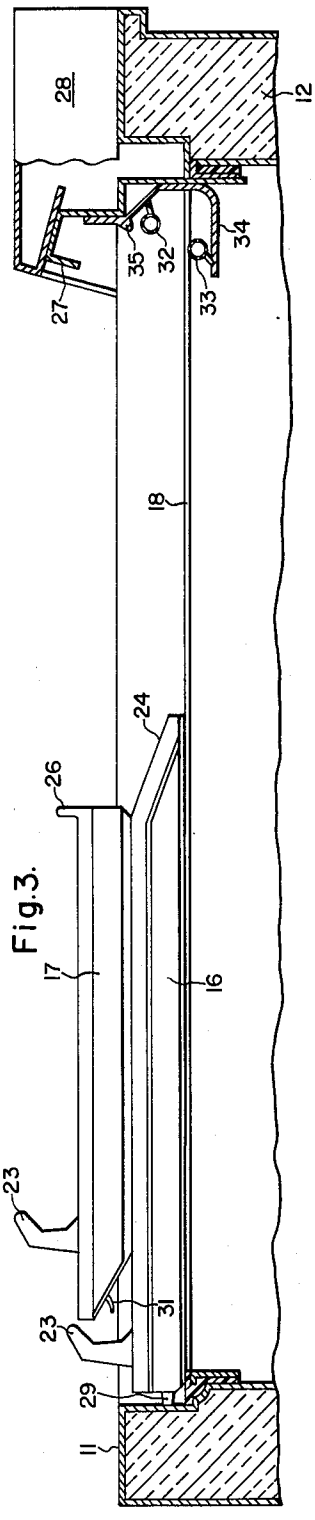


Fig.3.

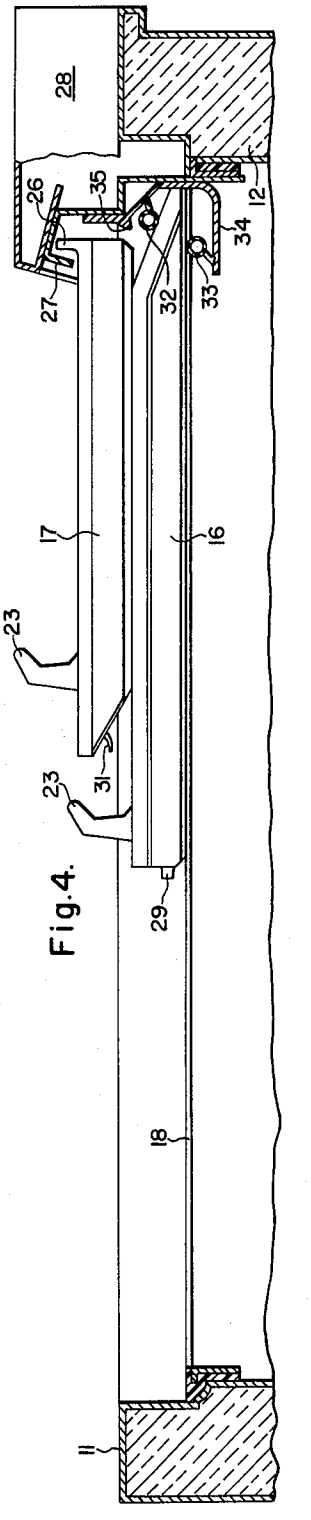


Fig.4.

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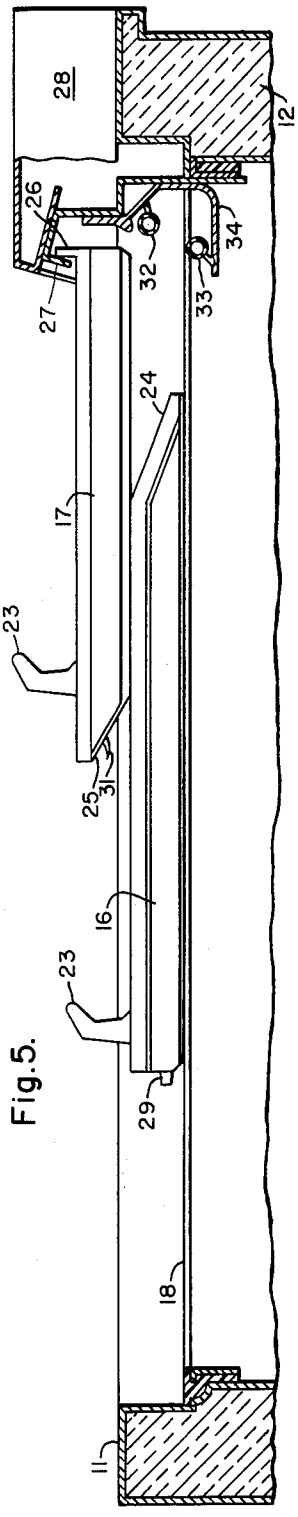


Fig. 5.

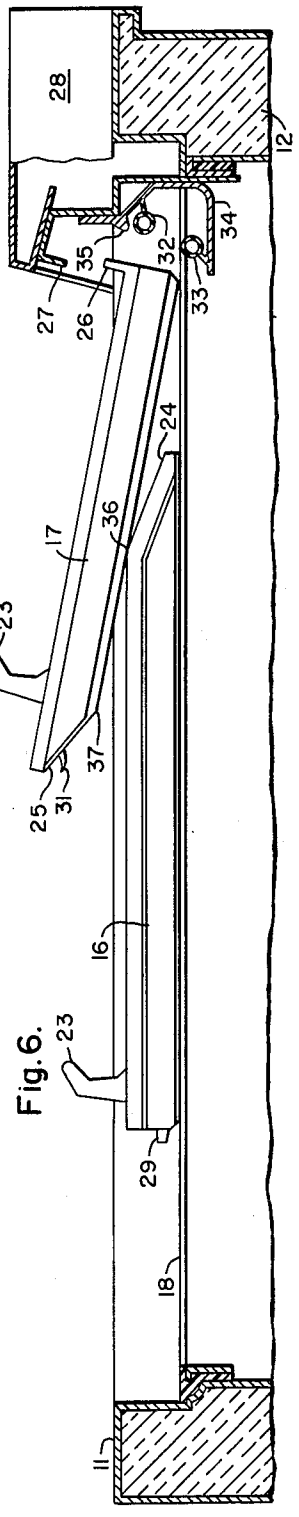


Fig. 6.

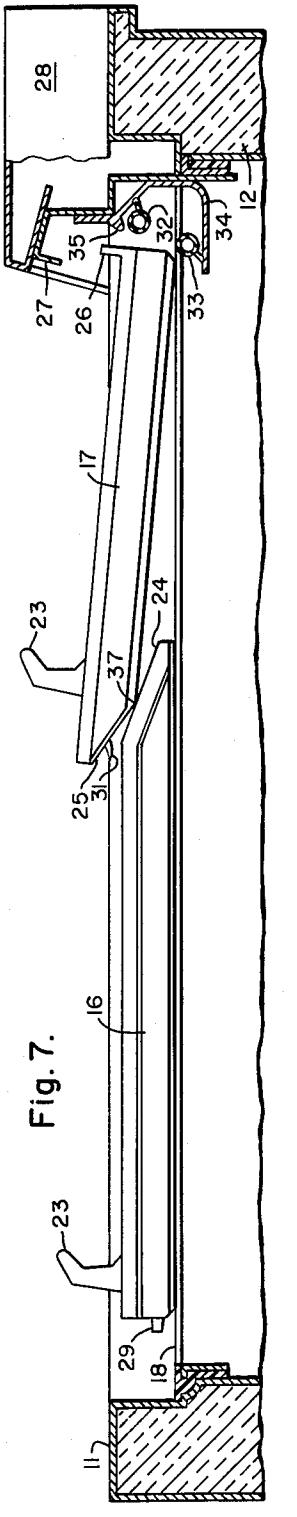


Fig. 7.

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3,208,809

CLOSURE APPARATUS

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Filed Nov. 12, 1963, Ser. No. 322,769
3 Claims. (Cl. 312—295)

The present invention relates to a closure comprising horizontally slidable lids for an open top cabinet. More particularly, it relates to a closure comprising front and rear lids slidable forwardly and rearwardly, the rear lid being slidable forwardly onto the top of the front lid to provide access to the rear portion of the interior of the cabinet, and the front lid being slidable rearwardly under and raising the rear lid to provide access to the front portion of the interior of the cabinet.

The object of the invention is to provide an improved closure, a more particular object being to facilitate returning the front lid to its closed position without carrying the rear lid with it and thereby necessitating a separate manual movement to return the rear lid to its closed position.

In accordance with the present invention, the rear lid and the cabinet are provided with interlocking elements so disposed as to interlock and prevent forward movement of the rear lid when the rear lid is in its rearmost position and is raised by the front lid disposed therebeneath. The interlocking elements may comprise an upwardly-extending projection on the rear lid adjacent its rear edge, and a downwardly-extending projection or flange mounted on the cabinet and disposed so that it is directly in front of the projection or lip of the rear lid when the rear lid is in said rearmost, raised position.

With this arrangement, as the front lid is moved rearwardly to open position, it slides under and raises the rear lid, the projection of which is thereby brought into interlocking relation with the projection carried by the cabinet. Accordingly, when the front lid is moved forwardly to return it to closed position, the projection of the rear lid engages the projection on the cabinet to prevent forward movement of the rear lid. As the rear edge of the top surface of the front lid passes forwardly of the center of gravity of the rear lid, the latter tilts rearwardly so that its projection drops out of abutment with the cabinet projection. However, due to the inclined position of the lower surface of the rear lid, tending to slide the rear lid rearwardly, together with the friction of its rear edge resting on the supporting surfaces, and the front end of the rear lid gliding at minimum friction on the rear end of the front lid, the rear lid is not carried forwardly with the front lid and drops down to horizontal position resting on the supporting surfaces when the front lid reaches its foremost position.

These and other objects of the invention will appear more fully from the detailed description which follows, taken in connection with the accompanying drawings, forming a part hereof, in which:

FIG. 1 is a perspective view of an open top cabinet having a closure comprising sliding lids in accordance with the present invention.

FIG. 2 is a vertical section taken on the line II—II of FIG. 1, showing both front and rear lids in closed position.

FIG. 3 is a vertical section taken on the line III—III of FIG. 1, showing the rear lid in its open position, atop the front lid, to provide access to the rear portion of the interior of the cabinet.

FIG. 4 is a vertical section taken on the line IV—IV of FIG. 1, showing the front lid in its open position beneath the rear lid to provide access to the front portion of the interior of the cabinet.

FIG. 5 is a sectional view taken on line IV—IV of FIG. 1, showing the front and rear lids in a position occupied in the course of forward movement of the front lid from the open position shown in FIG. 4.

FIG. 6 is a similar view showing the front and rear lids in positions they occupy at a more advanced point in the forward movement of the front lid.

FIG. 7 is a similar view showing the positions of the lids at a still more advanced point in the forward movement of the front lid.

FIG. 8 is a fragmentary sectional view showing a modified form of the lid retaining elements.

Referring to the drawings in detail, the invention is shown in an open top cabinet which comprises a front wall **11**, a rear wall **12**, end walls **13** and **14** and a bottom wall **15**. To provide a closure for the open top, there are provided pairs or sets of sliding lids, each set comprising a front lid **16** and a rear lid **17**. While the illustrated embodiment is provided with three sets of lids, there may be one or any plural number of sets of lids so far as the invention is concerned.

The cabinet is provided with supporting or gliding surfaces **18** on which the lids are supported and are slidable forwardly and rearwardly. Two of such supporting or gliding surfaces **18** are provided by the end walls **13** and **14**. Intermediate the ends of the cabinet is provided with two lid supports **19**, in the nature of rails, which extend from the front wall **11** to the rear wall **12** and are removably supported thereon. Each of these lid supports is of inverted T-shape in cross section, comprising a vertical portion which serves as a guide for the lids on the opposite sides thereof, and two horizontal flanges **21**, the upper surfaces of which provide the supporting or gliding surfaces **18** for the lids on the opposite sides of the lid support. The front wall **11** is also provided with a supporting or gliding surface **22**.

The lower surfaces of the lids **16** and **17** and the supporting or gliding surfaces **18** and **22** for supporting the same are all disposed in a common plane, and the upper surfaces of the lids are also disposed in a common plane, so that these lids are sometimes referred to as common plane or equal plane sliding lids.

Each lid is provided with a handle **23** which extends upwardly from the top surface adjacent the front edge thereof. Each front lid **16**, adjacent its rear edge is provided with an inclined upper surface **24**, so that the front lid tapers rearwardly toward the lower surface. Each rear lid **17** is provided adjacent its front edge with an inclined lower surface **25**, providing the lid **17** with a portion adjacent the front edge which tapers toward the top surface of the lid. The inclined surfaces **24** and **25**, both inclined forwardly and upwardly, are disposed in opposed relation when both lids are closed as shown in FIG. 2, but these surfaces are at a small angle to each other rather than parallel.

In accordance with the present invention, the rear lid and the cabinet are provided with cooperating interlocking elements arranged so that they provide interlocking engagement when the rear lid is in its rearmost, raised position and are out of interlocking relation when the rear edge of the rear lid drops down into engagement with the supporting surfaces. In the illustrated embodiment, each rear lid **17** is provided with a projection extending upwardly from the top surface adjacent the rear edge of the lid, this projection being in the form of an upwardly extending lip **26** extending along the full length of the rear edge of the cover. Also, in the illustrated embodiment, the cabinet is provided with a lid retaining element which is in the form of a flange **27** extending along the full length of the cabinet and supported on the overhanging portion of a rear panel or bar **28**. The flange **27** projects downwardly in such position that when

the rear lid **17** is in its rearmost position and is raised by the front lid sliding thereunder, it is directly in front of the lip **27** and prevents forward movement of the rear lid **17** while in its elevated position, after a small initial movement to bring the lip **26** and the flange **27** into abutment, as will be apparent from FIG. 4.

Suitable gaskets may be provided for sealing the cabinet against loss of cool air. These may include a gasket **29** at the front edge of the front lid **16**, a gasket **31** mounted on the inclined lower surface **25** of the rear lid, and gaskets **32** and **33** carried by a bracket **34** on the rear wall **12** and adapted to contact the rear and bottom surfaces of the rear lid **17**.

In the closed position of the lids shown in FIG. 2, they provide a complete closure for the open top. The tapered portion of the rear lid adjacent its front edge overlaps the tapered portion of the front lid **16** at its rear edge, with the inclined surfaces **24** and **25** in opposing relation.

To obtain access to the rear portion of the interior of the cabinet, one merely grasps the handle of the rear lid **17** and slides it forwardly over the front lid **16** to the position shown in FIG. 3. The front lid **16** is retained against forward movement by abutment with the front wall **11**. To return the rear lid to closed position, one merely grasps its handle **23** and slides it rearwardly over the front lid **16** until its rear surface abuts the stop **35**. The rear lid **17** slides freely over the front lid **16**, particularly as it contacts principally the corner **36** at the junction of the inclined surface **24** and the horizontal flat top surface of the lid **16**.

To obtain access to the front portion of the interior of the cabinet, the front lid **16** is slid rearwardly. Its inclined surface **24** engages the inclined surface **25** of the rear lid **17**, thereby wedging under the rear lid **17** and forcing it upwardly. The front lid **16** continues to slide under the rear lid, bringing it to the elevated position shown in FIG. 4. The projection or lip **26** is now directly in back of the flange **27**. Accordingly, upon forward movement of the front lid **16** to return it to closed position, the rear lid **17** moves forwardly with it only the very short distance to bring the lip **26** into abutment with the flange **27**, whereupon forward movement of the rear lid **17** is prevented by the flange **27**. The forward movement of the front lid **16** sliding under the rear lid **17** continues, as shown in FIG. 5, until the mentioned corner **36** passes forwardly of the center of gravity of the rear lid **17**, after which the rear lid **17** tilts about such corner, the rear portion moving downwardly to move the lip **26** out of abutment with the flange **27**, as shown in FIG. 6. However, due to the inclined position of the rear lid, it tends to slide rearwardly. Because of this and frictional contact between the rear end of the rear lid **17** with the supporting or gliding surface, and because of the minimal friction at the corner **36**, the front lid **16** moves forwardly without carrying the rear lid **17** forwardly with it. As the corner **36**, in the continued forward movement of the front lid **16**, passes the corner **37** formed by the junction of the inclined surface **25** and the flat bottom surface of the rear lid **17**, said corner **37** of the rear lid engages the relatively steep inclined surface **24** of the front lid, as shown in FIG. 7, so that the rear lid **17** now slides rearwardly into abutment with the stop **35** and in engagement with the gaskets **32** and **33**. The front lid **16** continues forwardly until its gasket **29** abuts the front wall **11**, at which time the rear lid drops down to its horizontal, fully closed position resting on the suporting surfaces **18**, as shown in FIG. 2. It will thus be seen that there is provided a novel means for preventing the rear lid from being carried forwardly by the front lid when the latter is returned to its closed position, so that it is not necessary to return the rear lid to its closed position a separate additional manual movement after the front lid is returned to its closed position.

The surfaces providing the sliding movement mentioned above may be made of a type of plastic that has a low coefficient of friction. However, the upper surface of the front lid **16** may, as is rather common in the art, be made of stainless steel. It is desirable that the sliding surfaces be kept clean.

FIG. 8 shows a modification of the invention in which the lip **26*a*** and the flange **27*a*** are disposed at a different angle than in the other figures, namely, they are inclined rearwardly from top to bottom. The purpose of this modification is to retain these elements in engagement a little longer after the corner **36** passes the center of gravity of the lid **17**, as described above. In all other respects, however, this modification is the same as the first embodiment.

While the invention has been shown in several forms, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various other changes and modifications without departing from the spirit thereof.

What is claimed is:

1. The combination with an open top cabinet, of
a front lid and a rear lid each of rectangular outline and adapted for sliding forwardly and rearwardly,
the cabinet having a pair of parallel supporting or gliding surfaces extending from front to rear for supporting said lids for sliding forwardly and rearwardly,
each lid being provided with handle means on top adjacent the front edge,
the front and rear lids having cooperating portions, one of which has a surface inclined upwardly and forwardly, whereby when the front lid is slid rearwardly, it raises the rear lid and slides thereunder,
the rear lid and the cabinet having cooperating interlocking elements disposed adjacent the rear edge of the rear lid in its closed position,
said interlocking elements being so arranged that they are brought into interlocking relation and prevent forward movement of the rear lid when the rear lid is in its rearmost position and is raised by the front lid disposed under the same and are out of interlocking relation to permit unrestricted forward movement of the rear lid when the rear edge thereof is resting on said supporting surfaces.

2. The combination with an open top cabinet, of
a front lid and a rear lid each of rectangular outline and adapted for sliding forwardly and rearwardly,
the cabinet being provided with a pair of supporting or gliding surfaces extending from front to rear for supporting the lids for sliding movement thereon,
each lid being provided with a handle on top adjacent the front edge,
the front lid having adjacent its rear edge an upper surface which is inclined downwardly and rearwardly toward the rear edge,
the rear lid having adjacent its front edge a lower surface which is inclined upwardly and forwardly toward the front edge,
whereby when the front lid is moved rearwardly it wedges under and raises the rear lid,
the rear lid having a projection extending upwardly from its upper surface adjacent the rear edge thereof, and
the cabinet having a lid retaining element disposed directly in front of said projection when said rear lid is in its rearmost position and is raised by said front lid disposed therebeneath,
whereby, upon forward movement of the front lid from under the rear lid, said rear lid is retained against forward movement until the front lid has moved forwardly sufficiently for the rear portion of the rear lid to tilt downwardly and engage said supporting surfaces.

3. The combination with an open top cabinet, of

front and rear lids for closing the open top of the cabinet,

the cabinet having parallel supporting surfaces extending front to rear for supporting said lids for sliding forwardly and rearwardly,

the rear margin of the front lid being tapered toward the lower surface of the lid and the front margin of the rear lid being tapered toward the upper surface of the lid,

the rear lid having an upwardly extending lip along its rear edge, and

the cabinet having a downwardly extending flange so disposed adjacent said lip that it is engaged by said lip and thereby stops forward movement of said rear lid when the latter is in its rearmost position and raised by the front lid disposed therebeneath.

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