Jan. 6, 1925. 1,521,936

W. A. FADDEN ET AL

COLLAPSIBLE CRATE OR COOP

Filed Sept. 24, 1923 3 Sheets-Sheet 1

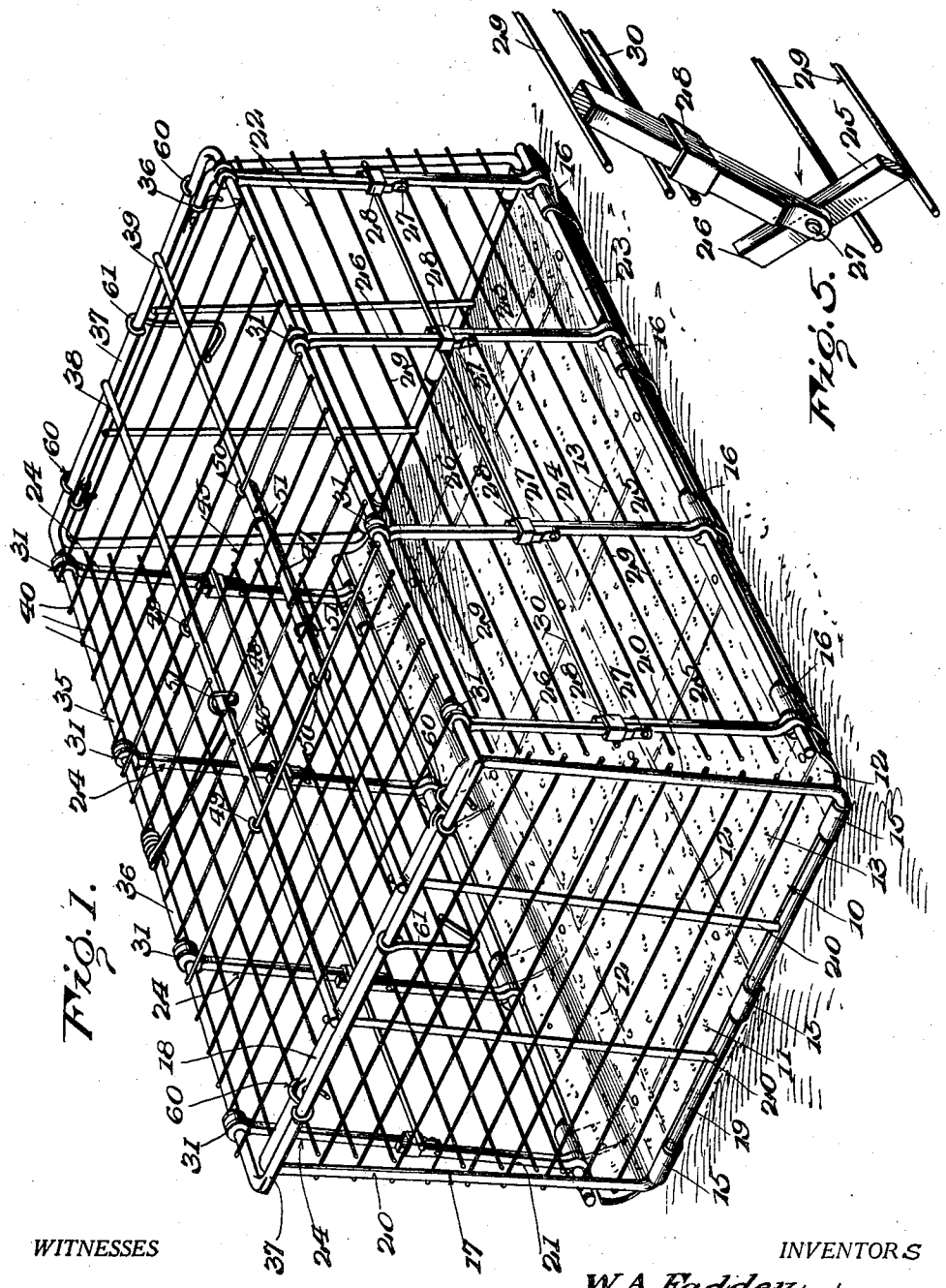


Fig. 1.

Fig. 5.

WITNESSES

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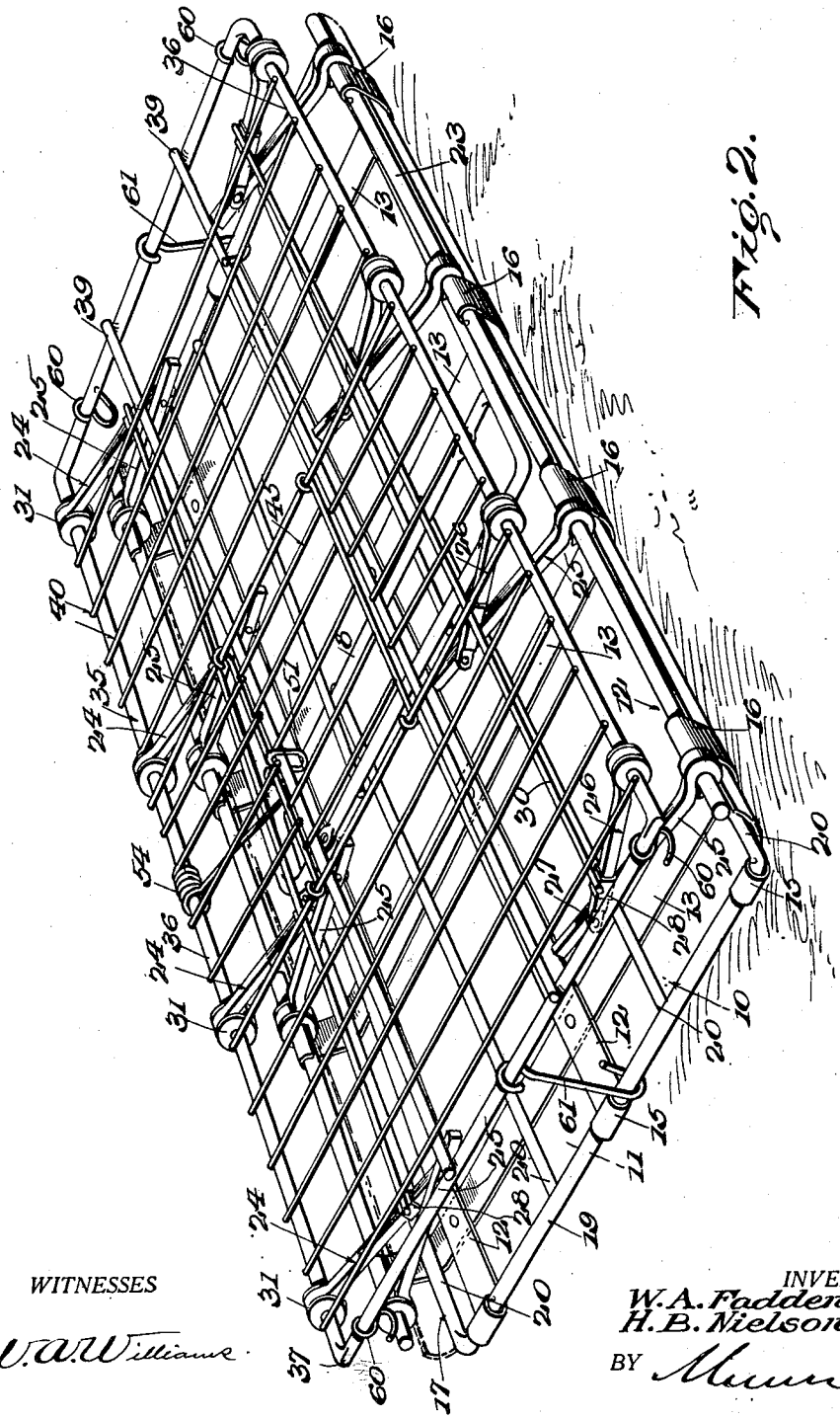


Fig. 2.

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Fig. 3.

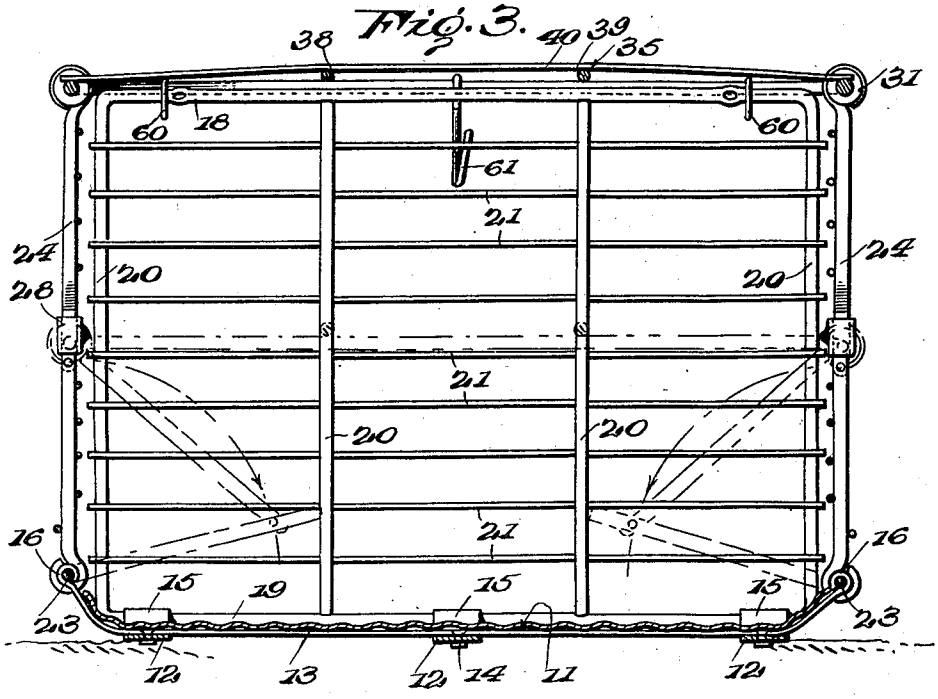
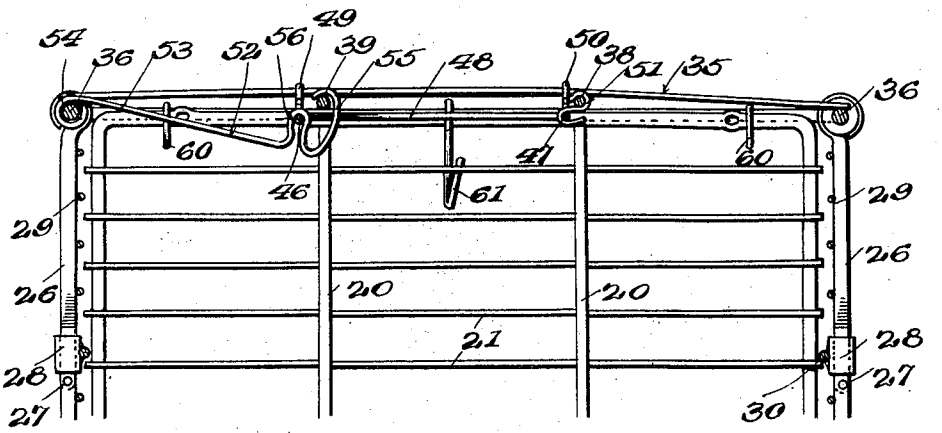


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

WARREN A. FADDEN AND HOLGER B. NIELSON, OF BUTTE, MONTANA.

COLLAPSIBLE CRATE OR COOP.

Application filed September 24, 1923. Serial No. 664,574.

To all whom it may concern:

Be it known that we, WARREN A. FADDEN and HOLGER B. NIELSON, citizens of the United States, and residents of Butte, in the county of Silverbow and State of Montana, have invented certain new and useful Improvements in Collapsible Crates or Coops, of which the following is a specification.

This invention relates to an improvement in collapsible crates or coops especially designed and adapted for use as a poultry coop for shipping purposes.

The object of the invention is to provide a crate of this character which is of simple, durable and compact construction and adapted to be quickly collapsed or folded and as quickly opened or extended and which is of all metal construction and of such design and organization as to be clean, wholesome and sanitary even after long continued use.

Another object is to provide a crate of this character and having these advantages and which is rigid in unfolded or extended position so as to facilitate handling, which presents no obstructions or projections beyond its top, sides or bottom whereby the coops are adapted to be stacked during shipping and which eliminates from its construction, bolts, nuts, screws and other loose and threaded parts liable to become detached or lost and to prevent ready and easy folding or unfolding of the coop.

Another object is to provide a crate of this character having embodied therein and organized therewith releasable fastening devices for securely and firmly though releasably holding the parts in folded or unfolded positions and for automatically and releasably securing the door of the crate in closed position.

A still further object of the invention resides in the provision of a crate of this character and having the advantages above mentioned and which is light in weight and adapted to be manufactured at a comparatively slight expense from materials and with facilities ordinarily available.

Other objects and advantages of the invention reside in certain novel features of the construction, combination and arrangement of parts which will be hereinafter more fully described and particularly pointed ou in the appended claims, reference being had to the accompanying drawings forming part of this specification, and in which:

Figure 1 is a perspective view illustrating the preferred embodiment of the invention and showing the same in extended or unfolded position and ready for use;

Figure 2 is a view, showing the same in folded position, certain of the parts, such as the bottom plate and wires of the side and end walls being omitted for the sake of clearness in illustration;

Figure 3 is a view in transverse section;

Figure 4 is a fragmentary sectional view, illustrating the locking device for the sliding bar of the crate; and

Figure 5 is a fragmentary perspective view, illustrating the action of the foldable sections of the side walls.

Referring to the drawings wherein for the sake of illustration is shown the preferred embodiment of the invention, the numeral 10 designates generally the bottom of the crate and as shown this bottom comprises an imperforate bottom plate 11 of corrugated sheet metal and a framework made up of parallel longitudinal bars 12 and parallel transverse bars 13, the transverse bars resting on the tops of the longitudinal bars and being riveted or otherwise secured thereto, as indicated at 14. The bars 12 and 13 are composed of flat pieces of metal and the ends of these bars 12 and 13 project beyond the bottom plate 11 and preferably are upwardly deflected, these ends terminating in apertured pivot ears designated at 15 and 16, respectively. When thus constituted, the framework made up of the bars 12 and 13 are adapted to firmly and securely support the plate 11 though if desired this plate may be welded or suitably secured to these bars.

End walls are provided and are of identical construction, each end wall including a frame designated generally at 17 and made up of upper and lower horizontal rods, designated at 18 and 19 respectively and vertical rods, designated at 20. The lower rod 19 of each end wall is rotatably mounted in the apertured pivot ears 15 provided at its end of the bars 12 of the framework of the bottom. A plurality of cross wires 21 secured to the vertical bars 20 completes the structure of the end walls. It is to be un-

derstood that the cross wires as well as the bars which make up the frame 17 are preferably welded to the parts with which they are associated, the vertical bars 20 being welded or otherwise suitably secured to the upper and lower bars 18 and the cross wires 21 being welded to the vertical bars 20. With the end walls so constructed and mounted they are adapted to be positioned vertically as shown in Figure 1 or to be folded down against and into substantial parallelism with the bottom as shown in Figure 2.

Side walls, designated generally at 22, are provided and are of identical construction, each including a lower or bottom longitudinally extending rod 23 rotatably mounted in the pivot ears 16 at its sides of the transverse bars 13 of the framework of the bottom. A plurality of uprights, designated generally at 24 is included in the structure of each side wall, each of the uprights being secured at its lower end to the rod 23 adjacent the pivot ear 15 and serving to prevent accidental displacement of the rod 23. Preferably the uprights 24 are secured to the rod 23 by welding after these parts have been assembled. Each upright 24 is made up of a pair of sections 25 and 26, the section 25 being the lower section and the section 26 being the upper section. As shown in the drawings portions of the sections 25 and 26 overlap and such overlapping portions are pivotally connected, as at 27. Means is provided for releasably holding the sections 25 and 26 in extended position and preferably such means comprises a slidable tubular band 28, one such band being provided for each pair of sections 25 and 26. When the sections are extended the bands 28 are slid down over the overlapping portions of such section and serve to prevent collapsing thereof. With the bands 28 so positioned as shown in Figure 1 they are frictionally engaged with the portions of the sections 25 and 26 with which they coact and are thus held against displacement. If desired shoulders may be provided on the outer faces of the sections 25 and 26 to prevent or limit the downward movement of the bands 28 thus complementing the action of the frictional engagement in preventing downward displacement of the bands. A plurality of longitudinally extending wires 29 are provided and are welded or otherwise suitably secured to the uprights 24, certain of such wires being welded or otherwise suitably secured to the section 25 of such uprights and the remainder of such wires being similarly secured to such upper section 26 of such uprights. A single longitudinal wire 30 is provided and is welded or otherwise suitably secured to the bands 28 and serves first as an element of the side wall with which it is associated and second, as a convenient operating means for all of the bands 28. The upper end of each section 26 of each upright 24 has integrally formed therewith an apertured pivot ear or eye 31 and such eyes of the uprights of each side wall are longitudinally alined for a purpose which will presently appear.

A top, designated generally at 35 is provided and includes a rectangular frame having side bars 36 pivotally mounted in the eyes 31 of the uprights 24 and having end bars 37 integral with or suitably secured to the side bars 36. Spaced longitudinal bars 38 and 39 are arranged in between and parallel to the bars 36 and are welded or otherwise suitably secured to the end bars 37. A plurality of cross wires 40 extend between the side bars 36 and are welded or otherwise suitably secured to these side bars and to the longitudinal bars 38 and 39.

Certain of the cross wires 40 are cut away between the longitudinal rods 38 and 39 at the center of the top to provide an opening through which access may be had to the interior of the crate or coop and for closing this opening, a sliding door or closure designated generally at 45 is provided. This closure includes side rods 46 and 47 and a plurality of cross wires 48 welded to the side rods and complementary to the cutaway cross wires 40 of the top. The ends of the side rods 46 and 47 of the bar are formed with integral eyes 49 and 50 respectively, the said eyes slidably embracing certain of the cross wires 40 of the top so that the door is supported for sliding movement and is adapted to be positioned to close the opening provided in the top or to leave the same entirely free and unobstructed as desired. Means is provided for securing the door thus constituted in closed position and includes a pair of hooks 51 pivotally mounted on the longitudinal rod 38 cooperable with the side bar 49 of the door and also includes an automatic locking device, designated generally at 52. The locking device 52 includes a bar 53 having a coil 54 by which it is mounted upon one of the side rods 36 of the top. If desired the coil may be constructed of resilient metal, one terminal of the coil being secured to the rods 36 and the opposite terminal being integral with or secured to the bar 53 and the tendency of the coil being to swing the bar 53 downwardly in a clockwise direction as viewed in Figure 4. In any event the coil serves to mount the bar for swinging movement on the slide rod 36 of the frame. At the end of the bar 53 opposite the coil 54 a loop 55 is provided and embraces the longitudinal rod 39 of the frame, and serves to limit the movement of the bar 53 and guide it to its proper movements. Adjacent the loop a U-shaped latch 56 is formed and as shown at 51 one of the legs of the U-shaped portion is constituted

by a portion of the loop 55. When the door is in closed position the U-shaped portion drops down over the side bar 46 of the door and holds the same in closed position. In order to release the door it is only necessary to reach through the cross wires 40 of the top and lift the bar 53 upwardly so as to disengage the U-shaped latch 56 from the bar 46 of the door frame. Whereupon the hooks 51 having been previously released the door may be readily opened. When the door is moved to open position the bar 53 rides on the side bar 46 of the door so that when the door is again moved to closed position the U-shaped loop 56 automatically drops into engagement with the side rod 46 as shown in Figure 4.

Each end bar 37 of the door carries a pair of hooks or other fastening members 60 which are engageable with the horizontal bars 18 of the end walls for holding the end walls in upright position when the crate is in extended or unfolded position. Each end bar 37 also carries at its center a single elongated hook member 61 which as shown in Figure 2 is adapted to engage or coact with the lower horizontal bars 19 of the end walls to hold the parts of the crate collapsed or in folded position.

When the crate is folded up for return shipment or for other purposes these parts are positioned as shown in Figure 2. When it is desired to unfold the crate-the resilient hooks 61 are released from their engagement with the horizontal bars 19, the top 35 is grasped and raised or moved directly away and upwardly from the bottom, the sections of the side walls unfolding and coming into vertical alinement to accommodate this movement of the top, and the end walls are then swung upwardly to vertical position.

At this point it is to be noted that the construction and arrangement of parts is such that the upper horizontal bars 18 of the end walls abut the inner portions of the end bars 37 of the top, these end walls fitting in between the side bars 36 of the top and the longitudinal rods 38 being offset from the end rods 37 or secured to the topmost portions of these rods in order to provide for the necessary clearance for the upper horizontal rods 18 of the end walls. The hooks 60 are engaged with the horizontal rods 18 to secure the end walls in position and the sections of the side walls are held against collapsing by sliding the bands 28 down over the overlapping portions of the sections 25 and 26 of the uprights 24. In order to fold up the crate the hooks 60 are released from their engagement with the bars 18 and the ends are swung downwardly in substantial parallelism to the bottom; the wires 30 are then grasped and pulled upwardly so as to move the bands 28 up on the sections 26 of the uprights and out of engagement with the overlapping portions of the sections 25 and 26. The top 25 is then pressed downwardly and the sections of the side walls folded inwardly into substantial parallelism to the bottom, the uprights 24 of the sections breaking or pivoting about their joints 27 for this purpose. This brings the top 35 into close proximity to the bottom and effects a compact folding or collapsing of the crate so as to render the same susceptible of convenient transportation or shipment since it occupies a minimum amount of space and presents a light weight article.

It is to be noted that the crate being constructed of all metal is entirely sanitary and embodies no wood or other parts likely to absorb water or odors or to afford a breeding place for bacteria or vermin. The crate may be readily folded up or collapsed and is quickly set up or unfolded, and when unfolded and ready for use presents an extremely rigid, strong and durable coop. The bottom plate 11 provides a convenient panel upon which the name and address of the owner of the coop and the person to whom it is to be shipped may be readily impressed or otherwise embossed.

We claim:

1. In a collapsible crate of the class described, a bottom, end walls pivotally mounted on the bottom, side walls pivotally mounted on the bottom, each of the side walls comprising a longitudinal lower bar pivotally connected to the bottom, a plurality of sectional uprights, the sections of each upright being pivotally connected, slidable tubular locking bands cooperable with the overlapping portions of the sections of the uprights for holding the same in extended position, a plurality of longitudinal wires secured to the uprights, a single such wire secured to said bands, a top having side bars pivotally mounted on the upper ends of the upper sections of the uprights, and having end bars carrying releasable fastening means cooperable with the end walls.

2. In a collapsible crate of the class described, a bottom, end walls pivotally mounted on the bottom, side walls pivotally mounted on the bottom, each of the side walls comprising a longitudinal lower bar pivotally connected to the bottom, a plurality of sectional uprights, the sections of each upright being pivotally connected, and a top having side bars pivotally mounted on the upper ends of the upper sections of the uprights.

3. In a collapsible crate of the class described, a bottom, end walls having a frame including bottom rods pivotally connected to the bottom, foldable side walls pivotally connected to said bottom, a top pivotally connected to the side walls and carrying releasable fastening means cooperable with the end walls for holding the same upright in the extended position of the crate and also

carrying other releasable fastening means cooperable with the bottom rods of the end walls for holding the parts of the crate in folded position.

4. In a collapsible crate of the class described, a bottom including a bottom plate and a framework underlying the bottom plate and consisting of longitudinal and transverse bars, said bars having their ends projecting beyond the bottom plate, and side and end walls pivotally mounted on the projecting ends of said transverse and longitudinal bars respectively.

5. In a collapsible crate of the class described, a bottom made up of a bottom plate and a framework underlying the bottom plate and collapsible side and end walls pivotally mounted on said framework.

6. A crate having a top including longitudinal rods and cross wires, a door having side rods and cross wires, the side rods having loops formed at their ends embracing certain of the cross wires of the top, and a locking device including a bar pivotally mounted on one of the longitudinal rods of the top and having a guide at its opposite ends coacting with another longitudinal rod and having a U-shaped keeper adjacent the guide cooperable with one of the side rods of the door.

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