Nov. 19, 1940. T. H. WHITE 2,222,008

LATCH MOUNTING FOR CONTAINERS

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Fig. 1.

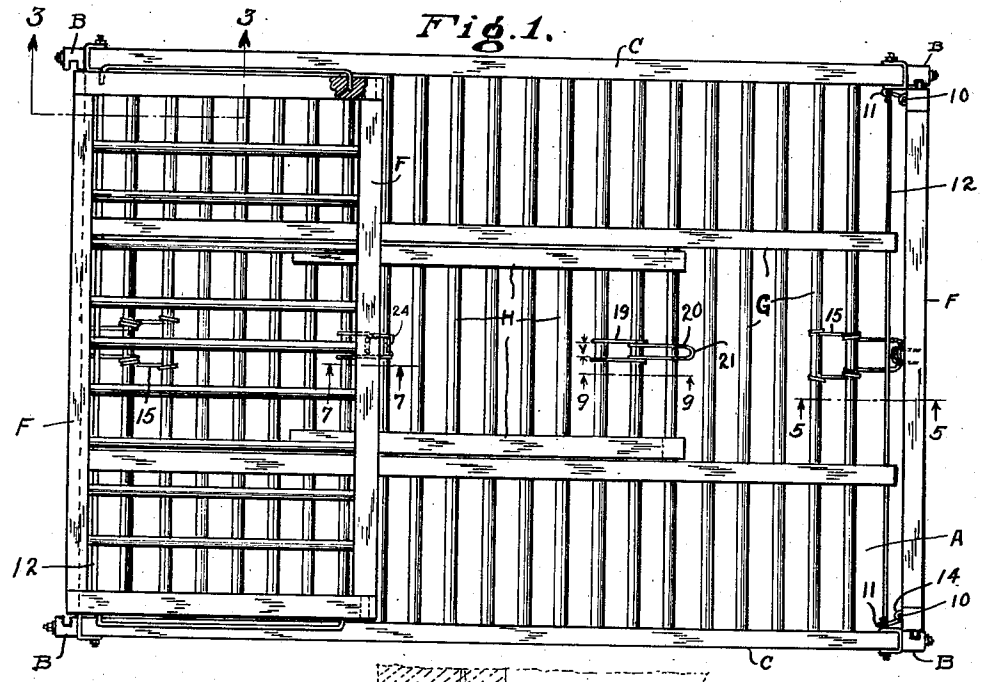


Fig. 9.

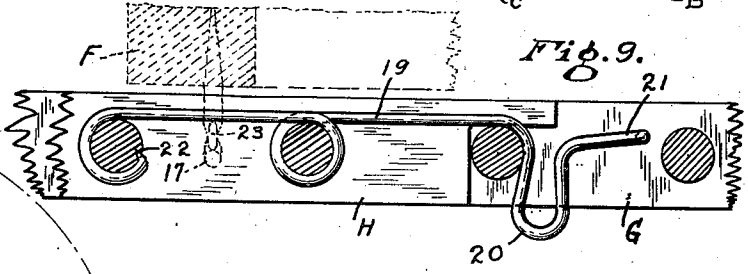
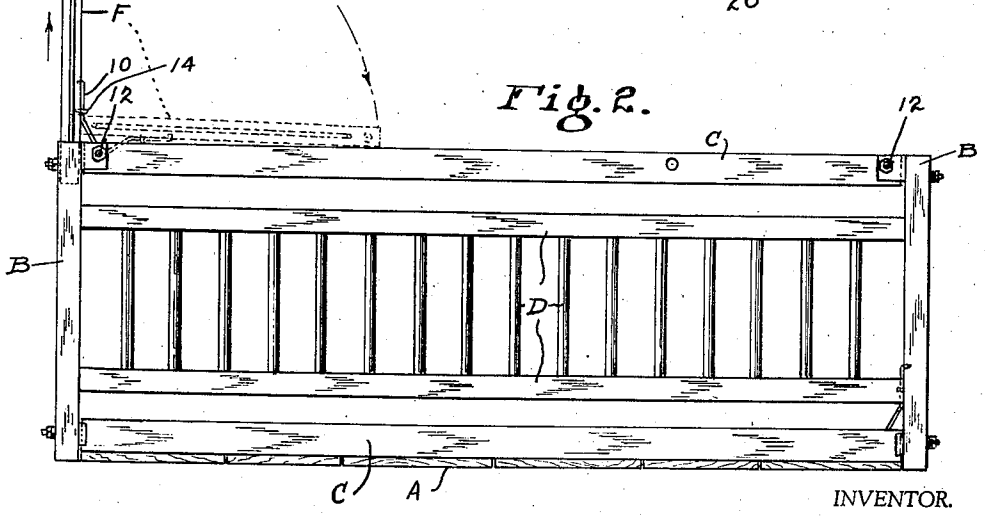


Fig. 2.



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Fig. 6.

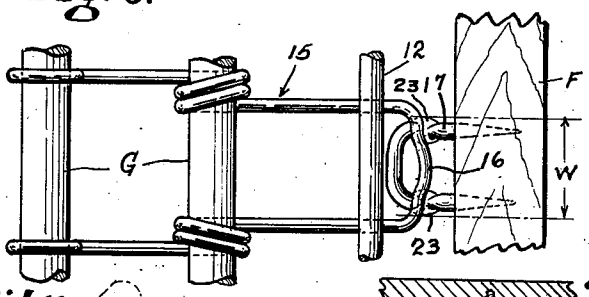


Fig. 8.

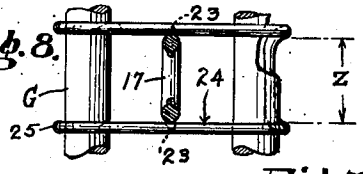


Fig. 7.

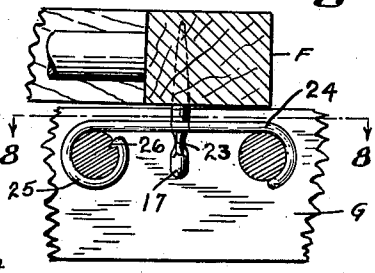


Fig. 11.

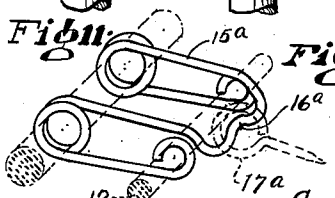
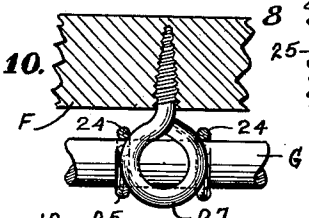


Fig. 10.



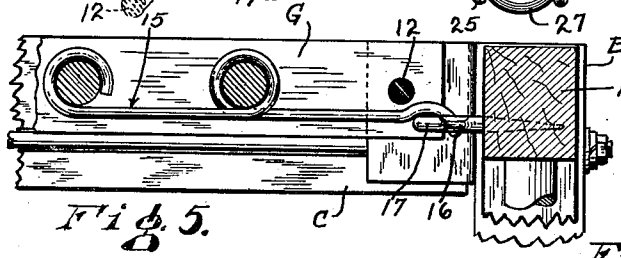


Fig. 5.

Fig. 4.

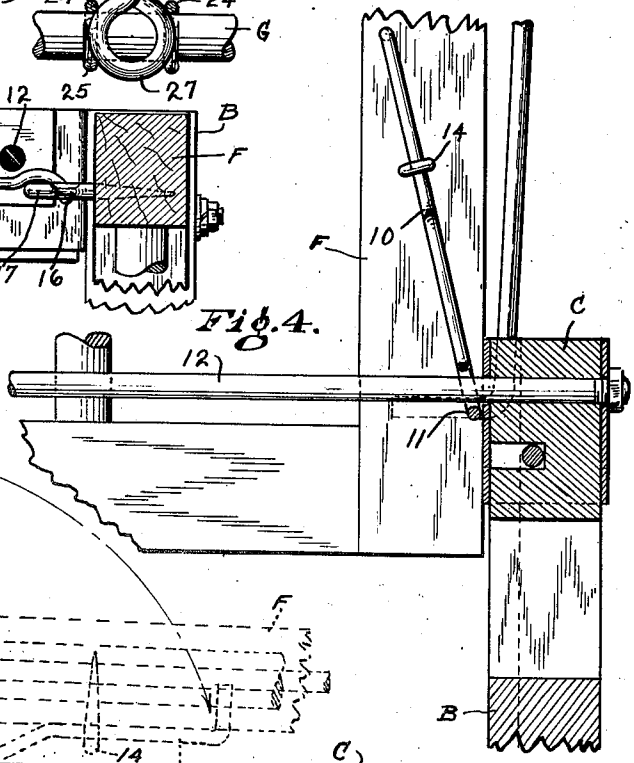


Fig. 3.

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2,222,008

LATCH MOUNTING FOR CONTAINERS

Thomas H. White, Hunting Valley, Ohio, assignor to The Milo Products Company, Cleveland, Ohio, a corporation of Ohio

Application June 10, 1938, Serial No. 213,007

4 Claims. (Cl. 292—87)

This invention relates broadly to shipping crates and more specifically to improvements in collapsible poultry crates of the form disclosed in Patent No. 2,109,902 issued March 1, 1938, to John A. Hatch et al., entitled "Poultry crate."

The primary object of the present invention resides in the provision of an improved organization of latch mechanisms for such crates and to certain structural advantages inherent in the design thereof.

Another object of the invention contemplates a latch mechanism which is more economic of manufacture, more efficient of operation, and susceptible of assembly with greater expedition than latches for the same purpose heretofore constructed from sheet metal stampings or die struck parts.

A still further object of the invention resides in a construction in which certain of the parts of the improved latch are operativey coordinated with other parts having an independent function and are also interchangeable upon crates or coops of different construction and size.

Other objects and advantages more or less ancillary of the foregoing and the manner in which all the various objects are realized will appear in the following description and accompanying drawings.

Referring to the drawings wherein the preferred embodiment of the invention is illustrated:

Fig. 1 is a plan view of a poultry shipping crate illustrating certain of the improved latching members in their assembled relation thereon.

Fig. 2 is a side elevational view of the poultry coop illustrated in Fig. 1, one of the end gates thereof being elevated and illustrated further by dotted lines; in its folded position upon the top of the coop;

Fig. 3 is a vertical section through a fragmentary portion of the coop, the section being taken on a plane indicated by the line 3—3 in Fig. 1 and illustrating the form of the improved wire latch for supporting the lower end of the end gate in its folded position;

Fig. 4 is a transverse section through a fragmentary portion of the coop illustrating the assembled relation of the improved latch illustrated in Fig. 3; the section herein being taken on the plane indicated by the line 4—4 in Fig. 3;

Fig. 5 is a sectional view through a portion of the top gate of the poultry coop illustrating the structure of the improved latch and relation thereof to the coordinated parts of the coop, the section illustrated herein being taken on a plane indicated by the line 5—5 in Fig. 1;

Fig. 6 is a plan view of the latch member illustrated in Fig. 5 and showing, upon an enlarged scale certain fragmentary portions of the framing members of the coop;

Fig. 7 is a sectional view through the top portion of the crate, showing the appearance of the latch as viewed from a plane indicated by the line 7—7 in Fig. 1;

Fig. 8 is a horizontal sectional view of the latch member shown in Fig. 7, the section being taken on a plane indicated by the line 8—8 in Fig. 7;

Fig. 9 is a transverse sectional view through the top of the coop showing the hinged door latch, the section being taken on a plane indicated by the line 9—9 in Fig. 1. The illustration further shows the relation of the latch member illustrated in Figs. 5 and 6 with the latch embodied herein;

Fig. 10 is a detail sectional view through the upper portion of the coop illustrating an alternate form of one of the members of the latching mechanism embodied in the present invention; and

Fig. 11 is a view in perspective of a fragmentary portion of the top of the coop and a modified form of the end gate latch.

As illustrated in Figs. 1 and 2, the poultry crate comprises generally a rectangular floor A formed of a plurality of relatively thin strips of wood, corner posts B, top and bottom side rails C, side members D and door panels F. The top G is formed from a dowel and rail structure having a hinged door H in the central portion thereof. The poultry crate illustrated herein is of the folding type operable upon adjustment of the doors through the expedient of the latching mechanism which affords a support for the door members in their various positions of adjustment. Inasmuch as the structure of the coop per se forms no part of the present invention, further description thereof is deemed unnecessary herein save only that in folding the coop the door panels F are first elevated then swung about their latch members to the position where they may be adjusted into intimate engagement with the top of the coop.

The latch member which facilitates the pivotal adjustment of the end gate incident the folded adjustment thereof comprises a single spring wire strand 10 formed with a looped end portion 11 having a throat therein which is slightly less in width than the diameter of the tie rod or coop frame member 12 with which it is engaged. The looped portion of the strand is formed to rotate freely upon the rod 12 after the portion forming

the throat has been forced or sprung over the rod. The body of the strand adjacent the loop diverges from the inner face of the corner posts B and the free end of the loop is formed with an extension or a lip to assure the engagement of the latch with the rod 12 when the door panel is elevated to its uppermost position, as illustrated in Fig. 2.

The upper portion of the wire strand 10 is bent inwardly at right angles to the body thereof for engagement within a hole drilled in the frame members of the door panels. The strand is further anchored to the door structure by a staple 14 disposed adjacent the divergent portion of the latch. As will be seen in Fig. 4, the latch wire 10 is mounted upon the door panel frame members at a suitable angle to cause the looped end portion thereof to abut the side rail C of the coop and thus restrain lateral movement of the door when folded down upon the top panel G of the coop. The end gates or door panels F are retained in their closed position by the latches 15 which are mounted for lateral engagement with a keeper in the top rail of the end panels F. The latch 15 is constructed from a continuous strand of spring steel wire formed to loosely encircle the first two dowels or frame members in the end of top panel G and formed also with an extended loop terminating adjacent the end gate F. The extended loop of the latch 15 is constructed with a depending arcuate bend 16 of suitable width for engagement between the arms of a staple 17 which is mounted in the top rail or frame of the end door panel F for engagement therewith. As will be seen in Figs. 5 and 6, the latch 15 is disposed subjacent the tie rod 12 which constitutes a support therefor in the event the coop is lifted by the end door panel only. The arms of the extended loop of the latch 15 are inclined upwardly relative to the horizontal plane of the staple 17 so as to guide the depending arcuate bend 16 therein over the upper face of the staple incident its engagement therewith. As shown in Fig. 11, the latch 15 is formed to encircle and slide freely upon the first dowel or frame member of the top and also the rod 12. In this embodiment the arcuate loop or hump 16—*a* in the end portion thereof is disposed to extend upwardly for engagement within a screw eye 17—*a* in the end gate.

The door H in the central portion of the top panel is retained in its closed position by a latch 19 comprising a continuous strip of spring steel wire formed with a depending open loop 20 configured to partially encircle one of the dowel members of the top G which constitutes the keeper therefor when the loop is sprung thereover. The latch 19 is further constructed with an extended finger grip 21 adapted, in operation, to deflect the loop from the body of the dowel and thus facilitate the release of the locked engagement thereof with the dowel. The ends of the wire forming the latch 19 are wrapped around the first and second dowel members in the door, the strands intermediate the dowels being disposed in parallel relation, suitably spaced for the reentrant engagement of the arms of the staple 17. In shearing the wire constituting the latch 19 barbs or spurs 22 are formed in the ends thereof, which are embedded in the body of the dowel by an assembly tool when the encircling portions of the strand are clinched upon the dowels. The assembly tool contemplated herein preferably comprises an instrument having a pair of circular jaws formed to impress the wire loops into the wood dowels and also to hold the strands of wire intermediate the dowels in spaced parallel relation.

As will be noted in Fig. 6, the staple 17 is formed with laterally extended ears or tabs 23 preferably formed by flattening the round stock from which the staple is made. The over all width W of the staple as measured across the crest of the ears 23 is slightly greater than the gap Y between the parallel strand of the latch 19 so that the ears 23, upon application of sufficient pressure, will snap between the strands and thus retain the door in its folded adjustment upon the top of the coop. The staple 17 is positioned in the door panel and also in relation to the hinge latches 10 to fall between the parallel strands of the anchored end portions of the latch 19 when the door F is adjusted in its folded position. The door in the opposite end of the coop is retained by a latch 24, adapted for cooperation with an end door staple 17 in the same manner as employed in the latch 19. A second latch 24 may be used in coops of a greater height when the staple 17 will not register with the parallel strands of the latch 19 when the end door is folded. The latch 24 as will be seen in Figs. 7 and 8, is formed of a single strand of wire bent with a U-loop in the central portion thereof and further bent to partially envelop one of the dowel members in the top of the coop. The ends of the strands extend in parallel relation to the adjacent dowel where they are anchored by coiled engagement therewith. The ends of the coils 25 are formed with spurs 26 bent inwardly to pierce the dowel when the encircling portions of the strands are impressed in the body of the dowel. The latch 24 is located relative the position of the staple in the door panel for reentrant engagement between the parallel strands thereof, the dimension Z between the parallel strands of the latch being slightly less than the over all width across the ears of the staple or the dimension W so that, upon application of pressure, the ears 23 will snap or spring over the parallel arms of the latch and thus retain the end door in its folded adjustment.

As shown in Fig. 10, the end door panel is retained by a screw eye 27 operatively coordinated with the latch members 15, 19 and 24 in a similar manner to that of the staple 17. The screw eye is formed slightly larger in diameter than the distance between the parallel strands of the latch as indicated by the dimensions Y and Z, so that the strands will be laterally deflected upon reentrant engagement of the eye, and thus perform the operative function of the ears 23 in the staple.

The screw eye 27 is positioned and assembled for engagement with the arcuate loop 16 in the latch 15 and may, if necessary, be adjusted from time to time, to compensate for the wear, warpage or deformation of the supporting members of the parts coordinated therewith.

Although the foregoing description is necessarily of a detailed character, in order that the invention may be completely set forth, it is to be understood that the specific terminology is not intended to be restrictive or confining, and that various rearrangements of parts and modifications of detail may be resorted to without departing from the scope or spirit of the invention as herein claimed.

I claim:

1. In a poultry coop embodying spaced dowel members and a vertically sliding door, a latching mechanism for the securement of the door in

closed position comprising, a staple mounted upon a frame member of said door, laterally extended ears in the arms of said staple, a latch constructed of a continuous strand of wire formed with a U-bent therein and having the end portions thereof coiled about a pair of said dowels and freely slidable thereon and a loop in the U-bend of said latch engageable between the arms of said staple under the inherent spring pressure of the wire to hold said door in locked position.

2. In a poultry coop having spaced dowels and a door, mechanism for the securement of said door comprising a latch formed of a single strand of wire coiled about a pair of contiguous dowels and slidable thereon, a staple in said door, the portion of the wire strand which extends beyond the dowels constituting a loop, a second depending loop therein, the last named loop being arranged for reentrant engagement between the arms of said staple.

3. In a poultry coop embodying parallel spaced framing members and a door, a latch for the securement of said door comprising, a spring wire strip, coils therein encircling respectively a pair of said parallel spaced framing members, a free end portion in said strand and a loop therein engageable with said door.

4. In a poultry coop embodying parallel spaced framing members and a door having parallel spaced framing members, a latch for the securement of said door comprising, a spring wire strip, coils therein encircling respectively a plurality of said parallel spaced framing members, a free end portion in said strip, a loop therein, said loop constituting a keeper for said door.

THOMAS H. WHITE.