

April 4, 1939.

J. B. OLSON

IRONCLAD DOOR

Filed Aug. 14, 1936

2,153,204

2 Sheets-Sheet 1

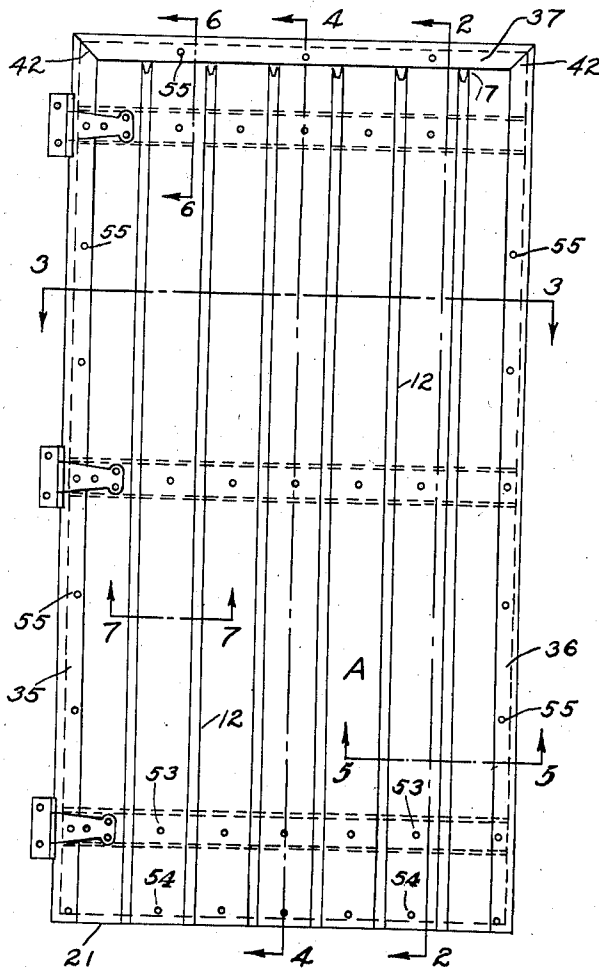


FIG. 1

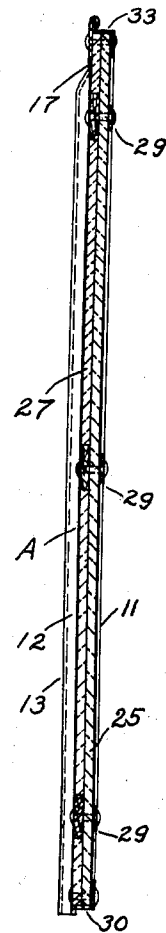


Fig. 2

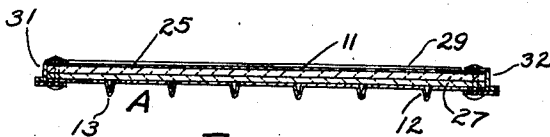


FIG. 3

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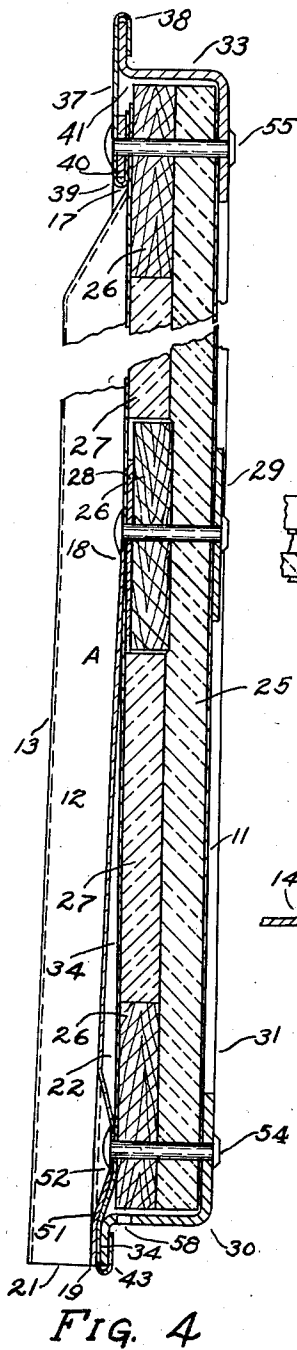
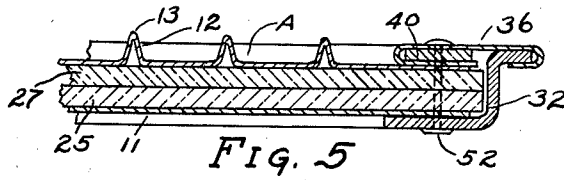
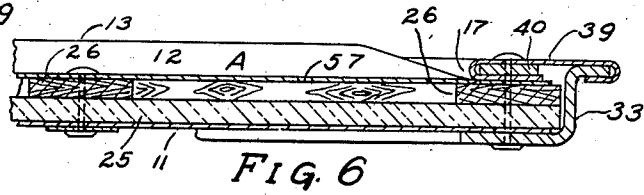
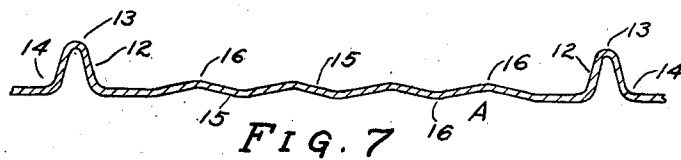
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IRONCLAD DOOR

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2 Sheets-Sheet 2



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IRONCLAD DOOR

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Application August 14, 1936, Serial No. 95,990

9 Claims. (Cl. 189—46)

Good farm stock must be well housed and this cannot be done without good buildings having strong, closely fitting, well insulated doors. Farm building doors are exposed to all kinds of weather and they must therefore be insulated and be water and sweat proof. Generally stated the object of the present invention is to provide a door which is especially suited to barns and poultry houses, wherein the door is strong, durable, light, selfsealing, is insulated and can be manufactured at low cost.

A further object is to provide a steel armored door which cannot accumulate moisture on the inside and is proof against rain being driven by high winds into the interior or under the sheathing.

Another object of my invention is to provide frame members which may be easily and quickly assembled over the door panel and secured thereto.

It is further an object to not only prevent water or moisture from entering or forming on the interior of the door, but also provide air channels and moisture drains or drips, thus to doubly insure against interior moisture.

Farm building doors are roughly handled and must therefore be strong and durable. An object of the present invention is to provide a door which is impervious to the weather and rough handling and also provide a simple strong hinge supporting means whereby suitable bolts may be used to secure the hinges to a reinforced part of the panel.

Still another object is to provide a door which may, without changing the essential parts, be made fully or semi-insulated, or I may dispense with the insulating material entirely by providing instead a dead air space only as an insulating medium.

These objects are accomplished by means of a novel frame, novel flashing, novel front sheathing and suitable air spaces and pockets as will hereinafter appear.

To these and other useful ends my invention resides in features of construction and combinations thereof or their equivalents as hereinafter set forth and claimed and shown in the accompanying drawings in which—

Fig. 1 is a front elevation of one form of my invention.

Fig. 2 is a vertical section taken on line 2—2 of Figure 1.

Fig. 3 is a transverse section taken on line 3—3 of Figure 1.

Fig. 4 is an enlarged fractional vertical section taken on line 4—4 of Figure 1.

Fig. 5 is an enlarged fractional horizontal section taken on line 5—5 of Figure 1.

Fig. 6 is an enlarged fractional section taken on line 6—6 of Figure 1.

Fig. 7 is an enlarged horizontal section of the front sheathing taken on line 7—7 of Figure 1.

As thus illustrated my improved door comprises a front sheathing which, in its entirety, is designated by reference character A and a rear sheathing 11. Sheathing A is provided with widely spaced and relatively large projections 12 the apexes of which are slightly rounded as at 13, the base of the projections being rounded as at 14.

I provide a number of shallow V shaped corrugations 15 having straight sides and sharp apexes as at 16 thus to stiffen the portion of the sheathing A which lies between projections 12. These projections and corrugations, in addition to giving the front of the door a pleasing appearance, stiffen the door and form dead air channels for a purpose which will hereinafter appear. Projections 12 terminate as at 17.

By referring now to Figure 4 it will be noted that sheathing A extends slightly outward at its bottom beginning as at 18, the bottom terminating as at 19 leaving an elongated V shaped pocket 22 the base of which terminates slightly below the bottom of the insulating sheet and wood cleats as will hereinafter appear.

I provide three or more types of fillers for my improved door, one being illustrated in Figures 2, 3, 4 and 5, wherein insulation 25 may be made in a single sheet having a length and width preferably slightly greater than rear sheathing 11. Front sheathing A is also slightly narrower than member 25 and does not extend quite to the top or sides of member 25. The bottom of member A it will be noted, extends a considerable distance below the bottom of member 25, (see Figure 4).

I provide a number of transverse wood cleats 26 each extending for the width of member 25 and filling the space between 25 and member A. In the full insulated door as illustrated in Figure 4, I provide insulating sheets 27 which fill the space between cleats 26 and have the same thickness as these cleats.

Thus far it will be seen that I have provided a fully insulated panel of a door having a decorative front. I will now describe the frame of my improved door which is adapted to tightly embrace the four edges of the panel.

I preferably provide metal strips 28 and 29,

members 23 being under sheathing A and members 29 positioned on the rear side of sheathing 11. The purpose of these strips is to stiffen the door transversely at the point where the hinges are attached (see Figure 1). I provide Z irons 30, 31, 32 and 33 as clearly indicated in Figures 4, 5 and 6, the depths being slightly greater than the thickness of the panel.

I provide front plates 34, 35, 36 and 37, each preferably attached to their respective Z irons as follows: Plate 37 is folded over the outwardly extending lip of member 33 as at 38, the inner edge being bent or folded back as at 39, a space being left between the fold for bar 40; thus it will be seen that a U shaped frame bar is formed which will tightly embrace the panel, leaving an air space as at 41. Plates 34, 35 and 36 are formed and attached to their respective Z irons exactly as in plate 37. The ends of the U shaped frame bars thus formed are mitered as at 42 (see Figure 1), thus to form the three sides of the door frame. The bottom plate 34 is made quite wide, the top edge terminating preferably as at 43, thus to act as a flashing plate, the bottom edge being folded over the outwardly projecting flange of member 30 as at 43.

By referring to Figure 4 it will be seen that flashing plate 34 is bent as at 51 and 52 thus to contact the strip 26 near its bottom and continue upward in contact with the insulating sheet 27, rivets 53 acting to hold member A and the flashing plate 34 into position.

It will be seen by referring to Figure 1 that plates 35 and 36 are not mitered at their bottom ends but extend to the bottom of member A as illustrated, Z iron 30 at its ends however, being mitered to the ends of members 32 and 31. The U shaped frame bars, as described and illustrated, are preferably first completed, then pressed over the panel edges and the mitered ends welded together, thus to form a substantial frame for the panel, the sides and top being securely bound to the panel by means of suitable rivets 55, the bar 40 answering as a spacer for the inner folds of the side and top plates. Other bolts and rivets are provided as illustrated in the various figures.

By referring to Figure 1, it will be noted that I provide preferably a number of spaced rivets 54. These rivets act to hold the bottom edge of member A tightly against the bottom of member 34.

Thus it will be seen that I have provided a strong, iron clad, fully insulated door. In Figure 6 it will be noted that I have left out insulating member 27. In this design I preferably supply vertical wood strips 57 which are the same width and thickness as strips 26 and long enough to fill the space between these strips; thus there will be left a dead air space between the strips 26 and 57.

Thus it will be seen that I provide numerous vertical air pockets which are open at their bottoms under sheathing A; that there is an air space 22 between member A and flashing 34; that an air channel 41 is provided which intersects the narrow air space at the edges of the panel; and that orifices 53 in member 30 provide a drip outlet for any moisture that might accumulate around the spacer members.

Clearly many minor changes in the shape and manner of securing the parts together may be made without departing from the spirit and scope of the appended claims.

Having thus shown and described my invention, I claim:

1. A door of the class described, comprising front and rear sheathings having spacing means

therebetween forming a door panel, a frame adapted to tightly embrace the front and rear edges of said panel, not including the bottom edge of said front sheathing, said frame comprising bars being Z-shaped in cross section, forming the rear and outer edges thereof, the front flange extending outwardly forming a door jamb, plates forming the front of said frame the outer edges of which are secured to said jamb, the bottom of said front sheathing extending to the bottom edge of said jamb and being positioned in front of the bottom frame plate.

2. A door of the class described, comprising front and rear sheathings having spacing means therebetween forming a door panel, a frame adapted to tightly embrace the front and rear edges of said panel, not including the bottom edge of said front sheathing, said frame comprising bars being Z-shaped in cross section forming the rear and outer edges thereof, the front flange extending outwardly forming a door jamb, plates forming the front of said frame, the outer edges of which are secured to said jamb, the bottom of said front sheathing extending to the bottom edge of said jamb and being positioned in front of the bottom frame plate, the bottom plate of said frame extending upward a distance forming a flashing plate for said spacing means.

3. A door of the class described, comprising front and rear sheathings having spacing means therebetween forming a door panel, a frame adapted to tightly embrace the front and rear edges of said panel, not including the bottom edge of said front sheathing, said frame comprising bars being Z-shaped in cross section, forming the rear and outer edges thereof, the front flange extending outwardly forming a door jamb, plates forming the front of said frame the outer edges of which are folded around the outer edge of said jamb, the bottom of said front sheathing extending to the bottom edge of said jamb and being positioned in front of the bottom frame plate.

4. A door of the class described, comprising front and rear sheathings having spacing means therebetween forming a door panel, a frame adapted to tightly embrace the front and rear edges of said panel, not including the bottom edge of said front sheathing, said frame comprising bars being Z-shaped in cross section, forming the rear and outer edges thereof, the front flange extending outwardly forming a door jamb, plates forming the front of said frame the outer edges of which are secured to said jamb, the bottom of said front sheathing extending to the bottom edge of said jamb and being positioned in front of the bottom frame plate, said front sheathing having spaced vertically positioned V-shaped projections in parallel relation and extending from the bottom thereof to near the bottom edge of the top plate of said frame.

5. A door of the class described, comprising front and rear sheathings having an insulating board adjacent said rear sheathing and spaced transverse strips adjacent said front sheathing to thereby form a door panel, a frame adapted to tightly embrace the front and rear edges of said panel, not including the bottom edge of said front sheathing, said frame comprising bars being Z-shaped in cross section forming the rear and outer edges thereof, the front flange extending outwardly forming a door jamb, plates forming the front of said frame the outer edges of which are secured to said jamb, the bottom of said front sheathing extending to the bottom edge of

said jamb and being positioned in front of the bottom frame plate.

5 6. A door of the class described, comprising front and rear sheathings having spacing means therebetween forming a door panel, a frame adapted to tightly embrace the front and rear edges of said panel, not including the bottom edge of said front sheathing, said frame comprising bars being Z-shaped in cross section, forming
10 the rear and outer edges thereof, the front flange extending outwardly forming a door jamb, plates forming the front of said frame the outer edges of which are secured to said jamb, the bottom of said front sheathing extending to the bottom edge of
15 said jamb and being positioned in front of the bottom frame plate, said spacing means comprising spaced, horizontal strips thereby to form an open framework and a dead air space between said strips and said front and rear panels.

20 7. A door of the class described, comprising a panel and a frame adapted to tightly embrace the front and rear edges thereof, said frame comprising Z-irons the front flange extending outwardly and being adapted to act as a door jamb, the front of said frame comprising a plate, the
25 outer edge of which is folded around said door jamb.

8. A door of the class described, comprising front and rear sheathings having spacing means therebetween forming a panel, a frame adapted to embrace the rear and front edges of said panel, not including the bottom edge of said front sheathing, said frame comprising Z-irons, the front flanges of which extend outwardly forming a door jamb, top and side plates being secured to said door jamb, the bottom edge of said front sheathing being positioned in front of and extending to the bottom edge of said jamb. 5 10

9. A door of the class described, comprising front and rear sheathings having spacing means forming a door panel, a frame adapted to tightly embrace the rear and front edges of said panel, said frame comprising Z-irons the front flanges of which extend outwardly forming a door jamb, top and side plates being secured to said jamb by folding the outer edges over said jambs, the inner edges of said top and side plates being folded under and having a metal strip within the fold, bolts passing through said folds, strips, panel and rear inner flanges of said Z-irons, to thereby bind said panel between said folds and the rear inner flange of said Z-irons. 15 20 25

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