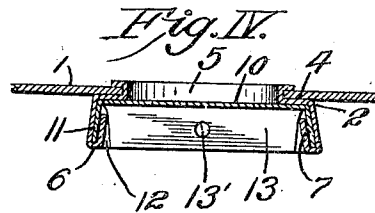
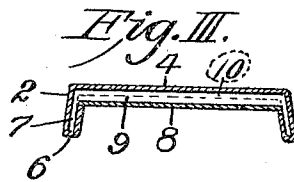
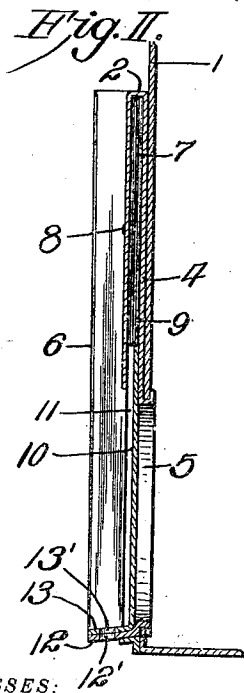
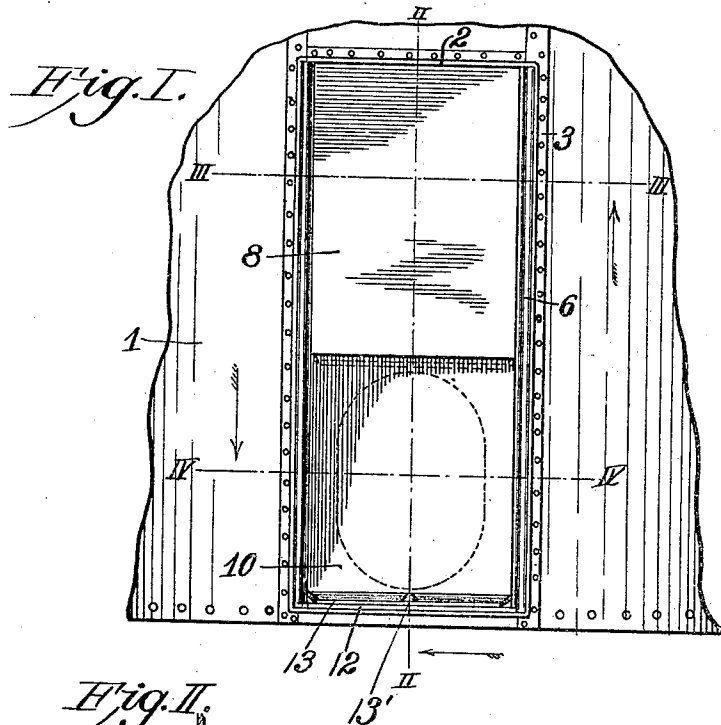


A. A. KRAMER.
GRAIN DOOR.
APPLICATION FILED JUNE 28, 1909.

957,424.

Patented May 10, 1910.



WITNESSES: 12'

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GRAIN-DOOR.

957,424.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed June 28, 1909. Serial No. 504,701.

To all whom it may concern:

Be it known that I, ANDREW A. KRAMER, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Grain-Doors; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

My invention relates to grain doors and more particularly to a device of that class for use on out door granaries and especially those constructed of sheet metal.

It is the object of my invention to provide a door which may be easily operated and will prevent the entrance of water into the structure upon which it is used.

A further object is to provide the improved details of structure presently described and claimed and illustrated in the accompanying drawings, in which:—

Figure I is a side view of a grain door constructed according to my invention, together with a portion of a metal granary to which it is applied. Fig. II is a vertical section on the line II—II, Fig. I. Fig. III is an inverted horizontal section on the line III—III, Fig. I. Fig. IV is a horizontal section on the line IV—IV, Fig. II.

Referring more in detail to the parts:—1 designates a sheet metal granary which is provided, near the bottom, with an opening for the withdrawal of grain, this opening being indicated by the dotted lines in Fig. I.

2 designates a door frame, having edge flanges 3 by which the frame is riveted on the outside of the metal body 1. Frame 2 has a solid back 4 which rests against the outer face of the body 1 and is provided with an opening of slightly less diameter than the outlet opening in the main body.

5 designates a flange which is integral with the back piece of the door frame and is turned back therefrom and projected through the opening in the frame body and folded over the inner surface of said body to assist in retaining the door frame in position and rendering the structure water tight.

At each perpendicular edge of the door frame is a rib 6 which is preferably formed by turning up a flange on the back piece 4

and folding same upon itself to form a groove 7.

8 designates a front plate which is preferably formed integral with the back piece 4 and bent forwardly and downwardly in front of said back piece to a point slightly above the upper edge of the outlet opening; the front piece being spaced from the back piece 4 sufficiently to form a pocket 9 within which a sliding door may travel.

The upper ends of the grooves 7 are closed in order that rain or foreign matter may be prevented from entering the grooves or door pocket from the top.

10 designates a door plate which is also preferably constructed of sheet metal and is provided with edge flanges 11 which are turned into and adapted for sliding travel in the grooves 7 of the door frame, the plate being adapted to entirely cover the front face of the back piece 4 and being of sufficient length to seat on a frame step 12 at the bottom and project into the slide pocket 9 when the door is closed. Plate 10 is provided with a bottom flange 13 which is adapted to rest on the step 12 and by means of which the door may be manipulated.

The frame step 12 and slide flange 13 are provided with apertures 12'—13' which are adapted for registration when the door is closed and through which a suitable lock may be inserted.

It is readily apparent that a structure equipped with a door of the present description will be substantially water tight, as the only inlet for water would be from beneath the slide between the step 12 and flange 13, and in order to obviate inlet at this point I locate the bottom of the opening to the body 1 a short distance above the step 12 and arrange the step on an incline, so that water would flow outwardly away from the opening, should rain be driven into the door frame beneath the slide flange.

By providing the outwardly turned flanges on the slide and perpendicular groove members on the door frame, a slide keeper and guide is provided that will further insure the granary from moisture.

It is also apparent that a tool may be inserted between the step 12 and flange 13 to assist in starting the door slide when a heavy pressure of grain is against same.

Having thus described my invention, what I claim as new therein and desire to secure by Letters-Patent is:—

1. A grain door comprising a solid back piece having an opening therein and a flange turned into said opening, grooved members at the side edges of said back piece and a door having edge flanges adapted for travel in said grooved members.

2. A grain door comprising a solid back piece having an opening, flanges turned outwardly at the side edges of said back piece and folded upon themselves to form grooves, a front piece located above the back opening and spaced from the back piece to form a pocket, and a door member adapted for travel in said pocket and provided with flanges adapted for travel in said grooves.

3. In a grain door, a frame comprising a back piece having an opening at one end and having a front plate folded over and spaced from the back piece, at the end opposite said opening, grooved members at the side edge of the frame, and a door member adapted to slide in said grooved members and in the pocket formed by the back piece and front plate.

4. In a grain door, a frame comprising a back piece having an opening, a front plate covering a solid portion of the back piece and spaced therefrom, grooved members at the sides of said opening, and a door adapted to slide in said grooved members and in the pocket formed by the back piece and front plate, the upper ends of the grooves and pockets being closed for the purpose set forth.

5. In a grain door, a frame formed from a single piece of sheet metal and comprising

a back piece having an opening, side flanges folded upon themselves to form grooves, a front plate overlying a portion of the back piece between the side flanges and spaced from the back piece to form a pocket, and a door adapted to slide in said pocket and having edge flanges projected into and adapted for travel in the grooves formed by said edge flanges, substantially as set forth.

6. The combination with a receptacle having an outlet opening, of a door frame secured to said receptacle and having an opening adapted to overlie that of the receptacle and having a flange projected through the receptacle opening and folded against the inner surface of the receptacle, perpendicular flanges at the sides of the door frame folded upon themselves to provide slide grooves, an inclined step at the bottom of the frame, a front plate integral with the back piece of the frame and folded thereover to form a pocket, a door member located between the frame side flanges and adapted for covering said openings and for travel in said pocket, said door member having side flanges projected into the grooves in the frame flanges and the tops of said frame grooves being closed, all substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREW A. KRAMER.

Witnesses:

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