T. B. ATKINS.

SILO DOOR.

APPLICATION FILED SEPT. 22, 1917.

1,341,533. **Patented May 25, 1920.**

2 SHEETS—SHEET 1.

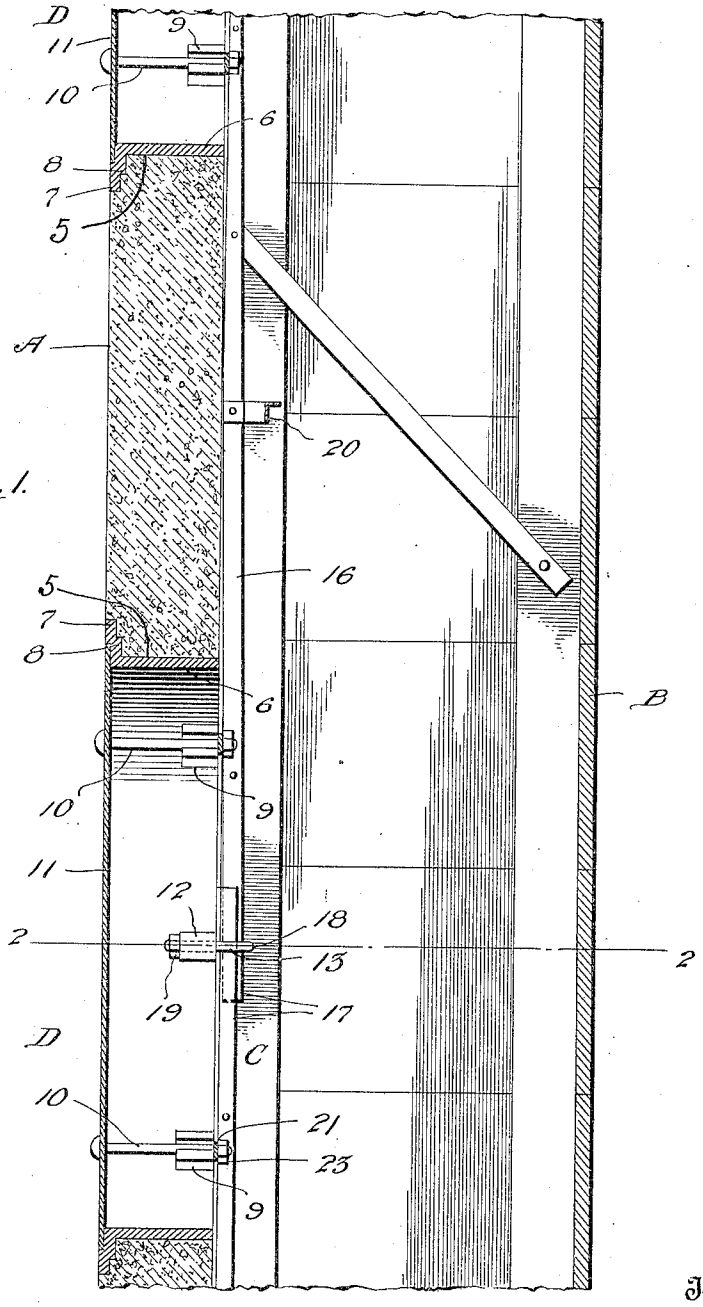


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

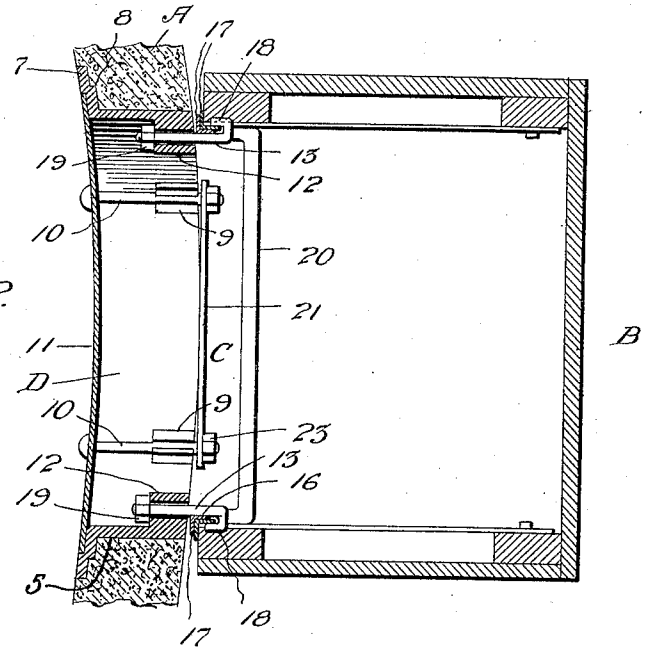
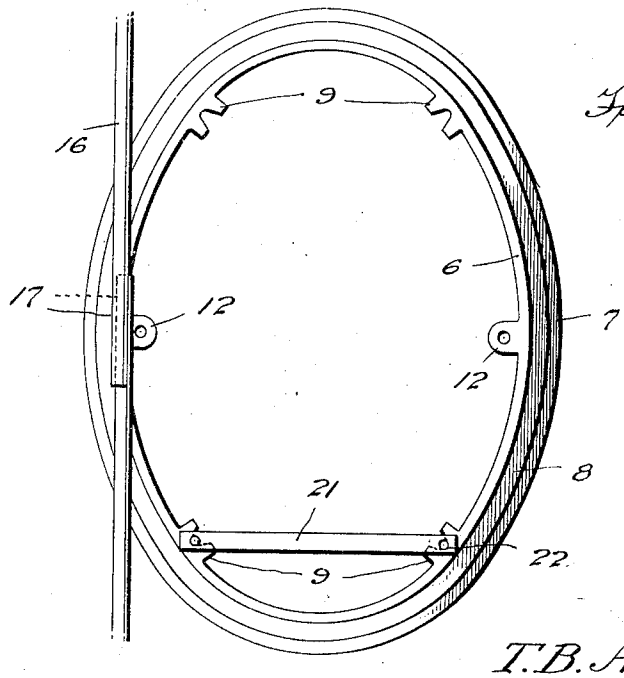


Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS B. ATKINS, OF CANUTILLO, TEXAS.

SILO-DOOR.

1,341,533. Specification of Letters Patent. Patented May 25, 1920.

Application filed September 22, 1917. Serial No. 192,784.

To all whom it may concern:

Be it known that I, THOMAS B. ATKINS, a citizen of the United States, residing at Canutillo, in the county of El Paso and State of Texas, have invented new and useful Improvements in Silo-Doors, of which the following is a specification.

This invention relates to a door for silos and more particularly to a door of this character which is primarily adapted for use in connection with silos constructed of cementitious material.

The primary object of the invention is to provide an inexpensive door of this character embodying a construction whereby the door comprises a part of a ladder included in a chute held in position upon the silo by the door.

Another object of the invention is to provide the door with a clamp and a holder therefor whereby the sections of the rails of a ladder forming a part of the chute may be held firmly engaged with each other and with the silo.

A further object of the invention is to so construct the door frame that certain rungs in the ladder comprising a part of the chute may be connected therewith and assist in maintaining a door in closed position within the frame.

With these and other objects in view, the invention resides in the novel combination and arrangement of parts, which will be hereinafter described and particularly pointed out in the claims.

The preferred embodiment of the invention has been illustrated in the accompanying drawings, although no restriction is necessarily made to the precise details of construction therein shown, as changes, alterations, and modifications within the scope of the claims may be resorted to when desired.

In the drawings:—

Figure 1 is a vertical longitudinal section through a portion of a silo having connected therewith a door constructed in accordance with the invention and employed to maintain a ladder comprising a part of the chute in position upon the silo.

Fig. 2 is a transverse sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a view in front elevation of the door frame.

Referring now to the drawings in detail, the letter A designates a portion of a silo of the type now in common use and wherein a portion of a chute B including a ladder C is connected with the silo A through the medium of a door D constructed in accordance with the invention.

The silo A is preferably formed from cementitious material and has formed therein door ways or openings 5, it of course being understood that in this instance only two door ways have been shown but in actual practice the silo will have formed therein a vertically extending row of the door ways 5.

An elliptical shaped band 6 which constitutes the frame of the improved door D is arranged within each door opening 5 and has formed thereon a continuous circumferentially extending flange 7 which is engaged with the inner side of the wall of the silo A and is offset to provide a shoulder 8.

Formed on the inner face of the frame 6 adjacent each end thereof are a pair of spaced bolt holders 9 with each holder consisting of a pair of spaced lugs which have arranged therebetween a bolt 10, carried by a plate 11 which when engaged with the shoulder 8 serves as a closure for the opening in the frame 6. Formed on the inner face of the frame 6 at diametrically opposite points are a pair of eyes 12 in which are mounted hooks 13 which serve to hold the ladder C against the side of the silo A.

The ladder C includes rails 16 with each upright rail formed from a plurality of angle bars 17 the ends of which are arranged in overlapping relation and preferably in line with the hooks 13 to permit the bills 18 of the hooks to engage the overlapping ends of the angle bars. The overlapping ends of the angle bars may be held firmly pressed against each other and against the frame 6 through the adjustment of the nuts 19 on the shanks of the hooks 13, these nuts also serving to retain the hooks 13 in the eyes 12.

Connected with the rails 16 are some of the rungs 20 of the ladder C, the other of the rungs comprising plates 21 which extend transversely of the door frame 6 and have formed therein adjacent their ends openings 22 receiving therein the bolts 10 which serve as a support for the rungs. The plates 21 are held firmly pressed against the door frame 6 and bolt holders 9 by nuts 23 on the bolts 10.

The angle bars 17 which constitute the side rails of the ladder C also serve to connect the superimposed sections of the chute B of which the ladder is a part and hence are uti-

lized to advantage in the connection of the chute B to the door frame 6.

From the foregoing description taken in connection with the accompanying drawing it is apparent that a door for silos has been provided which may not only be employed as a closure for the door opening therein but will serve to maintain a chute or ladder in place on the silo.

Having thus described the invention, what is claimed as new, is:—

1. The combination of a silo wall having an opening, a frame lining said opening and having bolt holders at its inner side, a closure plate disposed in one face of the frame, a ladder rung disposed at the opposite face of the frame, and bolts disposed in said holders and effecting connection of the closure plate and rung to the frame.

2. The combination of a silo wall having an opening, a frame lining said opening and having at its inner side bolt holders, a closure plate disposed in one face of the frame, a ladder rung disposed at the opposite face of the frame, bolts disposed in said holders of the frame and effecting connection of the closure plate and the rung to the frame, a ladder having side rails and rungs thereon, and bolts disposed in other holders of the frame and having hooks receiving the side rails of the ladder.

3. In a silo construction, the combination of a wall having an opening, a frame arranged in said opening and having bolt holders at its inner side for the arrangement of bolts transversely within the frame and constructed and arranged to permit of some of the bolts being utilized to connect elements at opposite faces of the frame, and other bolts utilized to connect an element at one face of the frame.

4. In a silo construction, the combination of a wall having an opening, an open frame in said opening and having apertured bolt holders at its inner side, and bolts disposed in said holders and transversely within the frame and adapted to effect connection of appurtenances to the frame.

5. In a silo construction, the combination of a silo wall having an opening, a frame arranged in said opening and having bolt holders at its inner side for the arrangement of bolts transversely within the frame, a closure plate at the inner face of the frame, an appurtenance at the outer face of the frame, and bolts disposed in said holders and connecting the closure plate and said appurtenance.

6. In a silo construction, the combination of a silo wall having an opening, a frame arranged in said opening and having bolt holders at its inner side for the arrangement of bolts transversely within the frame, a closure plate at the inner face of the frame, a chute at the outer side of the silo wall and made up of superimposed sections, upright rails connecting said sections and carrying rungs, and bolts disposed in said holders and connecting the said rails therewith.

7. In a silo construction, the combination of a silo wall having an opening, a frame arranged in said opening and having bolt holders at its inner side for the arrangement of bolts transversely within the frame, a closure plate at the inner face of the frame, a chute at the outer side of the silo wall, and bolts disposed in said holders and connecting the chute therewith.

8. In a silo construction, the combination of a silo wall having an opening, a frame arranged in said opening and having bolt holders at its inner side for the arrangement of bolts transversely within the frame, a chute at the outer side of the silo wall, a ladder having upright side rails fixed to said chute, and bolts disposed and secured in said holders and having bills receiving the said side rails.

In testimony whereof I affix my signature.

THOMAS B. ATKINS.