F. J. OBERER.

DOOR OPERATING MECHANISM.

APPLICATION FILED MAR. 7, 1912.

1,057,165. Patented Mar. 25, 1913.

Fig. 1

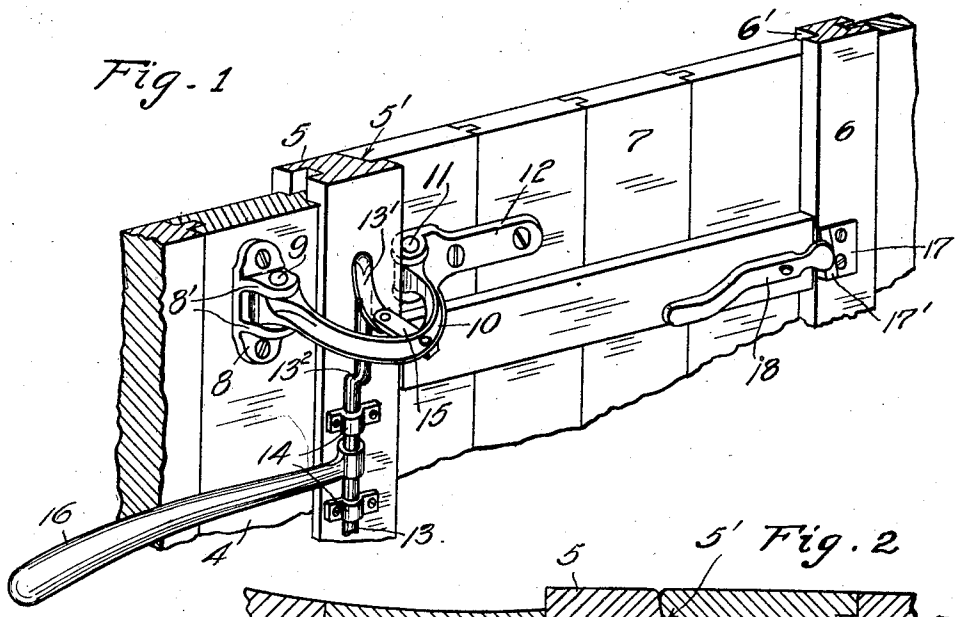
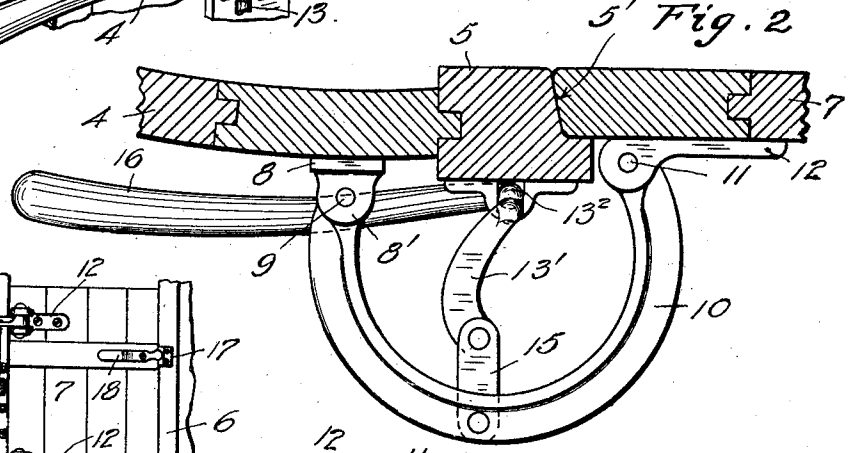


Fig. 2



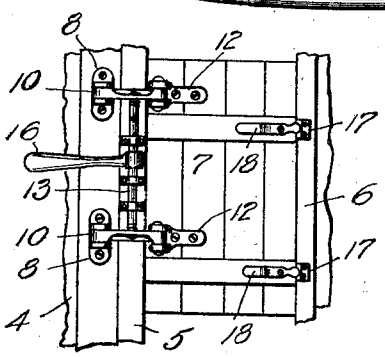


Fig. 4

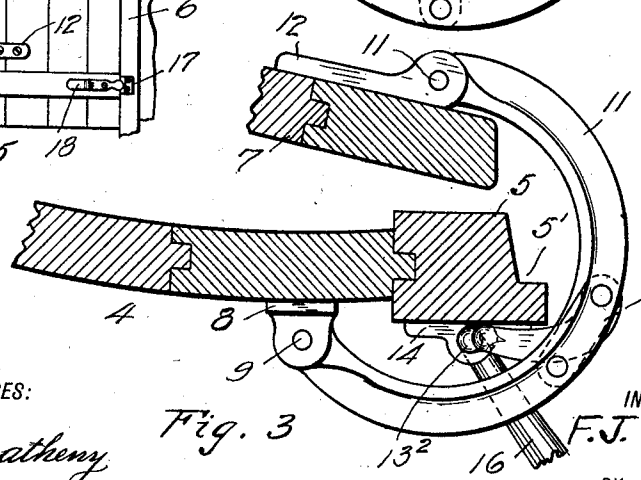


Fig. 3

WITNESSES:

F. C. Matheny

E. Peterson

INVENTOR:

F. J. Oberer

BY

Pierre Barnes

ATTORNEY

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FREDOLIEN J. OBERER, OF CHEHALIS, WASHINGTON, ASSIGNOR TO HARRY W. HOLLIS, OF CHEHALIS, WASHINGTON.

DOOR-OPERATING MECHANISM.

1,057,165. Specification of Letters Patent. Patented Mar. 25, 1913.

Application filed March 7, 1912. Serial No. 682,130.

To all whom it may concern:

Be it known that I, FREDOLIEN J. OBERER, a citizen of the United States, residing at Chehalis, in the county of Lewis and State of Washington, have invented certain new and useful Improvements in Door-Operating Mechanism, of which the following is a specification.

This invention relates to silos; and its object is the provision of improved supporting and fastening devices for the doors thereof to render the operation of opening and shutting of the doors more convenient and afford air-tight closures for the silo structure.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a perspective view of portions of a silo with my invention applied thereto. Fig. 2 is a detail horizontal section of same. Fig. 3 is a similar view with the door open. Fig. 4 is a front elevation of a door complete, with portions of the door frame.

The reference numerals 5 and 6 designate the upright members of a silo door-frame provided on their inner sides with rabbets 5′ and 6′ to accommodate a door 7. Adjacent to the top and bottom of a door there are fixedly secured to the silo wall 4 and in proximity to the frame member 5 brackets 8 provided with outwardly directed apertured ears 8′.

Pivotally connected by a pin 9 to the ears of each bracket is a horizontal U-shaped bar 10 whose other end is connected by a pin 11 with ears provided upon a door attachment 12. The bars 10 with the attachments for securing same to the door and the silo wall constitute door-operating mechanism whereby the door 7 is enabled to be swung from its closed position, Figs. 1 and 2, to the position in which it is represented in Fig. 3 and clear of the door opening.

13 represents an upright post which is secured by looped plates 14 to the frame member 5 and is provided at its extremities with arms 13′ which are connected with the respective U-shaped bars 10 by links 15. The arms 13′ and links 15 constitute toggle elements whereby the hinge bars may be actuated by rotary motion to the post through the agency of a lever arm 16 provided on the post. At short distances from the arms 13′ said post is bent or otherwise formed to provide offset portions 13^2 and also allow the ends of the post to yield when the aforementioned toggle elements are moved through the instrumentality of the post into alinement, as would occur when the door is being closed. Upon the frame member 6 are plates 17 each of which, as indicated in Fig. 1, is provided with an inclined face 17′ adapted to be engaged by a latch lever 18 provided on the door for drawing the latter tightly against such frame member.

The operation of the invention is as follows: Assuming that a door is in its closed position, as represented in Figs. 1, 2 and 4, to open same the post 13 is given a partial rotation through the agency of the handle 16 to swing the post arms 13′ in the direction indicated by the arrow in Fig. 2, with the result that the links 15 are drawn thereby to carry the bars 10 into the position in which shown in Fig. 3. In such action the hinged end of the door is first moved rearwardly and then to the rear of the frame member 5. In so doing, the opposite side of the door is withdrawn from its seat within the frame rabbet 6′ and likewise withdraws the latches 18 from the respective securing plates 17. After the U-shaped bars 10 have been thus brought into the positions as represented in Fig. 3, the door may be swung back clear of the door-way about the axis of the pivotal pins 11. In the closing of the door, the latter is first moved by the operator into its recess in the door frame, the handle 16 is then operated to cause the toggle elements 13′, 15 to accomplish the drawing of the adjacent end of the door firmly against the rabbet 5′ and finally the other side of the door is correspondingly brought into the rabbet 6′ of the door-frame by means of the latches 18 being engaged with the inclined faces 17′ of the plates 17.

The principal advantages of the invention reside in the simplicity of construction and the facility with which a door may be opened or shut; for instance, the door is opened by manipulating the handle 16 to release its securement at both sides and whereupon the door may be pushed back out of the way; and in closing, the door is secured at one side by the latches and at the other side by the toggle devices through the medium of the handle 16.

What I claim, is—

1. Door operating mechanism comprising a U-shaped member, lugs carried by the door frame and door whereto the ends of said bar are pivotally-connected, a third lug intermediate said lugs and fixedly secured to said frame, a rod pivotally-mounted in said third lug and provided with an operating handle adapted to engage against the frame to limit the movement of the bar in one direction, a crank arm extending from the last-mentioned bar and of a length less than the distance from the bar to the U-shaped bar, and a link connecting said crank arm and U-shaped bar, said crank arm and link being arranged to lie substantially within the outer periphery of the U-shaped bar in all positions of the U-shaped member.

2. Door operating mechanism comprising a U-shaped bar pivotally-connected at its opposite ends to the frame and door, a rotatable post provided with an off-set portion, a lever carried by the post and having its movement in one direction limited by the frame, a crank arm carried by the off-set portion of the post, and a link pivotally-connected at its ends to said bar and crank arm, said crank arm and link being arranged to lie within the outer periphery of the U-shaped bar in all positions.

Signed at Chehalis, Wash., this 21st day of February, 1912.

FREDOLIEN J. OBERER.

Witnesses:

C. A. STUDEBAKER,

MAUDE MOSSMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."