

F. J. VAN COTT.

SILLO.

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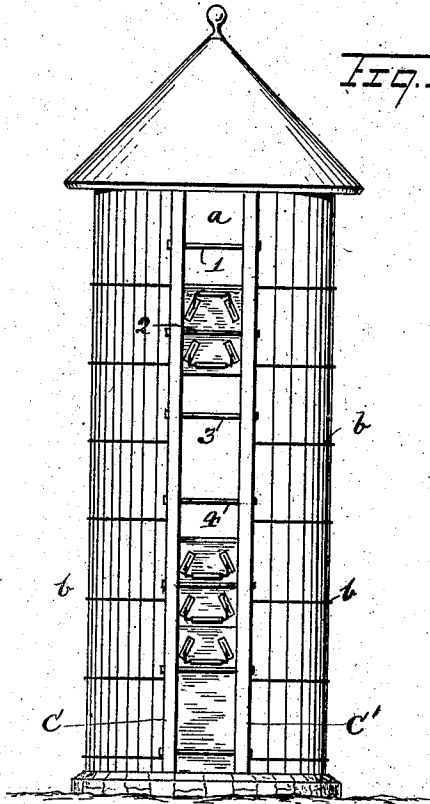


Fig. 1.

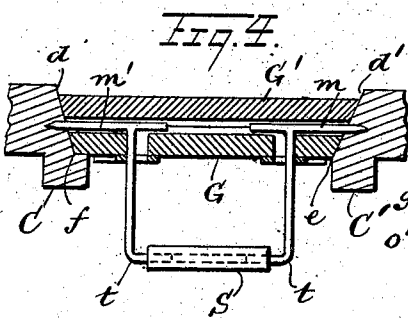
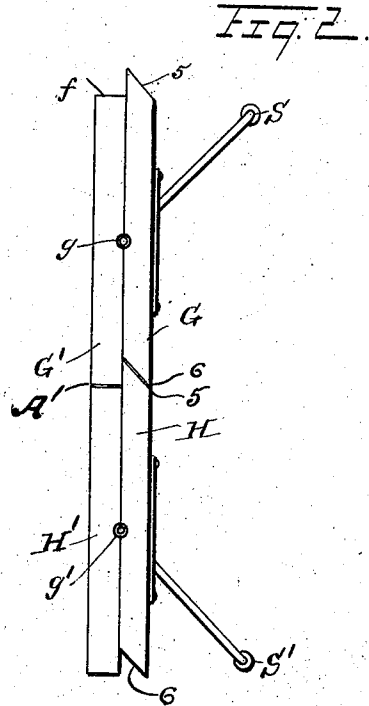


Fig. 4.

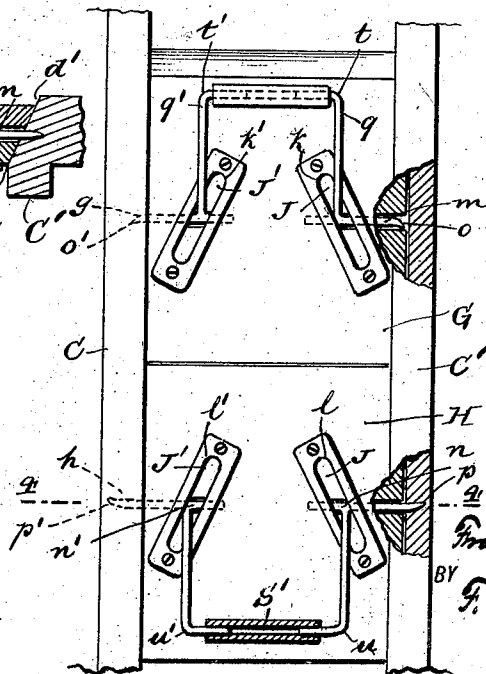


Fig. 3.

WITNESSES:

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SILLO.

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To all whom it may concern:

Be it known that I, FRANK J. VAN COTT, a citizen of the United States, residing at Unadilla, in the county of Otsego and State of New York, have invented certain new and useful Improvements in Silos, of which the following is a specification.

My invention relates to silos or tanks of the class having a continuous opening on one or more sides from the top to the bottom, through which the contents may be supplied or removed at intervals and is especially designed for holding ensilage. I have shown the invention as applied to this vertical opening in the side of the silo, which is practically a continuous opening closed by a succession of doors inserted from the bottom upward or removed from the top downward, somewhat similar to the sectional opening or closing of an ice house.

I do not herein claim therefore, the vertical opening from the top to the bottom nor the round construction of the tank or silo, but my invention relates particularly to the form and construction of each door or door section forming the means of closing said vertical opening mentioned, and as to the form and shape of said door sections and the means of uniting one of these sections to the other and the means for holding the sections in place in the door frame, and means for loosening and removing each section from top to bottom, when it is desired to remove the same, which means combined, form also a series of steps or rounds on the outside of the silo whereby a person can easily mount from the bottom to the top for the purpose of inspection or for opening said doors.

My invention is illustrated in the accompanying drawing in which—

Figure 1 is an illustration of an ordinary silo showing the application of my invention. Fig. 2 is a side view of two of the doors according to my invention, Fig. 3 is a front view of the same two doors. Fig. 4 is a longitudinal section taken on the line of 4 4 of Fig. 3.

In my drawing Fig. 1 shows the general form of a silo constructed of staves and hoops. It has the opening from top to bottom as shown at *a* and is bound together by hoops *b* extending completely around the silo with the exception of the opening. The two edges of the vertical opening are braced by the protecting braces or rods 1, 2, 3, 4, etc.,

and also by the jambs *C* and *C'*. Between these edges of the opening are inserted the sectional doors in my invention. I have the interior sides of the door of the vertical door opening shaped on a beveled line *d* and *d'* as shown in Fig. 4 and this beveled line surface may extend clear to the outer surface of the wall of the silo as shown at *e* in Fig. 4 or may meet and rest against the shoulder formed by the jamb as shown at *f*. Two sections of my doors are shown by *G* and *H* and are made up of two thicknesses of material placed relatively to each other in such a position as to each other, as to have the grain of each running in opposite directions. The strip *G* is placed across that of *G'* and *H* across that of *H'*, the two strips being firmly fastened or battened together and so united forming one thickness of material while the entire edge is beveled as shown by the lines *d* and *d'* in Fig. 4. The inner side of the sectional door being broader than the outer side.

In my construction, the outside layer of the door section in its upper edge projects beyond the edge of the inner layer and this upper edge so projecting is beveled as shown at 5 in Fig. 2; the lower edge of the outer layer is also beveled as shown at 6 in Fig. 2, but the lower beveled edge is parallel with the lower edge of *A'* the inner layer, as shown in Fig. 2. In a similar manner is constructed the lower door section as shown in Fig. 2 consisting of *H* and *H'*. Between these two layers of material forming the door section are cut the circular channels *g* and *g'* as shown in Fig. 2, Fig. 3 and Fig. 4. Through the outer layer of the door section are cut diagonal slots *J* and *J'* as shown in Fig. 3. These slots are surmounted by the protecting metal plates *k* and *k'* respectively in the upper door and *l* and *l'* in the lower door as shown in Fig. 2 and Fig. 3. Within the circular channels *g* and *g'* respectively I insert the bail *m* and *m'* and *n* and *n'* as shown in Fig. 3 and Fig. 4. The outer projecting ends of the bail at *o* and *o'* and *p* and *p'* respectively bent as shown in Fig. 3. The bail extends through the diagonal slots *J* and *J'* before mentioned and the projecting arms *q*, and *q'* as shown in the upper door section and *u*, and *u'* as shown in the lower door section of door in Fig. 3. These arms *q*, and *q'* and *u* and *u'* are bent in a right angle so as to form the elbows *t* and *t'* as shown in Figs. 3 and 4. Over these banded

arms are placed the tubes s and s' as shown in Figs. 2, 3 and 4 respectively forming a loose continuous union with the bent arms, allowing free play of the arms in the interior of the tube.

In the operation of my device in order to place a door section firmly in position, I push upward the bail q and the arms moving upward are drawn together, guided by the diagonal slots K and K' , and thus draw within the edges of the door section the points o and o' of the bail; I then insert the door through the upright opening of the silo, then draw it into place until its beveled edges are firmly secured against the beveled edges of the sides of the door opening as shown in Fig. 4. I then pull down upon the bail which causes the arms, guided by the diagonal slots J and J' to extend laterally separating the arms of the bail farther apart and thus thereby forcing the points m and m' against and into the wood, and forcing the curved point o into the wood with a twisting motion, thereby, the more securely drawing the sectional door against the beveled edges d and d' as in Fig. 4 and there holding it firmly in place. In placing the door sections in the opening of the silo, I preferably begin at the bottom and place the lower door section and secure it in position, and then the other door sections in order to the top, and when the doors are in position the arms assume the downward clamped position as shown in S' in Fig. 2 and Fig. 3 in each door section, and when all are in place I, thereby, have a series of steps or rounds by which to mount on the outside of this series of doors from the bottom to the top of the silo.

Having thus described my invention what I claim as new and for which I desire Letters Patent is as follows:

1. A silo, having an opening in one side, a series of doors fitting in said opening, and means carried by said doors and engaging the silo for securing the doors in position, said means consisting of a pair of rods

mounted on each door and having their upper outer ends engaging the silo and having their lower ends connected to form a series of strips to provide a ladder for the silo.

2. A silo, having an opening extending from top to bottom, strips arranged at each side of the opening and having beveled faces, a series of doors having their edges beveled to fit said strips, means mounted in said doors and engaging the strips to secure the doors in position, said means consisting of a pair of rods mounted in each door and having their upper outer ends engaging the silo and having their lower ends connected to form a series of strips to provide a ladder for the silo.

3. A silo, having an opening therein, doors fitted in said opening and provided with a horizontal passage, bended arms fitted in said passage and adapted to engage the silo, and means for moving said bended arms into and out of engagement with the silo.

4. A silo, provided with an opening therein, a series of doors fitting in said opening, a pair of horizontal movable arms fitting in each door and adapted to engage the silo, and slotted plates in which said arms have a vertical movement to cause said arms to engage the silo to secure the doors in position and to disengage the silo to permit the removal of the doors.

5. In combination with the vertical strips at each side of the opening of the silo, the doors fitting in said opening, the pair of movable arms fitted in each door for engaging the vertical strips to secure the doors in position, means connecting the arms outside the doors, and means engaging said arms to cause them to engage and disengage said vertical strips.

In testimony whereof I have affixed my signature, in presence of two witnesses.

FRANK J. VAN COTT.

Witnesses:

B. E. NEWMAN,
WM. PICKARD.