No. 817,522. PATENTED APR. 10, 1906.

E. F. SCHLICHTER.

SILO.

APPLICATION FILED JAN. 8, 1906.

Fig. 5.

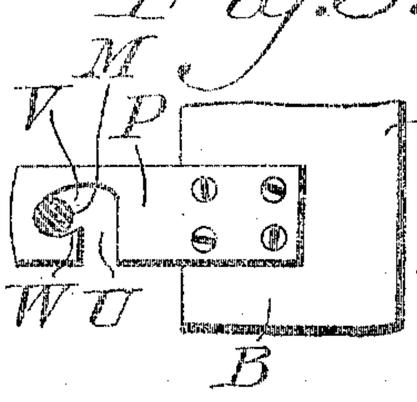


Fig. 6.

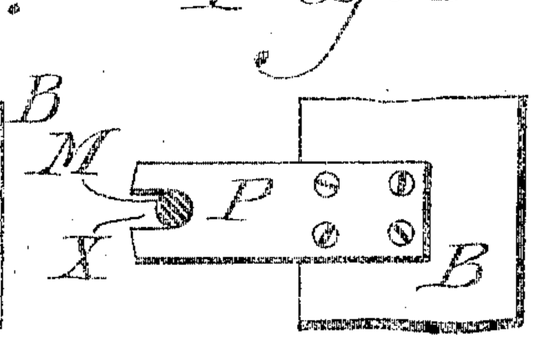


Fig. 7.

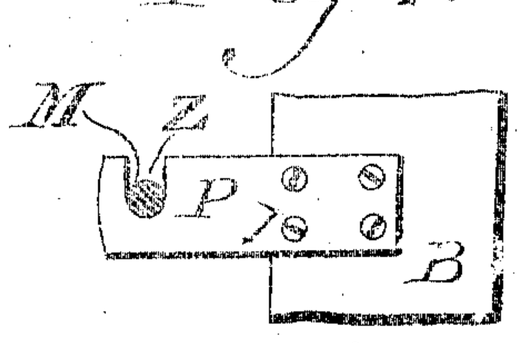
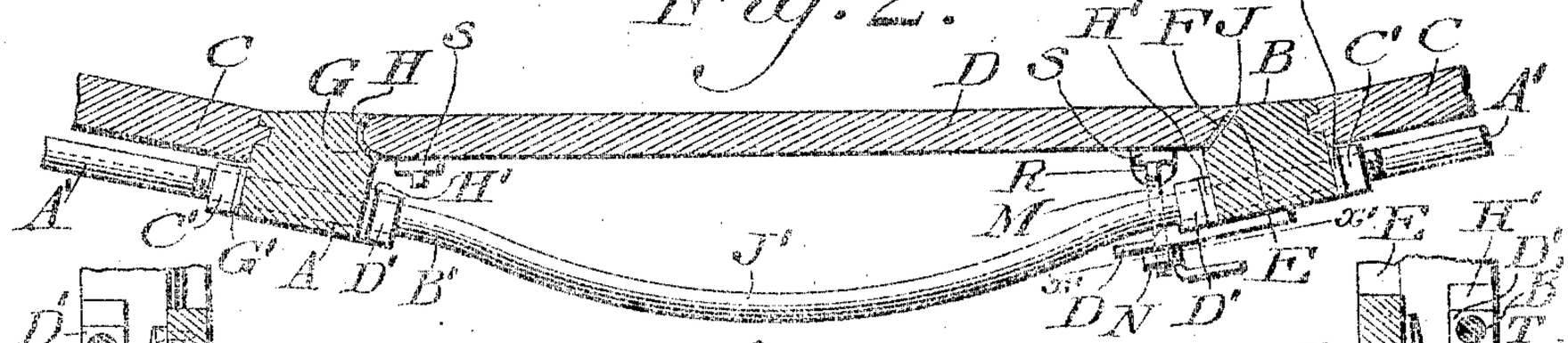


Fig. 2.



UNITED STATES PATENT OFFICE.

ENOS F. SCHLICHTER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HARVEY T. SCHLICHTER, OF PHILADELPHIA, PENNSYLVANIA.

SILO.

No. 817,522. Specification of Letters Patent. Patented April 10, 1906.

Application filed January 8, 1903. Serial No. 138,218.

To all whom it may concern:

Be it known that I, ENOS F. SCHLICHTER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Silos, of which the following is a specification.

My invention consists of a novel construction of a silo, as will be hereinafter further described and claimed.

Figure 1 is a front elevation of a portion of the silo constructed in accordance with my invention. Fig. 2 is a horizontal section thereof, taken on line *x x*, Fig. 1. Fig. 3 is a vertical section taken on line *y y*, Fig. 1. Fig. 4 is a vertical section taken on line *z z*, Fig. 1, but with the socket of the clamping pin or bolt in section. Fig. 5 is a detail view taken on line *x' x'*, Fig. 2. Figs. 6 and 7 are similar detail views of a modified construction embodying my invention. Fig. 8 is another modified construction embodying my invention, which will be understood in connection with the following description.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A and B designate the door-posts of a silo of the class having a continuous upright doorway, C the staves next to said door-posts, and D door-sections for closing said doorway.

My invention relates to the class of silos shown in my Letters Patent No. 653,967, granted to me on the 17th day of July, 1900; and it consists of improvements thereon, one of said improvements being in the construction of the door-sections D and the manner in which they are secured in position.

In my patent before mentioned the door-posts are each provided on their inner sides with upright faces converging toward the outside of the silo and the sides of the door-sections are accordingly shaped. When the door-sections are in position, devices situated about midway between the door-posts and the outside of the door-sections draw both of the inclined faces of the door-sections against the faces of the door-posts, and my present invention differs from the foregoing in this particular, in that I preferably place the means for drawing the door-sections outwardly at one side of the door-sections adjacent one of the door-posts, in the instance illustrated the right-hand door-post B. This door-post B is provided on its inner side with an upright face E, beveled outwardly and toward the doorway, and at the adjacent side of the door-sections D is the correspondingly-beveled face F. It is thus seen that this end of the door-section can move freely inwardly to the inside of the silo when not secured in place by the means hereinafter described and when the silage is not pressing against it. The left-hand door-post A, however, is provided with an upright socket or groove G in its inner face which receives the other side of the door-section D. In Fig. 2 this groove is shown as curved in cross-section, which is a convenient construction, and said groove is provided with the packing H, of felt or other suitable material. The inclined face E of the door-post B is also provided with a strip J, of felt or other suitable packing.

In Fig. 8 I have shown a slight modification in the socket or groove in the left-hand door-post A. In this construction the groove has angular walls K and the packing-strip L is placed upon the inwardly-facing wall, or the wall against which the door-section D is pressed with the greatest force either by the tension devices hereinafter referred to or by the silage. Thus when the door-sections are placed in the position shown in Fig. 2 and force applied to the end of the door-post adjacent the inclined faces F to move the door outwardly said inclined face F is pressed against the inclined face E of the door-post to make a tight joint at this point, while the other side of the door-section is forced into the groove G by reason of the inclined faces E and F.

It is understood, of course, that various devices can be employed to force out the end of the door-sections adjacent the door-posts B and that my invention contemplates, broadly, the employment of any suitable means for this purpose, and as one embodiment thereof I have shown a bolt or pin M, secured to one end portion of the door-sections, to the outer end of which is applied a hand-nut N, which engages a lug P, through an opening in which the bolt M passes. In the specific construction illustrated this bolt M is provided with a semispherical head Q, situated within the rounded socket R in the upright plate or

brace S, the bolt extending through the slot T in said socket. Thus the bolt can be swung with relation to its socket, and in Fig. 5 I have shown the particular form of lug P, shown as being secured to the door-posts B. This lug is provided with a slot U, extending upwardly from its lower edge, a portion V of this slot extending to one side downwardly to form a socket W to receive the bolt or pin M. The plate S serves as an upright brace to prevent the door-sections from warping, and at the other ends of the door-sections another one of said plates S is provided, although not having a socket. The manner in which the door-sections are inserted will be obvious, for after the left-hand end thereof is inserted in the socket or groove G the bolt, with the hand-nut loosened, is passed into the slots U and V of the lug P, and upon reaching the socket W the hand-nut is tightened to draw the door-sections out with the desired pressure, it being noted that the socket W serves to hold the bolt M in place, so that the hand-nut can be easily manipulated with one hand to obtain the desired pressure. It is understood, of course, that the slot in the lug P can be made as shown at X in Fig. 6 or at Z in Fig. 7.

Another part of my invention relates to the manner in which the hoops and tie-rods are secured to the door-posts. In said Letters Patent referred to the hoops of the silo do not pass entirely around the same, but merely from one door-post around the silo to the other door-post, the ends of the hoops being secured by nuts on the inside of the door-posts, and in said Letters Patent I also show tie-rods extending across the doorway and between the door-posts, which are held in place by nuts on the outside of the door-posts, these tie-rods resisting the tendency of the door-posts to separate. These tie-rods are also provided on the inside of the door-posts with nuts, which are mainly useful in the setting up of the silo, as the doors are usually made complete at the factory, so that these inside nuts aid in holding them in position. In the present construction I employ similar hoops A′ and the tie-rods B′, their ends passing through the door-posts A and B and being secured in position by the nuts C′, D′, E′, and F′, the plates G′ and H′ situated between these nuts and the outer and inner sides of the door-posts.

My present invention differs from that shown in said patent, in that the door-posts in the present instance are situated radially with respect to the silo—that is to say, a line passing at a right angle to the outer face of these door-posts or parallel to its sides would be approximeatly a radius of the silo. In this way I can reduce the thickness of the door-posts from the inside to the outside, and thereby use lighter material in the construction of the same, because I am then enabled to extend the hoops nearer the outer faces of the door-posts and also to place the hoops and tie-rods directly one above the other, so that the strain upon the door-posts is more evenly distributed, since the outer ends of the tie-rods and the ends of the hoops conform to the curvature of the remaining portion of the hoops, as will be seen upon reference to Fig. 2. In silos, however, of this class a ladder extends between the door-posts, and I employ the tie-rods to form this ladder, and to accomplish this the central portion of the tie-rods are bent outwardly, as shown in J′, to afford sufficient space between said tie-rods and the door-sections and give the desired foothold, it being noted that as the ends of the tie-rods extend at an angle to the curved portion J′ the said curved portion of the tie-rods will be prevented from being depressed or turned by the weight of the person standing thereon, and especially when the nuts C′ and D′ are tightened. It will also be seen that the ends of the hoops A′ and of the tie-rods B′ are tangential to the curve of the silo-walls and substantially parallel with each other, so that the tightening of the nuts on either the hoops or the tie-rods does not act to twist the door-posts from their proper radial position. It is of the highest importance both as maintaining the integrity of the joints between the door-posts and adjacent staves as well as between the door-posts and the door.

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

1. A silo having a doorway provided at one side with a socket and at its other side with a beveled abutting face, a door having a beveled abutting face at one side thereof to contact with the abutting face of the doorway, whereby the inner faces of said door and said doorway may be brought into substantial alinement the other end of said door being adapted to enter said socket, and means for drawing outwardly the side of said door adjacent the said beveled abutting face.

2. A silo having a doorway provided at one side with a socket and at its other side with a beveled abutting face, a door having a beveled abutting face at one side thereof to contact with the abutting face of the doorway, whereby the inner faces of said door and said doorway may be brought into substantial alinement the other side of said door being adapted to enter said socket, and coacting means situated upon the side portion of the door adjacent said abutting face and upon the adjacent door-post for drawing said door outwardly and holding said abutting faces in contact under pressure.

3. A silo having a doorway, a door fitting said doorway, the engagement between said doorway and door at one side thereof serving to prevent the door from moving either out-

wardly or inwardly, the engagement between said door and doorway at the other side thereof serving to prevent the door from moving outwardly only, and means for drawing said door outwardly consisting of a movable bolt carried by the door and provided with a nut and a slotted lug mounted upon the door-post.

4. A silo having a doorway, a door fitting said doorway, the engagement between said doorway and door at one side thereof serving to prevent the door from moving outwardly or inwardly, the engagement between said door and doorway at the other side thereof serving to prevent the door from moving outwardly only, and means for drawing said door outwardly consisting of a movable bolt carried by the door and provided with a nut and a slotted lug mounted upon the door-post, the outer end of said slot being situated at the bottom of the lug and said slot having a socket at one end to receive said bolt.

5. A silo having a doorway, a door fitting said doorway, the engagement between said doorway and door at one side thereof serving to prevent the door from moving either outwardly or inwardly, the engagement between said door and doorway at the other side thereof serving to prevent the door from moving outwardly only, said door being substantially flush with the doorway at both sides, a movable bolt secured to the end portion of the door incapable of moving outwardly only, said bolt being provided with a nut, and a lug upon the door-post adapted to be engaged by said nut.

ENOS F. SCHLICHTER.

Witnesses:
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HARRY COBB KENNEDY.