

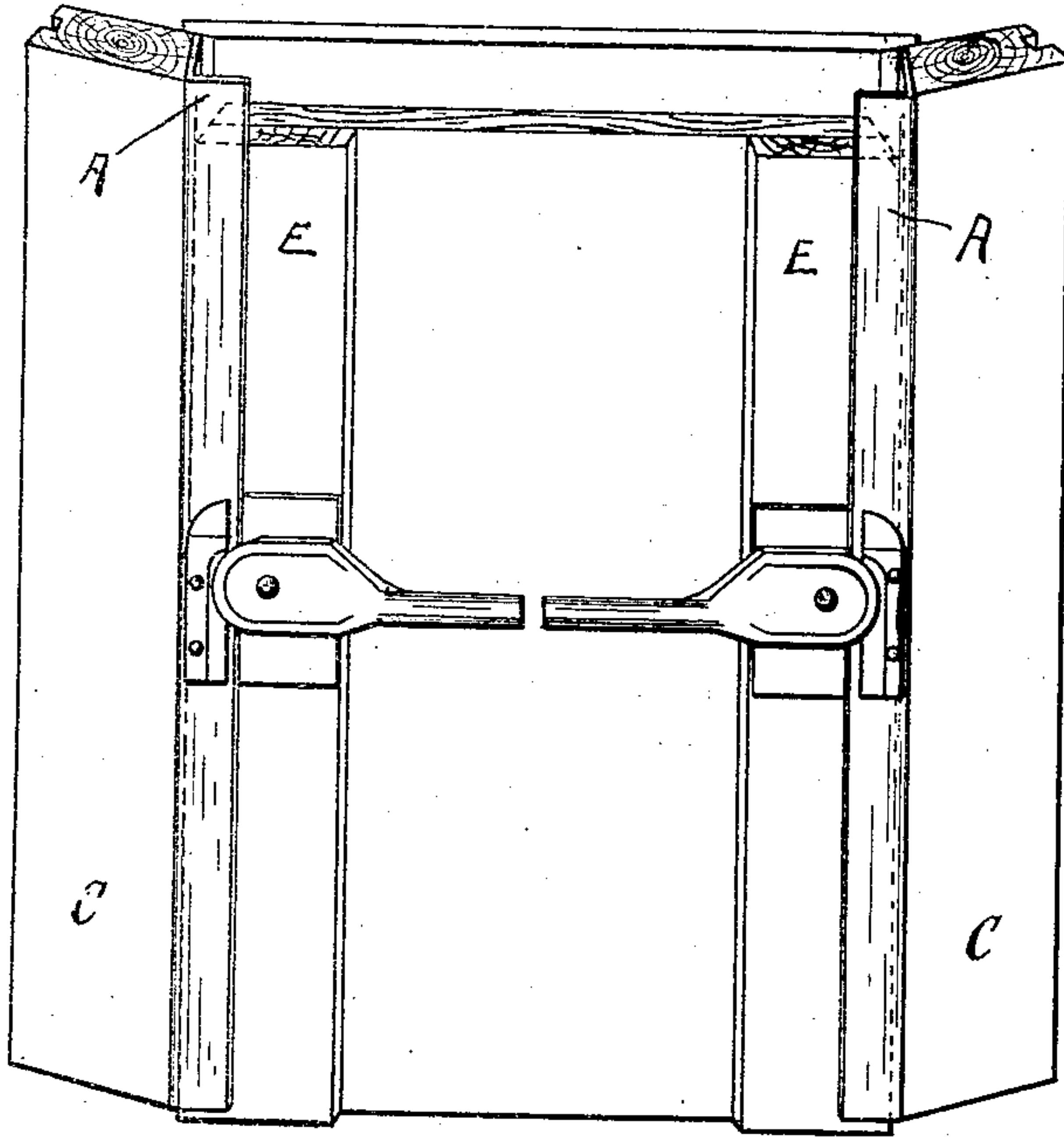
No. 814,067.

PATENTED MAR. 6, 1906.

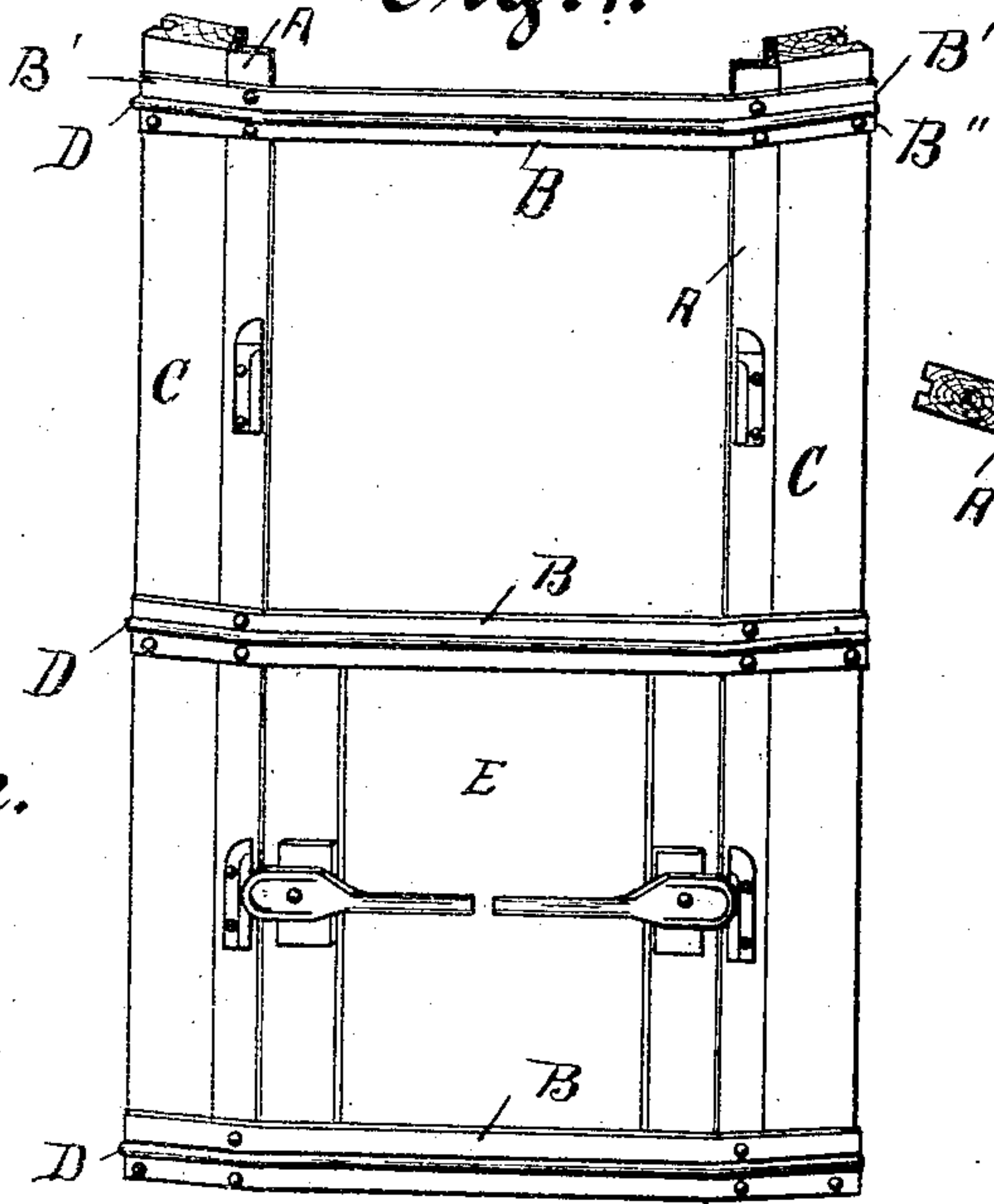
C. W. McCLURE.

SILLO.

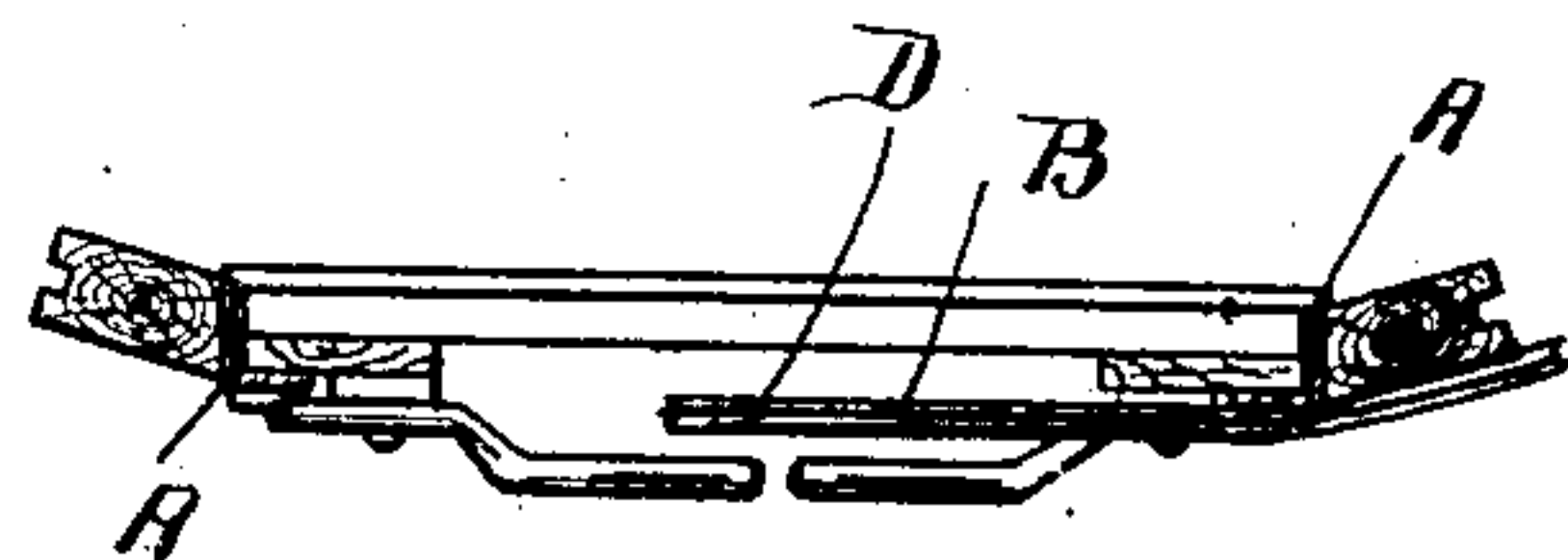
APPLICATION FILED APR. 27, 1905.



*Fig. 1.*



*Fig. 2.*



*Fig. 3.*

WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES W. McCLURE, OF SAGINAW, MICHIGAN.

## SILO.

No. 814,067.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed April 27, 1905. Serial No. 257,845.

*To all whom it may concern:*

Be it known that I, CHARLES W. McCLURE, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Silos; and I do hereby 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.

This invention is an improvement in silos, and relates more particularly to an independent rigid door-frame construction for the vertical opening of a silo.

The objects of my invention are to produce for silo-doors a frame that can be quickly and readily assembled without the aid of skilled labor, that will serve as a gage or guide for setting up the silo, and will form a secure support for the silo-doors and provide a support for the silo-hoops.

With these and certain other advantages in view, which will appear later in the specification, my invention consists in the parts, their combinations, and the equivalents thereof herein set forth.

The device is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of one of the door-sections, showing part of the silo-frame and a preferred method of fastening the door to the frame. Fig. 2 is a similar view showing the method of supporting the hoops of the silo where they cross the silo-opening and of holding the door-frame securely in place. Fig. 3 is a horizontal section of the silo door and frame broken away in part.

The door-frame consists in a pair of vertical members A A, each preferably made of a single piece of angle-iron or a metal bar of equivalent shape. It is preferably fastened, as shown in the drawings, to the edge of the stave at the side of the silo-opening. In the form illustrated in the drawings, where the side members are formed of angle-iron, the outer face of one leg of the angle rests against the edge of the stave C, and the other leg, which is practically flush with the outer surface of the stave C, projects over the opening to form a guide along which the door E may be slid vertically. Pressure against the door produced by expansion of the ensilage within presses the door out against the angle, and the greater the pressure from within the tighter the opening is closed.

The side bars A A are bound together at

any suitable intervals throughout their length by transverse straps or bars B B. The ends B' of the bars B B are secured to the outer face of the silo-stave C by bolts B'', rivets, or other suitable means. The bars B where they cross the opening of the silo are preferably curved to the contour of the silo, but may be straight, if desired.

Around the silo and lengthwise bar B extends a hoop or band D. The ends of the cross-bars B form a support for the hoop D, which spans the opening E. The hoop firmly holds the ends B' of the bars B against the staves C, thus relieving the bolts B'' of strain due to expansion of the material in the silo.

The combination of the two vertical side bars A A and the cross-bars B B, which are riveted to them, forms a rigid frame for the silo-opening. These parts are usually shipped assembled, it being only necessary when constructing a silo to set up the iron frame for the opening, erect the staves, and bind the silo in the usual manner by the hoops D D.

A silo-frame made as above described will not contract as the silo shrinks, and the clearance between the side bars A A will not decrease and bind the doors E, being prevented from so doing by the cross-bars B. The ensilage is prevented from coming in contact with the bars A A, being covered from within by the doors E. The frame of this construction is rigid and one side of the frame cannot drop down and throw the frame out of shape. Each of the side members A has large bearing-surface against the edge of the stave C, and by reason of this large bearing-surface the bolts B'' are relieved of the transverse strain which would, if it were not for the large bearing-surface, be brought upon them by reason of the crushing effect of the staves when they become soaked with moisture.

What I claim as my invention, and desire to secure by Letters Patent, is as follows:

1. A frame for silo-openings, comprising in combination a pair of upright bars of L-section, each bar being arranged with one of its members flush with the face of the adjacent silo-staves; a plurality of transverse bars spanning the silo-opening and rigidly secured to said upright bars, the ends of said transverse bars projecting beyond said upright bars; together with hoops encircling the silo and overlying the ends of said bars to hold them in contact with the silo-staves, substantially as described.



2. The combination with the staves of a silo, of a metallic door-frame therefor relative to which frame the staves are erected, said frame comprising a pair of continuous angle-  
5 irons, one flange of each of which abuts the end staves of the silo, the remaining flange of which projects over the opening in the silo, to form seats or guides for the doors, and braces extending between the angle-irons and super-  
10 posed upon the outer faces thereof, the ends of the braces overlying the end staves of the silo and separate means for securing the braces to the outer faces of the angle-irons and to the end staves.

15 3. In a silo provided with a continuous opening, the combination of a door-frame comprising a pair of vertical angle-irons lin-

ing the walls of the opening from end to end, one flange of each of the angle-irons abutting the wall and the remaining flange overlap- 20 ping the opening to form seats for the doors, braces connecting the angle-irons, the braces applied to the outer faces of the angle-irons and overlapping that portion of the silo adjacent the frame, and separate means for secur- 25 ing the braces to the angle-irons and to the silo respectively.

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

CHARLES W. McCLURE.

Witnesses:

A. A. EASTERLY,  
H. F. TIEDKE.