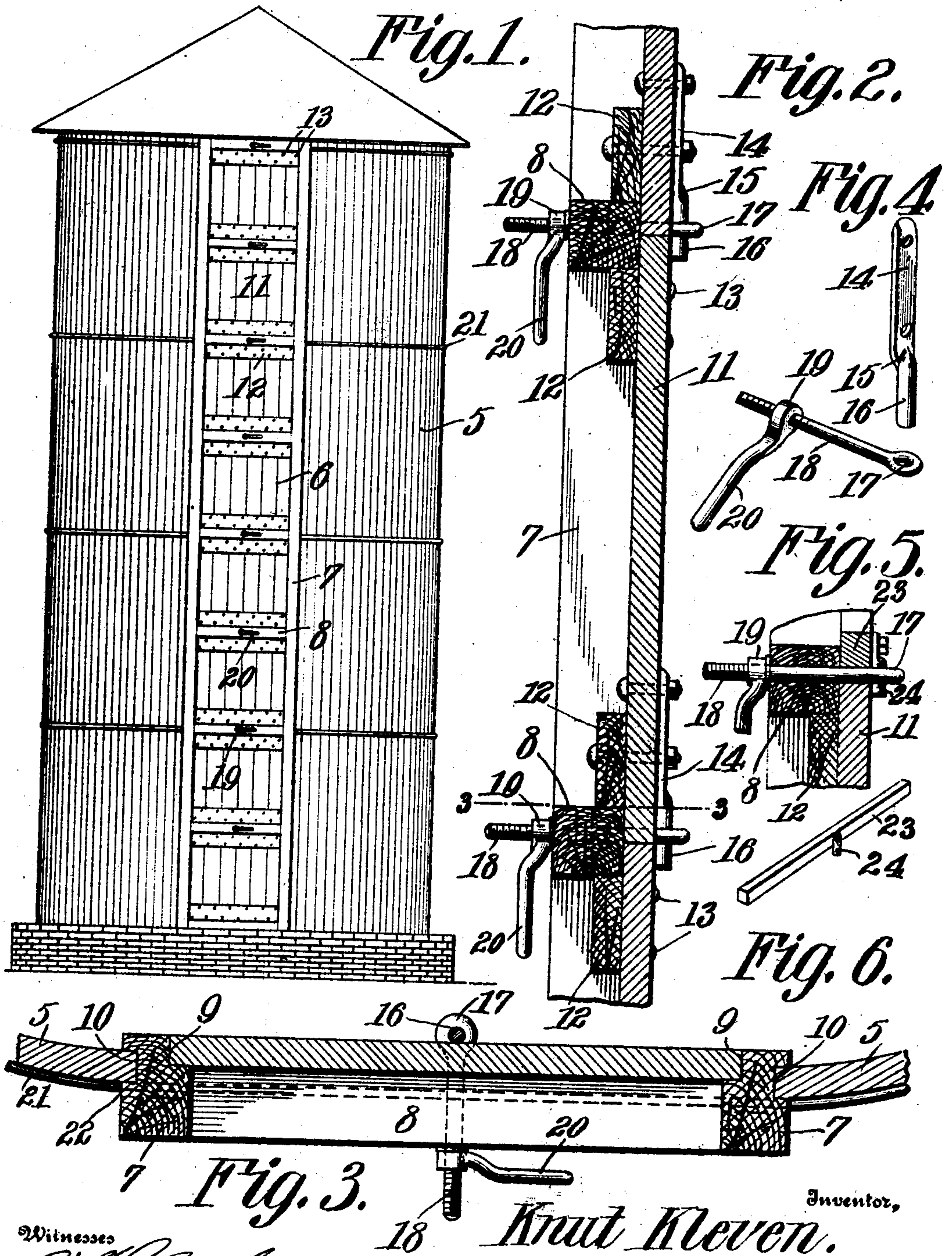


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 SILO DOOR FASTENER.  
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Witnesses  
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# UNITED STATES PATENT OFFICE.

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## SILO-DOOR FASTENER.

No. 910,392.

Specification of Letters Patent.

Patented Jan. 19, 1909.

Application filed April 11, 1908. Serial No. 426,501.

*To all whom it may concern:*

Be it known that I, KNUT KLEVEN, a citizen of the United States, residing at Mount Horeb, in the county of Dane and State of Wisconsin, have invented a new and useful Silo-Door Fastener, of which the following is a specification.

This invention relates to silos for preserving fodder and other food stuffs for cattle. The object of the invention is to provide a silo having a continuous door way extending from the top to the bottom thereof so as to give access thereto at any height, and to obviate obstructions in the door way which would interfere with the throwing out of silage through said door way.

A further object of the invention is to provide improved means for locking the doors in closed positions, a single locking means being employed to effect the locking of adjacent doors.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a front elevation of a silo constructed in accordance with my invention. Fig. 2 is a vertical sectional view of a portion of the same. Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2. Fig. 4 is a detail perspective view of one of the fastening devices detached. Fig. 5 is a detail sectional view showing the manner of fastening the top of one door section when an adjacent door section is removed. Fig. 6 is a perspective view of locking cleat detached.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The improved silo forming the subject matter of the present invention includes a body portion 5 preferably formed of vertical staves arranged in cylindrical form, as shown,

some of the staves being spaced apart to produce a continuous door way 6 preferably extending the entire height of the silo.

Arranged within the door way is a frame including longitudinal side members 7 spaced apart by transverse bars 8, the inner faces of the side members 7 being rabbeted at 9 and their outer faces provided with longitudinal grooves 10 for the reception of the adjacent staves of the body portion.

Interposed between the transverse bars 8 are a plurality of individual removable doors or closures 11 each provided with a transverse reinforcing cleat 12 which bears against the longitudinal edges of the adjacent transverse bars 8 and serves to support the closures in position in the door frame. The reinforcing strips 12 are secured to the front or exposed faces of the door sections 11 and are preferably of less thickness than the transverse bars 8, said strips being rigidly secured to the closures 11 by nails, screws or similar fastening devices 13.

Secured to the lower edge of each door or closure 11 is a strap iron 14 having its free end reduced and off set at 15 to form a locking bolt 16 adapted to enter an eye 17 carried by a threaded bolt 18 secured to the adjacent transverse strip 8. The bolts 18 pierce the transverse strips 8 and are each preferably disposed with the eyes 17 interposed between and projecting slightly beyond the meeting edges of adjacent door sections or closures 11, as best shown in Fig. 2 of the drawings. Engaging the threads on the bolts 18 are clamping nuts 19 having terminal handles 20 by means of which the bolts may be adjusted to clamp the eyes 17 in engagement with the reduced extensions 16 thereby to effectually lock the door sections 11 against accidental displacement. The strap irons 14 are preferably secured to the inner faces of the door sections 11 while the nuts 19 are arranged on the outside of the silo so that the same may be conveniently manipulated when it is desired to remove one or more of the door sections to permit the introduction or removal of silage or other fodder.

The silo is reinforced and strengthened by the provision of one or more hoops 21, which



latter pass through suitable openings 22 formed in the side members 7 of the door frame and are provided with the usual turn buckles by means of which the tension of the hoops may be adjusted.

As a means for locking the upper portion of one door section against inward movement when an adjacent door section is removed, there is provided a locking bar or cleat 23 adapted to be positioned between the side bars of the door frame, said locking bar or cleat being provided with a bolt 24 similar in construction to the bolt 16 and adapted to enter the adjacent eye 17, as best shown in Fig. 6 of the drawing.

By extending the door way the entire height of the silo and forming the closure for the door way in sections, access may be had to the interior of the silo at any desired height, the door way and door sections being so constructed as to afford little or no obstruction to the passage of the fodder in filling or emptying the silo.

Attention is here called to the fact that the outward movement of the door sections 11 are limited by engagement with the rabbeted edge 9 of the side members 7, while the vertical movement of said sections are limited by the reinforcing strips 12 bearing against the transverse bars 8.

If desired a suitable packing may be disposed at the rabbeted edge 9 of the door frame in order to insure an air and water tight packing for the door sections and thus prevent deterioration of the contents of the silo.

Having thus described the invention what is claimed is:

1. A silo having a door way, a series of individual door sections closing the door way, and a fastening device interposed between the meeting edges of adjacent door sections and forming a locking means for said sections.

2. A silo having a door way, a series of individual door sections closing the door way, bolts interposed between the meeting edges of adjacent sections and provided with terminal eyes, and a locking member secured to the lower edge of each section and engaging the eye of the adjacent bolt.

3. A silo having a door way, a frame seated in the door way and provided with spaced transverse bars, a series of individual door sections fitting between the transverse bars, and fastening devices disposed at the meeting edges of adjacent sections and forming a locking means for said sections.

4. A silo having a door way, a frame seated in the door way and including spaced longitudinal members connected by transverse bars, the inner edges of the longitudinal members being rabbeted, door sections fitting between the transverse bars and bearing against the rabbeted edges of the side

members, bolts piercing the transverse bars and provided with terminal eyes, and a fastening device secured to the lower edge of each door section and engaging the adjacent eye.

5. A silo having a door way, a frame seated in the door way and including spaced side members connected by transverse bars, the inner edges of the side members being rabbeted, door sections fitting between the spaced transverse bars and bearing against the rabbeted edges of the side members, threaded bolts piercing the transverse bars and provided with terminal eyes projecting beyond the inner faces of the door sections, a locking member secured to the inner face of each door section and provided with a reduced extension adapted to engage the adjacent eye, and clamping nuts engaging the threads on the bolts for locking the reduced extensions in engagement with the eyes.

6. A silo having a door way, a frame seated in the door way and including spaced side members connected by transverse bars, the inner longitudinal edges of the side members being rabbeted, door sections fitting between the transverse bars and bearing against the rabbeted edges of the side members, transverse reinforcing cleats secured to the outer faces of the door sections and bearing against the adjacent transverse bars of the frame, threaded bolts piercing the transverse bars and provided with terminal eyes, locking members secured to the inner faces of the door sections and having their lower ends reduced and off set for engagement with the eyes, and clamping nuts engaging the threads on the bolts and adapted to bear against the outer faces of the transverse bars.

7. A silo including a body portion formed of vertically disposed staves some of which are spaced apart to form a door way, a frame seated in the door way and comprising spaced side members connected by transverse bars, the outer edges of the side members being formed with longitudinal grooves for the reception of the adjacent staves and the inner edges of the side members being rabbeted, door sections fitting between the transverse bars of the frame and having their inner faces provided with reinforcing strips adapted to engage the transverse bars, threaded bolts piercing the transverse bars and provided with terminal eyes projecting beyond the inner faces of the door sections, locking members secured to the inner faces of the door sections and having their free ends reduced and off set for engagement with the eyes of the adjacent bolts, and nuts threaded on the bolts and provided with operating handles.

8. A silo having a doorway, a series of individual door sections closing the door way, eyes interposed between the mating edges of adjacent sections, bolts secured to the lower



edges of the door sections and adapted to engage the eyes, and a locking bar adapted to be positioned within the doorway when one of the door sections is removed, said locking bar being provided with a bolt for engagement with the adjacent eye.

In testimony that I claim the foregoing as

my own, I have hereto affixed my signature in the presence of two witnesses.

KNUT KLEVEN.

Witnesses:

O. P. BERG,

GILBERT NICKELSON.