

No. 787,038.

PATENTED APR. 11, 1905.

J. J. HAHN.

DOOR FASTENING DEVICE FOR GRAIN DOORS.

APPLICATION FILED DEC. 14, 1904.

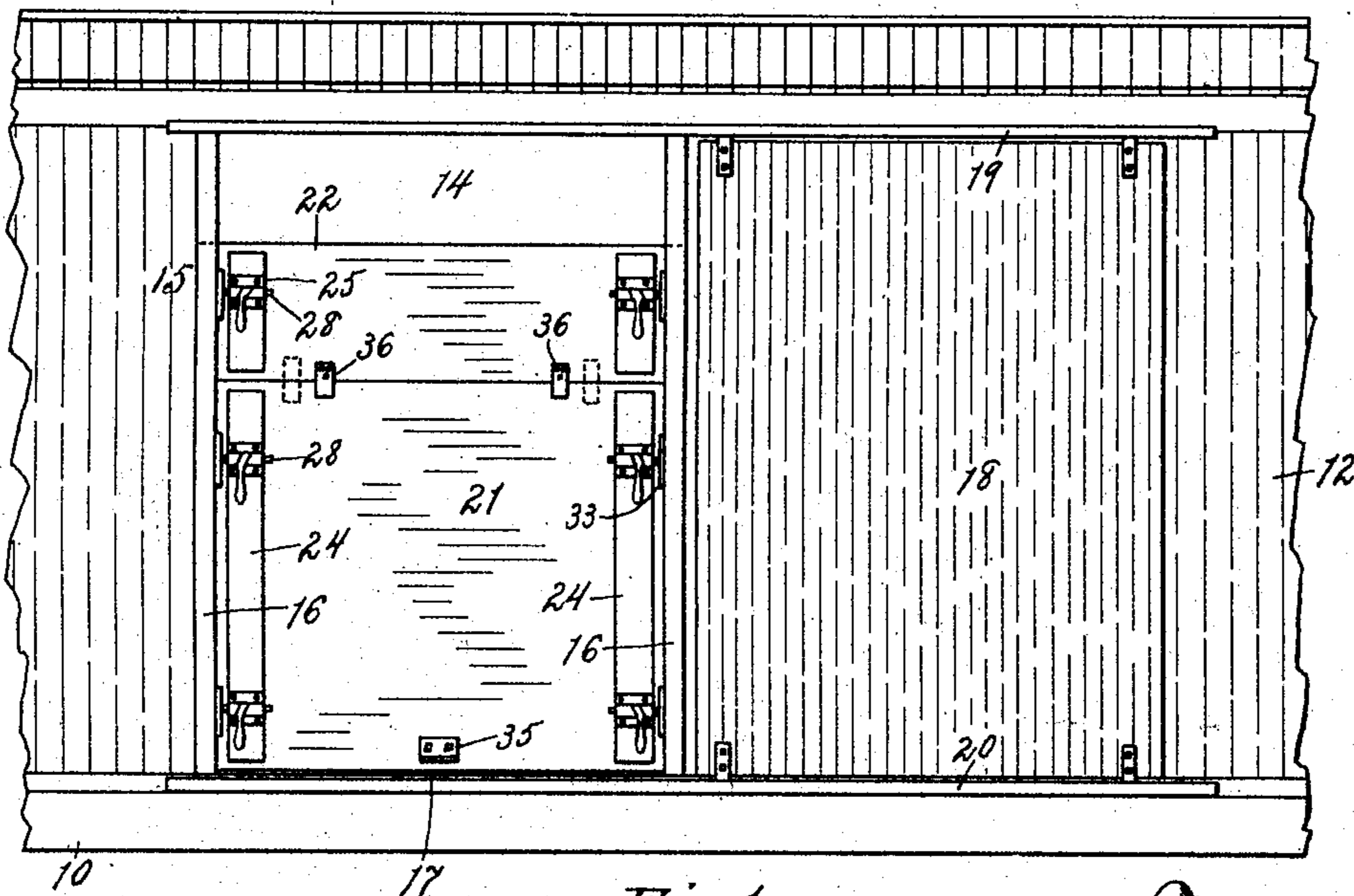


Fig.1.

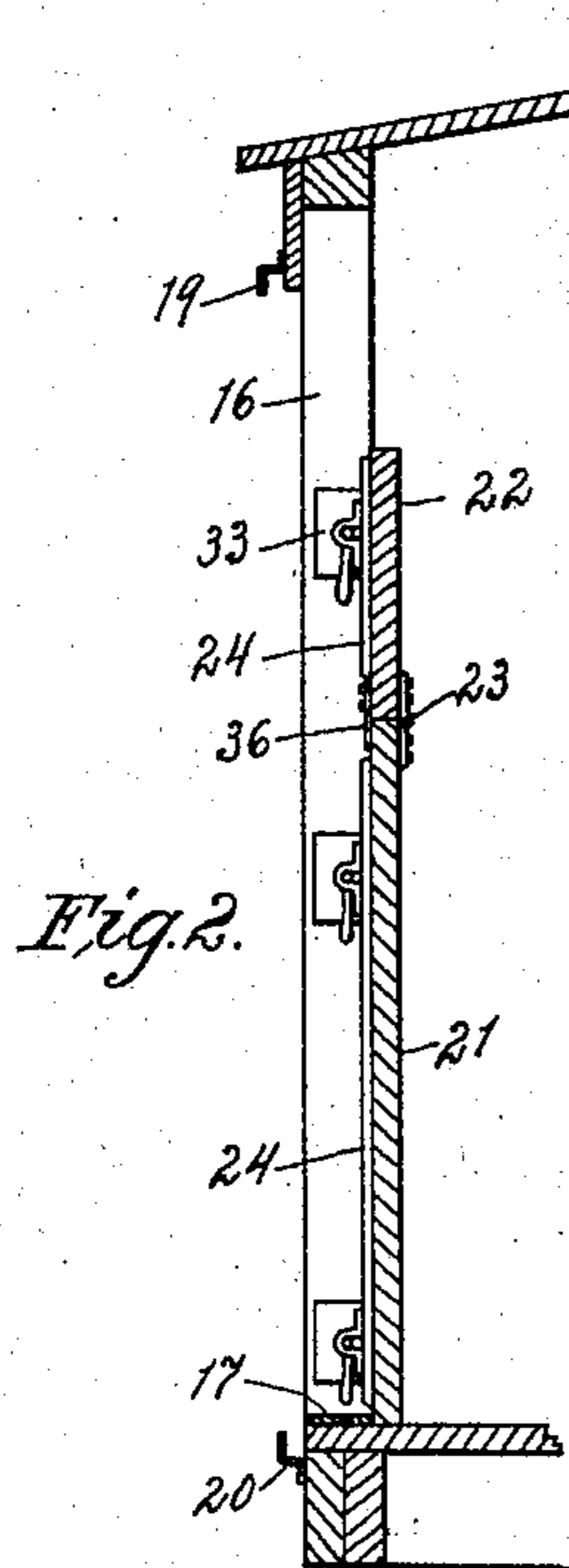


Fig. 2.

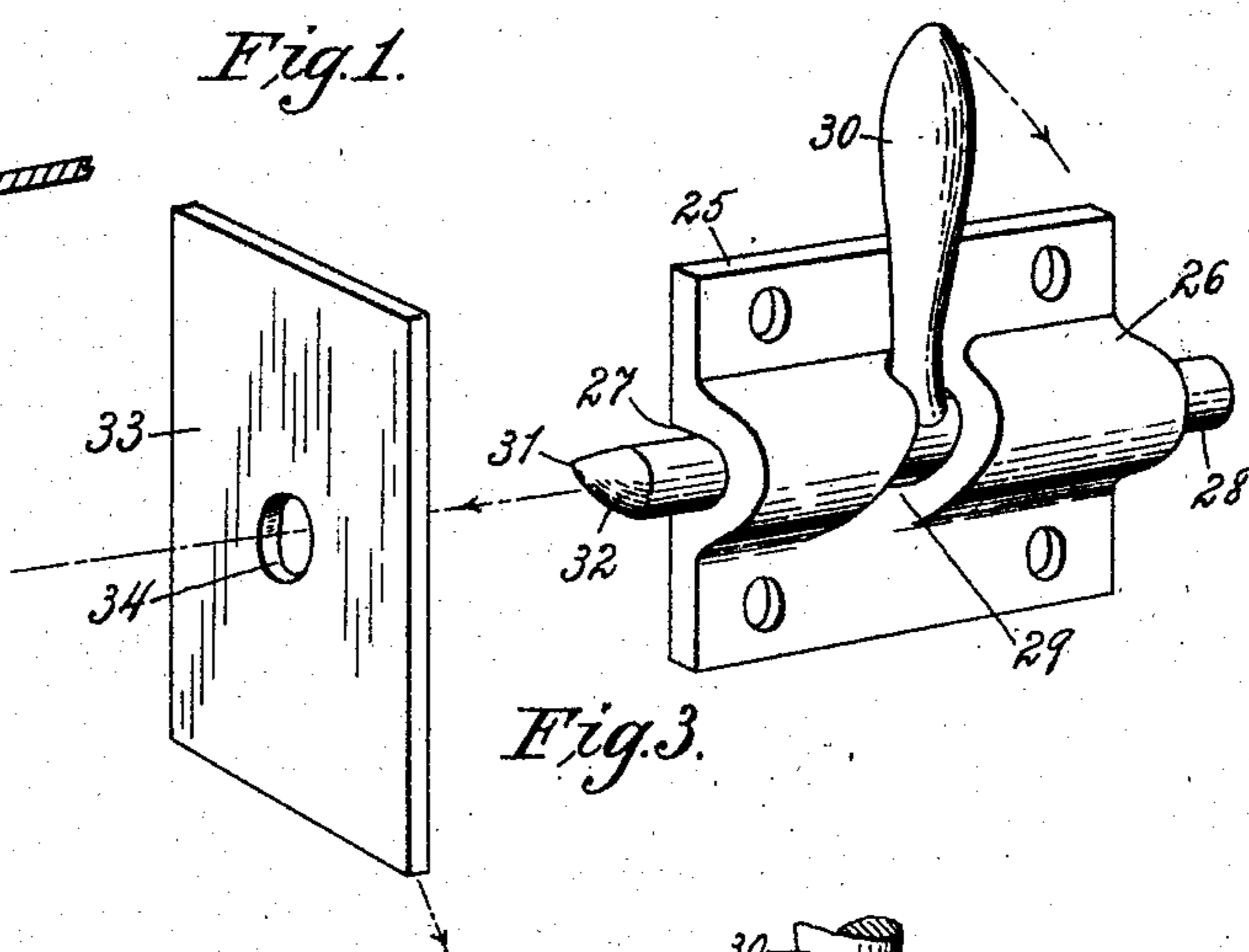


Fig. 3.

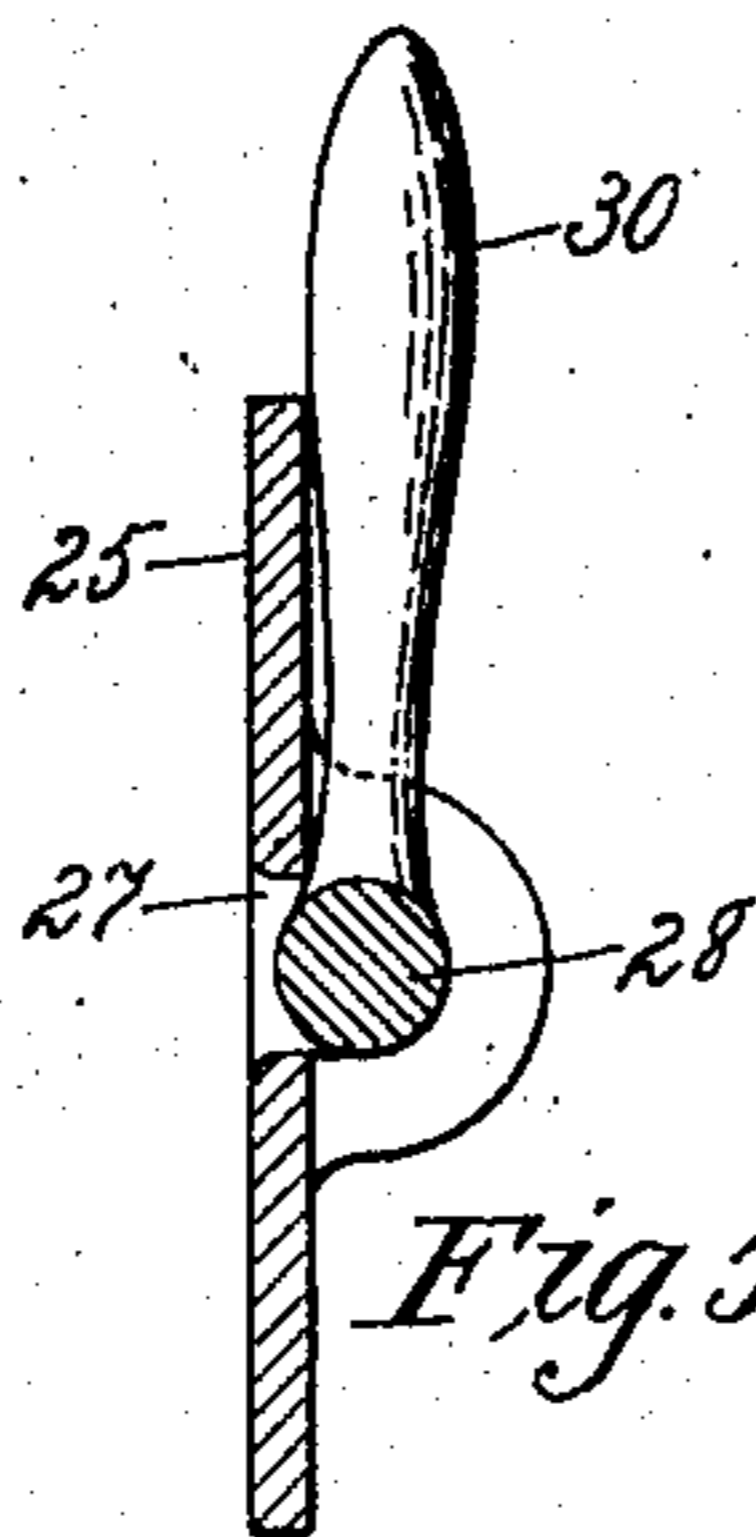


Fig. 5.

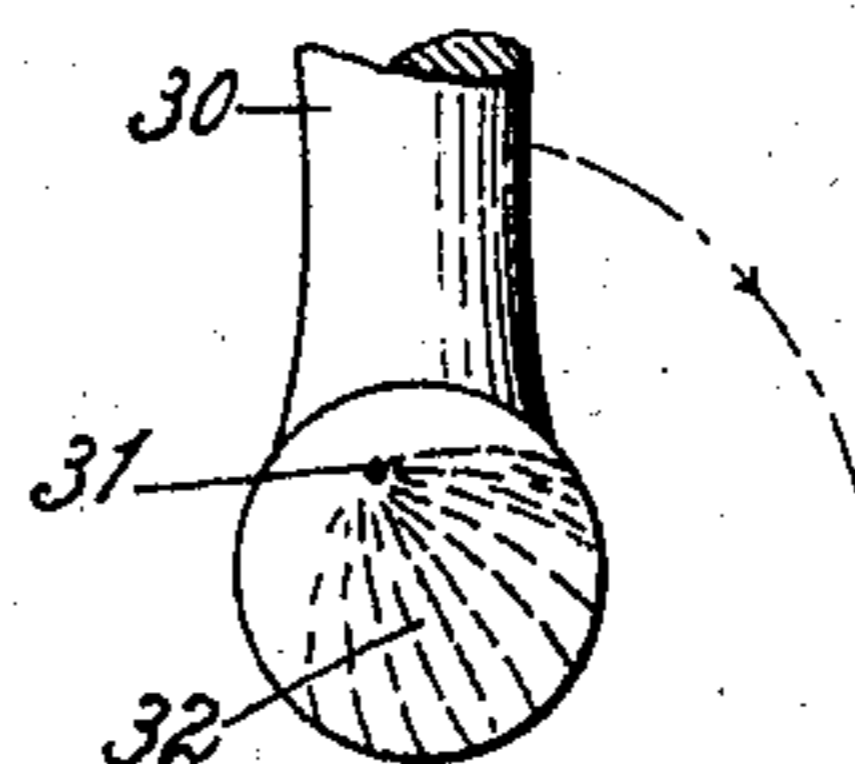


Fig. 4.

WITNESSES:

Robert A. Pollock.

L. L. C. Hason

INVENTOR.

BY

INVENTOR,
John F. Hahn
BY
Richard Manning
ATTORNEY

ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN J. HAHN, OF KANSAS CITY, MISSOURI.

DOOR-FASTENING DEVICE FOR GRAIN-DOORS.

SPECIFICATION forming part of Letters Patent No. 787,038, dated April 11, 1905.

Application filed December 14, 1904. Serial No. 236,812.

To all whom it may concern:

Be it known that I, JOHN J. HAHN, a citizen of the United States of America, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Door-Fastening Devices for Grain-Doors; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The object of the invention is a securing device for doors and also frames for windows and other structures which will act to draw the meeting parts of the door or frames and the jamb inwardly together and also downwardly upon the door or window sills, so as to form a tight joint.

The invention consists in the novel construction and combination of parts, such as will be first fully described and then specifically pointed out in the claims.

In the drawings, Figure 1 is a view in elevation of a portion of the side of the body of a car, showing the door opening and frame and the inner grain-holding and outer sliding doors, showing the invention applied to the grain-door. Fig. 2 is a vertical sectional view of the body of the car, taken through the grain-door, showing the invention. Fig. 3 is an enlarged detail view in perspective of the novel securing device removed from the door and jamb. Fig. 4 is an end view in detail of the bolt, showing the cam and a portion of the operating-handle. Fig. 5 is a vertical sectional view taken through the socket-plate and bolt.

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

Referring to the drawings, 10 indicates the body of a closed freight-car, in the sides 12 of which is the usual door-opening 14.

15 represents the door-frame, of which 16 are the vertical door-jambs and 17 the sill.

18 indicates the sliding outer door, which moves in the respective upper and lower horizontal guide-rails 19 and 20, secured to the outer surface of the side 12 of the car above

the line of the top of the door-frame and also in a horizontal line with the door-sill, the door closing the opening 14 in the usual manner.

Within the car and employed for the purpose of retaining grain and cereals is an inner door 21, extending in width from the line of the outer edge of one jamb 16 to the line of the outer edge of the other jamb and from the line of the upper surface of the sill 17 upwardly about three-fourths the distance from the sill 17 to the top of the door-frame. A portion 22 of the upper end of the door is separated horizontally from the lower main portion of the door at a point a short distance downwardly from its upper edge, the lower edge of the said part 22 being secured to the upper part of the door by the hinges 23 23, these hinges being upon the inner surface of the door. Upon the outer surfaces of the portions 21 and 22 of the door adjacent to the door-jambs are the vertical cleats 24.

The door-securing device consists of a rectangular plate 25, the central portion 26 of which is bent or cast in an outwardly-curved line extending in the longitudinal direction of the plate, thereby forming a socket 27, in which socket is a bolt 28. In the bent portion 26 of the plate 25 at a point equidistant from the ends of the plate is a downwardly-extended and forwardly-inclined opening 29, the sides of which opening form cam-surfaces. Connected rigidly at one end with the side of bolt 28 within the opening 29 is an operating-handle 30. The forward end of the bolt 28 is reduced in size circumferentially a short distance to a point 31, which is eccentric to the longitudinal axis of the bolt and nearest the line of the surface of the bolt with which the handle is connected, thus forming a cam 32, the surfaces of which are in slightly outwardly curved lines. The plate 25 is secured to the cleat 27 with the cam 32 of the bolt 28 toward the door-jamb 16 of the door, and upon said jamb is secured a flat keeper-plate 33, in which is an opening 34 of the same circumference as the bolt 28 and in which opening the cam 32 extends when the handle is moved downwardly in the direction of the arrows, the position of the plate 25 on the cleat being such as to enable the retracted position of the

bolt to free the cam 32 from the opening 34 in the plate 33. The fastening devices are applied to both the cleats 24 on the main hinged portions of the grain-holding door, and when the door is placed in position against the door-jambs 16 the handles 30 on the bolts 28 are turned upwardly.

In operation the handles 30 upon each bolt are turned downwardly, thus meeting the cam-surfaces of the opening 29, and the forward end of the bolt moves forwardly in the direction of the keeper-plate 33, and the cam 32 comes into contact with the inner and upper surfaces of said opening, and the movement of said cam within said opening first draws upon the door downwardly in the direction of and upon the door-sill and then outwardly against the door-jambs. The tight joint which results from the door being closely secured prevents the loss of grain, &c. In order to open the door in such manner that the grain may be quickly dislodged, all the handles 30 are raised in an upward position, which disengages the bolts from the plates 33, and a lever is applied to the lug 35 on the lower portion and outer surface of the door and the door raised a short distance in height, which action permits the flow of the grain beneath the lower edge of the door. As soon as the door is raised in position and the grain discharged the pressure on the door is relieved and the door falls backwardly and is readily removed from the car. Should the hinges become broken away from the doors, a lug 36, secured to the hinged portion 22 of the door, will hold the said portion in position when the door is fastened.

The invention is applicable to window-sash frames of dwellings or to the securing of the detachable sides of framed structures such as are ordinarily tongued and grooved, the operation of the fastening devices forming close joints, so as to exclude air or dust.

It is evident that the cam may be larger than the bolt, which would necessitate a larger opening in the keeper.

Such other modifications may be employed as are within the scope of the invention.

Having fully described my invention, what

I now claim as new, and desire to secure by Letters Patent, is—

1. In fastening devices for doors, &c., a sliding rotary bolt and a cam at the end thereof, the surface of which cam is extended forwardly and gradually reduced in size, the lines of the said surfaces terminating at a point, said point being within the circumference of the bolt-head and eccentric to the longitudinal axis of the bolt.

2. In fastening devices for doors, &c., a sliding rotary bolt and a cam at the end thereof, consisting of a circumferentially-reduced outwardly-curved projecting end portion of said bolt, the lines of said curved surfaces terminating at a point within the circumference of the bolt-head and eccentric to the longitudinal axis of the bolt.

3. A fastening for doors, windows, &c., comprising a bolt-supporting plate, having a longitudinal socket, and an opening communicating with the socket inclined at an angle thereto, a sliding, rotary bolt in said socket, a handle connected with the said bolt and movable in said inclined opening, and a circumferentially-reduced outwardly-curved projecting end portion of said bolt, the lines of the curved surfaces terminating at a point eccentric to the longitudinal axis of the bolt and nearest the line of the surface of the bolt with which the handle is connected, and a perforate keeper-plate.

4. In fastening devices for doors, &c., the combination with a bolt-supporting plate, having a longitudinal socket, and an opening communicating with said socket inclined at an angle thereto, of a sliding rotary bolt and its handle, and a perforate keeper-plate, and a cam adapted to enter the perforation in said plate, the surface of which cam is outwardly curved and the lines of said curved surfaces extended forwardly and terminating at a point, which point is within the circumference of the bolt-head and eccentric to the longitudinal axis of the bolt.

JOHN J. HAHN.

Witnesses:

H. R. TOMLINSON,
ADRA H. JOHNS.