

No. 679,855.

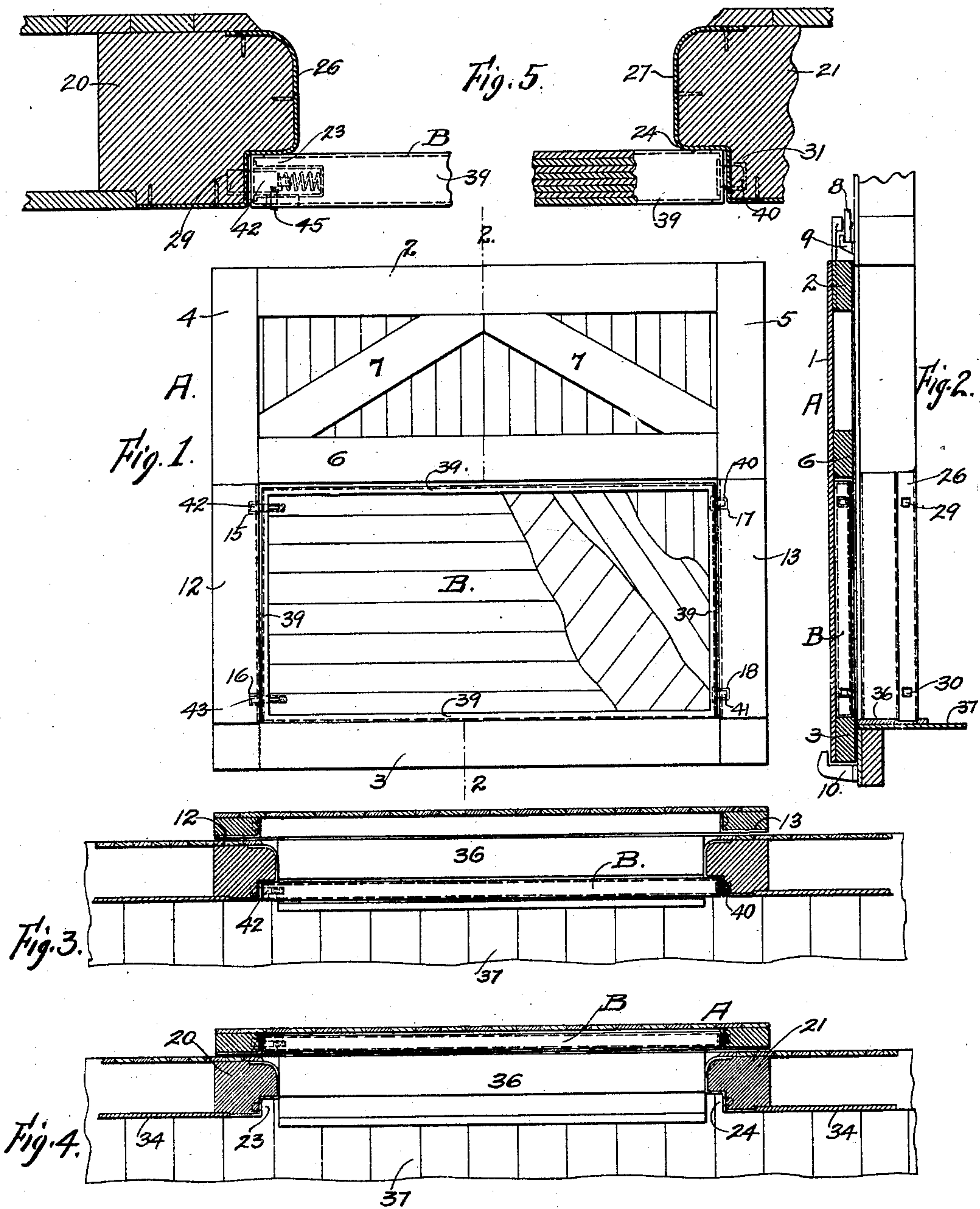
Patented Aug. 6, 1901.

J. B. MOCKRIDGE.
COMBINED CAR AND GRAIN DOOR.

(Application filed June 1, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:
Thos E. Brown Jr.
Chas. L. Dunkel.

INVENTOR
Joseph B. Mockridge
BY
Walter Brown
his ATTORNEY

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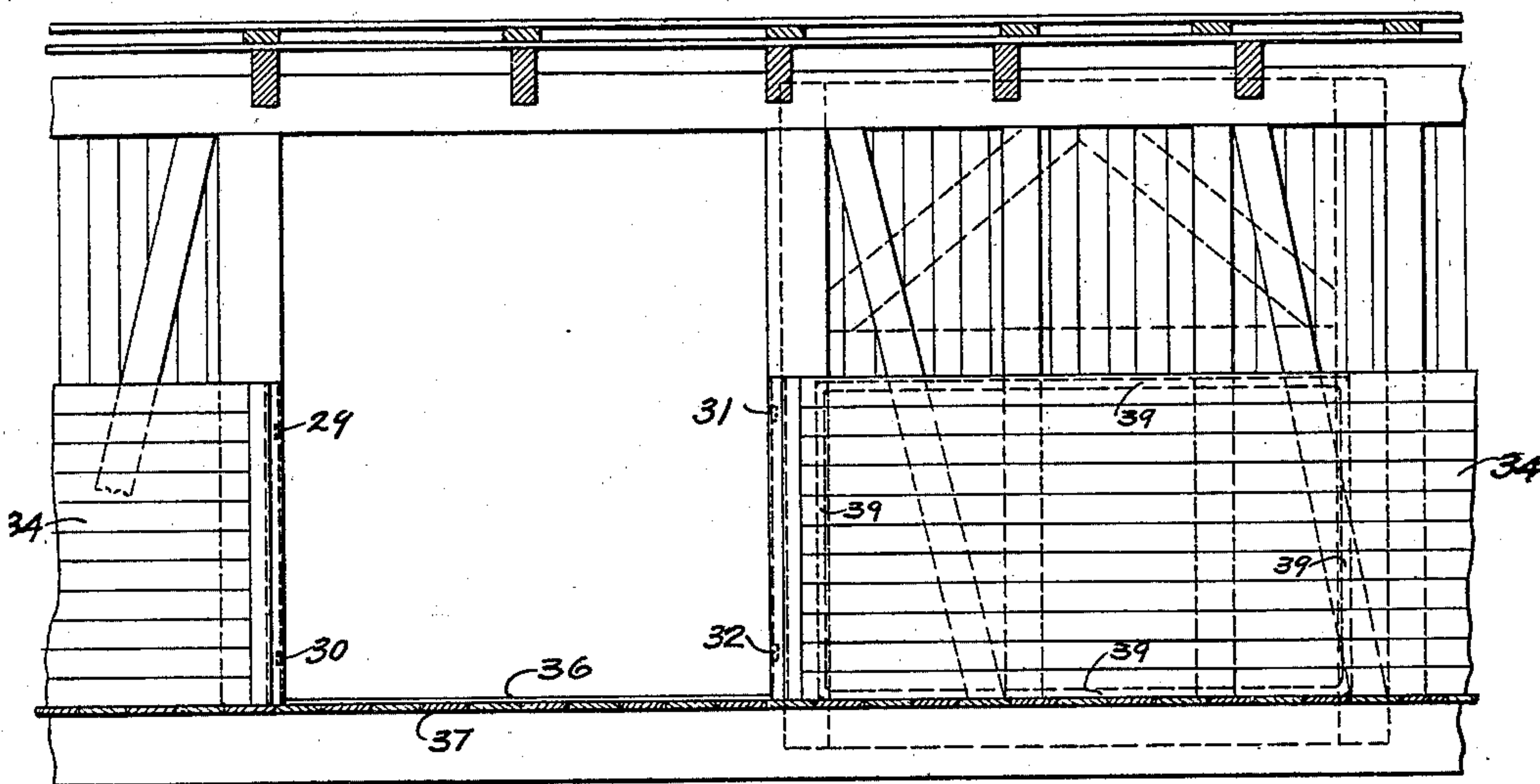
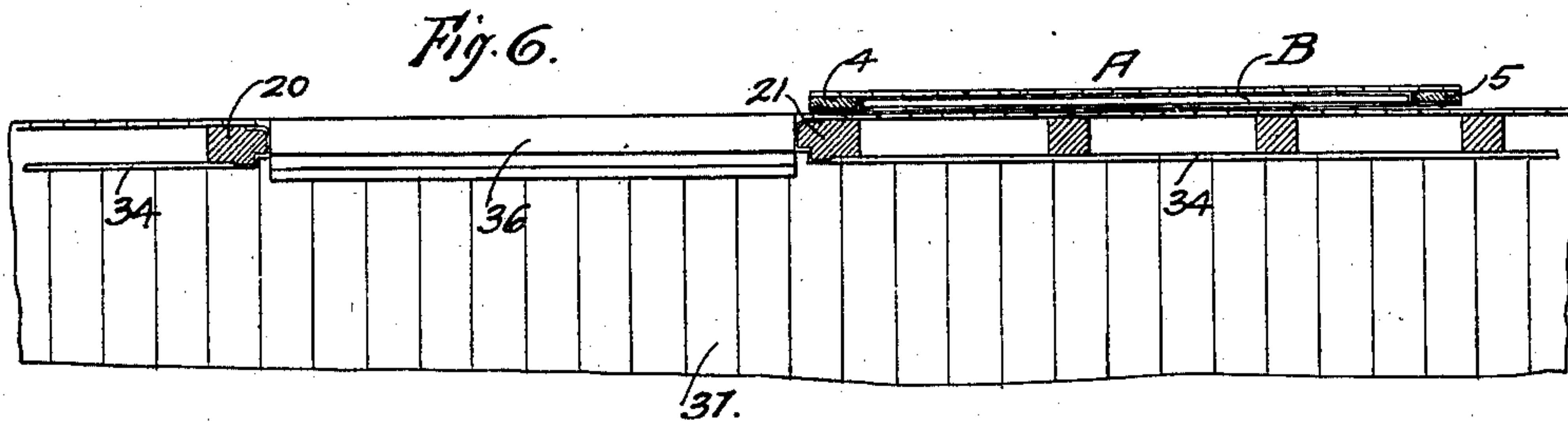


Fig. 7.

WITNESSES:

Thos. E. Brown Jr.
Chas. L. Dunkel

INVENTOR

Joseph B. Mockridge

BY

Walter Brown
his ATTORNEY

UNITED STATES PATENT OFFICE.

JOSEPH B. MOCKRIDGE, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO
CHARLES L. DUENKEL, OF JERSEY CITY, NEW JERSEY.

COMBINED CAR AND GRAIN DOOR.

SPECIFICATION forming part of Letters Patent No. 679,855, dated August 6, 1901.

Application filed June 1, 1901. Serial No. 62,688. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH B. MOCKRIDGE, a citizen of the United States of America, and a resident of the borough of Manhattan, in the city of New York and State of New York, have invented certain new and useful Improvements in a Combined Car and Grain Door, of which the following is a specification.

This invention relates to combination car and grain doors.

As is well known, the cars which at one time carry grain on the railroads and are specially adapted to this purpose are at other times used to transport miscellaneous freight, as boxes, barrels, and other bulky articles. When used for carrying grain, it is necessary to provide some means placed at the inside of the door-posts, in addition to the main car-door, to tightly close the lower part of the doorway and prevent loss of the grain. Originally it was the practice to nail boards across the doorway up to the necessary height, which boards were removed when the car was unloaded; but this practice was wasteful of lumber and inconvenient and has been followed by attempts to provide a grain-door, in addition to the main car-door, which could be used to close the lower part of the doorway at the inside of the door-posts when the car was carrying grain and removed from its place and stored in the car when other freight was carried. Such doors, however, have not proved successful because of their liability to breakage when loading and unloading the car.

My invention, however, provides a grain-door which is so combined with the main car-door that when the car is used for carrying grain the grain-door is secured to the proper place at the inside of the door-posts, tightly closing the lower part of the doorway, and when the car is being loaded or unloaded becomes a panel of the main door and disappears entirely from the interior of the car, being protected from injury by the side of the car on the inside and by the main door itself on the outside. While the car is transporting other freight than grain, the grain-door remains in its place as a panel of the main door, presenting a surface flush with the in-

ner face of the main-door frames or battens, so that it cannot be injured and takes up no room in the car. In this use the grain-door also has the important advantages of strengthening the main door and of preventing the articles carried by the car from catching against the edges of the door-frames, so that with my combination-door there will never be any difficulty in opening the door, the flush inner surface offering nothing against which any article in the car can catch, whereas without my door it is of common occurrence that a bag, box, barrel, or other article will have shifted during transportation sufficiently to catch against the door frames or battens, rendering the opening of the door a matter of great difficulty and sometimes making it necessary to smash in the door to get access to the car.

Referring to the drawings which accompany the specification to aid in the description, Figure 1 is an elevation of my combined car and grain door as seen from the inside of the car. The grain-door is shown in place in the recess in the main door as it would be when the car is carrying other freight than grain. The grain-door is partly broken away to show its laminated structure. Fig. 2 is a sectional elevation on the irregular line 2 2 of Fig. 1. Fig. 3 is a horizontal section and plan showing the grain-door in its place at the inside of the door-posts and in the position it has when the car is carrying grain. Fig. 4 is a horizontal section and plan showing the grain-door in its place in the recess in the main door. Fig. 5 is a broken section and plan on a large scale and showing the door-posts with the recesses for the edges of the grain-door and the sheet-metal protection of said door-posts. The devices for securing the grain-door in place are also shown in this figure, and the grain-door is partly broken away to show its laminated structure. Fig. 6 is a horizontal section and plan showing the main door with the grain-door in its recess therein slid back, so that the grain-door has disappeared and is protected from injury. The position of the combined door is that which is assumed when unloading the car of freight other than grain. This figure also shows the grooved

bottom plate, which holds the grain-door up to place when in use as a grain-door. Fig. 7 is a vertical section and elevation showing the door-opening, the inner lining of the car, the metal protection for the door-posts, and indicating by dotted lines the combined door slid back. Figs. 6 and 7 clearly illustrate the disappearing feature of the grain-door.

The main door A, Fig. 1, is constructed of boards 1, fastened to a frame composed of the top and bottom battens 2 and 3, the vertical side battens 4 and 5, and cross-battens 6, 7 7 being the usual diagonal battens. Said main door carries wheels or rollers 8, which travel on the flanged rail 9 in the ordinary manner, and there are guide-brackets 10, usually three in number, to hold the lower edge of the main door A against the side of the car. Said battens or frames 3, 4, 5 and 6 are positioned to form a recess or panel, (clearly indicated in Figs. 2, 3, and 4) of practically the same dimensions as the grain-door B, the said recess in fact being intended to receive the said grain-door B when the latter is not in use as a grain-door proper, and I prefer to protect the inner faces and edges of said battens 4 and 5 with metal angle-plates 12 13. Suitable holes and sockets 15 16 17 18 are made in said plates 12 13 and battens 4 5 to receive the devices by which said grain-door is locked into the said recess in the main door A.

To facilitate the insertion of the grain-door B into the recess in the main door A and its removal therefrom, the outer edges of the door-posts 20 21 are rounded, as shown in Fig. 5. At the inner corners of said posts 20 21 right-angled recesses 23 24 are formed to a proper height to receive the edges of said grain-door B, and I prefer to protect the inner faces of said posts 20 21 and the said recesses 23 24 with sheet-metal facings 26 27, as clearly shown in Fig. 5. Holes 29 30 31 32 are made in said faces 26 27, with corresponding sockets in said posts 20 21 to receive the said devices by which the grain-door B is fastened in place in said recesses 23 24. Said holes 29 and 31 are at the same distance down from the top of the recesses 23 24 that the holes 30 32 are up from the bottom thereof, and the aforesaid sockets 15 and 17 and 16 and 18 in the main door A are similarly arranged, so that the grain-door B can be reversed end over end and yet equally well fit in the main door or in the recesses in the door-posts. Said grain-door will be the same height as the grain-line, and said lining 34 will also be of this height, and a door-sill 36 is fastened to the floor 37 to hold this lower edge of said grain-door B snugly up against the door-posts 20 21. Said grain-door fits easily into the aforesaid recess or panel in the main door A and also into said recesses 23 24 in the door-posts 20 21, and when used as a grain-door proper—i. e., when the car is carrying grain—it has the latter position. When the car is a wooden one, said

grain-door is preferably made of laminæ or thin strips of wood arranged in layers, Figs. 1 and 5, the pieces in one layer being at an angle with those in the next layer, as clearly shown in Fig. 1. The layers are firmly nailed, bolted, or otherwise secured to each other, forming a very strong and unwarpable door. When the car is of iron or steel, said grain-door will be preferably of iron or steel also, and it can of course be made of any suitable material in any case. The edges of said grain-door B are preferably protected by metal plates or channel-irons 39, as seen in Figs. 1, 5, and 7. On one end of said door are fastened metal projections 40 41, and on the other end are sliding spring-actuated latches 42 43, said projections and latches being positioned to enter their appropriate sockets in the door-posts 20 21 or in the battens 4 5 of the main car-door A, according as the said grain-door B is in use as a grain-door proper or out of use. Said latches are drawn back by knobs or handles 45, which slide in slots in said grain-door B in the usual manner, the ends of said knobs being flush with the surface of the grain-door. Suppose the said grain-door B to be in its position in the recessed door-posts 20 21, where it has served as a grain-door proper, and that it is desired to load the car with other freight. Then the latches 42 43 being drawn back one edge of said grain-door is freed from said door-posts 20 21 and drawn back a little into the car until the lugs 40 41 are freed from their sockets. Now the grain-door is moved back through the doorway and placed in the said recess in the main car-door A, which door will be nearly but not entirely closed. The lugs 40 41 will first be engaged into their proper sockets and then the other end of grain-door B will be pushed fully back into the recess in the main door A, the latches 42 43 first pushing back and then springing into their sockets in the main-door battens. Now the combined car and grain door is slid back, as in Fig. 6, removing the said grain-door out of harm's way while the car is being loaded or, as I term it, "causing said grain-door B to disappear." After the car has been loaded the combined car and grain door is slid back to its closed position and locked, and now the grain-door B makes the lower part of said combined door a flush surface on the inside, and nothing can catch against the battens 4 and 5.

Supposing the car to have been loaded with other freight and then unloaded, the grain-door B being in the recess in the main door A and that it is desired to load the car with grain, the combined door is now opened a little, so as to allow the grain-door B to be freely removed from the main door A by pushing back said latches 42 43 and drawing the grain-door a little cornerwise through the doorway and into the interior of the car. Then the projections 40 41 are engaged into their sockets in the door-post 21, and the

grain-door B is then pushed home to place, said latches 42 43 now securing the said grain-door B in its place in the recessed door-posts 20 21 flush with said lining 34. There is sufficient vertical play of the projections 40 41 in the sockets 29 and 30 of said grain-door B in the recesses 23 24 to permit of readily inserting the grain-door in place with its lower edge in the sill 36, as shown in Fig. 2. There will of course be a similar combination car and grain door for each doorway of the car.

Now, having described my improvements, I claim as my invention—

1. A combination car and grain door comprising a main door with a recess and a grain-door adapted to fit in said recess and also adapted to serve as a grain-door proper in addition to said main door, and devices on said grain-door for securing it either in the main door or in its place in the doorway at will, substantially as described.

2. The combination of a main car-door provided with a recess, a grain-door adapted to fit in said recess, recessed door-posts in the car, and devices on said grain-door adapted to lock it in the recess of the main door or in the recessed door-posts at will, substantially as described.

3. The combination of a main car-door, a recess therein, and a grain-door adapted to fit in said recess and provided with devices for locking it therein, substantially as described.

4. In combination with a recessed main door, a grain-door having metal-protected edges and devices for locking said grain-door into the recessed main door, substantially as described.

5. A grain-door for cars consisting of thin strips of wood laid at an angle and fastened together, and metal protection around the edges of said door, substantially as described.

6. The combination in a car of a recessed main car-door provided with sockets, recessed door-posts also provided with sockets, a grain-door adapted to fit removably either the recessed main door or the recessed door-posts, devices on said grain-door adapted to engage either said sockets in the main door or said sockets in the door-posts, and a grooved sill adapted to engage the bottom of said grain-door when the latter is locked in the recessed door-posts, substantially as described.

7. In railroad-cars, a disappearing grain-door, consisting of a panel which is adapted to fit in the doorway when used as a grain-door, and to fit in the main door and disappear when loading or unloading the car, substantially as described.

Signed at New York city this 28th day of May, 1901.

JOSEPH B. MOCKRIDGE.

Witnesses:

FRANK FRITSCH,
CHAS. L. DUENKEL.