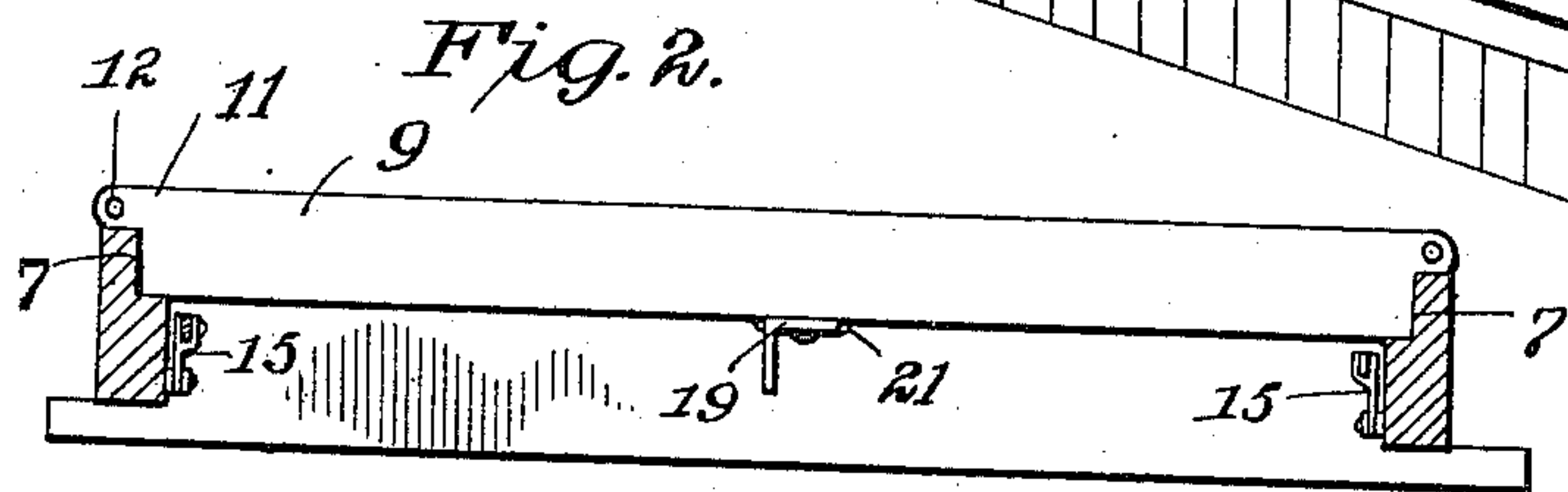


APPLICATION FILED FEB. 23, 1909.

Patented Nov. 22, 1910.

2 SHEETS--SHEET 1.

Fig. 1.



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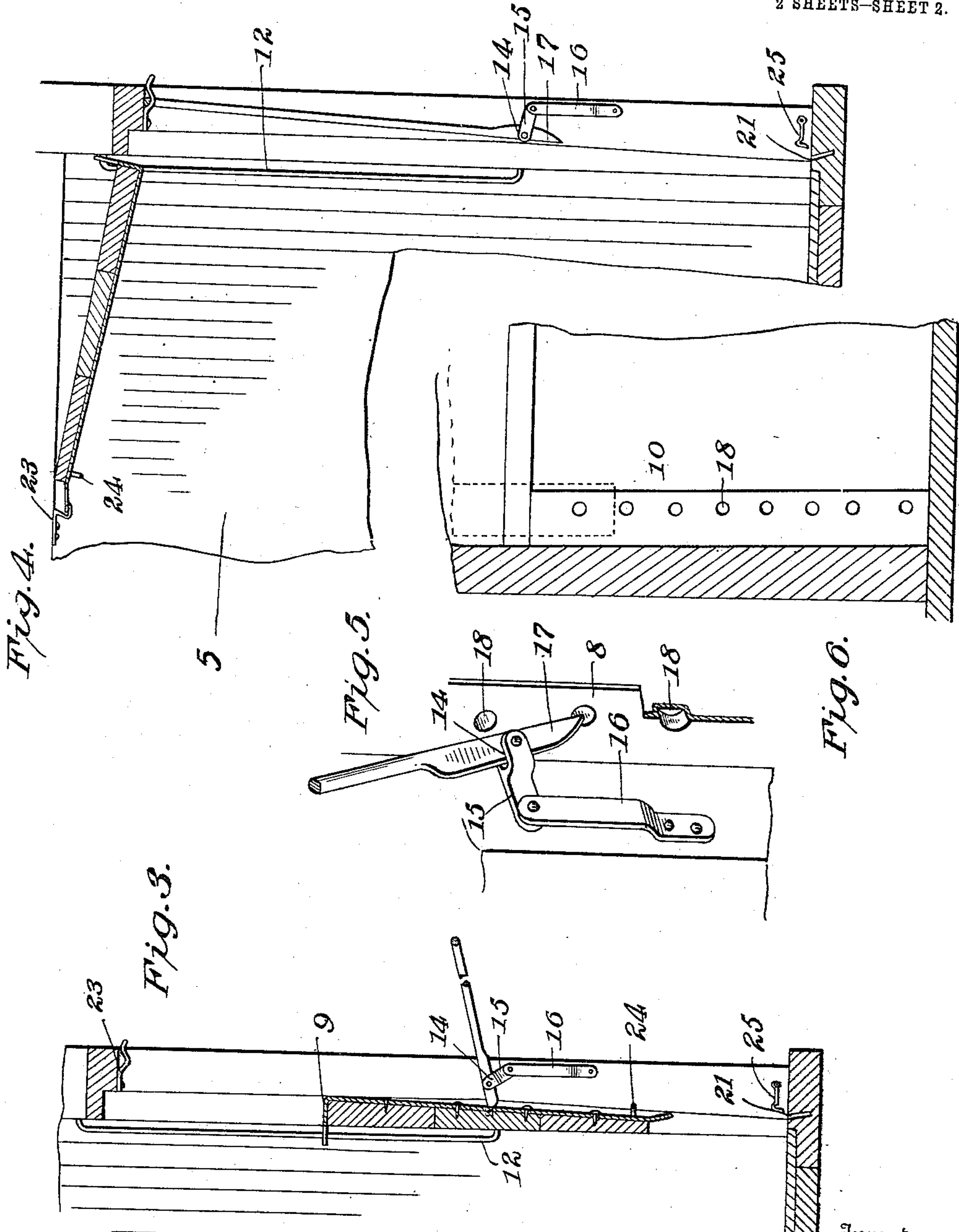
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GRAIN DOOR.

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976,357.

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2 SHEETS—SHEET 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

RANSOM GOODWIN, OF WEST UNION, ILLINOIS.

## GRAIN-DOOR.

976,357.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed February 23, 1909. Serial No. 479,345.

*To all whom it may concern:*

Be it known that I, RANSOM GOODWIN, a citizen of the United States, residing at West Union, in the county of Clark and State of Illinois, have invented certain new and useful Improvements in Grain-Doors, of which the following is a specification.

This invention relates to grain car doors, and has for its object to provide a strong, durable and thoroughly efficient closure for the door-receiving openings of grain cars and other rolling stock, thereby to prevent the escape of grain during transportation or shipment.

A further object is to provide improved means for opening the door to permit the discharge of the grain or other contents of the car, and means for supporting the door in elevated position during the unloading operation.

A further object is to provide a door of substantially wedge-shaped cross sectional formation, thereby to insure positive contact with the adjacent sides of the door-receiving opening, when the door is in closed position, and also to reduce friction between the parts, and thus facilitate movement of the door when the latter is opened to permit the discharge of the grain.

With these and other objects in view that will more fully appear as the description proceeds, the invention consists in certain constructions, arrangements and combinations of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention and the merits thereof, and to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of a grain car door constructed in accordance with my invention, showing the same in closed position; Fig. 2 is a transverse sectional view taken on the line 2—2 of Fig. 1; Fig. 3 is a vertical sectional view showing the door in partly raised position; Fig. 4 is a similar view showing the manner of supporting the door in elevated position; Fig. 5 is a detail perspective view of one end of the yoke; and, Fig. 6 is a detail front elevation, showing the wedging action between the door and the walls of the door-receiving opening.

Corresponding and like parts are referred to in the following description and indicated

in all the views of the drawings by the same reference characters.

The improved door or closure forming the subject matter of the present invention, is principally designed for use in connection with grain cars and other rolling stock, and by way of illustration, is shown in connection with a grain car of the ordinary construction, in which 5 designates the body of the car, and 6 the door-receiving opening, the inner edge of which is rabbeted at 7 to form oppositely disposed guides for the reception of the car door, indicated at 8. The door 8 may be constructed of metal, wood or other suitable material, and when constructed of the latter material, will preferably be reinforced and strengthened by the provision of horizontal and vertical metallic strips or braces 9 and 10. The opposite ends of the horizontal braces 9 are extended laterally to form terminal ears 11 having perforations formed therein for the reception of suitable guide rods 12, the latter being secured to the body of the car with their intermediate portions spaced from said car to permit free movement of the car door when the latter is raised or lowered.

Attention is here called to the fact that the door 8 is of substantially wedge-shape cross sectional formation, that is to say, said door decreases in thickness from its upper edge to its lower edge while the rabbeted face 7 of the door is correspondingly inclined or beveled, as best shown in Fig. 3 of the drawings. It will also be noted that the opposite sides of the door-receiving opening at the rabbeted edge 7 thereof, are inclined slightly in the direction of the bottom of the car, so as to produce a wedging action between the door and the side walls of the door-receiving opening, when the door is in closed position.

As a means for moving the door to elevated or open position, there is provided an operating member 13, preferably in the form of a yoke, the opposite ends of which are pivotally connected at 14 to suitable links 15 mounted in brackets 16 secured to the side walls of the door-receiving opening in advance of the outer face of the door. The free ends of the yoke or operating member 13 are reduced to form pointed terminals 17 arranged to enter any one of a series of sockets 18 formed in the adjacent vertical braces 10, so that when the yoke is oscillated, the terminals thereof will enter the sockets



and elevate the door with a step by step movement.

The intermediate portion of the car door 8 is reinforced and strengthened by a vertical brace 19 having a laterally extending fin and provided with a depending lip 20 arranged to enter a slot or recess 21 formed in the bottom of the car when the door is in closed position, said lip being provided with a perforation 22 adapted to receive a hook or similar fastening device 23 disposed within the body of the car, thereby to support the door in elevated position during the unloading operation.

One or more eyes 24 are projected laterally from the exterior face of the car door at the vertical reinforcing strips 10 for engagement with the hooked terminals of suitable locking members 25 pivotally mounted on the inner faces of the side rails of the door-receiving opening, as best shown in Fig. 1 of the drawings. Attention is here called to the fact that the yoke and its associated parts are normally housed within the door-receiving opening, while said yoke is retained in inoperative position by engagement with a catch 26 depending from the top of the car and projecting within the door-receiving opening.

Thus it will be seen that when the door 8 is moved to closed position, the opposite vertical edges of the door will bear against the inclined faces of the door-receiving opening, while the terminal lip 20 of the intermediate brace 19 will enter the slot or recess 21, and thus securely lock the grain door in lowered or closed position.

In order to elevate the door, it is merely necessary to release the yoke 13 from engagement with the catch 26, and then exert a

downward pressure on the intermediate portion of said yoke, which causes the terminals thereof to enter the sockets in the vertical braces of the door and elevate the door with a step by step movement, as before stated.

When the door has been elevated to a position adjacent the upper ends of the guide rods 12, said door is swung laterally within the car and against the roof thereof, in which position the door is held from accidental displacement during the unloading operation by means of the hook or catch 23 engaging the perforation in the depending lip 20 of the car door. It is obvious that when the catch 27 is released, the door will move by gravity to closed position, so as to permit the locking members 25 to engage the eyes 24.

Having thus described the invention, what is claimed as new is:—

The combination with a car including spaced posts having their inner vertical edges rabbeted to form door seats, one wall of each seat being inclined inwardly and downwardly and the other wall thereof inclined downwardly and laterally, of a wedge-shaped door slidably mounted in the door seats and having its outer face bearing against the downwardly and laterally inclined walls of the seats and its opposite ends inclined downwardly for engagement with the downwardly and inwardly inclined walls of said seats.

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

RANSOM GOODWIN. [L. s.]

Witnesses:

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