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Patented Aug. 12, 1902.

F. S. INGOLDSBY.

DUMP CAR.

(Application filed Feb. 24, 1902.)

(No Model.)

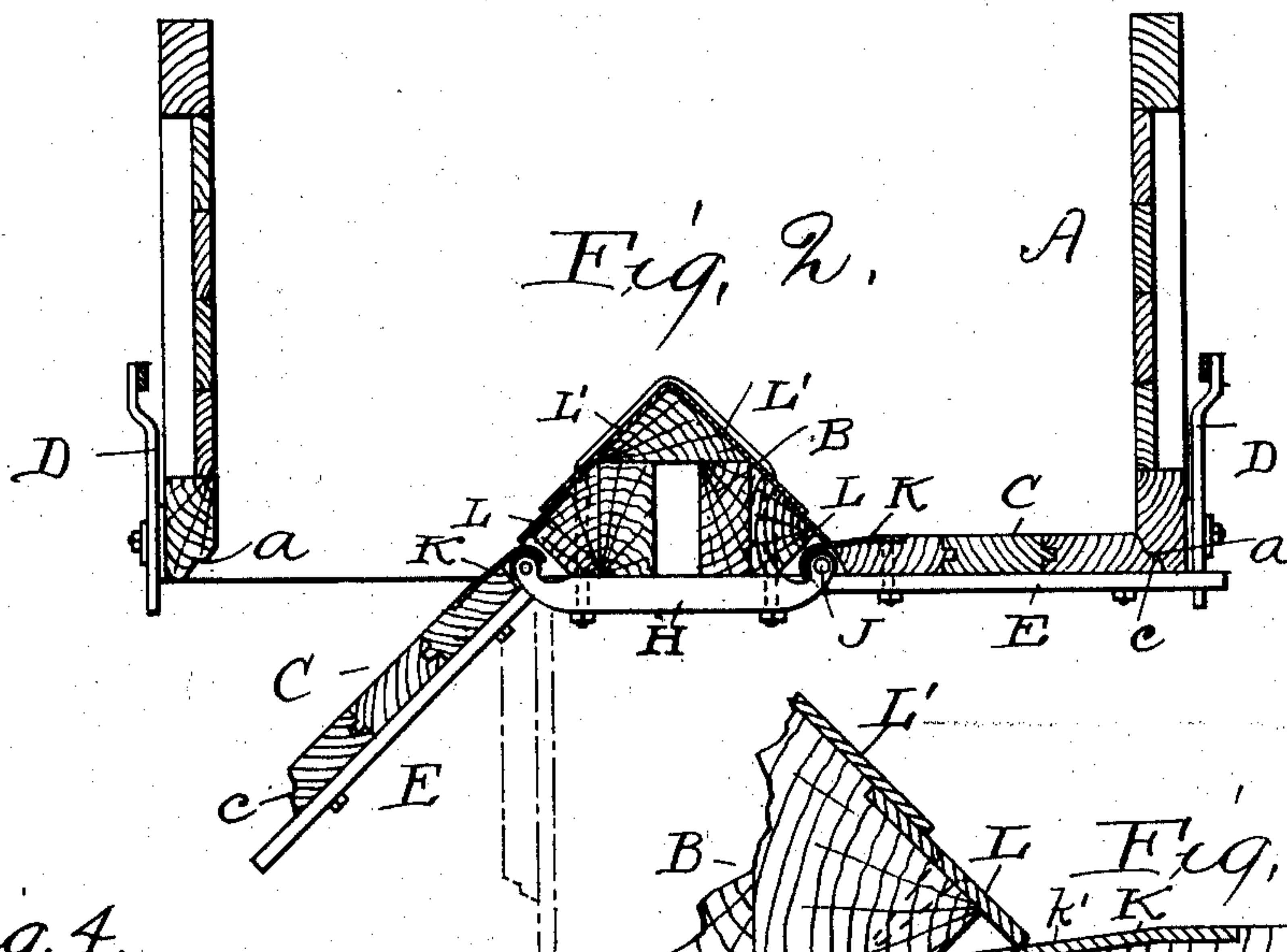
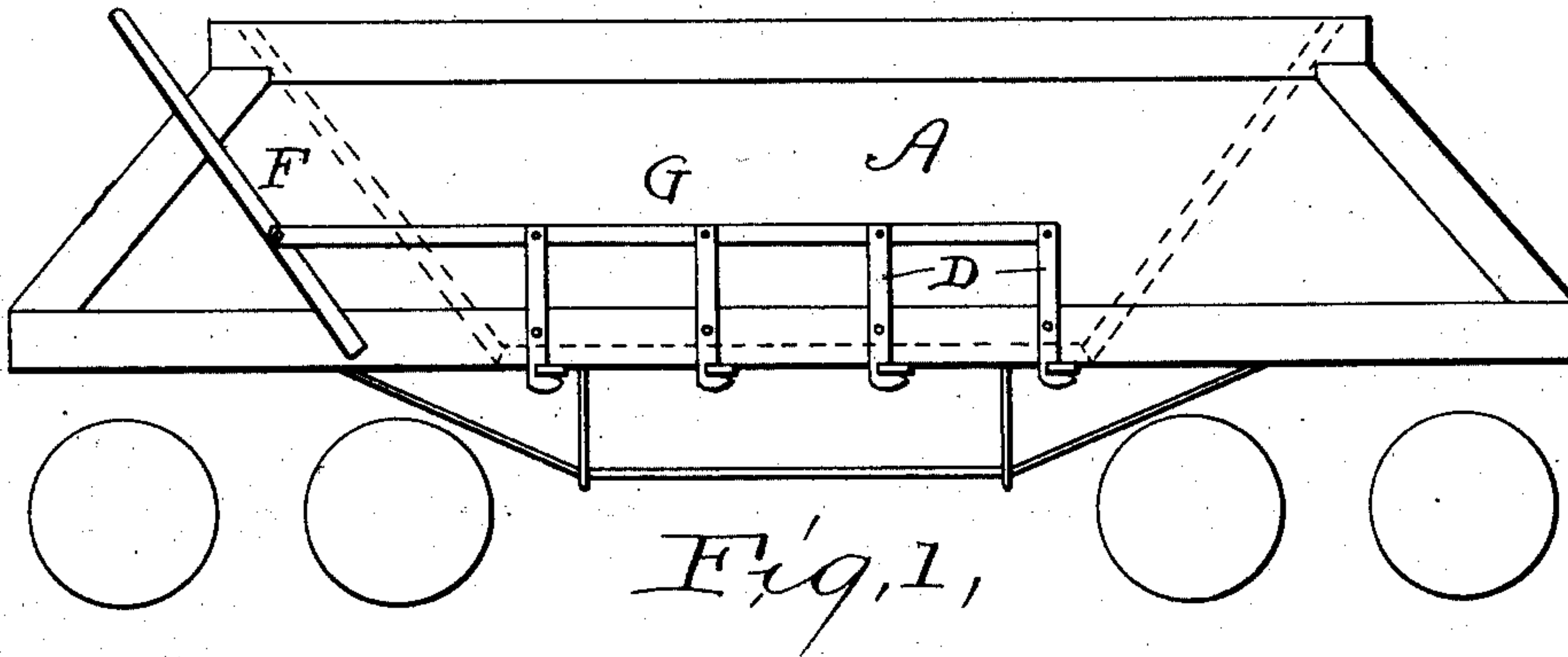


Fig. 4,

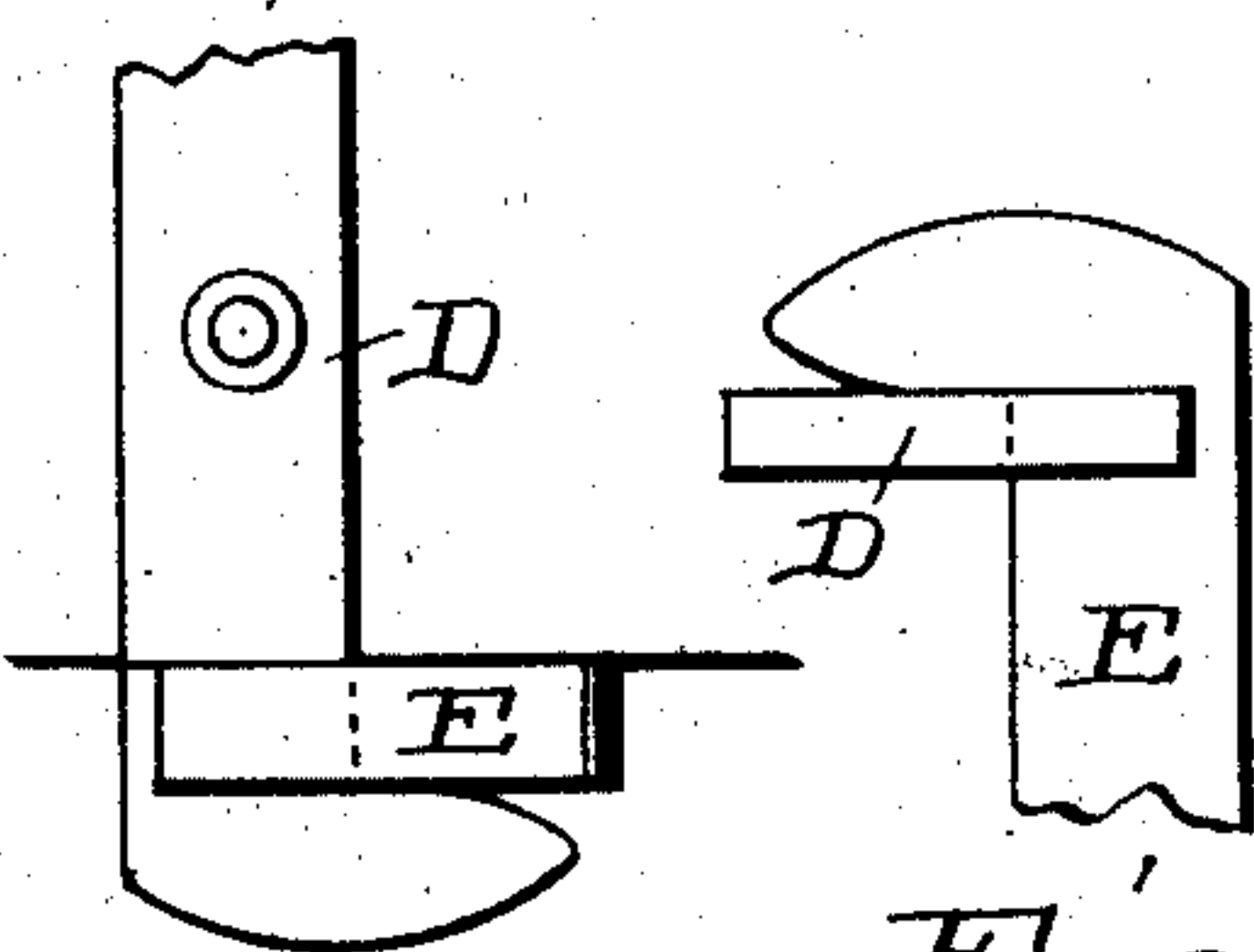
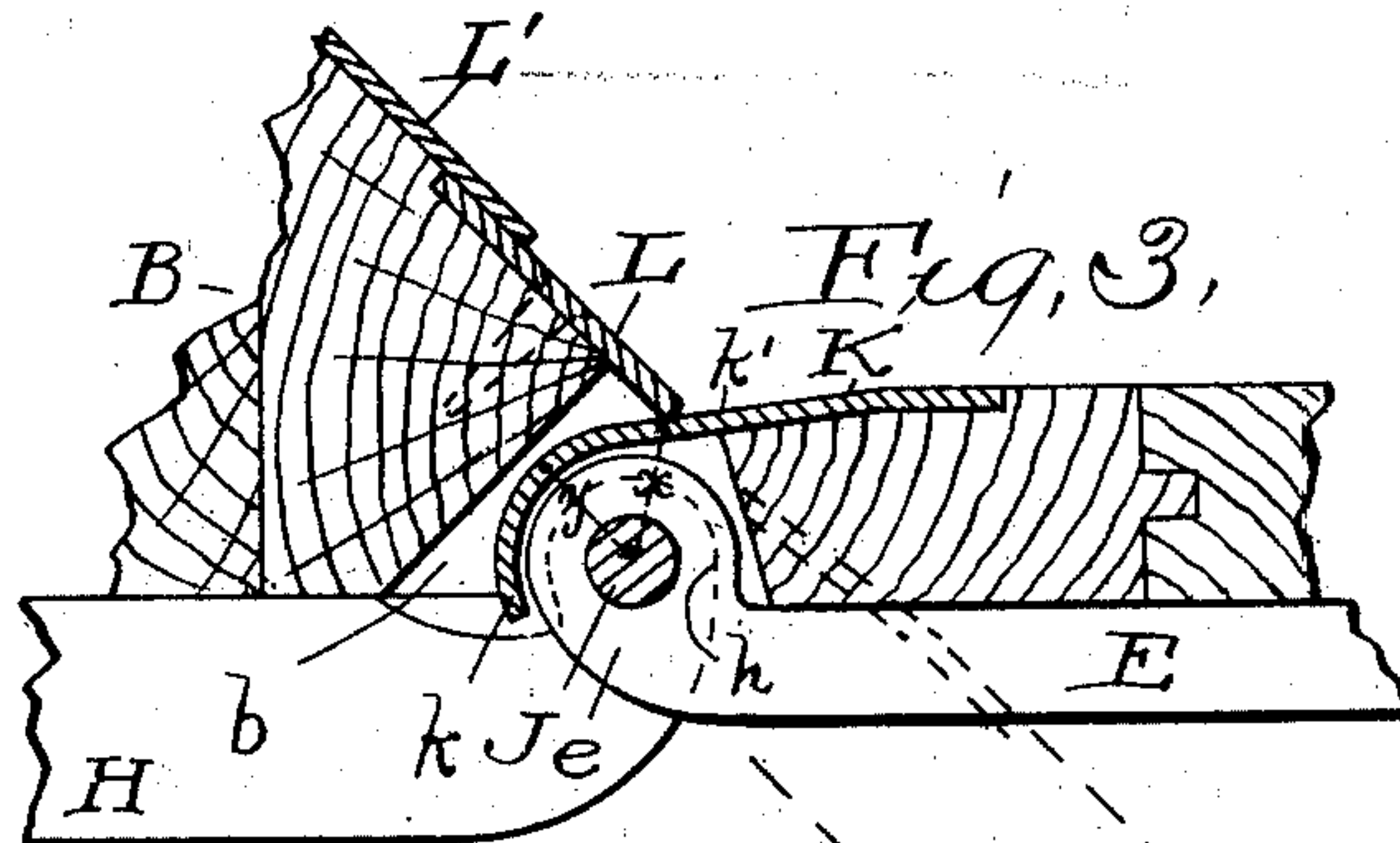


Fig. 5,



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# UNITED STATES PATENT OFFICE.

FRANK S. INGOLDSBY, OF ST. LOUIS, MISSOURI.

## DUMP-CAR.

SPECIFICATION forming part of Letters Patent No. 706,663, dated August 12, 1902.

Application filed February 24, 1902. Serial No. 95,212. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK S. INGOLDSBY, a citizen of the United States, residing at St. Louis, State of Missouri, have invented a certain new and useful Improvement in Dump-Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to a dump-car of the type wherein the load is dumped by the dropping of a hinged trap-door. It is especially adapted for a dump-car having a central longitudinal beam to the opposite edges of which trap-doors are hinged, as shown, for example, in my prior patents, Nos. 551,319, 613,279, and 632,650, granted, respectively, December 10, 1895, November 1, 1898, and September 5, 1899.

The object of the invention is to provide means at the hinge which will make a perfectly-tight joint when the door is closed, but which shall move perfectly freely in the dropping of the door and without wearing friction and shall present a continuous smooth surface for the discharge of the load when the door is dumped.

The invention consists, broadly, of a hinged door having a shield extending over the hinge of the door and abutting when the door is closed against a cooperating member to make a tight joint. The cooperating member in the preferred form is a strip or plate on the top of the beam to which the door is hinged, and the shield on the door is snugly brought into engagement with the lower edge of this strip or plate when the door is closed by reason of the shield being a greater distance from the center of revolution at the line of contact than it is behind that line, as is more fully explained hereinafter.

The present invention differs from that shown in my prior application, Serial No. 39,664, filed December 13, 1900, by the employment of the cooperating members abutting in the closed position, as explained, which allows the joint to be very cheaply constructed, while being very efficient in service.

In the drawings, Figure 1 is a side elevation of a dump-car, various parts not contributing to the present invention being removed. Fig. 2 is an enlarged vertical transverse section thereof. Fig. 3 is a still more enlarged

transverse section of the hinge of the dumping-door. Figs. 4 and 5 are fragmentary views of the interlocking hooks and strap at the lower edge of the car sides, being, respectively, a side elevation and a bottom plan.

Referring to the parts by letters, A represents the side of the vehicle, B a longitudinal central beam, and C trap-doors hinged at the lower edges of said beam and extending horizontally to support the load, but being adapted to drop into a vertical position or anything less than a vertical to dump the load. These doors are held snugly in place by hooks D, carried by the side of the car and engaging projecting straps E, secured to the under side of the doors. The ends of the hooks and of the straps are beveled, as indicated clearly in Figs. 4 and 5, so that when the doors are locked they are drawn up snugly against the side and the side held in against the doors. The cooperating beveled and preferably rabbeted edges *c* on the door and *a* on the car side form a tight joint. As shown, the hooks D are conveniently operated by a lever F, connected therewith by a link G. At their inner ends the door-straps E are turned upward to form eyes *e*, and through these eyes pass hinge-pintles J, securing the straps to the hinge-strap H, which is carried by the central beam B and has its end *h* correspondingly turned upward. The hinges thus provided are approximately at the theoretical corner of the central beam, the beam being recessed at such corner to accommodate the hinges. Now in order to make the hinge-joint at the central beam perfectly tight when the door is closed to prevent leakage of fine material which may be carried and at the same time to allow the door to drop freely without causing any undue wear at the hinge I provide a shield K in the form of a metal plate, which is secured to the edge of the door and extends over the hinge-pintles, being curved at its inner edge in a cylindrical surface *k* about the hinge-pintle for substantially a quadrant. Outward from the quadrant the shield continues straight, rising and receding from the center of revolution. On the upper surface of the central beam B is a metal protection, the lower edge of which overhangs the recess



6 at the edge of the beam, and this lower edge snugly abuts when the door is closed the portion  $k'$  of the shield-plate which is tangent to the quadrant curve and inclined upward therefrom when the door is closed. 5 The hinge-pintle J is located slightly back from the vertical plane at the edge of the overhanging protection, whereby the distance from that edge to the hinge-pintle is greater 10 than the radius of the curved portion  $k$  of the shield, as indicated in Fig. 3, where it will be seen that the distance-line  $x$  is greater than the distance-line  $y$ . It thus results that as soon as the door begins to drop the shield 15 clears the cooperating plate and drops totally free therefrom, so that there is no tendency of the shield to wear the protection.

The metal protection referred to consists, preferably, of the metal plates or strips L, 20 secured to the two sides of the beam and overhanging the edges, which strips are overlapped at their upper edges by the plate or plates L', covering the rest of the upper surface of the beam. As shown, the protecting- 25 plate L' is held on the beam by U-bolts N, which pass over the top of the beam and through it and also hold the straps H to its under side. By making the abutting portion of the protection L separate it may be readily 30 adjusted, so that the joint will be perfectly tight when the door is closed.

The feature above recited of the shield snugly abutting the cooperating plate when the door is closed and clearing that plate as 35 the door drops has been found very valuable, and particularly so in connection with the beveled hooks at the side of the car. These hooks and the bevels of the outer edge of the door and the tight joint at the inner edge are 40 all so arranged that when the hooks are in their final position the joints are perfectly tight both at the inner and the outer edges of the door.

Having described my invention, I claim— 45 1. In a dump-car, in combination, a hinged door, a shield carried by the door and extending over the hinge thereof, and a cooperating member with which said shield abuts when the door is closed to make a tight joint, sub- 50 stantially as described.

2. In a dump-car, a hinged door, a shield carried thereby and extending over the hinge of the door, and a cooperating member with which said shield abuts when the door is 55 closed, combined with straps carried by the door, and beveled hooks carried by the car-body and adapted to engage such straps to force the shield into contact with said cooperating member, substantially as described.

3. In a dump-car, in combination, a beam 60 having a recess at its edge, a dumping-door pivoted to said beam by hinges which occupy said recess, a shield carried by the door and extending into the recess over the hinge in 65 various positions of the door, and a cooperating member carried by the beam which said shield engages in a closed position of the door

but clears when the door is dropped, substantially as described.

4. In a dump-car, in combination, a beam, 70 a plate carried thereby and extending over the edge of the beam, a door pivoted to said beam, and a shield carried by said door and extending over the hinge and adapted to abut the lower edge of said plate when the door is 75 closed, substantially as described.

5. In a dump-car, in combination, a beam, a plate along the upper surface of said beam extending over its edge, a door pivoted to said beam, and a shield carried by said door and 80 curving over the hinge and between said curve and the door receding from the center of revolution, whereby said shield abuts the lower edge of said plate when the door is 85 closed and clears it when the door drops, substantially as described.

6. In a dump-car, the combination of a beam having its upper surface sloping downwardly in opposite directions, said beam being recessed along its edges, a pair of dumping- 90 doors pivoted to said beam substantially within such recesses, the beam carrying projecting edges over said recesses, metal shields carried by said doors and extending over the hinges, said shield curving over the hinge- 95 pivot but continuing tangentially to the door, the shields operating to abut said projecting edges when the door is closed and to clear the same when the door is dropped, substantially as described. 100

7. In a dump-car, the combination of a central longitudinal beam having an upper surface sloping downwardly in opposite directions, said beam being recessed along its 105 lower edges, a metal protection on the upper surface of said beam overhanging said recesses at each side, dumping-doors pivoted to said beam substantially within said recesses, shields carried by said doors and extending 110 over said hinges and adapted to abut said protection when the doors are closed, and beveled hooks carried by the side of the car and adapted to draw the door snugly into such engagement, substantially as described.

8. In a dump-car, the combination of a beam 115 having its upper surface sloping downwardly, a dumping-door pivoted to said beam, a strip of metal carried by said beam and overhanging its edge, a protecting-plate on the upper surface of the beam overlapping said strip, a 120 metal shield carried by said door and extending over the hinge, said shield curving over the hinge-pivot but continuing to the door and receding from such pivot, substantially as described. 125

9. In a dump-car, in combination, a beam downwardly sloping in opposite directions on its upper surface, the lower edges of said beam being recessed, a strap extending across the 130 under side of said beam and provided at its ends with hinge-eyes substantially at said recesses, a protecting-plate on the upper side of said beam, separate plates extending from under said protecting-plate and overhanging



said recesses, a U-shaped bolt lying over said plate and extending through said beam and said strap, a pair of dumping-doors having straps on the under surface, hinge-pintles  
5 connecting said door-straps with the strap on the beam, and shields carried by the doors and extending over the hinges into said recess, said shields being adapted to abut the lower edges of the overhanging plates when

the doors are closed, substantially as described.

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

FRANK S. INGOLDSBY.

Witnesses:

CHAS. H. MEYER,

GUS O. SCHULENBURG.