No. 715,384. Patented Dec. 9, 1902.

H. A. JOHNSTON.

FREIGHT CAR.

(Application filed Apr. 23, 1902.)

(No Model.) 2 Sheets—Sheet 1.

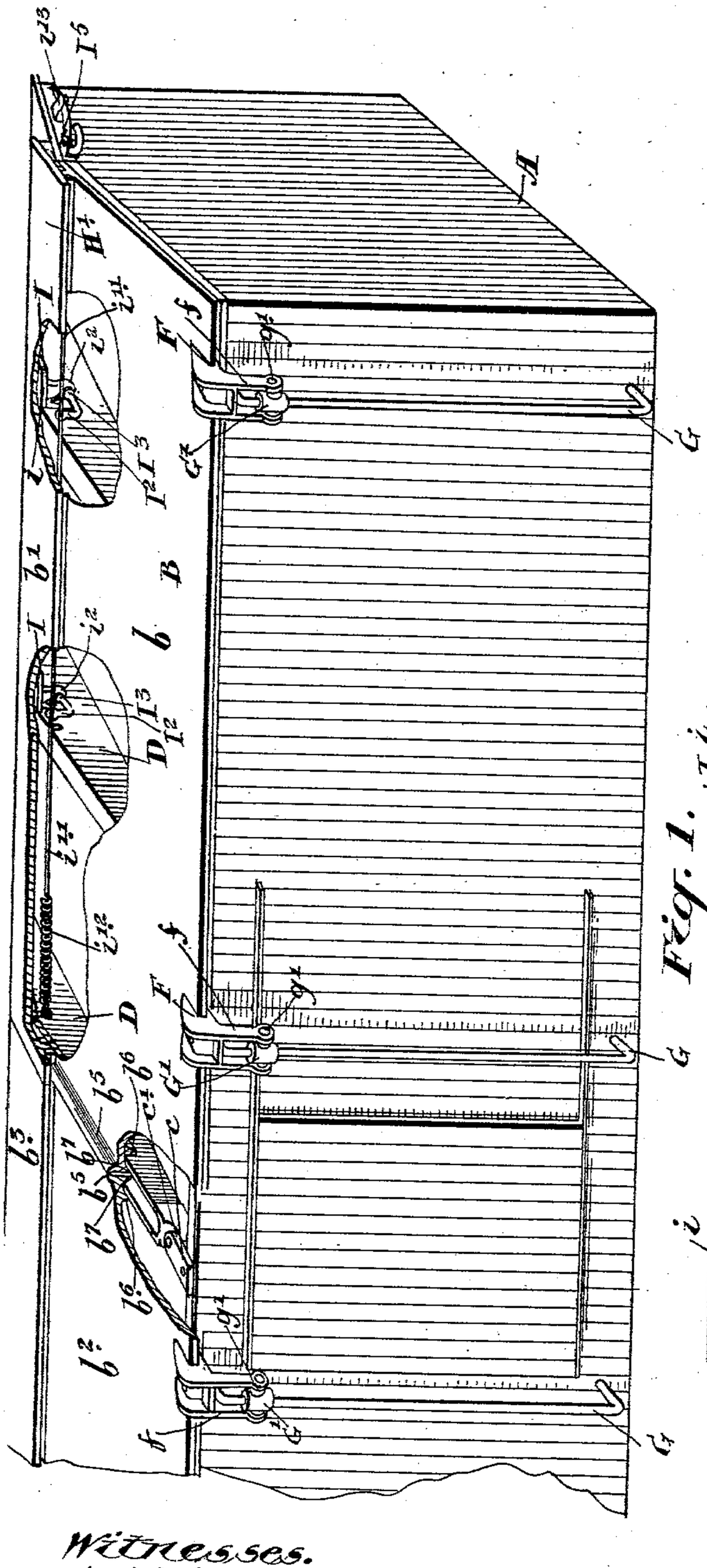

Fig. 1.

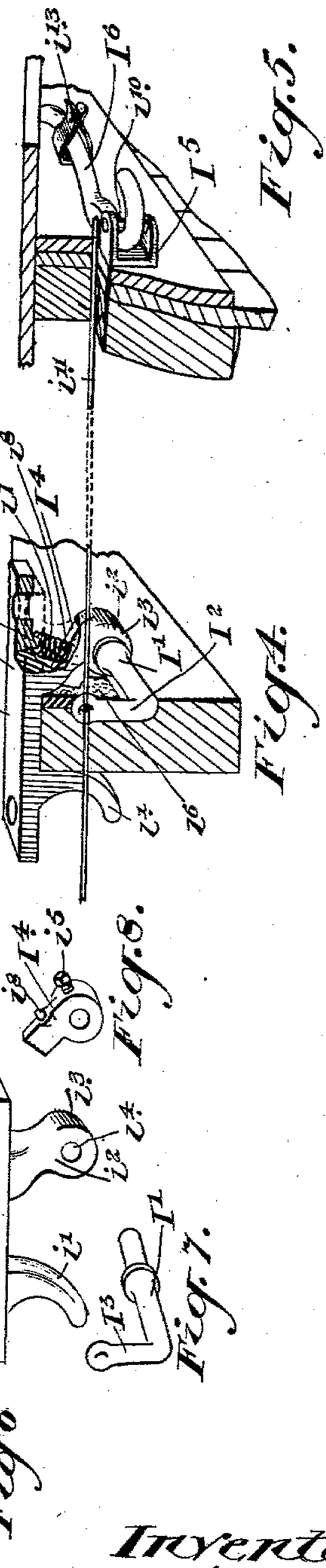

Fig. 5.

Fig. 4.

Fig. 6.

Fig. 7.

Witnesses.
H. T. S. Young.
A. L. Trimble

Inventor.
H. A. Johnston
by Fetherstonhaugh & Co. Atty.

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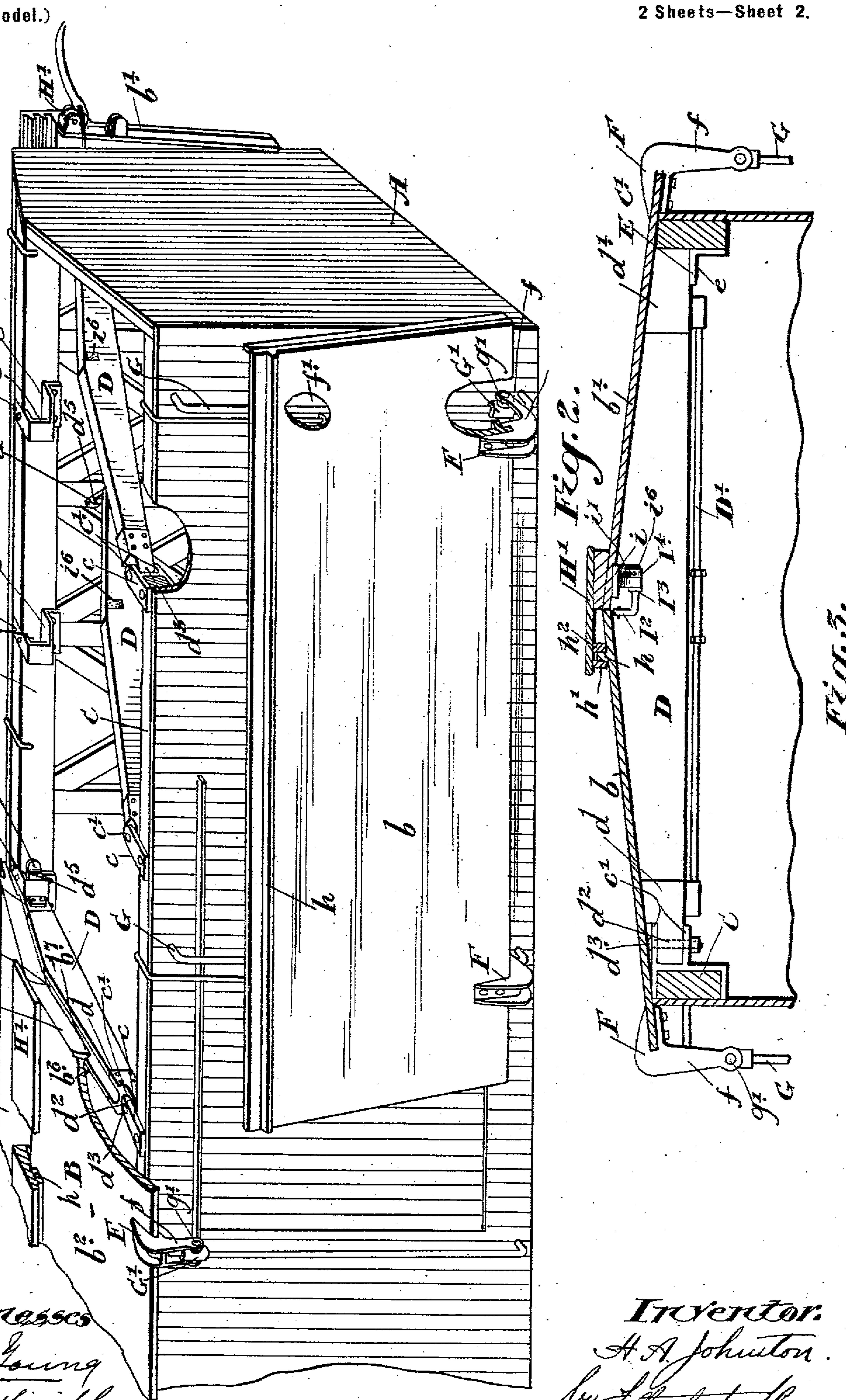

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Inventor:
H. A. Johnston.
by Fetherstonhaugh & Co.
Attys.

UNITED STATES PATENT OFFICE.

HOWARD ADDISON JOHNSTON, OF INGERSOLL, CANADA.

FREIGHT-CAR.

SPECIFICATION forming part of Letters Patent No. 715,384, dated December 9, 1902.

Application filed April 23, 1902. Serial No. 104,385. (No model.)

To all whom it may concern:

Be it known that I, HOWARD ADDISON JOHNSTON, of the town of Ingersoll, in the county of Oxford, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Freight-Cars, of which the following is a specification.

My invention relates to improvements in freight-cars; and the object of the invention is to devise a car of this class in which the roof portion and supporting-beams therefor may be removed and swung aside, respectively, so as to provide a maximum open area for the purpose of loading and unloading and at the same time in such construction providing weather-tight joints between the sections of the car-roof; and it consists, essentially, of a car provided with a roof divided into sections having a hinged connection to said car and supporting-beams capable of being swung to one side when the roof is removed, the parts being arranged and constructed in detail as hereinafter more particularly explained.

Figure 1 is a perspective view of a portion of my car, partially broken away to show the construction of same. Fig. 2 is a similar view with one-half of the roof removed ready for loading. Fig. 3 is an enlarged cross-section through the upper portion of the car. Fig. 4 is a detail of the locking device for the roof. Fig. 5 is a detail of the lever for operating the lock. Figs. 6, 7, and 8 are details of the several portions of my locking device.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the body of the freight-car, constructed in the ordinary manner.

B is the roof, divided into suitable sections b b' b^2 b^3.

C C′ are the upper longitudinal side timbers of the car.

c represents brackets suitably bolted to the timbers C and provided with lugs c'.

D represents the roof-supporting beams or carlines of the car provided with end sockets d d'.

D′ represents truss-rods connecting the sockets d d'. The sockets d are provided with lugs d^2, designed to fit between the lugs c' of the bracket c and to be pivotally held therein by the bolt d^3.

E represents brackets secured to the longitudinal timber C′. The brackets E are provided with a horizontal portion e, on which the free ends of the carlines are designed to rest.

d^4 represents spring-catches provided with projections d^5. The catches extend at right angles to the side of the carline in proximity to its end. The lugs d^4 are designed to spring into the rectangular opening e' of the bracket E, so that the projection d^5 engages with the inner edge of the bracket E, thereby locking the beam in place. By this construction the side strain against the walls of the car when loaded is neutralized.

F is a bracket provided with depending portions f and bolted to the edge of the car-roof.

G represents guide-rods secured to the side of the car.

G′ represents sleeves provided with trunnions g', designed to be freely secured within the depending portion of the bracket F.

G² represents the outside boundary-strips of the car.

By hinging the roof below the level of the top of the car in the depending portions f the roof may be raised sufficiently to clear the weather-strips free of the wall of the car when it is removed.

f' represents hooks secured to the under surface of the roof of the car and designed to hook around the edge of the car to support the roof against the side of the car when removed.

h is a weather-strip secured to or forming part of the roof-sections b and b^2.

H′ is the runway of the car, secured to the roof-sections b' and b^3.

h' h^2 are weather-strips secured beneath the runway H′ and designed to engage with the weather-strip h to each side thereof, thus making a weather-tight joint.

The section b' is provided with a locking device I, comprising a plate i, suitably secured to the section b' of the roof and provided with depending projections i' and i^2. The object of these projections is to keep the plates in

register with the carlines by projecting down from the roof to each side of the carlines. The projection i^2 has an enlarged lower end i^3, having an opening i^4.

I′ is a rod having a crank-shaped outer end I^2 and an annular flange I^3. The rod I′ is journaled in the enlarged portion i^3 on the projection i^2.

I^4 is a locking-piece having a serrated end secured to the inner end of the rod I′ by a set-screw i^5.

i^6 is a plate having a roughened surface.

i^7 is a spiral spring secured between the teats i^8 on the locking-piece I^4 and the teat i^9 on the plate i. The spring i^7 keeps the locking-piece I^4 against the plate i^6.

I^5 is a bracket secured outside the roof of the car.

I^6 is a lever having a hooked end held in the bracket I^5 by the cross-piece i^{10}.

i^{11} is a wire connecting the upper end of the crank-rods I^3 with the lever I^6.

i^{12} is a tension-spring secured to the roof of the car at one end and to the opposite end of the wire i^{11} at the other.

i^{13} is a spring-clip in which the end of the lever I^6 is held.

When the roof is to be raised, it is merely necessary to pull on the lever I^6, so as to pull on the crank-rod I′ through the wire i^{11}, thereby removing the locking-piece I^4 out of contact with the piece i^6.

To form a weather-tight joint between each pair of roof-sections, I provide the following device. Each section is provided with the upwardly-projecting lips b^5 and downwardly-projecting lips b^6 b^7. D″ is a groove formed in the center carline, into which the lips b^7 extend. By this device each pair of sections can be moved independently of the other.

It will be seen that when it is desired to remove the roof for loading it is merely necessary to draw out the lever I^6, when each section of the roof may be raised upwardly and then lowered on the guide-rods to each side of the car and the carlines swung to one side. Thus practically the whole area of the top of the car is made available for the purpose of loading and unloading.

What I claim as my invention is—

1. In a car of the class described the combination with the body of the car, of a divided roof, a hinged connection between the roof and the wall of the car, carlines hinged to the sides of the car for supporting the roof of the car, said carlines being capable of being swung to one side when the roof-sections are raised as and for the purpose specified.

2. In a car of the class described, the combination with the body of the car, of a divided roof, a hinged connection between the roof-sections and the outer wall of the car, guideways for supporting such hinged connections and on which they have vertical movement, and carlines located beneath the roof of the car capable of being swung to one side when the roof is removed as and for the purpose specified.

3. In a car of the class described, the combination with the body of the car, of a divided roof, a hinged connection between the roof and the wall of the car, carlines for supporting the roof of the car capable of being swung to one side when the roof-sections are raised and means for locking the roof-sections to the carlines as and for the purpose specified.

4. In a car of the class described the combination with the body of the car, of a divided roof, a hinged connection between the roof-sections and the outer wall of the car capable of vertical movement on suitable guides, and carlines located beneath the roof capable of being swung to one side when the roof is removed and means for locking the sections down to the car when closed as and for the purpose specified.

5. In a car of the class described the combination with the body of the car, of a divided roof, brackets having depending portions secured to the outer edges of the said roof, guide-bars secured to the walls of the car, a sleeve slidably supported thereon, trunnions formed on said sleeve and extending into the depending portions of the said bracket, supporting-carlines located beneath the roof and capable of being swung to one side when the roof is removed as and for the purpose specified.

6. In a car of the class described the combination with the body of the car, of a divided roof, brackets having depending portions secured to the outer edges of the said roof, guide-bars secured to the walls of the car, a sleeve slidably supported thereon, trunnions formed on said sleeve and extending into the depending portions of the said bracket, supporting-carlines located beneath the roof and capable of being swung to one side when the roof is removed, and means for holding the roof against the side of the car when open as and for the purpose specified.

7. In a car of the class described the combination with the body of the car, of a divided roof, brackets having depending portions secured to the outer edges of the said roof, guide-bars secured to the walls of the car, a sleeve slidably supported thereon, trunnions formed on said sleeve and extending into the depending portions of the said bracket, supporting-carlines located beneath the roof and capable of being swung to one side when the roof is removed, means for holding the roof against the side of the car when open and means for locking the roof down to the car when closed as and for the purpose specified.

8. In a car of the class described the combination with the body of the car and the longitudinal upper timbers thereof, of a longitudinally-divided roof, a hinge connection between the roof and the wall of the car, brackets having lugs thereon secured to said longitudinal timbers on one side of the car, car-

lines having one end hinged between said lugs so as to allow of the horizontal swing thereof, supporting-brackets secured to the longitudinal timber on the other side of the car and means for locking the opposite end of said carline to said bracket and means for locking the section of the roof to the carlines as and for the purpose specified.

9. In a freight-car the combination with the body of the car having a roof composed of sections hinged to the side walls of the car and carlines hinged beneath the said roof and the locking means for the same, of a runway secured to one section on one side of the car provided with weather-strips on its lower surface a weather-strip on the surface of the section on the other side of the car designed to be inserted between weather-strips beneath the runway and means for locking the section of the roof down when closed as and for the purpose specified.

10. In a freight-car the combination with the body of the car having a roof composed of sections hinged to the side walls of the car and carlines hinged beneath the said roof and the locking means for the same, of a runway secured to the section on one side of the car and overlapping the sections on the other side of the car and locking means located beneath the runway of the overlapping section for locking such sections to the carlines of the car as and for the purpose specified.

11. In a freight-car the combination with the body of the car having a roof composed of sections hinged to the side wall of the car and carlines for supporting the said roof, of a locking device comprising a plate secured to the roof of the car provided with depending projections located to each side of its corresponding carline, a crank-rod journaled within the depending portion provided with a locking-piece designed to be held in engagement with the carline and means secured to the roof outside of the car for operating the crank-rod as and for the purpose specified.

12. In a freight-car having a sectionally-divided roof hinged to each side of the car and supporting-carlines, the combination with the locking device comprising a depending projection secured to the roof of the car, a crank-rod journaled therein provided with a locking-piece, a connecting-wire secured at one end to the roof of the car and at the other to the crank end of the locking-bar, a tension-spring located intermediately between the end of the wire, a lever hinged to the roof portion of the car at the outside end and a wire connecting the crank end of the locking-bar with the lever as and for the purpose specified.

13. In a freight-car the combination with the body of the car, of a roof divided longitudinally and crosswise of the car, supporting-carlines located beneath the roof, the center carline having a groove at its upper face and located intermediately beneath the crosswise division of the car-roof, upwardly-contacting lips formed on the abutting ends of the car-roof and beads extending downwardly into the groove in the said carline, a runway secured to the sections on one side of the car and overlapping the sections on the other side of the car and locking means for securing the runway to the said carline as and for the purpose specified.

14. In a car of the class described the combination with the divided roof having weather-strips bounding the outer upper edges of the car, of brackets secured to the overhanging edges of the car-roof, depending portions forming part of the said bracket extending below the level of the car-roof and provided with a hinged connection to the side of the car as and for the purpose specified.

15. In a car of the class described the combination with the divided roof having weather-strips bounding the outer upper edges of the car, vertical guideways secured to the side of the car, of brackets secured to the overhanging edges of the car-roof having depending portions extending below the level of the car-roof, guide-blocks slidably held on said vertical guideways to which the depending portions of said bracket are hinged as and for the purpose specified.

16. In a car of the class described the combination with the longitudinally-divided roof, of a runway secured to one section and overlapping the opposing section and means for supporting the sections when closed as and for the purpose specified.

17. In a car of the class described the combination with the roof divided crosswise of the car, lips extending upwardly from the abutting edges and designed to jam closely together when the roof is closed and supporting means for the roof as and for the purpose specified.

18. In a car of the class described the combination with the roof divided crosswise of the car, a carline having a central groove on its upper face, lips extending upwardly from the abutting edges of the car-roof, lips extending downwardly into the groove in the said carline and means for supporting the roof when closed as and for the purpose specified.

19. In a car of the class described the combination with the longitudinally-divided roof having an overlapping central portion, weather-strips located on the inner surface of the overlapping section, weather-strips upon the upper surface of the opposing section designed to register with the strips on overlapping section when closed as and for the purpose specified.

20. The combination with the body of the car and the cross-carlines of a removable roof lips secured to the said roof and designed to abut each side of each carline when the roof is closed as and for the purpose specified.

21. In a car of the class described the combination with the body of the car, of a remov-

able roof, carlines detachably secured to the walls of the cars and engaging means for connecting said carlines to the wall of the car as and for the purpose specified.

22. In a car of the class described the combination with the body of the car, of a removable roof, carlines provided with end sockets, locking means for connecting the sockets to walls of the car and a truss-rod connecting said sockets as and for the purpose specified.

HOWARD ADDISON JOHNSTON.

Witnesses:
JAMES STEVENS,
THOS. WELLS.