

(No Model.)

2 Sheets—Sheet 1.

C. H. KIMBALL.

FREIGHT CAR.

No. 412,270.

Patented Oct. 8, 1889.

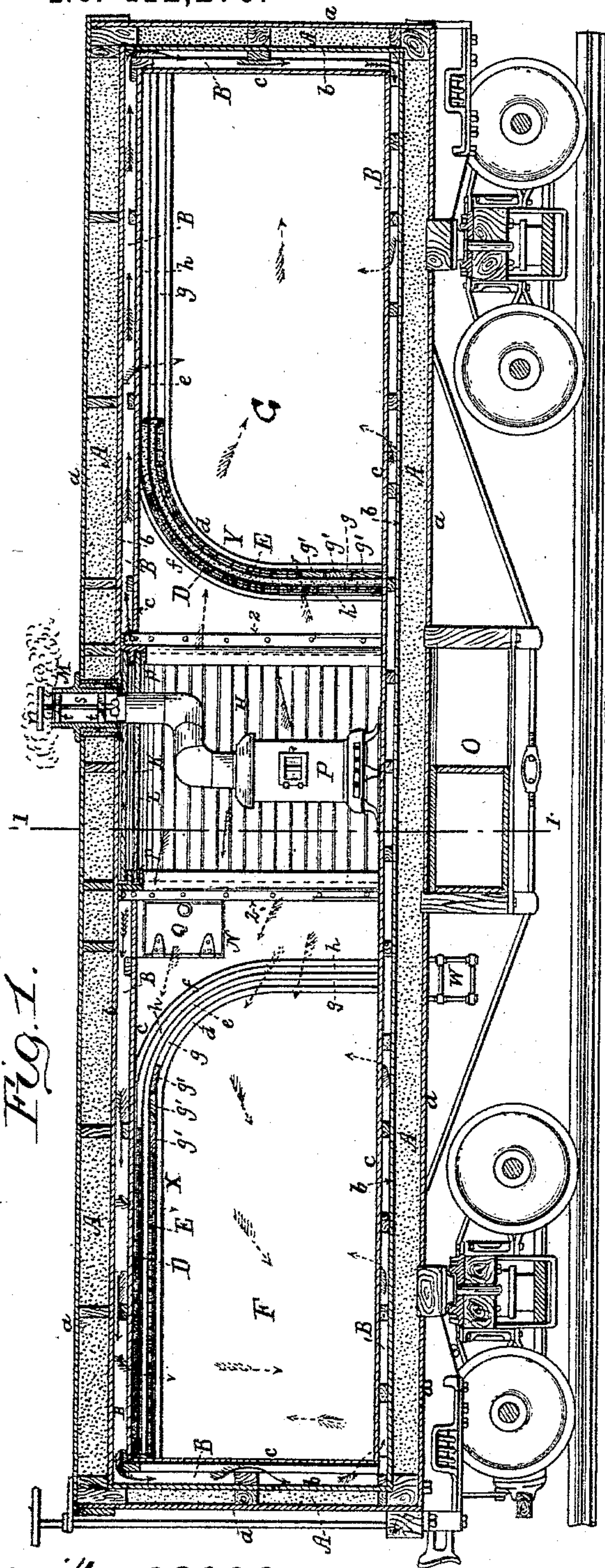


Fig. 1.

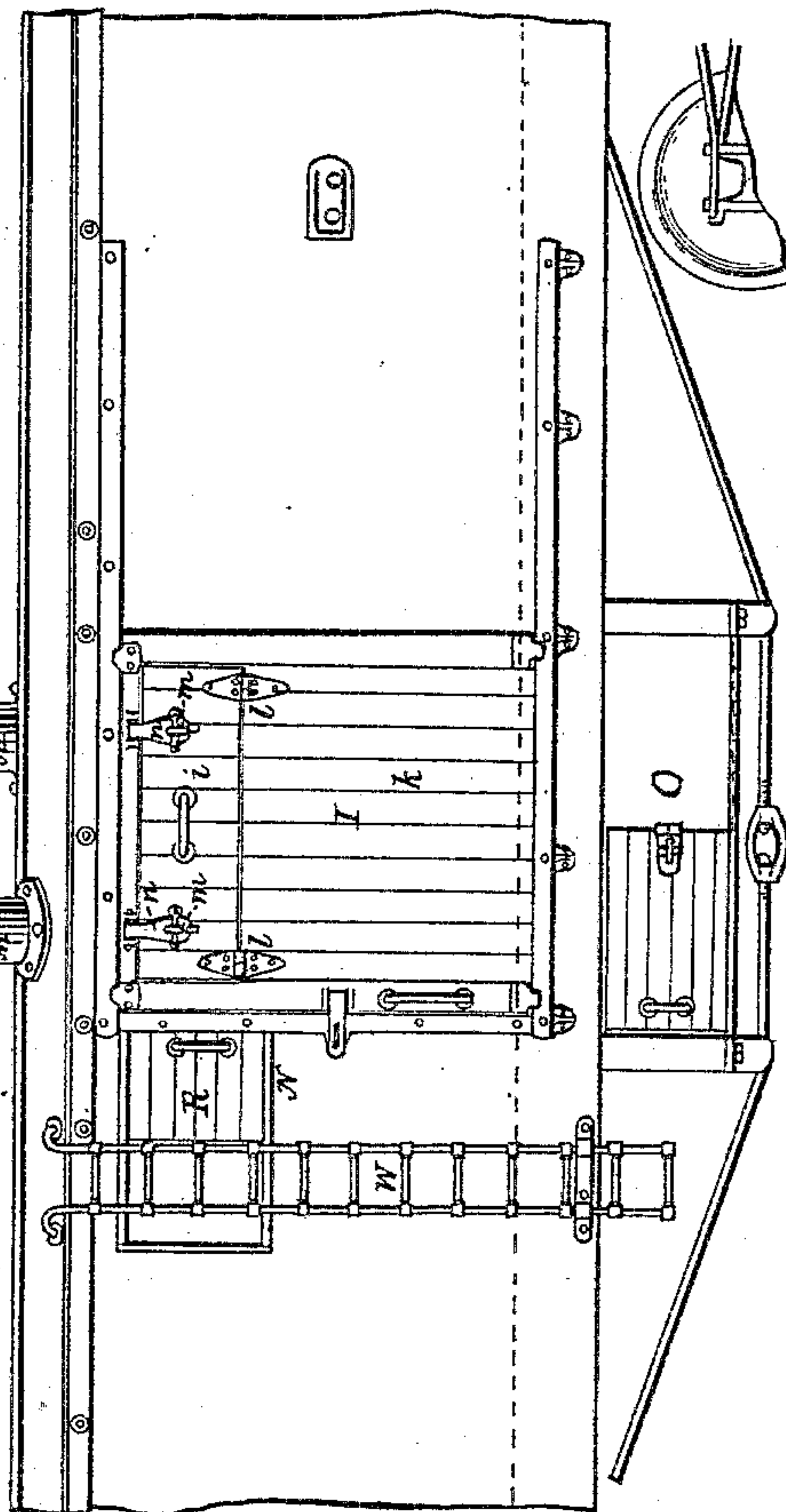


Fig. 2.

witnesses
Shos. W. Holaday
James H. Reed

Inventor:
Charles H. Kimball
by Singleton & Piper, atty's.

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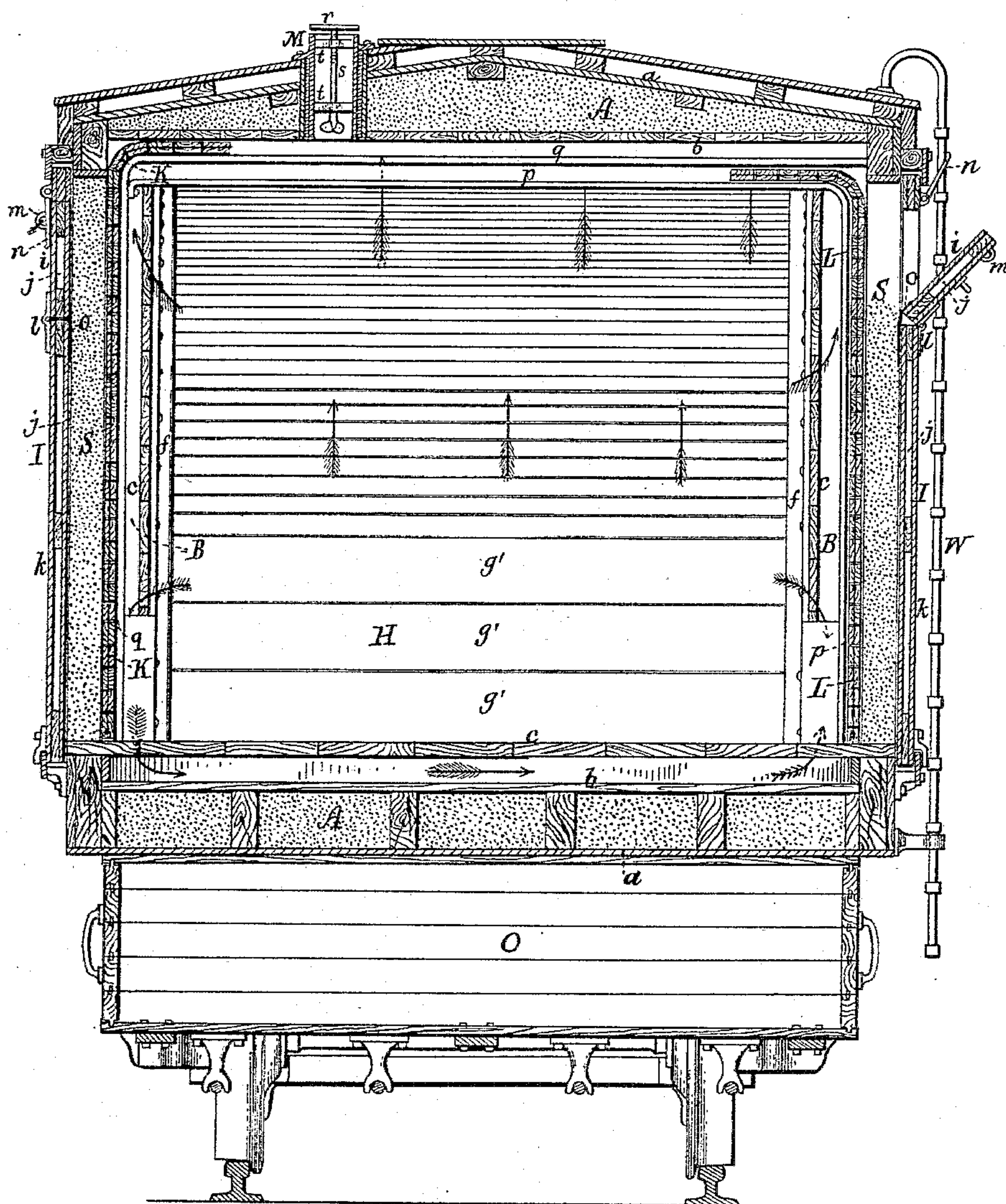


Fig. 3.

witnesses

Thos. W. Hobday.

James H. Reed

Inventor.

Charles H. Kimball.

by Singleton & Piper, attys

UNITED STATES PATENT OFFICE.

CHARLES HENRY KIMBALL, OF CHELSEA, MASSACHUSETTS.

FREIGHT-CAR.

SPECIFICATION forming part of Letters Patent No. 412,270, dated October 8, 1889.

Application filed October 29, 1888. Serial No. 289,396. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HENRY KIMBALL, a citizen of the United States, residing at Chelsea, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Freight-Cars; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Figure 1 is a longitudinal and vertical section of a freight-car as made in accordance with my invention. Fig. 2 is a side view of a portion of said car. Fig. 3 is a transverse and vertical section of the car on line 1 1 of Fig. 1 on an enlarged scale.

The object of my invention is to provide a freight-car in which goods of a perishable nature can be protected from injury by frost or cold while in transportation without the employment of artificial heat after the time that the doors of the car are closed and sealed and while they remain in that state, the contents of the car being shielded from the cold in the manner hereinafter described, the nature of my invention being defined in the claims hereinafter presented.

In carrying out my invention I construct the car with a space A in its top, bottom, and ends, and also in its sides, between the doorways and the ends of the car, which space is arranged between the courses of sheathing *a* and *b*, and is filled or packed with sawdust or some other suitable material. Within the space inclosed by the course of sheathing *b* is arranged another course *c*, which is separated from the course *b* by blocks, so arranged as to form a connected air-space B between the courses *b* and *c* throughout the bottom and ends and in the top and sides of said car from the said ends as far as the lines 2 2, (see Fig. 1,) which lines represent the termination of the course *c* of sheathing on the sides and top of the interior of the car.

On the course *c* of sheathing on the sides of the car are fastened guides *d e f*, and into the spaces *g* and *h* between said guides are extended the ends of two series of slats, which

constitute doors D and E, the slats in each series being applied to opposite sides of a sheet of duck or canvas, which extends throughout the length and breadth of each door and keeps the slats parallel to each other, so that the doors can be drawn down from the position shown at X into that shown at Y in Fig. 1, and thereby form closed chambers F and G, separated from the middle space H by the two doors D and E. By extending the canvas between the slats and throughout the length and breadth of the door, or arranging the slats on each side of the canvas, as described and shown, the door will be practically tight, and when both are closed and the space between is packed with sawdust, as hereinafter set forth, they will effectually protect the contents of the chambers F and G from the cold at the entrance to said chambers.

Arranged in the grooves *g g*, in which the doors E slide, and so as to slide therein, are a series of boards *g' g' g'*, which I term "bulk-head" boards, their office being to support the goods at the entrance to the chambers while they are being placed therein in bulk, and the boards are drawn down from overhead successively as required to support the goods, against which boards the goods will rest as the chamber approaches fullness, and after the said goods are piled as high as they can be the door E is then drawn down so as to rest on the top of the upper of said bulk-head boards, as seen in Fig. 1.

I I are the side doors of the car, which are supported on and arranged to slide on ways, in the usual manner. Said doors are formed in two parts *i k*, hinged together at *l*. The part *i* of the said doors is provided with staples *m m*, which enter slots in the hasps *n n*, hinged to the top of the frame of the doors, as represented. An apron *o* is fastened near to the lower edge of the inner side of the part *i*, and extends down on the part *k* and covers the joint between them, as shown in Fig. 3. It will be observed that the doors I are made of two courses of sheathing arranged apart from each other so as to form an air-space *j* between them.

Arranged in guides *p q* are slat doors K and L, constructed in the same way as are the doors D and E, which can be drawn down so as to cover the doorways and be between the

doors II and form spaces S between them and the said doors K and L, as shown in Fig. 3; or they can be pushed upward and overhead into the position shown in Fig. 1, so as to be
5 out of the way when not required.

Leading out of the space H are two chimneys or ventilators M M, each provided with a valve *r*, secured to a stem *s*, which screws through spiders *t t*. By revolving the said
10 stem the valve can be opened or closed, as may be desired.

Underneath the car and secured thereto is a box O, in which the stove P, with its pipe, can be stored during the warm season of the
15 year, this car being intended for use at such times as an ordinary freight-car is used, all the slat doors and bulk-head boards being then arranged overhead; but during the cold season the stove is used as shown in Fig. 1, in the
20 manner as hereinafter more fully described. Furthermore, in one side of the car is a man-hole N, which is protected by the two doors Q and R, the former being hinged to the car so as to open inward, (see Fig. 1,) and the lat-
25 ter is arranged to slide, (see Fig. 2,) and is operated from the outside. A ladder W is secured to the car, as shown, by which access can be had to the doors R and Q and an entrance to the car effected through said hole
30 N, when desired. The door Q has an air-space within it.

I will now proceed to describe the manner of preparing the car for receiving a load of goods, such as are liable to injury from frost
35 or cold, and the way in which said goods are protected from harm from the cause above referred to during transportation.

In the first place, I subject the car to a thorough warming by means of the stove, so
40 as to expel all the cold air from the spaces therein. Next, I fill the chambers F and G with the goods—such, for instance, as potatoes, turnips, onions, beets, and the like—they being stored therein in bulk; and dur-
45 ing the placing of the goods in the chambers the bulk-head boards are drawn from overhead, as required, to the lower part of the entrance to the chambers F and G, to support the goods at the entrance, so as to enable the
50 chambers to be as nearly filled as possible. Next, the doors E are drawn down, so as to rest on the upper of the bulk-head boards *g'*, and afterward the doors D are pulled down to the floor of the car. Next, the space be-
55 tween the doors D and E is filled with sawdust or other suitable material. Next, the doors K and L are drawn down to the floor, the slide-doors I I closed, and the parts *i* thereof turned down and sawdust introduced
60 into the spaces S S between the doors II and K and L, (see Fig. 3,) which on being filled with the sawdust the parts *i* of the doors I are closed, the hasps *n n* turned down over the staples *m m*, and a piece of wire passed
65 through each of the staples and its ends brought together and sealed in the usual manner. Next, the fire in the stove is allowed to

go out, the stove-pipe disconnected from the ventilator or chimney, and the valve *r* thereof
70 closed. Exit is then made through the man-hole, after which the door Q is closed and fastened, and sawdust is introduced between the doors Q and R as the latter is closed.

From the above it will be seen that when the chambers have been stored with the goods
75 and the car-doors are closed and sealed the air-space B is filled with warm air, and the contents of the car are also further protected from the cold by the body of sawdust extending entirely around the body of the car and
80 between the outer and inner doors thereof, and the entrance to the chambers F G is also protected by the doors D and E and the body of sawdust between them; and so long as the doors of the car are kept closed no further
85 heat from the stove will be required to protect the goods from frost, as the heat which will be emitted from the said goods will be sufficient to protect them from injury from
90 the cold for a long period of time.

If for any reason any of the doors of the car should be opened and allow the warm air in the car to escape and cold air to enter it, the stove should again be connected to the
chimney and the car again thoroughly
95 warmed, after which disconnect the stove, close the chimney, and then the doors, and pack the space between with sawdust, as hereinbefore described.

Having described my invention, what I
100 claim is—

1. A freight-car composed of a compartment for a source of heat, one or more compartments for storage, three courses of sheathing around the storage-compartments, and a non-heat-
105 conducting material between the outside and middle courses and between the middle and inside courses, there being an air-space completely closed from the outside, continuing
110 around the compartments, and opening only into the heating-compartment, as set forth.

2. The box-car having the top, bottom, and ends and also the sides of it from the door-
ways therein to the said ends formed of two courses of sheathing *a* and *b*, properly sup-
115 ported and arranged apart, and having the spaces between said courses packed with sawdust or other suitable material, for the purpose set forth, and also having arranged within the inner course *b* another course *c* of the
120 sheathing, a connected air-space being left between said courses *b* and *c* within and throughout the bottom and ends, and also in the top and sides of the car, between the doorways of the car and the said ends, substantially as
125 shown and described.

3. The box-car having the top, bottom, and ends and also the sides of it from the door-
ways in said sides to the said ends formed of two courses of sheathing *a* and *b*, properly
130 supported and arranged apart, the spaces between the said courses being packed with sawdust or other suitable material, for the purpose set forth, and also having arranged with-

in the inner course *b* another course *c* of sheathing, a connected air-space between the said courses *b* and *c* within and throughout the bottom and ends, and also in the top and sides from the doorways to the said ends of the car, and also having guides secured to each side of the chambers *F* or *G*, in grooves between which are arranged to slide slat doors *D* and *E*, constructed as described, a series of bulk-head boards *g'* also being arranged to slide in the groove in which the door *E* slides, all substantially as shown and described.

4. A freight-car composed of two storage-compartments and a heating-compartment, there being doors between them, and completely around the storage-compartments an air-space closed from the outside air and opening into the heating-compartment, and around the entire car outside of the air-space a non-heat-conducting material, as set forth.

5. The box-car having the sliding doors *I I*,

formed in sections provided with air-spaces and hinged together, as shown, an apron being fixed to the inner side of the upper section to cover the joint between them, said sections also having means of locking one to the other, as shown, the slat doors *K* and *L*, each arranged in guides in which they are supported either overhead or when drawn down into a vertical position against the inner face of the casing, or so as to close the doorways and form a space *S* between them, and the sliding doors to receive a packing of sawdust or other proper material, substantially as shown, and for the purpose described.

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

CHARLES HENRY KIMBALL.

Witnesses:

S. N. PIPER,

W. H. PRESTON.