

No. 754,725.

PATENTED MAR. 15, 1904.

P. WAGNER.  
STEEL CAR.

APPLICATION FILED DEC. 21, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

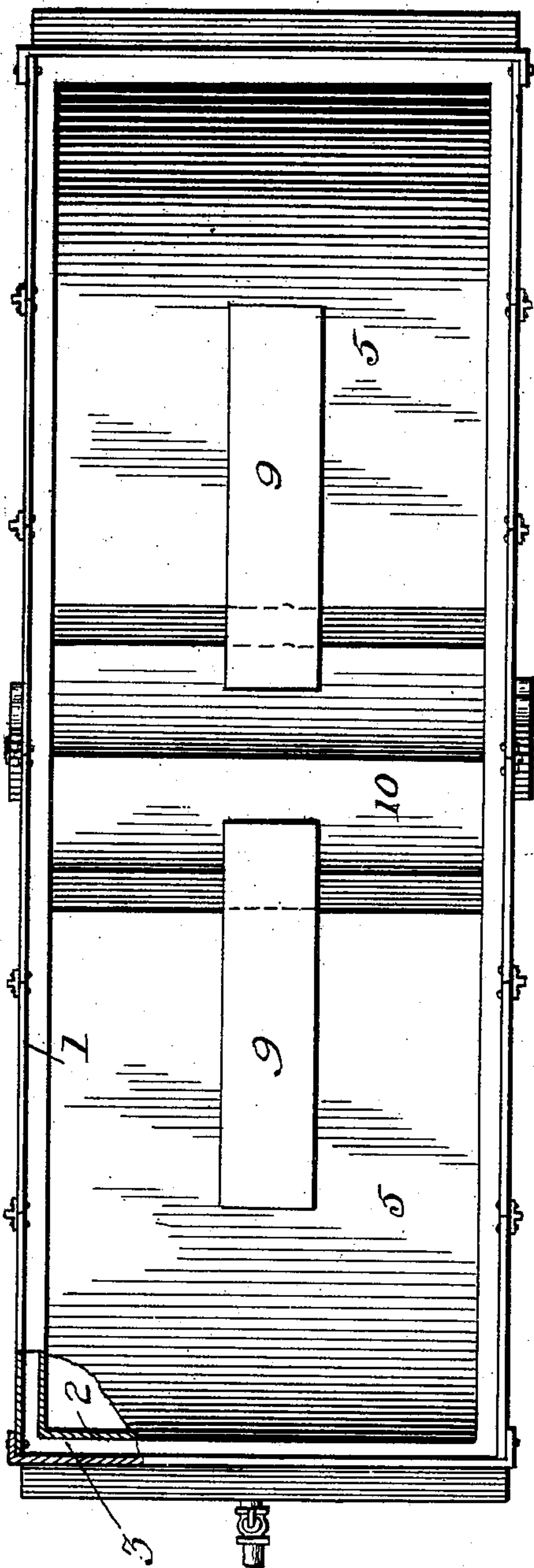


Fig. 1.

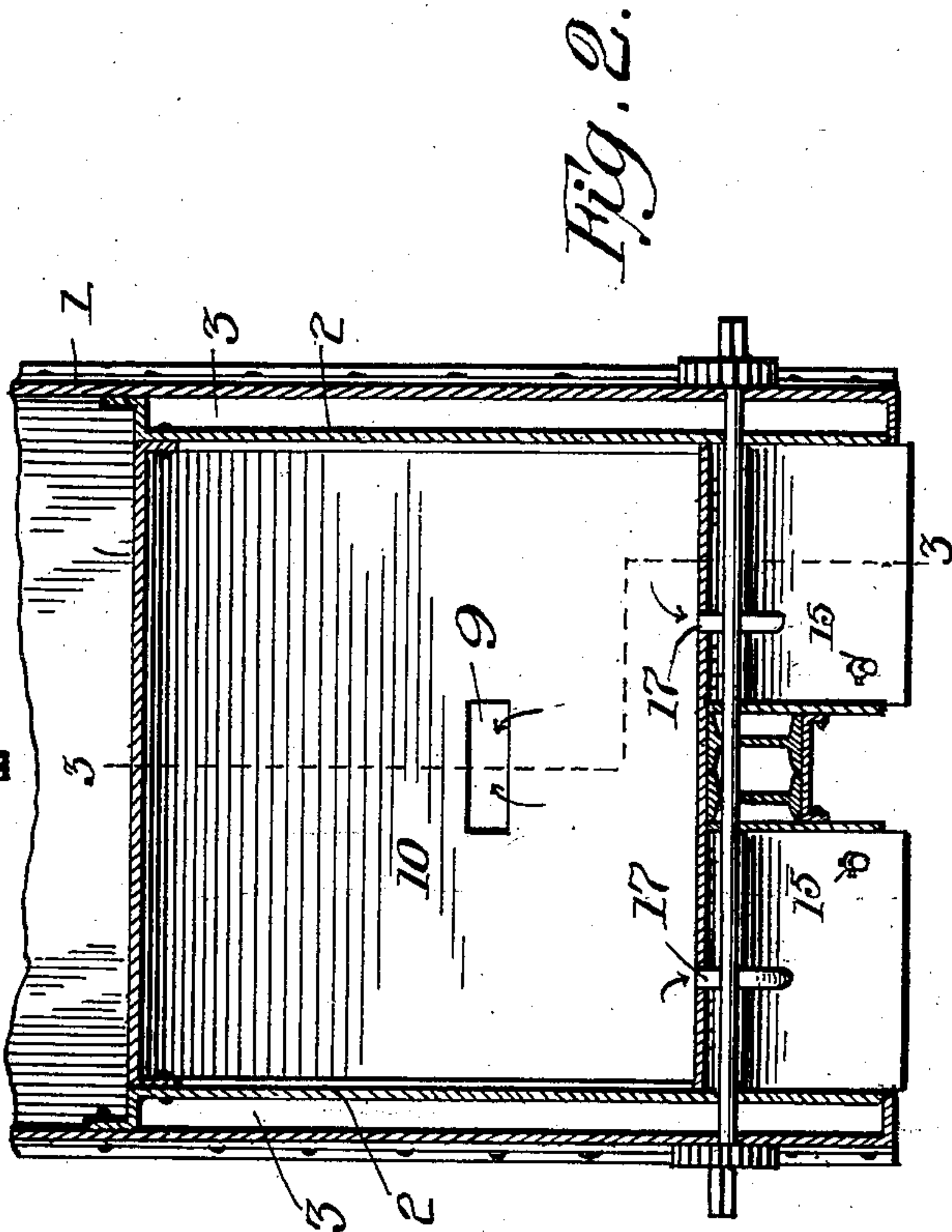


Fig. 2.

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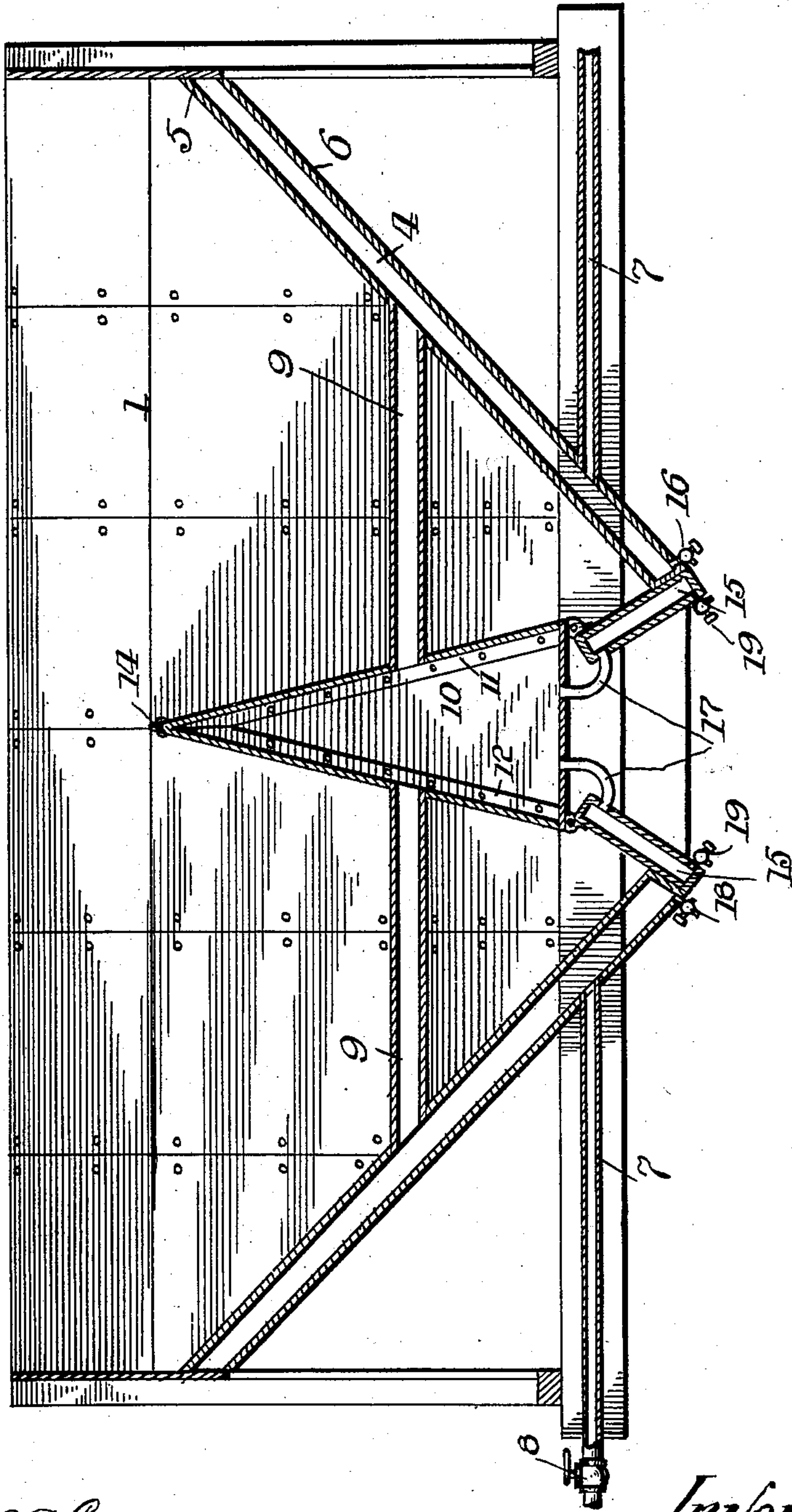
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NO MODEL.

2 SHEETS—SHEET 2.

Fig. 3.



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# UNITED STATES PATENT OFFICE.

PETER WAGNER, OF NORTH BRADDOCK, PENNSYLVANIA.

## STEEL CAR.

SPECIFICATION forming part of Letters Patent No. 754,725, dated March 15, 1904.

Application filed December 21, 1903. Serial No. 186,035. (No model.)

*To all whom it may concern:*

Be it known that I, PETER WAGNER, a citizen of the United States of America, residing at North Braddock, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Steel Cars, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in steel cars, and relates more particularly to that type known as "hopper-bottom" cars.

In the transportation of ores, minerals, and other commodities it is a well-known fact that the contents of the car in extremely cold weather will freeze into a solid mass, and in order to unload the same it is necessary to thaw the mass to such an extent as to injure the car, expanding the metal and warping the side walls and bottom. At times it has been necessary to use high explosives to render the mass penetratable for the purpose of unloading the car. These methods are both expensive and dangerous; and the present invention has for its object to effectually overcome these difficulties.

The present invention consists in providing steel cars with double bottoms and sides forming steam-jackets to convey the steam from the engine therein, by this means obtaining the desired circulation of steam through the jackets and heating the cars to such an extent that the contents will be prevented from freezing into a solid mass.

My invention further consists in the introduction of steam between the walls of the doors, the steam being conveyed thereto by means of flexible connections from the steam-jackets; furthermore, in leading one or more steam-lines from the engine forming the train-line of steam-supply which will directly communicate with the steam-jackets formed in the cars, suitable couplings and flexible connections being provided between the cars and also suitable valves interposed in the steam-lines for the purpose of regulating or cutting off steam when the occasion requires.

My invention further consists in the novel

construction, combination, and arrangement of parts to be hereinafter more fully described, and specifically pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this application, and wherein like numerals of reference indicate like parts throughout the several views, in which—

Figure 1 is a top plan view of a car constructed in accordance with my improvements. Fig. 2 is a vertical sectional view thereof, showing the top partly broken away. Fig. 3 is a longitudinal vertical sectional view taken on the line 3 3 of Fig. 2.

In the drawings the reference-numeral 1 indicates the outer wall of the car, and 2 the inner wall thereof, forming a steam-jacket 3 therebetween, these steam-jackets 3 communicating with steam-jackets 4, which are formed by walls 5 and 6, respectively, forming the slanting bottoms of the car, the latter steam-jackets 4 directly communicating with the steam-supply line 7, which leads to the engine, said supply-line 7 having interposed therein suitable regulating-valves 8 and flexible tubes and couplings. (Not shown in the drawings.) Communicating with the steam-jackets 4 are formed steam-jackets 9, extending longitudinally and communicating with the central steam-dome 10, formed of oppositely-inclined walls 11 and 12, forming the apex 14, this steam-dome 10 extending the entire width of the car. At the bottom of this steam-dome 10 are hinged doors 15, which also form steam-jackets 16. These steam-jackets have secured thereto flexible connections 17, which extend into and communicate with the steam-dome 10, the hopper-doors having formed therein the steam-jackets, said doors being so constructed as to form this jacket, and these doors may be opened and closed by the usual means. At the lower ends of the hopper-bottom, communicating with steam-jackets 4 in the wall 6, I place drain-cocks 18, and like drain-cocks 19 may also be placed in the lower extremity of the doors.

The operation of my improved system of heating cars is as follows: When all suitable connections and couplings have been made,



steam is introduced into the supply-line 7 at one end of the car from the engine or other suitable source of supply and will pass first into the jacket 4 at one end of the car, into the jacket 3 and through jacket 9 into the dome 10, into the doors and through the jacket 9 into space 4 at other end of the car, and on through line 7 at this latter end of the car to the next car until the end of the car is reached and in this manner keeping up a circulation of steam.

It will be seen that by the use of my improved cars a uniform temperature may be obtained that will prevent the contents of the car from freezing, thus saving a great expense and much labor that is now incurred.

The many other advantages obtained by the use of my improvements will be readily apparent from the foregoing description, taken in connection with the accompanying drawings.

It will be obvious that various slight changes may be made in the details of construction without departing from the general spirit of my invention.

Although I have described my invention as being particularly adapted for the use of steam, I do not wish to limit myself to this particular use, for the reason that I find that hot water, hot air, or the like may be advantageously employed to accomplish the desired results. It will also be noted that my improvements may be easily applied to gondola cars, steel box-cars, or any other of the well-known types of steel cars.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a steel car, the combination of double walls forming steam-jackets, a central dome communicating with said jackets, hopper-doors having steam-jackets formed therein, flexible connections leading from said central

steam-dome to said steam-jackets formed in said doors, substantially as described.

2. In a steel car, the combination of double walls forming steam-jackets, a central dome communicating with said jackets, hopper-doors having steam-jackets formed therein, flexible connections communicating with said hopper-doors, and said steam-dome, and drain-cocks arranged at the lower end of said doors, substantially as described.

3. In a steel freight-car, the combination of double walls forming the sides of the car extending partly to the top thereof, inclined sides forming double walls having drain-cocks arranged at the lower end thereof, a central steam-dome communicating with said double walls, hopper-doors connected to said steam-dome having steam-jackets formed therein, substantially as described.

4. In a steel car, the combination of double side walls forming steam-jackets, a central steam-dome communicating with said jackets, doors hinged to the lower end of said steam-dome, flexible connections communicating with said steam-dome and doors, and means to operate said doors, substantially as described.

5. In a steel car, the combination of double side walls forming steam-jackets, a central steam-dome communicating with said steam-jackets, a steam train-line communicating with said jackets, hinged doors having steam-jackets formed therein, and means to convey the steam from said steam-dome into the doors, substantially as described.

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

PETER WAGNER.

Witnesses:

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E. E. POTTER.