April 18, 1933. I. H. SPOOR 1,903,841

LOADING OF SEWER PIPE, BUILDING TILE, ETC., FOR RAILWAY SHIPMENT

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Fig. 1.

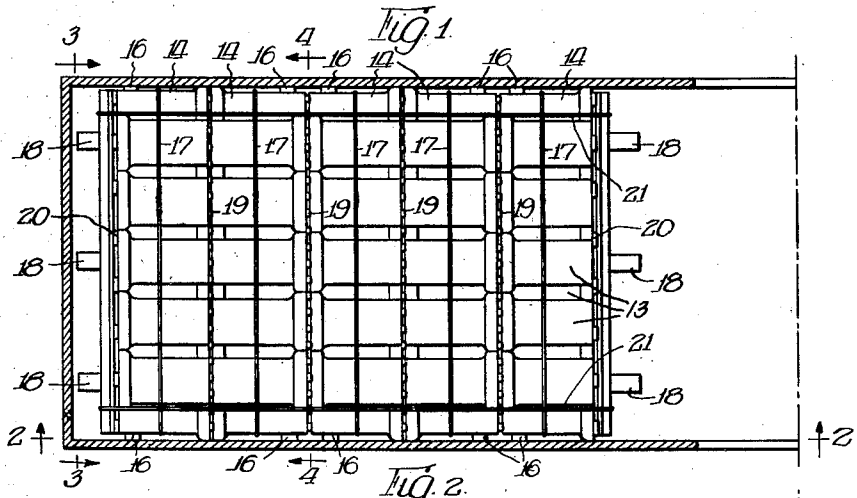


Fig. 2.

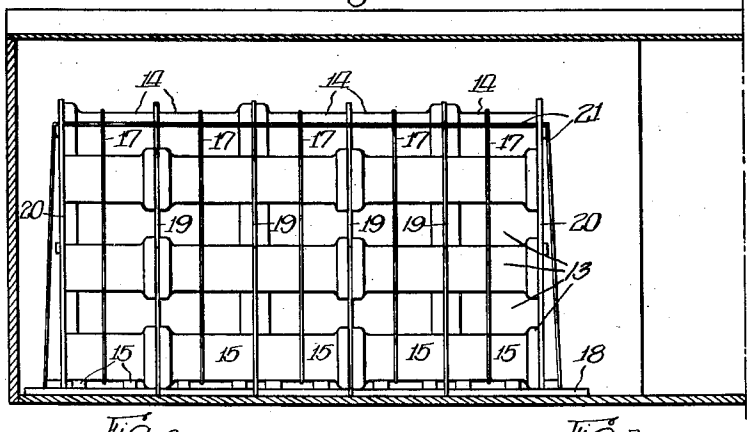
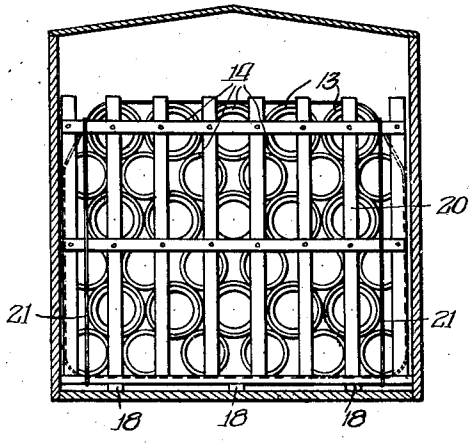
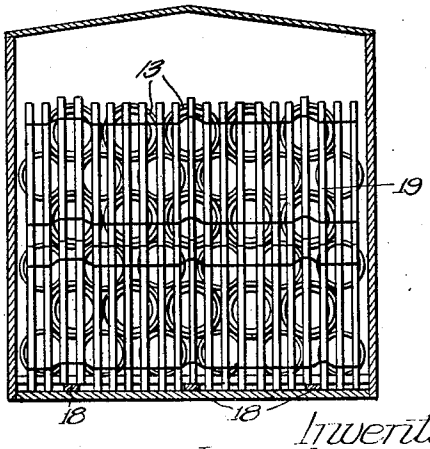


Fig. 3.

Fig. 4.





Inventor:
Ivan H. Spoor,
By Rowland, Greist & Warden
Attys

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LOADING OF SEWER PIPE, BUILDING TILE, ETC., FOR RAILWAY SHIPMENT

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Fig. 5

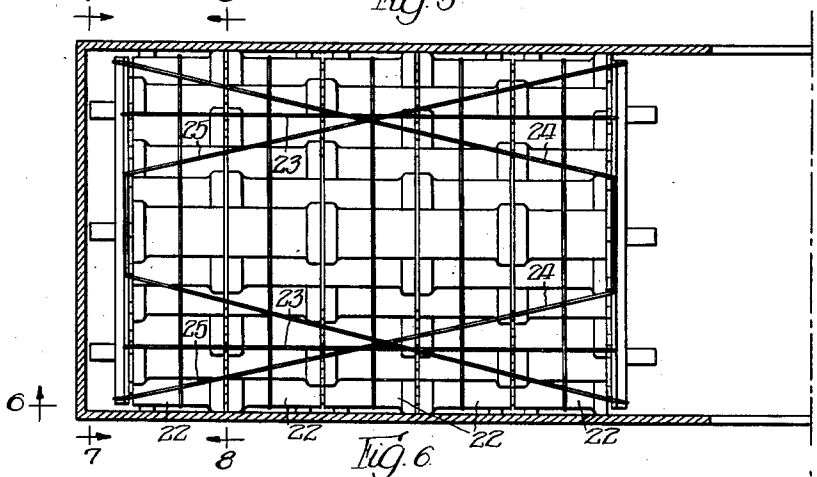


Fig. 6

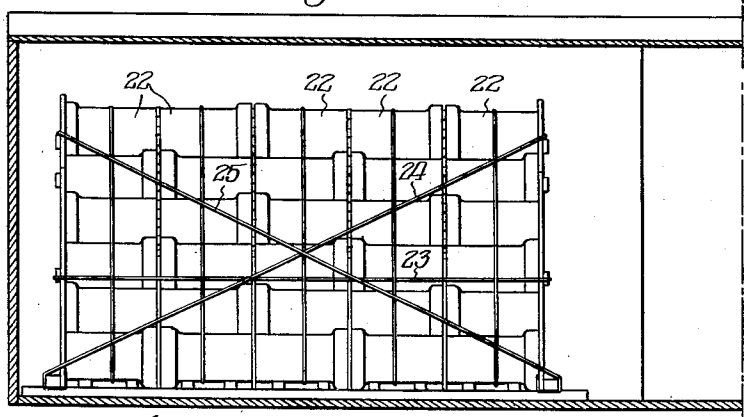
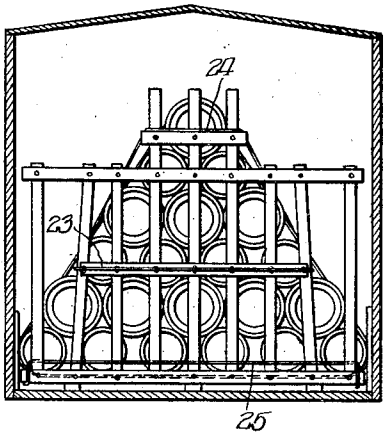
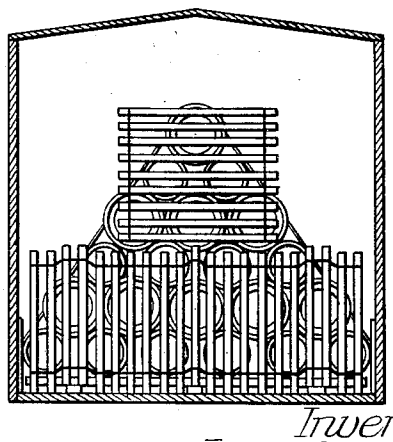


Fig. 7

Fig. 8





Inventor:
Ivan H. Spoor,
By Cromwell, Greist & Warden
attys.

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Fig. 9.

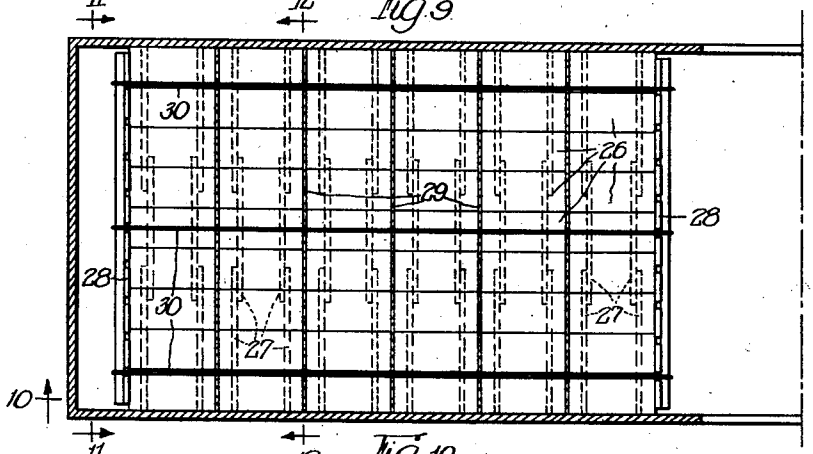


Fig. 10.

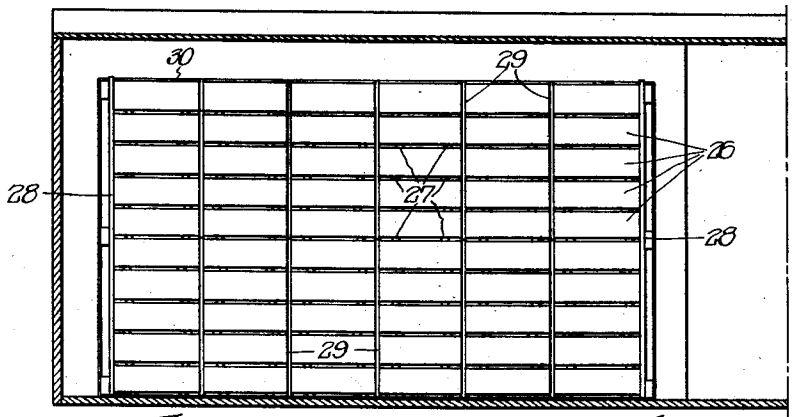
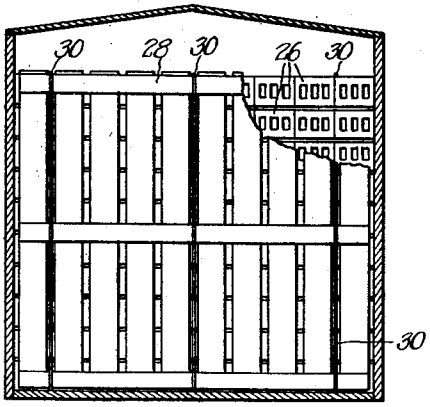
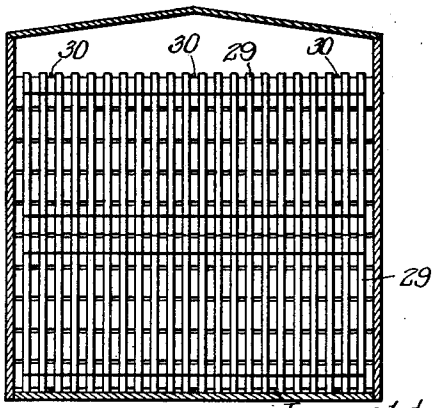


Fig. 11.

Fig. 12.





Inventor:
Ivan H. Spoor,
By Cromwell, Greist & Warden Attys.

Patented Apr. 18, 1933 1,903,841

UNITED STATES PATENT OFFICE

IVAN H. SPOOR, OF LA GRANGE, ILLINOIS, ASSIGNOR TO THE GERRARD COMPANY, INC., OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE

LOADING OF SEWER PIPE, BUILDING TILE, ETC., FOR RAILWAY SHIPMENT

Application filed June 14, 1930, Serial No. 461,218. Renewed June 6, 1932.

For many years, those interested in the shipment of sewer pipe, building tile and similar objects have been confronted with the problem of breakage in transit. They have tried, but without success, to find some way of loading which would reduce the breakage and yet be satisfactory from an economical standpoint.

The present invention resides in a novel method of loading which will materially reduce the breakage in transit, is simple in character and may be practiced quite economically.

Three slightly different embodiments of the invention are presented herein for the purpose of exemplification, but it will of course be appreciated that the invention is capable of incorporation in still other modified forms coming equally within the scope of the appended claims.

In the accompanying drawings:

Fig. 1 is a horizontal section through one end of an ordinary box car, showing a rectangular type load of bell-end sewer pipe ready for shipment;

Fig. 2 is a vertical longitudinal section through the same end of the car, showing the load in side elevation;

Fig. 3 is a vertical transverse section through the car, taken on the line 3—3 of Fig. 1, showing the load in end elevation;

Fig. 4 is another vertical transverse section through the car and also through the load, taken on the line 4—4 of Fig. 1, showing one of the lath partitions which are positioned between adjoining tiers in the load;

Figs. 5 to 8 inclusive are views which correspond respectively to Figs. 1 to 4 inclusive, but which show a pyramid-shaped load of bell-end sewer pipe as distinguished from a rectangular-shaped load; and

Figs. 9 to 12 inclusive are views which correspond respectively to Figs. 1 to 4 inclusive, but which show a rectangular-shaped load of building tile instead of sewer pipe.

The load shown in Figs. 1 to 4 inclusive—which is a load of bell-end sewer pipe 13—is made up of several vertical tiers 14 which extend crosswise of the car from one side to the other. The pieces of pipe in each tier are placed horizontally with their axes disposed lengthwise of the car and are arranged side by side in horizontal rows with one row stacked upon the other and with the bell ends of all of the pieces of pipe in each row even with each other and facing in a direction opposite to that of the bell ends in the underlying and overlying rows.

The pieces of pipe in the bottom row of each tier rest upon two supporting members 15 which extend crosswise of the car in spaced parallel relation to each other. Ordinary wooden two-by-twos may be used advantageously as the cross members. The cross members beneath each tier are set inwardly a little from the vertical faces of the tier to allow the member which is next to the bell ends to clear the latter and thereby support the tier stably in a vertical position. In order to prevent the spigot ends of the pieces of pipe in the bottom row of each tier from fanning out against the sides of the car into non-parallel positions, two upright members 16, which may be ordinary wooden two-by-twos, are inserted between the spigot ends of the outside pieces of pipe in the bottom row and the sides of the car. All of the pieces of pipe in each tier are bound together as a unit by a band 17 of wire or flat strap material which extends under the tier between the two cross members 15, up the sides of the tier, and over the top of the same.

All of the supporting members 15 beneath all of the tiers rest upon two or three long skid members 18 which are placed lengthwise of the car on the floor of the latter in spaced parallel relation to each other. Ordinary wooden two-by-fours may be used as the skid members. The tiers are arranged in substantial abutment with each other, being separated only by thin curtain-like partitions 19, which partitions may be made of ordinary wooden building lath wired loosely together. The outer faces of the end tiers are held against outward movement by two end gates 20 which may be made of ordinary wooden one-by-sixes held in closely spaced upright positions by top, bottom and intermediate wooden two-by-fours.

All of the separately unified tiers are bound

together into a large unit by two or three bands 21 of wire or flat strap which extend under all of the tiers, up the outer faces of the end tiers outside of the end gates, and over the tops of the tiers. The supporting members 15 and the lower edges of the end gates 20 are preferably nailed to the skid members 18 to prevent any substantial relative movement therebetween when the load shifts as a unit, as it is intended to do longitudinally of the car floor under the heavier shocks and jars incident to railroading.

In making up the load shown in Figs. 1 to 4 inclusive, the skid members 18 and the wires 21 which are to encompass the entire load are laid on the floor of the car and the portions of such wires which are to extend up the rear end and over the top of the load are coiled temporarily on nails driven into the end of the car adjacent the roof thereof, whereby to keep the wires in out-of-the-way positions until ready for use. Then the rear end gate is set up on the skid members adjacent the rear ends of the latter, a foot or two from the rear end of the car, and nailed to the skid members. If desired, the rear end gate 20 may be temporarily propped in its upright position by any suitable means until after the load has been completed and the wires 21 have been fastened about the same. The two cross members 15 which are to support the bottom row in the first tier are then laid across and nailed to the skid members in proper position with respect to the pieces of pipe which are to be placed on the same, and the wire 17 which is to bind the pieces of pipe in the first tier together as a unit is laid across the skid members between the cross members and the portions of such wire which are to extend upwardly at the sides of the tier are draped against the sides of the car and held temporarily in position by nailing or other suitable means.

The pieces of sewer pipe are then carried into the car and are laid horizontally in parallel relation to each other on the cross members 15, forming a bottom row which extends from one side of the car to the other. After the bottom row has been completed, other pieces of pipe are arranged on top of the pieces in the bottom row with the bell ends thereof facing in the opposite direction, thus forming the second row. As will be observed in Fig. 3, the pieces of pipe in the second row are positioned midway between the pieces of pipe in the bottom row and are nested slightly with respect thereto. The remaining rows in the first tier are made up, one at a time, in the same manner, the stacking being stopped when the top of the tier has reached to a level a foot or so below the roof of the car. After the first tier has been built up, one of the lath partitions 19 is positioned against the exposed face of the tier and held temporarily in that position by wiring or other suitable means, and the cross members 15 which are to support the next tier are properly positioned on the skid members. The next tier, and each succeeding tier until the load has reached the desired size, are then built up in the same way as the first tier. After the last tier has been positioned, the front end gate 20 is set up and nailed to the skid members. The wires 21 are then carried over the top of the load and securely fastened under tension, after which the cross wires 17 are drawn tight about each of the tiers and fastened.

The wires 21, if desired, may be looped about each of the cross members 15, whereby to aid in holding the latter in place beneath the tiers when the load shifts. The looping of the wires 21 about the cross members 15 is particularly advantageous when the nailing of the cross members and the end gates to the skid members is omitted, as is sometimes the case.

It should of course be borne in mind, in connection with the above described load, that the structural details of the load and the procedure followed in constructing the same are presented herein primarily for the purpose of exemplification, since it will be obvious that numerous changes of an inconsequential character might be made in both the structure described and the procedure outlined without departing from the teachings which constitute the subject matter of the invention.

In Figs. 5 to 8 inclusive is shown another slightly modified load constructed in accordance with the invention. In this load, the pieces of pipe in each of the tiers 22 are stacked in pyramidal, as distinguished from rectangular shape, and certain of the ties which are used to hold the load together as a unit are arranged with the longitudinally extending strands thereof disposed at an inclination between the bottom of one end of the load and the top of the other end. As will be observed in these views, one wire 23 is passed horizontally around the load about half way up the side of the same, another wire 24 is looped horizontally about the narrow upper end of one of the end gates and is carried diagonally downward along the sides of the load and looped horizontally about the wide lower end of the other end gate, and still another wire 25 is arranged similarly to the diagonal wire 24 but in crossed relation to the same.

In Figs. 9 to 12 inclusive is shown still another load—this time of building tile 26. In this type of load, the skid members, the cross members and the individual tier-encircling ties are omitted. As in the other loads, the pieces of tile are stacked in tiers which extend crosswise of the car, the pieces in each tier being placed horizontally with their axes

lengthwise of the car and being arranged in superimposed rows which extend from one side of the car to the other. The pieces of tile in each row are separated slightly from the pieces in the overlying and underlying rows by the insertion of lath strips 27. If desired, thin sheet material, such as building paper, may be inserted between the rows in place of the lath strips. The outer faces of the end tiers are supported by end gates 28 which are somewhat similar to the previously described end gates, and the abutting faces of the tiers are cushioned with lath partitions 29. The entire load is bound into a unit by means of two or three wires 30 which pass about the load in vertical planes lengthwise of the car.

I claim:

1. A unit load of short elongated objects, such as sewer pipe, building tile and the like, for transportation in a railway car, consisting of several vertical tiers of the objects positioned crosswise of the car in abutment with each other, vertical end gates positioned against the outer faces of the end tiers, and means for connecting the end gates together.

2. A unit load of short elongated objects, such as sewer pipe, building tile and the like, for transportation in a railway car, consisting of several vertical tiers of the objects positioned crosswise of the car in abutment with each other, vertical end gates positioned against the outer faces of the end tiers, and means for preventing separation of the end gates, said end gates and objects being shiftable as a unit longitudinally of the car.

3. A unit load of short elongated objects, such as sewer pipe, building tile and the like, for transportation in a railway car, consisting of several vertical tiers of the objects positioned crosswise of the car in abutment with each other, vertical end gates positioned against the outer faces of the end tiers, vertical partitions positioned between the abutting faces of all of the tiers, and means for connecting the end gates together.

4. A unit load of short elongated objects, such as sewer pipe, building tile and the like, for transportation in a railway car, consisting of several vertical tiers of the objects positioned crosswise of the car in abutment with each other with the objects in each tier placed horizontally side by side in superimposed rows, vertical end gates positioned against the outer faces of the end tiers in lapped relation to all of the objects in those tiers, and ties extending between the end gates in encircling relation to all of the tiers for holding the load together as a unit.

5. A unit load of short elongated objects, such as sewer pipe, building tile and the like, for transportation in a railway car, consisting of several vertical tiers of the objects positioned crosswise of the car in abutment with each other with the objects in each tier placed horizontally side by side in superimposed rows, cross members on which the bottom rows of the tiers are supported, longitudinally extending skid members on which all of the cross members are supported, vertical end gates positioned on the skid members against the outer faces of the end tiers, and means for connecting the end gates together.

6. A unit load of short elongated objects, such as sewer pipe, building tile and the like, for transportation in a railway car, consisting of several vertical tiers of the objects positioned crosswise of the car in abutment with each other with the objects in each tier placed horizontally side by side in superimposed rows, ties encircling all of the objects in each tier, vertical end gates positioned against the outer faces of the end tiers, and other ties encircling the end gates and all of the tiers.

7. A unit load of short elongated objects, such as sewer pipe, building tile and the like, for transportation in a railway car, consisting of several vertical tiers of the objects positioned crosswise of the car in abutment with each other with the objects in each tier placed horizontally side by side in superimposed rows, cross members on which the bottom rows of the tiers are supported, longitudinally extending skid members on which all of the cross members are supported, ties encircling all of the objects in each of the tiers, vertical partitions positioned between the abutting faces of all of the tiers, vertical end gates positioned against the outer faces of the end tiers, and other ties encircling the end gates and all of the tiers.

8. A unit load of short elongated objects, such as sewer pipe, building tile and the like, for transportation in a railway car, consisting of several vertical tiers of the objects positioned crosswise of the car in abutment with each other with the objects in each tier placed horizontally side by side in superimposed rows, cross members on which the bottom rows of the tiers are supported, longitudinally extending skid members on which all of the cross members are supported, ties encircling all of the objects in each of the tiers, vertical partitions positioned between the abutting faces of all of the tiers, vertical end gates positioned against the outer faces of the end tiers, and other ties encircling the end gates and all of the tiers, two of said last mentioned ties being arranged diagonally of the load in crossed relation to each other from the top of one gate to the bottom of the other.

9. The method of loading elongated objects, such as sewer pipe, building tile and the like, for shipment in railway cars, which consists in stacking the objects on the floor of the car in a number of vertical tiers which abut longitudinally of the car, and holding

the tiers together between gates positioned at opposite ends of the load in spaced relation to the ends of the car.

10. The method of locating elongated objects, such as sewer pipe, building tile and the like, for shipment in railway cars, which consists in placing supporting members longitudinally on the floor of the car, placing other supporting members crosswise on the longitudinal members, arranging the objects longitudinally of the car in a vertical stack extending across the car from one side to the other, forming similar stacks one after the other in abutment longitudinally of the car, placing end gates against the exposed faces of the two end stacks, tying the end gates together with bands, and tying all of the objects in each stack together with encircling bands.

11. A unit load of short elongated objects, such as sewer pipe, building tile and the like, for transportation in a railway car, consisting of several vertical tiers of the objects positioned crosswise of the car in abutment with each other with the objects in each tier placed horizontally side by side in superimposed rows, and ties encircling all of the objects in each tier.

12. A unit load of short elongated objects, such as sewer pipe, building tile and the like, for transportation in a railway car, consisting of several vertical tiers of the objects positioned crosswise of the car in abutment with each other with the objects in each tier placed horizontally side by side in superimposed rows, ties encircling all of the objects in each tier, and other ties encircling all of the tiers.

13. A unit load of short elongated objects, such as sewer pipe, building tile and the like, for transportation in a railway car, consisting of several vertical tiers of the objects positioned crosswise of the car in abutment with each other with the objects in each tier placed horizontally side by side in superimposed rows, cross members on which the bottom rows of the tiers are supported, longitudinally extending skid members on which all of the cross members are supported, and ties encircling all of the objects in each of the tiers.

14. A unit load of bell-end sewer pipe for transportation in a railway car, consisting of several vertical tiers of the pipe positioned crosswise of the car in abutment with each other with the pipe in each tier placed horizontally side by side in superimposed rows and with the bell-ends of the pipe in each row resting on the spigot ends of the pipe in the underlying row, and ties encircling all of the pipe in each tier.

15. A unit load of bell-end sewer pipe for transportation in a railway car, consisting of several vertical tiers of the pipe positioned crosswise of the car in abutment with each other with the pipe in each tier placed horizontally side by side in superimposed rows and with the bell-ends of the pipe in each row resting on the spigot ends of the pipe in the underlying row, ties encircling all of the pipe in each tier, and other ties encircling all of the tiers.

16. The method of loading elongated objects, such as sewer pipe, building tile and the like, for shipment in railway cars, which consists in stacking the objects on the floor of the car in a number of vertical tiers which abut longitudinally of the car, separating the tiers from each other by the insertion therebetween of partitions for preventing direct contact between the objects in adjoining tiers, placing end gates against the exposed faces of the two end tiers, and tying the end gates together with bands.

17. The method of loading elongated objects, such as sewer pipe, building tile and the like, for shipment in railway cars, which consists in stacking the objects on the floor of the car in a number of vertical tiers which extend crosswise of the car and abut lengthwise of the car with each other, and tying all of the objects in each tier together independently of the objects in the other tiers.

18. The method of loading elongated objects, such as sewer pipe, building tile and the like, for shipment in railway cars, which consists in placing supporting members longitudinally on the floor of the car, placing other supporting members crosswise on the longitudinal members, stacking the objects on the cross members in a number of vertical tiers which abut longitudinally of the car, and tying all of the objects in each tier together independently of the objects in the other tiers.

19. The method of loading bell-end sewer pipe for shipment in a railway car, which consists in stacking the pipe on the floor of the car in a number of vertical tiers which abut longitudinally of the car with the bell ends of the pipe in each row in each tier resting on the spigot ends of the pipe in the underlying row in that tier, tying all of the pipe in each tier together, placing end gates against the exposed faces of the two end tiers, and tying the end gates together.

20. A unit load of short elongated objects, such as sewer pipe, building tile and the like, for transportation in a railway car, consisting of several vertical tiers of the objects positioned crosswise of the car in abutment with each other with the objects in each tier placed horizontally side by side in superimposed rows, cross members on which the bottom rows of the tiers are supported, longitudinally extending skid members on which all of the cross members are supported, vertical end gates positioned on the skid members against the outer faces of the end tiers, connections between the end gates and the skid members, and ties extending be-

tween the end gates for holding the load together in a shiftable unit.

21. The method of loading elongated objects such as sewer pipe, building tile and the like, for shipment in railway cars, which consists in stacking the objects up on the floor of the car to fill the car from one side to the other and form a substantially solid load unit which has a generally rectangular base formation and is of considerably greater length than width, placing gates at the ends of said unit, and securing the gates together with metal ties which extend from one gate to the other.

22. The method of loading elongated objects such as sewer pipe, building tile and the like, for shipment in railway cars, which consists in stacking the objects up on the floor of the car to fill the car from one side to the other and form a substantially solid load unit which has a generally rectangular base formation and is of considerably greater length than width, placing gates of approximately the shape of the ends of the unit against such ends, and binding the gates together with crossed tie members which extend from the bottom of each gate to the top of the other gate at the sides of the unit.

In witness whereof I have hereunto subscribed my name.

IVAN H. SPOOR.