June 23, 1931. F. A. ISAACSON 1,811,634

LOGGING CAR

Filed April 12, 1929 2 Sheets-Sheet 1

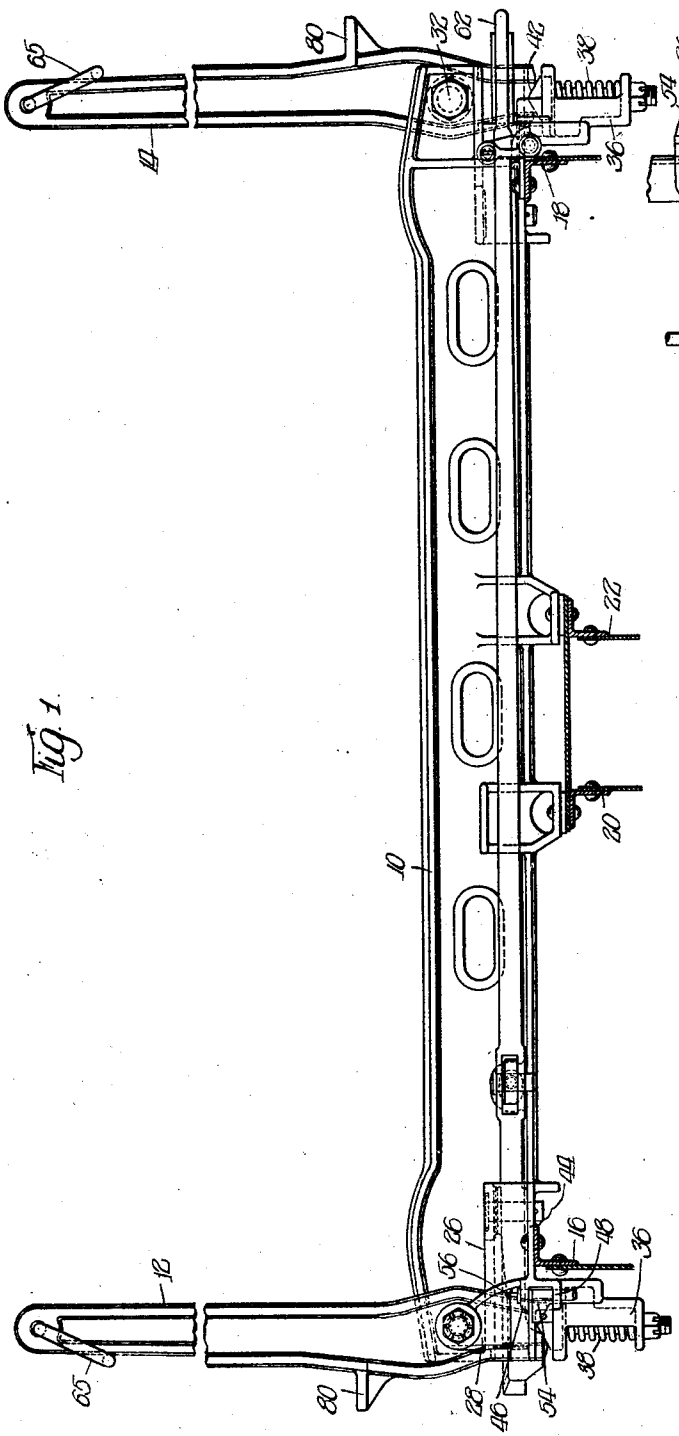


Fig. 1.

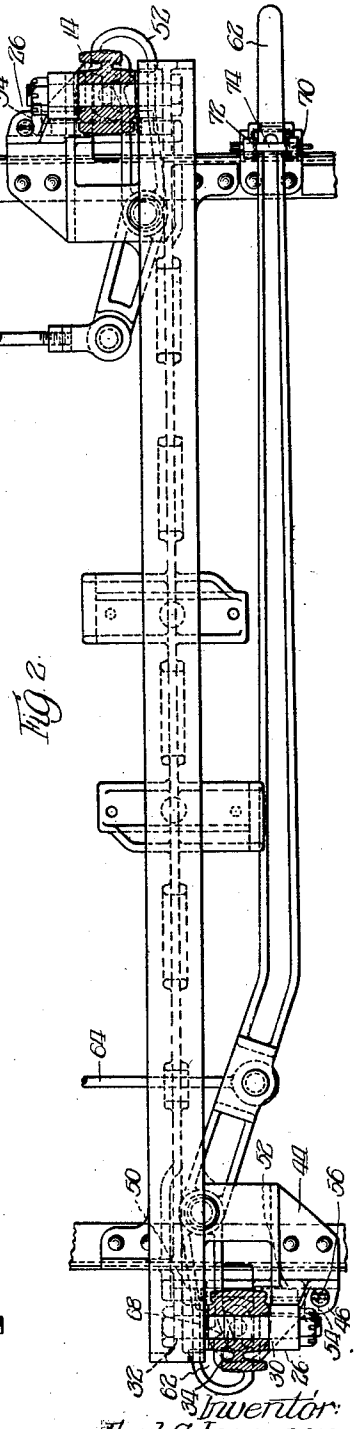


Fig. 2.

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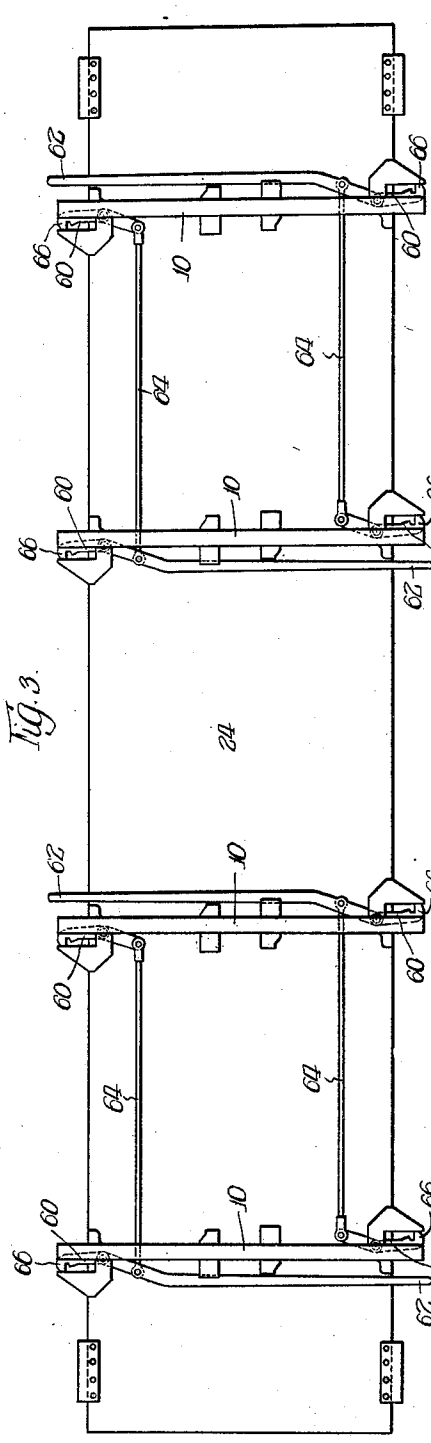


Fig. 3.

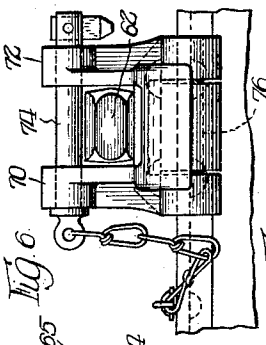


Fig. 6.

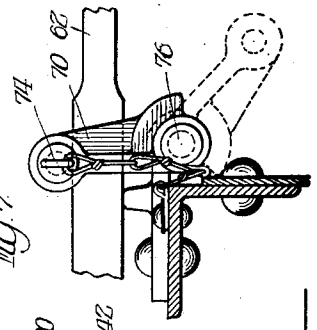


Fig. 7.

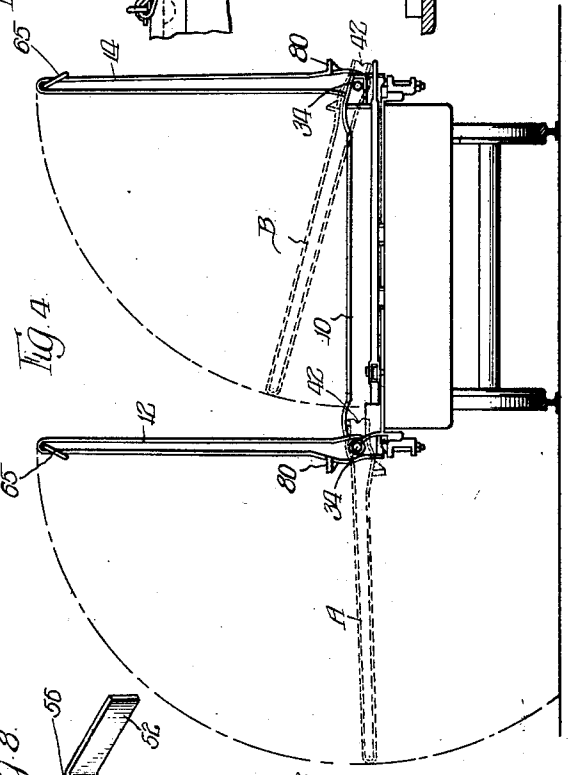


Fig. 4.

Fig. 8.

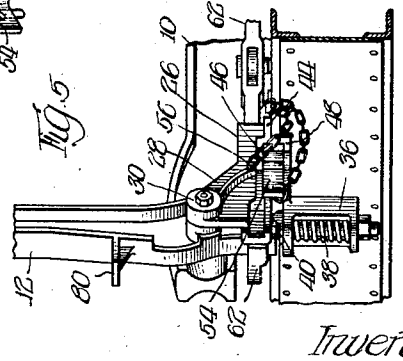


Fig. 5.

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Patented June 23, 1931 1,811,634

UNITED STATES PATENT OFFICE

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LOGGING CAR

Application filed April 12, 1929. Serial No. 354,474.

This invention relates to railway cars and is illustrated herein as embodied in a car of a type suitable for use in transporting logs or other timber.

Cars for carrying logs, poles, and other such timbers and materials, in many instances, comprise a skeleton frame work having two or more cross pieces, generally in the form of body bolsters, extending widthwise of the frame and in use the logs are supported on the cross pieces. In the railway art, such cross pieces are commonly known as bunks, or logging bunks, and for the sake of convenience and accuracy will be so referred to hereinafter.

In order to prevent the logs or other timber from rolling off the ends of the bunks and falling from the sides of the logging car, it is customary to provide a plurality of vertically extending side stakes along the opposite sides of the car and to mount these in such a manner that they can be removed or dropped in the event that it is desired to unload the logging car by spilling over one side or the other. In many instances, these side stakes comprise nothing more than wooden stakes having their bottom extremities inserted in metallic pockets carried along the frame of the car. Such stakes are objectionable for many reasons; in the first place they are apt to break in which event the logs may spill from a moving car, they must be removed by hand when it is desired to empty the car and this is always dangerous, and they do not last for a very long time thereby requiring frequent replacement. In view of these objectionable features many logging bunks having metal drop stakes located at the opposite extremities of the bunks have been devised and in many instances have been patented. In such constructions, the drop stakes are arranged for movement between a vertical position, which is the normal operating position, and a position in which they extend laterally outward from the side of the car which is the dumping position. In view of the danger that is connected with lowering a side stake while standing in the path the logs will take in spilling from the car, it has been proposed to extend the mechanism for operating to the opposite side of the car and by such a provision the operator is across the car standing along the side opposite the spilling side.

It is an object of the present invention to provide a novel and improved logging bunk having a plurality of metallic side stakes located at the opposite extremities thereof, and mechanical means for releasing the side stakes when it is desired to spill the logs from the car.

Heretofore, it has been customary, owing to the amount of pressure exerted by the logs on the side stakes, to extend chains, or other tension members, from the tops of the stakes inwardly to the logging bunks. Although the provision of the chains was necessary many disadvantages resulted owing to the likelihood of the links to be broken or to become jammed. Accordingly, it is a feature of the present invention to provide side stakes for logging cars, which, although of considerable height, are rigidly engaged and held against accidental displacement by means of fastening members engaging the front and the side edges of the stakes. In the illustrated embodiment of the invention the fastening members for engaging stakes along one side of the car are releasable to permit dropping of the stakes by means located along the opposite side of the car.

Another feature of the invention consists in the provision of a self-centering device which is operative to position the side stake in a vertical, or upright position, and to hold it there while the fastening members are being moved into engagement with the stake. As illustrated, the self-centering device comprises a spring pressed plunger adapted to engage within a recess formed in the base of the stake.

Still another feature of the invention consists in the provision of a stake mounted in such a manner that it may be moved from its vertical position outwardly to permit spilling of the logs, or inwardly to lie on a bracket above the floor of the logging car. In this latter position, the stake is inconspicuous, out of the way, and is not subject to the blows and vibrations which are imparted to verti-

cally disposed stakes. In the illustrated embodiment of the invention, this feature is carried out by pivoting the stake to the logging bunk at a point located above the frame of the logging car. Thus, the stake is free to pivot in such a manner that the upper portion of the stake moves inwardly to lie above the frame or floor.

In another aspect an important feature of the invention resides in the provision of improved fastening or locking means for holding the side stakes in an operative vertical position. As disclosed herein each side stake is provided with locking means which must be removed manually before the stake is free to be dropped and with supplemental locking means operative from the opposite side of the car to release the side stake after the manual locking means has been removed. In order that the side stake will not be accidentally dropped after the manual locking means has been removed, the supplemental locking means, which is operative from the opposite side of the car, is provided with a latch and cannot be operated without first being released from the latch.

Still another feature of the invention consists in forming integrally with the stake a shoulder or projection for engaging the loading mechanism to prevent the latter from being accidentally displaced and consequently damaged during a loading operation.

Although the invention is illustrated herein with particular reference to a logging car of the ordinary type having the logging bunks mounted above the floor, it is to be understood, of course, that the invention can be used in connection with cars of various other types such, for example, as cars with built up separate bunkers, or those having one piece under frames with the bunker arrangement cast as part of the under frame.

Other objects and features of the invention will become apparent from a reading of the following specification in the light of the accompanying drawings, in which—

Figure 1 is a view in elevation of a logging bunk equipped in accordance with the present invention;

Figure 2 is a top plan view of the arrangement shown in Figure 1;

Figure 3 is a somewhat diagrammatic view illustrating the manner in which a car is equipped with logging bunks and showing also the manner in which two of the side stakes of a logging car may be coupled together for simultaneous operation;

Figure 4 is a view of an end of a logging car illustrating the manner in which the side stakes are free to move;

Figure 5 is a fragmentary view in perspective of the base extremity of a side stake;

Figures 6 and 7 are fragmentary views showing a latch mechanism with which the arrangement is provided; and

Figure 8 is a detailed view of a locking member with which the arrangement is provided.

As shown in the drawings a logging bunk 10, approximately I-shaped in cross-section, is adapted to span the floor or frame of a logging car widthwise and to support logs or other material that may be loaded thereon. To the end of preventing the load from spilling sidewise off of the logging bunks 10, the opposite extremities thereof are equipped with vertically extending side stakes 12 and 14. It has just been stated that the load may tend to spill sidewise off of the floor or frame of the car; as shown herein, in Figure 1, the logging bunk and side stakes are mounted upon a frame work which comprises side sills 16 and 18 and center sills 20 and 22, on the other hand, in Figure 3, the logging bunks 10 are shown diagrammatically as being mounted upon a floor 24, it being appreciated that the arrangement may be used with equal facility in connection with a frame or a floor.

The side stakes 12 and 14 are pivotally connected to the opposite extremities of the logging bunks in order that they may be lowered to permit the load to spill from the car. To this end the logging bunk is provided with a cast base, indicated generally by the reference numeral 26, which comprises an upwardly extending arm 28 (please refer to Figure 5) formed at its upper extremity into a bearing portion 30. An opening 32 is formed in the extremity of the bunk casting 10 lying opposite the opening in the bearing 30 and thus the opening in the bracket and the opening in the extremity of the logging bunk may be considered as spaced arms between which the side stakes are mounted. As illustrated herein, the side stakes are pivotally mounted upon a bolt 34 and may swing outwardly to the position indicated by the reference character A in Figure 4.

In use, at the completion of an unloading operation, the outer extremities of the side stakes 12 and 14 are grasped and swung upwardly to restore the stakes to a vertical position, and it is an important feature of this invention to provide the arrangement with a self-centering device which will cause each side stake to come to rest in a proper vertical position when it is swung upwardly. As illustrated herein, particularly as shown in Figure 5, the self-centering device comprises a downwardly depending bracket arm 36 formed integrally with the base casting 26, and a spring pressed plunger 38 mounted within the bracket arm and provided with a pointed upper extremity 40 for engaging within a corresponding notch or depression 42 formed in the end of the side stakes (the notch 42 may be seen by referring to Figure 4 or to the righthand end of the logging bunk as viewed in Figure 1). Thus, it will be seen that the spring pressed plunger tends to

maintain the side stake in a vertical position and that if the operator merely imparts an upward swing to the stake the latter will move into a vertical position and stop there by reason of the plunger engaging within the recess in the base. This constitutes an extremely desirable feature of the invention inasmuch as it expedites the restoration of the side stakes at the completion of an unloading operation.

As illustrated in Figures 2 and 5, the side stake is mounted to one side or the other of the logging bunk 10 and the space in the rear of the side stake is unobstructed by mechanism or other parts of the arrangement. Due to this fact and the fact that the axis of pivot of the side stake is above the floor or frame of the car, as shown in Figure 4, the side stake is not only free to move outwardly to the position indicated by the reference character A, but is likewise free to move inwardly to the dotted line position indicated by the reference character B in which latter the stake is disposed above the floor or frame of the car. This, of course, is the inoperative position and when so disposed the stake is inconspicuous and is not subject to the jars or vibrations that are imparted to a stake when it is occupying a vertical position on an empty car. Mounting the stake in such a manner that it may move inwardly above the floor is an important aspect of the invention.

From the description of the invention so far given it will be seen that the side stakes may move inwardly or outwardly with respect to the car, and that each stake is provided with a self-centering device that is adapted normally to maintain the stake in a vertical, operative position. It will be appreciated, however, that a substantial amount of inward or outward pressure applied to the side stake will cause it to be released from the self-centering device and that accordingly the latter device is not of sufficient strength to maintain the stakes in a vertical position when the car is loaded and logs are pressing the stakes outwardly. In view of this fact, the arrangement is provided with means for engaging the base extremities of the side stakes to prevent the latter from being accidentally displaced. In the embodiment of the invention illustrated herein, there is provided a plurality of locking means for the side stakes; one of these may be considered a primary locking means, and the other a supplemental locking means which constitutes a safety lock. As shown in Figures 2 and 5, the base casting 26 is provided with a bottom flange 44 which extends outwardly and spreads into a plurality of spaced arms 46 and 48 leaving an opening therebetween. This opening communicates with a second opening or passageway 50 that extends clear through the base casting and leads past the rear edge of the lower extremity of the side stake. As shown in Figure 8, a locking bolt comprising a shank portion 52 and a head portion 54 is adapted to be inserted into the opening with the shank extending through the passageway in which position it contacts with the rear edge of the side stake, and the head 54 extending outwardly from the opening between the arms 46 and 48. When the locking bolt is inserted in the opening, the shank portion 52 firmly engages the rear side of the side stake below the axis of pivot of the stake and prevents that member from moving outwardly. In order that the locking bolt will not inadvertently escape from the opening thereby permitting the stake to move outwardly or putting undue and excessive pressure on the other locking parts, there is provided a safety pin 56 which may be inserted through alined openings formed in the spaced arms 46 and 48. In this position the pin engages the head 54 of the locking bolt and prevents escape of that member from its operative position, the manner of engagement being clearly shown in Figure 8.

It will now be seen that logging bunks are provided with pivotally mounted side stakes which may be moved from an outer to an inner position, with means for normally maintaining the stakes in a vertical position and with manually operable primary locking means for engaging the inner edges of the stakes to maintain them rigidly in a vertical position. As illustrated, the locking bolt and safety pin are both connected to the car frame by means of a link pin that is welded, or in any other suitable fashion connected to the frame. It is to be appreciated that if the primary locking means were the only means provided for maintaining the stakes in a vertical position that great danger would be encountered in releasing the stakes preparatory to unloading the car; this, by reason of the fact that the operator would have to stand on the unloading side of the car in the path of the logs and extract by hand the locking bolt 52. To avoid this danger, the arrangement is equipped with supplemental locking means which may be regarded in the nature of safety appliances. As illustrated in Figure 3, the supplemental means constitute pivoted levers 60, the levers along one side of the car being operated by handles 62 located along the opposite side of the car. Thus, when the supplemental means are released, the operator is standing on the side of the car opposite to the unloading side and consequently is well out of the path of the logs. As illustrated, each of the operating handles or levers 62 is, through the medium of a link bar 64, arranged to operate a plurality of the locking levers 60, the purpose of this being to expedite the unloading operation. It is to be understood that the stakes may be arranged in such a manner that either may be dropped separately, two or more may be dropped

simultaneously by a single operation, or all stakes may be connected together in such a manner that they may be dropped simultaneously and likewise by means of a single operation.

As illustrated in Figure 3, the levers 60 each have a yoke-shaped outer portion 66, the spaced arms of which, as shown in Figure 2, are adapted to engage respectively the outer side or edge of the lower extremity of the side stake, and the inner edge 68 of the outer flange of the side stake. The manner in which the outer arm of the yoke 62 engages the outer side of the lower portion of the side stake is clearly shown in Figure 5, and it will be appreciated that such an arrangement prevents inadvertent inward movement of the stake. Thus, it will be seen that the supplemental locking means engages the base extremity of the side stake to prevent both its inner and its outer movement relatively to the car and is operable from the opposite side of the car.

In order to prevent accidental release of the supplemental locking means each of the said means is provided with a safety latch for engaging the handle 62 and preventing movement thereof. As illustrated in Figures 2, 6, and 7, the safety latch comprises a plurality of spaced members 70 and 72 adapted to receive a locking pin 74. Beneath the locking pin and between the two spaced arms the handle 62 is adapted to extend, and to permit release of the handle, the arms of the latch are mounted for pivotal movement about a pin 76.

In operation, the side stakes are released to permit dumping of the car by first retracting the safety pin 56 and the locking bolt 52, and thereafter releasing the associated handle 62 from the safety latch, and finally moving the handle to release the yoke from the base of the stake, whereupon the stake is free to move inwardly or outwardly upon an amount of pressure being applied thereto sufficient to overcome the resistance offered by the spring pressed plunger 38. At the completion of an unloading operation, the side stakes may be moved inwardly to lie above the floor of the car during travel while the car is empty. In preparing the car for a subsequent loading operation, the side stakes are swung upwardly until the spring pressed plunger 38 engages the recess 42 formed in the base of the stake whereupon the locking bolt 52 is run home and held in position by means of the safety pin 56, the handle 62 is moved to move the yoke portion 66 of the lever 60 into engagement with the lower portion of the side stake and the safety latch is swung upwardly and the pin 74 inserted therein to lock the supplemental means against accidental displacement.

Still further to insure against accidental dropping of the side stakes, the top of the stakes are equipped with rings 65 to which chains may be attached. Such chains extend transversely of the car between oppositely disposed side stakes.

To the end of providing means for supporting the loading apparatus during the loading operation, each of the side stakes is provided with an outwardly extending projection or abutment 80 which may be made integrally with the side stake or made separately and secured thereto, and each of the abutments or projections is of sufficient strength to carry the weight of the loading apparatus. The provision of such members avoid the danger of the loading apparatus slipping and breaking any part of the logging bunks or side stakes mechanism.

Although the invention has been illustrated herein as embodied in a railway car of the logging type, it is to be realized and understood that the invention may have equal application to cars of other types and to other stationary containers, the side of which it may from time to time be desired to lower. Also, alterations and modifications may from time to time be made in the illustrated embodiment of the invention without departing in the slightest from the scope of the invention as set forth in the following claims.

Having described my invention what I claim as new and desire to secure by United States Letters Patent, is:

1. An arrangement of the character described, comprising, in combination, a plurality of side stakes mounted for movement between operative and inoperative positions, means for locking the side stakes in their operative positions, said locking means being releasable to permit movement of the side stakes to their inoperative positions, and automatic means for centering the side stakes when the latter occupy their operative positions.

2. An arrangement of the character described, comprising, in combination, a plurality of side stakes mounted for movement between operative and inoperative positions, means for locking the side stakes in their operative positions, said locking means being releasable to permit movement of the side stakes to their inoperative positions, and means for centering the side stakes when the latter occupy their operative positions, said centering means being yieldable upon the application thereto of a substantial amount of pressure.

3. An arrangement of the character described, comprising, in combination, a plurality of side stakes mounted for movement between operative and inoperative positions, means for locking the side stakes in their operative positions, said locking means being releasable to permit movement of the side stakes to their inoperative positions, and means for centering the side stakes when the

latter occupy their operative positions, said centering means comprising a plurality of spring pressed plungers adapted to engage within recesses formed in the lower extremities of the side stakes.

4. A railway car comprising, in combination, a plurality of side stakes arranged along the outer sides of the car, yieldable means for maintaining the stakes in an upright position relatively to the floor, and non-yieldable means for locking the side stakes in their upright positions, said latter named means being releasable to permit the side stakes to move from their upright positions into either of two additional positions in one of which they extend outwardly from the sides of the car and in the other of which they extend inwardly to lie above the bottom of the car.

5. A railway car comprising, in combination, a frame, a plurality of brackets arranged along the outer sides of the frame, a plurality of side stakes pivotally connected with the brackets, and releasable means adapted to engage the front and rear edges of the side stakes at points adjacent to the axes of pivot to maintain the stakes in an operative position relatively to the frame.

6. A railway car comprising, in combination, a frame, a plurality of brackets arranged along the outer sides of the frame, a plurality of side stakes pivotally connected with the brackets, releasable means adapted to engage the front and rear edges of the side stakes at points adjacent to the axes of pivot to maintain the stakes in an operative position relatively to the frame, and additional locking means adapted to engage the inner edges of the side stakes additionally to prevent outward movement of the stakes relatively to the frame.

7. A railway car comprising, in combination, a frame, a plurality of brackets arranged along the outer sides of the frame, each of said brackets comprising a plurality of spaced arms, a plurality of side stakes each of which has its lower portion pivotally secured between the spaced arms of one of the brackets, the extreme lower extremity of each of the side stakes being arranged to extend below the axis of pivot, removable means disposed in the rear of the lower extremity to prevent outward movement of each side stake relatively to the frame, and additional means arranged to engage the side stake to prevent inward movement thereof.

8. A railway car comprising, in combination, a frame, a plurality of brackets arranged along the outer sides of the frame, each of said brackets comprising a plurality of spaced arms, a plurality of side stakes each of which has its lower portion pivotally secured between the spaced arms of one of the brackets, the extreme lower extremity of each of the side stakes being arranged to extend below the axis of pivot, removable means disposed in the rear of the lower extremity to prevent outward movement of each side stake relatively to the frame, additional means arranged to engage the side stake to prevent inward movement thereof, and yieldable means tending normally to maintain each of said side stakes in an upright position.

9. A railway car comprising, in combination, a frame, a plurality of brackets arranged along the outer sides of the frame, each of said brackets comprising a plurality of spaced arms, a plurality of side stakes each of which has its lower portion pivotally secured between the spaced arms of one of the brackets, the extreme lower extremity of each of the side stakes being arranged to extend below the axis of pivot, removable means disposed in the rear of the lower extremity to prevent outward movement of each side stake relatively to the frame, additional means arranged to engage the side stake to prevent inward movement thereof, said additional means comprising a pivoted lever having an outer end constructed and arranged to engage the front edge of the side stake and its opposite end terminating in a handle located on the side of the frame opposite to the side stake.

10. A railway car comprising, in combination, a frame, a plurality of brackets arranged along the outer sides of the frame, each of said brackets comprising a plurality of spaced arms, a plurality of side stakes each of which has its lower portion pivotally secured between the spaced arms of one of the brackets, the extreme lower extremity of each of the side stakes being arranged to extend below the axis of pivot, removable means disposed in the rear of the lower extremity to prevent outward movement of each side stake relatively to the frame, supplemental means arranged to engage the side stake to prevent inward movement thereof, said additional means comprising a pivoted lever having a yoke-shaped portion adapted removably to engage the front and rear edges of the car stake when the latter is in an upright position, and an opposite extremity terminating in a handle portion located on the side of the frame opposite to the car stake.

Signed at Chicago, Illinois, this 27 day of March, 1929.

FRED A. ISAACSON.

CERTIFICATE OF CORRECTION.

Patent No. 1,811,634. Granted June 23, 1931, to

FRED A. ISAACSON.

It is hereby certified that the name of the assignee in the above numbered patent was erroneously written and printed as "America Steel Foundries", whereas said name should have been written and printed as American Steel Foundries, as shown by the records of assignments in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 1st day of September, A. D. 1931.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.