

No. 751,126.

PATENTED FEB. 2, 1904.

H. S. WILSON.
CONVERTIBLE CAR.
APPLICATION FILED APR. 15, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

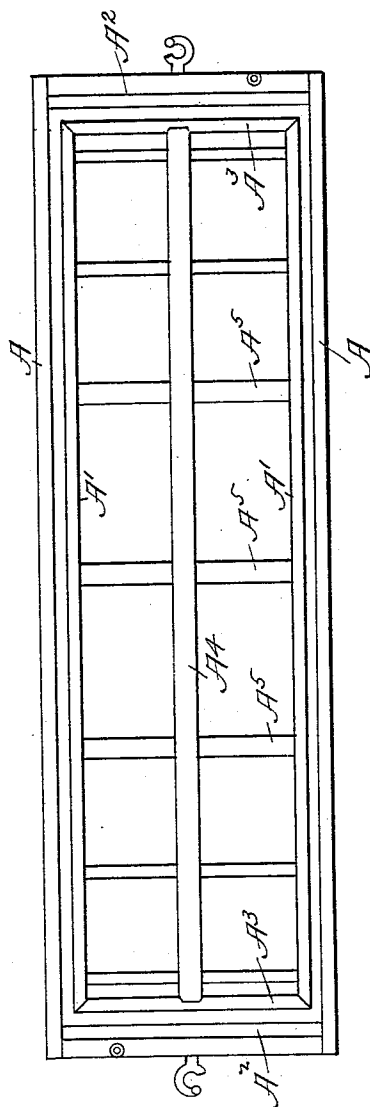


FIG. 1.

WITNESSES

J. M. Dolan
J. E. R. Hayen

INVENTOR

Howard S. Wilson
by his atty
F. T. Raymond

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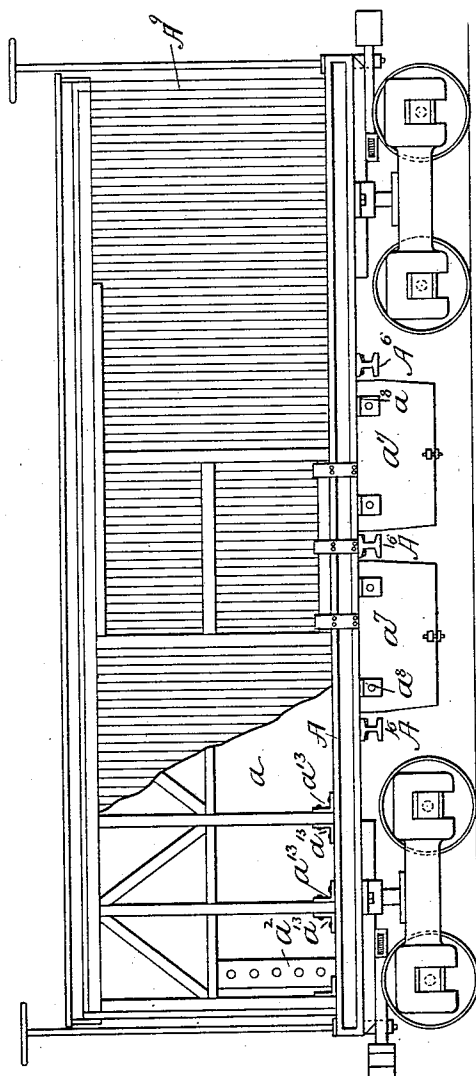


Fig. 1.

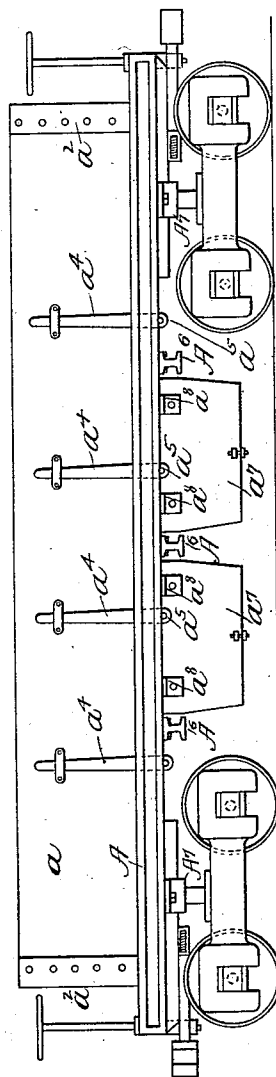


Fig. 2.

WITNESSES.

J. M. Dolan,
J. E. R. Hayer

INVENTOR.

Howard S. Wilson
by his atty-
H. T. Raymond

No. 751,126.

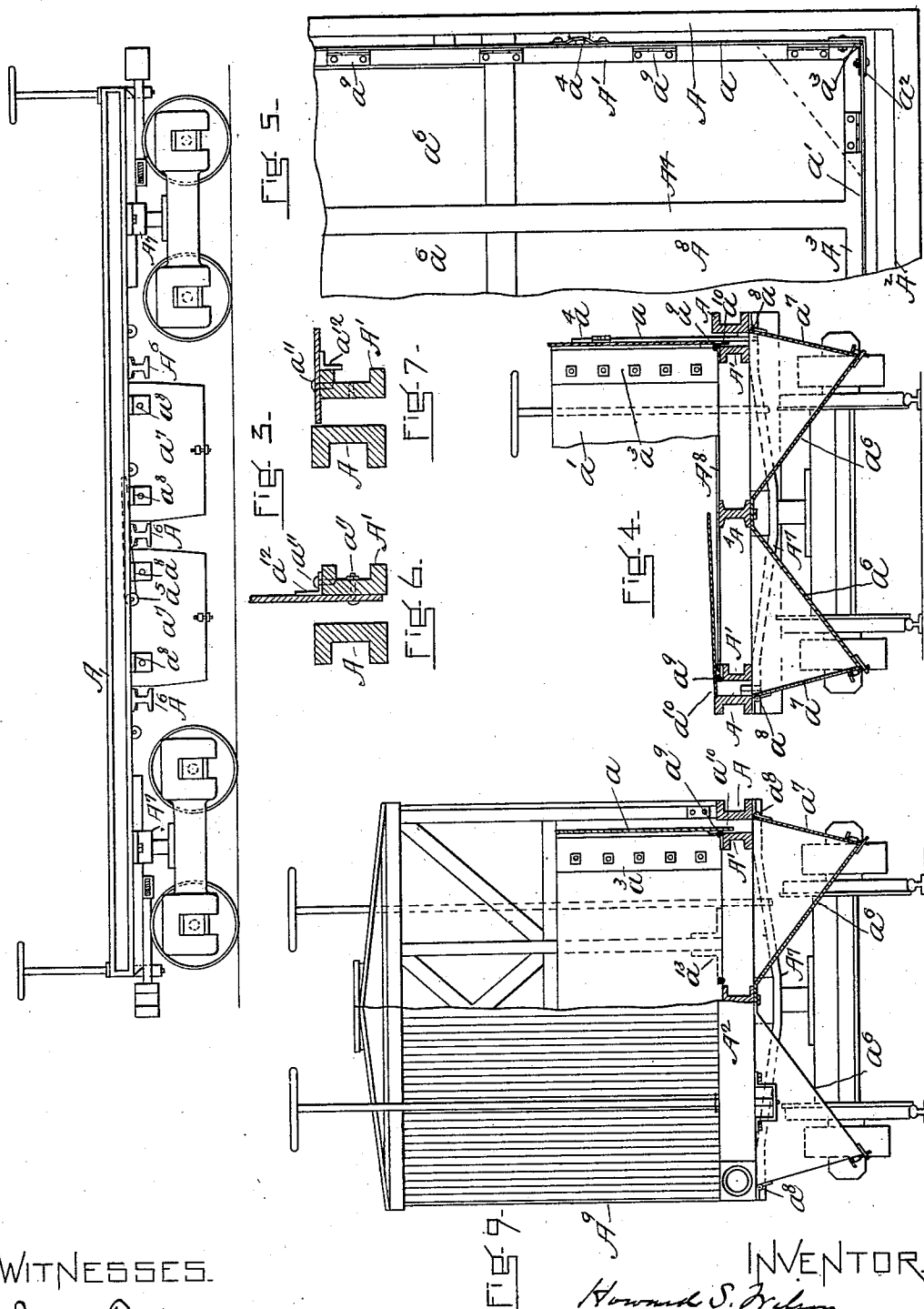
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3 SHEETS--SHEET 3.



UNITED STATES PATENT OFFICE.

HOWARD S. WILSON, OF PUEBLA, MEXICO.

CONVERTIBLE CAR.

SPECIFICATION forming part of Letters Patent No. 751,126, dated February 2, 1904.

Application filed April 15, 1903. Serial No. 152,819. (No model.)

To all whom it may concern:

Be it known that I, HOWARD SEARS WILSON, a citizen of the United States, residing in the city of Puebla, State of Puebla, and Republic of Mexico, have invented a new and useful Improvement in Convertible Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

My invention relates to an improvement in convertible cars.

The object of my invention is to provide a basal or frame structure, which together with certain auxiliary parts makes the formation of either one of three kinds of freight-car easily attainable—viz., the formation of a flat-car, a coal-car, or a box-car.

It is a further object of my invention to make such frame structure and all auxiliary parts of simple design and of common material which shall require no special making or preparation. At the same time it is my desire to provide a structure that will in no way detract from the capabilities which each one of the three kinds of freight-car before referred to should have, but even to increase their capabilities.

My invention consists, therefore, in the construction of such frame or basal structure and combined auxiliary parts, the formation and capabilities of which, together with various incidents of construction, can best be seen and understood by referring to the drawings.

Figure 1 of the drawings is a view in plan showing the double construction of the framework. Fig. 2 is a view in side elevation of the car when used as a dump-car. Fig. 3 is a view of the car in side elevation when used as a flat-car. Fig. 4 is a view principally in cross vertical section to show the way in which the sides are attached to the inner sills and also the way in which a dump-car is converted into a flat-car. Fig. 5 is a detail view in plan of the car used as a dump-car. Figs. 6 and 7 are detailed views, in vertical section, enlarged, to show the relation of the said sills to each other and the manner of attaching the sides to the inner sills.

Fig. 8 is a view principally in side elevation of the car when supplied with a roofed boxing

attaching to the outer sill. Fig. 9 is a view principally in end elevation, a part of the end being broken out to show the interior construction.

Referring to the drawings, there is represented in Fig. 1 the basal or frame structure by which my invention is primarily obtained. It comprises a double frame embodying the double side sills $A A'$, the double end sills $A^2 A^3$, the center sill A^4 , while A^5 represents a series of intermediate cross-bars which help brace the frame and offer a cross-support for the flooring of the car, as will hereinafter appear.

The outside rectangular sill structure comprised of the sill-bars $A A^2 A^3$ is made separate from the interior rectangular sill structure comprising the sill-bars $A' A^3 A^3$. The respective rectangular structures, however, are tied together by the beams or bars A^6 , which extend transversely beneath them, and they also are preferably so connected with the car-trucks that both sill structures may be supported and braced by them, as by truck-bars A^7 . The practical effect of this construction is that the outer sills and the transverse bars or beams A^6 form the main part of the frame structure and that they hold and support the inner sills and their cross-bars.

The double sills along the sides of the frame are made up of channel-bars with their smooth sides facing each other and their flanges respectively outwardly and inwardly projecting. The bars are spaced, wherefore the double sill is obtained, each sill to have its peculiar adaptability, as will hereinafter appear. It is to be noted that the outer sill-bars $A A$ are made to extend a little higher than do the inner sill-bars $A' A'$, which feature of construction may be obtained by simply using a larger size of channel-bar. The double end sills $A^2 A^3 A^3 A^3$ join with their corresponding side sills, so as to leave between them the same relative amount of space as between the side sills. The outside end sill-bars $A^2 A^2$ may be made as channel-bars; but they are preferably made rectangular in shape, as shown, in order to have a greater rigidity and strength. The inner end sills are made of channel-bars with their flanges projecting

inwardly, so that the two sill-bars A^2 and A^3 are left with smooth sides facing each other or lining the space between them. The inside end sill-bars A^3 A^3 are made so as not to
 5 extend quite so high as the outside end sill-bars and in this particular correspond with the bars forming the double side sills.

The center sill A^4 is an I-bar, and the cross-bars A^5 are common rectangular bars possessing any suitable degree of strength.

Especial reference is thus made to the structure of the various bars comprising my frame for the purpose of showing that it may be made up of common kinds of bar easily attainable.
 15

By thus making my frame structure, and particularly with reference to its double-sill formation, I am enabled to easily construct any one of the three kinds of freight-car before
 20 referred to.

In Figs. 2 and 3 I have shown the adaptability with which my new form of frame structure can be applied to the formation either of a coal-car or a flat-car and to the facility by
 25 its use with which the one kind of car can be converted into the other.

Referring first to Fig. 2, where the coal-car is shown, there are represented the sides a a and ends a' a' , which help form the carrying-body of the car and are hinged, respectively,
 30 to the interior side and end sill-bars A' A^3 , respectively. These sides and ends are shown as made of sheet or rolled metal, and they are united at the respective corners of the car in
 35 any suitable manner, as by outside and inside angle-pieces a^2 a^3 , respectively, which are cross-bolted together. Pivoted to extend up from the spacing between the double side sills A A' are the stake-posts a^4 , which support the sides
 40 a a . As shown, the posts a^4 are pivoted to axial pins a^5 , which are secured to extend transversely across the bottom edges of the respective sills. The flooring of the car A^3 is
 45 best made of sheet or rolled metal laid over the cross-bars A^5 in any suitable way, but so as to provide for the dumps or side chutes a^6 , which extend from the center of the car, where they are secured to the I-beam A^4 , down-
 50 wardly and laterally to the sides thereof. The side openings of these chutes are controlled by doors a^7 , which swing outwardly, and the capability of these chutes are materially increased by reason of the fact that their out-
 55 wardly-swinging doors can be hinged to the outer side sill-bars A , as at a^8 , (see Fig. 4), so that the length of the chutes can be appreciably increased and they accordingly be made to discharge their load some considerable distance beyond the tracks. The practicability
 60 of such an arrangement needs no further comment. The coal-car being so made can be converted into a flat-car, like as shown in Fig. 3, simply by turning down the stake-posts a^4 , which support the sides of the car, and then
 65 turning the sides a a and ends a' a' of the car

in over the bottom thereof, any attachments by which these parts are temporarily secured together of course being first moved. The stake-posts are turned down to lie horizontally with-
 in the space between the sill-bars, which effect
 70 is obtained by reason of their pivotal jointure to and between the same, and such capability of the double-sill construction is especially to be noted, whereby the space between the side
 75 bars can thus be utilized to form a housing, as it were, for the stake-posts when they are turned down. The sides a a and ends a' a' of the carrying-body of the car are turned to lie horizontally over the bottom thereof by reason of their
 80 hinged jointure a^9 with the interior side and end sills. Naturally the ends a' a' would be turned down first and then the sides, so that a smooth even flooring or platform for the flat-car would be obtained. In this connection it is to be observed that the top surface
 85 of the flooring of the car thus formed by the inturned sides thereof lies even and is coextensive with the top surface of the exterior side and end sill-bars. This effect is obtained by so graduating the height of the interior
 90 side and end sill-bars relatively to the exterior side and end sill-bars that when the sides and ends a a a' a' , respectively, are turned down their thickness, together with the amount
 95 taken up by their hinged jointure with the respective interior side and end sill-bars, will bring the top surface of the sides when turned down level with the top surface of the exterior side and end sill-bars, so that a perfectly
 100 level flooring is obtained. The spacing left between the double sills is covered by a portion of the sides and ends when they are turned. As may be seen in Fig. 4, the sides and ends are so hinged to the interior sill-bars
 105 A^2 as to leave a portion a^{10} thereof to extend down alongside said sill-bars within the space between them and the outside sill-bars. The extent of this portion a^{10} , measured from the pivotal point of its hinged turning, is equal
 110 to the space which separates said point of turning from the exterior side sill-bars, wherefore the effect is obtained that when the sides and ends are turned down over the bottom of the car these portions thereof will turn up,
 115 and so will cover the intermediate left between the sills, wherefore the flooring obtained by the turned-down sides is coextensive with the top surfacing of the outside sills.

In Figs. 6 and 7 a modification is seen in the fact that instead of the sides and ends being
 120 hinged to the respective interior end and side sill-bars they are bolted thereto in the manner indicated by bolts a^{11} and angle-irons a^{12} and in changed position, depending as the side or end is in an upright or turned to lie in a
 125 horizontal position. The hinged method of jointure is the one to be preferred, however. A flat-car thus formed possesses a platform or bearing-surface of relatively large area. The sides and ends close down in such a way
 130

as to protect the hinged parts, if such be employed, by which their convertibility is obtained. The exterior sill structure also helps protect these parts and offers a perfect bul-

5 work to shield the car all around its edge.

In Figs. 8 and 9 my improved frame structure and auxiliary parts are shown applied to the formation of a box-car, which formation is obtained by supporting a box-body A^9 upon the exterior side and end sills $A A^2 A^2$, the rest of the structure remaining the same, and it is especially to be noted that the box-body can thus be mounted without interfering in any way with the convertible features of the car just referred to, for the sides $a a$ and ends $a' a'$ may well be turned up, as shown in Fig. 9, especially if the box-car be used to carry coal or such like substance, as is sometimes done. As a matter of convenience it might be well to make the sides $a a$ in three parts, so that an intermediate portion might be turned down in order to provide suitable side-door openings, as is common with box-cars. The more practical way, however, is to turn down the sides and ends $a a a' a'$, as shown in Fig. 3, when a perfectly level floor is given the box-car and its normal structure is obtained. The box-body A^9 may be secured to the exterior sills in any suitable manner, as by the interposition of angle-pieces a^3 .

A car structure such as I have described is of the greatest utility. For example, in the building of new road-beds with its box-body the car can be used to carry provisions or materials requiring special protection. Then with its box-body removed and with the coal-car formation the car could be used to carry the fill of dirt or ballast and with its dumps or chutes extending well out from the tracks could place the same where most needed. Then in a very short time and with very little trouble the car could be transformed into an ordinary flat-car to carry rails and ties.

Of course the car would be equipped with the usual brakes and couplings and would be of the standard size used on railroads.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a car of the character specified, a frame having double sets of side and end sills, a roofed box construction attached to the outer set of sills and convertible sides and ends attached to the inner set of sills to form when folded downward a flat flooring for the car.

2. In a car of the character specified, a frame having a set of outer side and end sills, bars running transversely beneath and connecting said set of side sills, an inner set of side and end sills supported by said transverse bars and spaced from the exterior set of sills, and cross-bars connecting said interior set of sills.

3. In a car of the character specified, a frame having double sets of side and end sills, sides and ends for the carrying-body of the car se-

cured respectively to the interior set of side and end sills, and so that said sides and ends may be held vertically or have a horizontal position to lie over the bottom of the car, substantially as and for the purposes set forth.

4. In a car of the character specified, a frame having double sets of side and end sills spaced to lie apart from one another, and the interior set of which sills is made of less height than the exterior set of sills, sides and ends for the carrying-body of the car secured to said interior set of side and end sills, and means for securing the said sides and ends whereby they may be changed from a vertical to assume a horizontal position to lie flat over the bottom of the car and at the same time close the spacing between the double sets of sills, substantially as and for the purposes set forth.

5. In a car of the character specified, a frame having double sets of side and end sills spaced to lie apart from one another, and the interior of which set of sills extends to a lesser height than the exterior set of sills, sides $a a$, and ends $a' a'$ hinged respectively to the interior set of sills so that said sides and ends may be turned from a vertical to assume a horizontal position to lie in over the bottom of the car, and simultaneously to close in the space between the double sills whereby an even surfacing coextensive with the top surfacing of the outside set of sills is obtained, substantially as described.

6. In a car of the character specified, a frame having double sets of side and end sills, sides and ends for the car-body secured to the respective interior set of side and end sills, and so that they may be changed from a vertical position to assume a horizontal position turned in over the bottom of the car, and stakes pivoted to extend up from within the spacing between the sill-bars, whereby said stakes may be turned to assume a horizontal position between the same, substantially as described.

7. A car of the character specified having one or more chutes opening through the bottom and extending laterally to the side or sides of the car, and convertible sides and ends adapted when in one position to close in over to cover the entire bottom of said car forming a floor therefor and covering the entrance to said chutes and when in another position, turned up, are adapted to form the sides and ends of said car.

8. A car of the character specified having double sets of side sills, chutes opening through the bottom of the said car and extending laterally to the sides thereof, outwardly-opening doors to said chutes hinged to the exterior set of side sills, and sides hinged to the interior sets of sills adapted to close in over the bottom of the car closing the entrance of said chutes, substantially as described.

9. The car herein described, the same having an outer framework comprising sills and

cross-bars suspended from the sills, an inner
framework consisting of sills and cross-bars
mounted upon the cross - bars of the outer
framework, chutes and a permanent flooring
5 upon each side thereof, supported by the inner
framework, sides attached to the inner frame-
work to form when folded downward a flat

flooring for the same covering the chutes and
permanent flooring and a roofed box construc-
tion attached to the outer framework.

HOWARD S. WILSON.

Witnesses:

HENRY A. WELCH,

CLIFFORD K. ROBINSON.