Feb. 23, 1937. I. INGWARSSON 2,071,796

TIP WAGON

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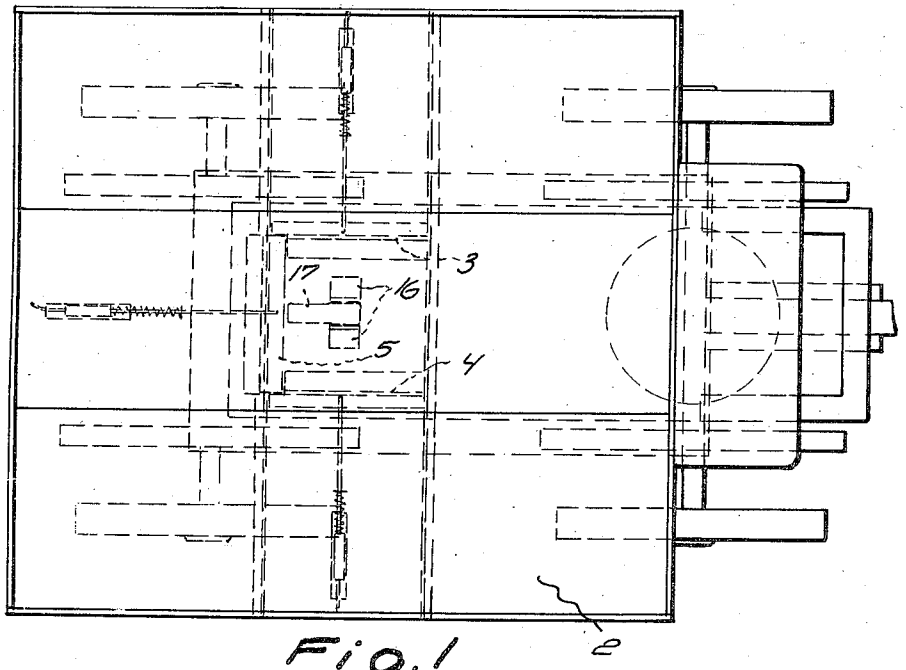


Fig. 1

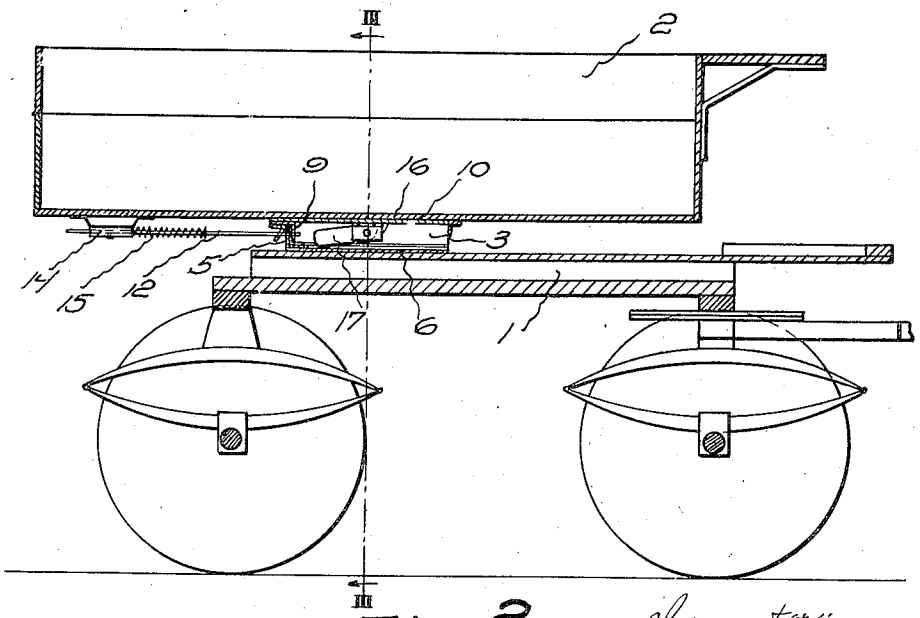


Fig. 2

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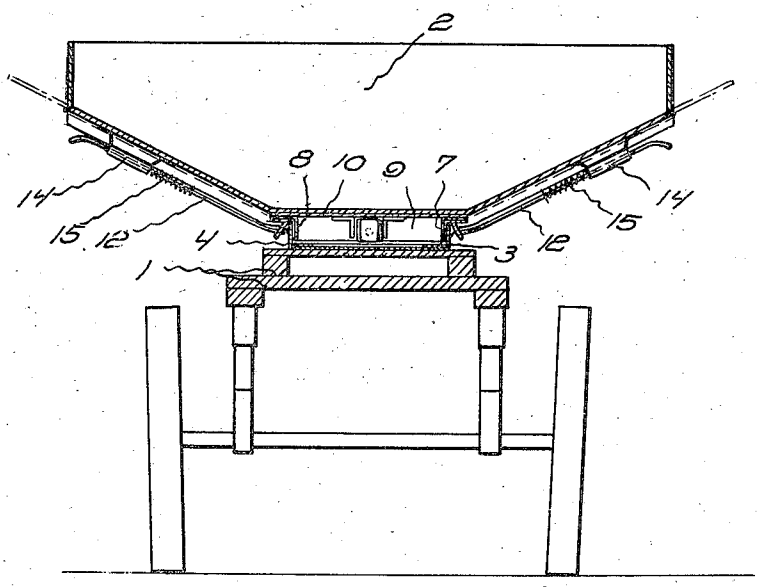


Fig. 3

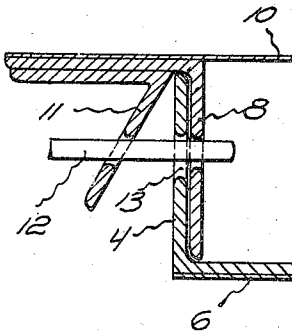


Fig. 4

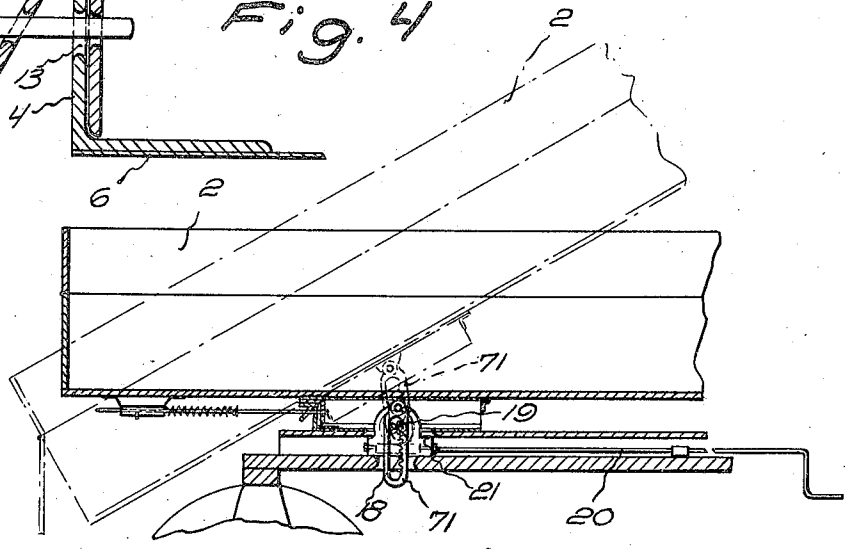


Fig. 5

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UNITED STATES PATENT OFFICE

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TIP-WAGON

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Application January 9, 1936, Serial No. 58,378
In Sweden January 19, 1935

5 Claims. (Cl. 298—18)

This invention relates to tip-wagons and has for its object to provide a simple and reliable construction whereby the body of the wagon easily can be tipped to either side and rearwards at will directly by hand or by simple means. The invention is applicable not only to carts and the like but also to motor and railway wagons.

A preferred embodiment of the invention is illustrated in the accompanying drawings in which:—

Fig. 1 is a plan view of a tip-wagon constructed in accordance with the invention. Fig. 2 is a sectional side view of the wagon. Fig. 3 is a vertical cross section substantially on the line III—III in Fig. 2. Fig. 4 is a detail section on a larger scale. Fig. 5 is a sectional side view of the wagon and illustrates a modification.

Referring to the drawings, 1 represents the undercarriage of the vehicle, and 2 the body thereof, which can be tipped at either side and rearwards. Secured to the undercarriage 1 there are two longitudinal section irons 3 and 4 and a transverse section iron 5 located behind the rear ends of the longitudinal irons 3 and 4. The said section irons 3, 4 and 5 all may consist of angle irons as shown, and they all have vertical webs having free upper edges. Preferably all the said angle irons 3, 4 and 5 are riveted or otherwise secured to a base plate 6 which in turn is screwed or fastened in any other suitable manner to the undercarriage 1 of the vehicle.

Secured to the under side of the body 2 there are two longitudinal section irons 7 and 8 and a transverse section iron 9 each having a depending vertical web, the depending webs of the two longitudinal irons 7 and 8 being located just inside of the respective vertical webs of the irons 3 and 4, and the depending web of the transverse iron 9 being located just in front of the vertical web of the iron 5. Preferably also the section irons 7, 8 and 9 are in the form of angle irons, and preferably they are riveted or otherwise secured to a base plate 10 which in turn is screwed or fastened in any other suitable manner to the under side of the body 2. Outside of the depending web of each of the longitudinal irons 7 and 8 and rearwardly of the depending web of the transverse iron 9 there are secured section irons, preferably angle irons 11 having depending webs forming with the depending web of the respective angle irons 7, 8 and 9 inverted channels for receiving the vertical webs of the respective angle irons 3, 4 and 5 on the undercarriage 1. Preferably the depending webs of the said angle irons 11 are inclined as shown.

As will be seen from the drawings the body 2 of the wagon rests on the upper free edges of the vertical webs of the section irons 3, 4 and 5, which webs are received in the inverted channels of wedge-shaped cross section, which are composed of the depending vertical webs of the angle irons 7, 8 and 9 and the inclined depending webs of the angle irons 11. Thus the body 2 has no rigid or permanent connection with the undercarriage of the vehicle and, therefore, is easily removable. For locking the body 2 to the undercarriage of the vehicle there is provided at each side and at the rear a releasable locking bolt 12 passing through holes in the depending webs on the irons forming the inverted channel and through a hole 13 in the vertical web received in the channel, as is most clearly shown in Fig. 4. The hole 13 is larger than the diameter of the locking bolt 12 and may have the form of a slot. The locking bolts 12 may be slidably mounted in brackets 14 on the body and actuated by springs 15 which tend to move and hold the locking bolts in locking position. Preferably the locking bolts are so arranged that they can be locked in retracted (released) position, for instance by slightly rotating the bolts after they have been retracted. Pivoted in a bracket 16 at the center of the plate 10 on the under side thereof there is a short supporting arm 17. In the modification shown in Fig. 5 this arm 71 is provided with a longitudinal slot, one edge of which is in the form of a rack 18 engaging a pinion 19 which is connected by means of a worm gear or the like to a crank shaft 20 or the like by means of which the pinion 19 can be rotated, the said worm gear or the like being housed in a housing 21 rigidly secured to the undercarriage of the vehicle.

When it is desired to tilt the body 2 rearwards the locking bolts 12 at the sides of the wagon are released, whereas the locking bolt 12 at the rear is left in locked position. Then the body can be tilted rearwards directly by hand by lifting the front end of the body (the embodiment of the invention shown in Figs. 1–3), or by rotating the pinion 19 by operating the crank shaft 20 to raise the arm 71 as shown in Fig. 5. In the embodiment shown in Figs. 1–3 the arm 17, when the body 2 is tilted, by its own weight turns on its pivot and takes a substantially vertical position in which it will then support the body 2 in the tilted position. When the body 2 is to be tilted back in normal position the arm 17 simply is swung away so that it no longer forms a support for the body 2. It will be seen that the body 2, when it is titilted rearwards, turns on the

upper edge of the vertical web of the angle iron 5. When the body 2 is to be tilted to one side, the locking bolts 12 at the other side and at the rear are released, and tilting is effected just in the same simple manner as just described, the body 2 in this instance turning on the upper edge of the vertical web of the respective side iron 3 or 4.

Of course I do not limit myself to the precise construction herein shown for the purpose of illustration only, since the construction can be varied and modified in several respects within the limits of the invention. For instance the inverted channels on the under side of the body 2 for receiving the upwardly projecting webs or flanges of the section irons on the undercarriage of the vehicle may consist of channel irons instead of being composed of angle iron as herein shown.

What I claim and desire to secure by Letters Patent is:—

1. A tip-wagon comprising conventional undercarriage and body, said undercarriage being provided with longitudinal section irons and a transverse section iron located at the rear ends of said longitudinal irons, each of said section irons having upwardly extending vertical webs, said body resting upon said vertical webs, said body being provided on the under surface with two longitudinal section irons and a transverse section iron located at the rear ends of said last mentioned longitudinal section irons, all of the section irons on the body having downwardly extending vertical webs, said body also having another set of longitudinal and transverse section irons with angularly depending webs disposed outside the other section irons of the body in such a relation that when the body is placed on the undercarriage the webs of the section irons on the undercarriage extend into the channel formed between the two sets of depending webs of the section irons on the under surface of the body, all of said section irons encompassing an area substantially smaller than that of the under surface of said body, said body being tiltable to either side or rearwardly, said body turning on the upper edge of the vertical web of the transverse section iron on the undercarriage when tilted rearwardly, and on the upper edge of the vertical web of the respective longitudinal section iron on the undercarriage when the body is tilted to either side.

2. A tip-wagon comprising conventional undercarriage and body, said undercarriage being provided with longitudinal section irons and a transverse section iron located at the rear ends of said longitudinal irons, each of said section irons having upwardly extending vertical webs, said body resting upon said vertical webs, said body being provided on the under surface with two longitudinal section irons and a transverse section iron located at the rear ends of said last mentioned longitudinal section irons, all of the section irons on the body having downwardly extending vertical webs, said body also having another set of longitudinal and transverse section irons with angularly depending webs disposed outside the other section irons of the body in such a relation that when the body is placed on the undercarriage the webs of the section irons on the undercarriage extend into the channel formed between the two sets of depending webs of the section irons on the undersurface of the body, all of said section irons encompassing an area substantially smaller than that of the under surface of said body, said body being titlable to either side or rearwardly, said body turning on the upper edge of the vertical web of the transverse section iron on the undercarriage when tilted rearwardly, and on the upper edge of the vertical web of the respective longitudinal section iron on the undercarriage when the body is tilted to either side, said anguarly disposed webs of the second set of section irons on the body acting as stops to the tilting movement of said body.

3. A tip-wagon comprising conventional undercarriage and body, said undercarriage having a base plate fastened thereto to which are fastened longitudinal section irons and a transverse section iron located at the rear ends of said longitudinal irons, each of said section irons having upwardly extending vertical webs, said body resting upon said vertical webs, said body being provided on the under surface with two longitudinal section irons and a transverse section iron located at the rear ends of said last mentioned longitudinal section irons, all of the section irons on the body having downwardly extending vertical webs, said body also having another set of longitudinal and transverse section irons with angularly depending webs disposed outside the other section irons of the body in such a relation that when the body is placed on the undercarriage the webs of the section irons on the undercarriage extend into the channel formed between the two sets of depending webs of the section irons on the under surface of the body, all of said section irons encompassing an area substantially smaller than that of the under surface of said body, said body being tiltable to either side or rearwardly, said body turning on the upper edge of the vertical web of the transverse section iron on the undercarriage when tilted rearwardly, and on the upper edge of the respective longitudinal section iron on the undercarriage when the body is tilted to either side.

4. A tip-wagon comprising conventional undercarriage and body, said undercarriage being provided with longitudinal section irons and a transverse section iron located at the rear ends of said longitudinal irons, each of said section irons having upwardly extending vertical webs, said body resting upon said vertical webs, said body being provided on the under surface with a base plate upon which are fastened two longitudinal section irons and a transverse section iron located at the rear ends of said last mentioned longitudinal section irons, all of the section irons on the body having downwardly extending vertical webs, said body also having another set of longitudinal and transverse section irons with angularly depending webs disposed outside the other section irons of the body in such a relation that when the body is placed on the undercarriage the webs of the section irons on the undercarriage extend into the channel formed between the two sets of depending webs of the section irons on the under surface of the body, all of said section irons encompassing an area substantially smaller than that of the under surface of said body, said body being tiltable to either side or rearwardly, said body turning on the upper edge of the vertical web of the transverse section iron on the undercarriage when tilted rearwardly, and on the upper edge of the vertical web of the respective longitudinal section iron on the undercarriage when the body is tilted to either side.

5. A tip-wagon comprising conventional undercarriage and body, said undercarriage being pro-

vided with longitudinal section irons and a transverse section iron located at the rear ends of said longitudinal irons, each of said section irons having upwardly extending vertical webs, said body resting upon said vertical webs, said body being provided on the under surface with two longitudinal section irons and a transverse section iron located at the rear ends of said last mentioned longitudinal section irons, all of the section irons on the body having downwardly extending vertical webs, said body also having another set of longitudinal and transverse section irons with angularly depending webs disposed outside the other section irons of the body in such a relation that when the body is placed on the undercarriage the webs of the section irons on the undercarriage extend into the channel formed between the two sets of depending webs of the section irons on the under surface of the body, all of said section irons encompassing an area substantially smaller than that of the under surface of said body, said body being tiltable to either side or rearwardly, said body turning on the upper edge of the vertical web of the transverse section iron on the undercarriage when tilted rearwardly, and on the upper edge of the vertical web of the respective longitudinal section iron on the undercarriage when the body is tilted to either side, said body having releasable locking bolts passing through holes in the angular depending webs and the vertical webs to lock the body in position on the undercarriage.

IVAR INGWARSSON.