

Nov. 7, 1933.

E. WIRZ

1,933,689

THREE-WAY DUMP TRUCK

Filed Sept. 27, 1930

2 Sheets-Sheet 1

Fig.1

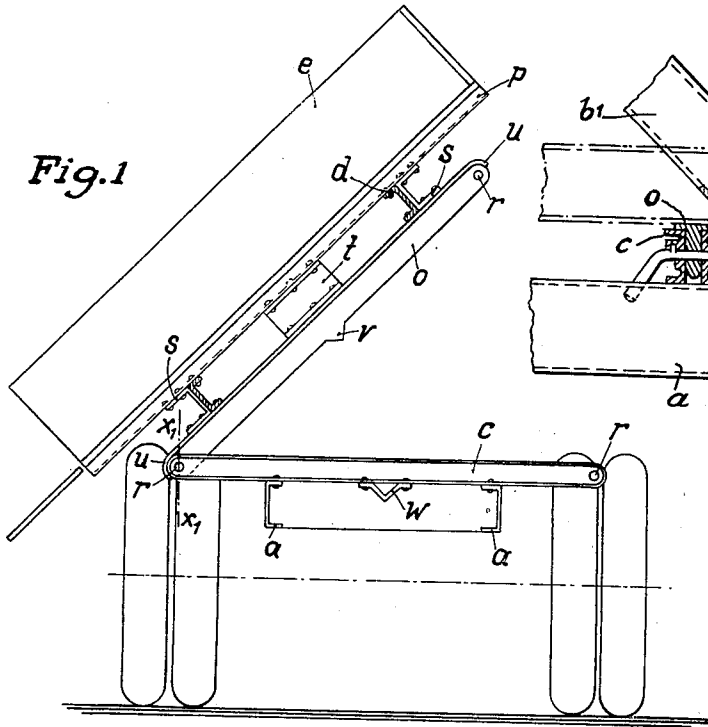


Fig.9.

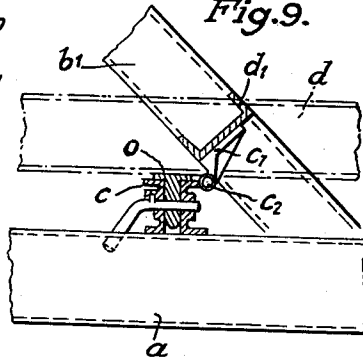


Fig.6.

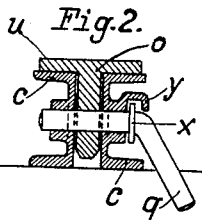
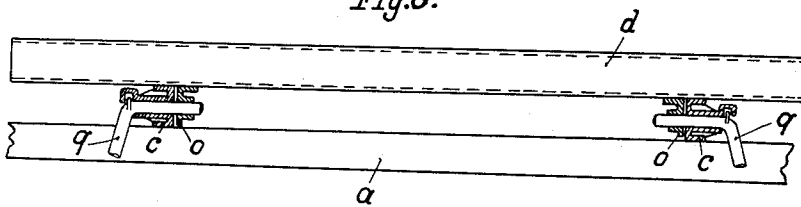
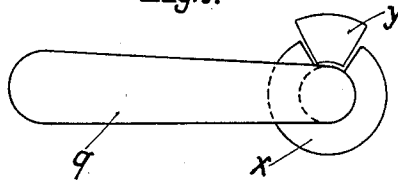


Fig.7.



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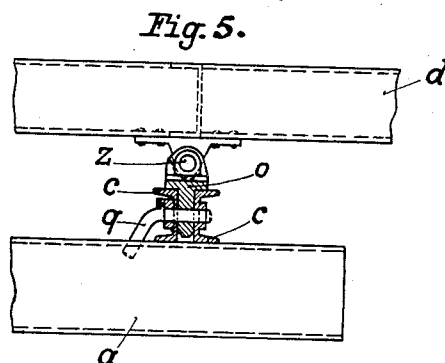
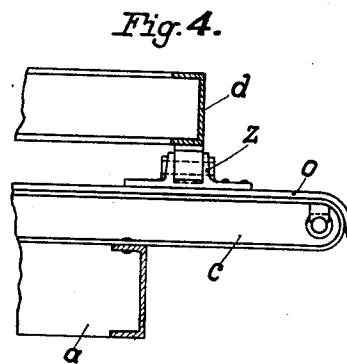
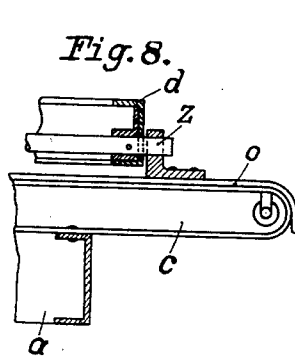
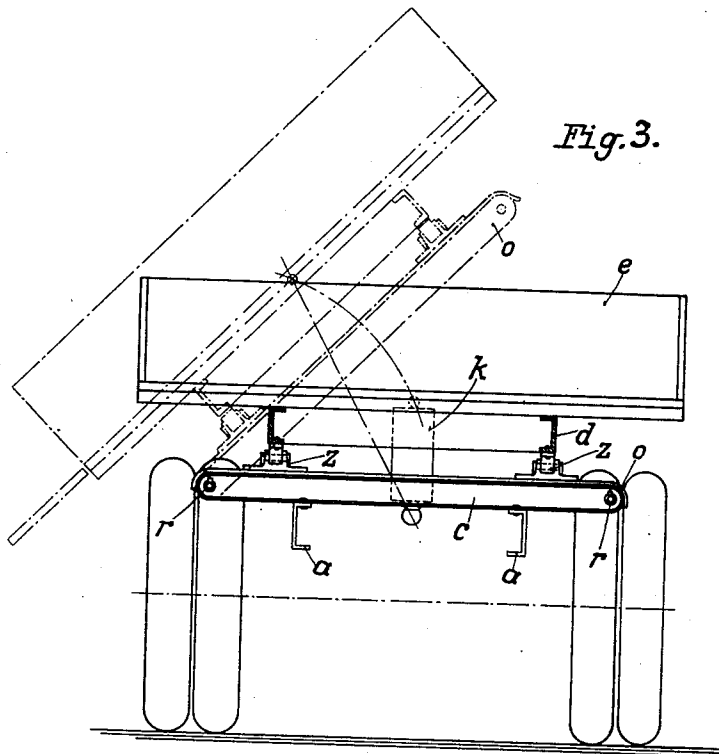
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

1,933,689

THREE-WAY DUMP TRUCK

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Application September 27, 1930, Serial No.
484,831, and in Germany November 19, 1929

1 Claim. (Cl. 298—18)

The rotatable mounting of a tippable box on the frame of lorries was hitherto constructed in a complicated manner. The tipping box rested on a front cross beam and on a rear rotary shaft, which were both mounted on the chassis and constructed at their outer ends as rotary bearing for the tipping in lateral direction. The tip frame had to be provided with four arms, which embraced the rotary bearing with a downwardly bent portion. These arms were of comparatively heavy weight and caused high working- and erecting-expenses. The whole mounting of the tipping box was complicated, expensive and too heavy.

These disadvantages are obviated in the construction hereinafter described, in which the four arms and two tip frame cross beams are replaced by two cross beams and the bearing points simplified.

Several embodiments of the invention are illustrated by way of example in the accompanying drawings in which:

Fig. 1 shows the improved construction of a tipping device, which can be tipped towards two sides.

Fig. 2 is a section on line x^1-x^1 of Fig. 3.

Fig. 3 shows the improved construction on a tipping device adapted to tip towards three sides.

Figs. 4, 5 and 8 are details of Fig. 3.

Fig. 6 is a modified form of construction of the connection of the tippable box with the chassis. Fig. 7 is an insertable latch.

Fig. 9 shows a modified form of construction of the tipping bearing giving the lowest constructional height.

The present invention causes a very considerable simplification and cheapening of the rotary bearing and tip frame construction. The improvement, for a tipping device towards two sides will be first described with reference to Figs. 1 and 6.

a designates the chassis, and c are cross girders, fastened, one on the front and the other on the rear of the chassis a . These transverse girders consist in the example shown in Figs. 1 and 2 of two irons c , which form at each end a part of the tip rotary bearing. Transverse girders o are fastened one on the front and the other on the rear of the tip frame d , said girders in tipping position coming to lie between (Fig. 2) or beside (Fig. 3) the transverse girders c , so that they are situated at the same height as the transverse girders c of the chassis.

Fig. 4 shows an arrangement, in which the transverse girder o , fastened to the tip frame,

lies in the space between the transverse girders c , fastened on the chassis a . This arrangement presents the special advantage, that the lower faces of the horizontal arms of the transverse girder o bear on the upper surfaces of the horizontal arms of the girder c whereby the rotary bearing is protected against wear. Owing to the fact, that the vertical arm of the transverse girder o is situated on its entire length in the space between the two girders c , a particularly rigid bearing of the box, free from vibrations, is obtained during travelling. p is a traverse, fastened on the tip frame d , such as is usual for the bridge e .

The U-shaped parts s and the U-shaped connecting part t form a connection between the girder o , fastened on the tip frame d and the bridge traverse p . Owing to the girders o the usually heavy transverse girders of the tip frame d are rendered unnecessary. The rigidity of the transverse connection of the tip frame is considerably increased by the connections s and t with the bridge traverse p .

The upper T-arms u are on the ends of the girder o bent over so that they embrace the supporting bar c in non tipping position for the purpose of centering the holes r , which are arranged to register both in the girder c as also in the girder o .

Insertion bolts q are inserted in these holes r when the box d rests on the chassis. For tipping the bridge, the bolts q are removed on that side away from which it is desired to tip. Instead of the bend u a guide v (Fig. 1) may be provided in the girder o with a corresponding guide part w in the supporting bar c .

Fig. 6 shows a form of construction, in which only one transverse girder c is provided on each side of the chassis a , so that the transverse girder o of the tip frame lies at the same height at the side of the transverse girder c .

There is a danger of the bolts q turning also when the box is being tipped, and that the nose x thereon slips out of the locking nose y , arranged on one of the transverse girders c . In order to avoid this, the nose x of the bolt q is, according to Fig. 9, extended by $\frac{3}{4}$ around the bolt q . The nose y fits exactly in the gap of the nose x , so that the bolt q can be pulled out only in the single position, when the gap of the nose x registers with the nose y .

Figs. 3, 4 and 5 show a form of construction of the invention for tippers adapted to tip towards three sides. The arrangement is the same as that of the above described tipper adapted to tip

towards two sides, with the exception that between the transverse girder *o* and the tip frame *d* two rotary bearings *z* are arranged on the girder *o*, which serve for the rearward tipping. Owing to these small rotary bearings *z* the continuous rotary shaft hitherto necessary for tipping towards the rear is rendered unnecessary. In the case of rearward tipping the two insertion bolts *q* are inserted into the holes of the rear bearing girder *c* (Fig. 3) so that neither at the tipping to the side nor at the tipping to the rear any manipulations are necessary on the rotary journals *z*. The rotary journals *z* may also be arranged at the side of the tip frame longitudinal girders *d*, whereby the constructional height is reduced (Fig. 8).

A further reduction of the constructional height may be achieved, if the tip bearing for the tipping towards three sides is constructed as shown in Fig. 9. The rotary bearing *c*¹, *c*² for the rearward tipping is fastened laterally on the T-girders *o*, so that the tip frame *d* rests directly on the T-girders *o* in non tipped position. The T-girder *o* may form a part of the hinge *c*² as

shown. The other hinge part *c*¹ may for example be fastened on a transverse girder *d*¹ of the tip frame *d*. The tipped position of the tip frame *d* is designated by *b*¹. This form of construction presents the advantage of the lowest constructional height. The hinge *c*¹, *c*² is preferably constructed like a piano band hinge, and the diameter of the pin and of the eye can thereby be kept very small, and the pivot point of the hinge comes to lie very near the T-girder *o*.

I claim:—

A rotary bearing for the tip box of tippers adapted to tip on two or three sides, comprising in combination with the chassis including transverse girders, a tip frame, a transverse girder on said tip frame, a hole in each girder adjacent each end thereof, bent over portions on the ends of said tip frame transverse girder, and rounded ends on each of said chassis transverse girders adapted to engage with said bent over portions of said transverse girder so as to bring the holes in said frame and chassis girders into register.

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