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DISCHARGING DEVICE FOR VEHICLES

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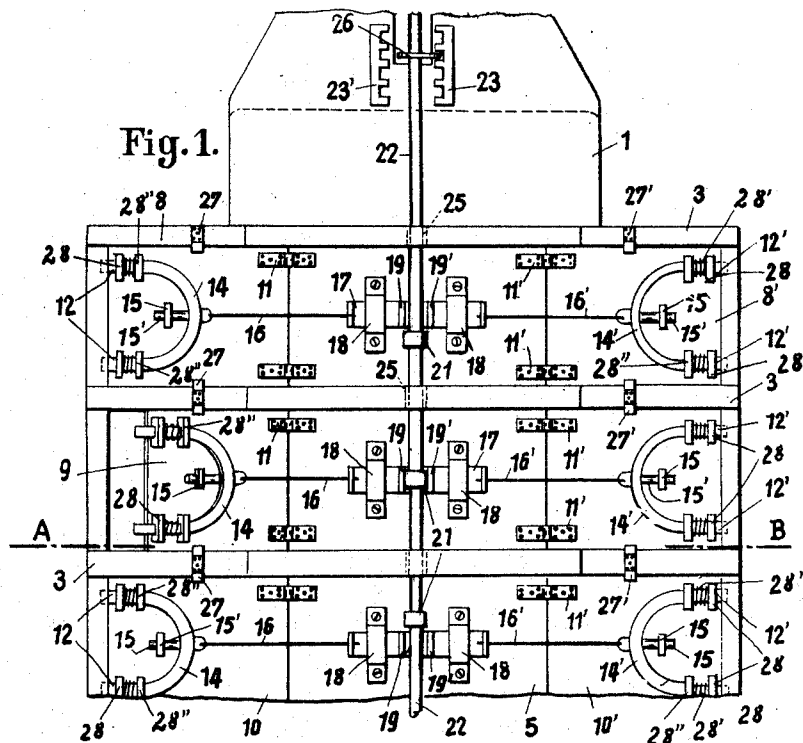


Fig. 2.

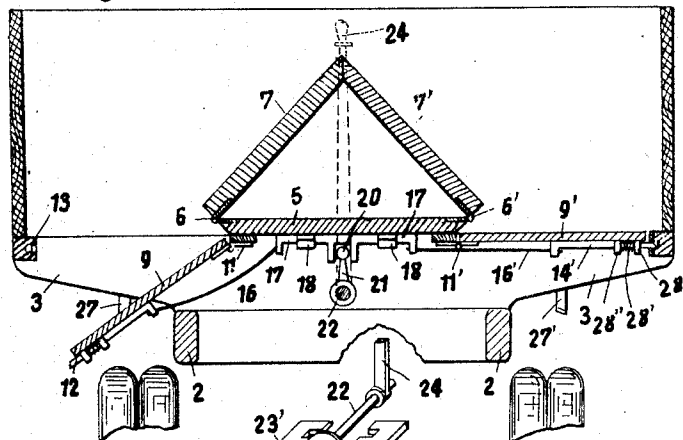
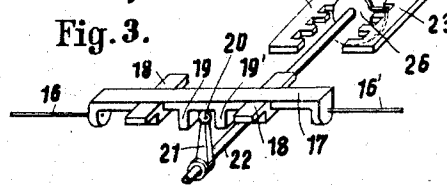


Fig. 3.



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UNITED STATES PATENT OFFICE.

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DISCHARGING DEVICE FOR VEHICLES.

Application filed December 30, 1924. Serial No. 758,933.

To all whom it may concern:

Be it known that I, CONRAD MÖLLER, a citizen of the German Republic, residing at 100 Kaiserdamm, Berlin-Charlottenburg, Germany, have invented new and useful Improvements in Discharging Devices for Vehicles (for which I have filed an application in Germany April 27, 1923, No. 81,266), of which the following is a specification.

My invention relates to vehicles, railway cars, motor freight cars, and the like. It is known to longitudinally divide the bottom of cars of the kind in question so as to turn it into two downwardly opening flaps. My invention consists in sub-dividing transversely said longitudinal flaps, each of these so-to-say secondary flaps being adapted to be opened and closed independently of the other secondary flaps. I am also aware of freight cars, the loading space of which is divided into separate compartments by means of transverse partition walls, each of these compartments forming in its lower part an inclined gutter, the end of which can be opened and closed by means of a slide, sliding door, or the like. This constructional form of railway etc. car-discharging device can be used, however, only in connection with specially devised cars, not with ordinary ones, in that said other cars require a specially devised substructure. In contradistinction thereto, my improved construction can be used in connection with existing cars and can be applied to them subsequently by way of a comparatively simple re-construction of the bottom, as will appear from what is stated in the following part of this specification. As the secondary flaps can be operated singly they may be operated one after the other so that emptying a car provided with the new discharging device necessitates only little power, and it is also possible to discharge the respective material into a comparatively narrow shaft or into casks or bags or the like.

Another advantage presented by the invention consists in the feature that a car provided with a bottom subdivided as stated in the preceding paragraph can be used also for piece-goods and sundries which is impossible with the specially devised cars for chute-goods.

While I have spoken hitherto only of flaps which, as such, require hinges or equivalent fastening means, I wish it, however, to be understood that instead of flaps horizontally

movable slides may be employed for which guideways are provided in the bottom or bottom-frame. Flaps are, however, to be preferred in that they can be opened automatically by the weight or pressure of the material lying upon them. Releasing the flaps, or withdrawing the slides can be effected by a longitudinally disposed shaft and by separate transmission means for the individual flaps etc., the arrangement being preferably such that the individual flaps are released consecutively. In the case of flaps instead of slides less power is required for opening the hatchways as it is not necessary to overcome any friction between the material and the bottom-portion below it.

My invention is illustrated diagrammatically by way of example in the accompanying drawing in which Figure 1 is a bottom-view of a part of a motor freight-car body; Figure 2 is a cross-section in line A—B of Figure 1; and Figure 3 is a perspective illustration of the actuating device for the flaps which form parts of the car body bottom, this figure being drawn to an enlarged scale.

Referring to Figure 1, 1 denotes the underframe of the motor freight-car, and 2 (Fig. 2) are longitudinal girders forming parts of said underframe; 3 are transverse girders supported by said longitudinal ones and carrying the body 4. The bottom of this latter consists of a longitudinal middle plank 5 and of movable parts 7, 7' which are attached to the plank 5 by hinges 6, 6'. These bottom parts 7, 7' which are shown in Figure 2 in raised position in which the parts of one side abut at their upper rims or edges with the corresponding rims or edges of the bottom-part of the other side can be turned down into the plane of the plank 5, all these parts 5, 7, 7' together forming then a continuous bottom, or car bottom or body bottom proper, as in any ordinary freight car upon which piece goods and sundries can be placed. In raised position, however, as in Fig. 2, the bottom parts 7, 7' form inclines, or inclined bottoms or bottom parts (may be in connection with separate compartments), by which the goods or material lying thereon is conducted to the hatchways when these have been opened.

There is a plurality of hatchways on one side of the car and an equal plurality thereof on the other side, and for each hatchway a flap 8, 9, 10 . . . 8', 9', 10', . . . is provided which is hinged to the plank 5 by a hinge 11

or 11'. These flaps are retained in their proper horizontal position by bolts 12 and 12' and are opened automatically by the pressure or weight of the goods lying upon them when the respective bolts are withdrawn which is effected mechanically, as described hereinafter.

The bolts are arranged in pairs, the two bolts forming a pair being connected with one another by a semicircular member 14 or 14' provided with a guide-bolt 15 guided itself in a lug 15 affixed to the respective flap. The bolts engage, in the normal position of the flaps, scutcheons 13 (Fig. 2) provided at the lower rim or edge of the longitudinal walls of the car-body. Each double-bolt is guided by projections 28'' secured to the bottom face of the respective flap, and is provided with collars 28 located between said guiding projections and the side wall of the car body; springs 28' provided upon the bolts and located between the said projections and said collars tend constantly to keep the bolts in engagement with said scutcheons.

Each flap of the right hand side of the car is connected with the opposite flap of the left hand side by ropes 16, 16' and by a common connecting member or transversely deposited slide 17 guided by guide-members 18 affixed to the bottom face of the plank 5. Each slide 17 can be shifted to the right and to the left so as to withdraw in the first case the appertaining left hand pair of bolts, in the other case the appertaining right hand pair of bolts by the intermediary of the appertaining rope. The middle part of each slide 17 is provided with two downwardly directed projections 19 and 19', and the gap between each of these pairs of projections is engaged by the head 20 of a lever or arm 21 affixed to a horizontal shaft 22 extending longitudinally below the plank 5 and carried by suitably provided bearings 25. One lever or arm 21 serves for actuating two oppositely located flaps 8 and 8', 9 and 9', and so on, that is to say, first one thereof and then the other, according to the direction of turning of the shaft 22.

The shaft 22 can be shifted longitudinally in its bearings 25 by means of a grip 24 (Figs. 1 and 3) located preferably near a seat of the car, especially the driver's seat, and on the shaft is provided near said grip a semicircular disk 26 which cooperates with the notches of two rack-like members 23 and 23' affixed to the underframe 1. That disk can be caused to enter any one of said notches by shifting the shaft 22, as well as by turning it. The levers or arms 21 are arranged upon the shaft 22 in such distances relatively to one another that always one of them, and only one, engages two lugs 19, 19' so that only two flaps are operated by turning the shaft at the time being, first one flap

of the respective pair of flaps (one on the right side of the car, the other on the left side thereof), then the other.

27 and 27' are abutment members extending downwardly from the transverse girders 3 and retaining the flaps in open position, that is to say, said members form abutments for the flaps when these have been released and swing downwards, the abutment members preventing the flaps from hanging down vertically.

The manner of operation of the device is as follows:

If the bottom parts 7 and 7' are in horizontal position the car is ready to carry piece goods and sundries. If a goods or material shall be transported, the bottom parts or main-flaps are raised and placed against one another, as in Fig. 2, care is taken that all flaps 8, 8', 9, 9', and so on, are closed, and the goods or material is introduced into the compartments of the car, filling up the spaces between the side walls of the car body and the oblique bottom members 7, 7'. When the car has arrived at the place of destination, the flaps 8, 8' etc. are opened successively, first the first on one side, say the right hand side, then the first flap on the left hand side; then the second flap on the right hand side, thereafter the second flap on the left hand side, and so on, until all flaps have been opened and the car has been emptied completely. The goods leaving the car is guided within the body by the oblique bottom members 7 or 7' and below it by the respective flap, as will be clear without a more detailed explanation.

Releasing the individual flaps may be effected by means of the releasing device described and shown (Figs. 1 and 3) or manually, in which latter case any desired flap may be opened without the observation of any distinct succession. At any rate, the goods leave the car not in the entire length of the body, but only a part of the length, corresponding to the breadth of each flap, in consequence whereof it is rendered possible to cause the respective material to fall directly into casks or bags or other comparatively small containers.

I claim:

1. A discharging device for vehicles, comprising, in combination with the car bottom: a plurality of movable closing members for hatchways provided in said bottom along both sides of the car body, and separately releasable means for retaining said members in closed position; a longitudinal shaft located below the car-bottom and adapted to be turned in either direction, as well as to be shifted longitudinally; arms affixed to said shaft, transversely disposed slides attached to the car bottom between said closing members and being engaged singly by said arms; and means connecting

said slides with the separately releasable retaining means of the individual hatchway closing members.

2. A discharging device for vehicles, comprising, in combination with the car bottom; a plurality of movable closing members for hatchways provided in said bottom along both sides of the car body, and separately releasable means for retaining said members in closed position; a longitudinal shaft located below the car bottom and adapted to be turned in either direction, as well as to be shifted longitudinally; arms affixed to said shaft, transversely disposed slides attached to the car bottom between said closing members and being engaged singly by said arms; and ropes connecting each slide on both sides with two oppositely located hatchway closing members.

3. A discharging device for vehicles, comprising, in combination with the car bottom, a plurality of movable closing members for hatchways provided in said bottom along

both sides of the car body, and separately releasable means for retaining said members in closed position; a longitudinal shaft located below the car bottom and adapted to be turned in either direction, as well as to be shifted longitudinally; arms affixed to said shaft, transversely disposed slides attached also to the car bottom between said closing members and being engaged singly by said arms; means connecting said slides with the releasable means on the separately releasable retaining means of the individual hatchway closing members; two oppositely located notched members located at a free portion of said shaft; and a member secured to the shaft and adapted to engage any of the notches corresponding to the position of the shaft, as well as to the direction in which it is turned.

In testimony whereof I have signed my name to this specification.

CONRAD MÖLLER.