Oct. 6, 1931. J. COUTIN 1,826,460

CLEANING DEVICE FOR TRUCKS

Filed April 9, 1928 4 Sheets-Sheet 1

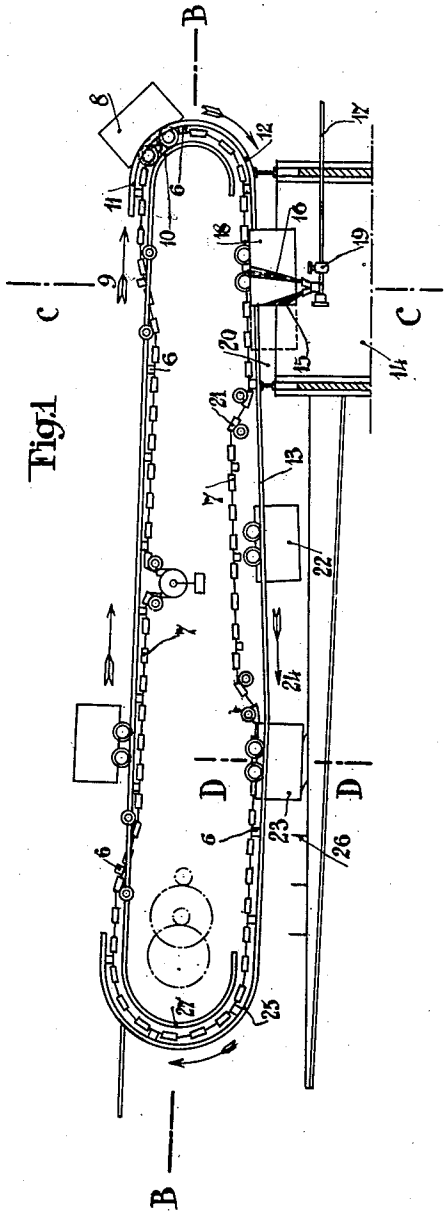


Fig.1

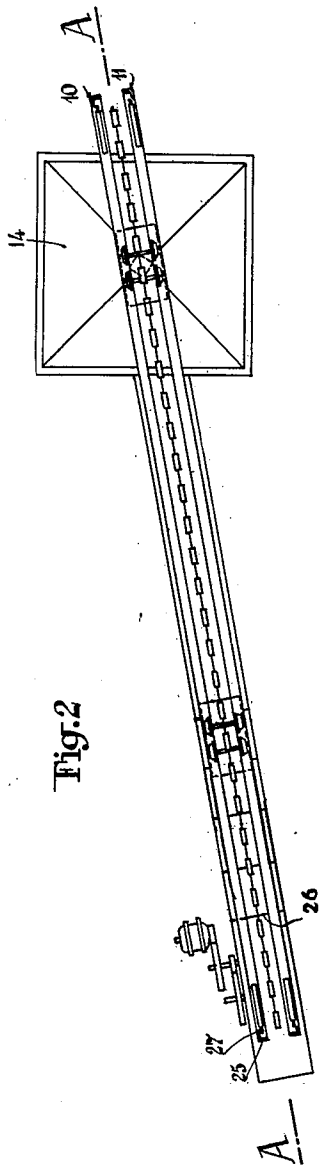


Fig.2

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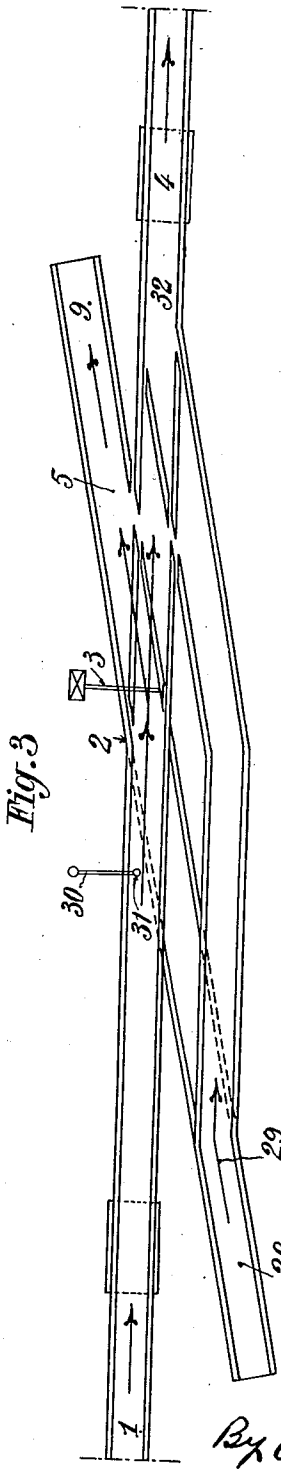


Fig. 3

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Fig. 4

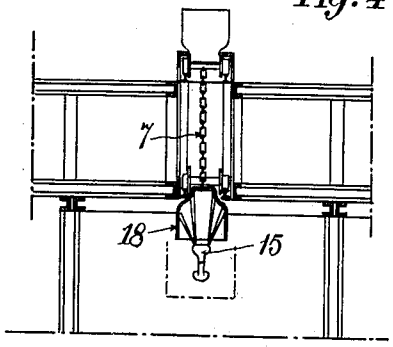
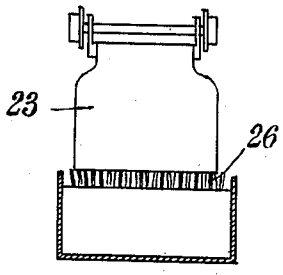


Fig. 5



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Fig.6

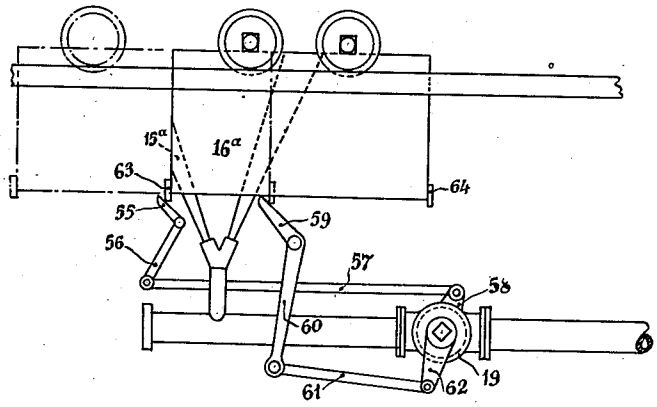
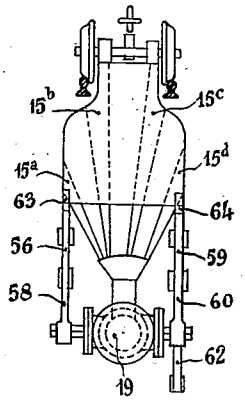


Fig.7.



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UNITED STATES PATENT OFFICE

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CLEANING DEVICE FOR TRUCKS

Application filed April 9, 1928, Serial No. 268,673, and in France April 8, 1927.

The present invention relates to cleaning apparatus for trucks, and has for its object to provide an automatic and continuous cleaning device whereby the trucks are thoroughly cleaned with streams of water and drained. To this end the invention provides an apparatus comprising a track forming a loop in a vertical plane, so that the trucks travelling on said track are inverted and then returned to their original positions. In their inverted positions the trucks are subjected to the action of streams of water which are automatically controlled by the travel of the trucks. Other objects and advantages of the invention will become apparent hereinafter.

The appended drawings show by way of example an embodiment of the invention.

Fig. 1 is a sectional view of the apparatus on the line A—A of Fig. 2.

Fig. 2 is a section on the line B—B of Fig 1.

Fig. 3 is a plan view of the tracks employed with the apparatus.

Fig. 4 is a section on the line C—C of Fig. 1.

Fig. 5 is a section on the line D—D of Fig. 1.

Figs. 6 and 7 illustrate mechanism by means of which the water supply for cleaning the trucks is controlled.

The empty trucks, which have been tipped and proceed to the place of housing, enter upon the track 1. A switch 2, operated by a man by means of the lever 3, allows the trucks to continue upon the track 4 in the direction of the housing place, or if the trucks are soiled, they may be sent into the cleaning apparatus. In this case, they are switched on the track 5. The slope of this track is sufficient to allow the trucks to move by gravity until their front axles make contact with the one of the tappets 6 mounted on the endless driving chain 7.

Considering for instance one of the trucks 8, it is observed that, by reason of the slope, it will move forward upon the track 5 in the direction of the arrow 9, and its front axle will be constantly in contact with the tappet 6. The truck will thus travel upon the part 10 of the track in which the rails are curved in such manner as to form a semi-circle in the vertical plane. From the commencement of this semi-circle, a guard rail 11, consisting of an angle iron bar, is provided to retain the wheels and to prevent the truck from overturning. The chain 7 describes a semi-circle of the same center as the rail and the guard rail, and for this purpose it may be mounted upon a pulley.

When the truck, whose speed is limited by the speed of the tappet 6 of the chain 7, attains the lower part of the semi-circle formed by the rail and the guard rail, it will bear upon this latter, which has a sufficient slope on the length 12—13 in order that the truck will continue to travel alone while making contact with the tappet which precedes it. It will thus enter the cleaning chamber 14, which contains various water nozzles placed in two groups 15 and 16.

The said nozzles are supplied by a pipe 17, in which the water is delivered by a pump at a pressure of several kilograms per square centimeter. The water streams delivered from the nozzles 15 and 16 are directed in two planes inclined from the vertical, the plane of the nozzles 15 having the direction of travel of the truck, and the plane of the nozzles 16 having the opposite direction.

In each of these planes, the required number of nozzles to send a stream of water into each of the inner corners of the bottom of the truck, is provided, as shown in Fig. 4. When the truck attains the position 18 in which the water streams 15 make contact with its front wall, a lever is operated by the motion of the truck body, and it opens the water cock 19 of the nozzles.

As shown in Figs. 6 and 7, cock 19 is

opened by means of the connections formed by lever 55, 56, link 57 and arm 58, when the lever arm 55 is engaged by a projection 63 carried by the truck, and all parts of the interior of the truck is then cleaned by the streams of water 15^a, 15^b, 15^c and 15^d. When the projection 64 on the truck engages lever arm 59, cock 19 is closed by means of the connections 60, 61 and 62.

In this manner the said water streams 15 will first clean the vertical front internal wall of the truck, and then the corner formed by the front wall and bottom, and finally the bottom of the truck. The water is supplied until the truck has attained the position 20 shown in the dot-and-dash lines. At this time, the truck acts upon a suitable lever and thus closes the cock 19, which is closed after the water streams have cleaned the bottom of the truck, as well as the rear inner corners formed by the bottom and side plates, and the vertical rear internal wall.

The water which served to clean the truck, as well as the solid bodies, are conveyed into an apparatus consisting of hoppers and settling vessels whereby the solid bodies will be separated.

After being thus cleaned, the truck will continue to travel forward by gravity, in contact with the said guard rail. At the point 21, the chain leaves the truck, and it rolls by gravity as far as the point 22, at which it can be stopped in order to have the wheels lubricated.

When the truck has been lubricated, the men occupied with this work will push the truck to the point 23. From 22 to 23, the track has a slight slope in the direction of the arrow 24. From the point 23, the track slightly rises, and the truck again co-operates with one of the tappets 6 mounted on the chain 7.

From the point 23 to the entrance of the curve 25 made by the guard rail in the vertical plane, several wipers 26 are provided consisting of rubber plates which rub against the bottom part of the truck. The water has had the time to drain within the inside of the truck from the cleaning point to the point 23, and the water which still remains will collect along the edge in the form of drops which are removed by the wipers 26.

In this manner the truck will be entirely freed from water when it travels on the curve 25. From the start of this curve, the wheels of the truck are situated between the rail 27 and the said guard rail, and the truck is raised along the curve by the chain 7 and is thus brought to the upper part of the plant upon the track 28. This track slopes in the direction of the arrow 29, and this slope is sufficient to allow the truck to move by gravity in order to attain the track 4.

The man occupied with the lever 3 is enabled, by means of the switch 31 operated by the lever 30, to close the track to the trucks which do not need to be cleaned and which may thus travel directly upon the track 4.

Water at a high temperature might be supplied to the nozzles 15 and 16, for instance at 80° C., so that the trucks would be dried by evaporation as well as by draining. For this purpose it would be necessary to provide a water heating arrangement behind the pump supplying the piping 17. The said pump might be also replaced by an ejector in which the water is drawn forward by live steam.

What I claim is:

1. An automatic cleaning device for trucks comprising a track forming a loop in a vertical plane, an endless chain located in a vertical plane adjacent said track and provided with tappets adapted to engage the trucks, said track comprising an upper straight portion inclined slightly in the direction of travel of the trucks, a lower straight portion and curved connecting portions, and means for subjecting the interior of the trucks to the action of streams of water under pressure while the trucks are travelling in inverted positions over a portion of the lower part of said track.

2. An automatic cleaning device for trucks, comprising a track forming a loop in a vertical plane, an endless chain located in a vertical plane adjacent said track and provided with tappets adapted to engage said trucks, and means for subjecting the trucks while in inverted positions to the action of two groups of streams of water respectively situated in planes which are inclined to the vertical, one group being inclined in the direction of movement of the truck and the other group in the opposite direction, said means being automatically controlled by the passage of the trucks.

3. An automatic cleaning device for trucks comprising a track forming a loop in a vertical plane, an endless chain located in a vertical plane adjacent said track and provided with tappets adapted to engage said trucks, and means for subjecting the trucks while in inverted positions to the action of two groups of streams of water respectively situated in planes inclined to the vertical, one group being inclined in the direction of movement of the trucks and the other group being inclined in the opposite direction, and a pair of levers controlling said means, said levers being adapted to be engaged successively by the truck in the travel of the latter.

4. An automatic cleaning device for trucks, comprising a track forming a loop in a vertical plane, an endless chain located in a vertical plane adjacent said track and provided with tappets adapted to engage the trucks, means for subjecting the trucks while in inverted positions to the action of two groups of streams of water respectively sit-

uated in planes inclined to the vertical, one group being inclined in the direction of movement of the trucks and the other group being inclined in the opposite direction, a pair of levers controlling said means, said levers being adapted to be engaged successively by the trucks in the travel of the latter, and wipers located beneath the lower portion of the track adapted to dry the trucks.

In testimony whereof I hereunto affix my signature.

JEAN COUTIN.