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B. STORSAND

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ARRANGEMENT FOR THE SAFETY GROUNDING OF VEHICLES WITH ROTATING MASS DRIVE

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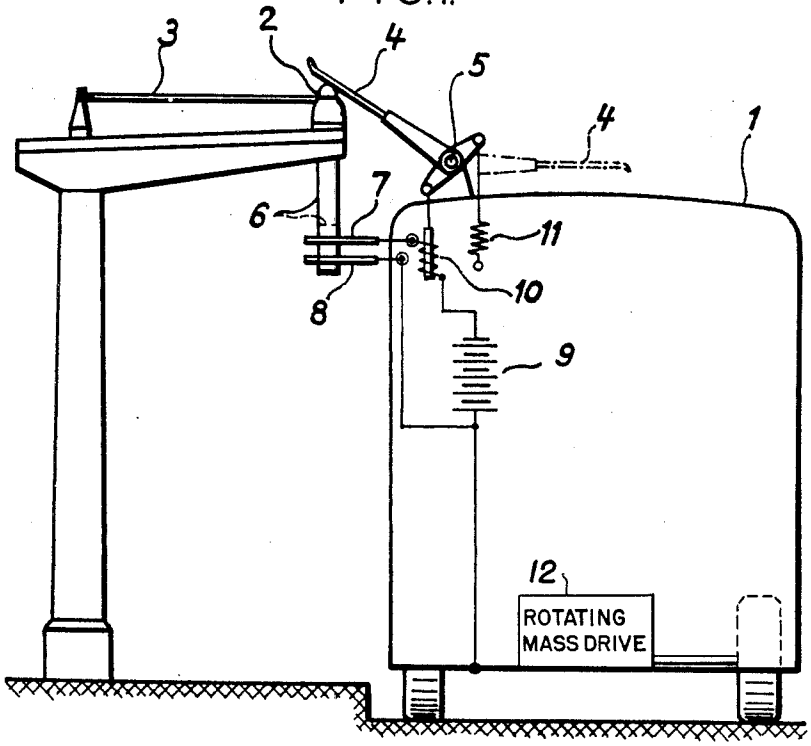
FIG.1.



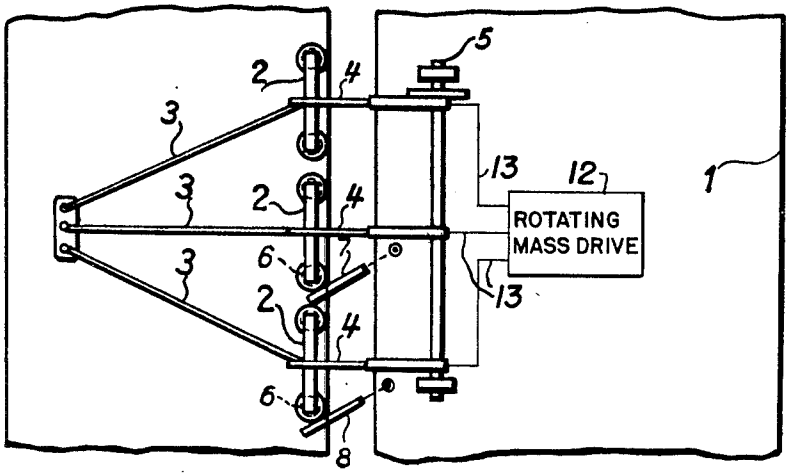


FIG.2.

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UNITED STATES PATENT OFFICE

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ARRANGEMENT FOR THE SAFETY GROUNDING OF VEHICLES WITH ROTATING MASS DRIVE

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2 Claims. (Cl. 180—82)

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In vehicles driven by an amount of energy stored in a rotating mass and in which the rotating mass is revolved rapidly at the stopping points by the supply of electric energy from an electromotor it is important that the vehicle be grounded during the loading process so that no accidents may occur in the case of insulation defects. This precaution is important where the loading energy is supplied by a three-phase current line which has either a grounded zero point or unequal phase isolations. Such a device is also necessary in direct current lines with a grounded pole or a grounded neutral wire.

In the present invention a ground contact with at least two poles is provided for, across which flows after the grounding is completed a low tension controlling current which actuates the principal contacts. The grounding contact may have between the poles a nondangerous controlling voltage (e. g. 12 v.). The controlling current may actuate directly the principal contacts or a locking arrangement which releases the principal contacts.

In the attached drawing an example of embodiment of the present invention is shown for a street vehicle in lateral view (Fig. 1) and in top view (Fig. 2).

1 represents the vehicle, 2 are three contacts rigidly arranged next to each other and connected to the line by means of the rods 3. 4 are the three movable principal contacts connected to each other mechanically on the vehicle, which principal contacts may be made to connect with the contacts 2 by means of rotation about the axle 5. 6 is the stationary ground contact. 7 and 8 are the two poles of the movably arranged ground contact on the vehicle. 9 is an auxiliary battery, one pole of which is rigidly connected to the mass of the vehicle. 10 is an electromagnet for actuating the principal contacts 4, which electromagnet is excited by way of the grounding contact. 11 is a draw spring for the contacts 4. As soon as the two contacts 7 and 8 touch the grounding contact 6 the magnet is excited and then brings the principal contacts 4 into the closing position. In such position the rotating mass drive 12 is energized by the power line through leads 13. When the grounding is interrupted the principal contacts 4 are opened by the spring 11.

Having thus described my invention, I claim:

1. A safety grounding mechanism for a vehicle with rotating mass drive at a stopping point, said safety grounding mechanism comprising the combination of a first fixed contact on a power line at said point, a movable contact carried by the vehicle, a fixed ground contact at said point, an electromagnet carried by the vehicle having

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means to actuate said movable contact, the vehicle carrying auxiliary means and circuit to energize said magnet, the vehicle carrying a device for grounding said magnet energizing means, said device touching said ground contact to connect the vehicle to ground and by completing the circuit including said electromagnet and energizing means to energize said circuit and magnet and cause the magnet to actuate said movable contact to touch said first fixed contact, and said vehicle carrying means to draw said movable contact away from said first fixed contact when said magnet is deenergized.

2. In an automatic safety grounding mechanism for vehicles provided with a rotating mass drive, in which the rotating mass is revolved rapidly at stopping points by energy derived from a stationary current supply line; the combination of a plurality of stationary contacts rigidly arranged next to one another and connected to the current supply line; a plurality of movable principal contacts connected to each other mechanically on the vehicle and adapted when rotated about a common axis to connect with corresponding ones of said fixed contacts; stationary ground contact means; a pair of poles mounted on the vehicle and adapted to engage said ground contact means; a control circuit including an electromagnet, a source of low tension current and said poles; which control circuit is completed, energizing said electromagnet, when said poles engage said stationary ground contact means; means including a spring normally holding said principal contacts away from said fixed contacts; and means mechanically connecting an armature of said electromagnet to said plurality of principal contacts so that when the electromagnet is energized as a result of said poles touching the ground contact, the force of said spring is overcome thereby and the principal contacts are swung into engagement with said stationary contacts, automatically grounding the vehicle and simultaneously connecting the rotating mass drive to the current supply line.

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