

[54] **COMPACTING MACHINE WITH MOVABLE BALLAST**

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212/49; 280/405 R

[56] **References Cited**

### UNITED STATES PATENTS

2,555,792 6/1951 Farr ..... 212/49  
3,291,014 12/1966 Paramythioti..... 404/122

3,559,545 2/1971 Caron ..... 404/130 X  
3,636,835 1/1972 Reisser..... 404/130  
3,665,822 5/1972 Speer ..... 404/130

### FOREIGN PATENTS OR APPLICATIONS

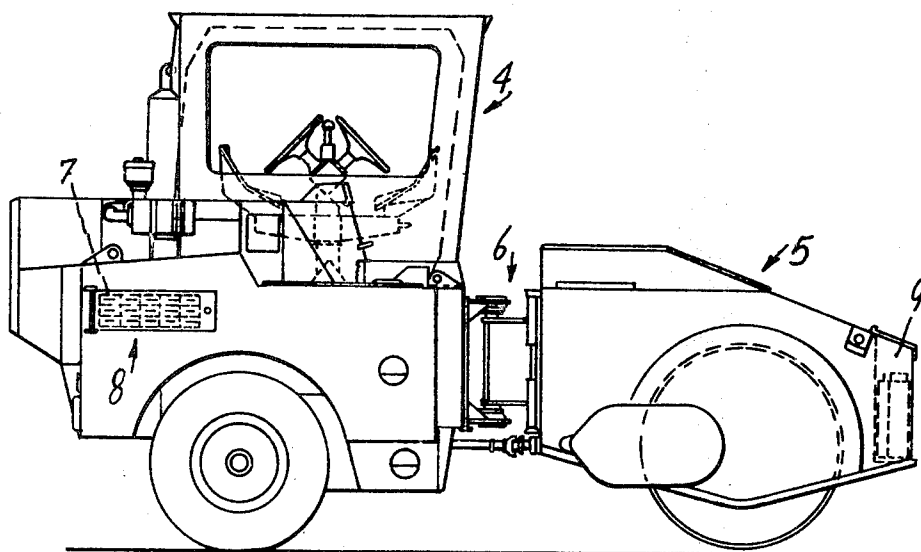
234,707 7/1961 Australia..... 404/130

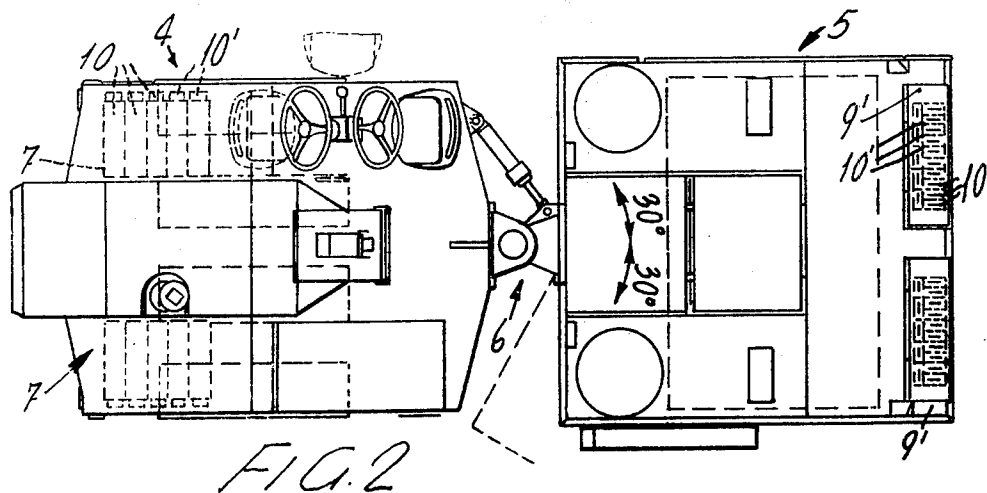
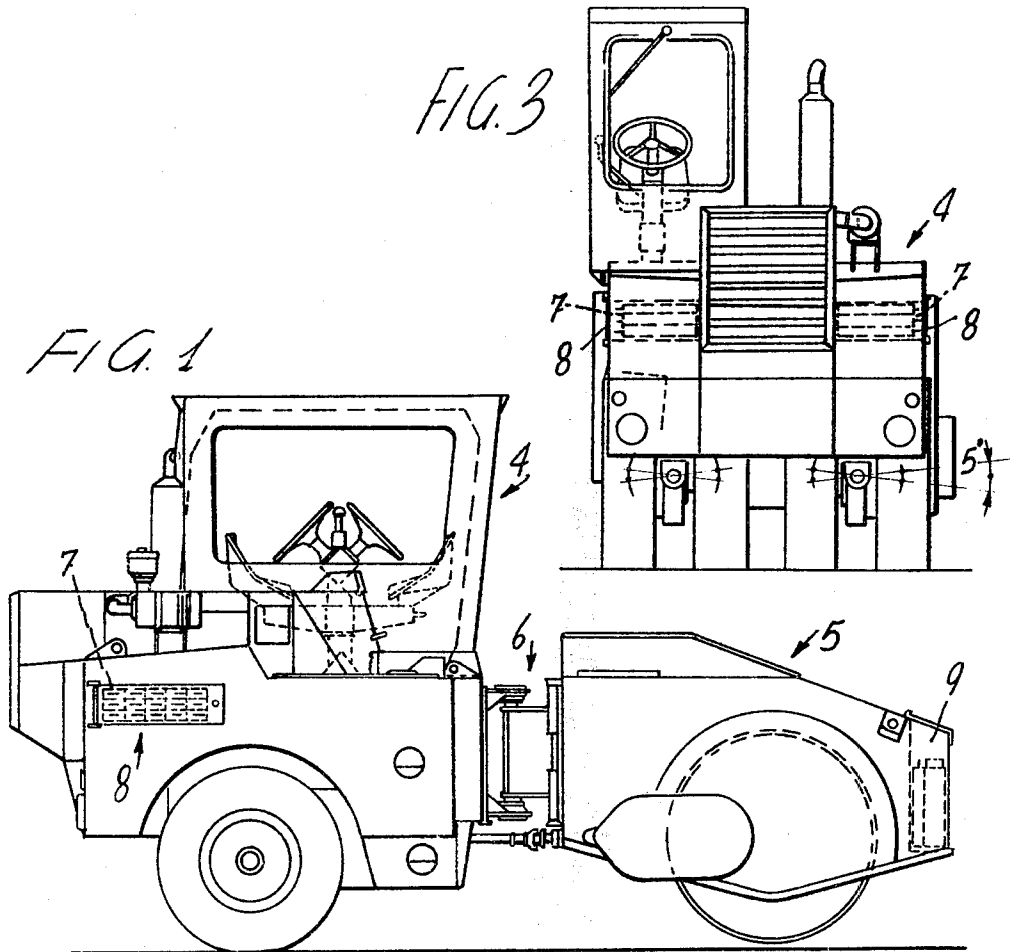
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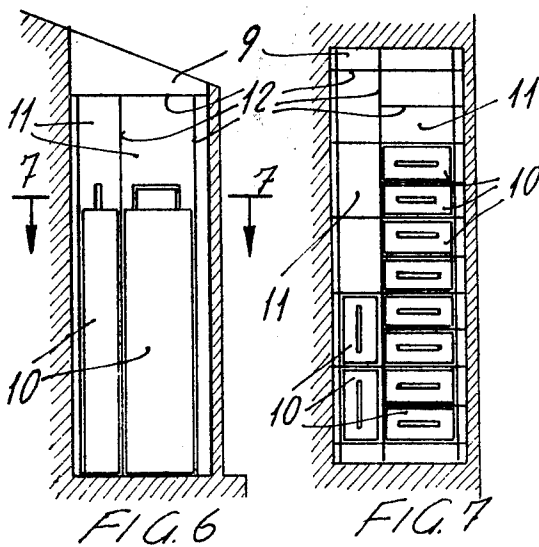
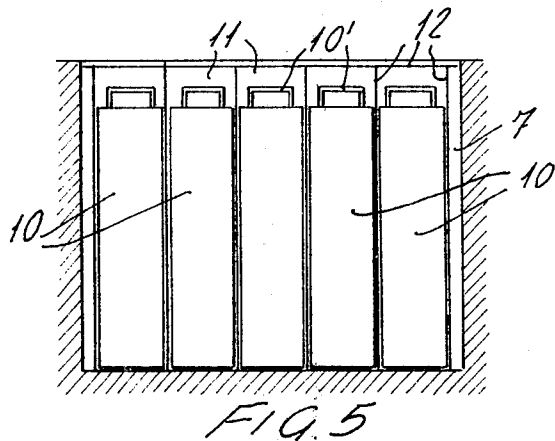
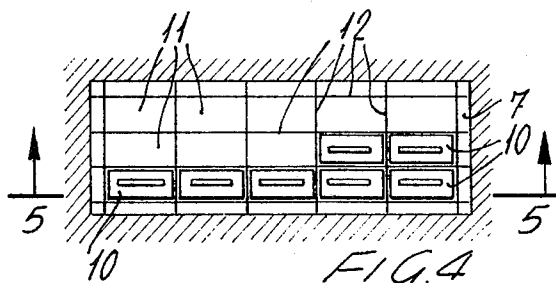
### [57] ABSTRACT

A compacting machine with movable ballast has a plurality of compartments on opposite sides thereof at the front and rear thereof for the reception of the ballast. Each compartment is in volume a multiple of the volume of each individual ingot of the ballast, the dimensions of the compartments in at least two directions being even multiples of at least one dimension of the ingots.

**1 Claim, 7 Drawing Figures**







# COMPACTING MACHINE WITH MOVABLE BALLAST

This invention relates to a combined type of compacting machine with movable ballast.

In a combined type of compacting road roller, that is comprising a towing means provided with tired wheels and a metal cylindrical drum, experimental teachings show the extreme importance of controlling and varying the load transmitted to the ground by each of the tired wheels, as well as the load transmitted to the ground by each contact generatrix of the metal cylinder.

To this end, the invention is characterized by the use of devices for longitudinally and transversely shifting the center of gravity of the whole machine from its rest or inoperative position, said devices comprising movable ballasts.

The ballasting device is characterized by comprising a plurality of rectangular base prismatic ingots having a width twice the thickness thereof and a length, handle included, equal to the cavities, depth, particularly where such cavities are horizontally arranged for receiving the ingots in a horizontal position.

To this end, it is convenient to use movable ballasts disposed in at least four seats or housings, preferably adjacent the four corners of the machine.

In such housings or seats, the volume of which should be on the whole larger than the volume of the elements comprising the actual movable ballast, said ballast elements can be moved manually, or by other means, most suitably to cause the desired longitudinal and/or transverse displacement of the center of gravity of the whole machine.

Particularly, the volume of the cavity for accomodating the solid ballast should be a multiple of the unitary ballast element being used. Preferably, the ballast is made as "ingots" of a modular volume and at one end carrying a sturdy handle for enabling movements within each of the cavities, or also for transferring the ingots from one cavity to another.

Cavities for ballast ingots can be formed both in a horizontal direction and in a vertical direction, with multiple capacities for said ingots; and in such a case the cavities can accomodate the ingots without requiring internal divisions, the exact capacity of the cavity avoiding relative movements of the ingots during operation. Cavities can be formed having larger capacities than the maximum overall size of the ballast to be introduced; in such a case, the cavity can be divided into chambers or vaults, each of which comprises a seat for a ballast element; in this case, the immobility of the elements is ensured.

A preferable ballasting for a combined type of compacting machine according to the present invention is provided with four cavities are, of which two front cavities in the towing means, sidewise positioned at about 50 cm from the tired axle, and two rear cavities are at the opposite end at about 1 meter from the vibrating axis, such cavities being closed by doors.

The following detailed description is related to the accompanying drawings showing a combined type of road roller, in which the ballast cavities according to the invention have been formed; and more particularly:

FIG. 1 is a side elevational view showing the compacting roller;

FIG. 2 is a plan view of FIG. 1;

FIG. 3 is a front elevational view;

FIGS. 4 and 5 are enlarged views, showing a detail of FIG. 1 and FIG. 2, respectively, relating to the front of the compacting machine; and

FIGS. 6 and 7 are enlarged views, showing another detail of FIG. 1 and FIG. 2, respectively, relating to the rear of the compacting machine.

The combined type of compacting roller comprises the towing means 4 and the vibrating compacting roller 5, which are coupled by the articulated joint 6. For the ballasting of the towing means 4, the two side cavities 7 are provided, symmetrical to the longitudinal axis and closed by the doors 8, which can be of any preferable design.

Two cavities 9 are also formed at the farthest portion of the compacting roller 5, parallel to the rear wall, vertically covered by the doors 9', also symmetrical to the longitudinal axis of the machine.

The ballast forming ingots 10 are substantially regular parallelepipeds and for the handling thereof are provided with a fixed handle 10'.

The volume of an ingot 10 is modular, i.e. it occupies in length exactly the same length as cavities 7, which in this particular embodiment are horizontally arranged, whereas such a requirement is unnecessary for the vertical cavities 9; moreover, its width is twice the thickness and can be computed so as to occupy, with a number of ingots, exactly the width of the cavities, both front and rear.

When considering these features, the ingots can be arranged in the cavities in several manners (FIGS. 1 and 2), always providing the same total volume. This is of a great advantage also in the case where some or all of the cavities are to be only partly filled, it being always possible to provide a setting or arrangement which prevents mutual movements of the ingots when the compacting machine is operating.

In FIGS. 4 and 5 there is shown a cavity 7, the inside of which is divided into chambers or vaults 11 by the crossing partitions 12, fixed to each other and forming a cell-like space for containing the ingots 10 in a desired number and at positions selected in accordance with the working requirements. The use of the cell-like space is particularly desirable when the cavity 7 should contain a limited amount of ingots 10, either for keeping them stationary in their seat, or for locating the ballast pressure in a selected zone rather than in another.

In FIGS. 6 and 7 there is shown a cavity 9, for which the same considerations are valid as for cavity 7, even though in this case the partitions 12 give rise to vaults 11 having two arrangements; the same arrangements in two directions can however be provided also in the first case with the same results.

Obviously, the example herein shown and described should not be considered in a limiting sense; thus the different constructive features both of the towing means and of the compacting rollers may allow for different positionings of the cavities and different capacities thereof, in some cases it being possible to arrange these cavities also along an inclined plane. Therefore, any change or modification will of course still be comprised within the protection field of the present invention.

What I claim is:

1. A compacting machine having cavities at the front and rear thereof and on opposite sides thereof, and prismatic ingots of a very heavy material each having

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a gripping handle, there being a plurality of said ingots in at least one of said cavities, said ingots having dimensions so related to the dimensions of said cavities that said plurality of ingots extend entirely across said at least one cavity in at least one direction, said compacting machine being of the combined type comprising a wheeled towing unit having a plurality of tired wheels

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rotatable on a bearing axle and a towed drum, said towed drum being a vibrating drum that rotates on a horizontal axis, said cavities being disposed in pairs, a forward pair being disposed in front of the bearing axle, and a rear pair of said cavities being disposed behind the axis of said vibrating drum.

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