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 [33] **France**
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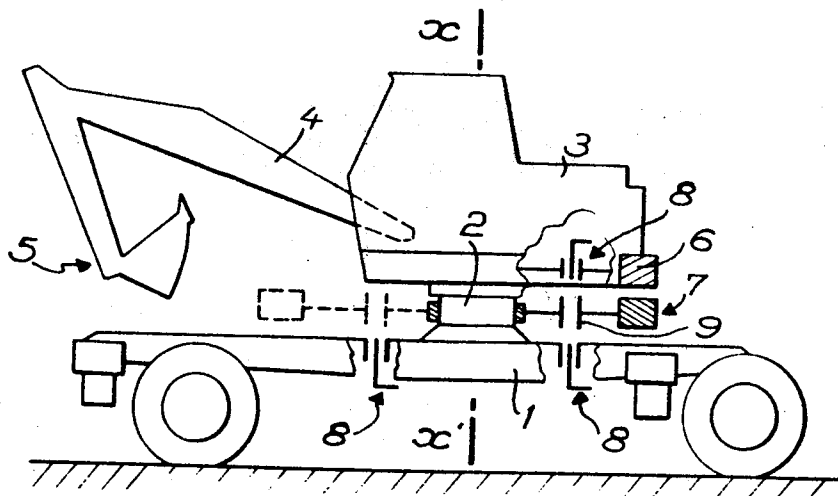
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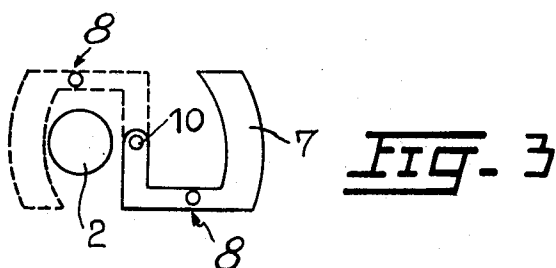
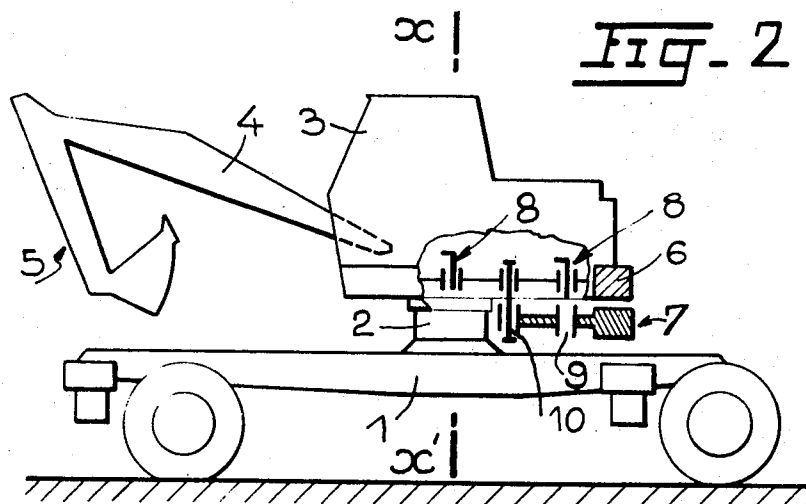
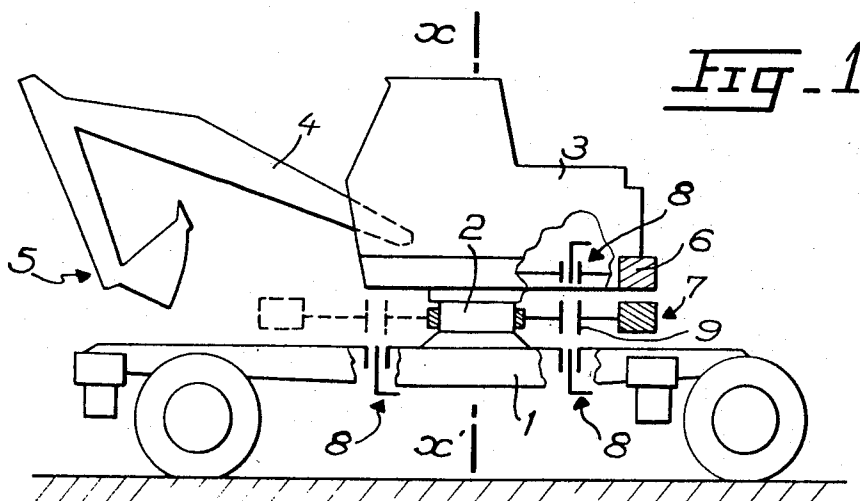
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[54] **EARTH-WORKING MACHINE WITH MOVABLE
 COUNTERWEIGHT**
4 Claims, 3 Drawing Figs.

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37/118, 212/49
 [51] Int. Cl. **E02f 9/18**
 [50] Field of Search. **212/48, 8,**
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280/47.12; 187/9, 15; 214/106, 127, 142, 131

ABSTRACT: The invention relates to means for counterbalancing the earthworking implement carried by a rotary turret of a mechanical excavator or like machine the invention consisting in mounting a counterweight on said turret so as to be rotatable about an axis parallel with and spaced from the turret axis and providing means for locking said counterweight against rotation.





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EARTH-WORKING MACHINE WITH MOVABLE COUNTERWEIGHT

This invention relates to a mechanical excavator or other earthworking machine of the kind comprising a rotatable turret and means for counterbalancing earthworking implements carried by said turret.

Various counterbalancing means have already been proposed for ensuring that an earthworking machine is correctly balanced and stable during earthworking operations. The known proposals include mounting a counterweight at the rear of the turret; removably mounting a counterweight on the front of the machine chassis, or mounting a counterweight on guide means at the rear of the turret.

None of the known proposed means has proved entirely satisfactory in all circumstances and the object of the present invention is to provide an improved counterbalancing arrangement for earthworking machines.

With this object in view an earthworking machine of the kind described is provided with counterbalancing means comprising a counterweight mounted so as to be rotatable around an axis parallel to and spaced from the axis about which the turret is rotated and means for locking said counterweight against rotation.

In order that the invention may be more clearly understood one particular embodiment thereof will now be described by way of example with reference to the accompanying drawings in which:

FIG. 1 is a side elevational view;

FIG. 2 is a side elevation of an earthworking machine provided with counterbalancing means according to the invention shown in section; and

FIG. 3 is a plan view of a counterweight of the counterbalancing means.

Referring to these drawings an excavating or other earthworking machine comprises a chassis 1 mounted on road wheels and a turret 3 mounted for rotation on the chassis 1 of the machine by means of a turntable 2 and carrying an earthworking implement 5 mounted on a jib 4 carried on the turret which also carries a fixed counterweight 6.

In accordance with the present invention an auxiliary counterbalancing means is provided, said counterbalancing means comprising a counterweight 7 rotatably mounted on a vertical shaft 10 fixed on the turret 3 parallel with the axis $x-x$ about which the turret 3 rotates and radially spaced from said axis $x-x$. The counterweight is substantially sickle or C-shaped and is rotatably mounted on the shaft 10 at one of its ends so as to be rotatable from the position shown in full lines to the position shown in broken lines in FIG. 3. Means are provided for locking said counterweight 7 against rotation about shaft 10, said means comprising locking pins 8 carried on a suitable fixed part of the turret and insertable in suitably positioned holes 9 in the counterweight 7.

By making the counterweight 7 sickle or C-shaped and rotatable about axis 10 it can be rotated about said axis into an

operative position, that is the position shown in full lines in FIG. 3, and locked in that position by a locking pin 8 so that it counterbalances the weight of the earthworking implement 5 to the supporting jib 4 during operation of the earthworking machine. When, however, the earthworking machine is not in use the counterweight can be rotated about axis 10 into an inoperative position shown in broken lines in FIG. 3 and locked in that position by locking pin 8. It will be noted that in its inoperative position the counterweight substantially surrounds the axis of the turntable 2 of the turret and thus is positioned symmetrically relative to the turret and the road wheels whereby the weight distribution is more suitable for transportation of the machine, i.e. is more evenly distributed between the front and rear wheels of the machine.

Although in the embodiment shown the locking pins 8 carried by the turret and the holes in the counterweight are so located as to enable the counterweight to be locked in two different positions, that is an operative and an inoperative position shown in full and broken lines respectively in FIG. 3, the counterweight may be provided with a series of spaced pin-receiving holes whereby the counterweight can be locked in other positions relative to the axis of the turret turntable 2 where working conditions require such positioning of the counterweight.

It will be understood that the invention is not limited to the particular embodiment herein described but may be modified in various ways without departing from the invention as defined in the appended claims. For example, means other than the locking pins 8 could be provided for locking the counterweight against rotation.

I claim:

1. A mechanical earthworking machine comprising a wheeled chassis, a turret rotatably mounted on said chassis and earthworking implement carried by said turret and means for counterbalancing said implement said counterbalancing means comprising a weight mounted for rotation about an axis parallel to and spaced from the axis about which said turret rotates and means for locking said weight against rotation relative to said turret or said chassis.

2. A mechanical earthworking machine according to claim 1, wherein said counterweight is rotatably mounted on a shaft fixed on said turret.

3. A mechanical earthworking machine according to claim 1, wherein said locking means comprises locking pins carried by a fixed part of said turret and holes in said counterweight for receiving said pins to lock said counterweight against rotation relative to said turret.

4. A mechanical earthworking machine according to claim 1, wherein said counterweight is rotatably mounted on a shaft fixed to said turret and said locking means comprise locking pins carried by a fixed part of said turret and holes in said counterweight for receiving said pins to lock said counterweight relative to said turret.

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