Jan. 16, 1923.

1,442,267.

C. W. GROSS ET AL.

ELEVATOR.

FILED NOV. 4, 1921.

2 SHEETS—SHEET 1.

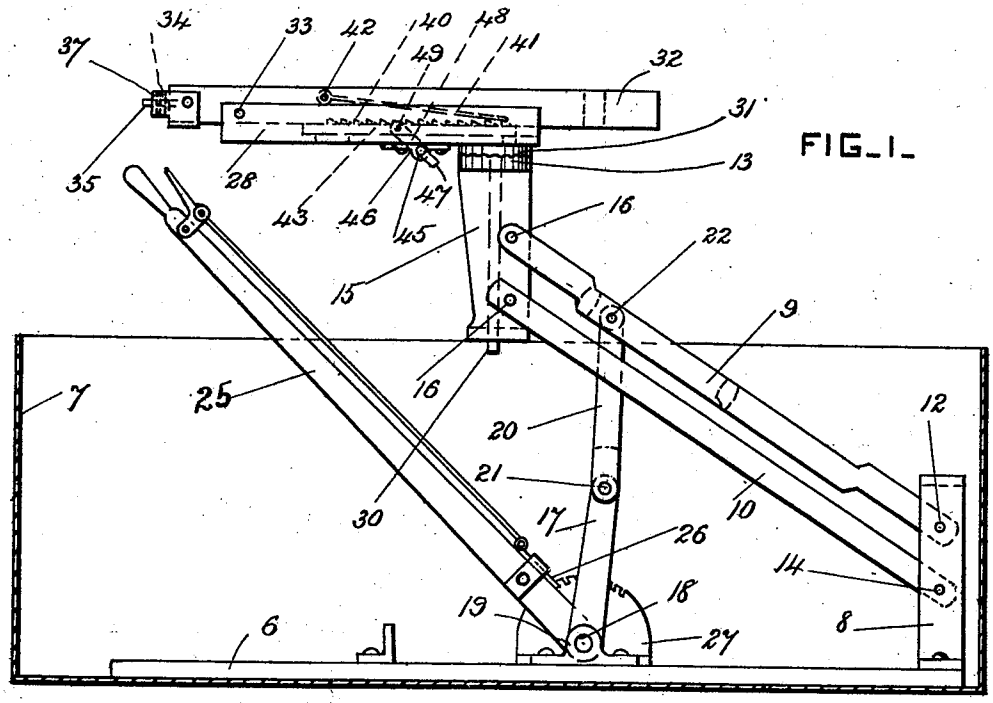


FIG_1_

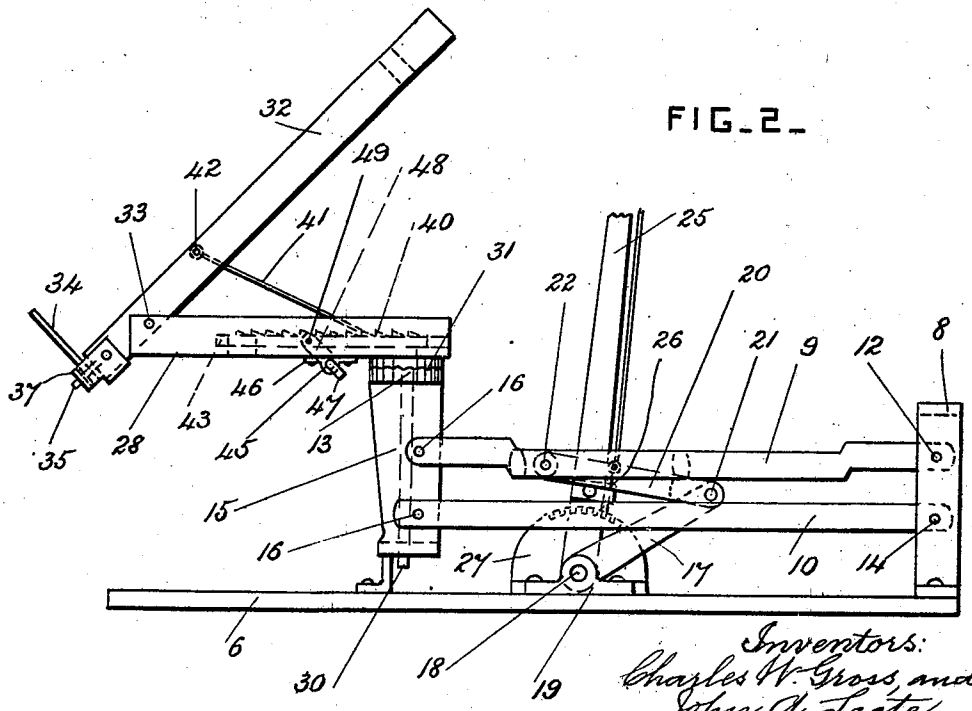


FIG_2_

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2 SHEETS—SHEET 2.

FIG. 3.

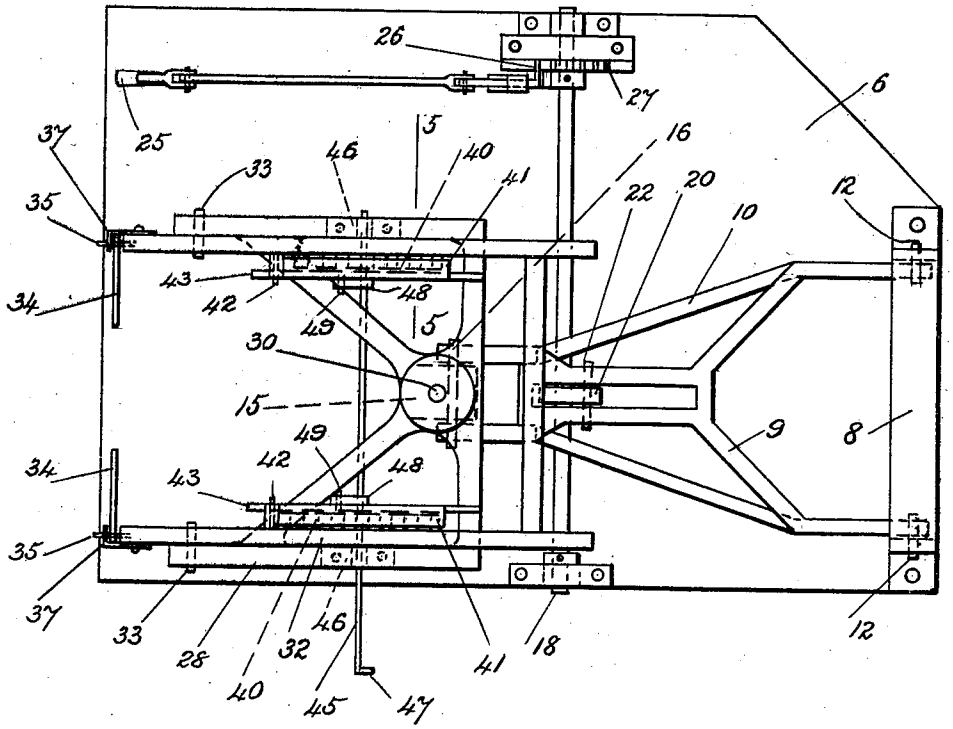



FIG. 4.

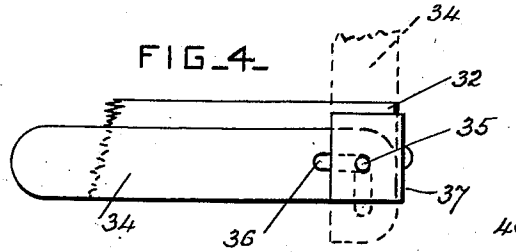
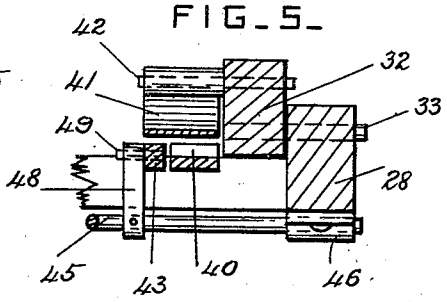



FIG. 5.

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Charles W. Gross, and
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Patented Jan. 16, 1923. 1,442,267

# UNITED STATES PATENT OFFICE.

CHARLES W. GROSS AND JOHN A. LEETE, OF NAPA, CALIFORNIA.

## ELEVATOR.

Application filed November 4, 1921. Serial No. 512,839.

*To all whom it may concern:*

Be it known that we, CHARLES W. GROSS and JOHN A. LEETE, citizens of the United States, residing at Napa, in the county of Napa and State of California, have invented certain new and useful Improvements in Elevators, of which the following is a specification.

This invention relates to elevators specially adapted for use in connection with the radiators of motor cars. These radiators are tested when submerged in a tank containing water, and the elevator is used to raise and lower the radiators, and to support them above the water, while being completed or repaired.

This invention consists in the novel construction and combination of the parts hereinafter fully described and claimed whereby the radiator is raised, lowered and positioned.

In the drawings, Figure 1 is a side view of the elevator in its raised position, with the tilting frame horizontal, and showing the tank in section. Fig. 2 is a side view of the elevator in its depressed position, and showing the tilting frame tilted. Fig. 3 is a plan view of the elevator as shown in Fig. 1. Fig. 4 is a detail view of one of the pivoted arms of the tilting frame. Fig. 5 is a cross-section on line 5—5 in Fig. 3.

A suitable supporting base 6 is provided, and is stood in the bottom of a testing tank 7 which is adapted to contain water. A bracket 8 projects from one end portion of the base, and 9 and 10 are upper and lower forked arms which are pivoted at one end to the bracket by pins 12 and 14, and which form a parallel motion device. A vertical block 15 is pivoted by pins 16 to the free end portions of the arms 9 and 10, and is held in a vertical position by the parallel motion device when raised and lowered. The block 15 is raised and lowered by means of a lever 17 secured on a rock-shaft 18 which is journaled in bearings 19 on the base 6.

This rock-shaft lever 17 is pivoted to one end of a connecting-rod 20 by a pin 21, and the other end of the connecting-rod is pivoted to the upper arm 9 by a pin 22. The rock-shaft 18 is operated by a hand lever 25, and 26 is a pawl pivoted to the hand lever and engaging with a notched plate 27 on the base, so as to hold the hand lever and the block 15 in various positions.

A serrated or corrugated surface 13 is formed at the top of the block 15, and 28 is a turntable provided with a vertical pin 30 which pivots it in the block 15. The turntable has a serrated or corrugated hub 31 which engages with the corresponding top 13 of the block. The serrations or corrugations prevent the turntable from moving too freely, and the pin 30 is free to slide a little vertically in the block.

A tilting frame 32 is provided for supporting the radiator, and is pivoted to the turntable by pins 33. When the frame 32 is horizontal the radiator rests on it, and arms 34 are pivoted by pins 35 to the ends of the side members of the frame 32, to prevent the radiator from sliding off the frame when the frame is tilted as shown in Fig. 2. These arms 34 have longitudinal slots 36 which are slidable over the pivot pins 35, and stop brackets 37 are secured to the frame and engage with the free end portions of the pins. When the arms are turned towards each other, as shown in Fig. 1, they are supported by the stop brackets in the same plane as the frame 32, but they may be moved upward pivotally. When the frame is tilted, as shown in Fig. 2, the arms are moved pivotally, and are slid backward a little over their pivot pins, so that their sides lock against the stop brackets. The arms are then retained at a right angle to the frame, and support the lower portion of the radiator, so that it does not slide down and off the frame 32.

Toothed racks 40 are secured to or formed on the turntable, and are arranged parallel to each other and at its sides. The side bars of the frame 32 fold down alongside the toothed racks, and 41 are pawls pivoted to the frame by pins 42 and engaging with the teeth of the racks. The pawls are wider than the teeth of the racks, and 43 are releasing bars arranged under the projecting end portions of the pawls, and normally supported by the turntable. A shaft 45 is journaled in lugs 46 on the underside of the turntable, and has an operating handle 47 at one end. Arms 48 are secured on the shaft 45, and are pivoted to the releasing bars 43 by pins 49. When the releasing bars are raised by turning the shaft 45, both pawls 41 are disengaged simultaneously, and the tilting frame can be lowered to any less inclination with the horizontal which is desirable.

This elevator device enables a mechanic to make all the necessary repairs or changes to a radiator without removing it from the elevator.

What we claim is:

1. In an elevator, a support, a parallel motion device pivoted to the support, a vertically movable work support carried by the parallel motion device, and means for operating the said device to raise and lower the work support.

2. In an elevator, a support, a parallel motion device pivoted to the support, a vertically movable block carried by the parallel motion device, a revoluble work support provided with a vertical pivot which connects it with the said block, and means for operating said device to raise and lower the said block and work support.

3. In an elevator, a support a parallel motion device pivoted to the support, a vertically movable block carried by the said device, a turntable pivoted to the said block, a tilting frame for supporting the work pivoted to the said turntable, and means for operating the said device to raise and lower the work support.

4. In an elevator, a support a vertically movable block carried by the said support, a turntable pivoted to the said block, a tilting frame for supporting the work pivoted to the said turntable, and means for raising and lowering the said block.

5. In an elevator, a support, a vertically movable block carried by the said support, a turntable pivoted to the said block, said block and turntable being provided with friction contact surfaces which prevent the turntable from moving too freely, a tilting frame for supporting the work pivoted to the said turntable, and means for raising and lowering the said block.

6. In an elevator, a support, a vertically movable block carried by the said support, a turntable pivoted to the said block, a tilting frame for supporting the work pivoted to the turntable, toothed racks secured to the turntable, pawls pivoted to the said frame and engaging with the toothed racks and supporting the frame at various angles, means for releasing the said pawls simultaneously to lower the frame, and means for raising and lowering the said block.

7. In an elevator, a support, a vertically movable block carried by the said support, a turntable pivoted to the said block, a tilting frame for supporting the work pivoted to the turntable, means for supporting the said frame from the turntable at various angles, and means for raising and lowering the said block.

8. In an elevator, a support, a vertically movable block carried by the said support, a turntable pivoted to the said block, a tilting frame for supporting the work pivoted to the turntable, arms pivotally connected to the frame adjacent to its pivots and operating to retain the work on the frame when tilted, and means for raising and lowering the said block.

9. In an elevator, a support, parallel motion arms pivoted to the support at one end and arranged one above the other, a vertically movable work support carried by the free end portions of the said arms, a rock-shaft journaled in the support under the said arms, a lever secured on the rock-shaft, a connecting-rod between the said lever and the upper parallel motion arm, and means for operating the rock-shaft to raise and lower the work support.

In testimony whereof we affix our signatures.

CHARLES W. GROSS.
JOHN A. LEETE.