

Feb. 20, 1934.

H. D. GUMPPER

1,947,713

HOUSING FOR A MOTOR GENERATOR SET

Filed Aug. 17, 1931

3 Sheets-Sheet 1

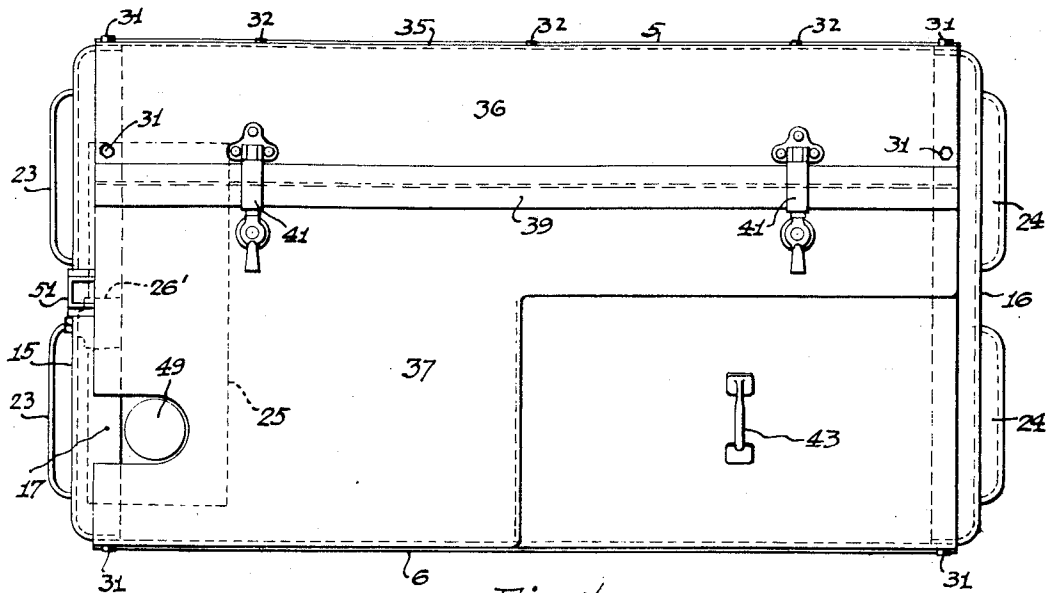


Fig. 1.

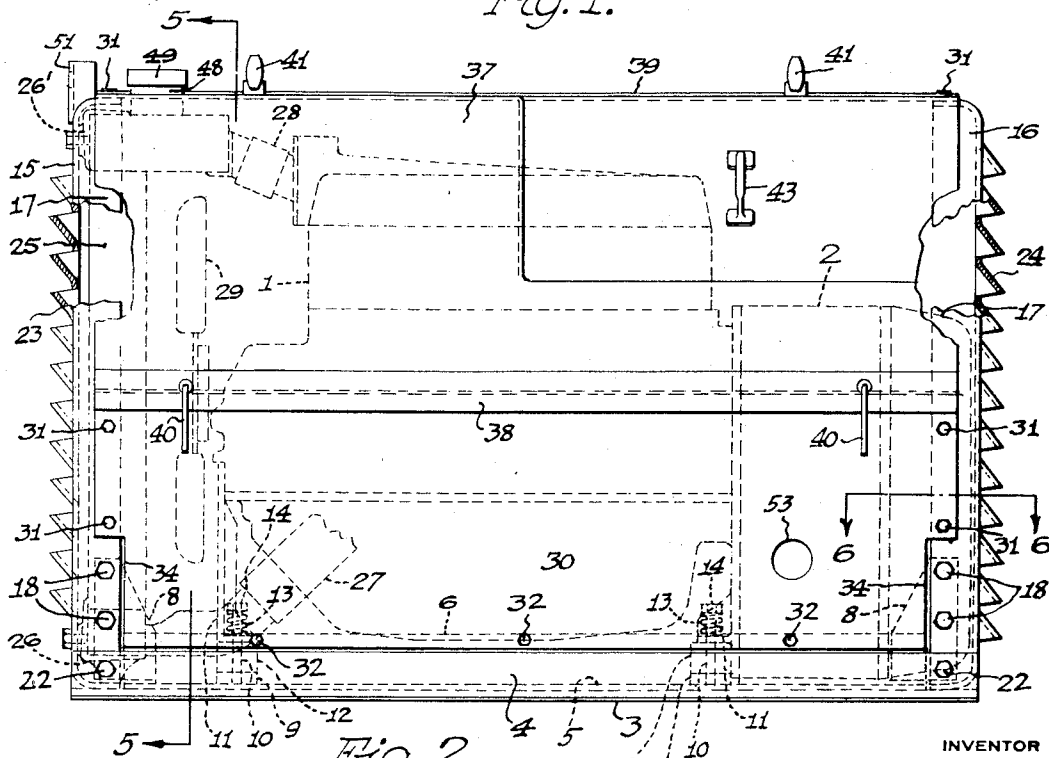


Fig. 2.

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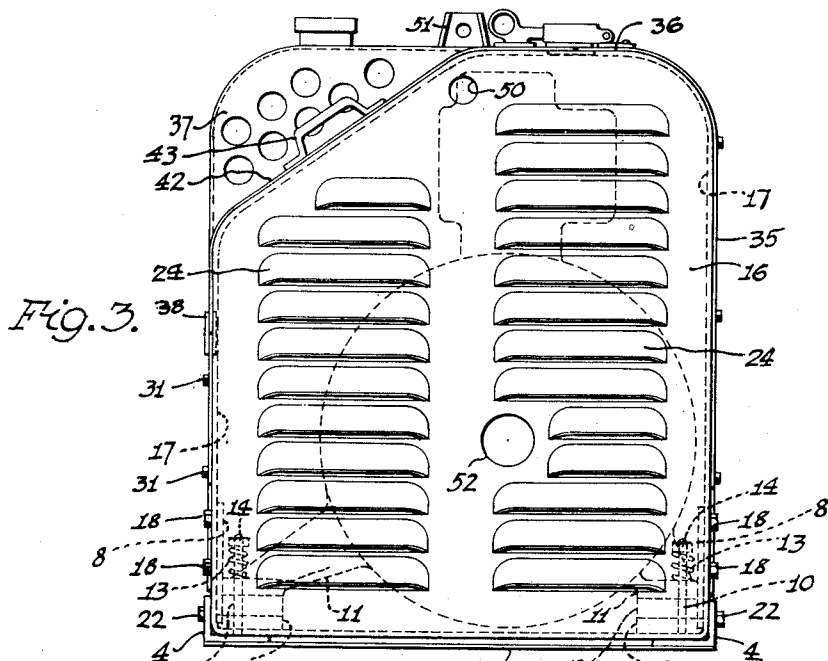
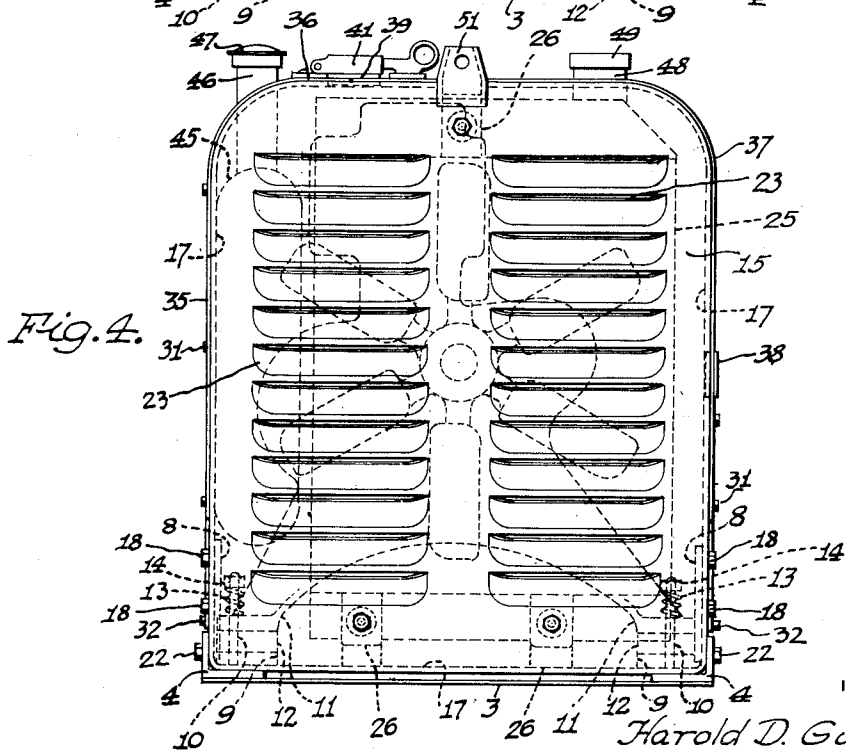
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3 Sheets-Sheet 3

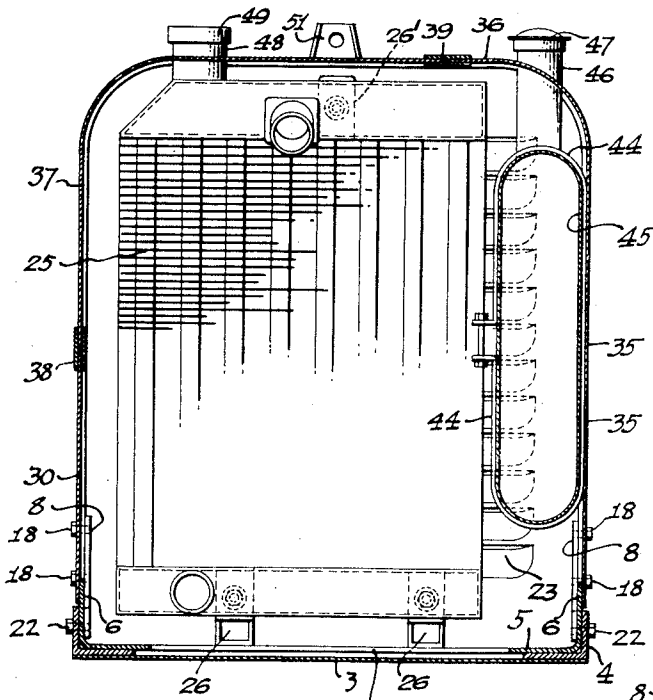


Fig. 5.

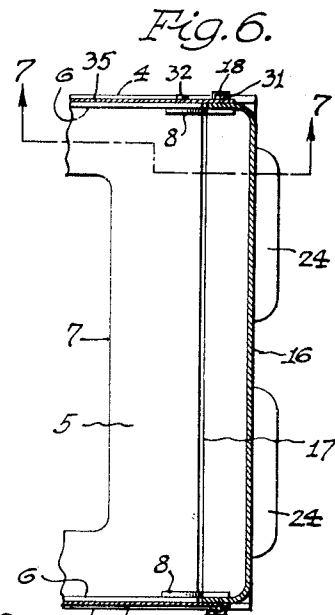


Fig. 6.

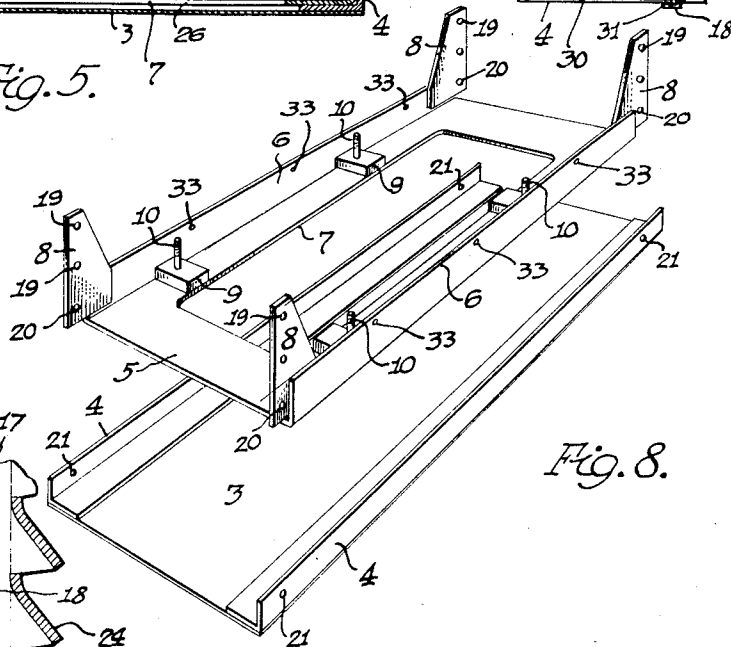


Fig. 8.

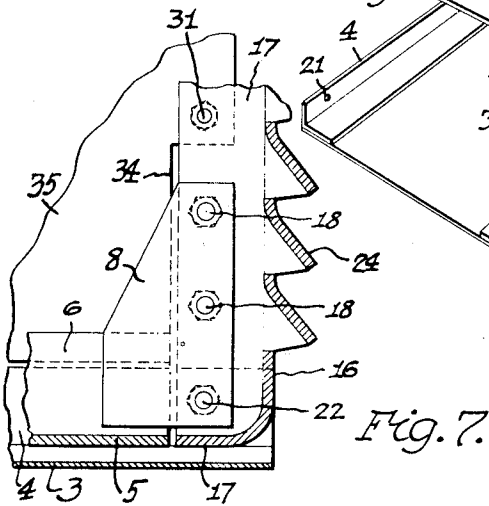


Fig. 7.

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HOUSING FOR A MOTOR-GENERATOR SET

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Application August 17, 1931. Serial No. 557,522

7 Claims. (Cl. 290—1)

The present invention pertains to a housing for a motor-generator set of a character similar to that disclosed in my United States Patent No. 1,723,851 of August 6, 1929.

5 The set is adapted for use wherever a portable power unit is necessary as in the propulsion of heavy trucks in factories, mills or the like or in cases where a power unit is to be carried from place to place on a motor truck for service at various points. The present invention, however, relates more particularly to the housing for enclosing the unit and is directed to certain improvements leading to more satisfactory performance and to accessibility to certain parts of the unit by removal of only the immediately adjacent parts of the housing, without necessarily removing other parts.

10 With reference to accessibility, the housing is so constructed that either the end plates or the side plates may be removed without requiring removal of the other. Moreover, a detachable top joins the side plates, and this may be removed without interference with the side plates or other parts.

25 The end plates of the housing are formed with louvers for ventilating the unit with the aid of a fan propelled by the motor. One of the plates is adjacent the radiator and the other adjacent the generator, and the former constitutes the air outlet and has its louvers directed upwardly so that the stream of warmed air may not be thrown directly against a person standing near by. The downward inclination of the louvers at the intake end removes the possibility of rain and snow being carried to the generator.

35 The radiator is secured firmly to the adjacent end plate but is joined by the motor only through the flexible water connections. By reason of this arrangement, the radiator is protected from the vibration of the motor.

The invention is fully disclosed by way of example in the following description and in the accompanying drawings, in which—

Fig. 1 is a plan view of the device;

45 Fig. 2 is a vertical elevation showing the front side;

Figs. 3 and 4 are end views;

Fig. 5 is a section on the line 5—5 of Figure 2;

Fig. 6 is a section on the line 6—6 of Figure 2;

50 Fig. 7 is a section on the line 7—7 of Figure 6; and

Fig. 8 is a perspective view of the oil pan and sub-frame.

Reference to these views will now be made by use of like characters which are employed to designate corresponding parts throughout.

60 In Figure 2 is illustrated in dotted lines, a motor-generator set comprising a gasoline motor 1 and a generator 2. The motor may be of any suitable standard design, and the generator hous-

ing is either cast as an integral part of the motor block or secured thereto.

The housing for containing the motor and generator embodies at its base a pan consisting of a metal sheet 3 with angle irons 4 secured to the longitudinal edges thereof as shown more clearly in Figures 5 and 8. In the pan is mounted a sub-frame comprising a rectangular frame member 5 with vertical flanges 6 at its longitudinal edges. The sub-frame is so dimensioned that it rests on the horizontal parts of the angle irons 4 with the flanges 6 lying closely adjacent the horizontal parts of the angle irons. The rectangular opening 7 of the sub-frame in conjunction with the space between the angle irons 4 constitutes an oil receptacle as may be seen in Figure 5. Gusset plates 8 are secured to the ends of the flanges 6, while the horizontal frame member 5 carries a set of blocks 9 with studs 10 projecting upwardly therefrom, for a purpose which will presently appear.

The motor block 1 is formed with apertured lugs or feet 11 adapted to be fitted over the studs 10. Rubber cushions 12 are however mounted upon the blocks 9 beneath the feet 11. Coil springs 13 are then fitted over the exposed parts of the studs 10, upon the lugs 11 and held down by nuts 14. The motor block thus has a resilient mounting on the base structure.

At the ends of the sub-frame are provided a radiator end stamping 15 and a generator end stamping 16. Each stamping is formed with a marginal flange 17 secured by bolts 18 to the gusset plates 8 at bolt holes 19 previously formed in the plates. It will also be seen in Figures 7 and 8 that each gusset plate has a bolt hole 20 registering with bolt holes 21 in the angle irons 4, whereby the sub-frame is secured to the angle irons by means of bolts 22. The radiator end stamping 15 has upwardly opening louvers 23, and the generator end stamping 16 has inwardly opening louvers 24.

105 Directly behind the radiator end stamping is a radiator 25 resting on brackets 26 upon the frame 5 as shown more clearly in Figure 5, and bolted through the brackets to the stamping 15 as shown in Figure 2. A similar bracket 26' is secured upon the radiator and bolted to the stamping 15.

The intake and outlet of the radiator are connected respectively by flexible hose members 27 and 28 to the outlet and inlet of the water jacket built into the motor block 1. At the front end of the motor is an impeller fan 29 which draws air through the louvers 24 and expels it through the louvers 23.

115 A vertical front plate 30, about half as high as the radiator, is bolted at 31 to the flanges 17 at one side of the end stampings and at 32 to the flange 6 at the same side of the sub-frame,

which is preformed with bolt holes 33 for this purpose. The lower corners of the front plate are cut away as at 34 to clear the bolts 18 and 22 as may be seen in Figure 7. A back plate 35 is secured in exactly the same manner to the flanges 17 and to the other side of the sub-frame and extends partly over the top of the radiator as indicated by the numeral 36. A sliding cover 37 which conceals the remainder of the front side and top of the motor-generator set, has its edges fitted in guides or channels 38 and 39 at the free edges of the plates 30 and 35 respectively. Fastener 41 secures the cover to the back plate 35.

One of the corners of the cover plate 37 is flattened or depressed as indicated by the numeral 42 in Figure 3. This portion is fitted with a handle 43 for sliding the cover plate 37.

The inner side of the back plate 35 carries straps 44 for the purpose of supporting a fuel tank 45. A filling neck 46 extends from the tank through the top of the back plate and is fitted with a cap 47. Also, a filling neck 48 extends from the top of the radiator 25 through the cover 37 and is fitted with a cap 49.

The generator end stamping 16 is formed with an eye 50, and an ear 51 is secured to the cover 36 over the center of the radiator, whereby the entire device may be lifted by hooks and inserted in the eye and ear. An opening 52 in the stamping 16 permits the insertion of a starting crank for starting the engine, and an opening 53 in the front plate 30 provides passage for the exhaust manifold outlet therethrough.

Either of the end stampings may be removed by withdrawing the bolts 18, 22 and 31, without disturbing the front and rear plates, since the latter are secured to the sub-frame by the bolts 31. Either the front plate 30 or back plate 35 may be removed by withdrawing the corresponding bolts 30 and 31 and without disturbing the end stampings, since the latter are secured to the gusset plates. The whole cover plate 37 may be removed for access to the upper part of the motor-generator set without disturbing the plates 30 and 35 and end stampings.

The radiator is fastened directly to the radiator end stamping by three bolts and is connected to the engine only through the flexible hose connections 27 and 28. The radiator is thereby protected from motor vibrations, and the life of the radiator is prolonged. In removing the radiator end stamping, the fan mechanism, fan belt and associated parts which are attached directly to the engine, are exposed.

The current of air delivered by the fan 29 through the louvers 23 is directed upwardly by the upward inclination of the latter, so that a direct blast of hot air is not felt by a person facing the radiator. The downward inclination of the louvers 24 protects the generator against rain or snow which might otherwise be drawn into the generator end. The cold air drawn in from the generator end passes through and around the generator, over the oil pan and around the engine, cooling the oil as well as the engine.

The apparatus is frequently mounted on motor trucks, and in this connection may be lifted by use of the parts 50 and 51 as previously set forth. Mounted on a truck, the device often obstructs the view of the driver, and in such cases may be adjusted so that the depression 42 is in

the line of sight of the driver, whereby this difficulty is eliminated.

Although a specific embodiment of the invention has been illustrated and described, it will be understood that various alterations in the details of construction may be made without departing from the scope of the invention, as indicated by the appended claims.

What I claim is:—

1. A housing for a motor-generator set comprising a bottom pan, a sub-frame secured therein, end stampings in the ends of said housing, means securing said stampings to said frame, and side plates secured to said sub-frame and formed to clear said securing means, whereby either said stampings or side plates may be detached without removal of the other.

2. A housing for a motor-generator set comprising a bottom pan, a sub-frame secured therein, end stampings in the ends of said housing, means securing said stampings to said frame, side plates secured to said sub-frame and formed to clear said securing means, whereby either said stampings or side plates may be detached without removal of the other, and a top plate removably attached to said side plates.

3. A housing for a motor-generator set comprising a bottom pan, a sub-frame secured therein, gusset plates carried by said sub-frame, end stampings secured to said gusset plates, and side plates secured to said sub-frame and formed to clear said gusset plates, whereby either said stampings or side plates may be detached without removal of the other.

4. A housing for a motor-generator set comprising a bottom pan, a sub-frame secured therein, gusset plates carried by said sub-frame, end stampings secured to said gusset plates, side plates secured to said sub-frame and formed to clear said gusset plates, whereby either said stampings or side plates may be detached without removal of the other, and a top plate removably attached to said side plates.

5. A housing for a motor-generator set comprising a bottom pan, a sub-frame secured therein, end stampings in the ends of said housing, means securing said stampings to said frame, side plates secured to said sub-frame and formed to clear said securing means, whereby either said stampings or side plates may be detached without removal of the other, and a motor-generator set mounted on said sub-frame.

6. A housing for a motor-generator set comprising a bottom pan, a sub-frame secured therein, end stampings in the ends of said housing and having inwardly directed marginal flanges, means securing said flanges to said sub-frame, and side plates secured to said sub-frame and formed to clear said securing means, whereby either said stampings or side plates may be detached without removal of the other.

7. A housing for a motor-generator set comprising a bottom pan, a sub-frame secured therein, gusset plates carried by said sub-frame, end stampings mounted in the ends of said housing and having inwardly directed marginal flanges secured to said gusset plates, and side plates secured to said sub-frame and formed to clear said gusset plates, whereby either said stampings or side plates may be detached without removal of the other.

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