

PATENT SPECIFICATION



Convention Date (Italy) : Dec. 9, 1932.

421,861

Application Date (in United Kingdom) : Dec. 7, 1933. No. 34476/33.

Complete Specification Accepted : Jan. 1, 1935.

COMPLETE SPECIFICATION

Improvements in Portable Generators for use with Radio Transmitting Units

We, ERCOLE MARELLI and C. SOCIETA' ANONIMA, an Italian joint-stock company, of 22, Corso Venezia, Milan, Italy do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

For supplying current for portable radio sending units, especially for military purposes, sources of supply are required that are simultaneously capable of supplying low and high tension current.

The use of storage batteries and primary batteries is sometimes inconvenient owing to the necessity of re-charging the exhausted batteries as well as owing to the weight and space occupied.

Various means have so far been proposed in order to meet the abovesaid necessities, and among them is the adoption of generators mounted on a frame and driven by pedals.

The object of the invention described hereunder is to improve such apparatus with respect to the facility with which it may be set up and transported, and to increase its general reliability of action.

The apparatus according to this invention comprises a collapsible frame having a saddle and a handle at the top and a stirrup at the bottom for supporting the generator proper, the generator being actuated by a shaft fitted with foot cranks, and the generator casing enclosing a step-up gearing, the armature and field magnet set, the commutators, condensers, inductances, voltmeter, and relay for automatically switching in a buffer battery.

The accompanying drawings illustrate the invention in one of its constructional forms indicated by way of example only.

Figures 1, 2, 3 show the frame in side view, front view and plan respectively, in fully extended condition and ready for use.

Figures 4 and 5 show in front and side view respectively the frame in collapsed condition and ready to be carried on a man's back like a knapsack.

Figure 6 shows how the various members of the frame can be pivotally connected, this allowing the frame to be easily and immediately fully extended or fully collapsed.

Figure 7 shows the crank actuated generator.

Figures 8 and 9 are two cross sections through the generator.

Figure 10 is a diagram of electrical connections.

The bottom forward portion of the frame is fitted with a stirrup adapted to receive a generator —g— capable of being conveniently driven by cycle cranks. Maximum comfort and efficiency is obtainable in that the telescopic arrangement of the handle permits of adjusting the distance between the three parts; saddle, cranks and frame handle.

An interesting feature of this frame is that it can be readily and quickly set in working condition and collapsed, due to its five essential articulations, without need of dismantling any of its parts; this is a practical requirement especially for military service. It is namely sufficient to cause the parts d—d to fold together to allow the frame members a—a to be moved toward each other; disconnecting the link member —e— from —f— permits of collapsing the member —e— and tilting the saddle-carrier —h—.

The generator comprises a double armature with a single field magnet, a low tension commutator —m— and a high tension commutator —n— arranged on the same side as the commutator —m—, and their respective brushes —i— and —j—.

The low tension brushes —i— are arranged radially. The high tension brushes —j— are axially arranged on a disc form commutator in order to allow of the necessary inspections being carried out freely and with ease from one side only of the generator, which is totally enclosed and reduced to small dimensions.

The inductor may be a permanent magnet, or the excitation may be by a separate or a shunt winding according to constructive convenience and to the necessities of the service.

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A step-up gearing, enclosed in a casing protected against external influences, permits of utilising the normal low speed of 50-60 revolutions per minute of cycle cranks to impart to the generator a speed suitable for a good utilisation of the material thus maintaining the weight within admissible limits. k—k' is the first pair of gear wheels actuated by the cranks p—p, and l—l' is the second pair of gear wheels actuating the armature shaft —o—.

A fly-wheel —v— is fixed on the armature shaft on the commutator side so that by removing the casing cover on this side the more delicate parts can be examined without disturbing the gearing, which can therefore be handled like an independent part.

In the upper portion, on the side from which the electric parts can be examined, the elements of an electric filter circuit are provided, the filter comprising condensers —r— and an inductance —s— suitably protected by a fuse —w—, as shown in the diagram Figure 10.

A voltmeter —t— arranged at the top and illuminated by a lamp L fed from the generator serves to indicate the normal tension in a simple and perfectly certain manner.

A protected plug-switch —u— completes the apparatus; in the low pressure circuit a relay —q— is fitted which serves

to automatically switch-in a buffer battery under the desired conditions.

Of course the construction and details may vary in practice from those described and illustrated without departing from the scope of the invention.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A portable generator for use in connection with radio-transmitting units, characterised by the provision of a collapsible frame having a saddle and a handle at the top and a stirrup at the bottom for supporting the generator proper, the generator being actuated by a shaft fitted with foot-crank, and the generator casing enclosing; a step-up gearing, the armature and field magnet set, the commutators, condensers, inductances, voltmeter, and relay for automatically switching-in the buffer battery.

2. The portable generator and collapsible supporting frame substantially as described or substantially as shown in the accompanying drawings.

Dated this 24th day of November, 1933.
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 111/112, Hatton Garden, London, E.C.1,
 Chartered Patent Agents.

[This Drawing is a reproduction of the Original on a reduced scale.]

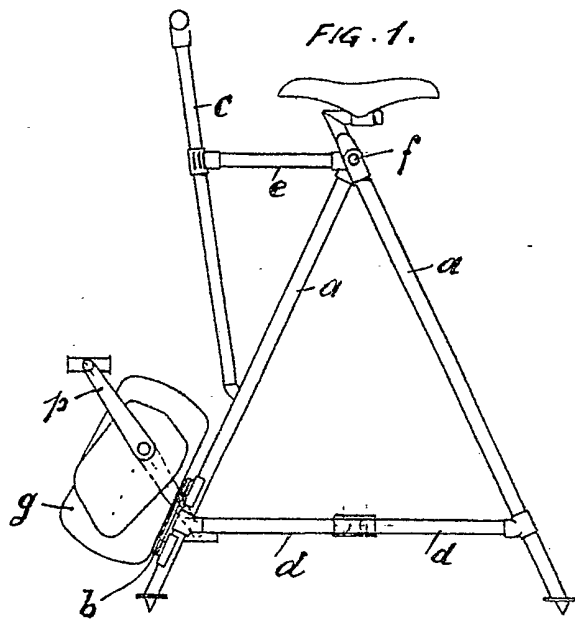


FIG. 1.

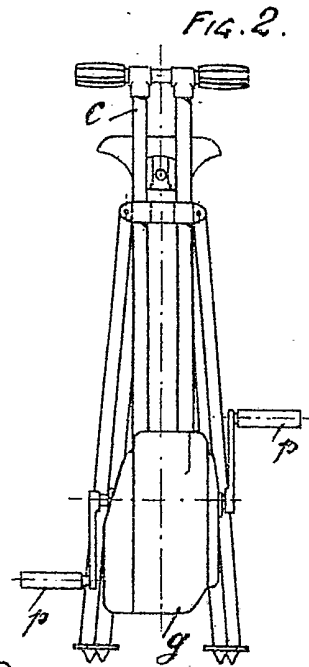


FIG. 2.

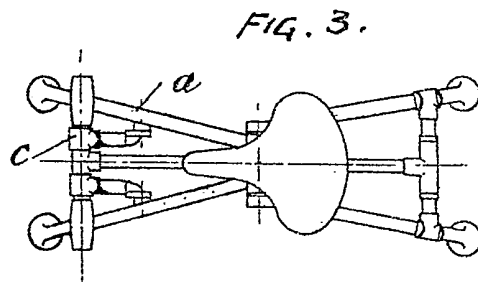


FIG. 3.

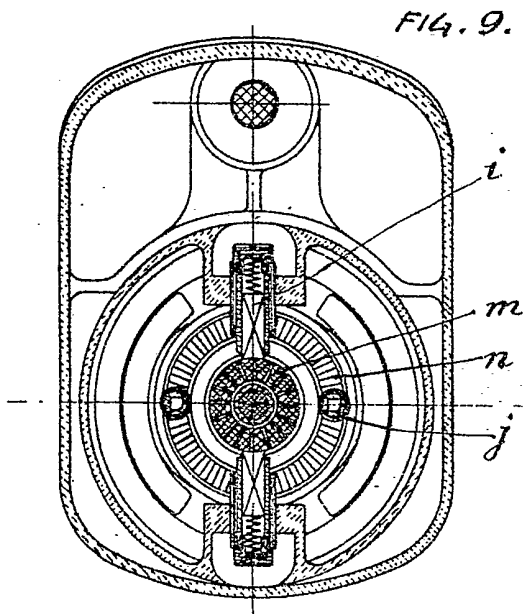


FIG. 9.

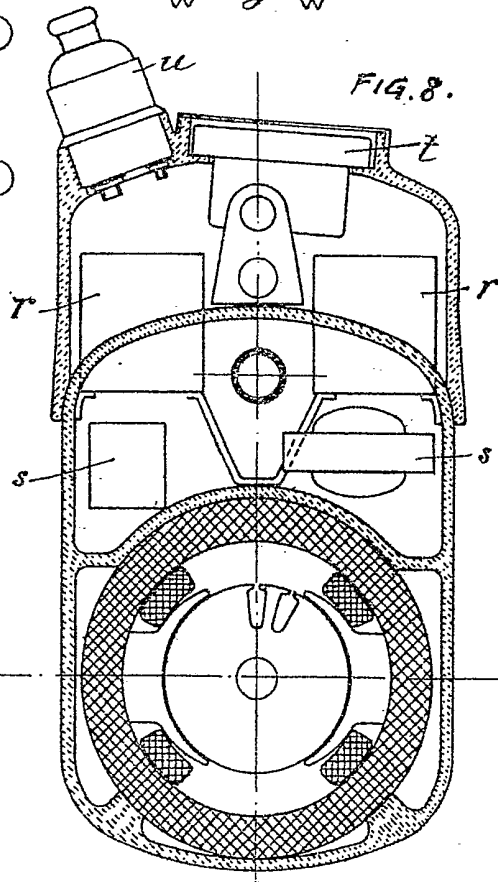


FIG. 8.



FIG. 4.

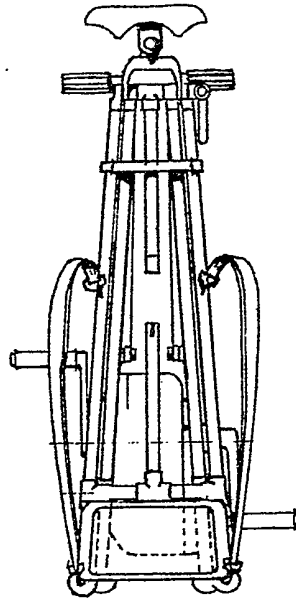


FIG. 7.

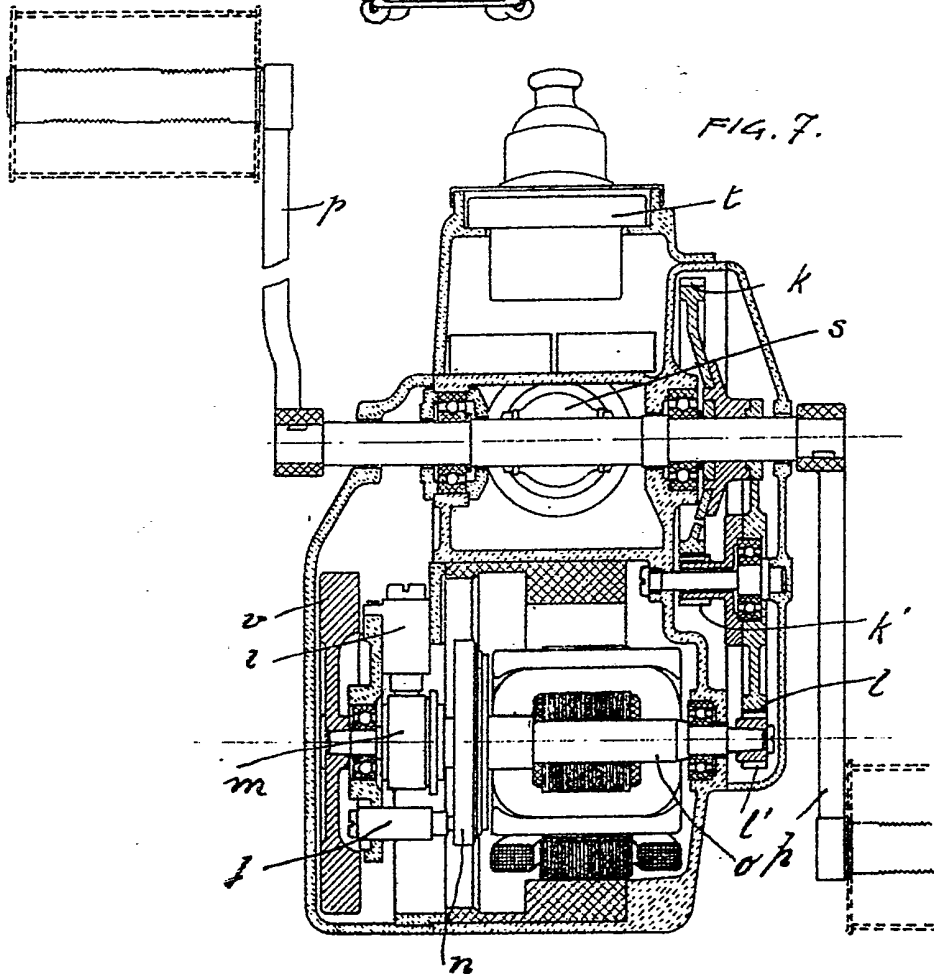
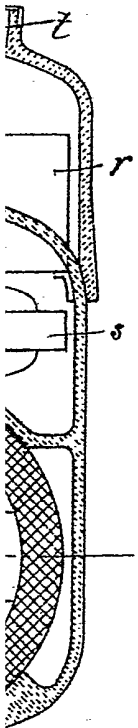
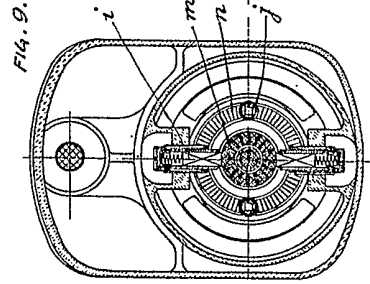
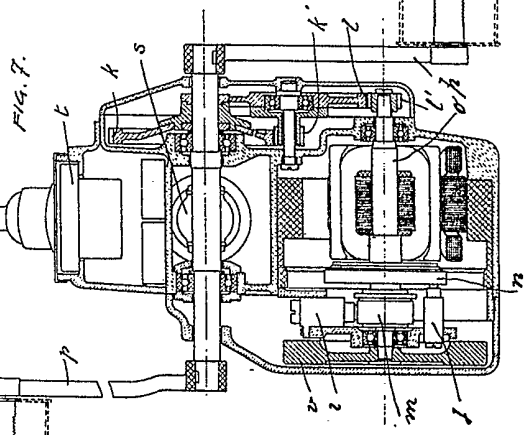
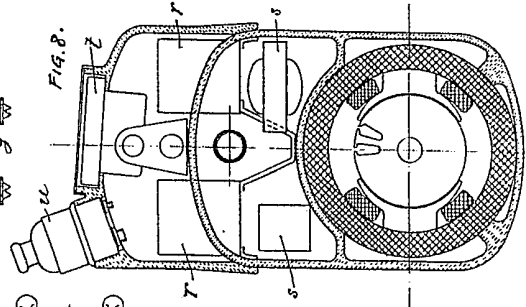
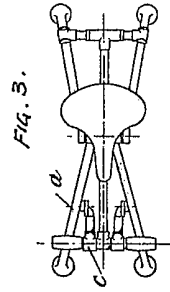
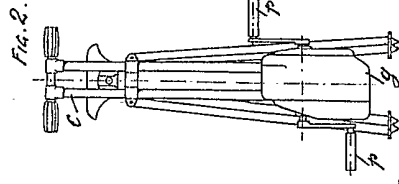
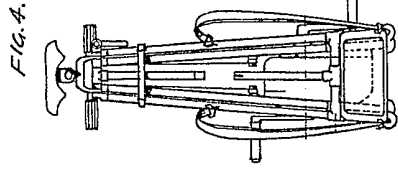
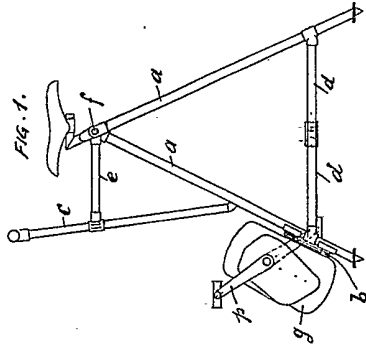


FIG. 8.





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