L. HERBEIL.

APPARATUS FOR SUPPLYING ELECTRIC CURRENT TO A MOVING VEHICLE.

APPLICATION FILED FEB. 14, 1917.

1,329,403.

Patented Feb. 3, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

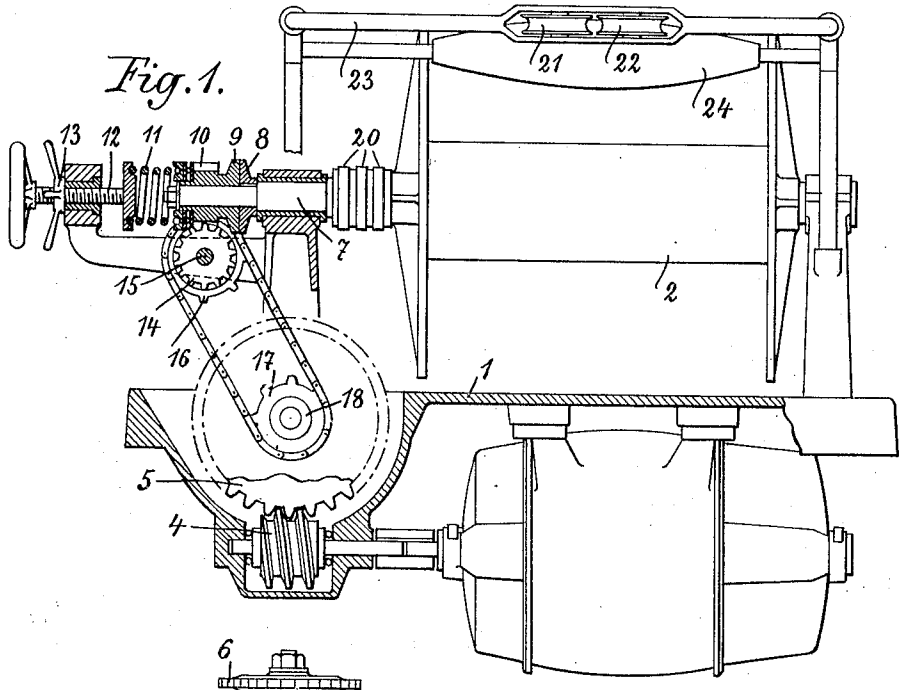
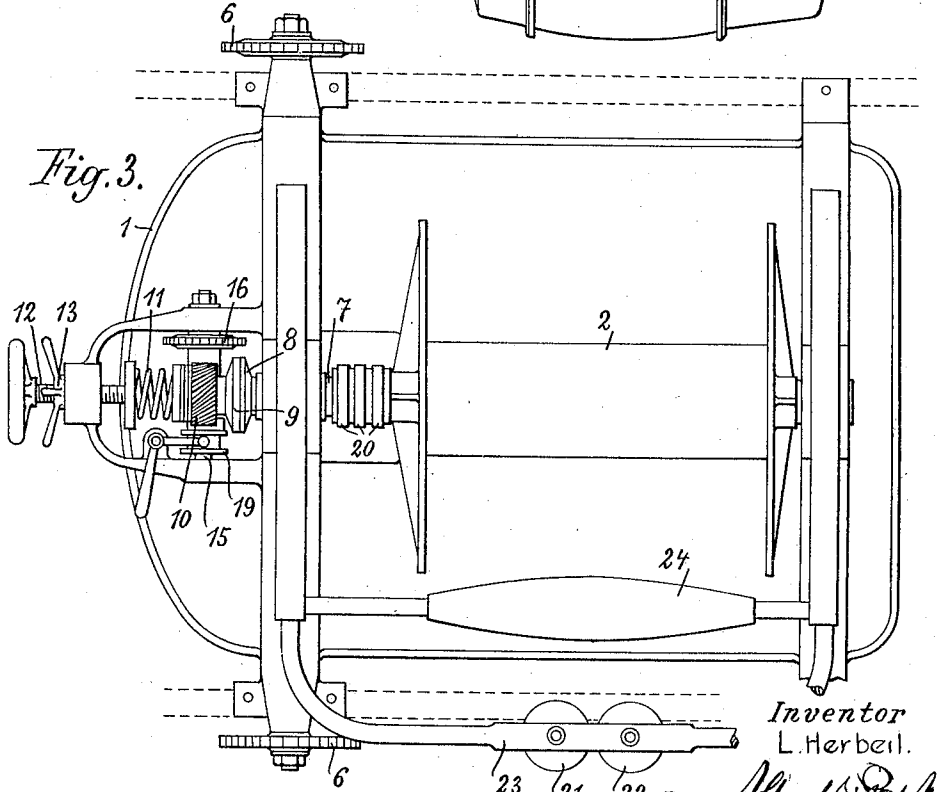


Fig. 3.



Inventor
L. Herbeil.
By Albert G. Parker
Attorney.

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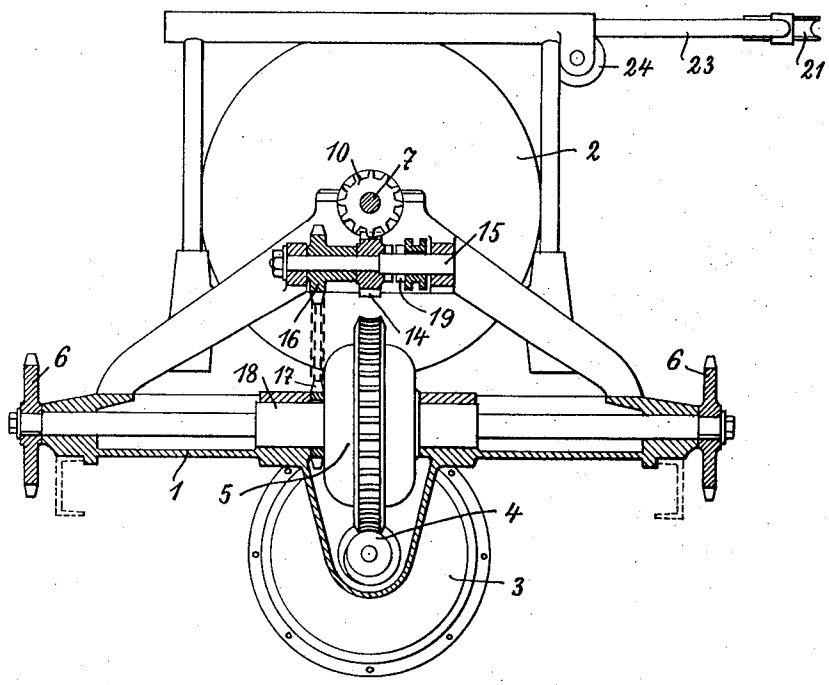
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2 SHEETS—SHEET 2.

Fig. 2.



L. Herbeil.
Inventor
By Albert G. Parker
Attorney.

UNITED STATES PATENT OFFICE.

LOUIS HERBEIL, OF CARCASSONNE, FRANCE.

APPARATUS FOR SUPPLYING ELECTRIC CURRENT TO A MOVING VEHICLE.

1,329,403. Specification of Letters Patent. Patented Feb. 3, 1920.

Application filed February 14, 1917. Serial No. 148,685.

To all whom it may concern:

Be it known that I, LOUIS HERBEIL, a citizen of the French Republic, residing at No. 2 Avenue Arthur-Mullot, in Carcassonne, Department of Aude, France, have invented certain new and useful Improvements in Apparatus for Supplying Electric Current to a Moving Vehicle, of which the following is a specification.

This invention has for its object to provide an improved apparatus for supplying electric current to one or more electric motors mounted on a vehicle which is capable of moving within a determined radius.

The improved apparatus is more particularly applicable to mechanical agriculture. For this purpose the improved apparatus is not only suitable for machines which are worked by traction, such as direct tractors, windlass tractors, self-propelling plows, and the like, but it also allows of using electric energy for operating machines comprising driven tools, such as diggers, tillers, etc.

An embodiment of this invention is illustrated by way of example in the accompanying drawings wherein:—

Figure 1 is a side elevation partly in section of the improved apparatus.

Fig. 2 is an end elevation, also partly in section, of the same.

Fig. 3 is a plan of the apparatus.

1 is the framing on which is mounted a drum 2 provided with flanges. On this drum there is wound a cable for conveying electric current of two or three conductors according to the nature of the current. The framing 1 also carries an electric motor 3 which drives, through the medium of reducing gear 4 with a differential 5, two pinions 6 (Fig. 2) which in their turn drive by means of chains, the driving wheels of the vehicle on which the improved apparatus is mounted.

In cases where the vehicle has only one driving wheel, only one pinion is required, and the differential is dispensed with.

The shaft 7 of the drum 2 has keyed on it a plate 8 against which there is adapted to bear a plate 9 which latter is fixed to or forms a part of a toothed skew wheel 10 that is mounted but not keyed on the shaft 7.

The plate 9 is adapted to be pressed against the plate 8 by a spring 11. The action of the spring 11 is adjustable by means of a screw 12 fitted with a lock nut 13.

The toothed skew wheel 10 engages with a toothed wheel 14 which is provided with a toothed clutch and is mounted so as to rotate freely on the shaft 15. The shaft 15 is driven by the pinions 16 and 17 and a chain (or any other suitable device) from the shaft 18 of the differential. 19 is a toothed clutch fixed on the counter shaft 15 for the purpose of enabling the toothed wheel 14 to be brought into engagement.

The conducting cable terminates at the drum shaft by means of two or three rings 20 which convey the current to the electric devices through the medium of brushes or slip-rings.

On leaving the drum 2 the cable passes between two guide pulleys 21 and 22 mounted on a support 23 which is adjustable in length to allow of carrying the cable for the requisite distance along the side of the vehicle. 24 is a convex roller over which the cable passes; it is interposed between the guide pulleys and the drum for the purpose of assuring a regular winding of the cable.

The improved apparatus being located on the vehicle to be actuated, and the free end of the conducting cable having been connected to a suitable supply of electricity, then if the vehicle be started so as to move away from the point of supply of the current, the toothed clutch 19 being opened so as to allow the drum 2 to revolve freely, the cable will be unwound according as the vehicle moves away and it will be laid upon the ground by the side of the vehicle without being dragged along.

When the vehicle returns toward the point of supply of the current, the toothed clutch 19 being closed, the progressive movement of the vehicle will drive the drum 2 so as to wind up the cable.

At this moment there comes into operation the friction apparatus composed of the plates 8 and 9. As a matter of fact, the drum 2 is driven by the friction of the two plates at such a speed that the cable will never be allowed to lag behind the vehicle, and that as soon as the cable opposes any resistance due to the winding, slipping will take place between the plates 8 and 9 to such an extent that the driving rotary motion of the drum will slacken and will be regulated automatically to suit the length of cable to be wound, without exerting any pull upon the cable or dragging it along the ground.

What I claim is:—

1. In an apparatus of the class described, the combination of a movable carriage and its driving mechanism, a shaft having fixed thereto both a sprocket and one member of a clutch driven by said driving mechanism, a skew gear loosely mounted on the shaft and rigidly fixed to the opposing member of the clutch, a reel shaft supporting a fixed reel, a skew gear loosely mounted on the reel shaft and meshing with the other skew gear, one member of a friction clutch rigidly fixed to the reel shaft, an opposing member of a friction clutch fixed to the reel shaft skew gear and engaging the other member of the friction clutch, a spring engaging the reel shaft skew gear for holding the friction clutch members together, and a screw for adjusting the tension of said spring.

2. The combination with a winding reel, of a convex guiding roller for guiding a cable on to said reel.

In testimony whereof I have signed my name to this specification.

L. HERBEIL.

Witnesses:
K. MÖLLER,
M. AUSSEIL.