E. E. G. BOZERIAN.

Motor.

No. 197,759. Patented Dec. 4, 1877.

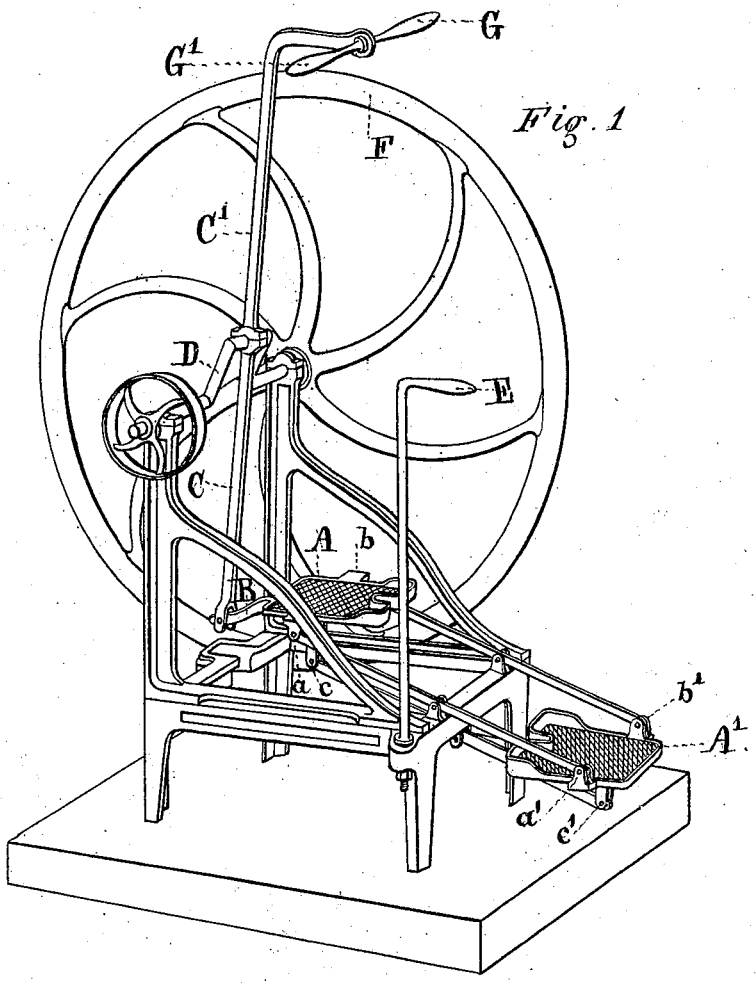


Fig. 1

Fig. 2.

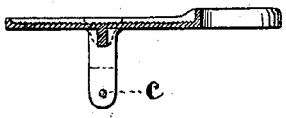


Fig. 3.

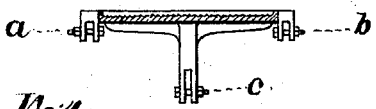


Fig 4.

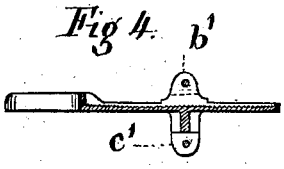
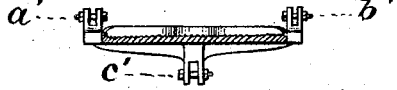


Fig. 5.



Witnesses

Emile Barault

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UNITED STATES PATENT OFFICE.

EUGÈNE E. G. BOZÉRIAN, OF PARIS, FRANCE.

IMPROVEMENT IN MOTORS.

Specification forming part of Letters Patent No. **197,759**, dated December 4, 1877; application filed November 13, 1877.

To all whom it may concern:

Be it known that I, EUGÈNE E. G. BOZÉRIAN, of Paris, in the Republic of France, have invented certain new and useful Improvements in Baromotors, of which the following is a specification:

The object of this improvement on the baromotor for which Letters Patent were issued to me on the 29th day of May, 1877, is to more perfectly utilize the weight of man.

As shown in the annexed drawing, which represents one of the arrangements by which my invention may be carried out, the apparatus is composed of two pedals, A A′, which are articulated or mounted upon three levers of equal length, and having their fulcra upon their centers. One of these pedals, A, is arranged with its three points of articulation or suspension or lever-joints, *a b c*, below. The other, A′, on the contrary, has two of these points or joints, *a′ b′*, above, and the third, *c′*, below the pedal.

This arrangement constitutes an important improvement upon the baromotor, inasmuch as the fatigue of the operator is more evenly distributed upon each leg.

Continued experiments and use of the baromotor for which I have obtained said Letters Patent have demonstrated that one of the legs is always subjected to greater fatigue when the two pedals are jointed to their levers upon the same relative level.

By raising one pedal with respect to the other I have found that this objection is entirely obviated.

From the pedal A projects an arm, B, having connected with it the pitman C, by which motion is transmitted to the apparatus; and it will be observed that whatever may be the position of the operator the pedals will always occupy horizontal positions, so that the operator may stand flat-footed or apply his weight over the whole extent of his soles, and consequently will stand firmly on the machine. In other words, the operator maintains himself upon the pedals in a position which a man would take in ascending a staircase—that is to say, he would throw the weight of his body successively forward and backward, and produce an oscillatory movement, which can be directly utilized to work, for instance, a pump or other reciprocating machine, or which can be transformed into a continuous movement by means of cranks and pitmen, such as indicated at C and D in the annexed drawing.

A handle, E, is applied to the side of the apparatus, which allows of the operator holding onto with one hand if he be inexperienced in manuevering the apparatus, while with the other hand he can start the machine by turning the fly-wheel F.

In Figure 1, I have shown, in perspective view, an apparatus which may serve as a motor, or which, by means of a belt, can be made to work any other machine. Figs. 2 and 3 and 4 and 5 represent, on an enlarged scale, sections of the two pedals, and distinctly show the points of articulation or suspension of each.

It will be understood that this machine may be applied to many uses, such as, for instance, to work circular saws, thrashing-machines, straw-cutters, hydrotherapic apparatus, hoisting machinery, &c.

It will also be understood that the power may be increased by making the pedals larger, so that several men may be employed to work upon them simultaneously.

After a very short use of this machine I have found that men acquire great experience, and that they can work the pedals with their feet while their hands are free to assist in the work which the machine is to perform. Thus the operator may direct, by means of a hose, a jet of water forced by a pump operated by the pedals, or he may feed the wood to a circular saw run by the machine, or he may tend the thrashing-machine; or if the machine be applied to work a shower-bath, the operator may, at the same time, with his hands, produce friction over his body. In other words, he may use the muscular force of the upper part of his body in addition to that exercised by the lower part of the body in throwing his own weight from one pedal onto the other. In this way one man can easily perform the work of three.

Another improvement, not less important than those previously described, consists in the prolongation of the pitman C, as shown in Fig. 1, by the extension-bar C′, which is secured to the pitman C at its connection with the crank-shaft D. Handles G G′ are attached to its curved upper part.

By this arrangement the operator is enabled to work both with his feet and hands, and to aid in overcoming the dead-points of the fly-wheel while adding to the power developed by the shaft.

Having thus described my said invention, and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

1. The method herein described of suspending upon the ends of three oscillating levers two pedals, so that the one shall be above and the other below its points of suspension, substantially as herein shown and described.

2. The combination, with pedals hung upon three levers, as herein described, of a crank-shaft and connecting-rod, extended as shown, and provided with handles, in the manner and for the purposes herein set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

E. E. G. BOZÉRIAN.

Witnesses:
EMILE BARRAULT,
AUG. VINCK.