(No Model.)

F. A. BRENNAN.

MOTOR.

No. 605,382. Patented June 7, 1898.

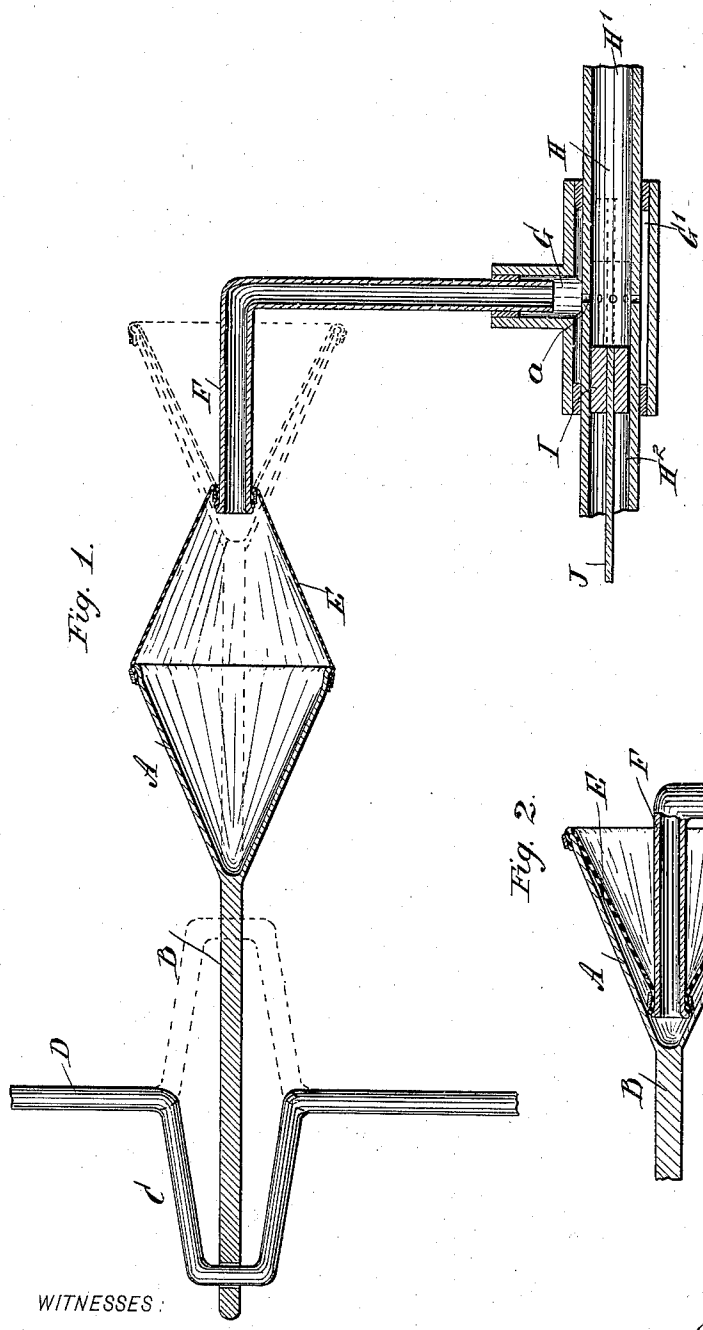

Fig. 1.

Fig. 2.

WITNESSES:

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FRANCIS A. BRENNAN, OF BROCKVILLE, CANADA.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 605,382, dated June 7, 1898.

Application filed August 14, 1897. Serial No. 648,289. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS A. BRENNAN, of Brockville, in the Province of Ontario and Dominion of Canada, have invented a new and Improved Motor, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved motor which is simple and durable in construction, very effective in operation, not liable to get out of order, and arranged to utilize the motive agent to the fullest advantage.

The invention consists principally of a hollow cone connected with the crank-arm of the main shaft, a cone of a flexible material and united at its base with the base of the said hollow cone, and a fixed connection with the apex of the said flexible cone for the inlet and exhaust of the motive agent to and from the said cones.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional side elevation of the improvement, and Fig. 2 is a sectional side elevation of the same with the cones in different positions.

The improved motor is provided with a hollow cone A, provided at its apex with a pitman B, connected with the crank-arm C of the main shaft D of the motor, as is plainly indicated in Fig. 1. On the base of the cone A is secured the base of a flexible hollow cone E, rigidly connected at its apex with a fixed pipe F, opening into a chest G, formed with an annular chamber G′ for the motive agent.

The interior of the chamber G′ is connected by ports *a* with the interior of a pipe H, which connects at one end H′ with a suitable supply and at its other end H^2 forms an exhaust. In the pipe H is fitted to slide a valve I, held on a suitable valve-stem J, actuated in the usual manner from the shaft D, to connect the ports *a* alternately with the inlet and exhaust ends of the said pipe H.

Now when the parts are in the position shown in Fig. 2 and the motive agent passes through the ports *a* into the chest G and from the latter through the pipe F into the cone A then the latter is forced outward to cause the pitman B to impart a half-revolution to the crank-arm C of the shaft D. The outward movement of the cone A pulls the cone E along until the two cones finally reach the position shown in Fig. 1, at which time the valve I is shifted to connect the ports *a* with the exhaust H^2 and to cut off the supply of motive agent. The momentum of the shaft D causes a return movement of the cone A to bring the parts back into the position shown in Fig. 2, the motive agent escaping from the cones through the pipe F, chest G, ports *a*, and exhaust end H^2 to the outer air. The above-described operation is then again repeated—that is, the motive agent is again admitted to the pipe F upon the valve I returning to its position shown in Fig. 1 the motive agent causing an outward movement of the cones A and E for the purpose mentioned.

It will be seen that the device is very simple and durable in construction, and its working parts are very few, so that the motor is not liable to get out of order and the motive agent is utilized to the fullest advantage.

A marked advantage of my improved motor is its lightness.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A motor, comprising a hollow cone, a pitman connecting the apex of said cone with a crank-arm on the main shaft, a cone of a flexible material united at its base with the base of the said hollow cone, a pipe connected with the apex of the said flexible cone to admit and exhaust the motive agent to and from the said cones, the end of the said pipe when the motive agent is admitted extending within the hollow cone to a point near the apex thereof, and a valve mechanism for controlling the admission and exhaust of the motive agent to and from the said pipe, substantially as shown and described.

2. A motor, comprising a hollow cone of rigid or non-flexible material, a pitman extending from the apex of the said cone and connected with a crank-arm on the main shaft, a flexible cone having its base secured to the base of the said non-flexible cone, a fixed pipe

rigidly connected with the apex of the said flexible cone to admit and exhaust the motive agent to and from the cones, the end of the said pipe on the return movement of the pitman extending within the non-flexible cone to a point near the apex end, whereby the motive agent admitted exerts its force directly on the apex end of the said cone, and a valve mechanism for controlling the admission and exhaust of the motive agent to and from the said pipe, the said valve mechanism being actuated from the main shaft of the motor, substantially as set forth.

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Witnesses:
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