

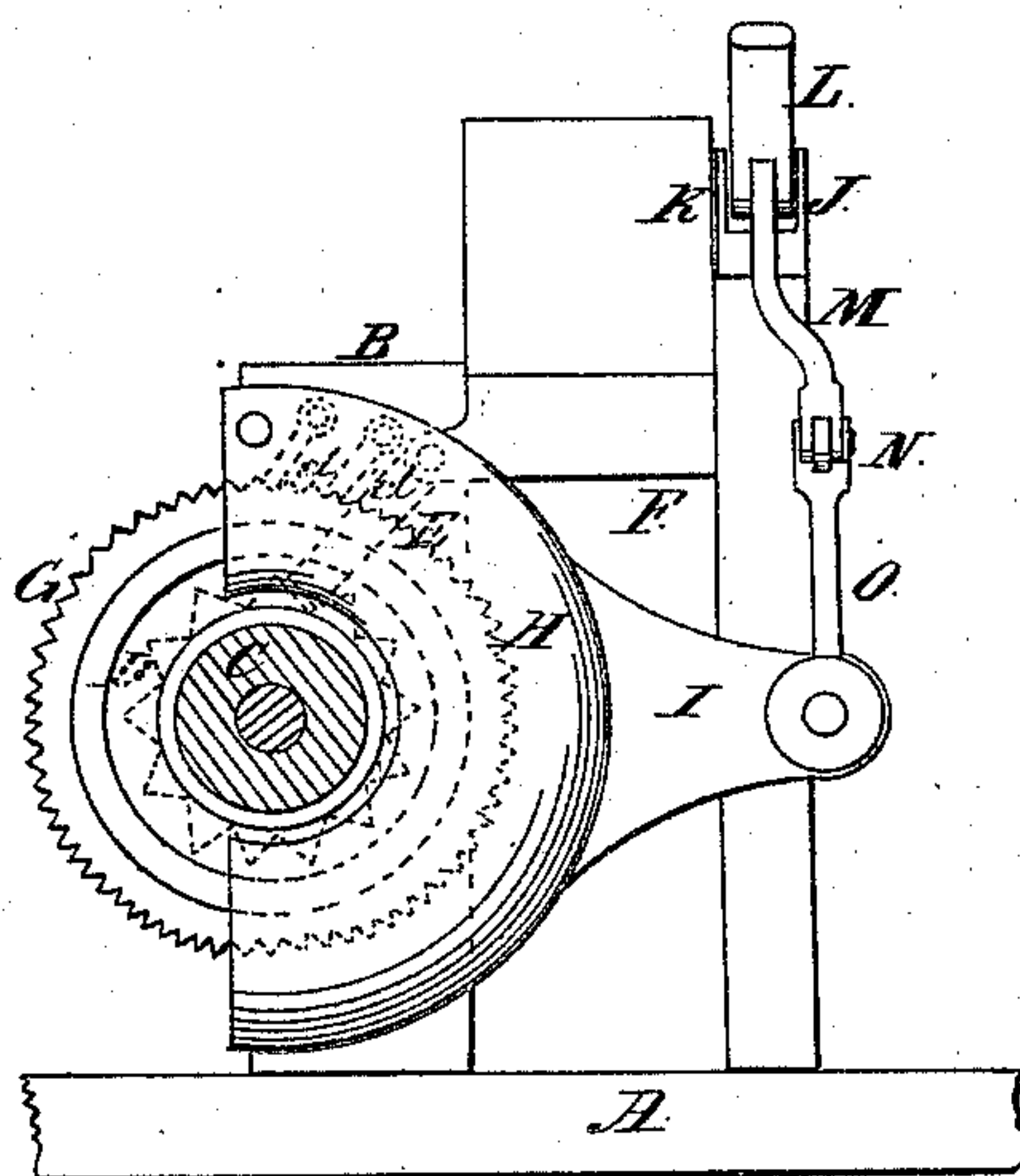
S. W. Smith,

Windlass

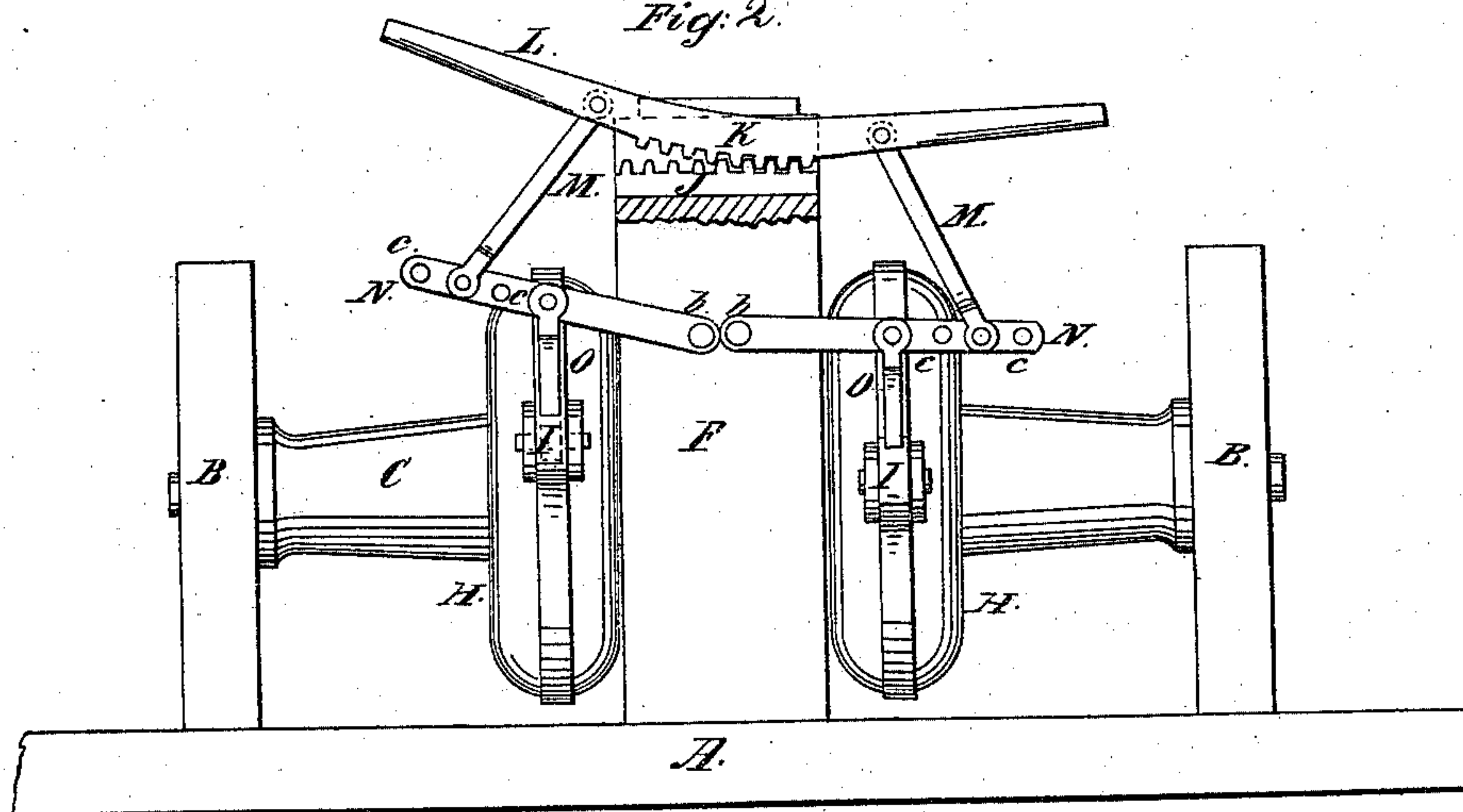
No 21, 280.

*Patented Aug. 24, 1858.*  
*Fig. 1*

*Fig:1*



*Fig: 2.*



# UNITED STATES PATENT OFFICE.

SAMUEL N. SMITH, OF NEW YORK, N. Y.

## WINDLASS.

Specification of Letters Patent No. 21,280, dated August 24, 1858.

*To all whom it may concern:*

Be it known that I, S. N. SMITH, of the city, county, and State of New York, have invented a new and useful Improvement in Windlasses Designed for Marine and other Purposes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is an end view of my invention, the windlass shaft being bisected transversely. Fig. 2, is a side view of ditto.

Similar letters of reference indicate corresponding parts in the two figures.

This invention consisted in the peculiar means employed for applying or transmitting power to the windlass shaft, as hereinafter fully shown and described, whereby the strength of the operators may be applied to the same very uniformly and in the most advantageous manner.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents a bed piece to which two uprights B, B, are attached at suitable distances apart and in, or to which, the bearings of the horizontal windlass shaft C, are attached. The shaft C, is constructed and arranged in the usual way, and has a ratchet wheel D, at its center into which a holding pawl E, catches, the latter being attached to a central post F, on the bed piece. There are also two ratchet wheels G, G, on the shaft C, placed at equal distances from its center. Each ratchet wheel G, is partially inclosed by a semi-annular box H, in each of which two pawls *a, a*, are placed, said pawls catching into the ratchets G, G, see dotted lines Fig. 1. The semi-annular boxes H, H, are allowed to turn freely on flanches on the ratchets G, G, and an arm I, projects from the back part of each box.

On the upper end of the post F, a horizontal rack J, is secured and a curved rack K, gears therein. The curved rack, K, is attached to the center of a lever L, see Fig. 2.

M, M, are two rods or arms the upper ends of which are pivoted to the lever L, at equal distances from each center, and the lower ends of said rods are pivoted to levers

N, N, the fulcrum pins *b*, of which are attached to post F. The levers N, N, have a series of holes *c*, made through them so that the rods or arms M, M, may be attached to the levers N, N, at varying points in order to change the leverage power as may be desired. The levers N, N, are connected with the arms I, I, of the boxes H, H, by links O, O.

The operation is as follows: The operators grasp the ends of lever L, and vibrate it up and down. The fulcrum of the lever L, it will be seen varies as it is operated, for instance, when one end is at its highest point the fulcrum of said end will be at the farther end of the racks J, K, and as said end is depressed the fulcrum gradually approaches it. The reverse of course takes place as the end of the lever rises, and as one end of the lever rises as the other falls, the fulcrum or leverage power increases and diminishes alternately at either end. By this arrangement the leverage power increases as the strength of each operator or, as the force or power applied diminishes, for the operator can apply greater force when the end of the lever that is within his grasp is elevated and the force or power gradually diminishes as the end of the lever descends, consequently a compensating or regulating device is obtained and the force or power applied to the lever will be made uniform or equal, thereby facilitating or rendering less laborious the manipulation of the device. By adjusting the rods M, M, a greater or less distance from the fulcrum *b*, of the levers N, N, the leverage power may be regulated as desired, speed being diminished when power is required and vice-versa.

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

The lever L, provided with the rack K, which gears into the rack J, in connection with the rods M, M, and levers N, N, connected by the links O, with the arms I, I, of the boxes H, H, the whole being arranged for joint operation as and for the purpose set forth.

SAMUEL N. SMITH.

Witnesses:

W. TUSCH,  
M. SMITH.