

(No Model.)

A. FRIESS & J. WALZER.
MOTOR.

No. 425,097.

Patented Apr. 8, 1890.

Fig. 1.

Fig. 2.

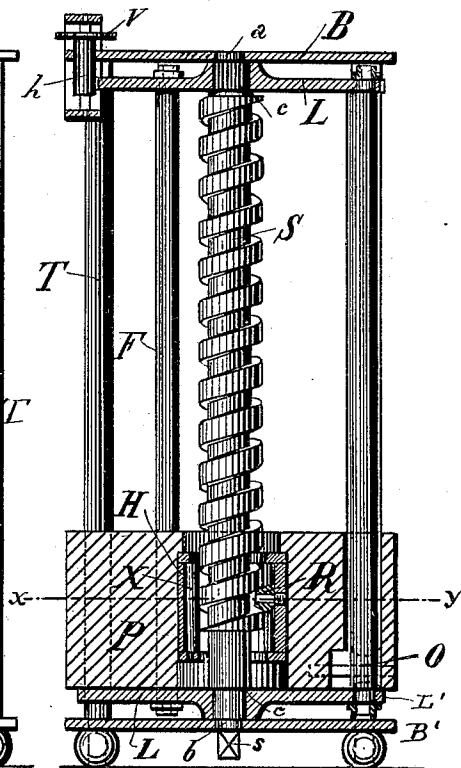
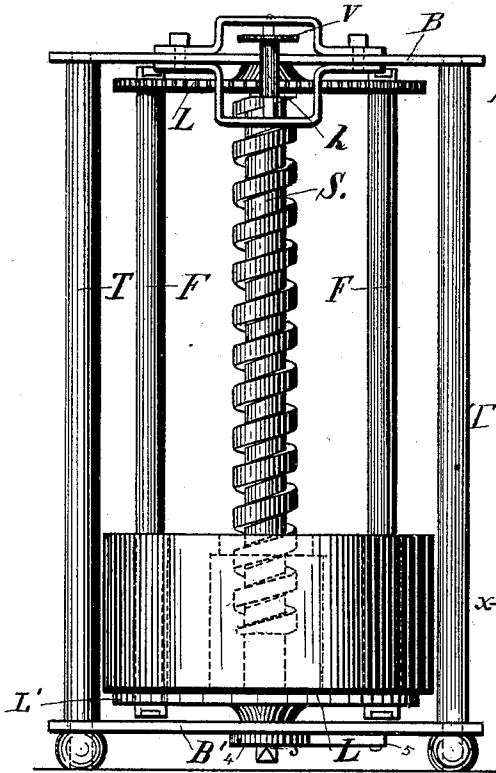


Fig. 3.

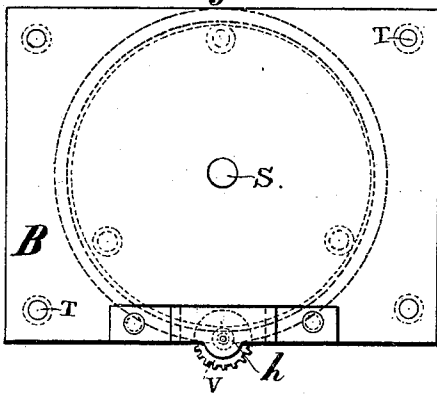
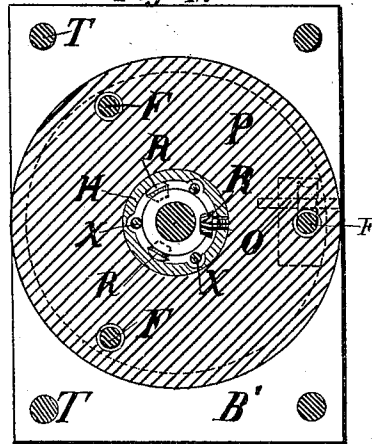


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

ALPHONSE FRIESS AND JUSTIN WALZER, OF BIENNE, SWITZERLAND.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 425,097, dated April 8, 1890.

Application filed September 26, 1889. Serial No. 325,224. (No model.) Patented in Switzerland May 23, 1889, No. 928.

To all whom it may concern:

Be it known that we, ALPHONSE FRIESS and JUSTIN WALZER, both manufacturers, residing at Bienne, Switzerland, have invented an Improvement in Motors for Clocks, &c., (for which we have received Letters Patent in Switzerland, dated May 23, 1889, No. 928,) of which the following is a specification.

This invention relates to a motor in which there is a fixed screw surrounded by a weight and upon the weight are anti-friction rolls resting upon the inclines of the screw-thread, so that a rotary movement is given to the weight as it descends, and from the movement of the weight a rotary motion is given to the clock mechanism.

In the drawings, Figure 1 is an elevation of the motor. Fig. 2 is a vertical section through the weight and the parts connected with it. Fig. 3 is a plan view; and Fig. 4 is a section at the line $x x$, Fig. 2.

The frame-work is formed of the horizontal plates $B B'$, connected together by vertical rods or columns T , and the vertical screw S has its journals in the top and bottom plates $B B'$, and the lower end of the screw S projects below the bottom plate B' , and it is square or polygonal for receiving a ratchet-wheel 4, Fig. 1, and upon the plate B' is a pawl 5, for holding the ratchet-wheel. These parts may be of any desired character; or a key or other suitable device may be applied to the squared portions s of the screw S for rotating the same and winding up the motor by elevating the weight, as hereinafter described. Near the ends of the screw S are circular reduced portions, forming shoulders c , upon which are receiving rings or disks $L L'$, which are connected together by three or more vertical rods F . The weight P is preferably of lead, and it is made with a central hole, through which the screw S passes, and with holes for the rods F , and in the central hole of the weight is a bushing H , having horizontal pivots, upon which are the small rolls R , which are preferably conical and roll upon the upper inclined surfaces of the screw-threads, and these rolls are placed in such a manner as to bear equally upon the screw thread or threads; and there are within the

bushing R small vertical guide-rolls X , which serve to lessen friction and insure a regular and parallel vertical movement of the weight P , and it is preferable to make use of a roll O within the body of the weight and acting against one side of one of the rods F , so that the pressure of the weight as it descends and revolves by gravity in consequence of the roll R running down the incline of the screw-thread will act through the roll O upon the rod F to rotate the disks $L L'$ and the parts with which they are connected; and in Fig. 1 we have represented the periphery of the disk L as provided with teeth acting upon the pinion h to rotate the same, and there is a wheel V , that is rotated by the pinion h and gives motion to the clock mechanism or other device with which the motor is employed. By this construction the power of the weight will be exerted with but little friction upon the disks $L L'$, rods F , and mechanism receiving motion from the disk L , and when the weight has run down, or nearly so, it is only necessary to rotate the screw S by any suitable means, and the weight will be wound up by the action of the screw, and this operation will take place without lessening the force of the weight tending to turn the disks $L L'$, which is of importance in weight-actuated devices—such as clocks—in order that the force of the motive power will be continuously acting upon the escapement mechanism.

We claim as our invention—

1. The combination, with the weight and the screw passing through the weight, of the bushing and rollers R , resting upon the thread of the screw, the disks $L L'$, surrounding the screw near its ends, and the rods $F F'$, connecting the disks, and against one of which the weight acts to rotate the disks and the mechanism connected with the same as the weight descends, substantially as set forth.

2. The combination, with the screw S , of the weight P , a bushing within the same, the rollers R , having bearings within the bushing and resting upon the inclined screw-thread, the rolls X , also within the bushing and parallel to the screw, to lessen the friction, the disks $L L'$ around the end portions of the screw, the rods F , connecting the disks $L L'$

and passing through holes in the weight, and a roll upon the weight and acting against one of the rods F, substantially as set forth.

3. The frame composed of the plates B B' and rods T, in combination with the vertical screw S, supported by said plates, the weight P, surrounding the screw S and provided with rolls R, resting upon the screw-thread, the disks L L' around the cylindrical ends of the screw, and the rods F, for connecting the

disks L L', such rods passing through the weight P, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ALPHONSE FRIESS.
JUSTIN WALZER.

Witnesses:

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