(No Model.)

S. A. HAINES.

MECHANICAL MOTOR.

No. 382,525. Patented May 8, 1888.

Fig. 1

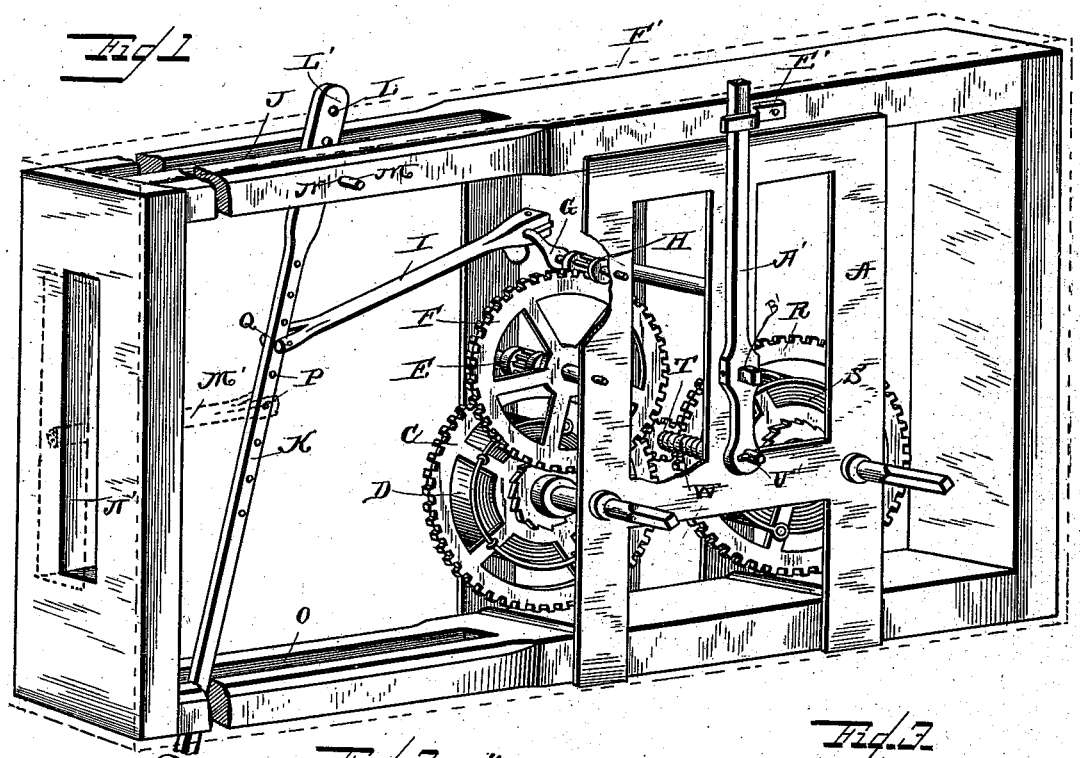


Fig. 2

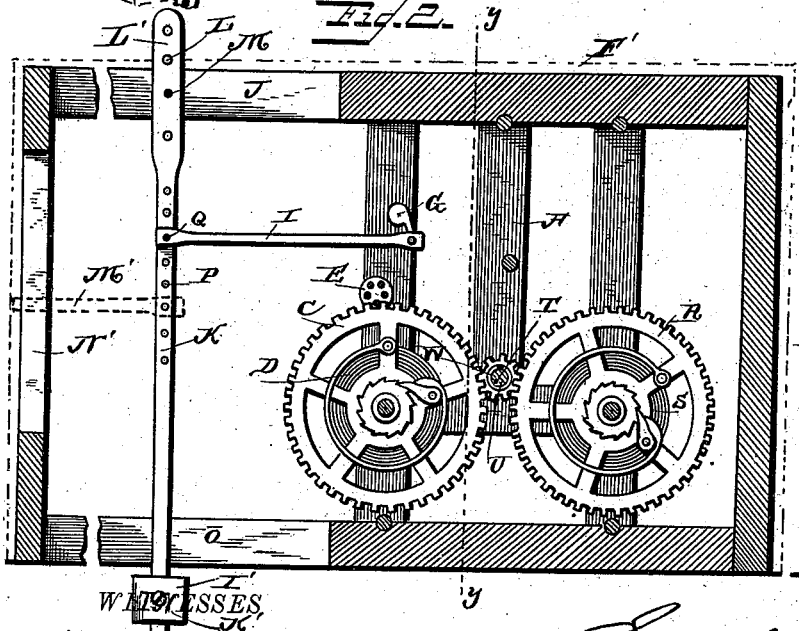
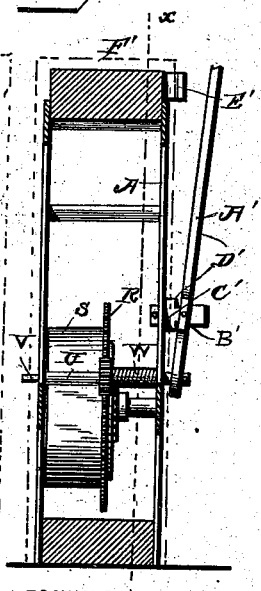


Fig. 3



WITNESSES.

F. L. Ourand.

J. F. Reily.

INVENTOR.

Samuel A. Haines,

by Louis Bagger & Co.

Attorneys.

UNITED STATES PATENT OFFICE.

SAMUEL ALFRED HAINES, OF GUIDE, TEXAS.

MECHANICAL MOTOR.

SPECIFICATION forming part of Letters Patent No. 382,525, dated May 8, 1888.

Application filed October 29, 1887. Serial No. 253,727. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL ALFRED HAINES, a citizen of the United States, and a resident of Guide, in the county of Ellis and State of Texas, have invented certain new and useful Improvements in Mechanical Motors; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which--

Figure 1 is a perspective view of my new and improved mechanical motor, showing the box or outer casing in which the machinery is inclosed indicated in dotted lines. Fig. 2 is a longitudinal vertical sectional view of the same, taken on the plane indicated by line *x x* of Fig. 3, looking toward the left; and Fig. 3 is a transverse vertical sectional view taken on the plane indicated by line *y y* of Fig. 2, looking toward the right.

The same letters of reference indicate corresponding parts in all the figures.

My invention consists in a new and improved mechanical motor or mechanism which I especially design for running a fan or fans in various positions, but which is also adapted for running or operating churns, either barrel or dasher, and for various other purposes, and my invention will be hereinafter fully described and claimed.

Referring to the several parts by letter, A indicates the frame in which the operative mechanism of the motor is mounted. Near the middle of this frame, in the lower part thereof, is mounted a train of wheels of the ordinary clock-train mechanism, the drive-wheel C, on which the spring D directly acts, meshing with the pinion E on the axle of the upper gear-wheel, F, and immediately above this upper wheel, F, is journaled across the frame A the crank-shaft G, which is formed with the crank at its center, and which has to one side of its central crank the pinion H, as shown, with which the upper wheel, F, meshes. Upon this central crank is pivotally mounted what may for convenience of reference be called the "inner" end of a connecting-pitman, I.

The upper and lower sides of the frame A are slotted, and through the slot J in the upper side piece passes the upper end of the fan-rod K, which is formed with a series of apertures, L L, along its upper end portion, and is adjustably pivoted in the upper slotted side piece of the frame by means of a pivot-pin, M, which passes through apertures N in the said side piece and through any one of the series of apertures L, by which means the fan-rod can be readily raised or lowered and its length below its pivotal supporting-point increased or lengthened. The other end of the fan-rod extends down through the longitudinal slot O in the lower side piece of the frame A, which slot is sufficiently long to allow free play or swing to the fan-rod, and a suitable fan is secured on this end of the fan-rod, while the central part of the fan-rod is formed with a series of apertures, P P, arranged along the length of the rod, as shown, and to this central perforated part of the said rod is pivotally secured the outer end of the connecting-pitman I, which is adjustably pivoted to the fan-rod by means of a pivot-pin, Q, which passes through the bifurcated end of the said pitman and through any one of the series of apertures P, by which means the end of the pitman can be adjusted up or down farther away or nearer to the pivotal supporting-point of the fan-rod, by which adjustment the swing or length of swing of the fan can be readily adjusted, as desired.

A second or auxiliary drive-wheel, R, is preferably mounted in the rear-end portion of the frame A, with its coiled drive-spring S, a space being left between the periphery or teeth of this second drive-wheel and the teeth of the first or main drive-wheel, and the teeth of the two drive-wheels are connected by a pinion, T, which is rigidly mounted on the central part of a shifting or movable shaft, U, which extends across the frame A directly between the two drive-wheels, as shown in the drawings. This shaft U is mounted in the frame A so that it can be shifted longitudinally in one direction, while its shouldered end V limits its movement in the other direction, and a spiral spring, W, which presses with one end against one side of the pinion T and with the other end against the inner side of the casing, normally holds this pinion in engagement, meshing with the two large drive-wheels C R, and throws it back into engagement when the end of the shifting-lever is released. Upon the outer side of the frame A at that point is

pivoted a lever, A′, which is formed near its inner end with an aperture, B′, through which passes the outer end of a fulcrum, C′, which is keyed to the frame and is provided with a shoulder, D′, which holds it in position. The lower end of the lever is also secured to the intermediate shaft, U. When the driving-power of both heavy springs is desired, the pinion T is left in engagement with the two drive-wheels, connecting the two and transmitting the power of the said two springs to the crank-shaft of the motor; but when only the main drive-wheel and spring are required this second or auxiliary spring is thrown out of operation by merely forcing back the outer end of the lever A′, which will draw the shaft U out or to one side, so as to free the pinion T from the teeth of the two drive-wheels C and R, as will be readily seen, at the same time compressing the spring W, and the pinion is held out of engagement by turning a catch, E′, over the depressed outer end of the lever. The aperture B′ in the inner end of the shifting-lever is sufficiently large to prevent the end of the sleeve from binding in the said aperture. When the power of both springs is desired, all that is necessary is to free the outer end of the lever from the retaining-catch E′, which is usually pivoted, as shown, when the tension of the spring W will force the shaft U back to its original position and the pinion U back between the two drive-wheels C and R, thus connecting the two drive-wheels and bringing the power of both springs into play. This construction and arrangement of parts forms a very convenient and effective means of regulating the power according to the work to be done.

The frame A and mechanism are inclosed in a suitable casing, F′, as shown in dotted lines in the drawings, and which may be made ornamental, if desired; and it will be seen that the motor, which is very compact and portable, can be readily and conveniently carried from place to place, and can be adjusted in any place or position desired, as it will work in any position.

The motor, with the fan attached, can be attached to the ceiling over a table or over a bed, or can be set upon a bracket, and will fan for many hours with one winding up. The length of time which the motor will run with one winding can be increased by introducing more wheels in the train, as will be readily understood, between the drive-wheel and the crank-shaft.

It will be seen that the motor will operate a fan equally well in three different ways—either with a swinging or pendulous motion back and forth overhead when the casing is standing with the fan down, a horizontal motion when the casing is on its flat side, and an up-and-down motion when the casing is standing erect on one end. The fan-rod can be readily lengthened or shortened, as previously described; and its motion regulated by raising or lowering the end of the pitman, which is adjustably pivoted to it, as before described.

An adjustable weight, I′, is placed upon the lower part of the fan-rod and is held adjustably in position by means of a set-screw, K′. The object of this weight is to regulate the motion of the fan, which is done by slipping the weight up or down, as required, when it will regulate the rapidity of motion of the fan in the manner of the ordinary adjustable pendulum, as will be readily seen. The weight is used on the lower part of the fan-rod when the fan is used with the swinging pendulous motion—that is, when the casing is placed with the lower side down; but when the fan is to be used with an up-and-down motion, when the casing is placed on its end, which is provided with the base-piece, the weight is not needed on the lower end of the fan-rod, but is removed and placed on the projecting upper end, L′, of the said rod to balance the weight of the fan and the longer part of the rod, which it will exactly do by adjusting it to the precise point and fastening it with the set-screw.

My new and improved motor is also designed to be used to run or operate a churn, either barrel or dasher, the springs being made heavy enough and all the parts strong enough for these several purposes. When running a dasher-churn, the motor is placed on a suitable supporting-frame over the churn, resting upon its lower end, the upper end of the dasher-rod being pivoted to the outer end of the fan-rod, while to operate a swinging or barrel churn a connecting-rod, M′, is pivoted at its inner end to the central part of the fan-rod and passes through a slot, N′, in the other end of the frame A, and is pivoted at its outer end to the churn-handle in a suitable manner. This connecting-rod M′ is also used when a series of fans are to be operated by the motor, connecting in a suitable manner with an additional pivoted fan-rod, as will be readily understood.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

The combination, with the frame having the side and end slots, of the two drive-wheels and their springs, the movable spring-actuated shaft having the central pinion, the pivoted lever, the catch for the same, the crank-shaft formed with the central crank and having the pinion, the connecting-pitman, the pivoted adjustable fan-rod formed with the series of apertures near its upper end and along its central part, the adjustable weight, and the connecting-rod, all substantially as and for the purpose herein set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

SAMUEL ALFRED HAINES.

Witnesses:

CYRUS THOMPSON HOGAN,

WILLIAM BRUDSER BRIDYALE.