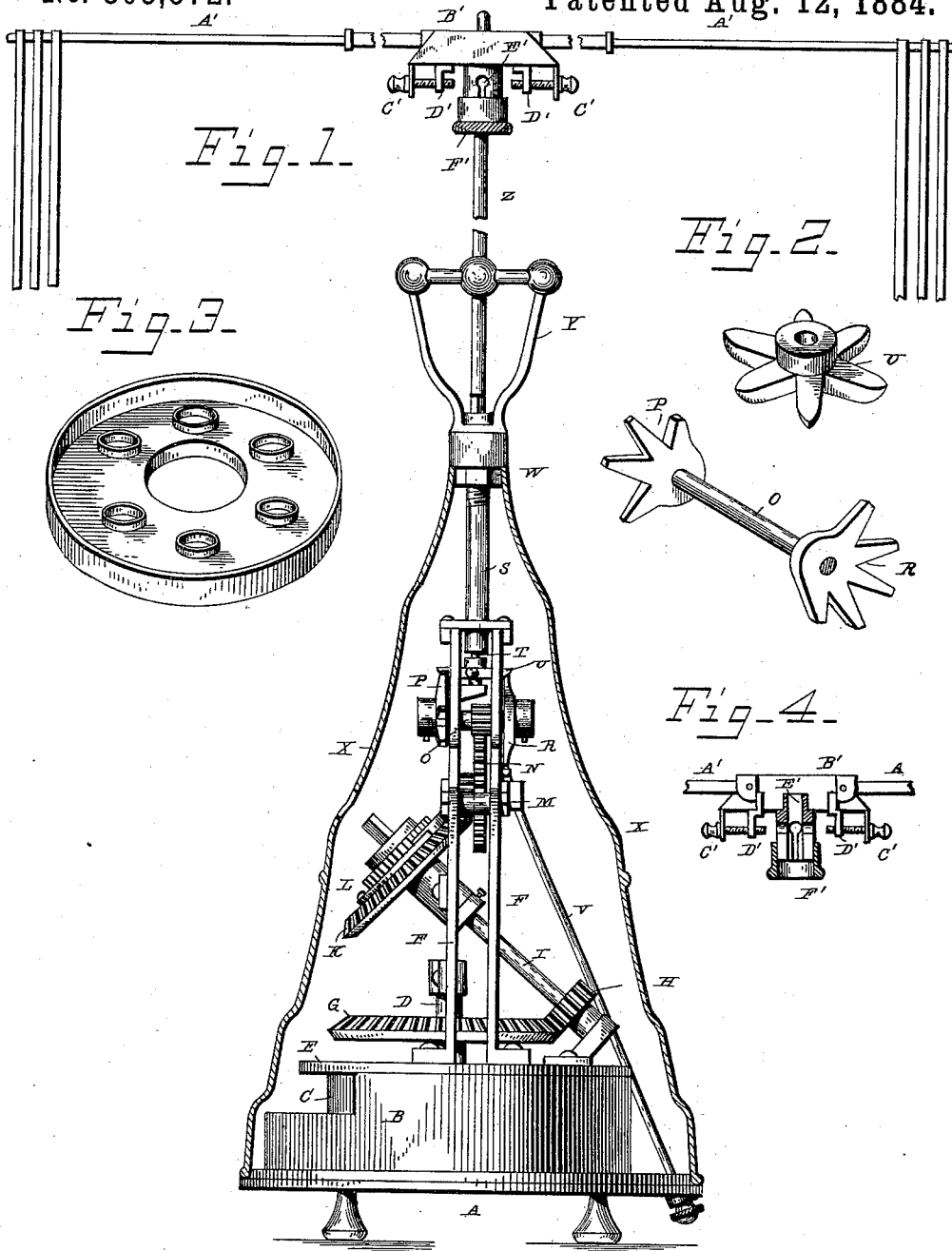


(No Model.)

F. M. HUNT.  
MECHANICAL MOVEMENT.

No. 303,572.

Patented Aug. 12, 1884.



WITNESSES

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# UNITED STATES PATENT OFFICE.

FRANK M. HUNT, OF ROUND OAK, GEORGIA.

## MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 303,572, dated August 12, 1884.

Application filed April 22, 1884. (No model.)

### *To all whom it may concern:*

Be it known that I, FRANK M. HUNT, a citizen of the United States, residing at Round Oak, in the State of Georgia, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to a new mechanical movement, and has for its object to provide a mechanism that will produce an alternate forward and backward rotative motion, and at the same time, the forward motion being greater than the backward, a slow but complete and constant revolution is obtained. This object is accomplished by a motive power acting through a series of intermeshing gears, and thereby actuating the particular and peculiar mechanism which produces the result set forth. The movement is peculiarly adapted to operate a fly-fan, its motion being that best adapted to frighten flies, and the mechanism is such as to be contained in the casing of a caster, thereby forming an ornamental and useful device for table or other use.

In describing the device reference will be made to the accompanying drawings, in which Figure 1 represents an elevation of a device to which the movement is applicable, the casing of the mechanism being in section. Fig. 2 is a perspective of the mechanism producing the new movement, the parts being somewhat separated. Fig. 3 is a perspective of a fruit and cruet holder adapted to fit over the casing and rest on the projections shown on the same, and Fig. 4 is a section through an adjusting mechanism for holding fly-fans.

A represents the base of the device, and may be supported on legs, as shown. The base has cast on it a short hollow cylinder, B, open on top, and recessed on one side for the purpose of easily obtaining access to the spring C, which is contained in the said cylinder, and is adapted to actuate the entire device. One end of the spring is secured to the base and the other to a short vertical shaft, D. On the cylinder is the cover-plate E, which is secured to the same, and has erected on it the upright frame F, preferably of two parts,

which forms the support for the different parts of the mechanism hereinafter described.

The shaft D, before mentioned, has on it, above the cover E, a large bevel gear-wheel, G. Engaging with the said bevel-gear is a pinion, H, secured to a shaft, I, which is set at an angle corresponding to the bevel of the aforesaid gear-wheel, and extending centrally over the same. The said inclined shaft is stepped in a suitable bearing secured to the cover-plate E, and also, near its upper end, is journaled in the upright frame F, and has its extreme upper end adapted to receive a key, for the purpose hereinafter described. The inclined shaft has on it, outside the bearing in the frame, a loose bevel gear-wheel, K, the bevel being at such an angle as to bring the teeth on the upper edge to a horizontal position. The shaft has secured to it outside the gear, and bearing on the surface of the same, a ratchet-wheel, L, in which engages a pawl secured to the surface of the gear K. The purpose of the ratchet and pawl is to allow the inclined shaft to be turned (by a key) to the right, as is usual, to wind the spring without turning the gear K, but which, when the spring unwound, would, by means of the ratchet and pawl engaging, be turned in the proper direction. The winding-shaft being inclined, as shown, (about 45 degrees,) places it in a position that is most convenient for manipulating the key.

Journaled transversely near the upper part of the frame is a short shaft bearing a pinion, M, with which the bevel-gear K intermeshes, and also a gear-wheel, N, which engages with a pinion on a transverse shaft, O, above it, the shaft being properly journaled in the frame. The shaft O projects on each side outward from the frame, and has secured to it the toothed segments P and R, respectively, which are so placed on the shaft that the teeth project in opposite directions, as shown in Fig. 2 of the drawings. One of the segments, P, has four teeth and the other, R, has five teeth. The purpose of the peculiar arrangement will be explained hereinafter.

S represents an upright tube or cylinder provided near its lower end with a projecting plate, which rests on and is secured to the top of the frame F, and supports the said tube. Pass-

ing through this tube is an upright shaft, T, properly stepped in a bearing in the frame F, just above the transverse shaft O, and having secured to it above the said bearing a horizontal wheel, U, provided with six radial wheels or arms. The wheel U, with the two segments P and R and the respective shafts T and O, forms the mechanism which produces the peculiar mechanical movement heretofore set forth. The first tooth of each segment is shorter than the others, for the purpose hereinafter set forth. As the shaft O is rotated the teeth of the segment R will engage with the teeth or arms on the wheel U and turn it a distance equal to five of its teeth—or, in other words, five-sixths of a revolution. The instant the last tooth of the segment R disengages with or passes from the teeth on the wheel U the first tooth of the segment P engages with the wheel U, on the other side, and, rotating in the same direction as the segment R, it will necessarily turn the said wheel U in the opposite direction, thus reversing the motion of the said wheel; but as the segment P has only four teeth, and consequently engages but four teeth of the wheel U, it turns it but four-sixths of a revolution to five-sixths by the segment R. Therefore, there is a steady gain of one-sixth of a revolution to each double motion of the said wheel U, which gain produces a complete and constant revolution of the wheel and whatever is connected to it. Were the teeth on the segments all of the same length, the first tooth of one would engage with the wheel U before the last tooth of the other segment had disengaged with it. This difficulty is entirely overcome by shortening the first tooth of each segment sufficiently to allow it to pass under the tooth it would otherwise engage and engage with the next one. The segment of a circle through which the end of the shortened tooth passes will give it sufficient "rise" to pass under one tooth and engage with the next. All the "backlash" is "taken up" by the spring, and therefore the motion of the device is easy and regular.

V represents an inclined rod projecting from under the base A, where it is provided with a suitable thumb-nut, upward through a suitable bearing on the frame F, and having its end bent at right angles, so as to pass under one of the teeth of one of the segments, preventing it revolving, and thus stopping the machine. To start the machine, the rod is turned by means of the thumb-nut till the end projects outward, and thus being disengaged with the segment, and allowing it to revolve. On top the tube S, which is screw-threaded, is the nut W, forming a rest for the top of the casing X, which surrounds the entire mechanism above described, and rests at its bottom on the base A, as shown. The casing has through it a hole which corresponds to the upper end of the winding-shaft, and through which is inserted the key in winding the spring. The tube S has also screwed on it, above the nut, and adapted to bear against the

top of the casing, the top piece or handle, Y, the center of the cross-piece of which is provided with a vertical hole. Through this hole is passed the rod Z, which, in the particular device shown, is designed to support and operate a fly-fan, hereinafter described. The lower end of the rod is squared to fit a socket in the top of the shaft T, which arrangement allows the rod to be removed, if desired.

A' represents two arms of the fly-fan. These arms are formed of two pieces—one sliding in the other, the outer ends having removably secured to them pendent pieces of paper or other light material, which in motion would scare or frighten flies. The arms are pivoted in a box, B', the pivots passing through enlargements on the butts of the arms, as shown.

C' represents thumb-screws which move the piece D, adapted to bear against the lower end of the butts of the arms, and thus elevate or depress them, as is evident in Fig. 4 of the drawings.

The box B' has centrally located in it vertical and downwardly-projecting tube E', which is slotted at its lower end and screw-threaded, so that the thumb-nut F, by being screwed over it, will cause the sides to bear against the rod Z, which passes through the said tube E'. This arrangement allows the various adjustment of the arms, and also the vertical adjustment of the fly-fan on the rod Z.

In Fig. 3 is shown a perspective of a fruit-holder adapted to be slipped over the casing of the device, and is provided with a series of holes, so that by turning it the other side up it may be used as a cruet-holder.

As the actuating and transmitting mechanism described applies more particularly to the particular device shown, it may be varied to suit circumstances.

The mechanical movement itself may be applied to any machinery or to any purpose to which it is suited.

The number of teeth on the segments and on the wheel U are not necessarily confined to four, five, and six, respectively, but it is necessary that one segment should have more teeth than the other.

Having thus described my invention, what I claim is—

1. As a new mechanical movement, a mechanism producing a forward and retrograde rotation, with the forward motion the greater, thus causing a slow but complete and constant revolution, as set forth.

2. A mechanism for producing the movement described, consisting of a shaft having on each end a toothed segment, one having more teeth than the other, and the first tooth of each being shorter than the other teeth, the segments being so placed as to project in opposite directions from the shaft, and a toothed wheel placed intermediate between the segments so that they will alternately engage with it, as set forth.

3. The combination, with the mechanical

movement described, and connected to and  
operating a fly-fan, of the power-transmitting  
gearing, the said power being a spring or its  
equivalent inclosed in a suitable case, the whole  
5 device being supported on a proper base,  
and the mechanism inclosed in a casing which  
is adapted to hold the fruit-carrier and cruet-  
stand, the whole being combined to operate as  
and for the purpose set forth.

10 4. The combination, with the spring and large  
bevel gear-wheel, of the transmitting and  
winding mechanism, consisting of an inclined  
shaft properly journaled, having on its lower  
end a pinion to engage with the said gear-  
15 wheel, and the upper end carrying a loose  
gear-wheel, and a ratchet which engages with  
a pawl on the gear-wheel, the said shaft being  
adapted to receive a key on its end, all being

arranged to operate as and for the purpose set  
forth.

20 5. The combination, with the toothed wheel  
and toothed segments, the intermeshing gear-  
ing operating the same, and the standard sup-  
porting the said mechanism, of the starting  
and stopping device, consisting of a rod jour- 25  
naled in the frame, and having its upper end  
bent at such an angle as to engage and disen-  
gage with the teeth of one of the segments on  
being turned, substantially as set forth.

In testimony whereof I affix my signature in 30  
presence of two witnesses.

FRANK M. HUNT.

Witnesses:

JOHN F. CHILDS,  
R. H. MARSHALL.