

(No Model.)

E. L. CUENDET.
MUSIC BOX.

3 Sheets—Sheet 2.

No. 501,766.

Patented July 18, 1893.

Fig. 2.

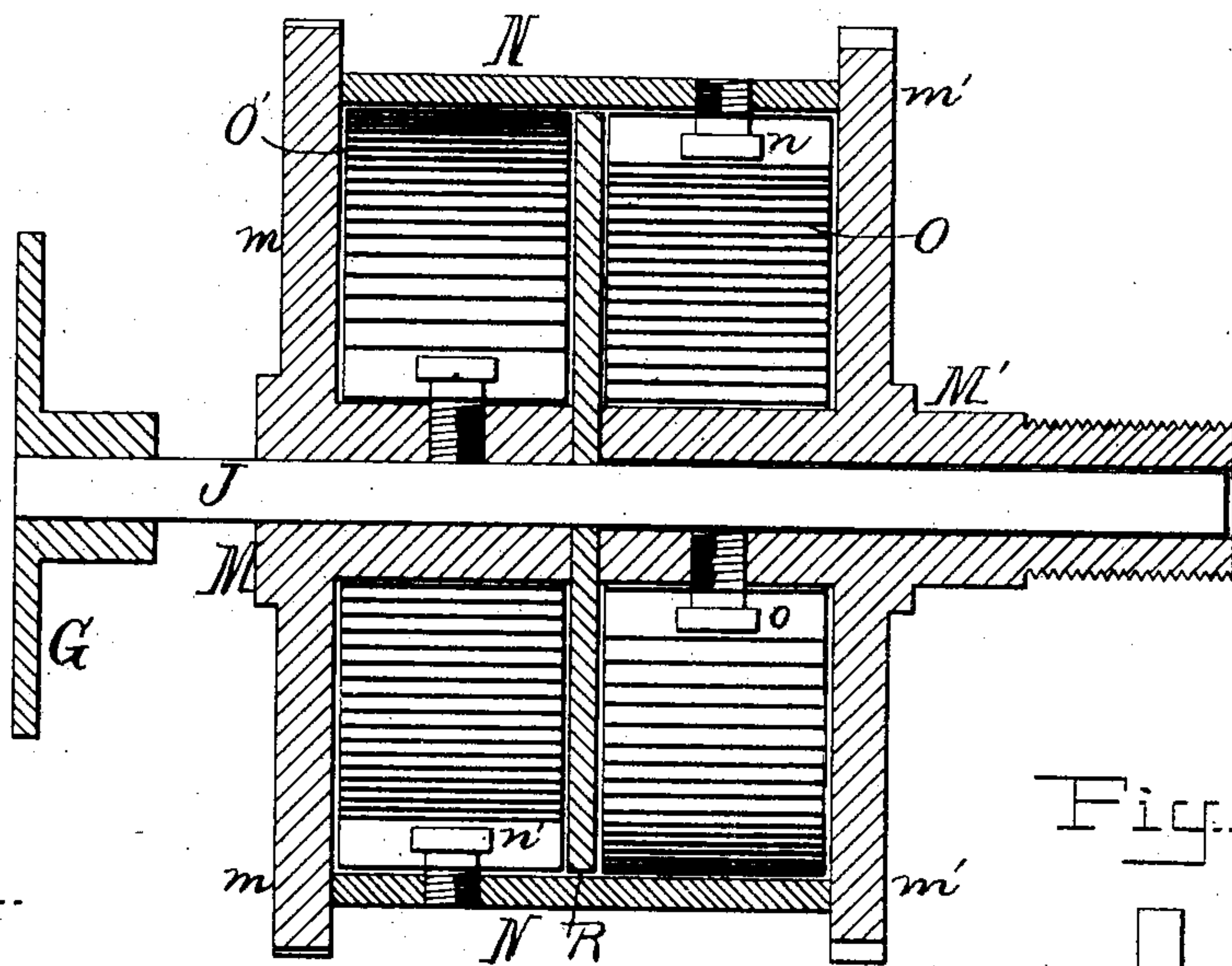


Fig. 11.

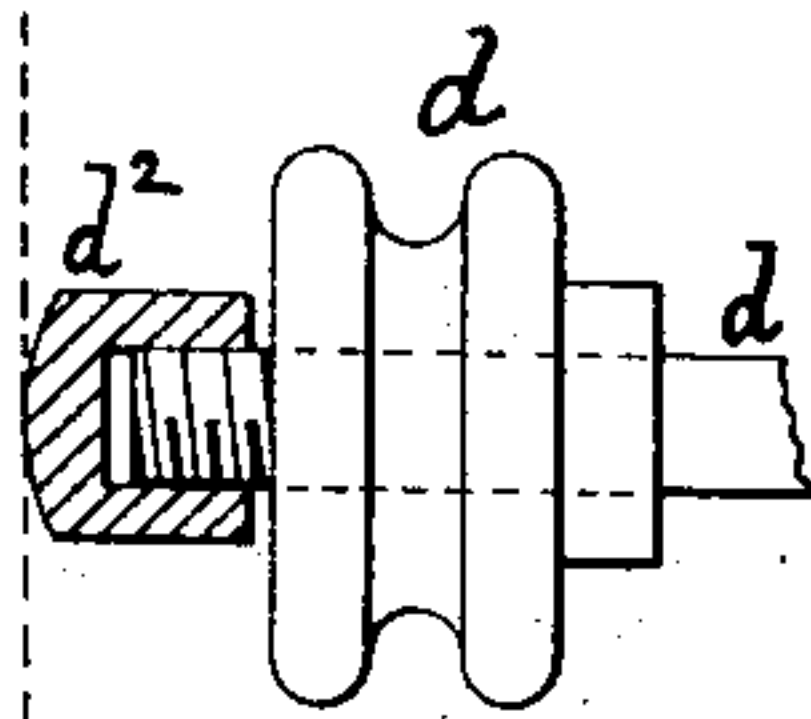


Fig. 3.

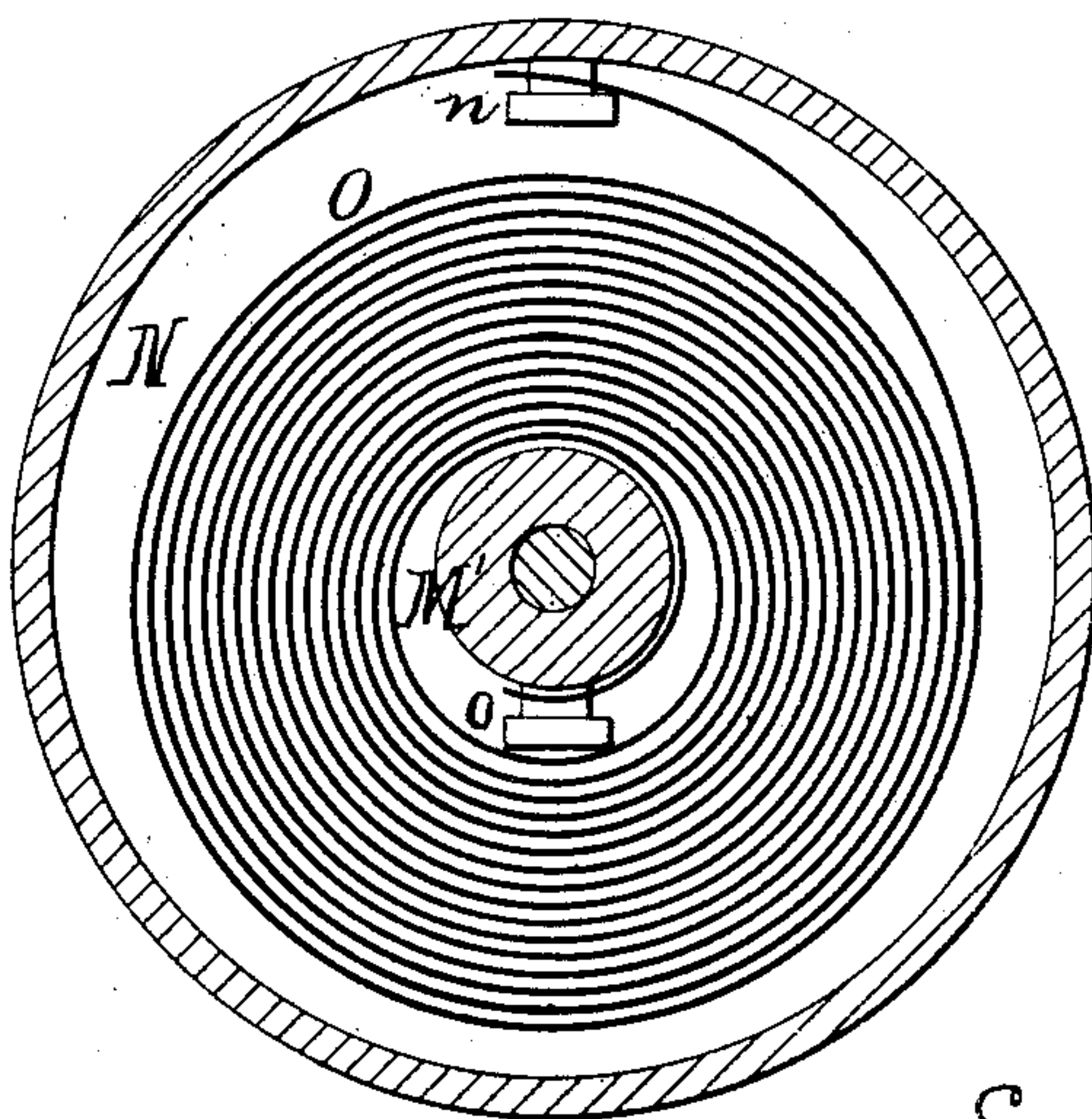
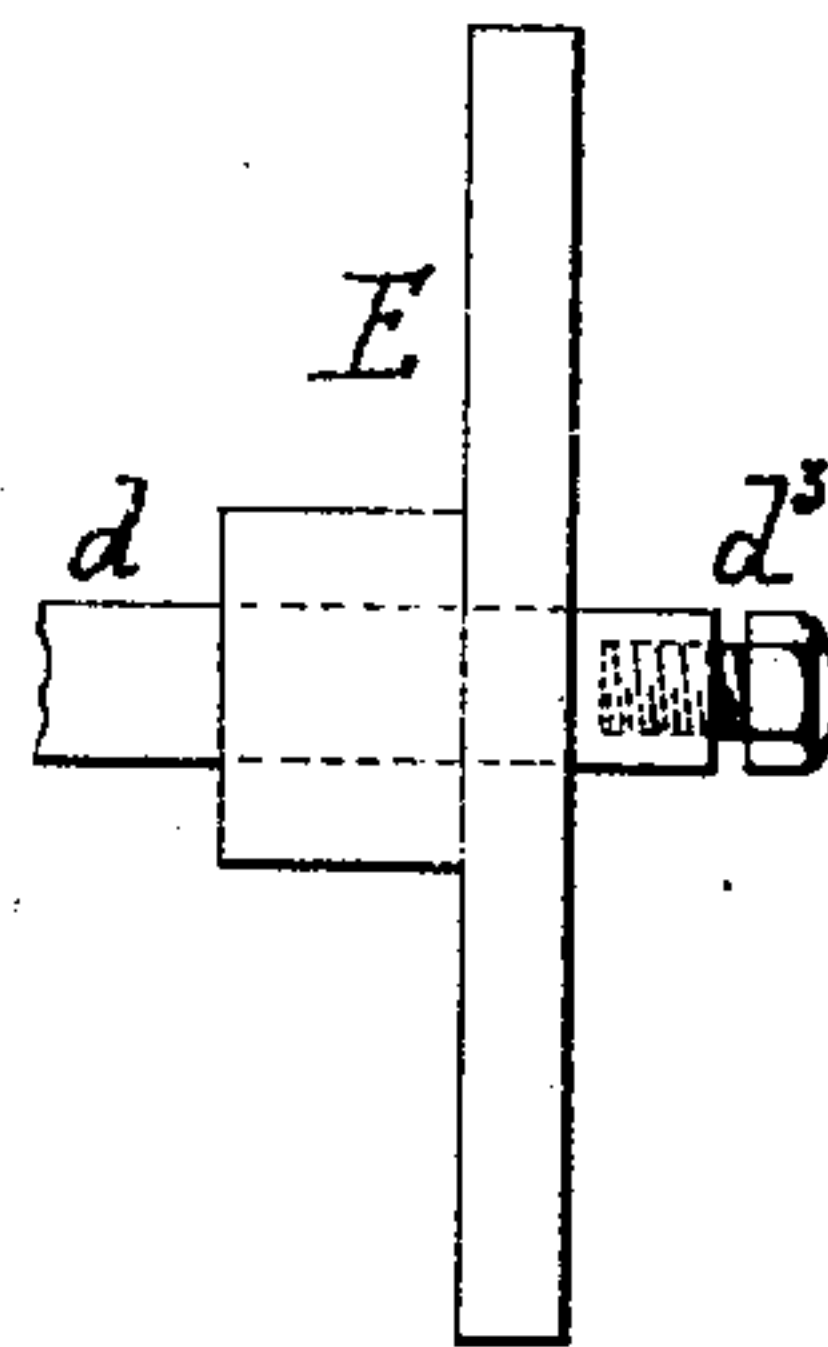


Fig. 12.



WITNESSES:

George Baumann
James Grace

INVENTOR:

Emile L. CuenDET
BY
Horton and Horton
his ATTORNEYS.

(No Model.)

E. L. CUENDET.
MUSIC BOX.

3 Sheets—Sheet 3.

No. 501,766.

Patented July 18, 1893.

Fig. 4.

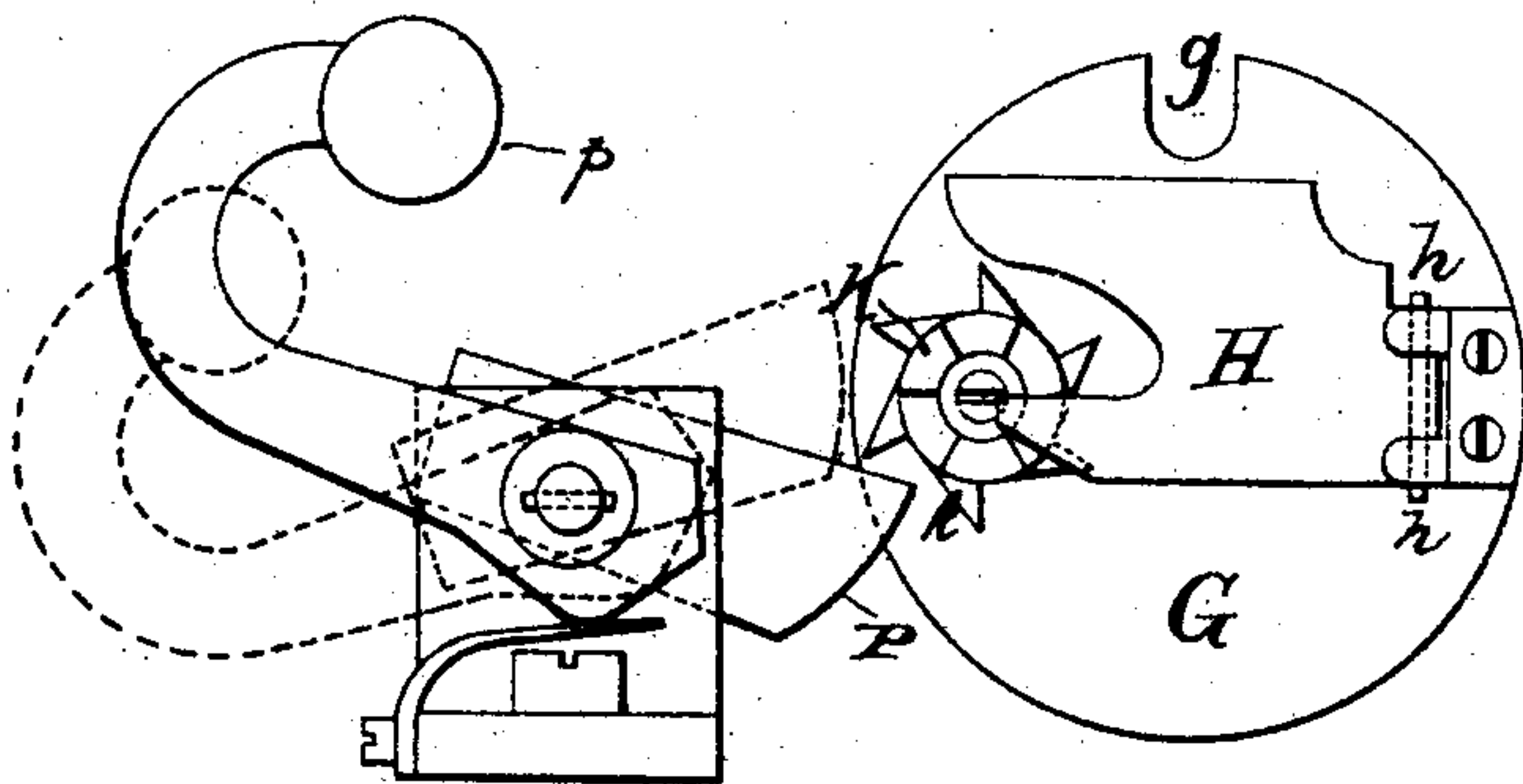


Fig. 5.

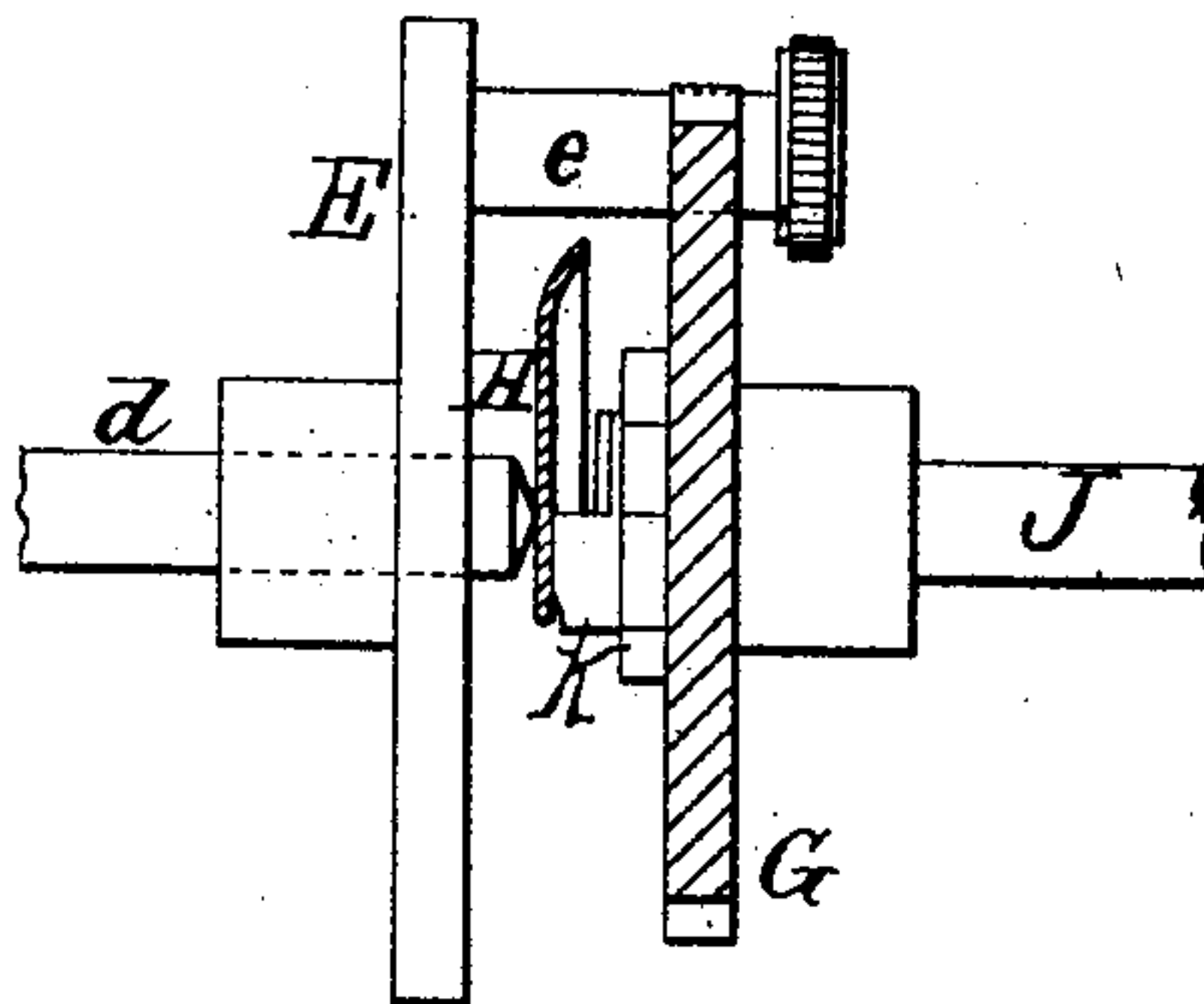


Fig. 9.

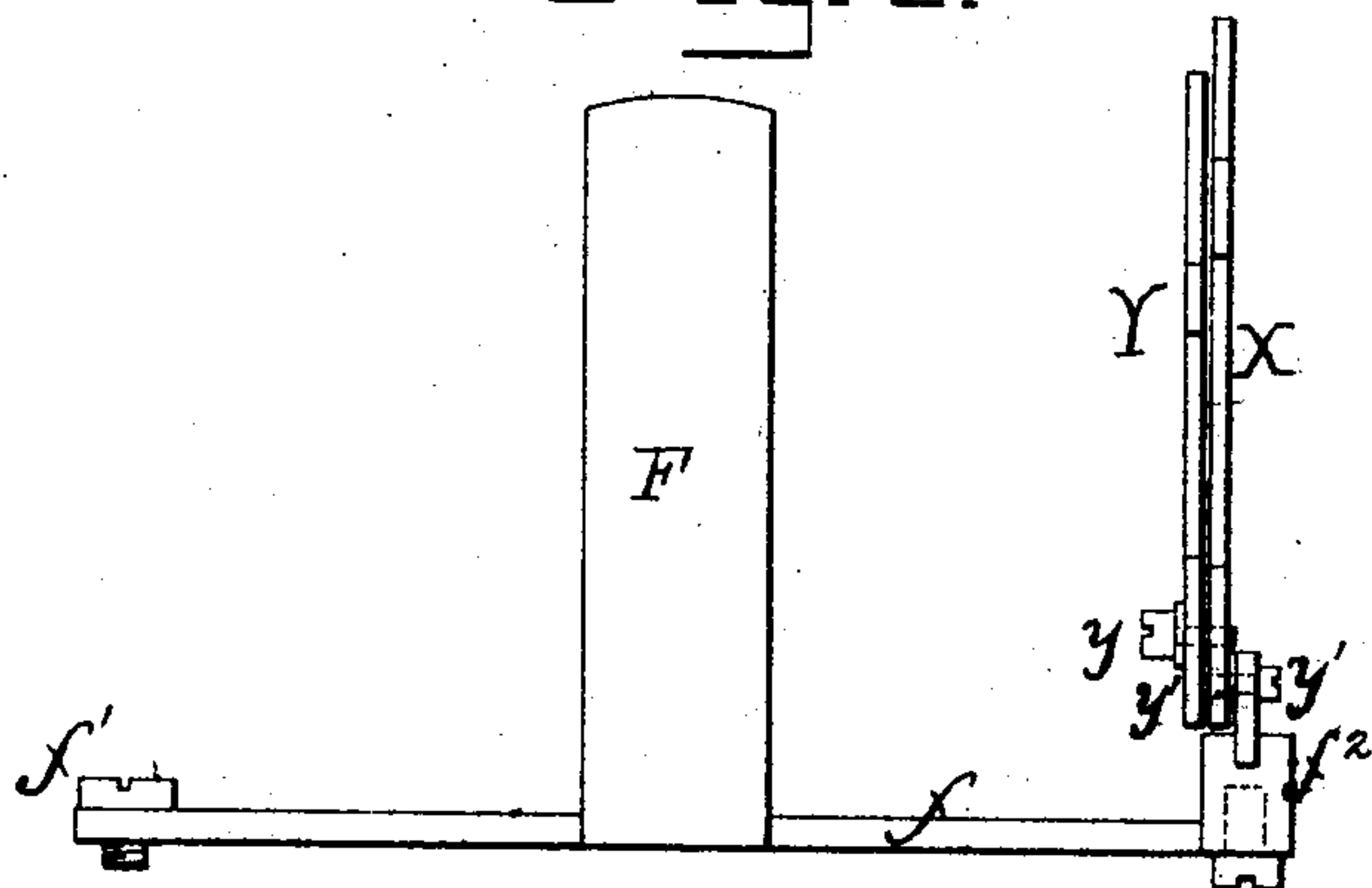


Fig. 10.

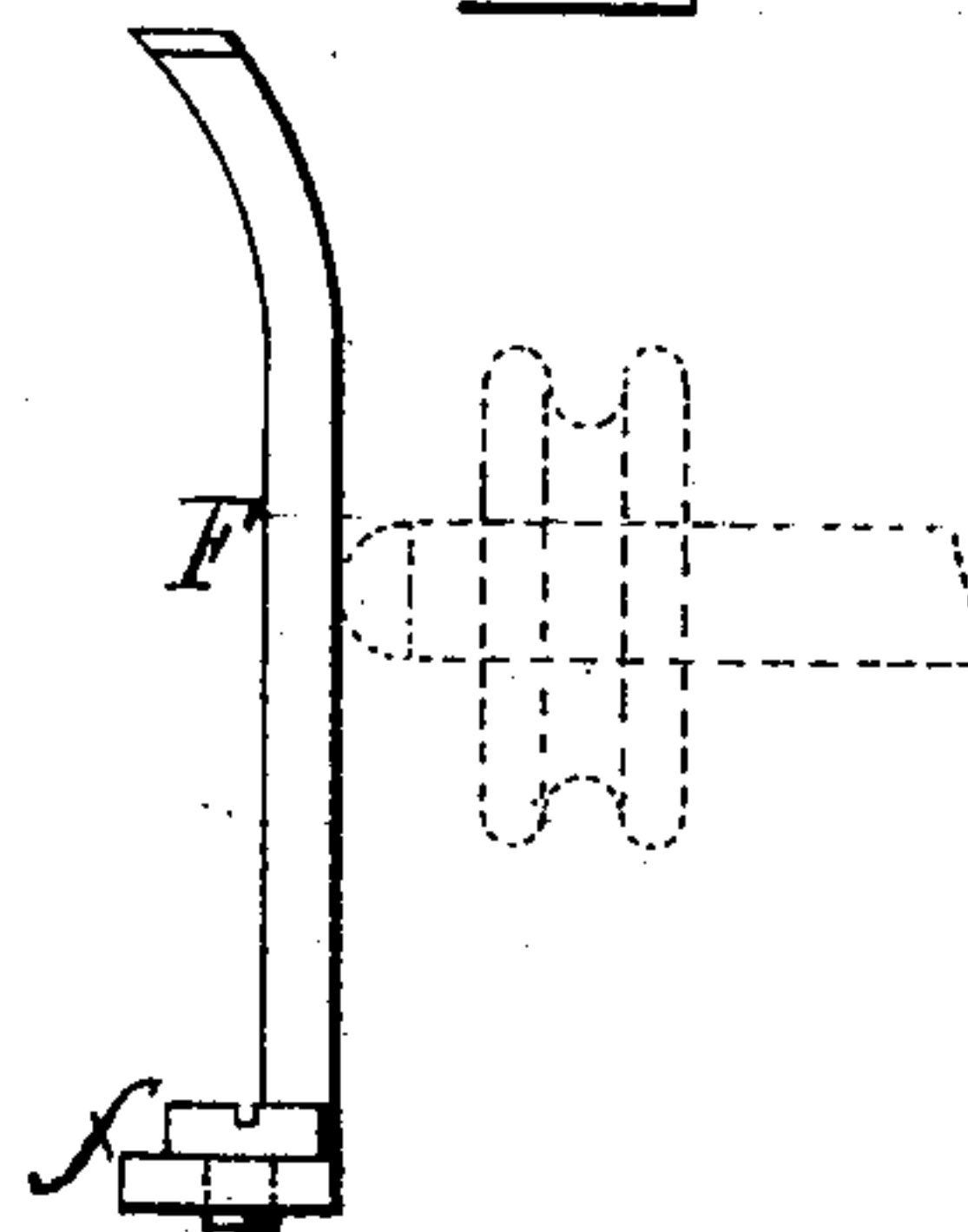


Fig. 7.

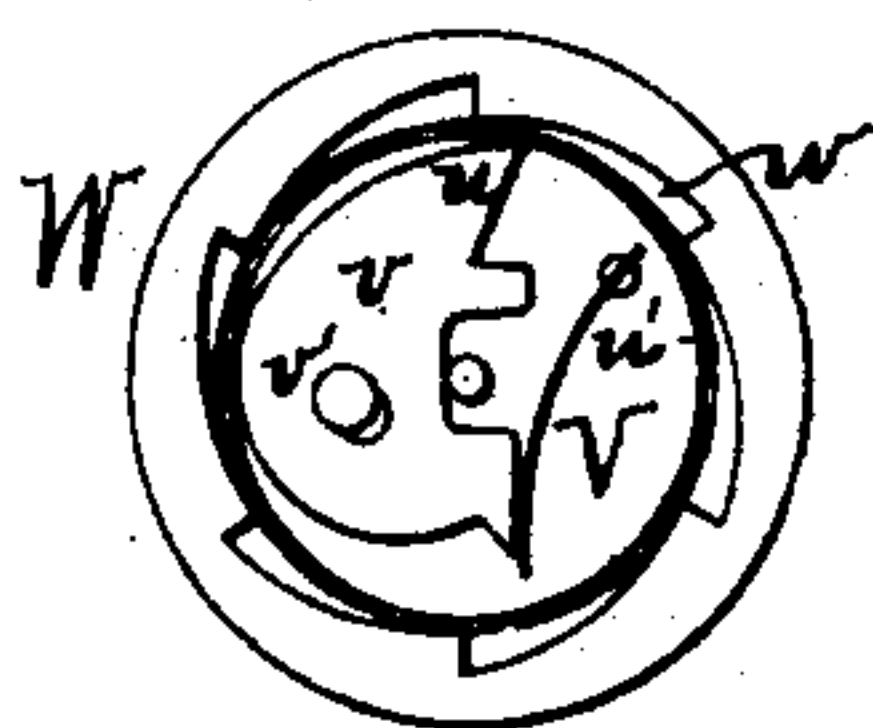


Fig. 8.

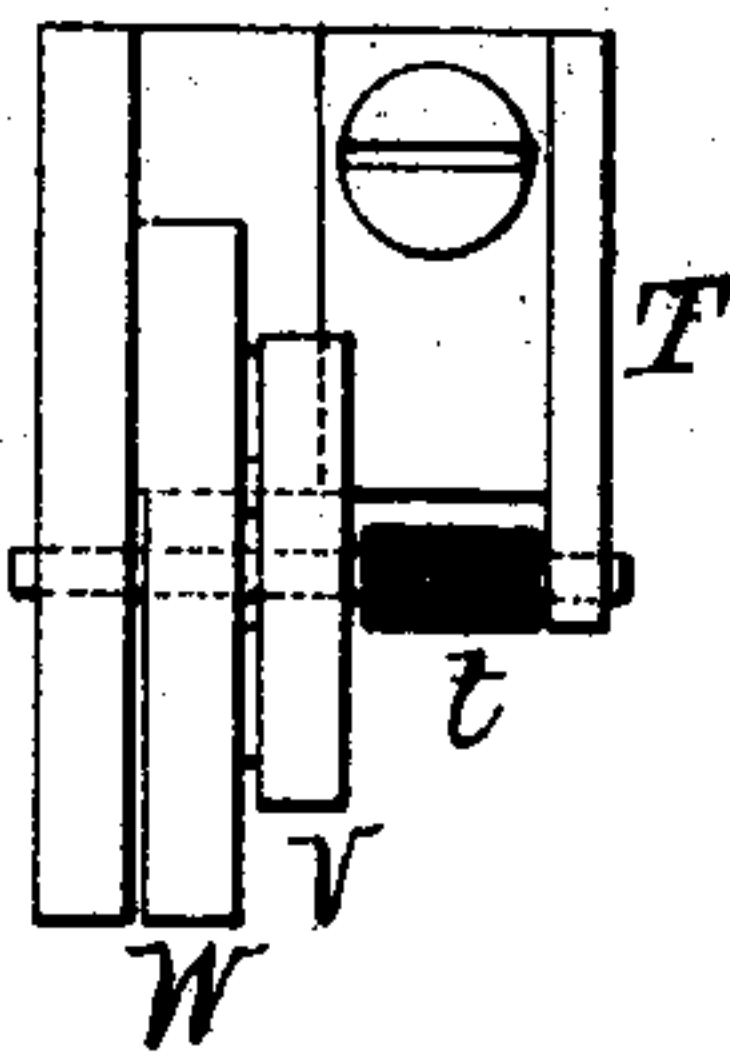
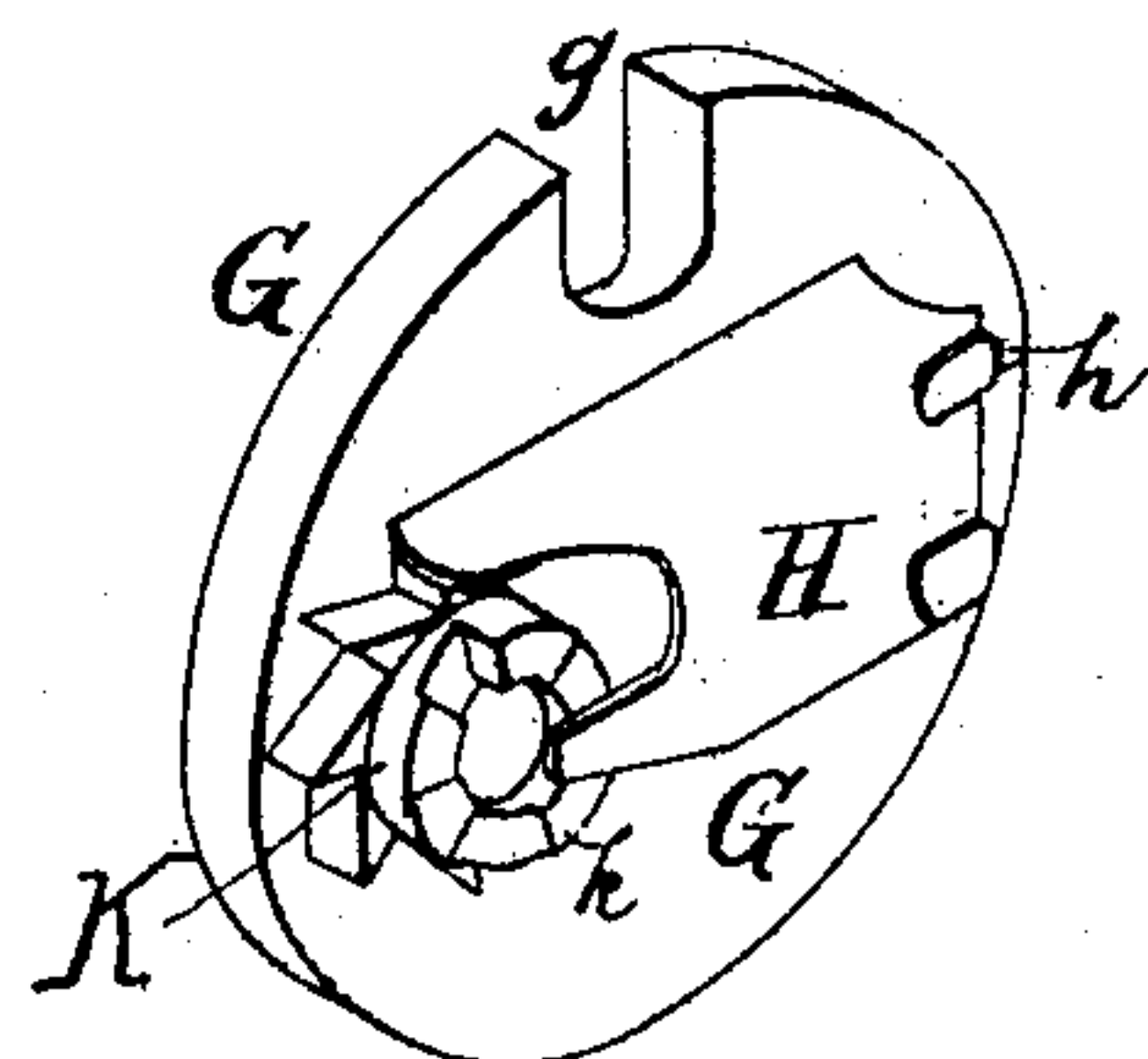


Fig. 6.



WITNESSES:

George Baumann
James Gracie

INVENTOR:

Emile L. Cuendet
BY
Horizon and Horizon
his ATTORNEYS.

UNITED STATES PATENT OFFICE.

EMILE L. CUENDET, OF BROOKLYN, NEW YORK.

MUSIC-BOX.

SPECIFICATION forming part of Letters Patent No. 501,766, dated July 18, 1893.

Application filed April 27, 1892. Serial No. 430,852. (No model.)

To all whom it may concern:

Be it known that I, EMILE L. CUENDET, a citizen of the Swiss Republic, and a resident of Brooklyn, Kings county, State of New York, have invented Improvements in Music-Boxes, of which the following is a specification.

My invention consists of certain improvements in the construction of music boxes, more particularly of that class in which the pin barrel is to be rotated by spring power and in which means are provided for moving the barrel longitudinally for a change of tune.

My improvements have more especial reference to the construction of the driving and controlling devices for the pin barrel, as hereinafter set forth.

In the accompanying drawings, Figure 1 is a plan view of a music box constructed in accordance with my invention, the lid of the box being removed. Figs. 2 and 3 are sectional views drawn to a larger scale, of the driving springs and their carrying parts detached from the frame. Fig. 4 is a view on the line 1—2, Fig. 1, drawn to a larger scale. Fig. 5 is a side view, partly in section, of some of the devices shown in Fig. 4, in connection with the end of the pin barrel shaft. Fig. 6 is a perspective view of a part of the devices shown in Fig. 4. Figs. 7 and 8 are views of a safety catch employed to prevent the barrel running too fast; and Figs. 9, 10, 11 and 12 are views of parts hereinafter referred to.

Referring to Fig. 1, A is the box frame of the machine, and in the lower part of this is mounted the usual metal frame B having bearings *b b* for the shaft *d* of the pin barrel D. This pin barrel shaft has at its inner end a disk E carrying what may be termed a crank pin *e*, while at its outer end the shaft has a thumb wheel *d'*, by means of which and the crank pin the pin barrel may be lifted when desired from its bearings for removal from the machine. The pin barrel is fast upon its shaft, and the latter at its outer end bears against an upright arm F carried by a horizontal rod *f* pivoted at *f'* to the frame and connected at its other end through a rod *f²* to a suitable spiral spring S. This spiral spring S is connected at its outer end to the frame and tends to press the arm F against the end of the pin barrel shaft and therefore keep the latter pressed up to the tune-changing cams

at the opposite end of the box, as hereinafter explained.

As shown in Figs. 1 and 5, the inner end of the pin barrel shaft extends through the disk E and bears against a movable bearing piece or plate H carried by the crank disk G on the motor shaft J. The position of this bearing piece or plate H with reference to the crank disk G is controlled and can be changed by cam faces *k* on the usual cam wheel K, which in this case is carried by the crank disk G. I prefer to pivot this bearing plate H at one end to the crank disk G and to arrange the cam wheel K near the opposite edge of the crank disk G so that the inner end of the pin barrel shaft will, as shown in the drawings bear against the face of this bearing plate H at a point between the pivot *h* and the cam wheel. By this means the changing cams act through the bearing piece directly upon the end of the shaft of the pin-barrel.

The cam wheel K may be provided with as many cam faces and ratchet teeth as are needed for the number of tunes which the pin barrel is constructed to play in connection with the comb C. To turn this cam wheel I mount upon the frame B an adjustable pawl P with a handle *p*. When this pawl is in the position shown by full lines in Fig. 4, one of the ratchet teeth of the cam wheel will at each revolution come into contact with the pawl and the barrel will be moved endwise to change the tune at each revolution of the barrel as will be readily understood. When, however, the pawl P is moved by its handle *p* to the position shown by dotted lines in Fig. 4, the pawl will be out of the path of the ratchet teeth of the cam wheel and the barrel will remain in the same longitudinal position to repeat the tune.

The upper edge of the bearing plate H is beveled or flared as shown in Figs. 5 and 6 and the upper edge of the bearing arm F at the opposite end of the pin barrel shaft is also beveled or flared outward in order to facilitate the introduction of the pin barrel into position with its shaft in its bearings. When the shaft has entered into its bearings the crank pin *e* is at the same time entered into the usual slot *g* in the crank disk G. As I have already said this crank disk is carried by the motor shaft J and to the latter is se-

cured a hub M which also carries the end wheel m as illustrated more fully in Fig. 2. There is also mounted upon the same shaft, but free to turn thereon, another hub or tubular shaft M' which is threaded at its outer end for the reception of the usual winding crank. This hub or tubular shaft M' also carries the ratchet wheel m' and between the wheels m and m' is a loose barrel N. These parts constitute the spring-inclosing casing, and in my machine two spiral motor springs O and O' are employed. The inner end of the first spring O is connected to a suitable pin o on the hub M' while the outer end of the spring is connected at n to the inclosing barrel N. The outer end of the other spring O' is also connected to the inclosing barrel, but at a point n' about diametrically opposite to the point n at which the outer end of the first coil O is connected. The inner end of the second coil O' is connected to the hub M and transmits its power to the crank disk G and thence to the pin barrel. I prefer to mount loosely on the shaft J, between the two springs, a separating disk R. By connecting the outer ends of the two springs to diametrically opposite points of the inclosing barrel N, I am enabled to counteract the side pull which would otherwise ensue from the tendency of the springs to pull to one side when coiled up. I prefer to combine with this driving means a safety check consisting of a centrifugal governor which is illustrated in Figs. 7 and 8. For this purpose I provide a small frame T which carries a pinion t gearing with the wheel m . The shaft of this pinion T has a disk V which carries a segmental piece v pivoted to the disk at v' and revolving within the fixed casing W having internal ratchet teeth w . A spring u' tends, under ordinary conditions to keep the segmental catch piece v in the position shown in Fig. 7, but should the centrifugal force will throw the nose u of the catch piece v outward and into engagement with one of the ratchet teeth w on the fixed casing W and stop the moving parts.

I prefer to combine with the arm F and rods which keep the pin barrel pressed up to the bearing plate H an indicator, as shown in Figs. 1 and 9. In Fig. 1 the indicator is shown in the inclined position which it naturally occupies in the box but in Fig. 9 it is shown for want of space in a vertical position. This indicator consists of a dial X of suitable design and bearing the number of the tunes, and over this works a pointer Y pivoted at y and connected at y' to the rod f^2 in such a way that as the rods F, f and f^2 move with the endwise movement of the barrel the pointer Y will move correspondingly over the dial.

In order to allow for possible variations in

the lengths of the different pin barrel shafts and variations in the distances between the bearing plates H and F in different boxes, in which the barrels may be used, I prefer to provide each shaft with one or more adjustable bearing points. Thus in Fig. 11, I have shown the bearing point as in the form of an adjustable head nut d^2 , while as applied to the opposite end of the shaft I have shown in Fig. 12, a bearing set screw d^3 .

I claim as my invention—

1. The combination of the pin barrel shaft of a music box with a changing cam and a motor shaft having a disk carrying a bearing piece acted on by the said changing cam and against which the end of the pin barrel shaft bears.

2. The combination of the pin barrel shaft of a music box with a changing cam and a pivoted bearing plate for the end of the said shaft, the said bearing plate being acted upon by the changing cam.

3. The combination of the pin barrel shaft of a music box with a motor shaft carrying a bearing piece for the end of the said pin barrel shaft and a changing cam to act on the said bearing piece.

4. The combination of the pin barrel shaft with a motor shaft having a crank disk and a bearing plate which is pivoted to the latter and against which the end of the pin barrel shaft bears, with a changing cam to act upon the pivoted bearing plate.

5. The combination of a pin barrel shaft with a movable bearing piece for the end of the said shaft and having its upper edge beveled or flared with a changing cam to act on the bearing piece.

6. The combination of the pin barrel shaft of a music box with an upright arm F and a spring to cause said arm to bear against the end of the shaft, substantially as set forth.

7. The combination of the pin barrel shaft of a music box with an upright arm F having its upper end flaring outward, and a spring to cause said arm to bear against the end of the shaft, substantially as described.

8. The combination of the pin barrel shaft of a music box with an arm, rod and spring to act upon the said shaft and an indicator controlled by the arm and rod, substantially as set forth.

9. The combination of the bearing plates for the opposite ends of a pin barrel shaft with one or more adjustable bearing points, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EMILE L. CUENDET.

Witnesses:

JAMES GRACIE,
HUBERT HOWSON.