

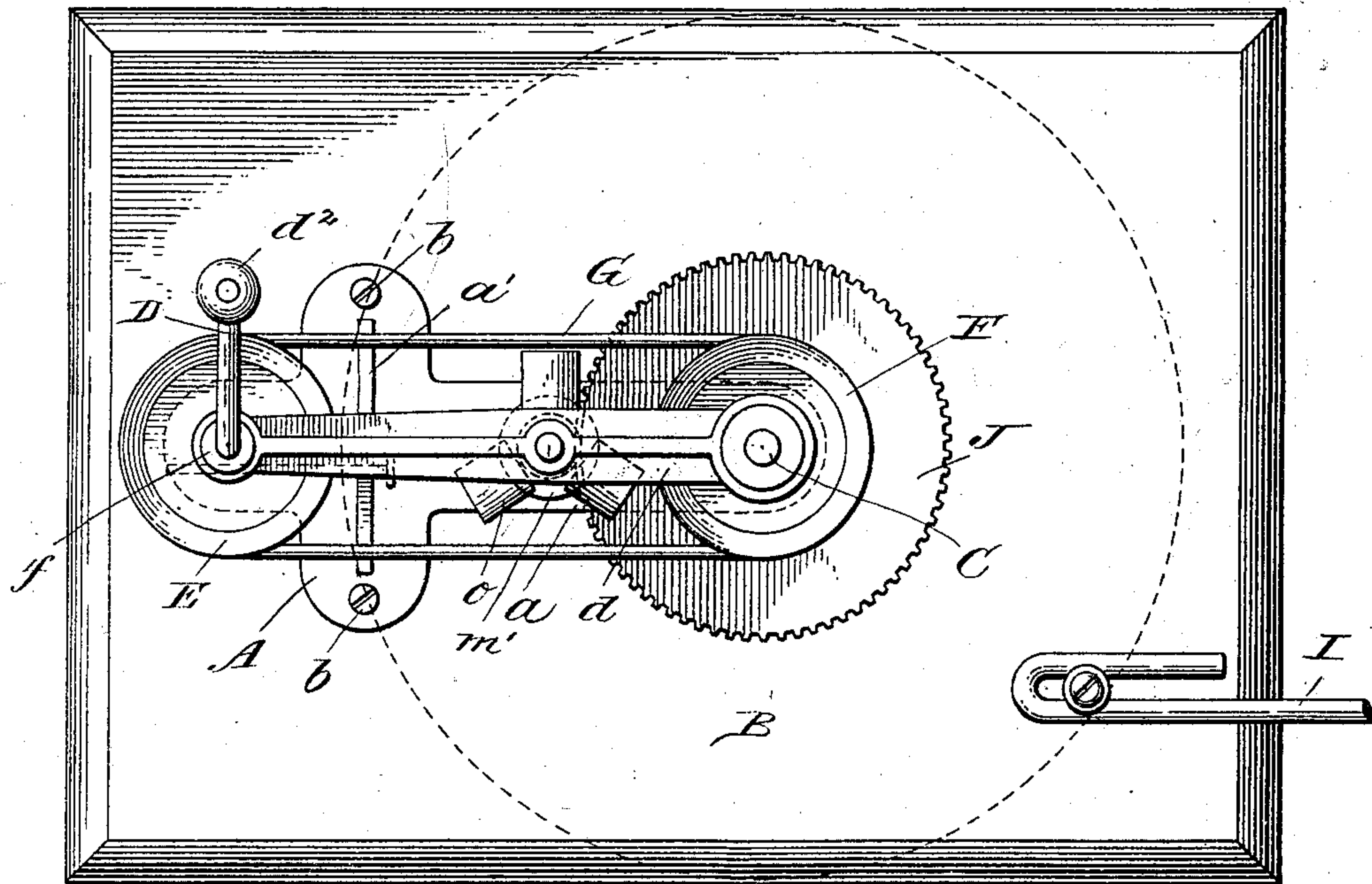
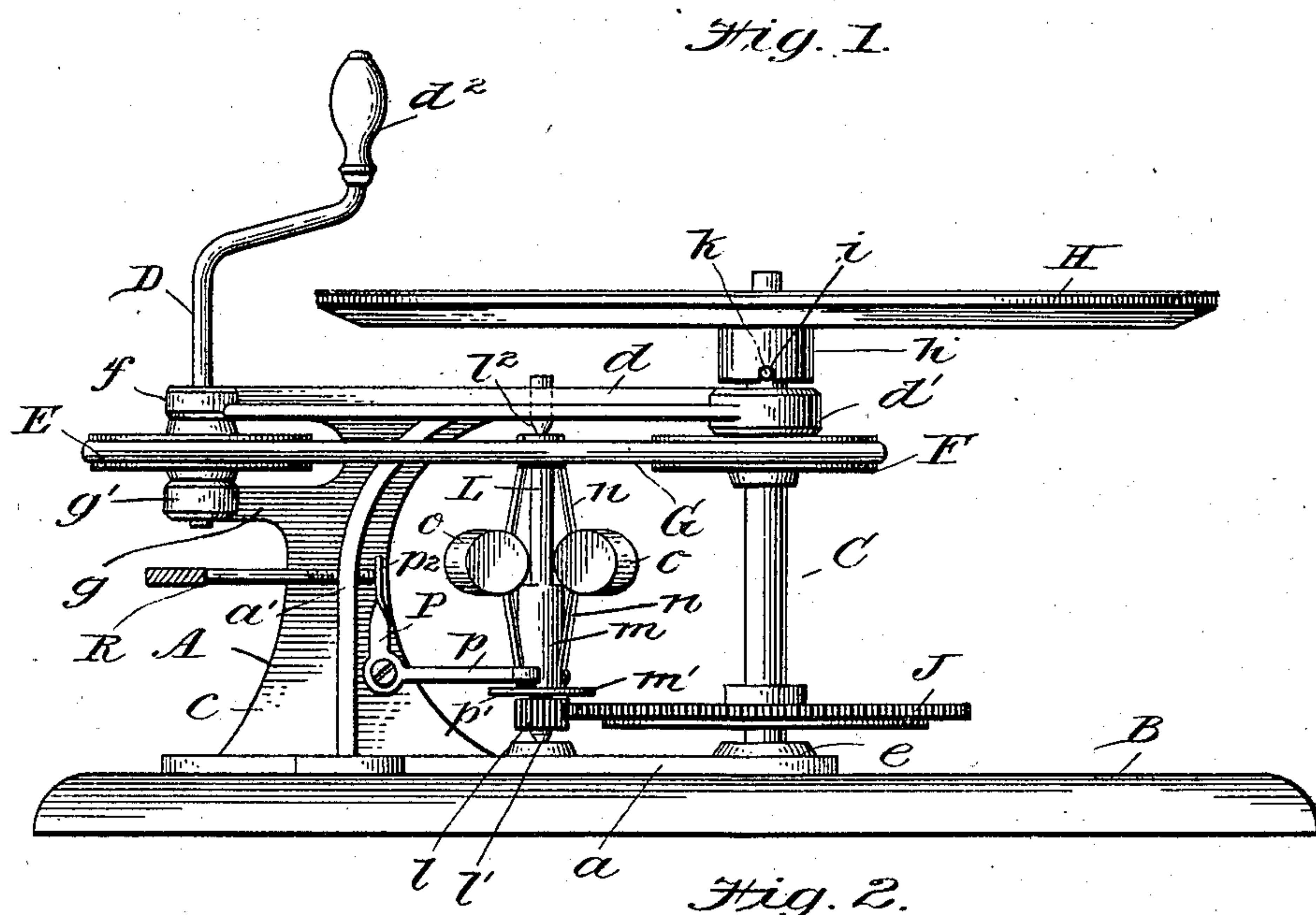
No. 725,343.

PATENTED APR. 14, 1903.

E. R. JOHNSON.
HAND MOTOR FOR TOY GRAMOPHONES.

APPLICATION FILED SEPT. 17, 1900.

NO MODEL.



Inventor,

Eldridge R. Johnson,

by 1 Home Telis.
his Attorney.

Witnesses.

Geo. T. Cross.
Chas. K. Bennett.

UNITED STATES PATENT OFFICE.

ELDRIDGE R. JOHNSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR
TO VICTOR TALKING MACHINE COMPANY, A CORPORATION OF NEW
JERSEY.

HAND-MOTOR FOR TOY GRAMOPHONES.

SPECIFICATION forming part of Letters Patent No. 725,343, dated April 14, 1903.

Application filed September 17, 1900. Serial No. 30,240. (No model.)

To all whom it may concern:

Be it known that I, ELDRIDGE R. JOHNSON, a citizen of the United States, and a resident of the city of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Hand-Motors for Toy Gramophones, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming
10 part of this specification.

This invention relates to an improved hand-motor, and is particularly adapted for running toy gramophones or other talking-machines of a similar character.

15 The object of my said invention is to provide a motor simple in construction and efficient in operation which can be manufactured at a small cost and operated by hand for running gramophones and the like; and
20 with this object in view my invention consists in the construction and arrangement of the various mechanical parts, such as will be hereinafter fully described, and particularly pointed out in the claims made hereto.

25 In the accompanying drawings, which form a part of this specification, and in which similar letters of reference are used to indicate similar parts, Figure 1 is a side elevation of a motor constructed in accordance with my
30 invention, and Fig. 2 is a plan view of the same having the turn-table removed and illustrated in dotted lines.

In carrying out my invention I provide a frame A, cast in a single piece having a base
35 a , which is secured to a wooden base-plate B by means of the screws b . The upper portion of the frame A, which is integral with the standard c , is in the form of a horizontal arm d , having a bearing d' in one end for the reception of the turn-table spindle C. The
40 lower end of the spindle C is journaled in a bearing e , formed in the base portion a of the frame. The rear end of the horizontal arm d projects beyond the standard c and has provided therein a bearing f , through which
45 passes the crank-shaft D. A short distance below the bearing f is an arm g , having a bearing g' formed in its free end, which is in line with the bearing f , and the lower end of
50 the crank-shaft D is journaled in this bracket,

as illustrated in Fig. 1 of the drawings. Rigidly secured on the crank-shaft D, between the bearings f and g , is a grooved pulley E.

On the turn-table spindle C, directly below
55 the bearing d' , is rigidly secured a grooved pulley F, which corresponds in size to the pulley E. An endless belt G, made of rubber or other flexible material, engages the two pulleys E F, the said belt being always
60 under tension and by means of which motion is transmitted from the crank-shaft D to the driving-spindle C. On the upper end of the driving-spindle C is a turn-table H, having a
65 hub h , provided with the grooves i , which engage a pin k , carried by the turn-table spindle, thus securing the said turn-table H to the spindle C, so as to revolve therewith.

On the lower portion of the driving-spindle C is rigidly secured a large gear-wheel J,
70 which meshes with a pinion l , rigidly secured to the governor-spindle L. This governor-spindle L is provided with pivoted bearings l' and l'' , journaled in the base a at its lower end and the arm d at its upper end. The
75 governor-spindle L carries on its lower portion a loose sleeve m , having a disk m' formed integral therewith, and to this sleeve m are secured the lower ends of the spring-arm n of the governor, the upper ends of said arms be-
80 ing secured to a collar, which is rigidly secured to the governor-spindle at its upper end. The balls o are secured to the central portions of the governor-arms n . Pivoted to the standard c is a bell-crank lever P, hav-
85 ing its horizontal arm p extending over the disk m' , carried by the governor-spindle. A friction-teat p' is secured in the end of this arm p and bears against the upper surface of the friction-disk m' . A rod R, having its in-
90 ner ends screw-threaded and passing through the aperture formed in the web a' , bears against the vertical arm p^2 of the bell-crank lever P, as illustrated in Fig. 1 of the drawings, and by adjusting the rod R the bell-
95 crank lever P is moved to bring this arm p either closer to or farther away from the friction-disk m' , as will be readily understood. The upper end of the crank-shaft D is provided with a handle d^2 , by means of which
100

the said shaft is revolved. Secured to the base-plate B is a bracket-arm I (partly shown in Fig. 2 and broken away) for supporting the pivoted reproducer-arm in the same manner as in gramophones of ordinary type, it not being necessary to show the reproducing mechanism, as that forms no part of my invention.

In operation the record is placed in position on the turn-table H, and after the reproducing mechanism is adjusted the operator starts the motor by revolving the crank-shaft D. Motion is transmitted from this crank-shaft D to the driving-spindle C through the medium of the pulleys E F and the rubber belt G, which is, as before stated, under tension. The governor mechanism heretofore described is geared, by means of the pinion I and gear J, to the driving-spindle C, and this mechanism maintains an even and regular speed to the driving-spindle. The speed of the governor may be regulated by means of the brake mechanism heretofore described.

The particular function of an elastic belt in connection with the centrifugal governor of the type shown results from the fact that at whatever speed the driving-wheel E is rotated above the normal the speed of the turn-table will be approximately constant, for supposing the said wheel E be rotated at a speed much greater than that necessary to revolve the turn-table at the proper speed the turn-table will be retarded by reason of the increased friction between the brake elements of the governor, while the elastic belt will slip upon the wheel F. This slipping is due to the fact that when the wheel F is retarded the run of the belt which is approaching said wheel is very much slackened, while the opposite run is put under a much greater tension. This causes the frictional contact between the belt and the wheel F to decrease very greatly, as will be apparent from a consideration of the well-known laws governing the design of belts for the transmission of power.

The above is especially true when the belt is used with the governor having the arrangement of parts herein set forth. Owing to the slight movement of the disk, and therefore a slight increase in speed necessary to greatly increase the friction, the change of speed of the governor, and therefore of the table, will be very small for any change in speed of the

driving-wheel E. Therefore the elastic belt will begin to slip before there is any change in the speed of the table sufficient to injure the character of the sound produced by the record.

Another advantage of the elastic belt arises from the equalizing action of the elasticity when a sudden change is made in the speed of the driving means. In such a case the belt will stretch and prevent such a change in the action of the governor as would cause it to jump or slip and act irregularly because of the inertia of the governor-balls.

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

1. In a hand-motor for gramophones, the combination, means for imparting power by hand, an elastic belt connection and a centrifugal governor having frictional controlling means, substantially as described.

2. In a hand-motor for gramophones, the combination, means for imparting power by hand, a turn-table, an elastic belt connection between said means and said turn-table and a centrifugal governor connected with said turn-table having frictional controlling means, substantially as described.

3. In a hand-motor for gramophones, the combination, a driving-wheel, means for turning said wheel by hand, a driven wheel, an elastic belt connecting said wheels, a centrifugal governor operatively connected with said driven wheel, said governor being of the type comprising a rotatable brake-disk and a fixed adjustable brake-shoe, substantially as described.

4. In a hand-motor for gramophones the combination, a driving-wheel, means for turning said wheel by hand, a driven wheel, an elastic belt connecting said wheels, a turn-table spindle upon which said driven wheel is mounted, a centrifugal governor comprising a rotatable brake-disk and a fixed adjustable brake-shoe, and gearing connecting said governor and spindle, substantially as described.

In witness whereof I have hereunto set my hand this 14th day of September, 1900.

ELDRIDGE R. JOHNSON.

Witnesses:

CHARLES H. SPECKMAN,
JNO. T. CROSS.