

(No Model.)

2 Sheets—Sheet 1.

C. BATCHELOR.
PHONOGRAPH.

No. 400,629.

Patented Apr. 2, 1889.

FIG. 1.

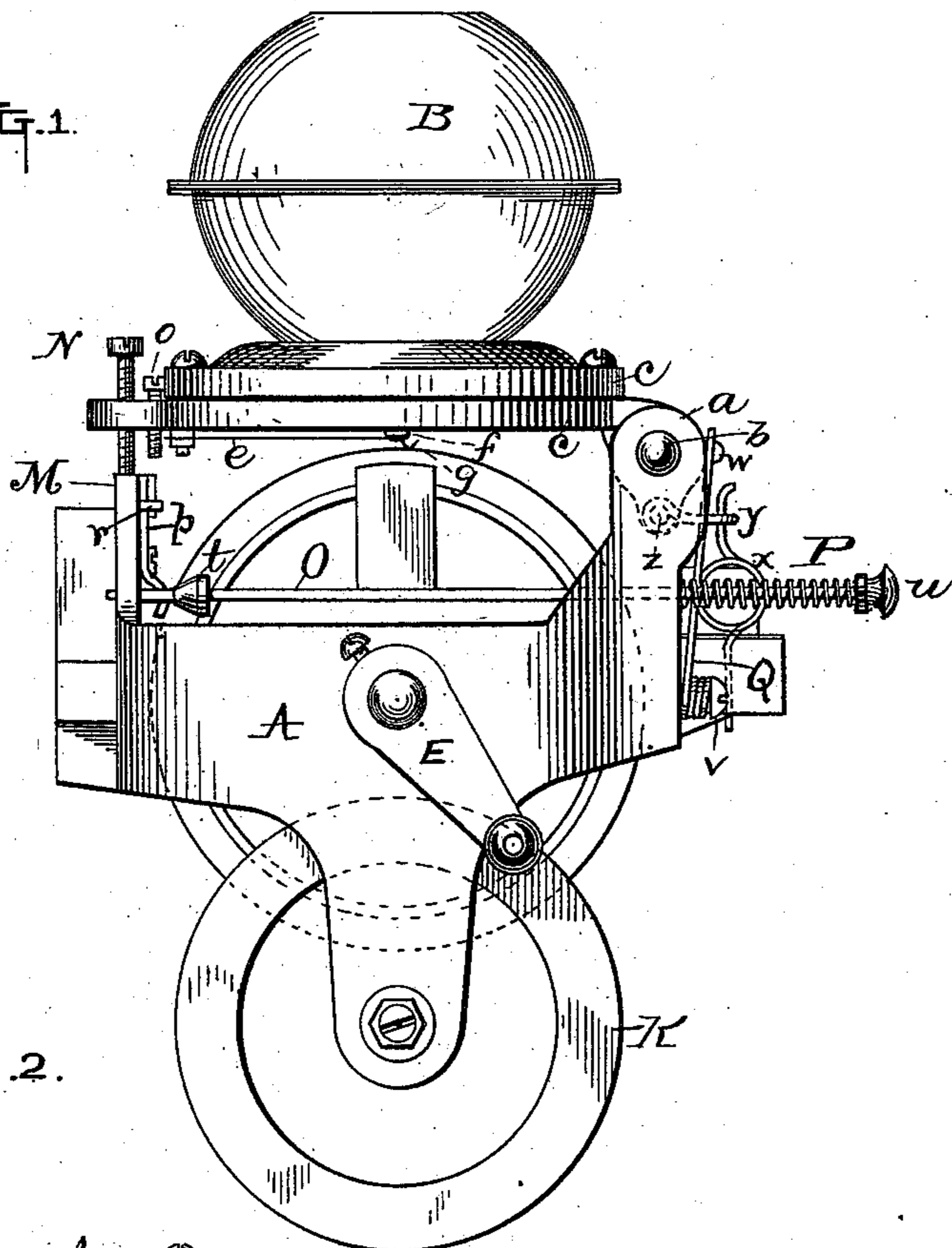
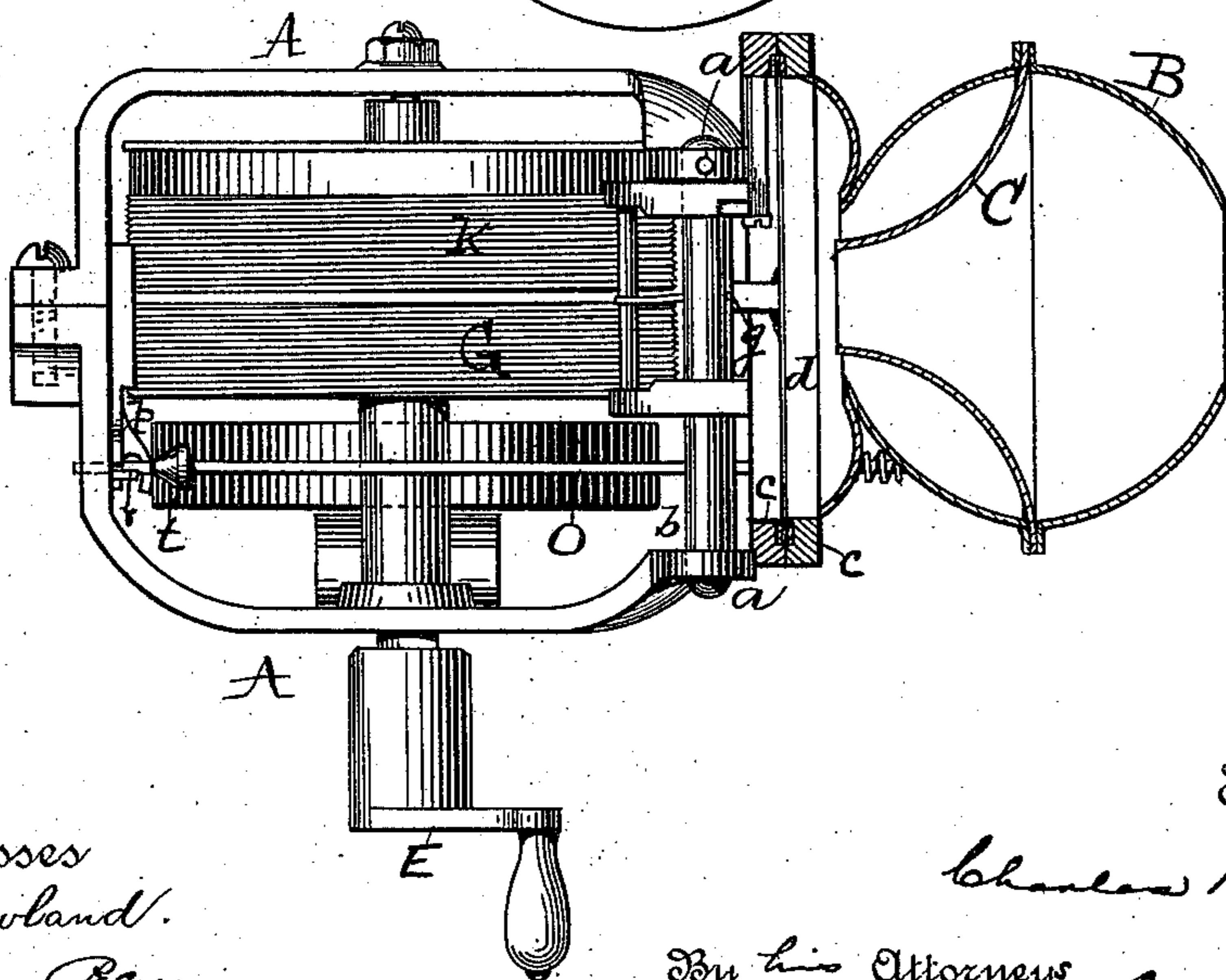


FIG. 2.



Witnesses
E. C. Rowland.
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Inventor
Charles Batchelor
By his Attorneys
J. A. Sully

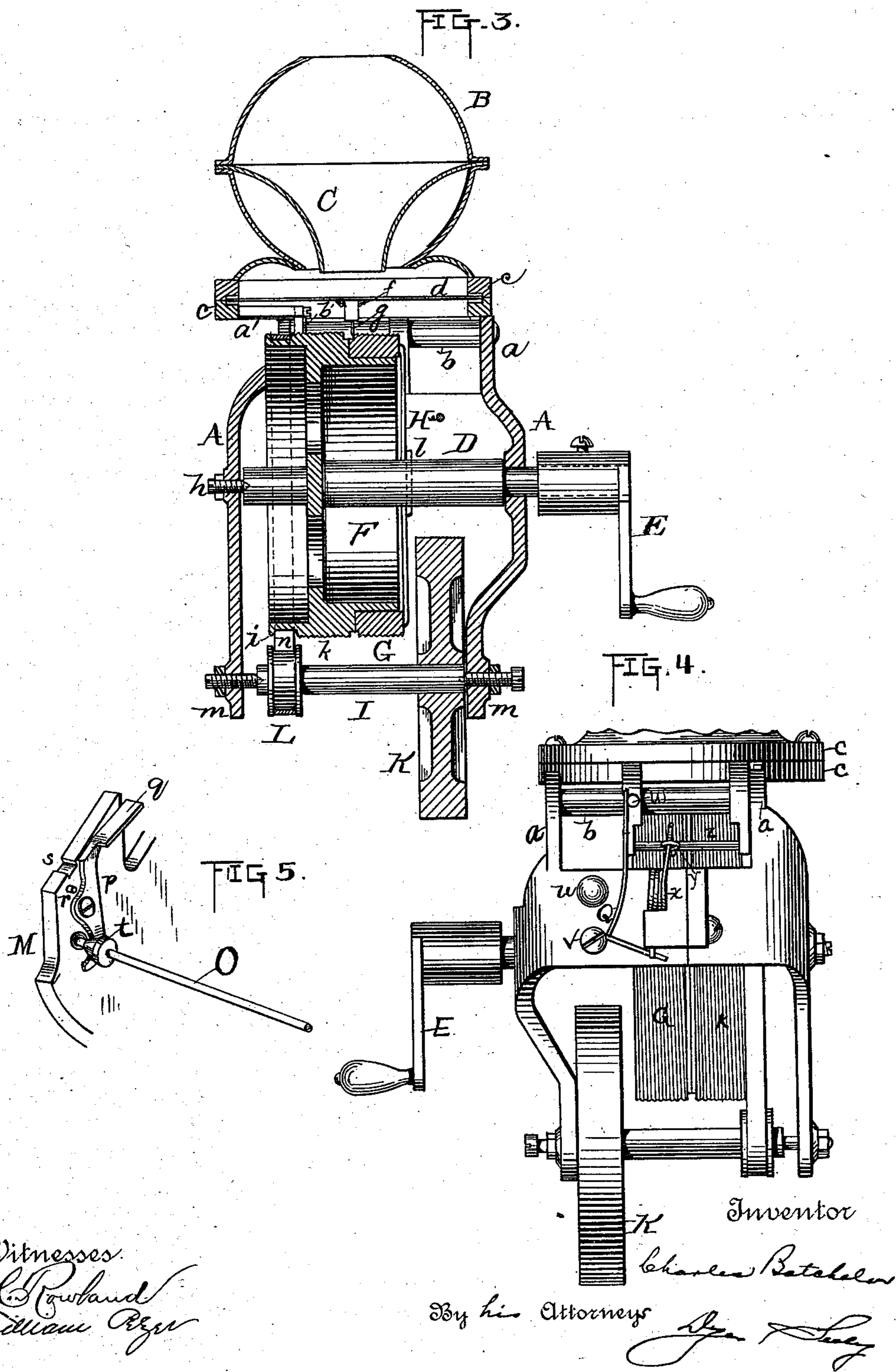
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2 Sheets—Sheet 2.

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Witnesses.

Ed. Rowland
William Rye

UNITED STATES PATENT OFFICE.

CHARLES BATCHELOR, OF NEW YORK, N. Y.

PHONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 400,629, dated April 2, 1889.

Application filed October 30, 1888. Serial No. 289,498. (No model.)

To all whom it may concern:

Be it known that I, CHARLES BATCHELOR, a citizen of the United States, residing at the city of New York, in the county and State of New York, have invented a certain new and useful Improvement in Phonographs, of which the following is a specification.

My invention relates to phonographs designed to be placed in dolls or other toys, they being provided with permanent sound-records, which can be repeated as often as desired.

In carrying my invention into effect I employ a cylindrical phonogram carrying the sound-record and adapted to be revolved, and I employ in connection therewith a traveling reproducer consisting of a diaphragm and a reproducing-point, the same being fed along the record when the same is revolved.

I provide a catch at the end of the movement of the reproducer for holding it at this point, a tripping device for said catch, and a spring for returning the reproducer to the beginning of the record, such tripping device acting to lift the reproducer off the record at the same time that it releases the catch, whereby the spring throws the reproducer back while the point is off the record, so that the record is not injured.

I prefer to rotate the phonogram and operate the tripping device by hand.

For feeding the reproducer along the record the phonogram is placed upon a cylinder or shell provided with a spiral groove at one side of the phonogram, and this spiral groove is entered by a tooth carried by the rim of the diaphragm, so that the turning of the screw-thread feeds the reproducer along. The reproducer is hinged, and has a spring for holding it against the record when in operation, and an adjusting-screw for adjusting the reproducing-point upon the record. The parts are all held in a suitable frame adapted to be secured within the body of the doll, and the reproducer is provided with a funnel for concentrating the sound, which extends up into the head of the doll.

My invention is illustrated in the accompanying drawings.

Figure 1 is a side elevation of the phono-

graph embodying my invention; Fig. 2, a top view with the reproducer thrown back on its hinge, and shown partly in section; Fig. 3, a vertical section of the phonogram; Fig. 4, a rear elevation of the main portion of the phonograph, and Fig. 5 a perspective view of the tripping device.

The phonograph is held in a frame, preferably made of iron, and which consists of side pieces, A A, joined together at front and rear. At the rear of the apparatus two lugs, *a a*, extend up from the side pieces, and these lugs are joined by a rod, *b*. The reproducer is hinged upon the rod *b* and adapted to slide thereon. Between two annular disks, *c*, is clamped the diaphragm *d*. Above the diaphragm is secured to the rim *c* the round head B, which has an opening at the top, and within which is the funnel C, with its small end toward the diaphragm. The reproducing-point consists of a wire, *e*, attached to the rim at one side, and at its other end to a rubber cushion, *f*, attached to the center of the diaphragm. The end of the wire *e* is bent into the form of a hook, *g*, which is the reproducing-point, and which is made in this form, so that it can travel in either direction over the record without injury. A shaft, D, extends between the side pieces of the frame, passing through the side piece at one side and having a bearing at the other side on a pin, *h*, extending through the frame. Outside of the frame the shaft is provided with a crank, E, for turning it. Secured upon the shaft D, and made in one piece therewith, is a metal shell, F. At one side the shell F has a groove, *i*, and at its middle part it has a spiral thread, *k*. At the other side of the shell it is of a less diameter, and upon this portion is placed the metal ring G, which bears the permanent sound-record. The ring G is held on the shell by a spider, H, placed on the shaft, and secured by a pin, *l*, passing through a hole in the shaft. Below the shaft D two lugs, *m m*, extend below the frame, and a shaft, I, is supported in bearings between these lugs, such shaft carrying a heavy fly-wheel, K, and a pulley, L, the pulley being connected with the shell F by a belt, *n*, which lies in the groove *i*. The fly-wheel serves to regulate the move-

ment given to the shell F by the crank E. At the front of the frame A a plate, M, extends above it, and the upper edge of this plate forms a guide for the motion of the reproducer. A screw, N, passing through a hole in a lug at the front of the diaphragm-rim, rests on the guiding-edge M, and by means of this screw the position of the reproducing-point with reference to the record is adjusted. A little behind and at one side of the screw N a small screw, o, passes through the rim of the diaphragm. Upon the inner side of the raised plate M is pivoted a bent lever, p, of the shape shown, its upper portion having a flat rib, q, extending from it. The tail of the lever is curved, as shown, and the movement of the lever is limited by a stop, r. The guiding-edge of the plate M has a notch, s. A long rod, O, passes through the frame from the rear to the front and carries near its front end a cam or enlargement, t, adapted to engage with the curved tail of the lever p, for moving said lever. The rod O extends out beyond the rear of the frame, and is provided with a pushing-head, u, and a spiral spring, P, coiled upon it. A spring, Q, is coiled upon a pin, v, at the rear of the frame, and, extending upwardly, bears against a pin, w, on the lug a. A coiled spring, x, is also attached to the rear of the frame at one end, and at the other end is connected with a link, y, which joins it to a short rod, z, which extends between the lugs a a. An inward projection, a', from the diaphragm-rim carries a tooth, b', which engages with the thread k on the shell F, for feeding the reproducer.

The operation is as follows: The parts being in the position indicated in Fig. 3, the crank E is turned, whereupon the movement of the thread k, engaging with the pin b', feeds the reproducing-point and the diaphragm and attached parts along, and the vibrations of the reproducing-point, caused by the record previously inscribed or indented upon the ring G, are communicated to the diaphragm in the usual manner. When the reproducing-point reaches the end of the record, the screw N drops into the notch s in the edge of the guiding-plate M. During the movement the reproducing-point is held against the diaphragm by the spring x. When it is desired to repeat the operation, the rod O is pressed, and the cam on the rod engages with the lever p and moves it up, so that the flat rib q strikes the screw o and lifts the reproducer off the record and the screw N out of the notch s, whereupon the tension of the spring Q immediately throws the reproducer back to its original position, the parts being all raised during this movement, so that neither the record nor the reproducing-point can be injured thereby. The rod O is withdrawn by its spring P. If any attempt should be made to turn the phonograph in the wrong direction, no injury would re-

sult because of the hook shape of the reproducing-point.

When the phonograph is used in connection with a doll, the frame A is placed in the body of the doll, with the crank E and tripping-rod O projecting at convenient points. The round head B enters the head of the doll, the latter being preferably provided with an opening for the emission of the sound.

What I claim is—

1. In a phonograph, the combination of a revolving phonogram, a movable reproducer in contact therewith, means for feeding said reproducer forward by the revolution of the phonogram, a catch for holding said reproducer at the end of its movement, a tripping device for said catch, and a spring for returning the reproducer to its original position, substantially as set forth.

2. In a phonograph, the combination of a revolving phonogram, a movable reproducer in contact therewith, means for feeding said reproducer forward by the revolution of the phonogram, a catch for holding said reproducer at the end of its movement, a tripping device for said catch, a spring for returning the reproducer to its original position, and means for raising the reproducer off the record during such return movement, substantially as set forth.

3. In a phonograph, the combination of a revolving phonogram, a movable reproducer in contact therewith, means for feeding said reproducer forward, a spring for returning said reproducer, a guide-plate for the forward motion of the reproducer, and a device operated by hand for raising said reproducer off the record and guide-plate during its return movement, substantially as set forth.

4. In a phonograph, the combination of a revolving phonogram, a movable reproducer whose reproducing-point has a hooked end, means for feeding said reproducer forward by the movement of the phonogram, and means for returning said reproducer to its original position, substantially as set forth.

5. In a phonograph, the combination of a revolving shaft, a shell mounted thereon, a ring placed on said shell and bearing a sound-record, a spiral thread on another portion of said shell, a movable reproducer whose reproducing-point engages said sound-record, and a tooth carried by the reproducer engaging said spiral thread, substantially as set forth.

6. In a phonograph, the combination of a revolving phonogram, a movable reproducer, means for feeding said reproducer forward by the revolution of the phonogram, a catch for holding said reproducer at the end of its movement, a spring for returning said reproducer to its original position, and a sliding rod for tripping said catch, substantially as set forth.

7. In a phonograph, the combination of a revolving shaft, a shell mounted thereon, a

ring placed on said shell and bearing a sound-
record, a clamp for securing said ring on said
shell, a spiral thread on another portion of
said shell, a movable reproducer whose re-
5 producing-point engages said sound-record,
and a tooth carried by the reproducer engag-
ing said spiral thread, substantially as set
forth.

This specification signed and witnessed this
23d day of October, 1888.

CHARLES BATCHELOR.

Witnesses:

WILLIAM PELZER,
RICH'D. N. DYER.