

No. 756,289.

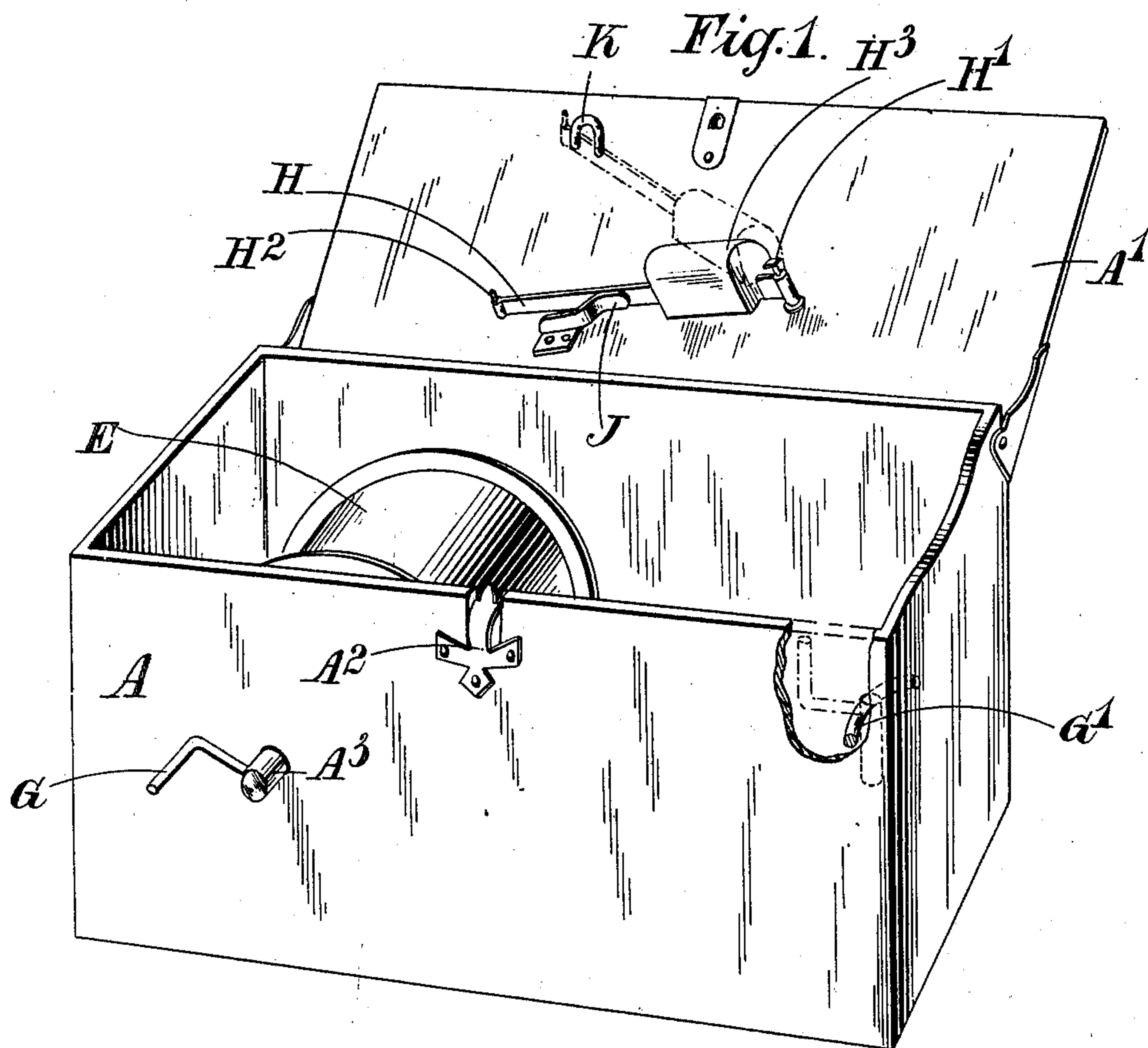
PATENTED APR. 5, 1904.

W. C. RUNGE.
GRAPHOPHONE, PHONOGRAPH, OR THE LIKE.

APPLICATION FILED JAN. 15, 1904.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses.
G. H. Newman
Am. T. Gillman, Jr.

Inventor
by Walter C. Runge
Foster Freeman & Wilson
Attorneys.

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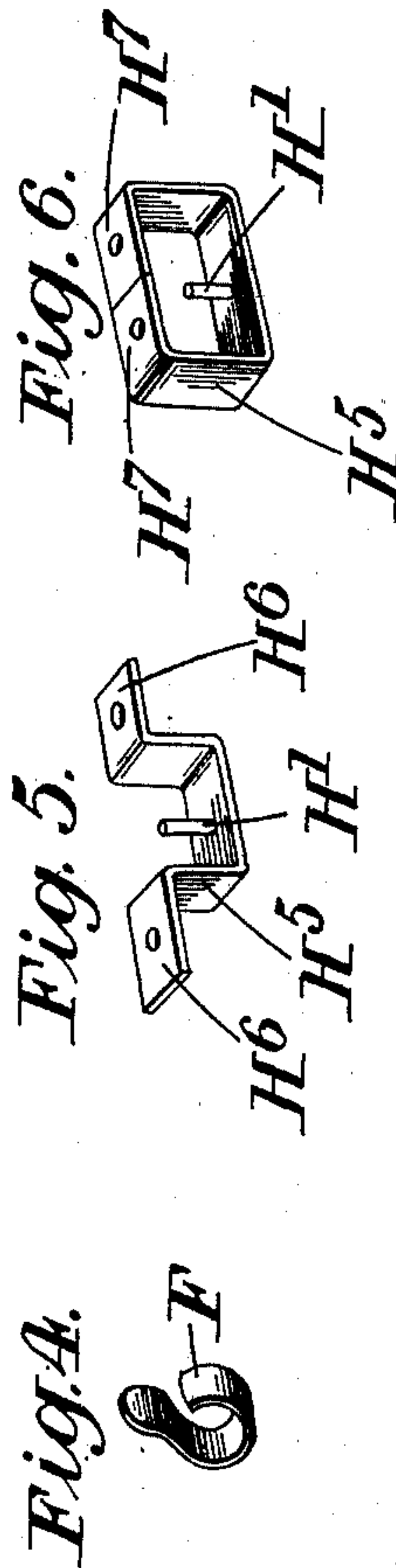
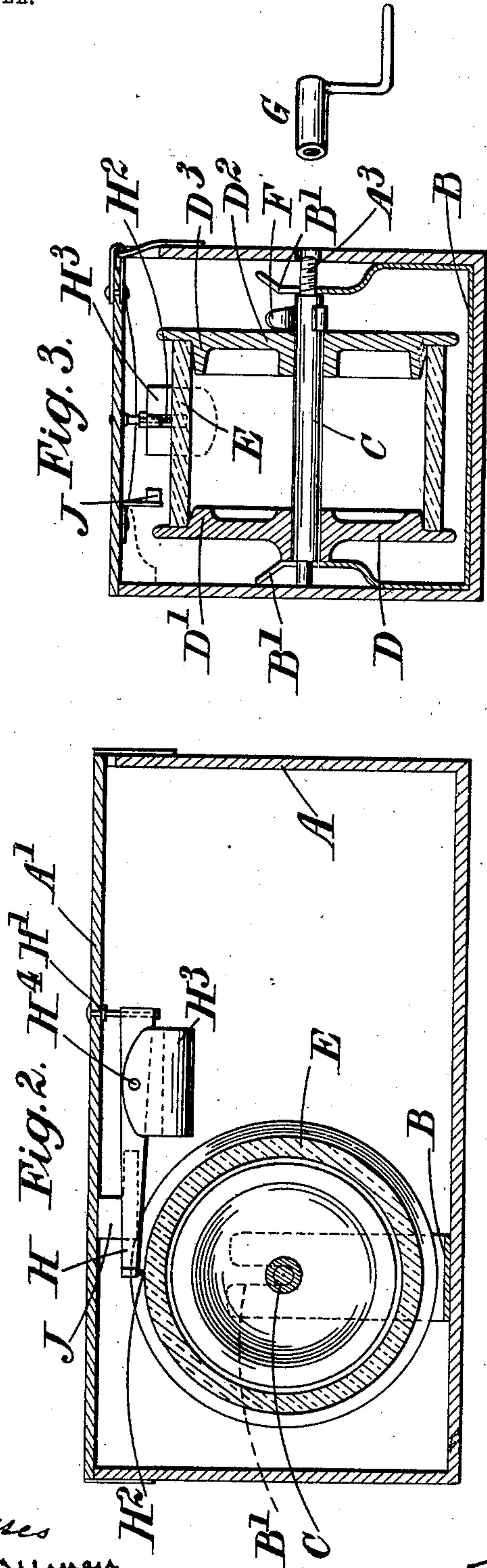
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NO MODEL.

3 SHEETS—SHEET 2.



Witnesses
G. M. Freeman
Am. Gellman Jr.

Inventor
by Walter C. Ruge
John Herman Watson
attorneys.

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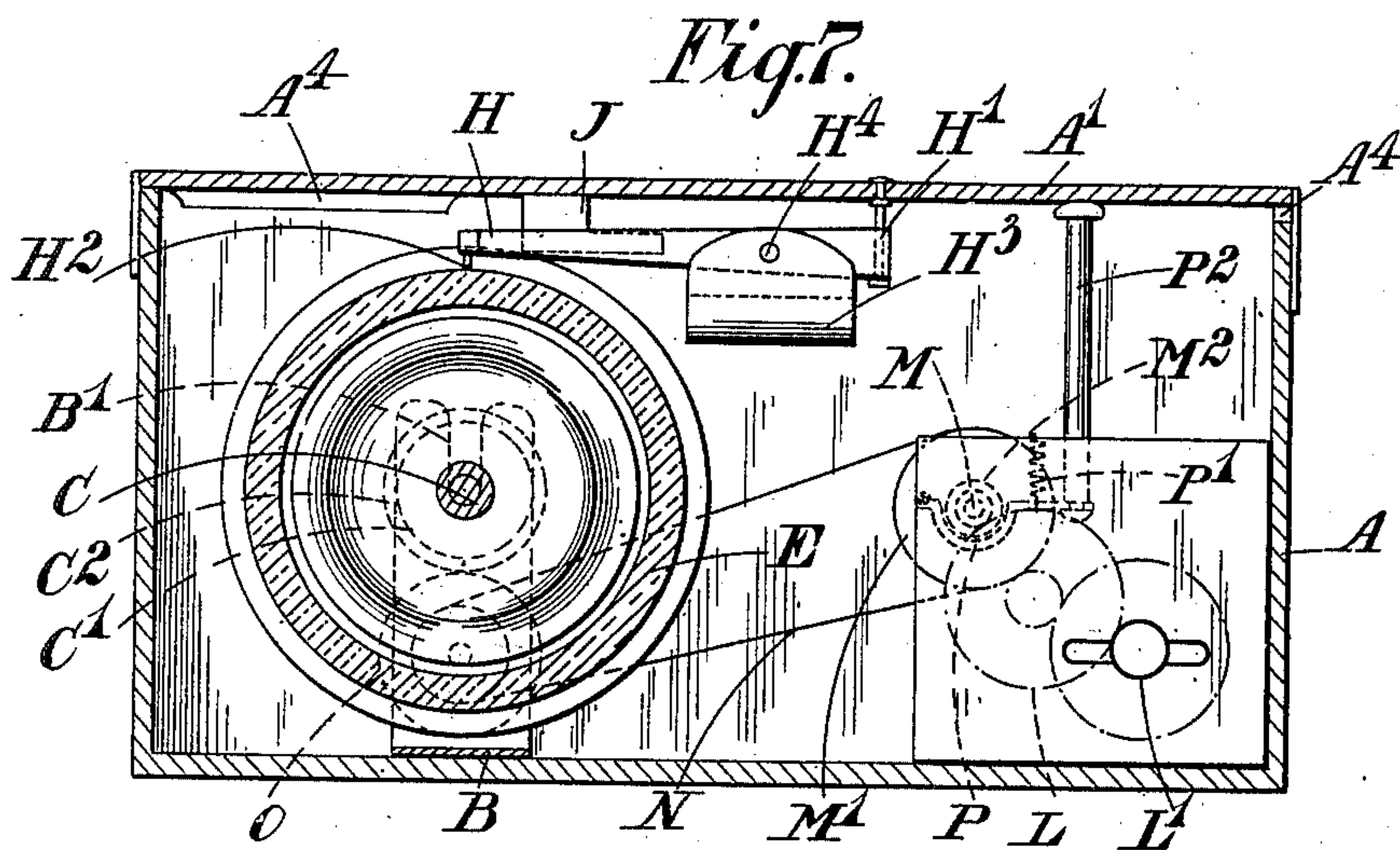
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3 SHEETS—SHEET 3.



Witnesses
G. W. Freeman
H. J. Freeman Jr.

Inventor
by Walter C. Runge
John Freeman & Watson
Attorneys.

UNITED STATES PATENT OFFICE.

WALTER C. RUNGE, OF LONDON, ENGLAND, ASSIGNOR TO THE TALKO-PHONE SYNDICATE, LIMITED, OF WESTMINSTER, ENGLAND.

GRAPHOPHONE, PHONOGRAPH, OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 756,289, dated April 5, 1904.

Application filed January 15, 1904. Serial No. 189,159. (No model.)

To all whom it may concern:

Be it known that I, WALTER C. RUNGE, a citizen of the United States, residing at London, England, have invented certain new and useful Improvements in Graphophones, Phonographs, or the Like, of which the following is a specification.

This invention relates to graphophones, phonographs, and the like, and has special reference to instruments suitable for use as toys.

The object of the invention is to construct a toy graphophone which, although very cheap to manufacture, will be efficient in operation and will not readily get out of order. The construction of the instrument is such that the records can be readily changed, and the parts are so disposed that the instruments may be transmitted from place to place without risk of damage.

In graphophones according to this invention the record-cylinder is mounted in a box, preferably of light wood, and the spindle supporting it is turned either by means of a handle which may conveniently be removable and which passes through an opening in the side of the box or by a motor in the box—for instance, a clockwork-train which is automatically started by the closing of the box. The lid of the box is hinged, and on the inside of it a lever or arm is loosely pivoted. The free end of this lever or arm carries a stylus, conveniently in the form of a piece of glass drawn to a point, and upon the lever may be pivoted a weight which when the instrument is in use keeps the point of the stylus in the grooves of the record and also tends to act as a "floating fulcrum" for the lever. When the lid is closed, the stylus rests upon the record-cylinder and travels along in the groove thereon when the handle is turned. The vibrations imparted to the stylus are transmitted to the lid of the box, which acts as a diaphragm, and the rest of the box acts after the manner of a resonating-chamber or sound-box. A pivoted hook or catch is provided on the inside of the lid and is so placed that when it is desired to move the instrument about or send it from place to place the stylus-carrying arm can be

retained by the hook and be kept up against the inside of the lid, thus preventing accidental damage to the record. At the lower part of the inside of the lid a stop is provided, so that when the stylus-arm is free from its retaining-hook and the lid is open the arm falls against the stop and when the lid is shut automatically takes up a position corresponding approximately to the starting-point of the groove on the record-cylinder. The record-carrying spindle is provided with two disks, each furnished with a coned shoulder. One of the disks is fixed on the spindle and the other is arranged to slip onto it and is secured, say, by a spring-clip or in any other convenient way, so that it may be readily taken off and the record, which is normally held between the two coned shoulders, removed and another one substituted.

In the accompanying drawings, Figure 1 is a perspective view with a portion broken away, showing one construction of graphophone according to this invention. Fig. 2 is a central longitudinal section through the box with the lid closed and the parts in their operative positions. Fig. 3 is a transverse section through the center of the record-mandrel. Fig. 4 is a perspective view of a spring-clip used to hold the removable disk in its place. Figs. 5 and 6 illustrate alternative constructions of one of the details of the instrument, and Fig. 7 shows in section a motor-driven graphophone also according to this invention.

Like letters indicate like parts throughout the drawings.

With reference first to Figs. 1 to 6, A is a box, preferably of light fairly strong material—say thin wood. It is furnished with a hinged lid A' and provided with a spring-catch A² to keep the lid closed when the instrument is in operation. Secured to the inside of the box is a strip B, having upwardly-projecting ends, slotted, as at B', to form bearings for a spindle C. On this spindle is a fixed disk D, having a coned shoulder D', and a similar disk D² is arranged to slip loosely over the spindle and is furnished with a coned shoulder D³. The record-cylinder E is held between the

disks D and D² and is centered on the coned shoulders. The removable disk D² is held in place by means of a spring-clip F, which grips the spindle C and is shown separately in Fig.

4. The end of the spindle C is screwed to take a removable crank-handle G, which is inserted through a hole A³ in the side of the box. On the inside of the lid A' is an arm H, loosely pivoted on a pin H', secured to the lid. This arm carries at its free end a stylus-point H², and when the lid is closed, as shown in Fig. 2, the stylus rests upon the record-cylinder E and works in the groove thereon. The arm H carries a weight H³, pivoted to it, as at H⁴, and this weight is found to act as a floating fulcrum and to increase the effect of the vibrations imparted to the lid A' through the arm H. A stop J is mounted on the lid A' in such a position that when the lid is open, as shown in Fig. 1, the stylus-carrying arm H falls against it and is then in such a position that when the lid is closed for the operation of the instrument the stylus is in a position corresponding approximately to the commencement of the groove on the record-cylinder. A hook or catch K is mounted on the inside of the lid A' and can be turned so as to engage with and retain the stylus-arm H when it is desired to send the instrument from place to place. This position of the hook K and stylus-arm is shown in dotted lines in Fig. 1. Accommodation for the removable handle G is provided at one corner of the box and is shown in Fig. 1 as a staple or socket G'.

Figs. 5 and 6 show alternative constructions of the support for the end of the stylus-arm H. In Fig. 5 the pin H' is attached to a strip H, provided with outwardly-bent lugs H⁶, by which it may be attached to the lid A', and in Fig. 6 the lugs H⁷ of the strip are shown bent inwardly, so that the point of attachment is nearer the center of the pin H'.

When it is desired to change a record, the handle G is first unscrewed from the spindle C and that spindle, with the disks and record, is lifted out from its bearings B'. The clip F is then removed, the disk D² slipped off, and a new record put in place of the old one. On replacing the disk D² and spring-clip F the record and its spindle can be reinserted in the box and the handle G screwed on again, when the instrument is ready for use.

The graphophone shown in section in Fig. 7 is substantially similar to the instrument already described, except that instead of the handle G for turning the record-carrying spindle C by hand a motor is provided. This is shown diagrammatically in the form of a clockwork-train L, driven from a spring which can be wound up by a key L'. This train drives a spindle M, upon which a similar pulley M' is mounted, and this pulley drives, through a light belt N, a pulley O, rotatably mounted on the bearing-strip B. The record-

carrying spindle C is provided with a pulley C', having a friction-surface C², formed, say, by a band of soft rubber, and when the record-spindle is in place in its bearing B' this is brought into frictional engagement with the pulley O. Preferably the clockwork-train is started and stopped automatically by the closing and opening of the lid, and this is conveniently accomplished by providing the spindle M with a brake-pulley M², against which a pivoted brake-lever P is brought when the lid is opened through the action of a spring P'. When the lid is closed, a rod P², projecting upward from the free end of the brake-lever P, is depressed and releasing the brake-pulley M² allows the clockwork-train to start and to rotate the record-carrying spindle.

A separate starting and stopping mechanism may be provided instead of the automatic device, if desired.

In graphophones according to this invention it is found to be desirable to make openings in the containing-box. Such openings are shown at A⁴ in Fig. 7, and it will be understood that the construction illustrated in Figs. 1 to 6 may also be furnished with them.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A graphophone comprising a box, a record mounted within the box, a lid to the box adapted to act as a diaphragm, a stylus-carrying arm pivoted to said lid and disposed so that when the lid is closed the stylus rests in an operative position upon the record and means for rotating the record.

2. A graphophone comprising a box, a record mounted within the box, a lid to the box adapted to act as a diaphragm, a stylus-carrying arm pivoted to said lid and disposed so that when the lid is closed the stylus rests upon the record, a weight pivoted to said arm and means for rotating the record.

3. A graphophone comprising a box, slotted bearings within said box, a spindle mounted in said bearings, record-supporting disks upon the spindle, a record, a lid to the box adapted to act as a diaphragm, a stylus-carrying arm pivoted to said lid and disposed so that when the lid is closed the stylus rests in an operative position upon the record, and means for rotating the record-carrying spindle.

4. A graphophone comprising a box, slotted bearings within said box, a spindle mounted in said bearings, record-supporting disks upon the spindle, a record, a lid to the box adapted to act as a diaphragm, a stylus-carrying arm pivoted to said lid and disposed so that when the lid is closed the stylus rests in an operative position upon the record, a stop to automatically determine the starting position of the stylus-arm, and means for rotating the record-carrying spindle.

5. A graphophone comprising a box, slotted bearings within said box, a spindle mounted

in said bearings, record-supporting disks upon
the spindle, a record, a lid to the box adapted
to act as a diaphragm, a stylus-carrying arm
pivoted to said lid and disposed so that when
5 the lid is closed the stylus rests in an operative
position upon the record, a stop to automat-
ically determine the starting position of the
stylus-arm, a retaining-catch to hold the arm
out of engagement with the record, a motor
10 within the box, operative connections between
the motor and the record-carrying spindle

and means whereby the motor is automatically
started and stopped by the closing and open-
ing of the lid.

In testimony whereof I have signed my name 15
to this specification in the presence of two sub-
scribing witnesses.

WALTER C. RUNGE.

Witnesses:

ARCHD. J. FRENCH,
HARRY B. BRIDGES.