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C. A. PARSONS.

GRAMOPHONE.

APPLICATION FILED SEPT. 26, 1904.

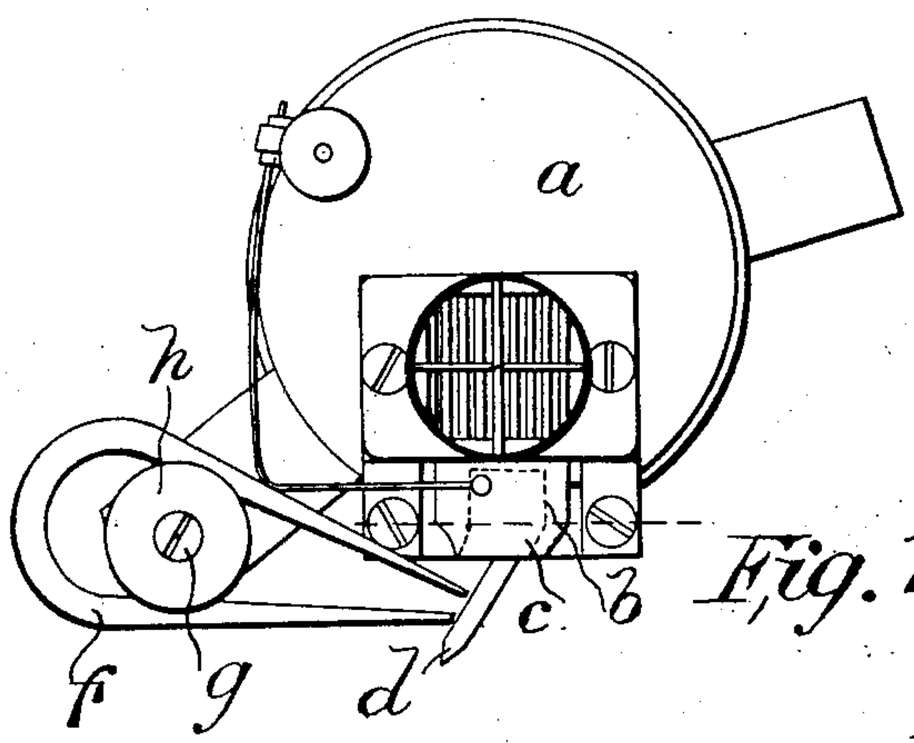

Fig. 1.

Fig. 2.

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UNITED STATES PATENT OFFICE.

CHARLES ALGERNON PARSONS, OF NEWCASTLE-UPON-TYNE, ENGLAND.

GRAMOPHONE.

No. 814,561. Specification of Letters Patent. Patented March 6, 1906.

Application filed September 26, 1904. Serial No. 225,978.

To all whom it may concern:

Be it known that I, CHARLES ALGERNON PARSONS, a subject of the King of Great Britain and Ireland, residing at Heaton Works, Newcastle-upon-Tyne, in the county of Northumberland, England, have invented new and useful Improvements in Gramophones, of which the following is a specification.

The invention consists in the features, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 shows an elevation of a gramophone-reproducer with one form of my improved attachment, Fig. 2 being a sectional plan of the socket.

The reproducer is shown at *a*. The weigh bar or lever *b* carries a valve which takes the place of the reproducing-diaphragm of the ordinary gramophone, and the arm *c*, in one piece with said weigh bar or lever *b*, forms the style-holding socket. The reproducer is attached to a pivoted arm and is supported by its needle resting on the record in the usual manner. A diamond-section hole *e* for the reception of the needle *d* is formed in the socket *c* by means of a drift or by drilling a round hole and upsetting the material of the socket upon a drift or mandrel, the longer axis of the diamond-section hole being disposed approximately in a plane perpendicular to the record and tangential to the lines of the record. The depth of the hole is made from a quarter to one-half the length of the needle, and the dimensions of the hole are so arranged that the pressure of the record causes the needle-stem to jam in the acute angles of the diamond-shaped hole on an oblique position, as shown in Fig. 1. In order to retain the needle in position while the reproducer is not resting on the record, I provide a small permanent magnet *f*, which is attached to the reproducer with its poles sufficiently near the needle-stem to retain the needle in its slanting position. The magnet *f* is preferably attached by a nut and bolt *g*, being adjustably held between a washer *h* and the face of the reproducer.

The socket-arm *c* is made of magnolium, aluminium, or some other non-magnetic material; but in some cases I may make it of steel and transmit the necessary retaining magnetism through it.

Instead of holding the needle in place magnetically when off the record, as above described, I may use the same form of needle-socket and diamond-shaped hole therein, and I may provide a very light spring-blade, preferably attached to the socket-arm *c* and sunk in a recess in said arm, the spring-blade being formed with a rounded end, which presses lightly on the needle and prevents the same from falling out. The pressure of the spring on the needle is not sufficiently great to interfere with the rigid grip of the socket on the needle.

It will be seen that in both the forms of my invention above described the needle is held absolutely without freedom in a direction perpendicular to the longer axis of the diamond-shaped hole, but can be very readily taken out when desired.

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

1. A needle attachment for gramophones and the like, comprising, a socket-arm attached to the sound-producing means, said socket-arm having a diamond-shaped socket therein adapted to receive a needle, and hold the same jammed with no lateral freedom when resting on the record and means external to said socket acting on the portion of the needle which projects therefrom for holding the needle in the socket, substantially as described.

2. A needle attachment for gramophones and the like, comprising a socket-arm having a socket for the needle, and a magnet external to said socket and acting on the projecting portion of the needle, substantially as described.

3. A needle attachment for gramophones and the like, comprising a socket-arm attached to the sound-producing means, said socket-arm having a diamond-shaped hole therein adapted to receive a needle, and hold

the same jammed with no lateral freedom when resting on the record, and an adjustably-mounted magnet adapted to retain the needle in place when not resting on the record, as set forth.

4. A needle attachment for gramophones and the like, comprising a socket-arm having a socket for the needle, a magnet arranged independent of the socket and socket-arm and acting on the projecting portion of the needle, substantially as described.

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

CHARLES ALGERNON PARSONS.

Witnesses:

HENRY GRAHAM DAKYNS, Jr.,

WILLIAM MENZIES JOHNSTON.