T. A. EDISON.

FEED AND RETURN MECHANISM FOR PHONOGRAPH.

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Phonographs, (Case No. 743,) of which the following is a specification.

The object I have in view is to produce a simple and efficient mechanism for setting back automatically on the record, the reproducer of a phonograph for reproducing the whole or a portion of the record. This I desire to do without reversing the motion of the lead-screw and by a movement which lifts the reproducer from the surface of the phonogram. I accomplish this end by means of a screw shaft revolving with the lead-screw and engaging when the reproducer is lifted from the phonogram-surface an arm on the guide-sleeve and moving such guide-sleeve back with a rapid motion.

To give rapidity to the movement, the retracting-screw is composed of a number of parallel threads which are as fine as the threads of the lead-screw, so that the arm will engage at any point, but, by reason of having a number of parallel threads, can be given a much greater pitch than the threads of the lead-screw. The rocking holding arm carrying the reproducer is connected through a cord preferably having an elastic section, with a lever which may be a key or treadmill the parts will be set back, or an electro-magnet can be used to lift the rocking holding-arm. The arm that engages with the retracting-screw is held by a set-screw and can be set up out of action, or can be adjusted and held so as to engage the retracting-screw the moment the guide arm is released from the lead-screw.

In the accompanying drawings, forming a part hereof, Figure 1 is a top view of parts of a phonograph, illustrating my invention; Fig. 2, a cross section through the leading and retracting screws on the line 2 2', looking at the engaging-arms; Fig. 3, a elevation from the outer end of the phonogram-cylinder, and Fig. 4 a separate enlarged view of a portion of the retracting screw.

A is the phonogram-cylinder, mounted on a shaft, B, held by bearings a b. Between these bearings the shaft is cut with a fine screw-thread, forming the lead-screw c. In rear of the cylinder A and shaft B is the guide-rod C, upon which is mounted the guide-sleeve D. This guide-sleeve D slides on the guide-rod C, as will be understood. At one end of the sleeve D the rocking holding-arm E rises therefrom, carrying the swinging spectacles F, in the eyes of which are the recorder and reproducer. The spectacles have fingers d and set-screws e, which bear upon the guide-rod G. The guide-sleeve D has at its other end a guide-arm, H, with a screw-threaded end, which engages the lead-screw c. The cylinder A and shaft B being revolved from a motor by means of a soft bevel wheel bearing on the bevel flange f of the cylinder, the guide-sleeve D and the rocking holding arm E, with the recorder and reproducer, are advanced from the left to the right, as seen in Fig. 1.

In rear of the guide-rod C, and parallel therewith and with the cylinder-shaft B, is a shaft, I, mounted in suitable bearings on the frame and revolved by a small round belt passing over wheels g h on the ends of this shaft and the cylinder-shaft. The shaft I is a screw cut with three parallel threads, which are as fine as the single thread of the screw c, but have a greater pitch. An arm K, projects rearwardly from the guide-sleeve D and has a corresponding screw cut on its end to engage with the screw-shaft L. The arm K is secured to the sleeve D by a set-screw, m, so that it can be turned upon such sleeve and held at any point of adjustment. This permits the arm K to be thrown up out of the way and held by the set-screw, so that the rocking holding-arm E can be thrown over onto the back rest, L, without engaging the arm K with the screw-shaft I, or the arm K can be fixed at such a point that it will engage the screw-shaft L as soon as the guide arm H is released from the lead-screw c. The arm K will engage the multiple thread of the shaft L at any point that the guide arm H is released from the lead-screw c.
For lifting the reproducer from the phono-
gram and causing the arm K to engage the
screw-shaft I, I connect the finger d of the eye
of the spectacles carrying the reproducer with
a cord, k, passing up over a wheel, l, and down
to a lever, m, which may be a hand-key or
foot-treadle. This cord preferably has an
elastic section, k', which will yield to permit
the retracting movement of the reproducer.

An electro-magnet, M, acting on an armature
on the lever m and controlled by a circuit-con-
troller, n, on the listening-tube X, may be used
for lifting the rocking holding-arm to set it
back.

What I claim is—

1. In a phonograph, the combination, with
the rocking holding-arm carrying the repro-
ducer, of a revolving screw-shaft and an arm
connected with the rocking holding-arm and
engaging this screw-shaft when the rocking
holding arm is rocked to lift the reproducer
from the phonogram, whereby the reproducer
is retracted or set back, substantially as set
forth.

2. In a phonograph, the combination, with
the phonogram-cylinder, the lead-screw, and
holding and guide arms, of a revolving screw-
shaft having a screw of greater pitch than the
lead-screw, and an arm engaging this screw-
shaft when the guide-arm is raised from the
lead-screw, substantially as set forth.

3. In a phonograph, the combination, with
the phonogram-cylinder, the lead-screw, and
holding and guide arms, of a revolving screw-
shaft having a screw composed of a number of
threads of greater pitch than the lead-screw,
and an arm engaging this screw-shaft when
the guide-arm is raised from the lead-screw,
substantially as set forth.

4. In a phonograph, the combination, with
the phonogram-cylinder, the lead-screw, the
guide-sleeve, and the holding and guide arms,