

(No Model.)

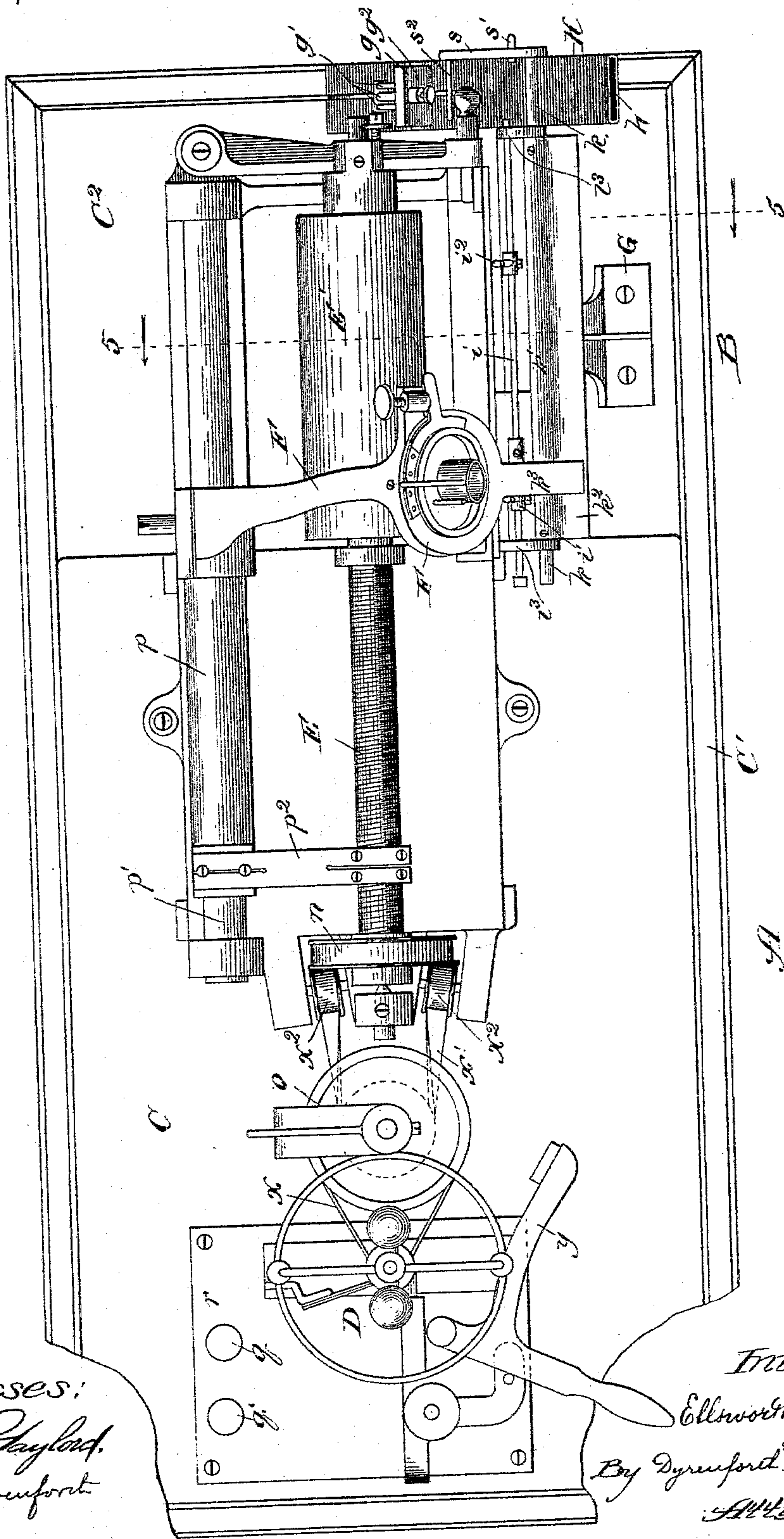
3 Sheets—Sheet 1.

E. E. FLORA.
COIN OPERATED PHONOGRAPH.

No. 494,807.

Patented Apr. 4, 1893.

Fig. 1.



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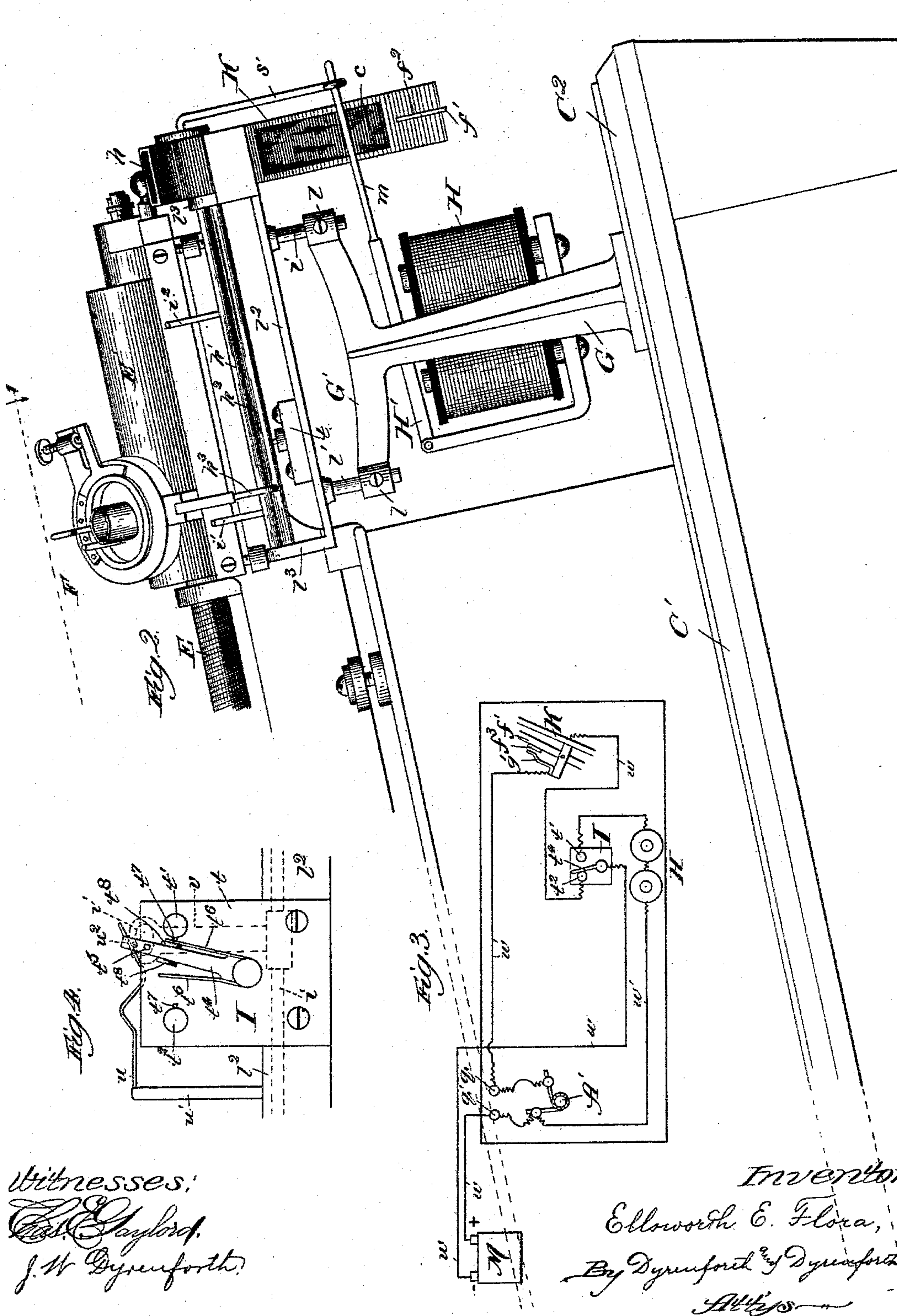
(No Model.)

3 Sheets—Sheet 2.

E. E. FLORA.
COIN OPERATED PHONOGRAPH.

No. 494,807.

Patented Apr. 4, 1893.



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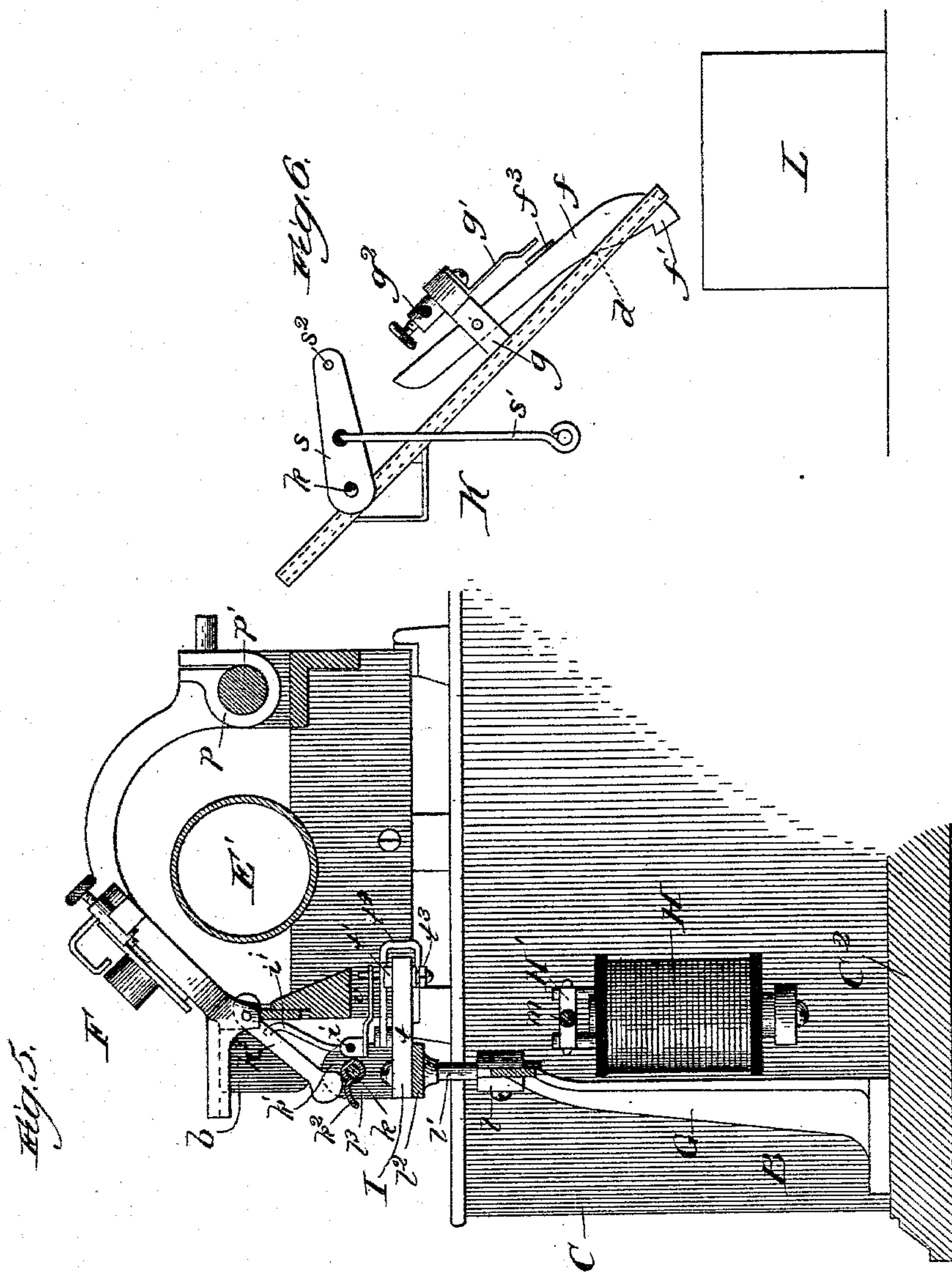
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3 Sheets—Sheet 3.

E. E. FLORA.
COIN OPERATED PHONOGRAPH.

No. 494,807.

Patented Apr. 4, 1893.



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UNITED STATES PATENT OFFICE.

ELLSWORTH E. FLORA, OF CHICAGO, ILLINOIS, ASSIGNOR TO GEORGE B. HOIT.

COIN-OPERATED PHONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 494,807, dated April 4, 1893.

Application filed May 5, 1890. Serial No. 350,575. (No model.)

To all whom it may concern:

Be it known that I, ELLSWORTH E. FLORA, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Coin-Operated Phonographs, of which the following is a specification.

My invention relates to an improvement upon the phonograph, or analogous instrument, whereby it may be caused to operate by the insertion of a coin representing the price for the privilege of operating it.

My object is to afford to the general public, by placing my improvement in localities accessible to them, opportunity, at small cost to each individual using the instrument, to become acquainted with and be entertained by the phonograph, and thereby, also, to provide a source of revenue from the device.

In the accompanying drawings—Figure 1 is a top view, regarded along the plane of the line 1 of Fig. 2, of a phonograph provided with my improved attachment for permitting it to be operated by the insertion of a coin.

Fig. 2 shows my attachment in elevation as applied to a phonograph, of which only so much is represented in the view as will serve for the illustration of my improvement, including, as an important feature the inclination whereby the reproducing stylus may be returned automatically to its initial position after each use of the instrument. Fig. 3 is a diagram showing the circuits operated by the insertion of the coin; Fig. 4, a plan view of a switch-detail; Fig. 5, a section taken on the line 5—5 of Fig. 1 and viewed in the direction of the arrows; and Fig. 6, a view in side elevation of the coin-chute and its immediate attachments.

The details of the construction for an improvement such as mine, or rather so much thereof as relates directly to the operation by inserting a coin, are preferably of a nature enabling them to be combined as an attachment to be applied to a phonograph or analogous instrument, without requiring the latter to be in any way especially adapted to permit the application, thereby not only avoiding difficulty in the application but also mutilation of the phonographic instrument. Accordingly I prefer to provide my improvement in the form

of a readily removable and adjustable attachment, without however intending to be understood as limiting my invention to a construction essentially involving the attachment as a distinct part of the instrument, inasmuch as I desire to claim a coin-operated phonograph as broadly as the state of the art will permit.

A is a phonograph, and B my improved attachment for permitting it to be operated by the insertion of a coin.

As the application of my improvement does not, as constructed, involve any alteration of the construction of the phonograph proper, which is well-known, the latter is not shown in all its details in the accompanying drawings, and need not be minutely described herein.

Inside the box C, below the block r , is the motor A' (merely indicated in Fig. 3) of which q and q' are the binding-post terminals; y is the switch; D, the governor, o the horizontal-pulley-device, geared to the governor by the band x , and by the band, x' , passing around the guide-pulleys x^2 , to the pulley n on an end of the screw E, carrying, toward its opposite end, the cylinder E' , which supports the waxed-cylinder (not shown) to receive the record from the stylus-device F, extending from the sleeve p on the guide-rod p' and carrying the stylus-actuating arm p^2 , normally engaging with the screw E.

On the extension C^2 of the base C' of the box C, (where it is common to provide a type-writer attachment) I provide a bracket, G, having secured to its vertical portion an electro-magnet, H, provided with the pivotal armature, H' , extended from its free end as a finger, m . At opposite ends of the cross-head G' of the bracket G are sockets, l , to receive posts, l' , adjustably secured therein and supporting a bar, l^2 , having at its opposite end, bearings, l^3 , in which to journal a rock-shaft, k . On the shaft k , extending between the bearings l^3 , is secured, to move with the shaft, a sleeve, k' , having a lateral flange, or lip, k^2 , over which extends, transversely, a rigid tongue, k^3 , from the hinged stylus-device F. At the end of the shaft k , where it projects beyond its bearing l^3 nearest a finger, i^2 , is secured a finger, s , to extend at an angle from

the shaft, and having the finger-end m of the armature II' , connected with it eccentrically by a link, s' ; and near the free end of the finger s , is a stud, s^2 , extending inward at a right-angle from it. In the bearings l^3 , behind the shaft k , is supported a longitudinally sliding rod, i , having secured to it, preferably, as shown, in a manner to render them adjustable, upward projecting fingers, i' and i^2 , extending at their upper ends into the path of the tongue k^3 , and located near the opposite extremities of the play of the tongue by the movements of its supporting stylus-device F . Near the finger i' is rigidly secured on the rod i (also preferably in a manner to permit it to be adjusted lengthwise of the rod) a finger, v , forming the medium for actuating, by lengthwise movement of the rod i a switch, I , illustrated in detail in Fig. 4. The switch I comprises a block, t , of insulated or insulating material (as hard rubber) secured to the bar l^2 to extend beyond the inner edge of the same and provided near its free edge with contacts, t' and t^2 , extending through the block and formed at the lower side thereof into binding-posts, t^3 (Fig. 5). A metallic tongue, t^4 , is pivoted at one end near the center of the block t , to extend along the top of the same, and is bent at its free end over and under the inner edge of the block, being provided on its upper side with a stud, t^5 , entering a slot, v' , formed transversely in the free end of the finger v . At opposite edges of the tongue t^4 , I provide light platinum-tipped contact-springs, t^6 , extending into the plane of the contacts t' and t^2 , there to engage, for the better contact with the latter, with platinum-pointed studs, t^7 , projecting laterally therefrom; and the contact-portion of the tongue t^4 may for the same purpose, be laterally expanded, as shown at t^8 . A light spring, u , is secured at one end to a post, u' , extending horizontally from the bar l^2 at one side of the switch I ; and the spring engages toward its free end with a stud, u^2 , on the under side of the tongue t^4 , where it extends underneath the block t , the spring being bent, as shown, to engage and hold the tongue yieldingly at each end of its throw.

K is a metallic chute secured to an end of the bar l^2 , and shaped to admit flatwise into it through the opening or "slot" h at its upper end, a coin of the denomination representing the charge for the use of the phonograph. The chute inclines downward from the insertion end h to a coin-receptacle, L , represented in Fig. 6. On the upper side of the chute K (as shown, about midway between its extremities) is secured a bearing-block, g , which should be formed of metal, and has secured to its forward side an insulated metallic spring, g' , with which is connected a binding-post, g^2 . A metallic lever, f , extends through and is pivotally supported in the block g , and projects at its rear end into the path of the stud s^2 on the arm s . At its forward end, the lever f is formed into approxi-

mately a hook-shape, as shown at f' , Fig. 6, and there normally projects through a slot, f^2 , formed, to admit it, longitudinally through the chute toward its lower end; and on the upper edge of the lever f , below the free end of the spring g' , it may be expanded, as shown at f^3 , to increase the contact-surface with it of the spring g' .

To provide for the operation, produced in the manner hereinafter described, I arrange the circuits as diagrammatically represented in Fig. 3. From the positive pole of the battery M the line w leads by way of the binding-post g' through the motor A' , thence to the normally open contact g' ; and from the chute K , with which the lever f' is metallically connected, through the switch I , at its terminal t^2 , back to the negative pole of the battery. From the positive end of the motor A' proceeds a branch-circuit, w' , through the electro-magnet H to the terminal t' of the switch I . Thus the circuit w will be closed by producing electrical contact between the spring g' and lever f ; and if the tongue t^4 , of the switch I , be turned from the post t^2 to the post t' , that circuit will be shunted through the magnet H , causing it to attract its armature H' and thereby permit eventual separation of the contacts g' and f' , at the same time effecting the release of the stylus F , and permitting the latter to slide, by gravity, back to its initial or starting position, in reaching which, its tongue k^3 engages with the upright finger i' on the longitudinally movable rod i , and by moving the latter with it turns the tongue t^4 of the switch I back to the contact t^2 .

The operation, in detail, is as follows: The parts, as illustrated, occupy their initial relative positions, whence the stylus F may be actuated to record the vibrations directed against its diaphragm or to repeat them after having been recorded by it on the cylinder provided for the purpose on the carrying cylinder E' . By inserting a suitable coin (as a nickel five-cent piece) into the chute K through its inlet-slot h , the coin falls in the chute till stopped by the hook-end f' of the pivotal lever f , extending longitudinally across the interior of the chute; and since the lever f is somewhat widened in vertical cross-section toward its end f' , as shown at d , Fig. 6, the thickness of the coin will raise it to bring its contact-portion f^3 against the contact g' , thereby closing the circuit w , owing to the arrangement of the latter hereinbefore described. Closing of the circuit w obviously sets the motor A' in motion, and causes it to turn the screw E and cylinder E' in the usual manner of a phonograph. The revolving screw E , by engagement with it of the arm p^2 , slides the sleeve p carrying the stylus-device F along and up the inclined guide-rod p' , causing the device F to perform its well-known function. The finger i^2 is adjusted in position near the end of the course (which may be predetermined, by adjustment of either or

both fingers i^1 and i^2 of the stylus-device F, whereby, when the latter reaches such finger i^2 , through engagement therewith of its tongue k^3 it slides the rod i in the direction of the movement. This, obviously, moves the finger v in the same direction, and by the engagement with the latter, at its slot v' , of the tongue t^4 of the switch I, the said tongue is turned from the contacts t^2 to the contacts t' , thereby shunting the current to the branch-circuit w' and energizing the magnet H. The magnet then attracts its armature H', which, in responding, draws with it, through the medium of the link s' on its extension m , the arms, thereby bringing the stud s^2 down against the rear end of the lever f and raising it toward its opposite end (thus, momentarily, still farther than it was raised and held by the inserted coin) against the spring g' far enough to remove its hook or stop end from the path of the coin, which then resumes its passage through the chute K and discharges therefrom into the coin-receptacle L. A further, and equally important effect of the attraction of the armature H', is to cause the link s' , by drawing downward the arm s , which is firmly secured to the rock-shaft k , to turn the latter and with it the sleeve k' , (which moves with the shaft or may be integral with it) thereby raising the lip k^2 of the sleeve against the tongue k^3 of the stylus-device F, and, as a consequence, turning the latter backward and, necessarily, also its supporting-sleeve p and the arm p^2 , whereby the arm p^2 is raised out of engagement with the threads of the screw E, (which not only effect the movement of the stylus-device, but, besides, are relied upon to hold it wherever it is moved.) When thus released, the sleeve p is free to slide down the inclined guide-rod p' and carry with it the arm p^2 and the stylus-device F toward their initial positions, in attaining which, the tongue k^3 strikes the finger i^1 in its path, and thus slides the rod i longitudinally in the direction of the movement, which carries the finger v with it and through the latter returns the tongue t^4 of the switch I into contact with the post t^2 . This breaks the circuit w' , and releases the armature H', which then rises by the weight of the parts connected with it, and in doing so raises the stud s^2 from the rear end of the pivotal lever f , permitting the latter to fall, toward its opposite heavier end, into its normal position, illustrated, and break contact with the spring g' , thereby opening the circuit w ; and with the release of the armature, furthermore, obviously, the sleeve k' with its tongue k^2 is rocked with the shaft k forward to their normal positions, permitting the tongue k^3 to follow and thus produce re-engagement of the arm p^2 with the screw E.

The details of the construction involved in my improvement, and thus minutely described, while they are believed best to answer my purpose, may, obviously, be variously modified without thereby departing from the spirit of my invention; hence I do not wish

to be understood as limiting my improvement to such details.

On reference to Fig. 2, it will be noticed that the chute K is open throughout a part of its extent along its under side, as shown at c ; this is to cause coins of smaller denomination than the prescribed to fall out after insertion, and before reaching the lever f . It will also be noticed that the tongue k^3 secured flexibly to the stylus-device F, is rigid for my purpose, and so rendered by the wedge b , which however may be adapted to be readily inserted and withdrawn.

Although the appended claims refer to the instrument provided with my improvements by the term "phonograph," I desire that term to be construed as including any analogous instrument to which they are susceptible of application, as the graphophone.

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

1. In combination, a phonograph, and an electrical coin-actuated attachment having a chute, K, and means for intercepting a coin introduced into the chute, consisting of a single lever, f , pivotally supported to extend, normally, across the chute-passage, the chute and lever being in a normally open electric circuit containing the phonograph-motor, said circuit being closed by the inserted coin, substantially as described.

2. In combination, a phonograph, and an electrical coin-actuated attachment, having a chute, K, and means for intercepting a coin introduced into the chute, comprising a single lever, f , having a stop, f' , near one end normally obstructing the passage through the chute, the chute and lever being in a normally open electric circuit containing the phonograph-motor, said circuit being closed by the inserted coin, substantially as described.

3. In combination, a phonograph, having an automatically returning gravity-actuated stylus-device, and an electrical coin-actuated attachment, B, having a chute, K, and means for intercepting a coin introduced into the chute, consisting of lever, f , normally obstructing the passage through the chute, the chute and lever being in a normally open electric circuit, containing the phonograph-motor said circuit being closed by the inserted coin, and means, substantially as described, actuated from the stylus-device in advancing to release and permit its return by gravity, substantially as set forth.

4. In combination, a phonograph having an automatically returning gravity-actuated stylus-device, and an electrical coin-actuated attachment, B, having a chute, K, and means for intercepting a coin introduced into the chute, consisting of lever, f , normally obstructing the passage through the chute, the chute and lever being in a normally open electric circuit, containing the phonograph-motor said circuit being closed by the inserted coin, and means, substantially as described, actuated from the stylus-device, in

advancing, to release it and permit its return by gravity, and from the said stylus-device in returning, to remove the lever *f* from obstructing the chute-passage, substantially as

5 and for the purpose set forth.

5. In combination, a phonograph, having its guide-rod *p'*, for the stylus device, inclined downward toward the initial position of the said device, and an electrical coin-actuated attachment, B, having a chute, K, provided with a lever, *f*, normally obstructing the passage through the chute, the chute and lever being in a normally open electric circuit, *w*, containing the phonograph-motor and closed by the inserted coin, a branch, *w'*, of the circuit *w*, containing an electro-magnet, H, provided with an armature, H', a switch, I, in the said circuits, operated from the moving stylus-device, and means, substantially as described, controlled from the armature and actuated by its attraction with the advance of the stylus-device, to disengage the latter and permit its return by gravity and to remove the lever *f* from obstructing the chute-passage, the whole being constructed and arranged to operate substantially as set forth.

6. In combination, a phonograph having its stylus-device F provided with a rigid or prac-

30 tically rigid tongue, *k*³, and its guide-rod *p'*, for the stylus-device, inclined downward toward the initial position of the said device, and an electrical coin-actuated attachment, B, having a chute, K, provided with a lever, *f*, normally obstructing the passage through the chute, the chute and lever being in a normally open electric circuit, *w*, containing the phonograph-motor and closed by the inserted coin, a branch, *w'*, of the circuit *w*, containing an electro-magnet, H, provided with an armature, H', a switch, I, in the said circuits, operated by the tongue of the moving stylus-device, a rock-shaft, *k*, having a lip, *k*², engaging the tongue *k*³, and carrying an arm, *s*, linked to the armature, and extended across the plane of the rear end of the lever *f*, and fingers, *i'* and *i*², supported near opposite ends of the course of the stylus-device on a longitudinally sliding bearing, *i*, carrying a finger, *v*, engaging the switch I, the whole being constructed and arranged to operate substantially as described.

ELLSWORTH E. FLORA.

In presence of—

J. W. DYRENFORTH,

M. J. FROST.