

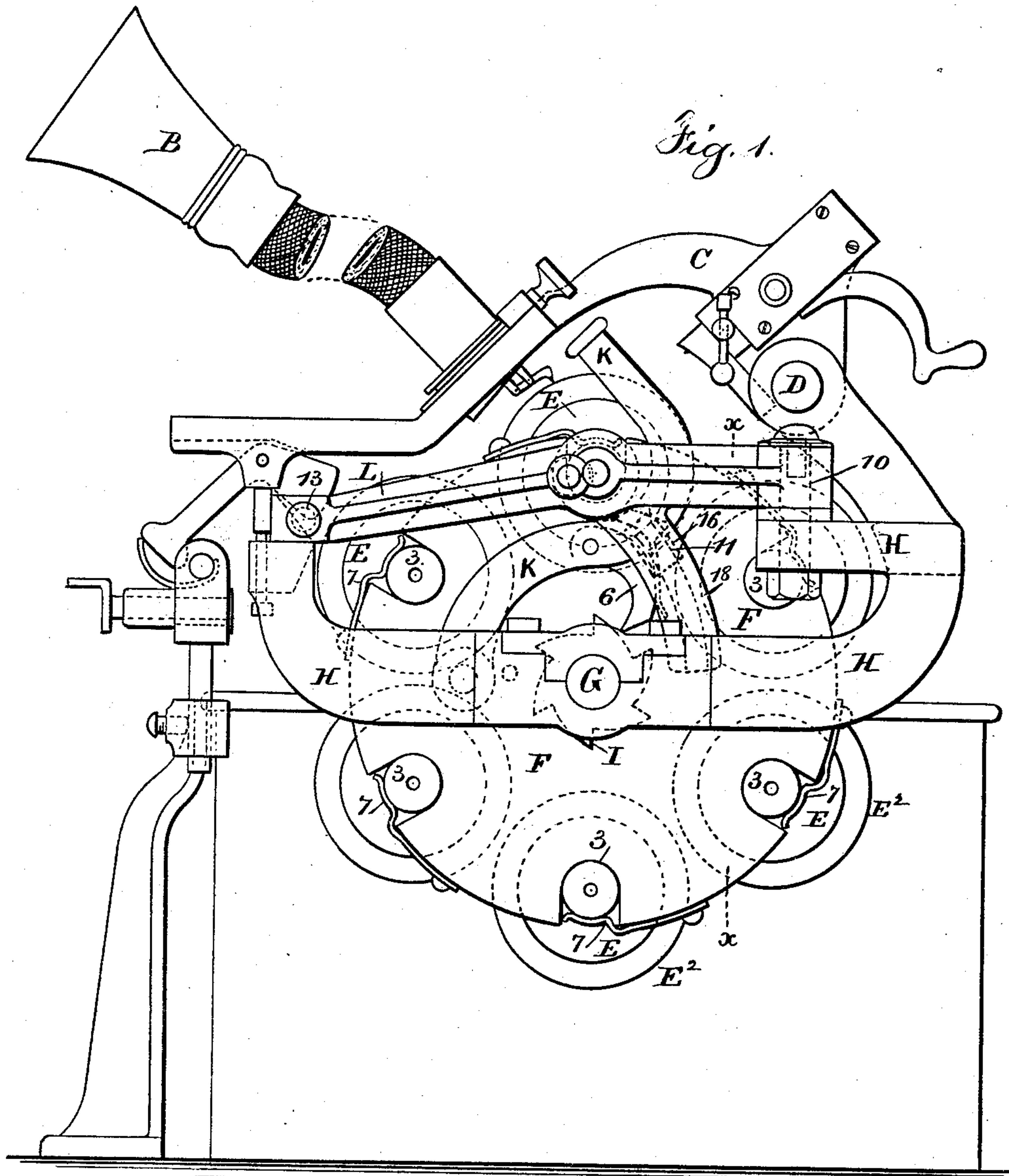
(No Model.)

3 Sheets—Sheet 1.

J. L. SKILLIN.
PHONOGRAPH.

No. 472,684.

Patented Apr. 12, 1892.



Witnesses

Chas. H. Smith
Harold Ferrell

Inventor

James L. Skillin
per Lemuel W. Ferrell atty

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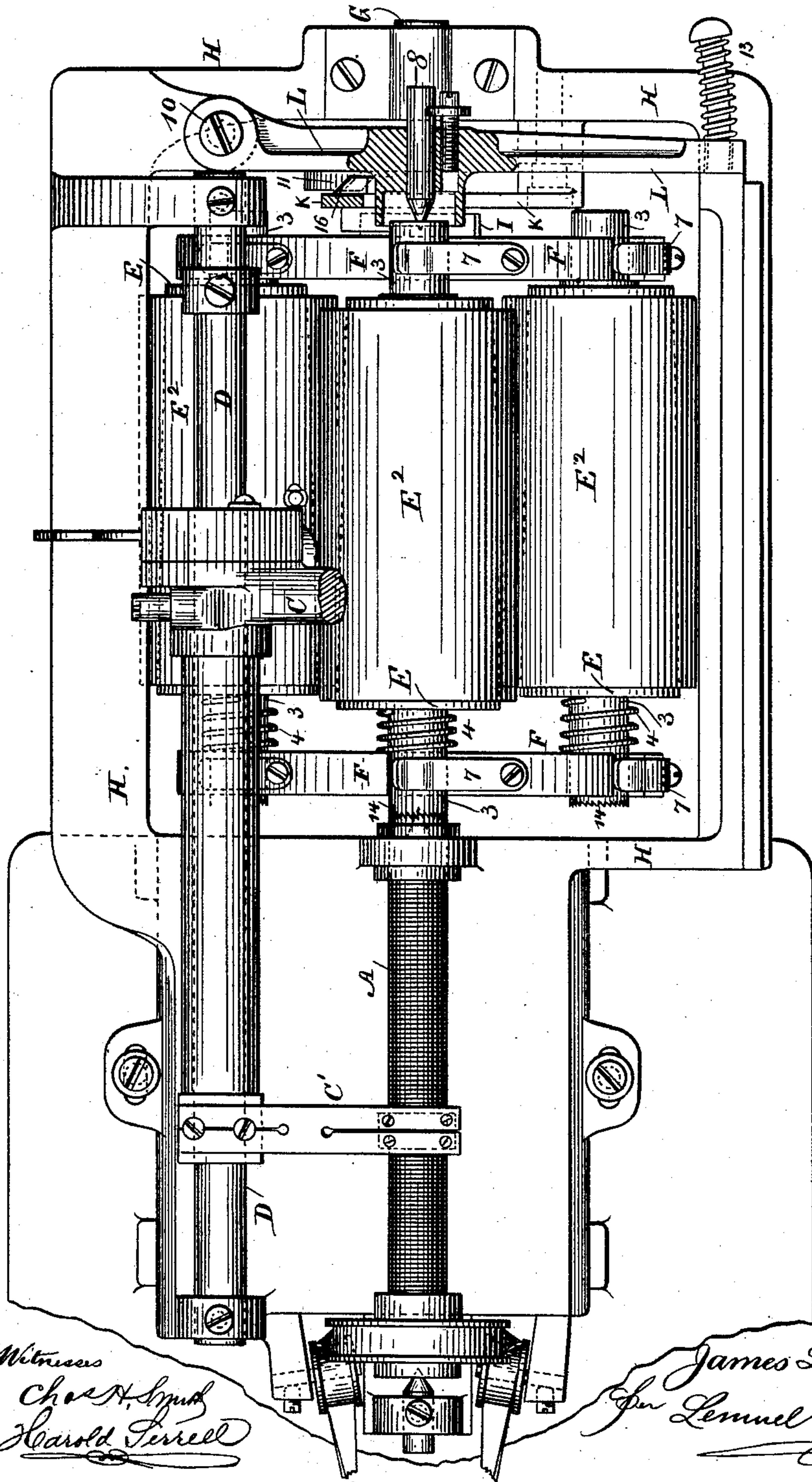


Fig. 2.

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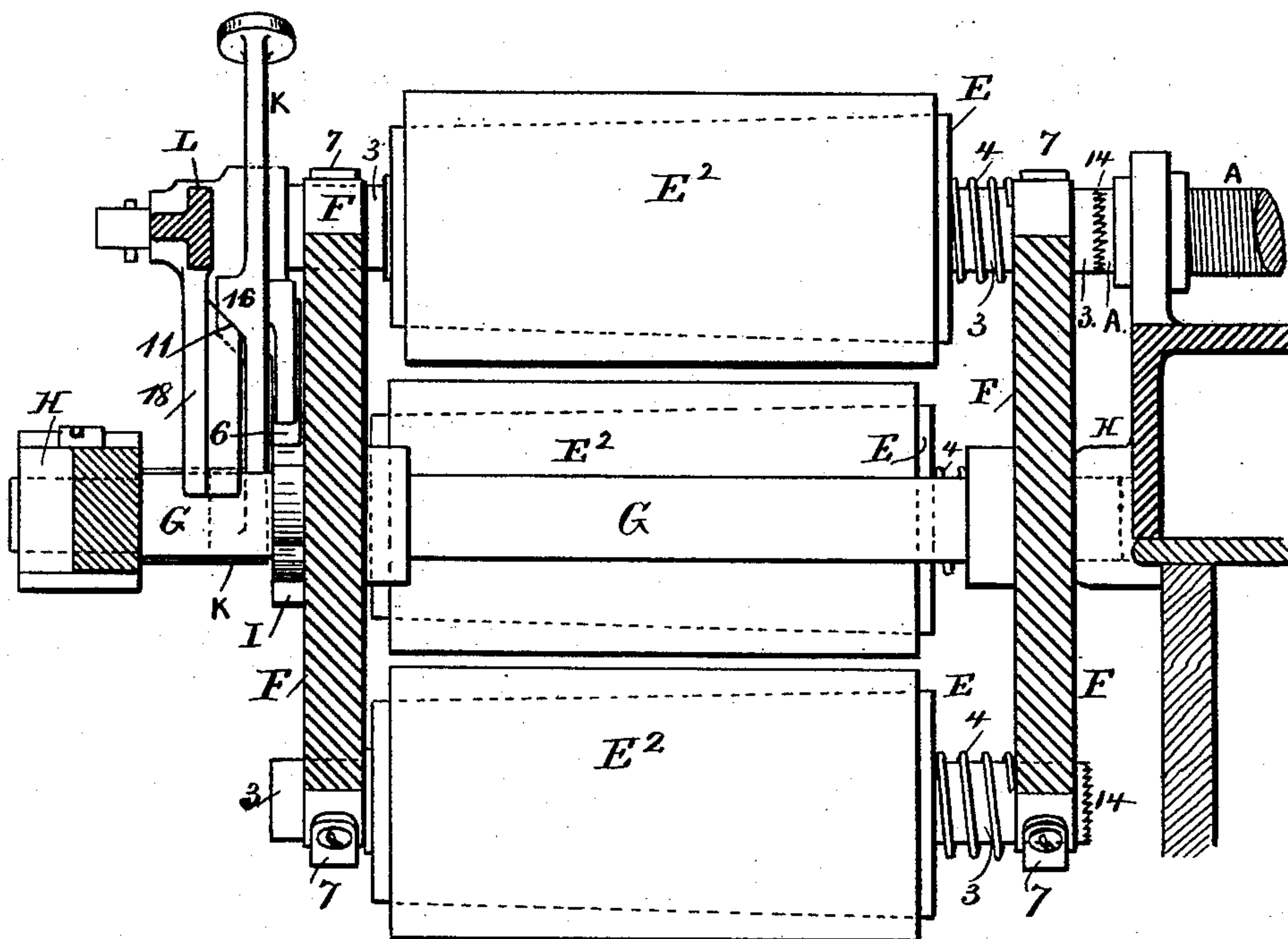
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Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES L. SKILLIN, OF NEW YORK, N. Y.

PHONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 472,684, dated April 12, 1892.

Application filed September 12, 1890. Serial No. 364,765. (No model.)

To all whom it may concern:

Be it known that I, JAMES L. SKILLIN, a citizen of the United States, residing in the city, county and State of New York, have invented an Improvement in Phonographs, of which the following is a specification.

Phonographic instruments have heretofore been constructed with tapering cylinders, upon which are received the phonogram-blanks to receive impressions from the vibrating point of the instrument in producing the phonogram, and these cylinders have been removable, so as to be re-entered upon the cylinder to reproduce the record, and in these phonograph-instruments when used for commercial, literary, and law purposes it is usual to stop the instrument and remove the phonogram that is full from the cylinder and to substitute another phonogram-blank. This has heretofore occupied some time and required personal attention and often dexterity of manipulation. Hence during these operations the flow of thought from the author or dictator is interrupted and the chain of circumstances lost.

In coin-actuated phonographic instruments it is usual to provide a cylinder rotated automatically and a lever that can be moved when a coin has been introduced into the instrument, in order that the reproducing-diaphragm may be brought to the starting end and the cylinder set in rotation; but heretofore it has been impossible to produce more than a repetition of the same tune, speech, or other phonographic reproduction on one cylinder, and by the insertion of a second coin there is a simple repetition of the first phonogram.

The object of my invention is to provide for the presentation to the rotating devices of one of a series of phonogram-cylinders, or to present such cylinders in succession to the rotating device, so that in machines that are made use of for taking down dictation for commercial or literary purposes the instrument can be stopped when one cylinder is full, and by the simple movement of a lever the full cylinder is carried out of position and an empty cylinder or phonogram-blank is brought into position and connected to the rotating device, so that very little interruption occurs to the dictator and very much time is

saved in the production of a phonogram, and where the phonographic instrument is made use of in exhibitions or in coin-actuated devices the carrier can be moved around to bring any desired cylinder into position for connection with the rotating device, so that by providing a number of phonogram-cylinders in one carrier either cylinder desired can be brought into position for connection with the rotating device, so that any tune, speech, or other phonographic reproduction can be brought into position and reproduced upon the instrument at the option of the person introducing the coin into the slot of the machine.

In the drawings, Figure 1 is an end view of the cylinder-carrier. Fig. 2 is a plan view of the same, showing, also, a portion of the ordinary phonograph-instrument. Fig. 3 is a section of the lever and supporting-bridge carrying the center for the phonogram-cylinder.

The shaft A is provided with a screw-thread upon it, and it is in line with and is used to rotate the phonogram-cylinder, and the mouth-piece B and indenting-point upon the diaphragm are of ordinary construction, and this mouth-piece is upon an arm C, extending out from and supported by a slide-bar D, there being a sleeve upon the slide-bar to connect the arm C with an arm C', passing out to the screw portion of the shaft A. These devices and the motor for rotating the shaft A are to be of any desired or usual character in phonograph-instruments, and may be varied to suit the phonograph or graphophone, and the instrument is to be adapted to recording or to reproducing the phonographic records.

Instead of only providing one phonogram-cylinder E axially in line with the shaft A and connected to or removable therefrom, I provide a number of phonogram-cylinders E, set in a carrier or reel F, having a central shaft G, to which the heads of the carrier are connected, and this central shaft G is supported in suitable bearings or frame-work H, and around the periphery of the carrier or reel there are notched bearings for the shafts 3 of the phonogram-cylinders E, and the distance between the central shaft G and the shafts 3 corresponds to the distance between

such central shaft G and the shaft A, so that as the shaft G and carrier F are rotated the axis of each phonogram-cylinder will be brought around in succession into exact line with the axis of the shaft A, and there is to be upon the end of the shaft A and the end of each shaft 3 suitable coupling or connecting devices—such, for instance, as a central point on the one part, a recess on the other, and interlocking crown-teeth or any equivalent coupling connection, as at 14—and around each shaft 3 and between the same and the adjacent carrier or head F there is a spring 4, so that the phonogram-cylinder is moved endwise by the spring to disconnect the clutches, so that the carrier and its cylinders are free to be rotated, and after being stopped with any one cylinder in line with the shaft A the couplings or clutches at 14 are caused to connect with each other by giving the shaft 3 that is in line with the shaft A an endwise movement toward such shaft A.

The carrier and the phonogram-cylinders supported by it can be rotated by any suitable means. I prefer a ratchet-wheel I, having as many teeth as there are phonogram-cylinders, and a pawl 6 upon the lever K can be used advantageously for rotating such carrier and cylinders, and the movement of the lever K should be limited by suitable stops, so that at this limit of movement one of the phonogram-cylinders E will be brought into line with the shaft A.

Each phonogram-cylinder E is to be of any desired construction. Usually it will be tapering and receive upon its surface the phonogram-blank of wax or any other suitable material E², removably applied upon the surface thereof, and the shaft of each phonogram-cylinder can be supported in the carrier or head F in any suitable manner.

I have represented the carrier-heads as notched around their peripheries for the reception of the shafts of the phonogram-cylinders, and there are springs 7 that can be swung over the journals or shaft of each phonogram-cylinder to retain such shaft in its proper position in the heads of the carrier, and by turning such springs to one side the cylinder and its shaft can be taken out and a different phonogram-cylinder inserted, as may be desired, and the bearings in the heads of the carrier for receiving the shafts of the phonogram-cylinders should be sufficiently loose not to produce unnecessary friction as the phonogram-cylinder is revolved by the shaft A, and it is advantageous to have the centering-point upon the shaft A enter a center hole in the shaft 3 and to make use of a centering-point 8 at the other end of the shaft 3, so that such shaft and the phonogram-cylinder may be revolved by the motor usually employed with such instruments, and this centering-point 8 is to be supported by a lever L, pivoted at 10, so that it may be swung laterally for withdrawing the centering-point 8 from the cavity at the end of the

shaft 3 of the cylinder that is in line with the shaft A; or when this lever L is moved in the other direction the centering-point 8 is to pass into the cavity of the shaft 3 and sufficient pressure is to be applied by the lever L for moving such shaft 3 endwise against the action of its spring 4, thereby causing the coupling or clutch 14 to connect the shaft 3 to the shaft A.

It is to be understood that the lever L is drawn back for freeing the cylinder that has been in use from the shaft A, so that the carrier and all the cylinders can be turned around upon the central shaft G to bring any other one of the phonogram-cylinders into line with the shaft A, and this may be accomplished by moving the lever L and pawl 6 once, twice, or more times, and the carrier F may be rotated by any other suitable means. It is, however, preferable to make use of the lever K in moving the lever L and point 8. With this object in view I provide upon the lever L an incline 11, adjacent to one side of the lever K, which incline 11 is made as a rib upon an arm 18 of said lever K, and the lever K may also be inclined, as at 16, where it comes into contact with the incline 11, and this incline 11 is sufficiently steep for the lever K to move the lever L the proper distance to withdraw the point 8 before the pawl 6 comes in contact with the next tooth upon the ratchet-wheel I, and it will be apparent that the lever K, remaining in contact with the downward projection, which is a continuation of the incline 11, keeps the point 8 away from the shafts 3 during the time that the carrier F is being rotated to bring another cylinder into position, and when the lever K receives its reverse or return movement the same passes above the incline 11 as it assumes a normal position, so that the lever L can be returned into its position, with the centering-point 8 in the recess at the end of one of the shafts 3, and there may be a spring 13 applied to the lever L sufficiently powerful to overcome the spring 4 and to move the shaft 3 and phonogram-cylinder endwise to couple the same to the shaft A and to keep the parts properly in contact while the motor is rotating the shaft A and the phonogram-cylinder, and, if desired, a swinging button or holder may be applied at the end of the lever L, as usual in phonographs, for holding such lever in position with the centering-point at the end of the shaft of the phonogram-cylinder.

With coin-actuated phonograph-machines it is preferable to actuate the lever K by hand from the outside of the inclosing case, and to construct such inclosing case with a dial or other indicating device moved by the carrier F to denote the tune or other reproduction upon each cylinder that is brought around into position, and by so providing the coin-actuated phonograph the revenue derived from the same is increased, because there can be so many more cylinders for phonographic reproductions that parties are likely to intro-

duce several coins in succession in order to hear the different phonographic reproductions. It will also be apparent that my present improvements are available with any of the mouth-pieces, diaphragm-points, speaking-tubes, and other appliances now provided or usually employed in phonographs or graphophones in producing the phonogram or in reproducing the audible sounds.

In this specification I have referred especially to phonographs, but by that expression I intend to include graphophones and all similar instruments.

I claim as my invention—

1. The combination, with a phonographic motor-shaft, of a carrier and two or more phonogram-cylinders and their shafts supported by such carrier, and coupling devices for connecting the shaft of either phonogram-cylinder to the motor-shaft when in line with the same, and the screw-shaft, diaphragm, and arm carrying the same, substantially as set forth.

2. The combination, with the phonographic motor-shaft, of a carrier adapted to receive two or more phonogram-cylinders and their shafts, a lever, pawl, and ratchet-wheel for rotating the carrier to bring any one of the phonogram-cylinder shafts into line with the motor-shaft, and a swinging lever and centering-point for supporting the shaft and phonogram-cylinder while being rotated, substantially as set forth.

3. The combination, with the motor-shaft in a phonograph-machine, of a carrier having two heads with notched bearings in their peripheries, two or more phonogram-cylinders and their shafts received into such bearings in the carrier, a spring applied to each motor-

shaft to move the same endwise, coupling devices upon the cylinder and motor-shafts, respectively, that are disconnected by such springs, mechanism for rotating the carrier and bringing the phonogram-cylinders around successively into line with the motor-shaft, a swinging lever and central point, and means for pressing the centering-point against the end of the phonogram-cylinder shaft to couple the same to the motor-shaft, substantially as set forth.

4. The combination, with a carrier and its supporting-shaft, of two or more phonogram-cylinders and their shafts received into and supported by such carrier, a motor-shaft and coupling devices for connecting the motor with either of the phonogram-cylinder shafts in line with the same, a centering-point, a lever for supporting the same, and a lever for rotating the carrier progressively and for moving the centering-point and its lever out of or into contact with the phonogram-cylinder shaft, substantially as set forth.

5. The combination, with the phonograph motor-shaft, of a carrier, two or more phonogram-cylinders and their shafts supported by the carrier, and mechanism, substantially as specified, for moving the carrier to bring the shafts of the phonogram-cylinders into line with the motor-shaft successively and for removing and replacing the support for the outer end of the phonogram-cylinder shaft, substantially as set forth.

Signed by me this 10th day of September, A. D. 1890.

JAMES L. SKILLIN.

Witnesses:

HAROLD SERRELL,
WILLIAM G. MOTT.