No. 773,164. PATENTED OCT. 25, 1904.

C. C. SHIGLEY.

PHONOGRAPH.

APPLICATION FILED JULY 10, 1903.

NO MODEL. 4 SHEETS—SHEET 1.

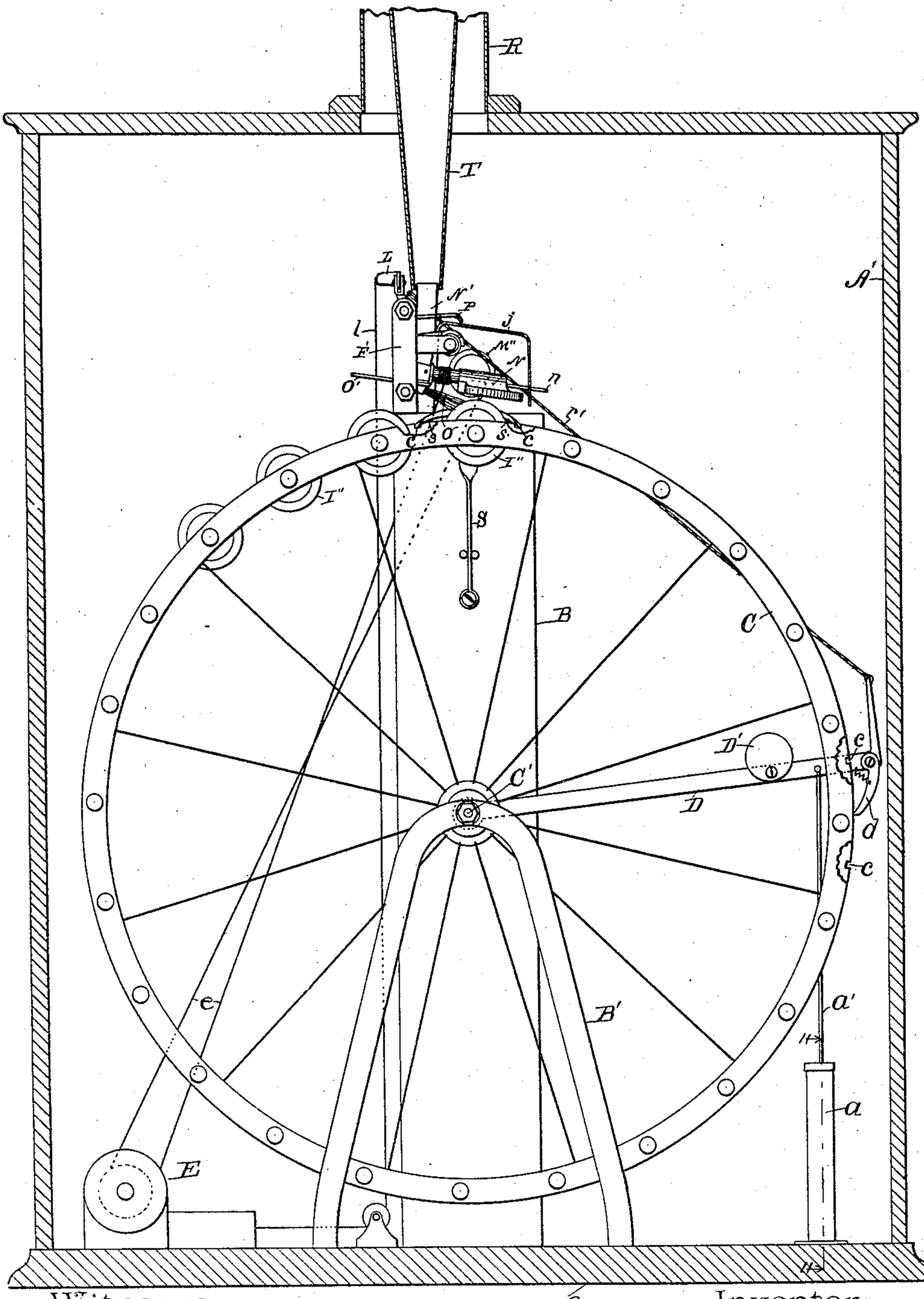

Fig. 1

Witnesses:
Ethel A. Sellers
Otis A. Earl

Inventor,
Chas. C. Shigley
By Fred L. Chappell
Att'y.

PHOTO-LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

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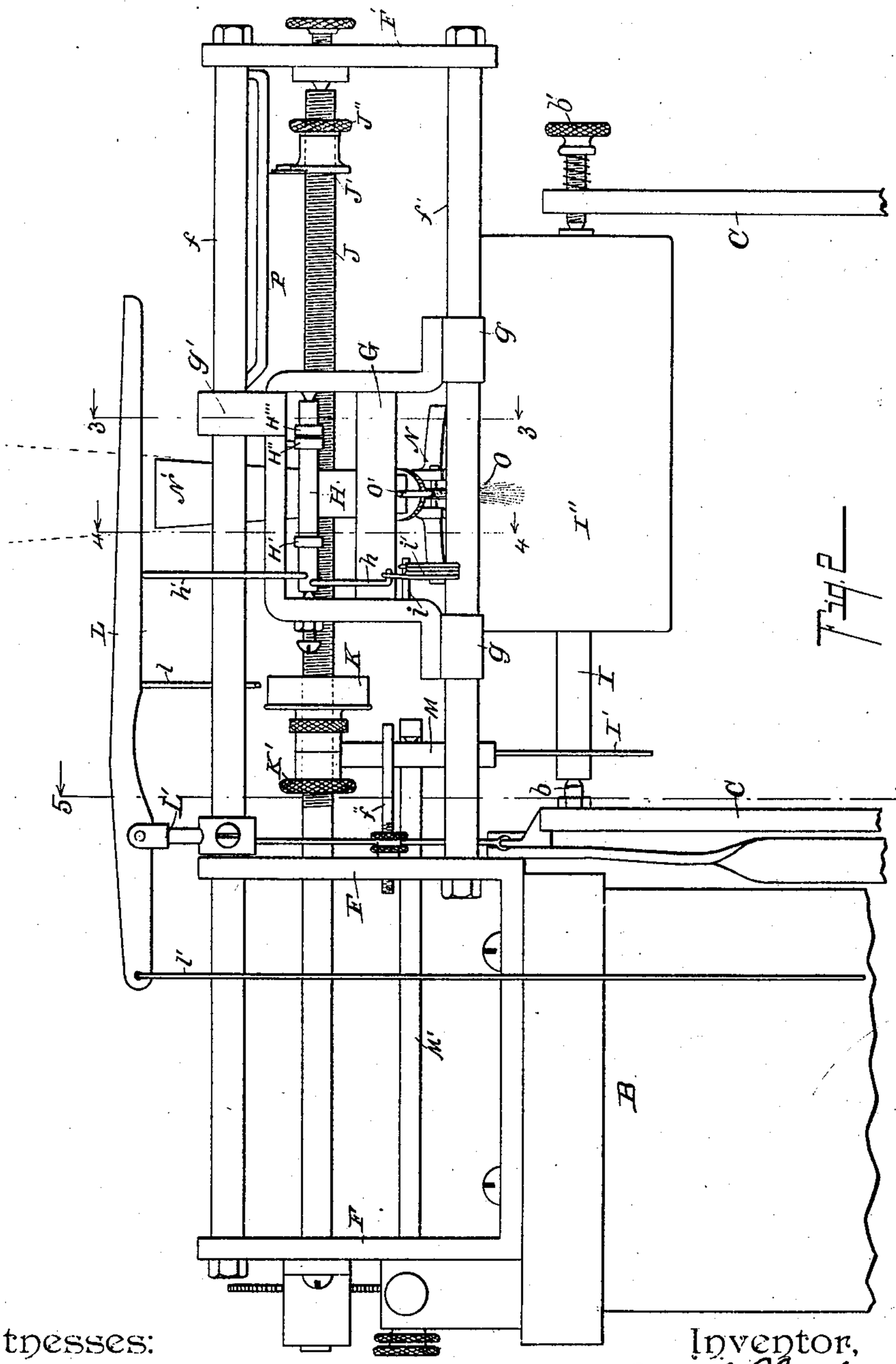
NO MODEL. 4 SHEETS—SHEET 2.



Witnesses:
Ethel A. Teller
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Cyrus C. Shigley
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Att'y.

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NO MODEL. 4 SHEETS—SHEET 3.

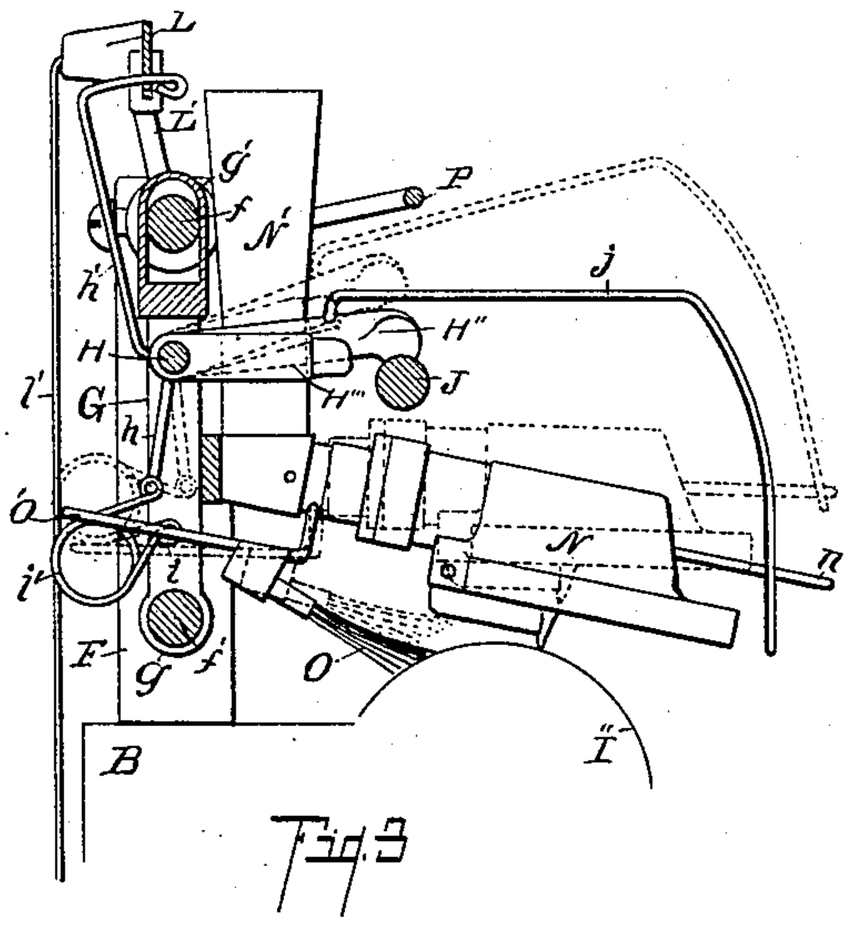

Fig. 3

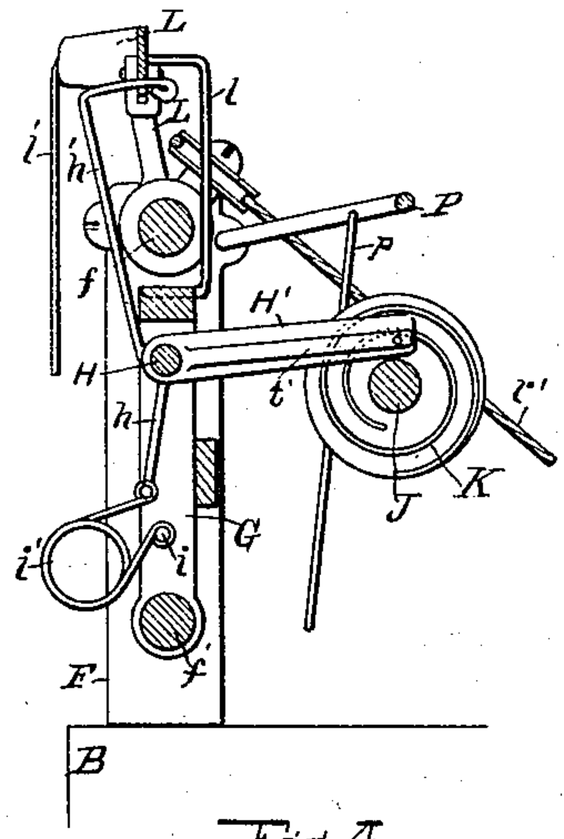

Fig. 4

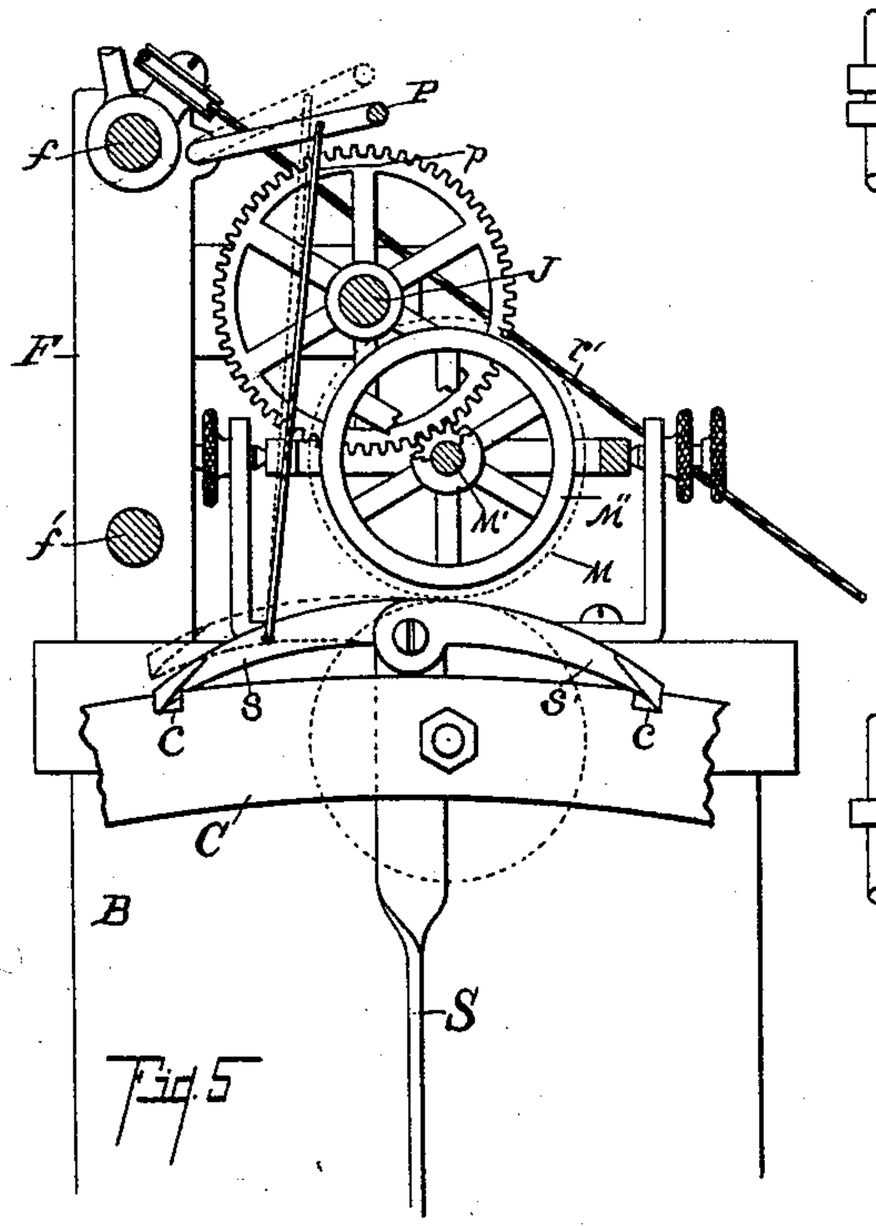

Fig. 5

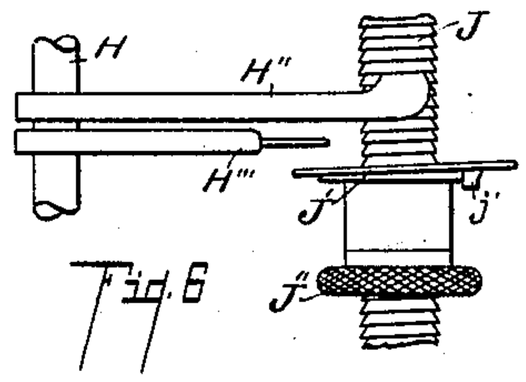

Fig. 6

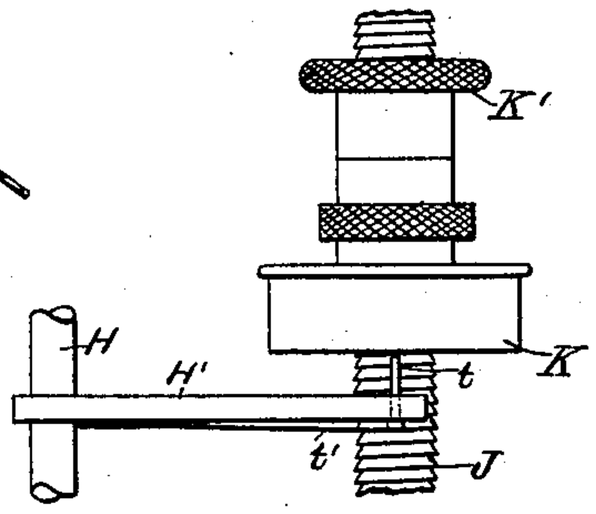

Fig. 7

Witnesses:

Ethel A. Fuller

Otis A. Earl

Inventor,

Cyrus C. Shigley

By Fred L. Hopkins

Att'y.

No. 773,164. PATENTED OCT. 25, 1904.

C. C. SHIGLEY.

PHONOGRAPH.

APPLICATION FILED JULY 10, 1903.

NO MODEL. 4 SHEETS—SHEET 4.

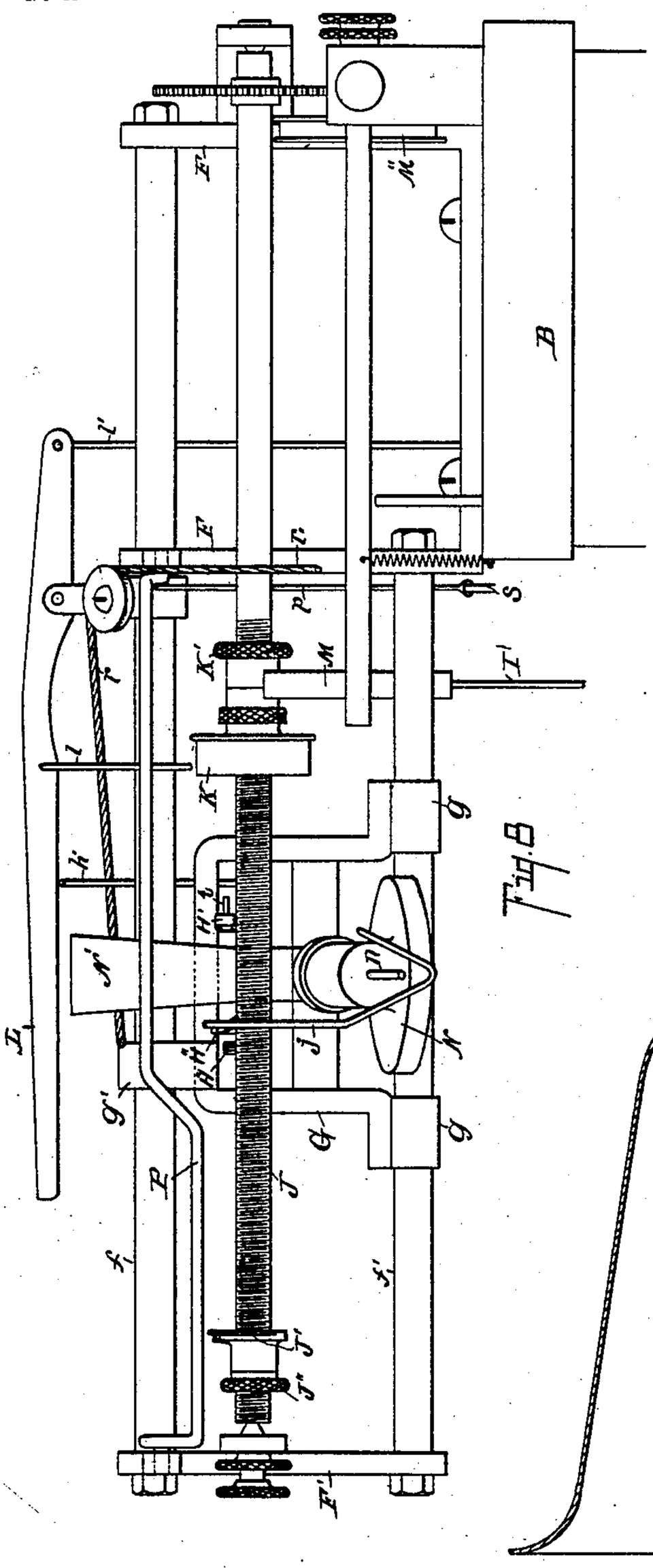

Fig. 8

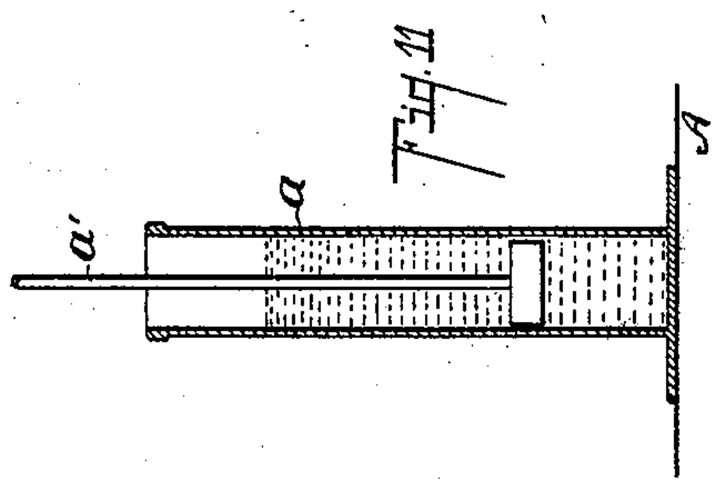

Fig. 11

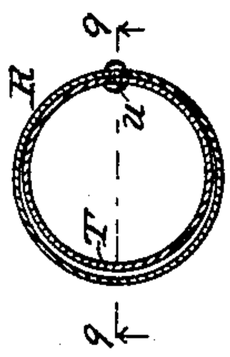

Fig. 10

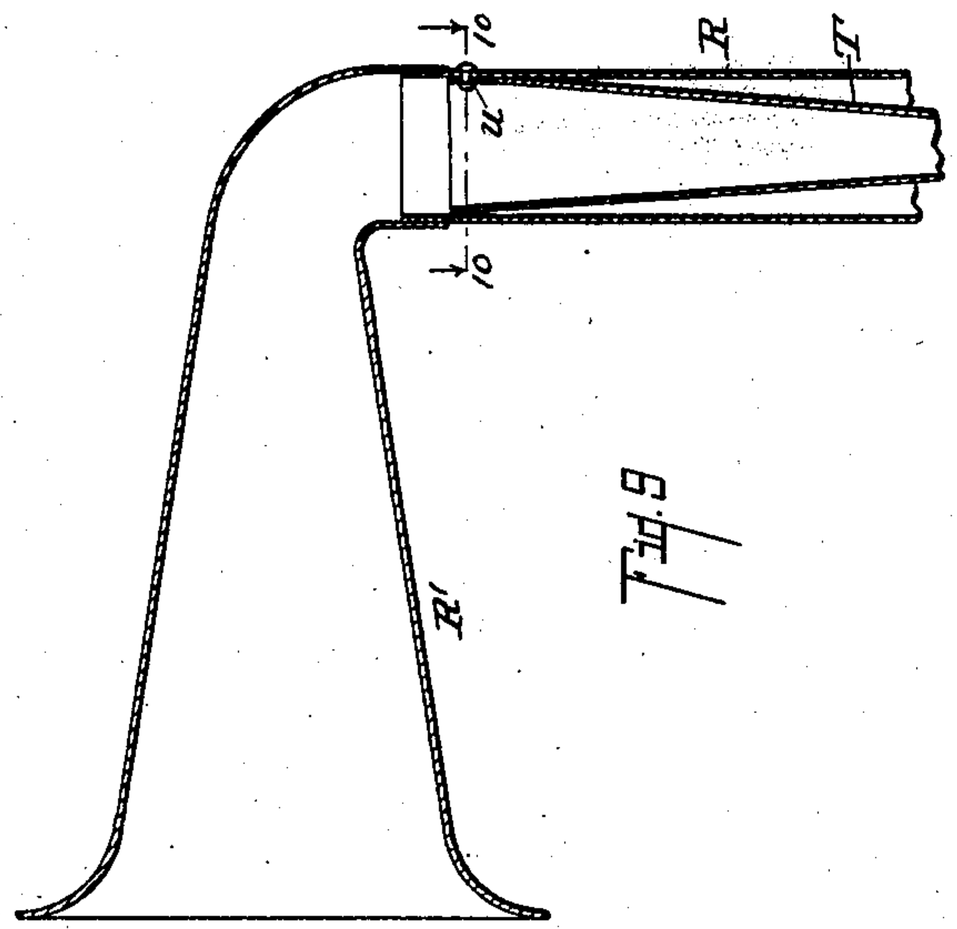

Fig. 9

Witnesses:

Ethel A. Fellen

Otis A. Earl

Inventor,

Lyman C. Shigley

By Fred L. Chappell

Att'y.

No. 773,164. Patented October 25, 1904.

UNITED STATES PATENT OFFICE.

CYRUS C. SHIGLEY, OF HART, MICHIGAN.

PHONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 773,164, dated October 25, 1904.

Application filed July 10, 1903. Serial No. 164,955. (No model.)

To all whom it may concern:

Be it known that I, CYRUS C. SHIGLEY, a citizen of the United States, residing at the village of Hart, in the county of Oceana and State of Michigan, have invented certain new and useful Improvements in Phonographs, of which the following is a specification.

This invention relates to improvements in phonographs.

It relates particularly to improvements in magazine-phonographs of the class illustrated and described in United States Letters Patent issued to me on May 5, 1903, No. 727,002, and is in some respects an improvement thereon, though it contains features adapted to any phonograph.

The objects of the invention are, first, to provide in a magazine-phonograph improved means by which the record-rolls are automatically brought into position for the reproduction of the records and the reproducer automatically adjusted; second, to provide in a magazine-phonograph improved means by which any desired record may be brought into position for reproduction or the several records reproduced in series automatically, as desired; third, to provide in a magazine-phonograph improved means by which the reproducing mechanism is automatically brought into or thrown out of engagement with the record-roll; fourth, to provide in a magazine-phonograph improved means by which the magazine and the reproducer mechanism are connected to be actuated in proper relation to each other; fifth, to provide in a magazine-phonograph improved means to hold a large number of records which is simple to adjust and not likely to get out of repair; sixth, to provide in a magazine-phonograph an improved carriage and delivery-horn.

Further objects and objects relating to structural details will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation view of my improved phonograph, the casing being shown in section and portions being broken away to show details of construction. Fig. 2 is an enlarged rear elevation of the reproducer mechanism and its supporting and operating parts and connection to the magazine. Fig. 3 is a detail sectional view taken on line 3 3 of Fig. 2, showing the carriage and actuating means. Fig. 4 is a detail sectional view taken on line 4 4 of Fig. 2, showing the means for throwing the carriage into connection with the screw. Fig. 5 is a detail sectional view taken on line 5 5 of Fig. 2, showing details of the connection from the carriage to the magazine. Fig. 6 is an enlarged detail plan view of the releasing mechanism for the driving-screw of the reproducer. Fig. 7 is an enlarged detail plan view of the connecting mechanism for the driving-screw. Fig. 8 is an enlarged detail front elevation of the reproducer supporting and driving mechanism. Fig. 9 is an enlarged longitudinal sectional view, taken on line 9 9 of Fig. 10, through the horn of my improved phonograph. Fig. 10 is an enlarged transverse sectional view taken on line 10 10 of Fig. 9. Fig. 11 is an enlarged longitudinal sectional view, taken on line 11 11 of Fig. 1, through the dash-pot *a*.

In the drawings all of the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, the casing A is of any desired form or material, preferably glazed. Within the casing A are uprights or standards B B′, on which the operative parts of the machine are supported.

The record-rolls are supported by a wheel having a pair of parallel rims C, provided with suitable spokes and a hub adapted to revolve upon the shaft C′. The hub is preferably provided with suitable antifriction-bearings. The rims are suitably connected together to retain them in position.

Projecting inwardly from one of the rims

C are suitable bearing-pivots *b*. Thumb-screws *b'*, having pivot-bearings formed on their ends, are inserted through the opposite rim and in conjunction with the pivots *b* form bearings for the mandrel-shafts I of the record-rolls I''. With the parts thus arranged the record-rolls are supported, so that they revolve freely and at the same time are held steadily in position. A large number of record-rolls may thus be supported in a comparatively compact space and be brought into proper relation to the reproducer mechanism as desired. The arrangement of the parts for this purpose will be hereinafter pointed out.

Each of the mandrel-shafts I is provided with a thin-rimmed wheel L', which as the magazine-wheel is revolved to bring the record-rolls into proper relation to the reproducer mechanism is engaged by the friction driving-wheel M'' on the shaft M'. (See Figs. 2 and 5.) The driving-wheel M'' is provided with a soft-rubber tire M, which engages the wheels I' of the mandrel-shafts and drives the same noiselessly and effectively. The shaft M' is provided with a pinion, with which the gear on shaft J meshes. This driving mechanism for the mandrel-rolls is substantially that described in my former patent referred to herein.

On the standard B is a bracket F, on which the reproducer mechanism is supported. The reproducer is carried by a carriage G, which is provided with suitable bearings *g g'*, adapted to reciprocate back and forth on the rods *f f'*, carried by the supporting-bracket F. A cross-piece F' connects the outer ends of the rods *f f'*.

It is desirable that the reproducer mechanism be automatic in its operation in relation to the record-roll, so that it is only necessary to start the mechanism to have any record reproduced and the mechanism automatically adjusted for the next reproduction.

The reproducer N is pivotally supported on the carriage G. The carriage G is driven in one direction by the driving-screw J, which is suitably supported on the bracket F and extends out over the magazine-wheel. The shaft J is connected to the motor E by a suitable belt, as *e*. The motor is illustrated in conventional form.

Carried by the rock-shaft H of the carriage G is a blade-like arm H'', which is adapted to engage the threads of the driving-screw J. As the shaft J is revolved the carriage is driven along thereby against the resistance of the weighted lever D, (see Fig. 1,) which is connected to the carriage by the cord *r'*. The lever D is provided with a suitable weight D' and is adapted to actuate the magazine-wheel C and also to return the carriage to its initial position for the reproduction of a record.

The lever D is provided with a pawl *d* on its outer end adapted to engage the ratchet-teeth *c* on the periphery of the magazine-wheel. The teeth or notches *c* are spaced one to each record-roll carried by the magazine-wheel, so that upon each actuation of the lever D the magazine-wheel is advanced one step to bring the next succeeding record-roll into proper position for reproduction. A suitable stop or escapement mechanism is provided, which will be described later.

When the carriage reaches its initial position in the reproduction of a record, the driving blade or arm H'' is automatically brought into engagement with the driving-shaft J by the arm H', carried by the rock-shaft H. The arm H' is provided with a laterally-projecting pin *t*, arranged therethrough, which is held yieldingly in position by the spring *t'*. (See Figs. 4 and 7.) When the carriage reaches its initial position, this pin *t* is engaged by the involute threaded disk K on the shaft J, which gradually tilts the rock-shaft H until the arm H'' is brought into engagement with the threads of the driving-shaft, the driving-motor having been started by the introduction of a coin or other suitable means. An adjustable stop *f'''* is provided for the carriage.

When the carriage reaches the end of its movement, the driving-blade H'' is automatically thrown out of engagement with the driving-shaft J by the disk J' on said driving-shaft J, which engages the arm H''' of the rock-shaft H and tilts the rock-shaft, thereby throwing the blade H'' out of engagement with the screw. The disk J' is provided with a projecting pin *j''*, which engages the arm H''' as the disk is revolved. This disk is preferably located at the same angle as the screw-threads of the driving-shaft J, so that the arm H''' readily passes the same and is then engaged by the pin *j''*, as described. These parts are similar to those described in my patent hereinbefore mentioned.

In order that the stylus of the reproducer be brought into contact with the record-roll at the proper point, the involute threaded disk K is made adjustable upon the driving-screw J, a lock-nut K' being provided for retaining it in its adjusted position. The disconnecting-disk J' is also screw-threaded upon the screw-shaft J, so that it may be adjusted to stop the carriage and disengage the reproducer at the proper point. The lock-nut J'' is provided for retaining this disk in its adjusted position. The reproducer N is lifted from the record-roll by the downwardly-depending arm *j*, carried by the driving arm or blade H''. This arm *j* projects forwardly and downwardly to the front of the reproducer and engages a projecting pin *n* on the reproducer, so that when the rock-shaft H is thrown upwardly the reproducer N is lifted, as is indicated by dotted lines in Fig. 3 It is apparent that when the rock-shaft is thrown downwardly at the initial end of the carriage movement the reproducer is brought into contact with the

record-roll. The rock-shaft H is retained in its adjusted position by a spring i', one end of which is secured to the carriage by a suitable pin i and the other to the end of the depending arm h on the rock-shaft H. This spring tends to hold the driving-blade H'' in yielding engagement with the driving-screw J when the spring is thrown to that side of the dead-center and holds the same in the elevated position when the spring is thrown to the opposite side of the dead-center. (See Fig. 3.)

When the rock-shaft is operated by the disconnecting means for the driving-blade of the reproducer-carriage, the upwardly-projecting arm h' is withdrawn from under the lever L, which permits the same to fall downwardly and stop the driving-motor, which is illustrated in conventional form at E, Fig. 1. The lever L is pivoted on the bracket L', and the long arm of the lever projects out over the reproducer-carriage in position to be engaged by the arm h', which passes under the same as the rock-shaft H is tilted to bring the driving-blade into engagement with the screw driving-shaft J, as is hereinbefore described.

The short arm of the lever L is connected to the motor by a suitable cord, as l'. A depending arm l on the lever L is arranged to engage the rod f and limit the upward throw of the lever.

To keep the record-rolls free from dust and the debris of wear, I provide a brush O, which is adjusted upon the arm O', carried by the reproducer N. By this arrangement the brush is lifted from the record-roll when the reproducer is disengaged and when the machine is in operation brushes the record-roll in advance of the stylus of the reproducer. Each record-roll is thereby kept clean, which adds very greatly to its durability and also to the durability of the stylus. It also makes the tones more perfect than is otherwise possible.

When the arm H'' is thrown upwardly at the end of the movement, as has been described, the arm j is brought into contact with the bail or crank-shaft P, which is thrown upwardly thereby. This bail P is connected to the dog s (see Fig. 5) by a link p. This upward movement of the bail P disengages the dog s from the magazine-wheel C, so that the magazine-wheel may be adjusted to bring any record-roll into position to be reproduced. The dog s', oppositely arranged to the dog s, prevents the backward revolution of the magazine-wheel. These dogs are carried upon the free end of the spring S, which is supported on the standard B, so that the magazine-wheel is yieldingly held in its adjusted position and any sudden jars or stops prevented.

With the magazine in this position, the carriage being at the end of its movement, the magazine-wheel can, as before stated, be adjusted to any position and bring any roll desired into position for reproduction. Any suitable means can be provided for this purpose, the same not being here illustrated.

Upon the introduction of a coin or its equivalent the motor is started, which revolves the driving-screw J. The disengaging disk J' is flattened or cut away on one side, so that as it is revolved the arm H''' is released and the carriage returned to its initial position by the weighted arm D, as has before been described, and the magazine-wheel is also advanced one step. As the carriage is returned to its initial position the bail P is dropped downwardly, which brings the dog s into engagement with the magazine-wheel and prevents the same being revolved more than one step. To further control the movement of the magazine-wheel, I provide a dash-pot a, the piston of which is connected by the rod a' to the lever D. This avoids any liability of injuring the magazine-wheel or the records by jarring.

The bell of the horn R' of the phonograph is supported upon the pipe R, projecting upwardly from the top of the casing. (See Figs. 1 and 9.) The sound is delivered to the bell of the horn R' by the tube T, which is pivotally supported within the pipe R by the pivot u. (See Fig. 9.) The tube T embraces the delivery-pipe N' of the reproducer, so that as the carriage is moved back and forth the tube T is swung upon the supporting-pivot u. By this means I secure a yielding connection, so that the carriage may be moved freely, and at the same time a connection which does not in any manner affect the tone produced.

I have illustrated and described my improved magazine-phonograph in the form preferred by me on account of convenience in manufacture and simplicity in operation. I am, however, aware that considerable variations may be made in structural details without departing from my invention.

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

1. In a magazine-phonograph, the combination of a frame; a magazine-wheel carrying mandrels and record-rolls; a carriage G adapted to reciprocate parallel with said record-rolls; a phonograph-reproducer pivotally supported on said carriage; a motor; a screw-shaft J with suitable connections to said motor; a rock-shaft H carried by said carriage; an arm H' on said rock-shaft; an involute threaded disk on said screw-shaft adapted to engage said arm H' to throw said rock-shaft forwardly; a blade-like arm H'' adapted to engage said shaft J when said rock-shaft is in its forward position; a disk J' on said shaft J having a portion thereof cut away; an arm H''' on said rock-shaft adapted to engage said disk, whereby said rock-shaft H is thrown backwardly; connections from said reproducer to said rock-shaft, whereby said reproducer is thrown into and out of contact with the rec-

ord-rolls; a pivoted lever D having a pawl *d* thereon adapted to engage said magazine-wheel; connections from said lever to said carriage; locking-dogs *s s'*; a spring-support S therefor; connections from said rock-shaft to said motor; and driving connections for said record-rolls, all coacting for the purpose specified.

2. In a magazine-phonograph, the combination of a frame; a magazine-wheel carrying mandrels and record-rolls; a carriage G adapted to reciprocate parallel with said record-rolls; a phonograph-reproducer pivotally supported on said carriage; a motor; a screw-shaft J with suitable connections to said motor; a rock-shaft H carried by said carriage; an arm H' on said rock-shaft; an involute threaded disk on said screw-shaft adapted to engage said arm H' to throw said rock-shaft forwardly; a blade-like arm H'' adapted to engage said shaft J when said rock-shaft H is in its forward position; a disk J' on said shaft J having a portion thereof cut away; an arm H''' on said rock-shaft adapted to engage said disk, whereby said rock-shaft H is thrown backwardly; connections from said reproducer to said rock-shaft, whereby said reproducer is thrown into and out of contact with the record-rolls; a pivoted lever D having a pawl *d* thereon adapted to engage said magazine-wheel; connections from said lever to said carriage; a locking-dog *s;* connections from said rock-shaft H to said locking-dog *s;* connections from said rock-shaft to said motor; and driving connections for said record-rolls, all coacting for the purpose specified.

3. In a magazine-phonograph, the combination of a frame; a magazine-wheel carrying mandrels and record-rolls; a carriage G adapted to reciprocate parallel with said record-rolls; a phonograph-reproducer pivotally supported on said carriage; a motor; a rock-shaft H carried by said carriage; an arm H' on said rock-shaft; an involute threaded disk on said screw-shaft adapted to engage said arm H' to throw said rock-shaft forwardly; a blade-like arm H'' adapted to engage said shaft J when said rock-shaft H is in its forward position; a disk J' on said shaft J having a portion thereof cut away; an arm H''' on said rock-shaft adapted to engage said disk, whereby said rock-shaft H is thrown backwardly; connections from said reproducer to said rock-shaft, whereby said reproducer is thrown into and out of contact with said record-rolls; locking-dogs *s s'*; a spring-support S therefor; connections from said rock-shaft H to said locking-dog *s;* connections from said rock-shaft to said motor; and driving connections for said record-rolls, all coacting for the purpose specified.

4. In a magazine-phonograph, the combination of a frame; a magazine-wheel carrying mandrels and record-rolls; a carriage G adapted to reciprocate parallel with said record-rolls; a phonograph-reproducer pivotally supported on said carriage; a motor; a screw-shaft J with suitable connections to said motor; a rock-shaft H carried by said carriage; an arm H' on said rock-shaft; an involute threaded disk on said screw-shaft adapted to engage said arm H' to throw said rock-shaft forwardly; a blade-like arm H'' adapted to engage said shaft J when said rock-shaft H is in its forward position; a disk J' on said shaft J having a portion thereof cut away; an arm H''' on said rock-shaft adapted to engage said disk, whereby said rock-shaft H is thrown backwardly; connections from said reproducer to said rock-shaft, whereby said reproducer is thrown into and out of contact with the record-rolls; a locking-dog *s;* connections from said rock-shaft H to said locking-dog *s;* connections from said rock-shaft to said motor; and driving connections for said record-rolls, all coacting for the purpose specified.

5. In a magazine-phonograph, the combination of a suitable frame; a magazine-wheel carrying mandrels; record-rolls on said mandrels; a carriage adapted to reciprocate parallel with said record-rolls; a phonograph-reproducer pivotally supported on said carriage; a rock-shaft carried by said carriage adapted to raise and lower said reproducer to throw the same into and out of contact with said record-rolls; means for driving said carriage in one direction; means for automatically actuating said rock-shaft at the ends of the movements of said carriage; a lever D having a pawl thereon adapted to engage said magazine-wheel; a dash-pot; suitable connections from the piston of said dash-pot to said lever; connections from said lever to said carriage for returning said carriage to its initial position; a locking-dog for said magazine-wheel; connections from said locking-dog to said rock-shaft; connections from said rock-shaft to the driving means for said carriage, for the purpose specified.

6. In a magazine-phonograph, the combination of a suitable frame; a magazine-wheel carrying mandrels; record-rolls on said mandrels; a carriage adapted to reciprocate parallel with said record-rolls; a phonograph-reproducer pivotally supported on said carriage; a rock-shaft carried by said carriage adapted to raise and lower said reproducer to throw the same into and out of contact with said record-rolls; means for driving said carriage in one direction; means for automatically actuating said rock-shaft at the ends of the movements of said carriage; a lever D having a pawl thereon adapted to engage said magazine-wheel; connections from said lever to said carriage for returning said carriage to its initial position; a locking-dog for said magazine-wheel; connections from said locking-dog to said rock-shaft; and connections from said rock-shaft to the driving means of said carriage, for the purpose specified.

7. In a magazine-phonograph, the combination of a suitable frame; a magazine-wheel carrying mandrels; record-rolls on said mandrels; a carriage adapted to reciprocate parallel with said record-rolls; a phonograph-reproducer pivotally supported on said carriage; a rock-shaft carried by said carriage adapted to raise and lower said reproducer to throw the same into and out of contact with said record-rolls; means for driving said carriage in one direction; means for automatically actuating said rock-shaft at the ends of the movements of said carriage; a lever D having a pawl thereon adapted to engage said magazine-wheel; a dash-pot; suitable connections from the piston of said dash-pot to said lever; connections from said lever to said carriage for returning said carriage to its initial position; connections from said rock-shaft to the driving means for said carriage, for the purpose specified.

8. In a magazine-phonograph, the combination of a suitable frame; a magazine-wheel carrying mandrels; record-rolls on said mandrels; a carriage adapted to reciprocate parallel with said record-rolls; a phonograph-reproducer pivotally supported on said carriage; a rock-shaft carried by said carriage adapted to raise and lower said reproducer and throw the same into and out of contact with said record-rolls; means for actuating said carriage; means for automatically actuating said rock-shaft at the ends of the movement of said carriage; a locking-dog for said magazine-wheel; a spring-support therefor; connections from said locking-dog to said rock-shaft; means for actuating said magazine-wheel; connections from said magazine-wheel-actuating means to said carriage, for the purpose specified.

9. In a magazine-phonograph, the combination of a suitable frame; a magazine-wheel carrying mandrels; record-rolls on said mandrels; a carriage adapted to reciprocate parallel with said record-rolls; a phonograph-reproducer pivotally supported on said carriage; a rock-shaft carried by said carriage adapted to raise and lower said reproducer and throw the same into and out of contact with said record-rolls; means for actuating said carriage; means for automatically actuating said rock-shaft at the ends of the movement of said carriage; a locking-dog for said magazine-wheel; connections from said locking-dog to said rock-shaft; means for actuating said magazine-wheel; connections from said magazine-wheel-actuating means to said carriage, for the purpose specified.

10. In a magazine-phonograph, the combination of a suitable frame; a magazine-wheel carrying mandrels; record-rolls on said mandrels; a carriage adapted to reciprocate parallel with said record-rolls; a phonograph-reproducer pivotally supported on said carriage; a rock-shaft carried by said carriage adapted to raise and lower said reproducer and throw the same into and out of contact with said record-rolls; means for actuating said carriage; means for automatically actuating said rock-shaft at the ends of the movement of said carriage; a locking-dog for said magazine-wheel; a locking-dog for said magazine-wheel; connections from said locking-dog to said rock-shaft; means for actuating said magazine-wheel; connections from said magazine-wheel-actuating means to said carriage, for the purpose specified.

11. In a magazine-phonograph, the combination of a record-roll; means for driving the same; a carriage G adapted to reciprocate parallel to said record-rolls; a phonograph-reproducer pivotally supported on said carriage; a motor; a screw-shaft J with suitable connections to said motor; a rock-shaft H carried by said carriage; an arm H′ on said rock-shaft; a yielding pin carried by said arm projecting laterally therefrom; an involute threaded disk K adjustably secured on said screw-shaft J adapted to engage said arm H′ and throw said rock-shaft forwardly; a blade-like arm H″ adapted to engage said shaft J when said rock-shaft H is in its forward position; a disk J′ adjustably secured on said shaft J having a portion thereof cut away; an arm H‴ on said rock-shaft adapted to engage said disk J′, whereby said rock-shaft H is thrown to its backward position; connections from said reproducer to said rock-shaft whereby said reproducer is thrown into and out of contact with said record-rolls; and connections from said rock-shaft to said motor, for the purpose specified.

12. In a magazine-phonograph, the combination of a record-roll; means for driving the same; a carriage G adapted to reciprocate parallel to said record-rolls; a phonograph-reproducer pivotally supported on said carriage; a motor; a screw-shaft J with suitable connections to said motor; a rock-shaft H carried by said carriage; an arm H′ on said rock-shaft; an involute threaded disk K adjustably secured on said screw-shaft J adapted to engage said arm H′ and throw said rock-shaft forwardly; a blade-like arm H″ adapted to engage said shaft J when said rock-shaft H is in its forward position; a disk J′ adjustably secured on said shaft J having a portion thereof cut away; an arm H‴ on said rock-shaft adapted to engage said disk J′, whereby said rock-shaft H is thrown to its backward position; connections from said reproducer to said rock-shaft whereby said reproducer is thrown into and out of contact with said record-rolls; and connections from said rock-shaft to said motor, for the purpose specified.

13. In a magazine-phonograph, the combination of a record-roll; means for driving the same; a carriage G adapted to reciprocate parallel to said record-rolls; a phonograph-reproducer pivotally supported on said carriage; a motor; a screw-shaft J with suitable connec-

tions to said motor; a rock-shaft H carried by said carriage; an arm H′ on said rock-shaft; an involute threaded disk K adjustably secured on said screw-shaft J adapted to engage said arm H′ and throw said rock-shaft forwardly; a blade-like arm H″ adapted to engage said shaft J when said rock-shaft H is in its forward position; a disk J′ adjustably secured on said shaft J having a portion thereof cut away; an arm H‴ on said rock-shaft adapted to engage said disk J′, whereby said rock-shaft H is thrown to its backward position; connections from said reproducer to said rock-shaft whereby said reproducer is thrown into and out of contact with said record-rolls, for the purpose specified.

14. In a magazine-phonograph, the combination of a record-roll; a carriage adapted to reciprocate parallel with said roll; a phonograph-reproducer pivotally supported on said carriage; a rock-shaft carried by said carriage; connections from said rock-shaft to said reproducer, whereby said reproducer is thrown into and out of contact with said record-roll by the actuation of said shaft; a brush carried by said carriage and adapted to contact with said record-roll when said reproducer is in contact therewith; means for automatically actuating said rock-shaft at the ends of the movement of said carriage; means for driving said carriage in one direction; and means for automatically returning said carriage to its initial position, for the purpose specified.

15. In a magazine-phonograph, the combination of a record-roll; a carriage adapted to reciprocate parallel with said roll; a phonograph-reproducer pivotally supported on said carriage; a rock-shaft carried by said carriage; connections from said rock-shaft to said reproducer, whereby said reproducer is thrown into and out of contact with said record-roll by the actuation of said shaft; a brush carried by said carriage adapted to contact with said record-roll when said reproducer is in contact therewith; means for automatically actuating said rock-shaft at the ends of the movement of said carriage, for the purpose specified.

16. In a phonograph, the combination of a record-roll; means for revolving the same; a carriage adapted to reciprocate parallel therewith; a phonograph-reproducer pivotally supported on said carriage; a rock-shaft adapted to raise and lower said reproducer to throw the same into and out of engagement with the record-roll; a screw-threaded shaft; means for driving said shaft; a blade-like arm on said rock-shaft adapted to engage said screw-threaded shaft when the rock-shaft is in its forward position; an involute threaded disk screw-threaded onto said driving-shaft, whereby the same may be adjusted thereon, adapted to engage said arm to throw said rock-shaft forwardly to bring said reproducer into contact with the record-roll; and a lock-nut for retaining said disk in its adjusted position, for the purpose specified.

17. In a phonograph, the combination of a record-roll; means for revolving the same; a carriage adapted to reciprocate parallel therewith; a phonograph-reproducer pivotally supported on said carriage; a rock-shaft adapted to raise and lower said reproducer to throw the same into and out of engagement with the record-roll; a screw-threaded shaft; means for driving said shaft; a blade-like arm on said rock-shaft adapted to engage said screw-threaded shaft when the rock-shaft is in its forward position; an involute threaded disk screw-threaded onto said driving-shaft, whereby the same may be adjusted thereon, adapted to engage said arm to throw said rock-shaft forwardly to bring said reproducer into contact with the record-roll, for the purpose specified.

18. In a phonograph, the combination of a record-roll; means for revolving the same; a carriage adapted to reciprocate parallel therewith; a phonograph-reproducer pivotally supported on said carriage; a rock-shaft adapted to raise and lower said reproducer to throw the same into and out of engagement with said record-roll; a screw-threaded driving-shaft; a blade-like arm on said rock-shaft adapted to engage said screw-threaded driving-shaft when said rock-shaft is in its forward position; a disk threaded onto said rock-shaft whereby the same may be adjusted thereon, adapted to engage said blade and throw it out of engagement with said shaft; and a lock-nut for retaining said disk in its adjusted position, for the purpose specified.

19. In a phonograph, the combination of a record-roll; means for revolving the same; a carriage adapted to reciprocate parallel therewith; a phonograph-reproducer pivotally supported on said carriage; a rock-shaft adapted to raise and lower said reproducer to throw the same into and out of engagement with said record-roll; a screw-threaded driving-shaft; a blade-like arm on said rock-shaft adapted to engage said screw-threaded driving-shaft when said rock-shaft is in its forward position; a disk threaded onto said rock-shaft whereby the same may be adjusted thereon, adapted to engage said blade and throw it out of engagement with said shaft, for the purpose specified.

20. In a phonograph, the combination of a suitable frame; a carriage adapted to reciprocate; a phonograph-reproducer carried by said carriage; a projecting delivery-tube for said reproducer; a relatively stationary tube R mounted on said frame; a tube pivotally supported within said tube R, with its inner end arranged upon and movable with the delivery-tube of said reproducer; and a horn-bell mounted on said tube R, for the purpose specified.

21. In a phonograph, the combination of a

suitable frame; a carriage adapted to reciprocate; a phonograph-reproducer carried by said carriage; a projecting delivery-tube for said reproducer; a relatively stationary horn; a tube pivotally supported within said horn, with its inner end arranged upon and movable with the delivery-tube of said reproducer, for the purpose specified.

22. In a phonograph, the combination of a suitable frame; a carriage adapted to reciprocate; a phonograph-reproducer carried by said carriage; a relatively stationary horn; a tube pivotally supported within said horn, connected to said reproducer and movable therewith, for the purpose specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

CYRUS C. SHIGLEY. [L. S.]

Witnesses:
CHAS. F. DAYHARSH,
S. H. PAXTON.