

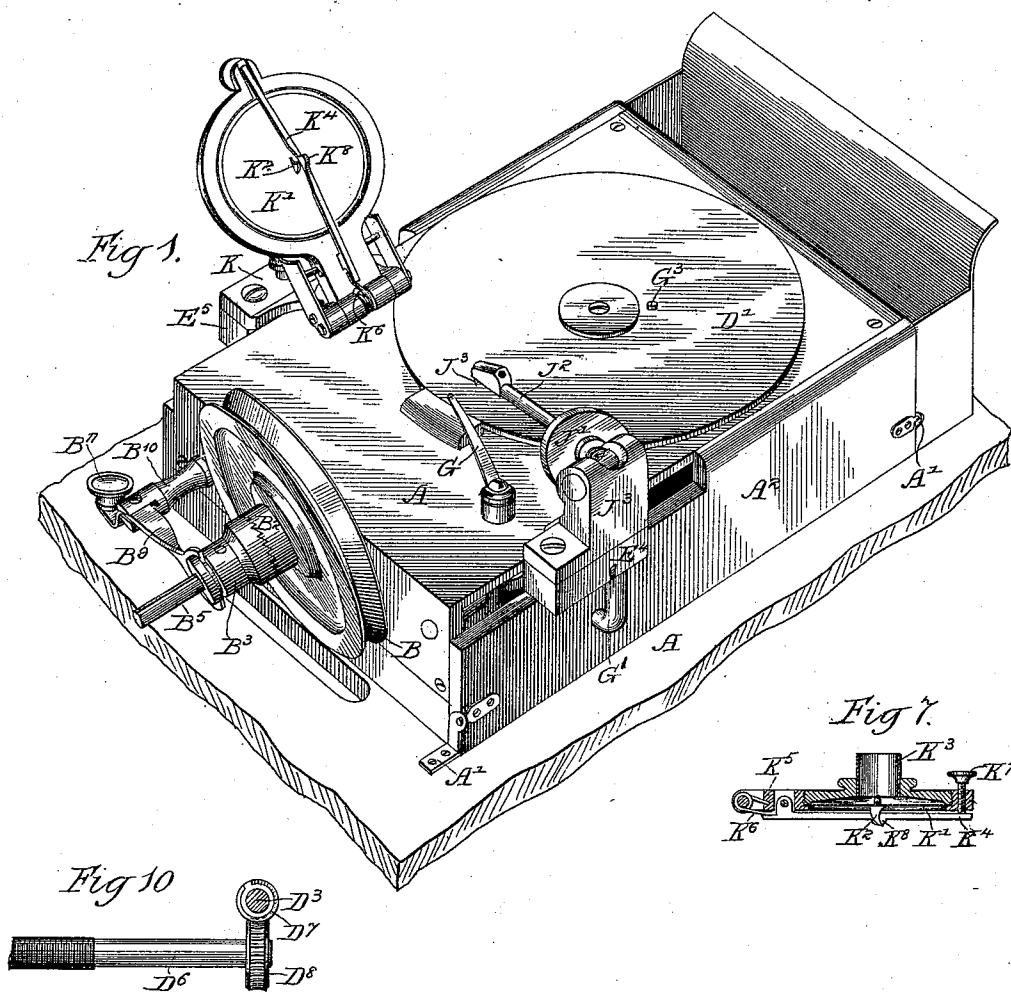
(No Model.)

3 Sheets—Sheet 1.

J. E. WASSENICH.
DISK GRAPHOPHONE.

No. 532,851.

Patented Jan. 22, 1895.



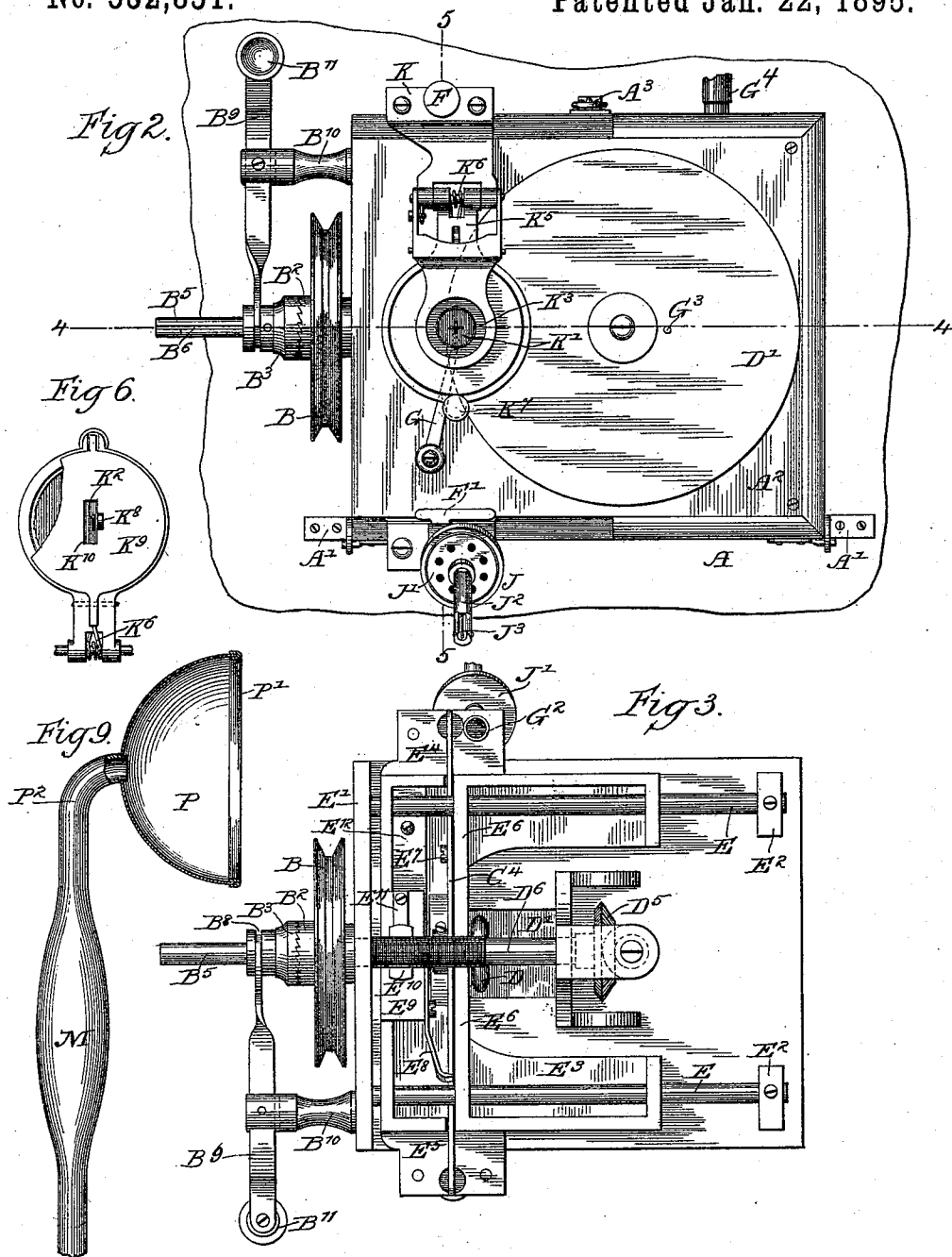
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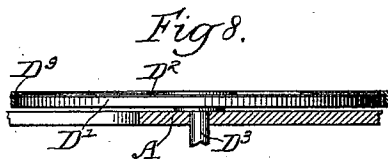
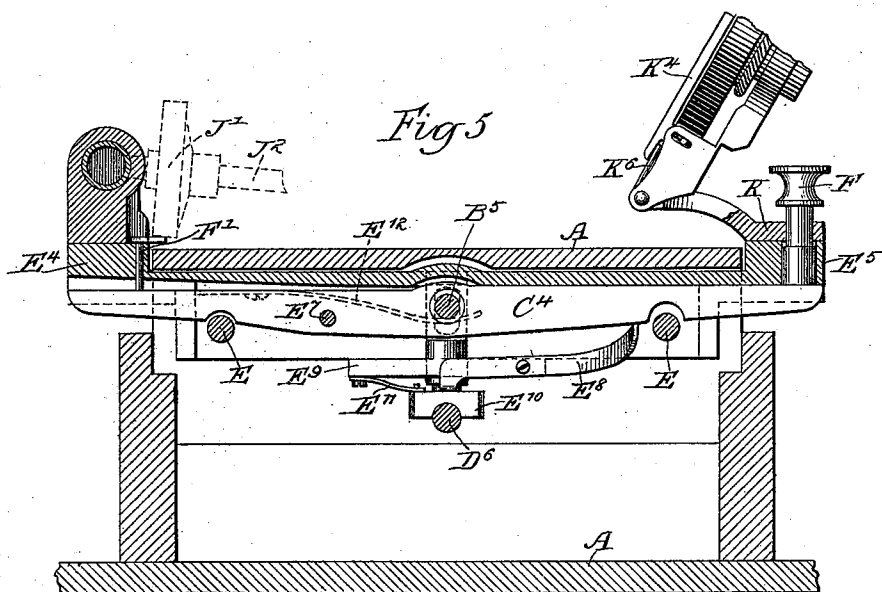
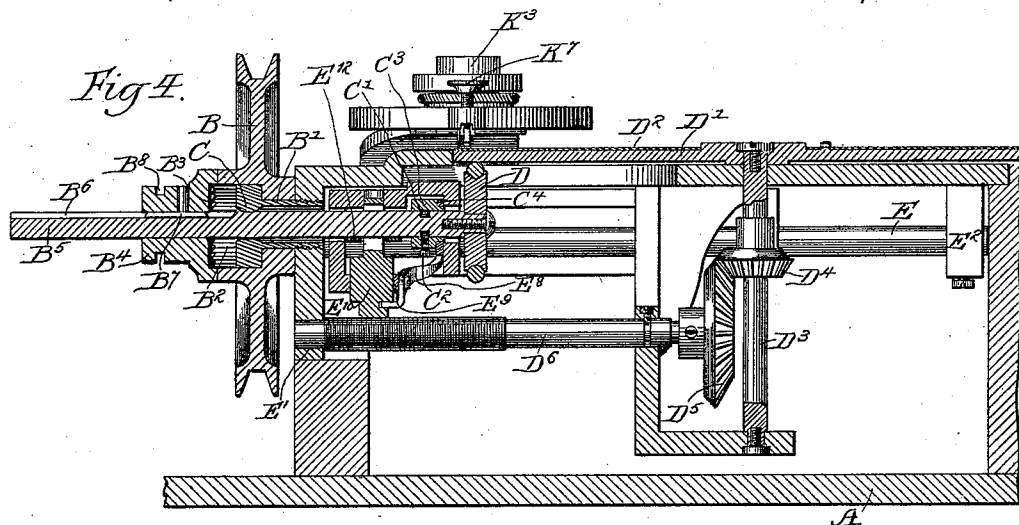
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3 Sheets—Sheet 3.

J. E. WASSENICH.
DISK GRAPHOPHONE.

No. 532,851.

Patented Jan. 22, 1895.



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UNITED STATES PATENT OFFICE.

JOSEPH E. WASSENICH, OF CHICAGO, ILLINOIS.

DISK GRAPHOPHONE.

SPECIFICATION forming part of Letters Patent No. 532,851, dated January 22, 1895.

Application filed May 12, 1892. Serial No. 432,806. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. WASSENICH, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented a new and useful Improved Disk Graphophone, of which the following is a specification.

My invention relates to improvements in sound recording and reproducing instruments, and especially such as are known as graphophones, and has for its object to provide a simple, easily constructed, easily operated, commercial machine. It is illustrated in the accompanying drawings, wherein—

Figure 1 is a perspective view of my machine. Fig. 2 is a plan view thereof. Fig. 3 is a view looking up from the bottom. Fig. 4 is a cross section on the line 4—4 with certain parts shown in full line. Fig. 5 is a cross section on the line 5—5. Figs. 6 and 7 are details of the recorder showing modifications for adjusting. Fig. 8 is a clamp ring associated with the tablet holder. Fig. 9 is a form of ear piece. Fig. 10 is a modification of the gearing for moving the threaded bar.

Like parts are indicated by the same letter in all the figures.

A is the table from which rise the two standards A' A' on which the machine case A² is pivoted, so as to be hinged as it were upon the table.

A³ is a catch whereby the box or case is secured in position. B is a driving pulley journaled on the sleeve or hollow bearing B' which is secured at one end of the case.

B² is one face of a clutch mechanism formed upon the pulley and opposed to a similar face B³ on the sliding sleeve B⁴ on the driving shaft B⁵. This shaft has a groove B⁶, in which a feather B⁷ on the sleeve B⁴ is placed so that sleeve and shaft rotate together. The sleeve is grooved at B⁸ to receive the ends of a lever B⁹, which is pivoted on the thick standard B¹⁰ and is provided with the finger piece B¹¹, whereby the sleeve may be moved back and forth on the shaft to throw the clutch mechanism into or out of operation. The shaft B⁵ is journaled in the rounded or knife edge bearing C, and at its inner extremity is provided with a groove C', into which a screw C² in the block C³ projects. This block is secured upon

the lever C⁴, and it serves as the inner journal for the shaft. At the inner extremity of the shaft is secured the preferably elastically tired friction wheel D, which under operating conditions bears upwardly and operatively against the lower face of the tablet holder D', which carries the tablet D² and is secured upon the upper extremity of the rotating shaft D³. This shaft, as shown in Figs. 3 and 5, is provided with the beveled gear D⁴, which meshes with the beveled gear D⁵ on the end of the threaded bar D⁶, which latter bar is adapted to drive the carriage which supports the recording and receiving devices.

In Fig. 10 the shaft D³ is provided with a screw thread D⁷ to engage the worm gear D⁸. These are suggested modifications which might be found desirable for certain purposes.

In Fig. 8 I have shown a clamping ring D⁹, adapted to rest upon and about the tablet holder so as to clamp the tablet at its outer edge.

E E are rods across and within the case and fixed in position in the end piece E' and the blocks E² E². On them is disposed the carriage E³, which carries the receiver, the recorder, the tablet driving mechanism, and the shaft. This carriage has at one side the laterally projecting part E⁴, which carries the receiver or more properly speaking the re-producer, and on the opposite side the laterally projecting part E⁵ which carries the recorder.

E⁶ is a cross bar on the carriage to which the bar C⁴ is pivoted at E⁷.

E⁸ is a lever pivoted on the fixed part E⁹ of the carriage and projected at one end into the path of the pivoted bar or lever C⁴ and at the other in engagement with the vertically movable screw threaded block E¹⁰. This block is held against and in engagement with the threaded bar D⁶ by means of the spring E¹¹.

E¹² is a flat spring on the carriage and bearing upwardly on the shaft B⁵ so as to keep its friction wheel normally in contact with the tablet holder.

At one end of the pivoted bar or lever C⁴ is the thumb piece F, which by being depressed will lower the bar C⁴ and thus lower the friction wheel and bring it out of engagement

with the tablet holder. The same motion rocks the lever E⁸ and causes it to lift the screw threaded block E¹⁰ away from the threaded bar. The opposite end of the bar C⁴ will rise and move the pin F' upwardly, and since the latter is in engagement with the reproducer, the reproducer will be lifted from the tablet. Under these conditions, the whole of the operating mechanism will be out of gear or out of operative connection with the driving pulley, and the parts may be moved at will to any point. When the thumb piece F is released the several springs will restore the parts to their original position.

G is a spring adjustably secured to the top of the case and adapted to rest on the outer edge of the tablet near the point where the work is going on.

G' is a metal tube extending from the aperture G² in the support for the reproducer whence should lead a rubber tube to the socket G⁴ on the working side of the machine. The tablet may be held in position by means of the pin G³.

The reproducer J I do not describe in detail but it consists substantially of a diaphragm body J', which rests upon the pin F', a tube J² and a pin J³ with a connection from the pin to the diaphragm. It is pivoted upon the block J³ and from the tube and diaphragm holder a passage leads to the block J³ and the support E⁴ to the aperture G², whence leads the tube G'. The recorder is pivoted upon the block K which is at rest upon the support E⁵. This recorder consists of a diaphragm K', with the cutting point K² in the midst thereof, and the nipple K³ at the back of the diaphragm chamber.

K⁴ is a pivoted bar carried on the surrounding case or rim K⁵ of the recorder and is provided with a rounded bearing lug at its center in proximity to the cutting point, an upwardly forcing spring K⁶ at one end and an adjusting set screw at the other. The bearing lug is lettered K⁸. By this device the depth of the cut may be varied at will.

In Fig. 6 I have shown a modification wherein the bar is replaced by a plate K⁹, carrying the bearing lug K⁸ and an aperture K¹⁰ through which the cutting point K² projects.

I show in Fig. 9 a modified form of ear piece to be substituted for the ordinary ear pieces. It consists of the bell shaped portion P preferably provided with the rim cushion P' of elastic material, and the curved tube P². It is obvious that many of these features or details shown might be greatly modified without departing from the spirit of my invention, and I do not wish to be limited to the precise construction of details shown. Many of the subcombinations and portions could be dispensed with or others substituted for them without affecting materially the operation of the remaining features.

The use and operation of my invention is

as follows: Assuming that the parts are situated substantially as illustrated in Fig. 2, the process of recording may be begun by speaking into the tube which will be associated in the usual manner with the recorder. If it is desired at any time to stop or start the mechanism it is accomplished by laterally moving the lever B⁹ to engage or disengage the clutch mechanism. The driving pulley B is driven from any convenient motive power. As the operation of the machine continues, it will be seen by having reference to Figs. 3 and 4 that the tablet holder will be rotated against the cutting point, while at the same time the cutting point with its associated recorder mechanism and the driving shaft friction wheel and carriage will be moved toward the center of the tablet by means of the action of the screw threaded block E¹⁰ associated with the carriage in conjunction with the threaded bar D⁶. The smooth portion of the threaded bar D⁶ is of less diameter than the threaded portion as indicated, so that the motion of the carriage toward the center of the tablet is automatically arrested when it has proceeded to the predetermined limit of motion.

Referring now to Fig. 1, it will be observed that the parts are in position for reproduction of the sound, and the reproducing point is adapted to engage the spiral groove made in the tablet by the recorder. The tube G' and the tube connection G² will lead the sound to the ear piece through the connecting tube M. The operation with regard to the motion of the carriage is the same as before. If now, it be desired at any point in the process of reproduction, to arrest the machine and reset it at any point, it may conveniently be done by depressing the thumb piece F which by rocking the bar C⁴ on its pivot lifts the reproducer from the tablet by means of the pin F', and at the same time the motion of the bar C⁴ is communicated through the lever E⁸ to lift the block E¹⁰ from the threaded bar D⁶, thus putting all the parts out of operation and leaving the carriage free to be moved any distance in either direction on its supporting or guide bars. The depression of the bar C⁴ carries with it the inner end of the shaft B⁵, which therefore must have a rounded or knife edge journal, or the equivalent thereof for its other end. I have also shown the case or box as hinged so as to furnish easy access to the working parts. The tablet is held down flat on its holder by means of the spring G or by means of the ring clamp D⁹ as may be found preferable. The recorder itself bearing upon the hinged tablet keeps it closely down upon the holder. The tablet is kept from rotating in any desired manner, as for example by the pin G³ passing through a perforation in the tablet. The adjustment of the depth of cut made by the recorder is accomplished by operating the set screw K⁷. The ear piece bell shaped, with the elastically cushioned rim and the bent tube is ap-

plied to the exterior instead of the interior of the ear.

I claim—

1. In a sound recorder, or reproducer, the combination of a tablet holder with a tablet thereon, and a spring arm adapted to clamp the edge of the tablet in proximity to the point where the recorder proper is applied to such tablet, said holder and tablet being adapted one to move with reference to the other.

2. In a sound recorder or reproducer, the combination of a diaphragm with a cutting point thereon, with a bearing lug in proximity to such point, and a bar to carry such lug said bar pivoted and adjustably held by means of a counter-acting spring and set screw.

3. In a sound recording or reproducing device, the combination of a cutting point, with a bearing lug in proximity thereto, a part to hold such lug, and a counteracting spring and set screw associated with such part so as to make the position of the lug adjustable.

4. In a sound-recording machine, the combination of a disk-shaped tablet holder, a rigid casing or box-like support with sliding carriage sustained therein, said box-like support having openings on both sides, through which the ends of said carriage protrude, said ends carrying a recorder or reproducer.

5. In a sound recording or reproducing machine, the combination of a disk-shaped tablet or tablet-holder, supported so as to rotate about a fixed point, with a driving mechanism therefor immediately connected thereto, whose point of operative connection with the tablet or holder is movable along a line substantially radial with the tablet-holder, and a movable carriage to carry said driving mechanism and a recorder or reproducer, carried by such carriage.

6. In a sound recorder or reproducer, the combination of a disk-shaped tablet or tablet-holder supported so as to rotate about a fixed center, with a driving friction wheel immediately connected thereto whose point of operative connection with the disk or tablet holder is movable along the line radial to such disk or tablet holder, and a movable carriage to carry said driving friction wheel, and a recorder or reproducer carried by said carriage.

7. In a sound recorder or reproducer, the combination of a disk-shaped tablet holder or tablet with a driving friction wheel engaging such tablet holder or tablet and movable along a radial line thereof, and a movable carriage to carry said driving friction wheel, and a recorder or reproducer carried by said carriage.

8. In a sound recorder or reproducing machine, the combination of a disk-shaped tablet holder with a carriage moving parallel with the surface of such tablet holder, and a recorder or reproducer carried by such carriage, said tablet holder being in a plane between the carriage and the recorder or reproducer.

9. In a sound recording or reproducing machine, the combination of a disk-shaped tablet or tablet holder with a carriage moving parallel with a diameter of such tablet holder or disk and a recorder or reproducer carried by such carriage, said recorder or reproducer supported at one side of the carriage and disk, and driving mechanism for such disk supported on and traveling with the carriage.

10. In a sound recording or reproducing machine, the combination of a disk-shaped tablet or tablet holder with a carriage moving parallel to one diameter of such disk, a sound recorder or reproducer and a disk driving mechanism supported on and moving with such carriage.

11. In a sound recording or reproducing machine, the combination of a disk serving as a tablet holder or tablet, with driving mechanism, containing a friction wheel associated therewith, a sliding carriage, a hinged reproducer, and the controlling device connected with such driving mechanism and reproducer so as to simultaneously throw both out of operative connection with the disk without moving the carriage.

12. In a sound recording or reproducing machine, the combination of a disk serving as a tablet holder or tablet, with driving mechanism containing a friction wheel associated therewith, a hinged reproducer and the controlling device connected with such driving mechanism and reproducer so as to simultaneously throw both out of operative connection with the disk, and a carriage for such reproducer and driving mechanism, and a carriage moving device associated also with such controller so as at the same time to be thrown out of operation without moving the carriage.

13. In a sound recorder or reproducer, the combination of a disk serving as a tablet or tablet holder, with a driver containing a friction wheel therefor, a hinged reproducer therefor, a carriage supporting the driver and reproducer, a driving mechanism operatively associated with such carriage, and a controller connected with such driver, reproducer and driving mechanism, so as by one motion to simultaneously throw all of them out of operative connection without moving the carriage.

14. In a sound recording or reproducing machine, the combination of a disk, serving as a tablet holder or tablet, with a friction wheel to drive the same, a reproducer to engage the same, a carriage upon which the friction wheel and reproducer are supported, a driving mechanism consisting of a screw and block to move the carriage parallel with one diameter of the disk and a system of controlling levers adapted to simultaneously disengage the friction wheel and reproducer from the disk, and the block from the screw.

15. In a sound recording or reproducing machine, the combination of a recording or reproducing mechanism, with a suitable sup-

port therefor and means for driving such mechanism, consisting in part of a longitudinally movable operating shaft, with a driving pulley, journaled upon the part which
5 serves as a bearing for such shaft, and means for operatively connecting the shaft and pulley at will.

16. In a sound recording or reproducing machine, the combination of a recording or re-
10 producing mechanism, with a suitable support therefor and means for driving such mechanism, consisting in part of a longitudinally movable operating shaft, with a driving pulley journaled upon the part which serves
15 as a bearing for such shaft, and means for operatively connecting the shaft and pulley at will, the same consisting of a sliding block feathered to the shaft and adapted to clutch the pulley.

20 17. In a sound recording or reproducing machine, the combination of a recording or reproducing mechanism, with a suitable support therefor, and means for driving such mechanism, consisting in part of a longitudi-
25 nally movable operating shaft, with a driving pulley journaled upon the part which

serves as a bearing for such shaft, and means for operatively connecting the shaft and pulley at will, the same consisting of a sliding block feathered to the shaft and adapted to
30 clutch the pulley, said shaft passing through a rounded or knife-edge bearing or journal.

18. In a sound recording or reproducing machine, the combination of a driving pulley on a fixed bearing, with an operating shaft pass-
35 ing through such bearing, means for connecting the shaft and pulley at will, such bearings so constructed as to permit said shaft to oscillate or be depressed at one end.

19. In a sound recording or reproducing ma-
40 chine, the combination of a disk serving as a tablet or tablet holder with a carriage to carry the operating parts, a friction wheel to drive the disk, a shaft on which such friction wheel is supported, and a bearing on the car-
45 riage for such shaft so constructed as to prevent a longitudinal movement of the shaft independent of the carriage.

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