

A. SCHWER.
PHONOGRAPH.

APPLICATION FILED OCT. 2, 1912.

1,058,911.

Patented Apr. 15, 1913.

4 SHEETS-SHEET 1.

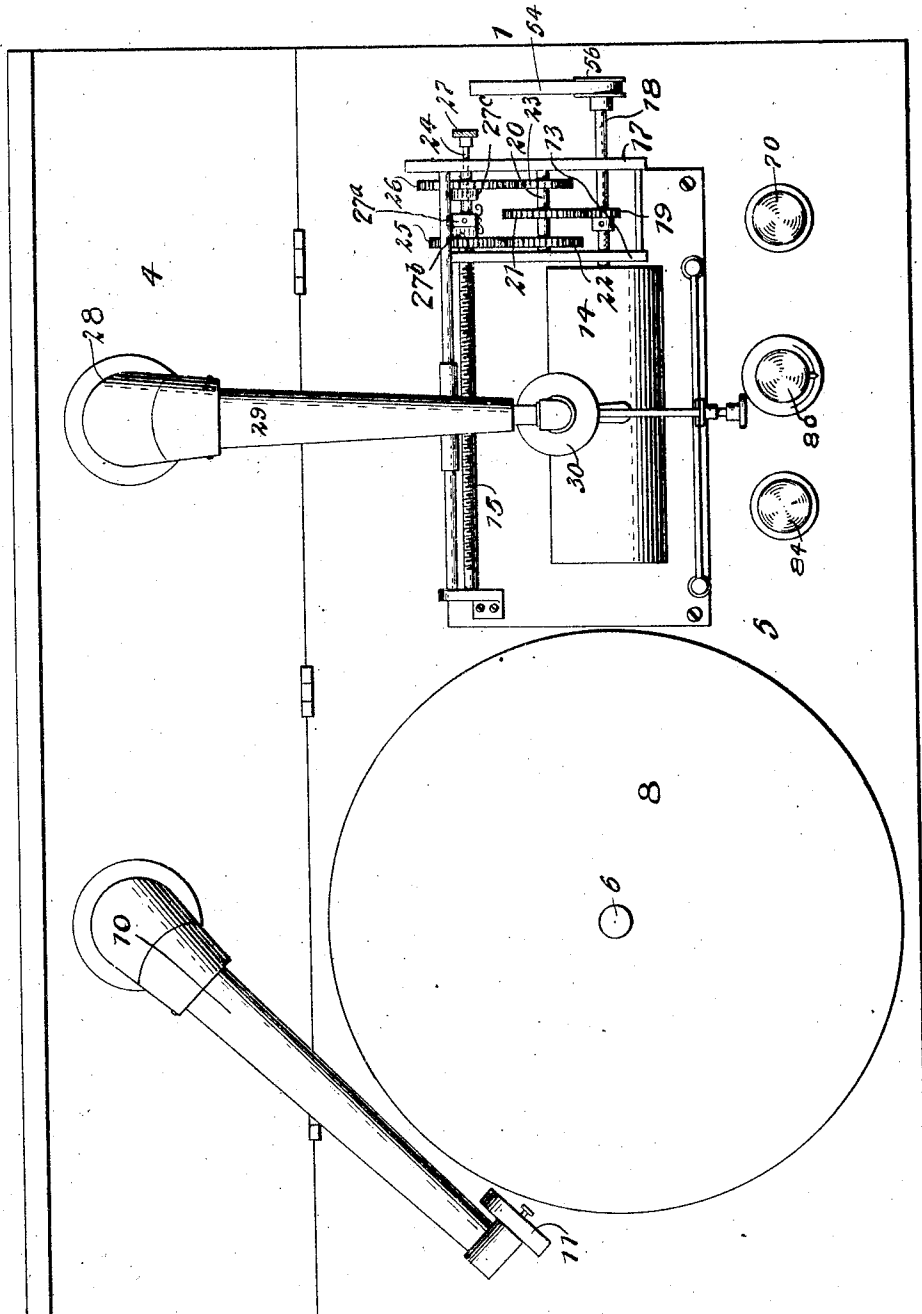


Fig. 1.

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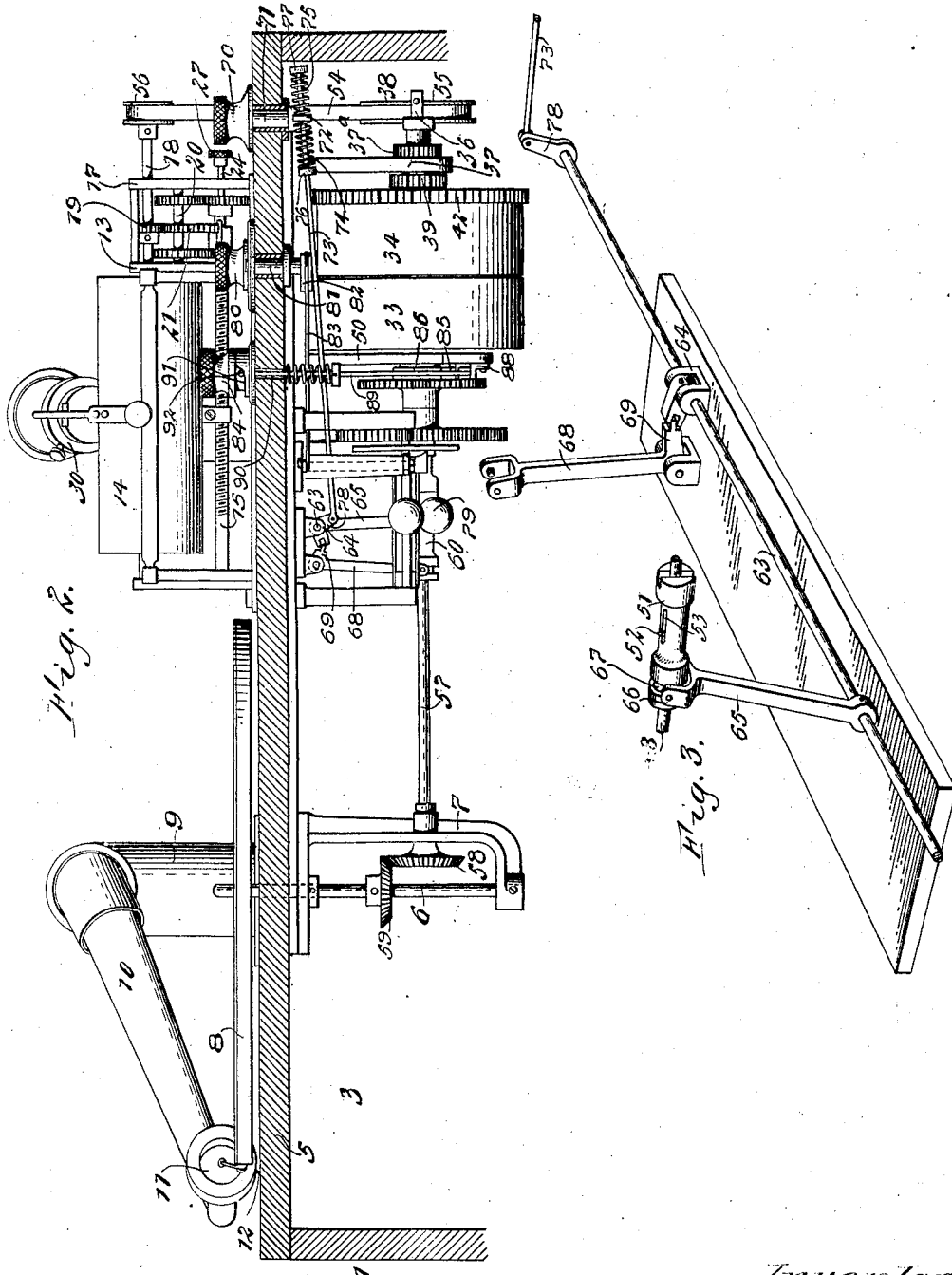
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4 SHEETS—SHEET 2.



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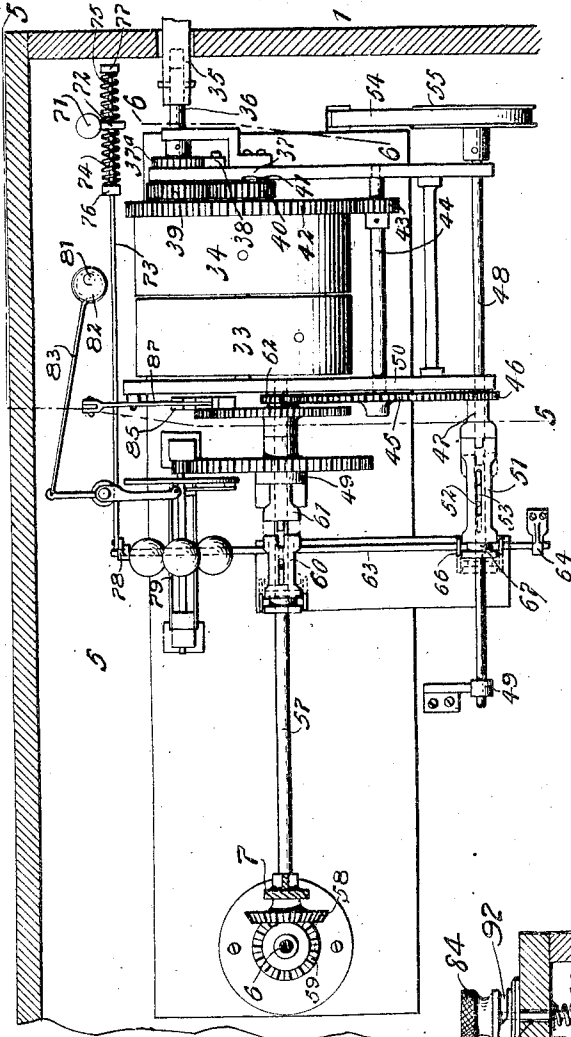


Fig. 4.

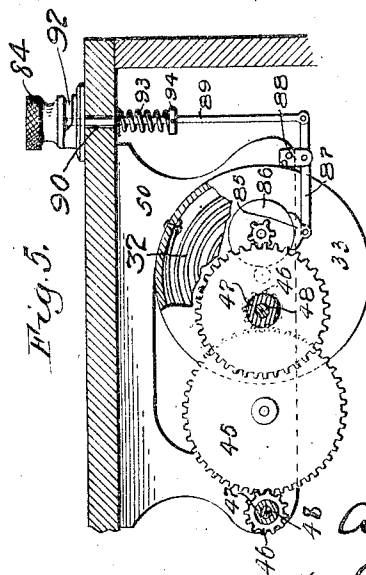


Fig. 5.

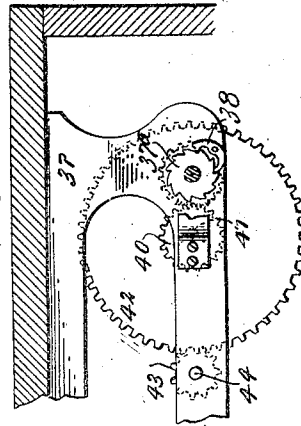


Fig. 6.

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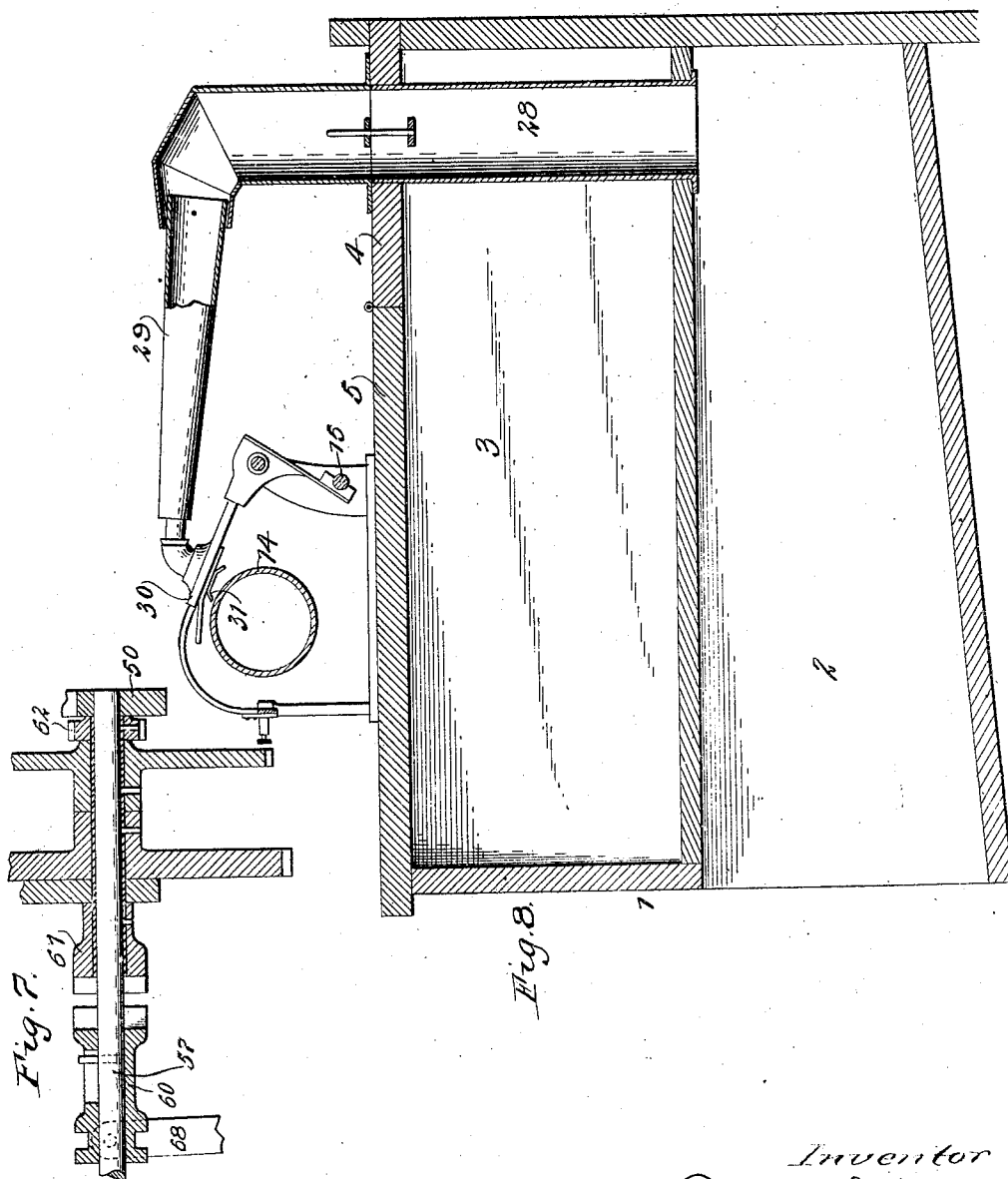
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4 SHEETS—SHEET 4.



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PHONOGRAPH.

1,058,911.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed October 2, 1912. Serial No. 723,499.

To all whom it may concern:

Be it known that I, ADOLPH SCHWER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a certain new and useful Improvement in Phonographs, of which the following is a specification.

This invention relates to improvements in phonographs.

One of the features of the invention has reference to a disk record mechanism and a cylinder record mechanism, each of which is complete in itself and independent of the other, a driving mechanism and means for connecting the driving mechanism with either the disk record mechanism or the cylinder record mechanism.

Another feature has reference to the mounting of the disk record mechanism, the cylinder record mechanism and the driving mechanism on a movable base or support so that said mechanisms may be quickly and conveniently exposed for adjustment or repair.

Another feature has reference to the manner of starting and stopping the driving mechanism, regulating the speed and shifting from the disk record mechanism to the cylinder record mechanism or vice versa.

The principal objects of the invention are to provide for almost instantaneously changing from one record mechanism to another, to perfectly control and regulate the speed at will, to start and stop the mechanism when desired, and to arrange the various mechanisms so that they are quickly accessible for adjustment or repair.

The invention also relates to certain details of construction which will be hereinafter described and claimed, reference being had to the accompanying drawings in which a preferred adaptation of the machine is shown.

Figure 1, is a top plan view of the improved phonograph. Fig. 2, is a vertical transverse section through the upper portion of the box of the machine with a front elevation of the various mechanisms attached to the same. Fig. 3, is a fragmentary perspective view to illustrate the toggle clutch operating mechanism and one member of one of the clutches. Fig. 4, is a fragmentary horizontal section through the box with a bottom view of the driving mechanism.

Fig. 5, is a fragmentary vertical section through the box on line 5 5 Fig. 4, to illustrate the starting and stopping friction brake mechanism. Fig. 6 is a fragmentary section through the box on line 6 6 Fig. 4, to illustrate the ratchet and dog locking device of the spring driving mechanism. Fig. 7, is an enlarged fragmentary section through one of the clutch mechanisms. Fig. 8, is a vertical longitudinal section through the box, the driving mechanism being omitted.

In referring to the preferred adaptation of the improved machine illustrated in the accompanying drawings in detail like numerals designate like parts.

The box 1 as shown has a lower sounding compartment 2 and an upper inclosing compartment 3 for the driving mechanism. The box top is composed of a fixed or stationary rear portion 4 and a movable front portion 5 which is hinged at its rear edge to the front edge of the fixed rear portion 4; said movable front portion forming a cover which may be readily lifted to permit access to the upper compartment 3.

The disk record mechanism, and the cylinder record mechanism are both mounted on the front portion or cover 5 and the driving mechanism is suspended from said front portion or cover 5 as shown in Fig. 2.

The reproducing mechanisms of which two are provided, one for the disk record mechanism and the other for the cylinder record mechanism are absolutely independent of each other and are supported from the fixed rear portion 4 of the top of the box. Said reproducing mechanisms are adapted to be swung manually by the operator into and out of operating position with reference to the records.

The disk record mechanism consists of a vertical shaft 6 journaled in a depending bracket 7 attached to and depending beneath the cover 5 and having its upper end projecting loosely through an opening in the said cover and a horizontal support or turn table 8 fixed to the upper projecting end of the shaft 6 upon which the disk records are adapted to be placed in the usual manner.

The reproducing mechanism for the disk record mechanism includes a sound conducting tube 9 which is supported from the fixed rear portion 4 and has the usual goose neck 10 and a sound box 11 arranged at the for-

ward terminal of said goose neck which carries the needle 12.

The cylinder record mechanism is mounted on the cover 5 at one side of the disk record mechanism and comprises a frame 13, a cylinder record supporting mandrel 14 journaled in said frame, a screw bar 15 for feeding the reproducer goose neck along the record and gear means for changing the feed to permit records of different pitch threads such as the Edison Standard and Amberol records to be played by the cylinder record mechanism.

The gear changing means is arranged at one side of the mandrel 14 being mounted in an end extension 17 of the frame and consists of a shaft 18 extending from the mandrel, a small pinion 19 mounted on said shaft, an intermediate shaft, 20, a centrally mounted spur gear wheel 21 on said shaft 20 which meshes with the pinion 19, two spur gear wheels 22 and 23 also mounted on the shaft 20 on opposite sides of the wheel 21, a slide shaft 24 connected to the feed bar 15 and two gear wheels 25 and 26 on said slide shaft adapted to mesh respectively with the gear wheels 22 and 23 see Fig. 1.

The slide shaft 24 has an enlarged knurled head 27 at its outer end which is adapted to be grasped by the operator to slide a movable clutch member 27^a attached to the inner end of the slide shaft 24 into clutching engagement with either one of two fixed clutch members 27^b and 27^c which are respectively attached to the gear wheels 25 and 26 as shown in Fig. 1. The gear wheels 25 and 26 are always in mesh with the gear wheels 22 and 23 and are loosely mounted on the slide shaft 24 so as to rotate independently thereof except when clutched thereto by the movable clutch member 27^a.

In Fig. 1 the movable clutch member is shown in clutching engagement with the fixed clutch member 27^b attached to the gear wheel 25 and out of clutching engagement with the fixed clutch member 27^c attached to the gear wheel 26. The purpose of this mechanism is to enable the ratio of speed between the feed bar 15 and the mandrel 14 to be varied or changed so that different styles of cylinder records may be played on the same machine.

The cylinder record reproducing mechanism is similar to the disk record reproducing mechanism; being located on one side thereof and it consists of a sound conducting tube 28 supported from the fixed rear portion 4, a goose neck tube 29 pivotally attached to the tube 28, a sound box 30 attached to the forward terminal of the goose neck tube 29 and a needle 31 carried by said sound box.

The driving mechanism in the adaptation illustrated is of the spring operated type.

Referring to Figs. 2-4 and 5, a spiral spring 32 is incased within the two parts 33 and 34 of a two member cylindrical housing and is adapted to be wound up or placed under tension by a winding handle 35 (a fragment of the stem of said handle being shown in Fig. 4) which is detachably fitted on the end of a shaft 36 journaled in bearings in a bracket 37 depending from the cover 5.

The shaft 36 is provided with a ratchet wheel 37^a and a pivotal locking dog 38 is arranged to engage the teeth of the ratchet wheel and thereby prevent the shaft 36 turning in the reverse direction or in a direction to unwind the spring, see Fig. 6.

A spur gear wheel 39 is mounted on the shaft 36 which meshes with a spur gear wheel 40 mounted on a short projecting shaft 41 extending from the outer member 34 of the housing. The housing member 34 is also provided at its outer end with a large spur gear wheel 42 which meshes with a small pinion 43 mounted on an intermediate shaft 44, see Fig. 4.

At the opposite end of the intermediate shaft is arranged a spur gear wheel 45 which meshes with a spur gear wheel 46 mounted on one member 47 of a clutch which is arranged on the driving shaft 48 for the cylinder record mechanism.

The clutch member 47 is loose on the shaft 48 being free to rotate independently thereon but is held against longitudinal movement thereon by one of the two frame members 49 and 50 in which the driving shaft 48 is journaled. The other or opposite member 51 of the clutch is also mounted on the driving shaft but is unrotatably fastened thereon by a pin 52 extending transversely from the shaft and projecting in a longitudinal slot 53 in the clutch member 51 as shown in Fig. 3, which permits it to be shifted into and out of clutching engagement with the other clutch member.

The driving shaft 48 for the cylinder record mechanism is connected to the shaft 18 extending from the cylinder mandrel by a belt 54 which encircles pulleys 55 and 56 mounted respectively on the driving shaft 48 and shaft 18 as shown in Fig. 2.

A driving shaft 57 for the disk record mechanism is also mounted beneath the cover 5 shown in Fig. 4, and has a bevel gear wheel 58 at one end which meshes with a bevel gear wheel 59 on the vertical shaft 60.

A clutch similar to the clutch mounted on the driving shaft 48 is likewise mounted on the driving shaft 57 for the disk record mechanism and consists of two members 60 and 61; the member 60 being slidably but unrotatably secured thereon and the other member 61 loosely surrounding the shaft but held from longitudinal movement thereon. The member 61 is rotatable independently of the shaft and carries a pinion 62

which meshes with the spur gear wheel 45 on the intermediate shaft 44. The slidable members of the two clutches are connected to a single clutch shifting mechanism for simultaneous operation.

For an understanding of the principal portion of the clutch shifting mechanism reference is to be had to Fig. 3.

A rock shaft 63 is journaled in brackets 64 and carries a crank arm 65 provided with a bifurcated end 66 which loosely engages in a groove 67 in the clutch member 51 and a bell crank 68 which is connected at one end to the clutch member 60 of the clutch controlling the operation of the disk record mechanism and at the opposite end to a toggle arm 69 extending from the rock shaft. From this construction it will be noted that by rocking the shaft 63, the slidable clutch member 51 will be moved in one direction by the crank arm 65 while the other clutch member is shifted in the opposite direction by the bell crank and toggle, thereby bringing one clutch into clutching engagement and simultaneously therewith disengaging the other clutch.

The shaft 63 is rocked by means of a turn button 70 arranged on the top of the cover 5 and having a depending stem 71 and a transverse arm 72 at the lower end of said depending stem which is provided with an opening (not shown) through which one end of a connecting rod 73 loosely and slidably fits. The arm 72 is balanced yieldingly on said rod 73 between two springs 74 and 75 which are held in place on the rod by two separated washers 76 and 77 and the opposite end of said rod 73 is pivoted to a crank 78 extending from the rock shaft 63. The purpose of the springs 74 and 75 are to provide a spring tension on the rod in either direction it is moved and thereby force the slidable clutch member of the clutch that is being engaged into clutching position as soon as it registers with its opposed clutch member.

The speed of the machine is controlled by a governor 79 of the ball spring type and said governor is regulated and adjusted to vary the speed by a turn button 80 projecting from the top of the cover and having a stem 81 extending through an opening in the cover; said stem being provided at its lower end with a cam 82 which is connected to the governor by a connecting rod 83.

The machine is started and stopped by the operator turning a third button 84 mounted on the cover which controls a friction brake 85 adapted to be engaged with or disengaged from a wheel 86 shown in Fig. 5.

The brake shoe 85 is pivotally mounted on one end of a lever arm 87 which is pivoted at an intermediate point to a bracket 88 and at its opposite end to the lower terminal of a vertical rod 89.

The upper portion of the rod 89 fits loosely through an opening 90 in the cover 5 and into a recess in the button 84 and has a transversely extending portion 91 at its upper end which slidably fits through a cam slot 92 in the side of the button 84. By turning the button 84 in one direction, the rod 89 is lowered applying the brake and by turning it in the opposite direction the rod is raised disengaging the brake.

A spring 93 is mounted on the rod 89 being held thereon by a washer 94; the tendency of said spring being to press the rod downward in a direction to apply the brake.

The operation of this improved machine is as follows:—The spring of the driving mechanism having been wound up by turning the handle 35 and a record or records having been placed on one or both the turn table 8 and the mandrel 14; the machine is started by turning the button 84 in a direction to release the brake, the clutch shifting mechanism is moved to connect either the disk or the cylinder record mechanism with the driving mechanism by turning the button 70 in the desired direction, and the speed is regulated by turning the button 80.

In this improved machine the disk and cylinder record mechanisms are entirely independent of each other and are arranged so that they are operated from a single driving mechanism.

It will be understood that the foregoing mechanisms may be altered or varied within the scope of the following claims without departing from my invention.

I claim—

1. In a machine of the class described, a disk record mechanism, a cylinder record mechanism, a driving mechanism, and clutch means for connecting either of the said record mechanisms to the driving mechanism.

2. In a machine of the class described, a disk record mechanism, a cylinder record mechanism, a driving mechanism, a clutch connected to the disk record mechanism, a clutch connected to the cylinder record mechanism, and means for shifting said clutches to operatively connect the driving mechanism to either of the record mechanisms.

3. In a machine of the class described, a disk record mechanism, a cylinder record mechanism, a driving mechanism, a clutch connected to the disk record mechanism, a clutch connected to the cylinder record mechanism, and a single means for shifting both of said clutches simultaneously.

4. In a machine of the class described, a disk record mechanism, a cylinder record mechanism, a driving mechanism, a clutch connected to the disk record mechanism, a clutch connected to the cylinder record mechanism, and a single button controlled

means for shifting both of said clutches simultaneously.

5 5. In a machine of the class described, a disk record mechanism, a cylinder record mechanism, a driving mechanism, a clutch connected to the disk record mechanism, a clutch connected to the cylinder record mechanism, and means for shifting one of
10 said clutches into clutching engagement and the other clutch out of clutching engagement.

6. In a machine of the class described, a disk record mechanism, a cylinder record mechanism, a driving mechanism, a speed
15 changing mechanism, and clutch mechanism for operatively connecting the driving

mechanism to either of the record mechanisms.

7. In a machine of the class described, a box, disk and cylinder record mechanisms 20 mounted on said box; each of said record mechanisms being complete in itself and independent of the other record mechanism, a driving mechanism within the box, and a shiftable clutch mechanism whereby the 25 driving mechanism may be connected to either of the record mechanisms.

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Washington, D. C."