G. S. WILLIAMS.

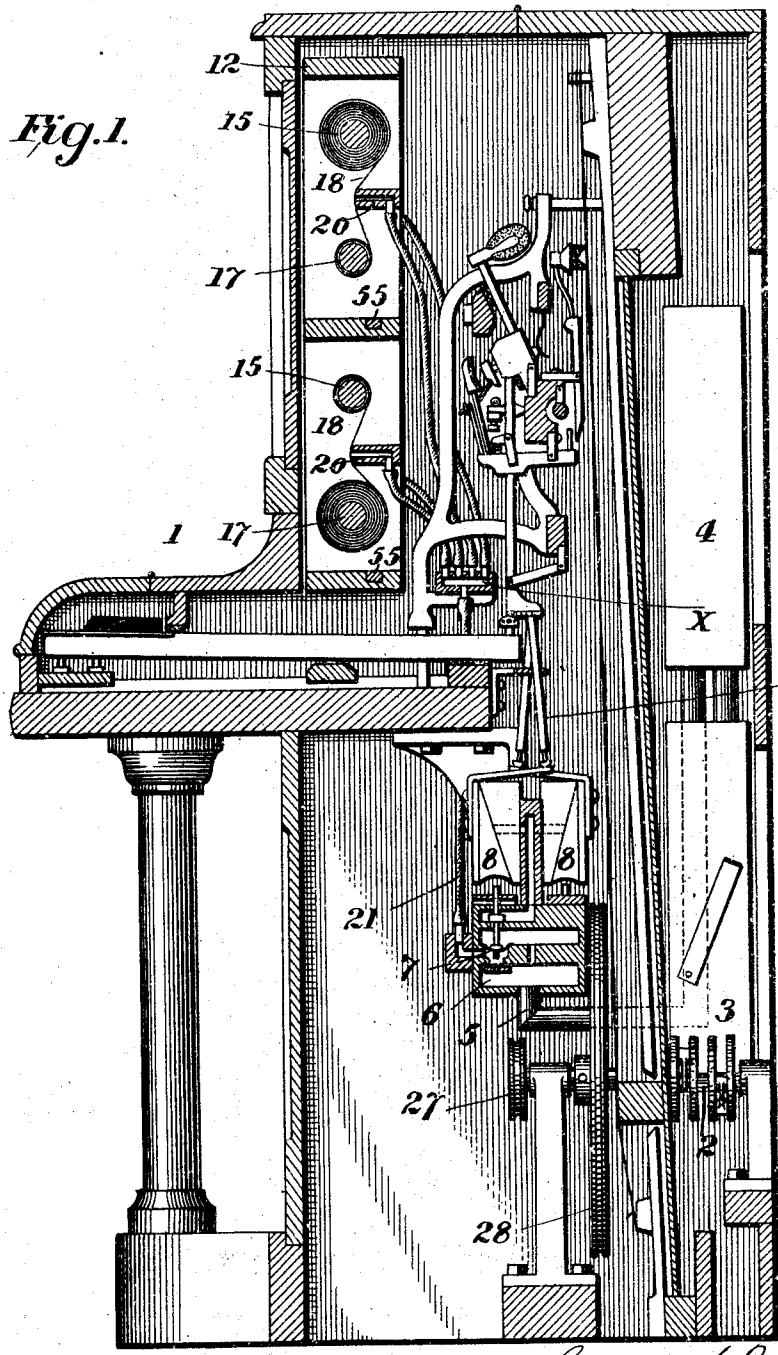
CONTROLLER MECHANISM FOR AUTOMATIC MUSIC PLAYING MECHANISMS.

APPLICATION FILED MAR. 5, 1908.

956,010. **Patented Apr. 26, 1910.**

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

Fig. 2.

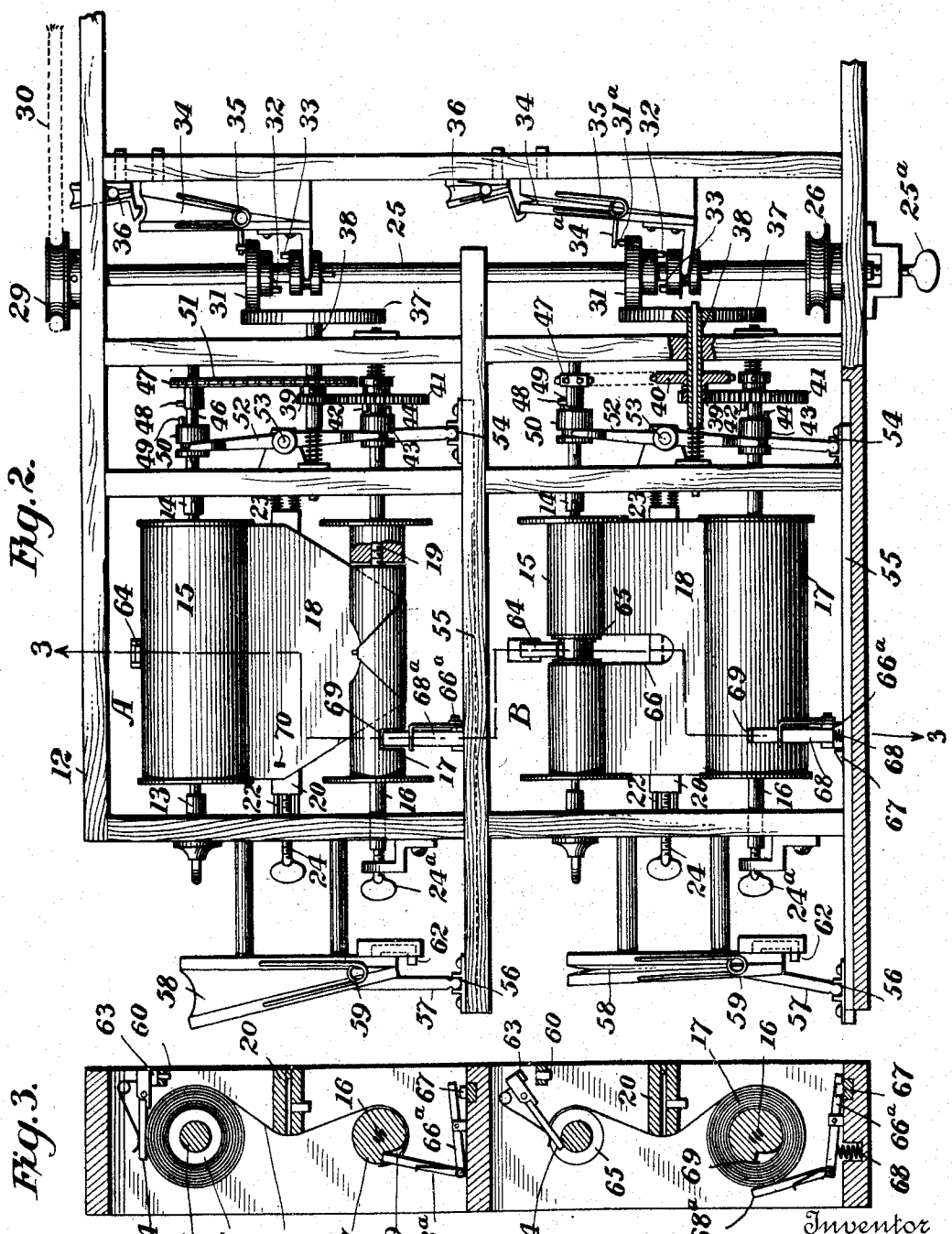
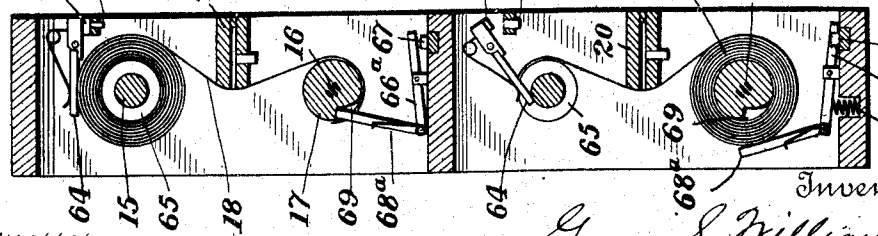


Fig. 3.



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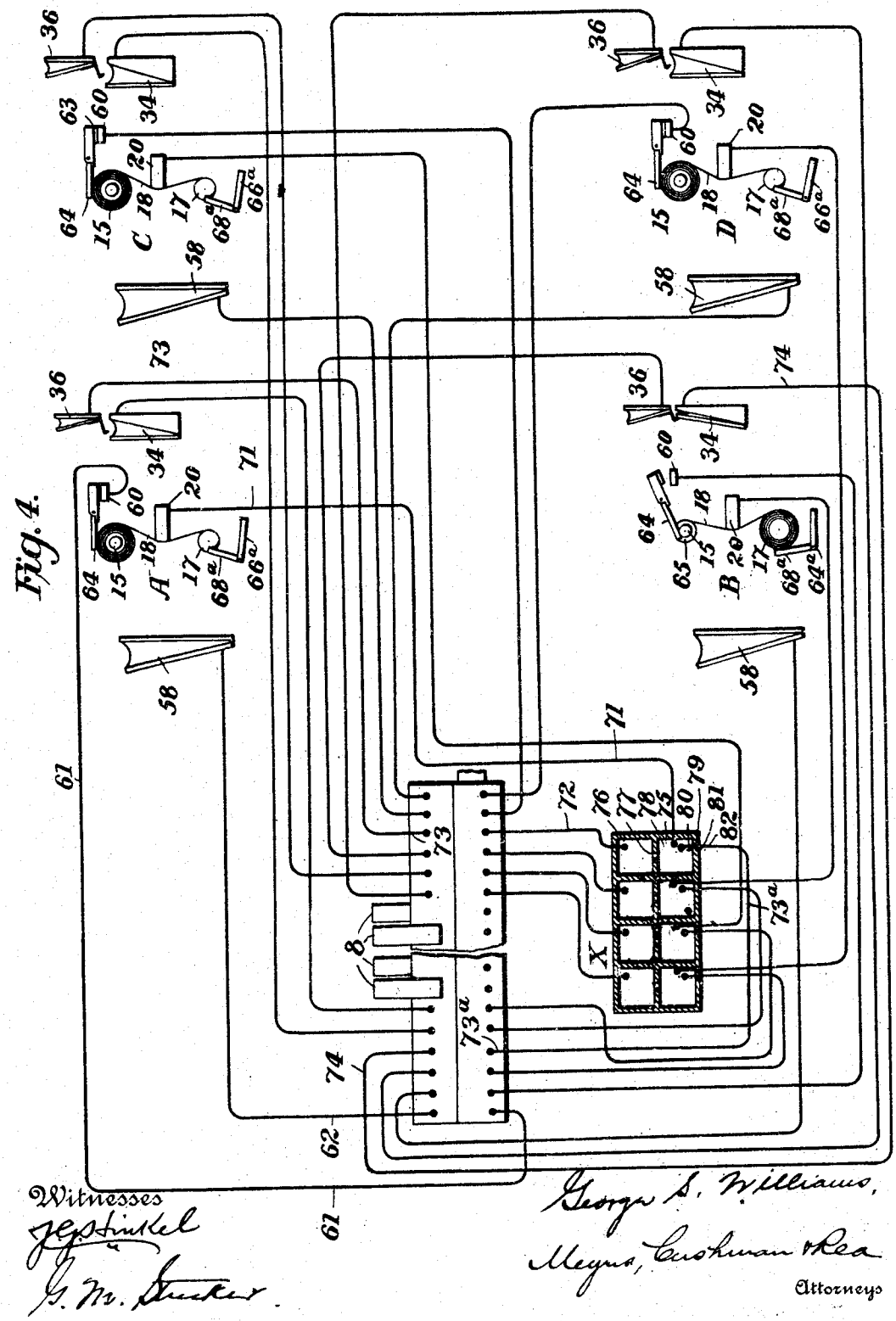
3 SHEETS—SHEET 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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CONTROLLER MECHANISM FOR AUTOMATIC MUSIC-PLAYING MECHANISMS.

956,010. Specification of Letters Patent. **Patented Apr. 26, 1910.**

Application filed March 5, 1908. Serial No. 419,283.

To all whom it may concern:

Be it known that I, GEORGE S. WILLIAMS, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented new and useful Improvements in Controller Mechanism for Automatic Music-Playing Mechanisms, of which the following is a specification.

My present invention relates to certain new and useful improvements in automatically operated musical instruments such as player pianos and piano playing attachments and has to do more particularly with the note-sheet winding and rewinding mechanism through the medium of which the instrument is operatively controlled.

As these instruments are generally constructed at present it is usual to employ a single tracker or reader with which the note-sheets are coöperatively associated to control the player mechanism. With this arrangement it is apparent that the playing duration of the instrument with any particular note-sheet is necessarily dependent upon the length of the note-sheet itself, it being necessary to stop the playing operation, rewind the note-sheet and place a new sheet in position before playing with the fresh composition, can be resumed. Ordinarily this is not a serious objection, although with some types of players, especially those whose operation is initially controlled by a check or coin, it is desirable to provide for playing consecutively or successively a number of musical selections without being compelled to remove and change the music rolls every time a new selection is desired.

It is the prime purpose therefore, of the present invention to provide a magazine selecting mechanism adapted to cause the player mechanism to successively and automatically play any given number of musical selections without being compelled to remove and change the music rolls whenever a new selection is desired, and this I accomplish by providing for each complete player mechanism, a plurality of trackers or readers and note-sheet winding and rewinding mechanisms, each tracker and its correlated winding and rewinding mechanism being coöperatively associated with the player mechanism in such manner that the said player mechanism may be caused to respond to the note sheets in regular order or any particular note sheet may be selected as desired.

A further purpose of the invention is to provide novel and simple mechanism for automatically controlling the re-wind of the note-sheet from the take-up roll back onto its own spool and for automatically stopping the travel of the note-sheet after the selection has been played and the sheet removed.

The invention has in view other more or less important objects all of which will be fully described in the detailed description to follow:—

In the annexed drawings which is illustrative of one embodiment of the invention Figure 1 is a vertical sectional view of an upright piano showing my improvements applied thereto. Fig. 2 is a front elevation of a portion of the plural note-sheet controller mechanism shown in Fig. 1. Fig. 3 is a section on the broken line 3—3 of Fig. 2. Fig. 4 is a diagrammatic lay-out of the several pneumatic connections with the parts to be operated.

Referring to the drawing the reference numeral 1, Fig. 1, indicates an ordinary upright piano having one type of automatic playing mechanism incorporated therein, but as this mechanism forms no part of the present invention the same will be referred to in a general way only.

2 indicates the shaft of a three unit motor which operates the exhausting feeders 3; and 4, indicates the storage bellows which communicates by passage 5, with the vacuum chamber 6, in which are located the primary pneumatics 7, that control the striker or power pneumatics 8. These power pneumatics 8, operate the several hammer actions of the piano through the vertically moving stickers 9.

The music-roll holder or note-sheet mechanism as shown in Fig. 1, is located in the upper part of the piano case just behind the front panel, but obviously this may be located in any other convenient place. This mechanism is shown in detail in Fig. 2, and will now be described.

The reference numeral 12, designates a suitable frame which may carry one or a plurality of note-sheet winding and rewinding mechanisms, and as these mechanisms

are alike in construction and operation a description of one will suffice for all except so far as concerns the successive operation of the different sheets and this operation will be described later on in the specification.

In Fig. 2 of the drawings I have illustrated only two of the note sheet winding and rewinding mechanisms, while in the diagrammatic view Fig. 4, I have illustrated in a conventional way four such mechanisms and it will be obvious that I may associate any number of these mechanisms with a single player mechanism.

Journaled in the frame 12, are the end bearings 13, 14, for the delivery or music spool 15, and the shaft 16, for the flanged take-up roll 17, upon which the music sheet 18, is wound from off the music spool. The take-up roll is composed of two sections as clearly shown in Fig. 2, one of which sections is in screw-threaded engagement with a threaded portion 19 of the shaft 16, whereby the length of the take-up roll may be increased or decreased as desired to compensate for variations in the width of the music-sheet due to atmospheric changes. By this construction it will be seen that the takeup roll may be easily and quickly adjusted to the width of the music sheet while the sheet is upon the roll and even during the travel of the sheet, which is a desirable feature in mechanisms of this kind.

Between each music and take-up roll is a "reader" or tracker 20, over which the perforated music sheet travels, the tracker ducts having communication with the primary pneumatics 7, through the tubes 21, Fig. 1. Each tracket is mounted upon pins or rods 22, and is urged in a lengthwise direction by springs 23, bearing against one end thereof. A thumb screw 24, bears against the opposite end of the tracker and is designed to effect an adjustment of the tracker in a direction transverse to the path of travel of the music sheet in order to cause a proper register of the note-perforations with the tracker ducts. The take-up roll 17 is likewise longitudinally adjustable and adjustments may be effected by the thumb screw 24^a.

The means for winding and rewinding the music sheets will now be described and for convenience of description I have designated the several music sheet mechanisms by the letters A, B, C, and D, only two of which are seen in Fig. 2, while all four are shown in Fig. 4. In Fig. 2 the sheet of mechanism A, is in the starting position, while the sheet of mechanism B, is in the "finish" position ready to be rewound on its own spool.

The reference numeral 25, designates a main drive shaft that is journaled in the frame 12, and from which the winding and rewinding mechanisms derive their power. This shaft 25, is provided with a pulley 26, that is belted to a pulley 27, on the shaft 2, Fig. 1, said shaft 2, also carrying a larger pulley 28, that is belted to any suitable form of motor (not shown). The main drive shaft 25, is also provided with a pulley 29, from which a belt 30, runs to a similar shaft (not shown) for driving the winding and rewinding mechanisms of controllers C and D. Freely mounted on the shaft 25, are two friction wheels 31, one for controller A, and the other for controller B, each disk carrying a clutch element 32, of any preferred form. Coöoperatively associated with each clutch element 32, is a similar clutch element 33, that is freely splined upon the shaft 25, and adapted to be moved into and out of contact with its correlated clutch element 32, by means of a clutch pneumatic 34, of which there is one for each controller. These clutch pneumatics are each normally held expanded or against collapse by means of a spring 35, and thus they normally hold the clutch elements separated. When however, a clutch pneumatic is collapsed, in the manner hereinafter to be described the clutch elements will be brought into engagement and cause its friction wheel 31 to rotate with the shaft 25. Upon the collapse of any particular clutch pneumatic, the latter will be engaged and held collapsed by a latch-pneumatic 36, which will hold the clutch elements in interlocked position until their correlated latch pneumatic is collapsed, in the manner presently to be described, and the spring 35, will then cause the clutch pneumatic to expand and separate the clutch elements whereupon the friction wheel 31, will run free on the shaft 25. The friction wheels are normally held against rotation when the clutch elements are separated, this being effected by means of a pin 34^a projecting out from the clutch pneumatic 34, which pin is adapted to engage a lug 31^a on friction-wheel 31. When the pneumatic is collapsed the pins and lugs are separated to permit the friction wheels to rotate freely on shaft 25. Each friction wheel 31, bears against the face of a friction disk 37, mounted upon a sleeve 38, carrying a pinion 39, and a sprocket wheel 40, the said pinion meshing with a gear 41, sleeved upon the shaft 16, of the take-up roll, which gear carries a clutch element 42. Splined on the shaft 16, is a sleeve 43, carrying a clutch element 44, adapted to be brought into and out of engagement with the clutch element 42, and when in engagement, any rotation of the friction wheel 37, will, through the gearing described, cause a corresponding rotation of the take-up roll 17 and thus wind the music sheet thereon from off the music spool. The shaft 25, may be moved longitudinally by means of a thumb screw 25^a at one end thereof in order

to move the friction wheels 31 over the face of the friction disks 37, to alter the speed of the winding and rewinding mechanism.

The music sheet 18 is rewound upon the music spool by the following means. Sleeved upon the shaft 46 carrying the end bearing 14, is a sprocket wheel 47, carrying a clutch element 48, with which a companion clutch element 49, coöperates, the latter being mounted upon a sleeve 50, splined upon said shaft 46. The sprocket wheel 47, is connected by sprocket chain 51, with sprocket wheel 40, carried by the sleeve 38, so that rotation of said sleeve will revolve the shaft 46, in a direction opposite to that imparted to the shaft 16, through the pinion 39 and gear 41.

As will be seen by reference to Fig. 2, the parts are so arranged that when the clutch-elements 42 and 44, are in engagement clutch elements 48 and 49 are separated or out of engagement and vice versa. The means for shifting the movable clutch elements consists of a lever 52, pivoted at 53, the lower end of which lever rests in a seat 54, formed in a sliding bar 55. The outer end of said bar is provided with a similar seat 56, in which is fitted the free end 57, of an arm attached to a shipper pneumatic 58, that is normally held expanded by a spring 59. Whenever the shipper pneumatic 58, is collapsed the bar 55, will be shifted longitudinally to cause an unclutching of the winding mechanism and a clutching of the rewinding mechanism.

I have provided means for automatically rewinding the music sheet upon its own spool as soon as the musical composition has been played, and for automatically placing another music sheet in playing condition and this means will now be described.

Located adjacent each music spool 15, is a duct opening 60 whose tube or passage 61, Fig. 4, leads to a separate primary pneumatic of the same type as the primary pneumatics that control the operation of the power or striker pneumatics 8, and from the chest of the primary pneumatic a tube or passage 62, leads to the shipper pneumatic 58. The duct opening 60, is normally held closed by a pivoted spring pressed valve 63, having a knuckle-joint connection with an arm 64, that rests upon the music roll 15, and so long as there is any appreciable amount of the music-sheet wound upon the spool 15, of the music roll the valve 63, will be held closed and the shipper pneumatic 58, will be maintained expanded by its spring 59. The spool 15, of the music roll is provided with a circumferential groove 65, Figs. 2 and 3, into which the arm 64, may enter as soon as the music sheet is entirely wound therefrom, or the end of the musical composition has been reached, a slot 66, Fig. 2, being cut in the attached end of the music sheet to permit the said arm to enter the groove 65. Immediately the arm 64, enters the said groove the valve 63, will be lifted off the duct opening 60, permitting a flushing of the tubes or passages 61, 62, and causing the shipper pneumatic 58, to collapse. As this pneumatic collapses the bar 55, will be shifted to the left as seen at B, Fig. 2, and through the lever 52, the clutch elements 42, 44, of the winding mechanism will be separated and clutch elements 48, 49, brought into engagement whereupon the rewinding operation of the music sheet will immediately begin and will continue until the sheet is entirely rewound on its own spool, the bar 55, and its correlated elements being held in the proper position to effect a complete rewind of the sheet by means of a pivoted lever 66^a, Figs. 2 and 3, the free end of which engages a lug 67 on the upper face of said bar to prevent its return to normal position which is effected by means of the spring 59, on the shipper pneumatic 58. The outer end of lever 66^a, is urged upward by a spring 68, so that its free end is normally pressed downward in position to engage the lug 67, one face of the lug being beveled as shown so that as the bar 55 is moved longitudinally, upon the collapse of the pneumatic 58, the free end of the lever will ride up this beveled face and then snap in behind the lug and hold the bar against return movement until the outer end of the lever is pressed downward against the tension of the spring 68, which is acccomplished as follows. The said outer end of the lever 66^a, carries a pivoted spring-pressed arm 68^a, that is normally urged toward, and bears against the music-sheet wound upon the take-up roll 17, and as soon as the sheet is entirely unwound therefrom the free end of the arm 68^a, enters a recess 69, in the take-up roll as seen at A, Fig. 3. The shoulder of the recess then engages the free end of the arm and depresses the lever 66^a, raising its free end from behind the lug 67 on the bar 55, whereupon the latter is permitted to slide longitudinally under the influence of the spring 59 on the tripper pneumatic 58. This movement of bar 55, again shifts the lever 52 to place the clutch elements of the winding mechanism in position for operation and the clutch elements of the rewinding mechanism out of operative position.

It will be seen from the foregoing that I have provided means for automatically throwing the winding mechanism out of operation when the end of the sheet has been reached and for simultaneously throwing the rewinding mechanism into operation, said automatic means being controlled by devices that coöperate with the music and take-up rolls respectively. This means is well adapted for use in connection with the known types of piano players, and player-

pianos, wherein only a single winding and rewinding mechanism is employed, and is also well adapted for use in the plural or magazine form of mechanism which forms an important part of the present invention. In the plural arrangement, however, it is desirable to provide automatic means for causing the several winding and rewinding mechanisms to operate successively in regular sequence, and these means will now be described.

In the position of the parts as illustrated in Fig. 2, the music-sheet of mechanism A, is in position ready to "start" to play as soon as the clutch pneumatic 34, is collapsed, while the sheet of mechanism B, is in the "finish" position just ready to begin the rewinding operation. The means for causing the different mechanisms to operate consecutively consists in providing extra ducts in the trackers to coöperate with extra perforations in the music sheet and in providing additional primary pneumatics to control both the clutch and latch pneumatics. Each music-sheet is provided at the "beginning" end, in advance of the note-perforations, with a perforation 70, (see Fig. 2, controller A,) which perforation flushes the extra duct in the tracker that leads by passage 71, branch 72, to the proper primary pneumatic, and from thence through passage 73, to latch pneumatic 36, which releases clutch pneumatic 34, and immediately separates the clutch members 32, 33, and stops the travel of sheet of mechanism A. At the same time the clutch pneumatic 34 of mechanism B, is flushed to cause the same to collapse and bring the clutch elements 42, 44, into engagement, the flushing passages being indicated by the numeral 73^a, that lead to the proper primary pneumatic and from thence by passage 74, to the said clutch pneumatic. It will be understood that a similar set of passages lead from the trackers of mechanism B, C, and D, to cause the proper operation of the respective clutch and latch pneumatics of said mechanism, all as traced out in the diagrammatic illustration Fig. 4. Inasmuch as they all operate in the same manner it is not deemed necessary to repeat the description, suffice it to say that they are designed to operate automatically in regular sequence and then repeat the operation.

In the present embodiment of the invention I have shown the tubes or passages that control the operation of the several mechanisms A, B, C and D as leading into and out of a box X divided into four pairs of compartments 75 and 76, the compartments 75 and 76 of each pair communicating by a passage 77. In this box X, I contemplate providing means for permitting the operator, at will, to manually select for operation any desired music sheet of the magazine that may suit his fancy, but as this means is not claimed in the present application it will not be shown or described herein.

I have herein shown and described my improvements as applied to pneumatically controlled musical instruments but I do not wish to be understood as limiting myself specifically to this type of means as the same idea of invention may obviously be carried on by other means, the showing here being merely by way of example.

In the diagrammatic illustration of Fig. 4 and in the description I have made reference to tubes or passages having communication between the several clutch, latch, shipper, and primary pneumatics. It will be obvious that in practice, at least some of these passages will be suitably formed in the commonly employed duct boards while others may consist of the usual lead or rubber tubing.

I do not claim herein the specific means shown and described for winding and rewinding the music sheets as this mechanism is claimed in my copending application Serial No. 483,831, filed March 16, 1909. Neither do I claim herein the specific form of power pneumatic shown and described as the same is claimed in my copending application Serial No. 480,889, filed March 2, 1909.

What I claim is:

1. The combination with a piano, of automatic playing mechanism coöperatively associated therewith, a plurality of readers, each coöperatively associated with the playing mechanism, a plurality of pairs of individually operated note-sheet spools, one pair associated with each reader, and means for imparting rotation to any pair of spools independent of all the other pairs, for the purpose specified.

2. The combination with a piano, of automatic playing mechanism coöperatively associated therewith, a plurality of individually operable note sheet winding and rewinding mechanisms for said playing mechanism, and automatic means for successively bringing said mechanisms into coöperative relation with and causing the operation of the playing mechanism.

3. The combination with a piano, of automatic playing mechanism coöperatively associated therewith, a plurality of individually operable note sheet winding and rewinding mechanisms for said playing mechanism, and automatic means controlled by a note sheet for successively bringing said mechanisms into coöperative relation with and causing the operation of the playing mechanism.

4. The combination with a piano, of automatic playing mechanism coöperatively associated therewith, a plurality of individually operable note sheet winding and re-

winding mechanisms for said playing mechanism, each mechanism comprising a reader and a supply and a take-up roll and winding and rewinding mechanism for each pair of rolls, and means for causing said winding and rewinding means of the several mechanisms to operate successively.

5. The combination with a piano, of automatic playing mechanism coöperatively associated therewith, a plurality of readers each coöperatively associated with said mechanism, and a plurality of note sheet winding and rewinding means one associated with each reader.

6. The combination with a piano, of automatic playing mechanism coöperatively associated therewith, a plurality of readers each coöperatively associated with said mechanism, a plurality of note sheet winding and rewinding means one associated with each reader, and a common driving means for all said winding and rewinding means.

7. The combination with a piano, of automatic playing mechanism coöperatively associated therewith, a plurality of readers cooperatively associated with said mechanism, a plurality of note sheet winding and rewinding means one for each reader, and means for causing said winding and rewinding means of the several readers to operate successively.

8. In combination with music-playing mechanism, a plurality of readers coöperatively associated therewith, note-sheet winding and rewinding means for each reader, and automatic means for causing said winding and rewinding means to operate in regular sequence.

9. In combination with music playing mechanism, a plurality of readers coöperatively associated therewith, note-sheet winding and rewinding means for each reader, and automatic means controlled by the note sheets for causing the winding and rewinding means to operate successively and in regular sequence.

10. In combination with music-playing mechanism, a plurality of readers coöperatively associated therewith, note-sheet winding and rewinding means for each reader, and automatic means for stopping the operation of one sheet operating means and starting the operation of another similar means.

11. In combination with automatic music playing mechanism adapted to be controlled by perforated music-sheets, a plurality of trackers each coöperatively associated with said mechanism, means for causing the music-sheets to move over their respective trackers, and automatic means controlled by one music sheet for stopping the movement of said sheet and starting the travel of another sheet.

12. The combination with a piano, of automatic playing mechanism coöperatively associated therewith, a plurality of readers coöperatively associated with said mechanism, a plurality of note sheet winding and rewinding means one for each reader and means for causing said winding and rewinding means of the several readers to operate successively in regular sequence.

13. The combination with a piano, of automatic playing mechanism coöperatively associated therewith, a plurality of readers coöperatively associated with said playing mechanism, a plurality of note sheet winding and rewinding means one for each reader, and means for causing the winding and rewinding means of the several readers to operate successively in selected order.

14. The combination with a musical instrument, of automatic playing mechanism coöperatively associated therewith, a plurality of individually operable note sheet winding and rewinding mechanisms for said playing mechanism, and means for bringing said winding and rewinding mechanisms successively into coöperative relation with and causing the operation of the playing mechanism.

15. The combination with a piano, of automatic playing mechanism coöperatively associated therewith, a plurality of readers coöperatively associated with said mechanism, a plurality of note sheet winding and rewinding means one for each reader and automatic means for causing said winding and rewinding means to operate successively in regular sequence.

16. In a self playing piano magazine, the combination with pairs of rolls, each pair comprising a supply roll and a take-up roll, of a plurality of roll holding devices, a plurality of trackers one for each pair of rolls, driving mechanism, a plurality of winding and rewinding mechanisms one for each pair of rolls, and means for effecting the engagement of each take-up roll with the winding mechanism and of each supply roll with the said rewinding mechanism and for disengaging them.

17. In a self playing piano magazine, the combination with pairs of rolls each pair comprising a supply roll and a take-up roll, a plurality of readers one for each pair of rolls, driving mechanism, a plurality of winding and rewinding mechanisms one for each pair of rolls, and means for effecting the engagement of each take-up roll with the driving mechanism and of each supply roll with the said rewinding mechanism, and for disengaging them.

18. In a self playing piano magazine, the combination with pairs of rolls, each pair comprising a supply roll and a take-up roll, of a plurality of readers one for each pair of rolls, a plurality of winding and rewinding mechanisms one for each pair of

rolls and means for causing the several winding and rewinding mechanisms to operate successively.

19. In a self-playing piano magazine, the combination with pairs of rolls each pair comprising a supply roll and a take-up roll, a plurality of readers one for each pair of rolls, a plurality of winding and rewinding mechanisms one for each pair of rolls and automatic means for causing the several winding and rewinding mechanisms to operate successively in regular sequence.

20. In combination with music-playing mechanism, a plurality of trackers, a music and a take-up roll for each separate winding and rewinding means for each pair of said rolls, a main drive shaft 25, common to all said means, separate power transmitting means between said shaft and said winding and rewinding means, and automatic means for stopping the operation of the rewinding means for the music roll of one pair and starting the operation of the winding means for the take-up roll of another pair.

21. In a self-playing piano magazine, the combination with pairs of rolls each pair comprising a supply roll and a take-up roll, of a plurality of roll-holding devices, a plurality of trackers one for each pair of rolls, driving and rewinding mechanism, means for effecting the engagement of each take-up roll with the said mechanism to drive the take-up roll, means for disengaging the take-up roll and the said mechanism and for effecting the engagement of the supply roll and the said mechanism to rewind the supply roll, and means constructed and arranged to disengage the supply roll and the said mechanism.

22. In combination with music playing mechanism, a plurality of readers each co-operatively associated with said mechanism, a plurality of note-sheets and winding and rewinding means therefor one for each reader and each including a power transmitting element, a power driven device for each element, and automatically operated means for throwing the several driving mechanisms into and out of operation in regular sequence.

23. In a magazine selector mechanism, a plurality of readers, a plurality of pairs of music and take-up rolls, a plurality of music sheets, one pair of rolls associated with each reader, a plurality of winding and rewinding mechanisms, one such mechanism for each pair of rolls, automatic means for throwing the rewinding mechanism for one sheet into operation to rewind said sheet upon its own spool when the end of the sheet has been reached, automatic means for throwing the said rewinding mechanism out of operation, and means controlled by the said sheet for stopping the travel thereof and for simultaneously throwing into operation the winding mechanism for another sheet in the magazine.

24. In a magazine selector mechanism, a plurality of readers, a plurality of pairs of music and take-up rolls, a plurality of music sheets, one pair of rolls associated with each reader, a plurality of winding and rewinding mechanisms, one such mechanism for each pair of rolls, a main drive shaft, a plurality of power transmitting elements on said shaft, one associated with each winding and rewinding mechanism, automatic means for throwing the rewinding mechanism for one sheet into operation to rewind said sheet upon its music spool when the end of the sheet has been reached, automatic means for throwing the said rewinding mechanism out of operation when the sheet has been rewound, and means controlled by the said sheet for throwing into operation the winding mechanism for another sheet in the magazine.

25. In a magazine selector mechanism, a plurality of readers, a plurality of pairs of music and take-up rolls for a plurality of music sheets, one pair of rolls associated with each reader, a main drive shaft, a plurality of power transmitting elements loose on said shaft for transmitting power to the several pairs of rolls, a plurality of clutches splined on the drive shaft, one adjacent each power transmitting element, a plurality of clutch pneumatics one for each clutch, a plurality of latch pneumatics one for each clutch pneumatic, and means controlled by the several music sheets for controlling the operation of the clutch and latch pneumatics to cause them to operate in regular sequence for the purpose specified.

26. In a magazine selector mechanism, a plurality of readers, a plurality of pairs of music and take-up rolls, a plurality of music sheets, one pair of rolls associated with each reader, a main drive shaft, a plurality of power transmitting elements loose on said shaft for transmitting power to the several pairs of rolls, a plurality of clutches splined on the drive shaft, one adjacent each power transmitting element, a plurality of clutch pneumatics one for each clutch, a plurality of latch pneumatics one for each clutch pneumatic, and means controlled by one music sheet for operating the latch pneumatic associated with the power transmitting element for said sheet and for simultaneously operating the clutch pneumatic associated with the power transmitting element of another sheet.

27. In magazine selector mechanism, a plurality of readers, a plurality of pairs of music and take-up rolls, a plurality of music sheets, one pair of rolls associated with each reader, a main drive shaft, a plurality of power transmitting elements,

loose on said shaft for transmitting power to the several pairs of rolls, a plurality of clutches splined on the drive shaft, one adjacent each power transmitting element, a plurality of clutch actuating devices, one for each clutch, a plurality of latch devices one for each clutch actuating device, and means controlled by the several music sheets for controlling the operation of the said clutch and latch actuating devices to cause them to operate in regular sequence for the purpose specified.

28. In magazine selector mechanism, a plurality of readers, a plurality of pairs of music and take-up rolls, a plurality of music sheets, one pair of rolls associated with each reader, a main drive shaft, a plurality of power transmitting elements loose on said shaft for transmitting power to the several pairs of rolls, a plurality of clutches splined on the drive shaft, one adjacent each power transmitting element, a plurality of clutch actuating devices, one for each clutch, a plurality of latch devices one for each clutch actuating device, and means controlled by one music sheet for operating the latch actuating device associated with the power transmitting element for said sheet and for simultaneously operating the clutch actuating device associated with the power transmitting element of another sheet.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE S. WILLIAMS.

Witnesses:
T. L. VAUGHAN,
LOWERY D. SUILLY.