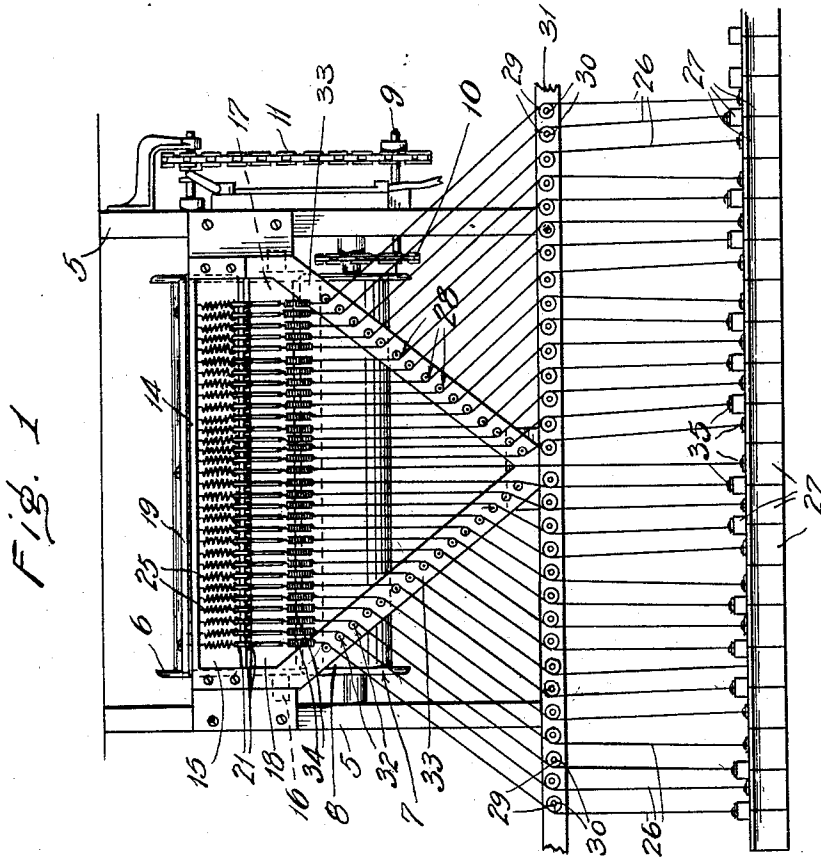
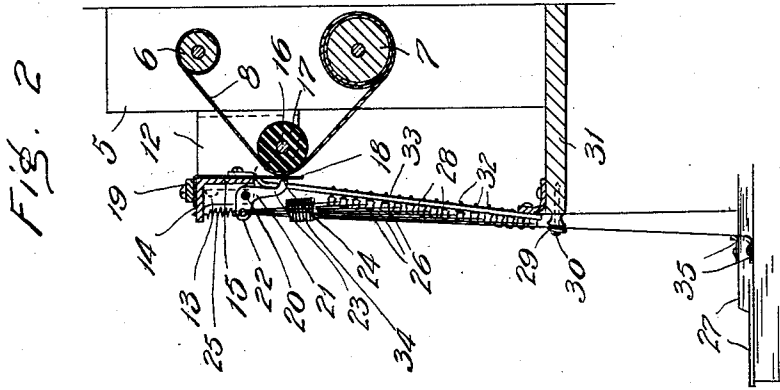


E. W. MYERS.
MUSIC RECORDER.

APPLICATION FILED DEC. 15, 1909. RENEWED FEB. 23, 1911.

1,004,184.

Patented Sept. 26, 1911.



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EDGAR W. MYERS, OF SEATTLE, WASHINGTON, ASSIGNOR TO EUTERPEAN DUPLICATOR COMPANY, OF SEATTLE, WASHINGTON, A CORPORATION OF WASHINGTON.

MUSIC-RECORDER.

1,004,184.

Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed December 15, 1909, Serial No. 533,289. Renewed February 23, 1911. Serial No. 610,330.

To all whom it may concern:

Be it known that I, EDGAR W. MYERS, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Music-Recorders, of which the following is a specification.

This invention relates to automatic piano players and, more particularly, to the production of music sheets therefor.

The object of my invention is the improvement in apparatus for registering upon a sheet of paper the fingering of a pianist on the keyboard of his instrument to produce a record, in sequence and duration, of the various notes played, however complicated or irregular may be the movement. Such a record sheet, it may be said, is subsequently perforated by a machine, not included in this application, to provide a music-sheet wherefrom the music may be reproduced upon piano-players equipped with suitably arranged tracker and pneumatic playing devices.

The invention consists in the novel construction, adaptation and combination of parts as will be hereinafter described and claimed.

In the drawings, Figure 1 is a front elevation of devices embodying my invention; and Fig. 2 is a transverse vertical section of the same.

The reference numerals 5 designate cleats which are rigidly secured to a piano and furnish journal supports for the axle ends of rolls 6 and 7. A sheet of paper 8 is unwound from the roll 6 and wound upon the roll 7 through the instrumentality of suitable gearing including a driving shaft 9 and a sprocket chain 10; while it may be moved in a reverse direction to be again wound about the roll 6 by gearing including a sprocket chain 11 and clutch devices. Driving devices of this type have hitherto been utilized in piano players for operating the paper delivery and receiving rolls and require no further description. Secured to, and projecting forwardly from said cleats are bracket elements 12 which support a frame comprised of end pieces 13 connected by a superposed shelf-plate 14 and a back-plate 15. Journaled in the bracket elements are the ends of the axle 16 of a rubber covered roller 17 and about the front of which

the sheet of paper 8 travels in passing from one of the aforesaid rolls to the other.

18 is an inked ribbon which is suspended to the rear of the plate 15 to hang in front of the roller 17 as shown in Fig. 2. This ribbon may conveniently be secured in place by having its top edge turned over the shelf-plate 14 and detachably connected therewith by a removable strip 19. Fulcrumed to a rod 20 extending between the end pieces 13 is a plurality of hammer-levers 21 of the bell-crank type which are arranged in spaced order in a horizontal row. One of the arms 22 of each lever is directed forwardly and the other arm 23 extends downwardly and terminates in an offset face 24. Each of the lever-arms 22 is connected by a spring 25 with the plate 14 above to yieldingly retain the hammer-faces 24 of the respective levers away from said ribbon. Each of the lever arms 22 is also connected by a wire 26 with the keys 27 of the instrument and successively in the order in which the different notes succeed one another in the key-board—that is to say, in an ascending scale of musical pitch. More particularly, the various wires are directed downwardly to pass about guide pulleys 28 and thence about guide pulleys 29 to be connected from their other ends to the appropriate keys.

The pulleys 29 are desirably mounted upon screws 30 secured in the bar 31 of the piano structure and arranged so that the wires will extend vertically, or nearly so, from the keys. The other guide pulleys 28 are rotatably connected by pins 32 to upwardly diverging bars 33 which are secured at their lower ends to the bar 31 and at their upper ends to the frame plate 15 in proximity to the ends of the latter. These bars also serve as diagonal braces to supplement the bracket elements 12 in supporting said frame in a rigid manner. The pulleys 28 are disposed to lead the wires in vertical lines, or nearly so, from the respective levers 21.

Interposed in each of the wires is a helical spring 34 of greater strength than the referred to spring 25 for the respective levers and their function is to furnish a resilient means to compensate for the inertia of the levers and the resistance of the springs 25 at the moment the keys are actuated. The lower ends of the wires 26, as illustrated,

are connected with the keys by being clamped between the latter and a plate 35 which is secured to the keys by screws.

The operation of the invention may be described as follows: The paper sheet 8 is supplied upon the roll 6 and has its end led around the front of the rubber roller 17 and secured to the roll 7. Whereupon the roll 7 is rotated to cause the paper to be wound thereabout and to travel at a uniform speed downwardly in front of the roller 17. The pianist now performs on the instrument keys 27. As the keys are pushed down the traction of the connecting wires 26 overcomes the power of the springs 25 and imparts movements to the affected levers 21 so that the latter will each deliver its blow against the inked ribbon 18 to make an impression upon the paper therebeyond in its progress by the roller 17. These impressions, by reason of the movement of the paper, will obviously be expressed thereupon as dots or dashes dependent on the sequence at which the keys are pushed down and the length of time at which they are maintained in depressed conditions. When a musical record is thus made, the driving of the previously acting receiving roll 7 is discontinued and motion imparted to the roll 6 to rewind the paper upon the latter for removal.

What I claim as my invention, is:

1. A music recorder comprising a roll-carrying recording strip, a receiving roll arranged in parallelism to the carrying roll and adapted to receive the strip from the carrying roll, means for actuating the rolls to cause the strip to unwind from the carrying roll and wind upon the receiving roll, a bed-roll arranged forward of the receiving and carrying rolls and over which the strip passes, a marking member arranged forward of and in close proximity to the strip as it passes over the bed roll, supporting means for said rolls, a rod connected to said means, a plurality of hammer levers of the bell-crank type fulcrumed upon said rod, springs connected to one arm of said levers for shifting them in one direction and for maintaining the levers out of contact with the marking member, vertical actuating members having the upper ends thereof connected to the said arm of said levers and adapted when shifted in one direction to actuate the levers in a direction opposite to that imparted by said springs to make an impression upon the recording strip, means for connecting the lower end of each of said actuating members to a piano key, a bracket, a set of guide pulleys mounted upon the bracket and contacted by said members, a longitudinally-extending bar arranged below said bracket, and guide pulleys carried by said bar and arranged greater distances apart than the guide pul-

leys upon the bracket and contacted by said members.

2. A music recorder comprising a roll-carrying recording strip, a receiving roll arranged in parallelism to the carrying roll and adapted to receive the strip from the carrying roll, means for actuating the rolls to cause the strip to unwind from the carrying roll and wind upon the receiving roll, a bed roll arranged forward of the receiving and carrying rolls and over which the strip passes, a marking member arranged forward of and in close proximity to the strip as it passes over the bed roll, supporting means for said rolls, a rod connected to said means, a plurality of hammer levers of the bell-crank type fulcrumed upon said rod, springs connected to one arm of said levers for shifting them in one direction and for maintaining the levers out of contact with the marking member, vertical actuating members having the upper ends thereof connected to the said arm of said levers and adapted when shifted in one direction to actuate the levers in a direction opposite to that imparted by said springs to make an impression upon the recording strip, means for connecting the lower end of each of said actuating members to a piano key, a bracket, a set of guide pulleys mounted upon the bracket and contacted by said members, a longitudinally-extending bar arranged below said bracket, guide pulleys carried by said bar and arranged greater distances apart than the guide pulleys upon the bracket and contacted by said members, and springs interposed in each of said members.

3. A music recorder comprising a roll-carrying recording strip, a receiving roll arranged in parallelism to the carrying roll and adapted to receive the strip from the carrying roll, means for actuating the rolls to cause the strip to unwind from the carrying roll and wind upon the receiving roll, a bed roll arranged forward of the receiving and carrying rolls and over which the strip passes, a marking member arranged forward of and in close proximity to the strip as it passes over the bed roll, supporting means for said rolls, a rod connected to said means, a plurality of hammer levers of the bell-crank type fulcrumed upon said rod, springs connected to one arm of said levers for shifting them in one direction and for maintaining the levers out of contact with the marking member, vertical actuating members having the upper ends thereof connected to the said levers and adapted when shifted in one direction to actuate the levers in a direction opposite to that imparted by said springs to make an impression upon the recording strip, means for connecting the lower end of each of said actuating members to a piano key, 130

a vertically-disposed V-shaped bracket, a set of guide pulleys mounted upon the bracket and contacted by said members, a longitudinally-extending bar arranged below said bracket, and guide pulleys carried by said bar and arranged greater distances apart than the guide pulleys upon the bracket and contacted by said members.

4. A music recorder comprising a roll-carrying recording strip, a receiving roll arranged in parallelism to the carrying roll and adapted to receive the strip from the carrying roll, means for actuating the rolls to cause the strip to unwind from the carrying roll and wind upon the receiving roll, a bed roll arranged forward of the receiving and carrying rolls and over which the strip passes, a marking member arranged forward of and in close proximity to the strip as it passes over the bed roll, supporting means for said rolls, a rod connected to said means, a plurality of hammer levers of the bell-crank type fulcrumed upon said rod, springs connected to one arm of said levers for shifting them in one direction and for maintaining the levers out of con-

tact with the marking member, vertical actuating members having the upper ends thereof connected to the said arm of said levers and adapted when shifted in one direction to actuate the levers in a direction opposite to that imparted by said springs to make an impression upon the recording strip, means for connecting the lower end of each of said actuating members to a piano key, a vertically-disposed V-shaped bracket, a set of guide pulleys mounted upon the bracket and contacted by said members, a longitudinally-extending bar arranged below said bracket, guide pulleys carried by said bar and arranged greater distances apart than the guide pulleys upon the bracket and contacted by said members, and springs interposed in each of said members.

Signed at Seattle, this 9th day of December, 1909.

EDGAR W. MYERS.

Witnesses:

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GEO. G. MORRIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."