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ADJUSTABLE PLAYER ATTACHMENT FOR PIANOS

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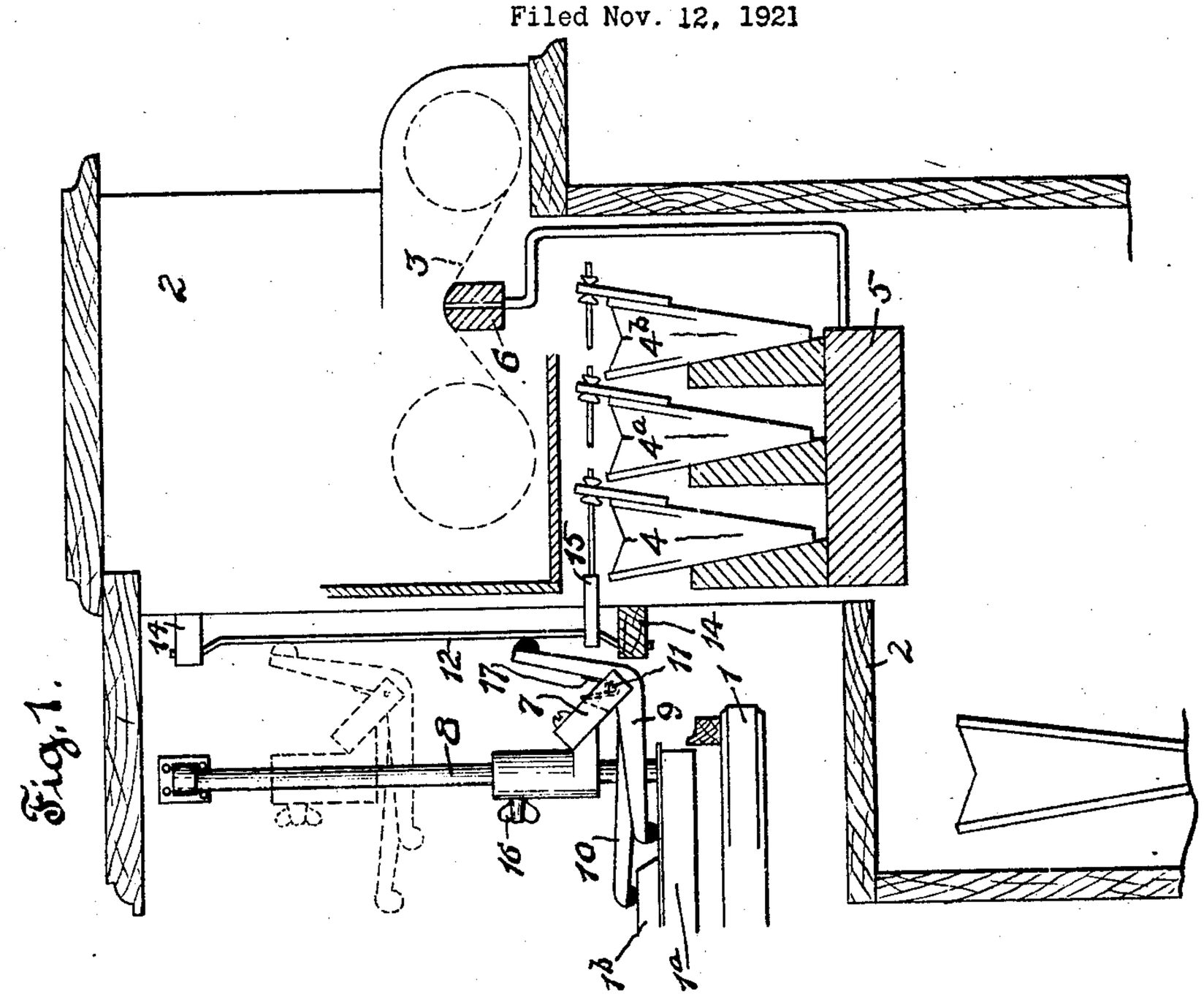

Fig. 1.

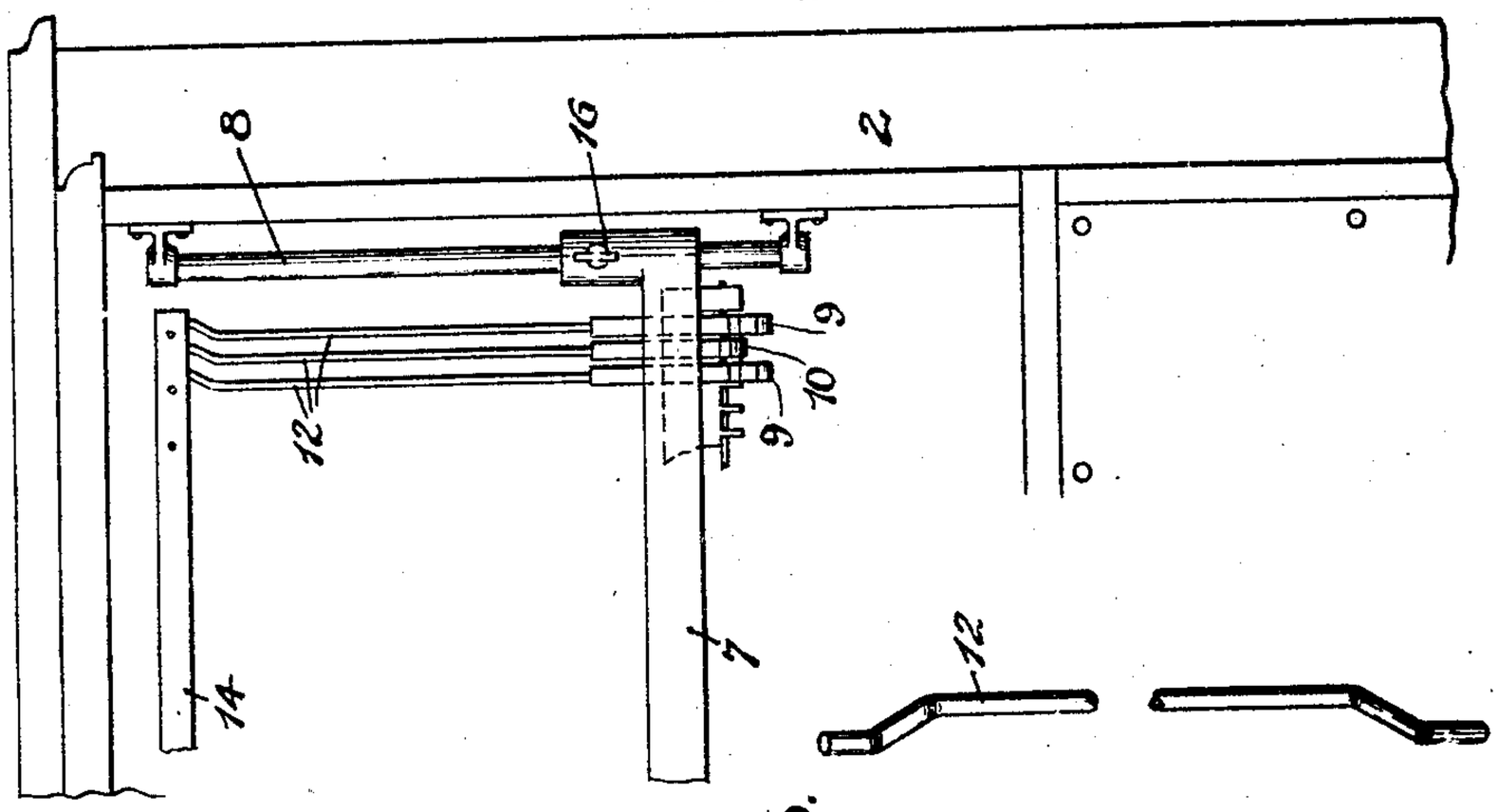

Fig. 3.

Fig. 2.

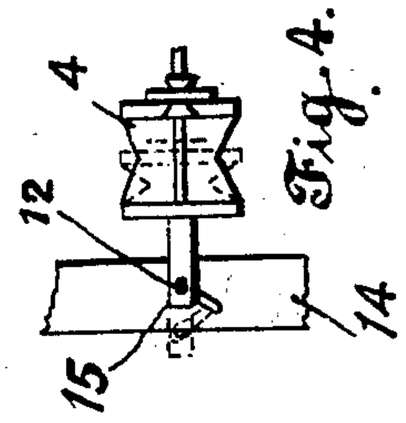

Fig. 4.

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ADJUSTABLE PLAYER ATTACHMENT FOR PIANOS.

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My invention relates to mechanical piano playing apparatus, and more particularly to an adjustable means of connection between certain parts thereof, whereby substantial advantages will be gained. The construction and advantages will be hereinafter fully described incidental to describing the structure.

The principle of the invention may be employed widely in the art, and for that reason, I do not wish to have it understood that all my claims are limited to any particular type of player mechanism.

In the present case I have shown my invention as associated with that type of player mechanism known as a "cabinet player," that is to say, a player in which the mechanical parts are mounted in a housing or cabinet which in this particular instance is designed to be supported upon the floor and moved up to the keyboard of an ordinary piano, so that by means of pneumatically operated strikers, the piano actions may be operated, in this instance through the medium of the usual keys.

Inasmuch as the height of piano action mechanism from the floor varies in different pianos, it is important to have a simple and effective means, whereby the player apparatus may be so adjusted relatively to the piano that its striker devices will operate correctly in the various positions of adjustment, and my improvement is of such wide application, that it may be successfully employed for this purpose.

In the drawings, Figure 1 is a sectional view of so much of a piano and player mechanism as is necessary for the purpose of fully illustrating my improvement, the illustration of certain parts being largely conventional.

Fig. 2 is a rear elevation of certain parts of the player mechanism.

Fig. 3 is a detail view.

Fig. 4 is a fragmentary plan view of certain parts, the coupler wire being shown in section.

1 represents the front portion of a piano case. 1^a—1^b represent respectively the white and black keys of an ordinary piano action. 2 represents a portion of the case or frame of a so-called "cabinet" piano player, there being therein contained suitable mechanism, which, by means of the usual perforated note sheet 3, operates to cause the piano to play. In the particular form shown, the player mechanism is of the pneumatic type. 4—4^r—4^b represent conventionally striker pneumatics, which, for the sake of compactness, are usually arranged in parallel banks. These pneumatics are connected with a suitable action chest 5, in which is contained the usual pneumatic valve mechanisms (not shown) controlled from a tracker board 6. The usual means may be provided for creating the necessary exhaust to operate the various pneumatics. All of the foregoing details in themselves constitute no part of the present invention.

At the back of the cabinet, I provide a rail 7, which is mounted at its ends on guide posts 8—8, upon which posts said rail may be moved up and down for adjustment. Pivotally mounter upon the lower side of the rail 7 are strikers 9—10, which, in this instance, constitute mechanical fingers for engaging and operating the piano keys 1^a—1^b respectively. In the form shown, these strikers are in the form of bell cranks pivoted at 11. 12—12 are couplers which I may term coupler wires, roller wires or rocker wires, interposed between the action pneumatics and the strikers 9—10. Each of these couplers (see Fig. 3) may be conveniently made of stiff wire bent into the form of a crank with the eccentric portion thereof, that is to say, the crank pin portion, of substantial length for the purpose hereinafter described. These coupler wires 12 are mounted to rock in suitable bearings 14—14, and are arranged parallel to the plane of movement of the rail 7 and to said strikers as the same are moved up and down on the guide rods or posts 8. 15 represents a suitable connection between the crank pin portion of the coupler wire 12 and the action pneumatic 4. Each coupler wire has a similar connection with its respective action pneumatic, and one coupler wire is provided for each of the striker devices employed for operating the piano action. As shown in Fig. 1, the striker device 9 is resting at one end upon the piano action key 1^a, while at its other end, it rests against its respective coupler wire 12, it being lightly held in that position by a small spring 17. It will now be seen that if the pneumatic 4 is collapsed, the crank pin portion of the coupler wire 12 which constitutes in effect a relatively long rod or

elongated coupling member will be transversely moved in a direction to move the striker 9 and operate the piano action.

If it is desired to shift the player to another piano, and the action keyboard of said other piano is higher than the one with which the apparatus was first associated, the user has but to move the rail 7 up on the guide rods 8 to a desired degree to cause the striker devices 9—10 to assume the proper position with relation to the piano action keys. In cases where this adjustment involves a vertical movement the parts may be secured in adjusted position by an ordinary set screw 16. In Figure 1, I have illustrated by dotted lines the position of the rail 7 and associated parts, adjusted to a greater height than indicated in solid lines in said figure. It will be noted, by reason of the fact that the coupler wires or rods 12 are parallel with the plane of movement of the rail and strikers, that when the same are being adjusted, the correct relationship between the strikers 9—10 and the couplers 12 will always be preserved so that said striker will operate as intended no matter what the position of adjustment may be between the two extreme limits in this case, said limits being determined by the length of the guide posts 8—8 and the length of the coupler wires or rods 12.

As I have before indicated, this invention is capable of wide application, and is not necessarily confined to a piano player apparatus of the so-called "cabinet" type, but may be used wherever an adjustable sliding connection is desired between relatively movable parts of a pneumatic player piano mechanism. While I have used the term "piano" herein, it should be understood that by that term I intend to include organs.

While I have shown and described my invention as applied to a penumatic player mechanism which is supported independently of the piano itself, I am conscious of the fact that it may be successfully employed in a player apparatus supported by the piano or otherwise.

What I claim is:

1. In a player apparatus, pneumatic action devices, mechanical action devices, means for transmitting movement from the former to the latter comprising a plurality of roller wires mounted to move transversely and separately movable by said penumatic action devices, said mechanical action devices being adjustable to different positions relatively to the length of said roller wires and being operable thereby in said different positions of adjustment.

2. In a player apparatus, pneumatic action devices, mechanical action devices, means for transmitting movement from the former to the latter comprising a plurality of roller wires pivoted at their ends and transversely movable by said pneumatic action devices, said mechanical action devices being adjustable to different positions relatively to the length of said roller wires and being operable thereby in said different positions of adjustment.

3. In a player apparatus, pneumatic action devices, mechanical action devices, means for transmitting movement from the former to the latter comprising a plurality of crank shaped coupler wires pivoted at their ends and separately movable by said pneumatic action devices, said mechanical action devices being adjustable to different positions relatively to the length of said coupler wires and being operable thereby in said different positions of adjustment.

4. In a player apparatus for pianos and the like, a piano action, a pneumatic player action comprising a plurality of action pneumatics, mechanical means of connection between said action pneumatics and said piano action for transmitting movement from the former to the latter, said mechanical connections including adjustable connections comprising a plurality of roller wires, and a plurality of striker devices co-acting therewith and relatively movable longitudinally to different positions of adjustment thereof and operable thereby in said different positions of adjustment.

5. In a player apparatus for pianos and the like, a piano action, a pneumatic player action comprising a plurality of action pneumatics, mechanical means of connection between said action pneumatics and said piano action for transmitting movement from the former to the latter, said mechanical connections including adjustable connections comprising a plurality of roller wires mounted at their ends to rock, and a plurality of striker devices co-acting with one side thereof and relatively movable longitudinally thereof to different positions of adjustment and operable thereby in said different positions of adjustment.

6. In a player apparatus, piano action mechanism, pneumatic action mechanism for operating the same, power transmission means between said two mechanisms including a plurality of roller wires mounted at their ends, the intermediate portions of said roller wires being transversely movable, means for connecting the pneumatic action mechanism with one side of said roller wires, and means for connecting the piano action mechanism with the opposite side of said roller wires, one of said connecting means being movable longitudinally on said roller wires to different operative positions, whereby the piano action mechanism may be operated by the pneumatic action mechanism in different positions of adjustment of one relatively to the other.

7. In a player apparatus, piano action mechanism, pneumatic action mechanism,

and power transmission means operatively connecting said two mechanisms and including a plurality of roller wires pivoted at their ends, said mechanisms being operatively connected with the opposite sides of said roller wires, one of said mechanisms being adjustable longitudinally thereof to different positions of operative engagement.

8. In a player apparatus for pianos and the like, piano action devices, pneumatic action devices including striker pneumatics, and means of connection between said devices including a plurality of transversely movable coupler rods arranged to impart motion from the pneumatic action devices to the piano action devices, the pneumatic action devices engaging one side of said rods, the piano action devices engaging the other side of said rods, one of said sets of devices being longitudinally slidable on said rods to different operative positions thereon.

9. A player apparatus for pianos and the like, comprising, a case movable with relation to the body of the piano, a plurality of striker pneumatics carried on said case, a plurality of piano action devices carried on the body of the piano, and tiltable coupling means between the striker pneumatics and said piano action devices including means arranged to engage said coupling means at different operative positions to transmit the motion of said striker pneumatics to said piano action devices in different positions of said case.

10. In a piano player apparatus, a plurality of piano action devices, mechanical playing devices to operate said piano action devices comprising a plurality of striker pneumatics with selective means for operating the same, a carrier for said striker pneumatics and said selective means movable relatively to the body of the piano, and a plurality of mechanical couplers mounted to tilt and arranged intermediate the said striker pneumatics and said piano action devices and arranged to transmit motion from the striker pneumatics to the piano action devices in different relative positions of the former and the latter.

11. In a piano player apparatus, a set of piano action devices, a set of pneumatic striker devices for selectively operating said piano action devices, a carrier for said striker devices on which carrier said striker devices are mounted, and coupling means between said striker devices and said piano action devices for mechanically transmitting the motion of the striker devices to the piano action devices in different positions of the former relatively to the latter, one of said sets of devices being freely slidable on and relatively to said coupling means.

12. In a piano player apparatus, a set of piano action devices, a set of pneumatic striker devices for selectively operating said piano action devices, a carrier for said striker devices on which carrier said striker devices are mounted, and coupling means between said striker devices and said piano action devices for mechanically transmitting the motion of the striker devices to the piano action devices in different positions of the former relatively to the latter, one of said sets of devices being freely slidable on and relatively to said coupling means, said coupling means comprising rods arranged to tilt.

13. In a piano player apparatus, a set of piano action devices, a set of pneumatic striker devices for selectively operating said piano action devices, a carrier for said striker devices on which carrier said striker devices are mounted, and coupling means between said striker devices and said piano action devices for mechanically transmitting the motion of the striker devices to the piano action devices in different positions of the former relatively to the latter, one of said sets of devices being freely slidable on and relatively to said coupling means, said coupling means comprising rods arranged to tilt, said rods being pivotally mounted at their ends.

14. In a piano player apparatus, a set of piano action devices, a set of pneumatic striker devices for selectively operating said piano action devices, a carrier for said striker devices on which carrier said striker devices are mounted, and coupling means between said striker devices and said piano action devices for mechanically transmitting the motion of the striker devices to the piano action devices in different positions of the former relatively to the latter, one of said sets of devices being freely slidable on and relatively to said coupling means, said coupling means comprising rods arranged to tilt, said rods being pivotally mounted at both ends.

15. In a piano player apparatus, a piano case, piano action devices carried thereby, striker pneumatics, a carrier therefor movable with relation to the piano case, and mechanical couplers for transmitting movement from said striker pneumatics to said piano action devices in different relative positions of said striker pneumatic carrier relatively to said piano case, said striker pneumatics and said piano action devices being operatively connected with opposite sides of said couplers, whereby said couplers will transmit motion from the former to the latter in different positions of the carrier with relation to the piano case.

16. In a piano player apparatus, a piano case, piano action devices carried thereby, striker pneumatics, a carrier therefor movable with relation to the piano case, a plurality of rocker wires for transmitting movement from said striker pneumatics to said piano action devices in different relative positions of said striker pneumatic carrier relatively to said piano case, said

striker pneumatics and piano action devices being operatively connected with the opposite sides of said rocker wires, said piano action devices being slidable longitudinally on said rocker wires.

17. In combination, a piano action, a pneumatic player action including striker pneumatics, a case for the latter, said case being movable relatively to said piano action, means to transmit the playing movement of said striker pneumatics to said piano action in different positions of same relatively to said action and comprising a plurality of substantially parallel, transversely movable rods, said piano action being operatively associated with said rods on one side of the latter, said striker pneumatics being operatively associated with said rods on the other side thereof, said piano action being longitudinally adjustable relative to the rod.

18. In an apparatus of the character described, a driving device and a driven device, coupling means interposed between said driving and driven devices comprising an elongated member, said driving device and driven device being operatively associated with the opposite sides of said elongated coupling member, supporting means for said elongated coupling member whereby the latter may be moved transversely relatively to its length and whereby motion from the driving device to the driven device will be transmitted therethrough, one of said devices being slidable longitudinally on said elongated coupling member and cooperating therewith as aforesaid in at least two different positions of adjustment.

19. In a piano player mechanism, a transmission train for transmitting power from a mechanical playing mechanism to a piano, said transmission means comprising a roller wire, a driving part and a driven part engaging the opposite sides thereof, one of said parts being movable longitudinally thereof to different operative positions relatively thereto.

20. In a piano, a piano key and action, a player action and means for supporting the same adjacent to the keyboard of the piano, a connecting mechanism connecting the player action with the piano action, said connecting mechanism being provided with an elongated crank member which may be actuated by the player action in any position between certain predetermined limits on the elongated crank member.

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