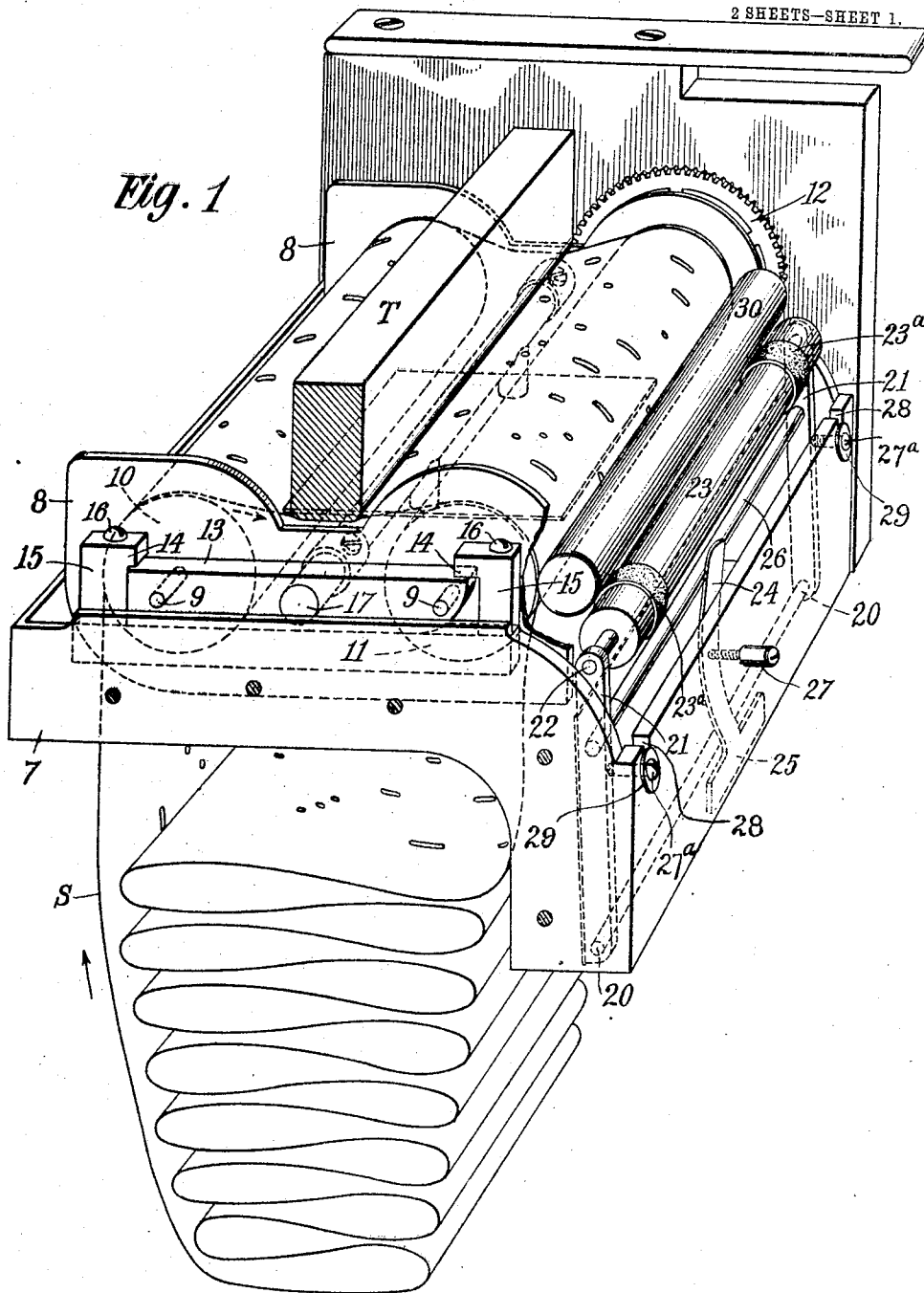


932,606.

Patented Aug. 31, 1909.

2 SHEETS—SHEET 1.



Witnesses:
Raphael Ketter
Charles H. Terluine

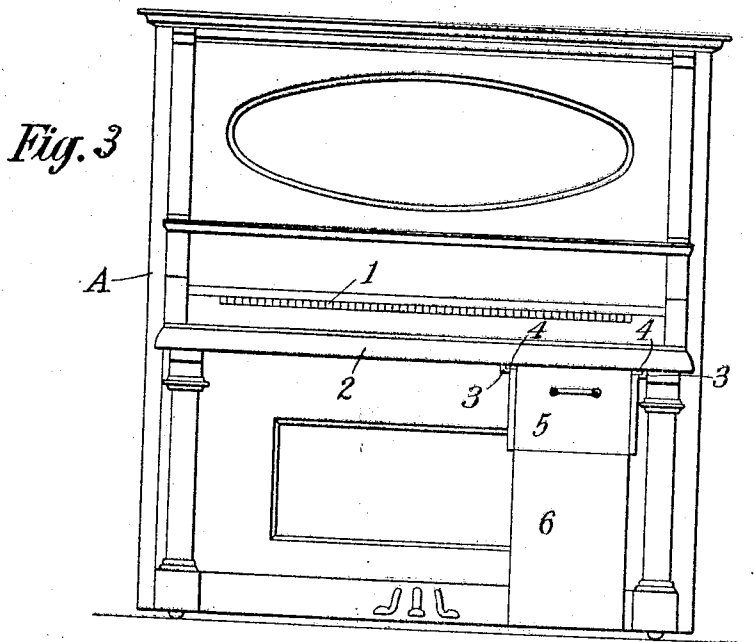
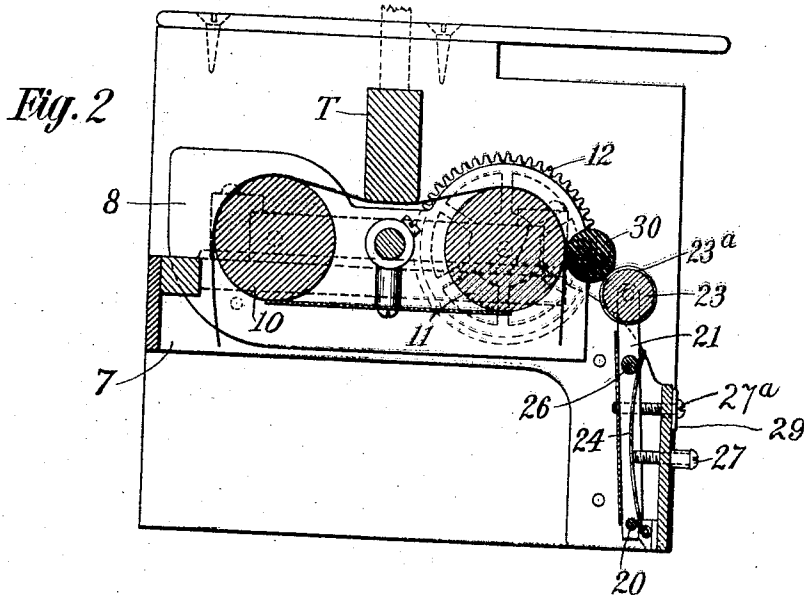
Fred R. Goolman, Inventor

By his Attorneys.
Herr, Page & Coopers.

F. R. GOOLMAN.
SELF PLAYING MUSICAL INSTRUMENT.
APPLICATION FILED MAR. 30, 1908.

932,606.

Patented Aug. 31, 1909.
2 SHEETS—SHEET 2.



Witnesses:
Raphael Vetter
Charles F. Terhune

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UNITED STATES PATENT OFFICE.

FRED R. GOOLMAN, OF BINGHAMTON, NEW YORK.

SELF-PLAYING MUSICAL INSTRUMENT.

932,606.

Specification of Letters Patent.

Patented Aug. 31, 1909.

Application filed March 30, 1908. Serial No. 424,121.

To all whom it may concern:

Be it known that I, FRED R. GOOLMAN, a citizen of the United States, residing at Binghamton, in the county of Broome and State of New York, have invented certain new and useful Improvements in Self-Playing Musical Instruments, of which the following is a specification.

My invention relates to new and useful improvements in self playing musical instruments, and more particularly to that type wherein a perforated note sheet is employed as the medium for determining the rendition of the musical selections.

The invention has particularly to do with improved means for controlling the travel of the note sheet so as to insure feed of the same continuously and evenly without slipping relative to the sheet moving means, so that the sheet will at all times move forward in a positive manner.

The invention is especially applicable to that type of instrument wherein the note sheet is in the form of an endless band, and is fed by means of a power driven roll over which said sheet passes, the arrangement being in contra-distinction to that type wherein the sheet is in a single band or strip having one end secured to a feed roll and the other to a power driven take-up roll.

The primary object of the invention is to provide means in connection with the sheet feeding means to insure a positive forward feed of the sheet without slipping relative to the feed roll.

A further object is to provide means of the character set forth which will be of such construction as to be readily adjustable for the purpose of regulating the feed of the sheet, so that the latter may be moved and held in more or less positive engagement with the feed roll over which it travels.

To the above stated ends the invention, as embodied in this specification, includes a power driven feed roll arranged in engagement with the note sheet, an element arranged adjacent said roll, and wedging means disposed between said roll and element for holding the note sheet in positive engagement with the feed roll.

I have fully and clearly illustrated my in-

vention in the accompanying drawings to be taken as a part of this specification, and wherein:

Figure 1, is a view in perspective of a note sheet feeding and controlling means embodying my invention. Fig. 2, is a transverse vertical section through the sheet feeding and controlling means. Fig. 3, is a view in front elevation of a self-playing instrument, such as a piano, showing the manner in which the sheet feeding and controlling means is associated therewith.

Referring to the drawings, particularly Fig. 3, by numerals and letters of reference: A, designates a piano, which may be of any desired type or construction, the keyboard being indicated at 1, and the key-bottom at 2. Upon the underside of the key-bottom, preferably adjacent the right hand end thereof, are disposed flanged plates 3, 3, with which slidably cooperate flanges 4, 4, secured upon the upper side edges of a drawer 5, the latter containing the sheet feeding and controlling mechanism to be presently described. Beneath the drawer 5, is arranged a receptacle or pocket 6, which serves to hold that portion of the note sheet which is not in actual engagement with the note selector and the feeding and controlling means.

Referring to Fig. 1, of the drawings, 7 designates a rectangular metal frame of proper dimensions, upon the upper sides of the end members of which is supported a spool frame comprising end members 8, 8, in which are journaled the pintles or gudgeons 9, 9, of the spaced note sheet rolls 10, 11, the latter being provided at one end with any suitable means through which connection may be made with any suitable source of power for rotating said roll. For the purpose of this application this connection is shown as consisting of a gear wheel 12. The spool frame may be detachably held in place by any suitable means, and as a simple manner of accomplishing this result, I provide the end members 8, 8, with transverse elements 13, over which engage shoulders 14, 14 of lugs 15, 15 secured to the frame 7 by means of screws 16, 16.

T, designates the tracker of the pneumatic playing mechanism which mechanism is a

part of the piano, and is so positioned that when the drawer 5, containing the feed rolls is moved into operative position for playing, said rolls will be disposed on opposite sides of the tracker with their upper faces slightly above the under face of said tracker over which the note sheet moves. The note sheet is indicated at S, and as heretofore stated, is in the form of an endless band, arranged to travel over the rolls 10, 11, and beneath the under face of the tracker, and be folded back and forth within the receptacle 6, as shown in Fig. 1, of the drawings. In operation the sheet is drawn from the bottom of the pile of folds, moves over the roller 10, thence over the roller 11, and is folded up in said receptacle.

Arranged between the rolls 10, 11, and extending parallel therewith, is a bar 17, having thereon depending arms 18, 18, which support a resilient plate 19, the edges of which engage the under faces of the rolls and serve to steady the movement of the same and to prevent a too free rotation.

All of the features above described are immaterial to the purposes of my present invention, and they may be altered at will.

I will now proceed to describe my improved means for controlling and regulating the passage of the note sheet over the rolls, so as to prevent slipping of the sheet, to hold the sheet perfectly flat and in full face contact therewith, and to prevent turning of the edges of the same.

Pivotally mounted on the frame 7, preferably at a point below the rolls 10, 11, as at 20, is a swinging frame comprising vertical end members 21, 21, having journaled in their upper ends, as at 22, 22, a presser roll 23, of any suitable material and provided with rings 23^a, of rubber, felt, or other soft material. The frame and the roller 23 carried thereby, are urged toward the roll 11, by means of a spring 24, mounted at its lower end upon the frame 7, as at 25, and bearing at its upper end upon a transverse member 26, connecting the vertical end members 21, 21. The force of the spring against the frame may be increased or diminished by means of a set screw 27, let through the frame 7, and bearing against said spring, as clearly shown in Fig. 1, of the drawings.

The roll 23, is held out of contact with the roll 11, and for this purpose means is provided for limiting the movement of the frame comprising the vertical end members 21, 21. A simple means for accomplishing this purpose consists of screws 27^a, 27^a, threaded into the vertical members 21, 21, and projecting through slots or openings 28, 28, in the frame 7, said screws carrying washers 29, 29, which engage the frame to limit the movement of the frame carrying the roll 23, as indicated. These screws 27,

may also be employed for the purpose of retracting the roll 23, against the force of the spring 24.

Mounted loosely between the roll 23, and the roll 11, and arranged to revolve in surface contact therewith, is a wedging roll 30, consisting of a cylindrical metal bar, which rests against the upper side face of the note sheet roll, and against the rings 24, on the roll 23, said rings serving to provide for the smooth turning of the wedging roll, and to prevent noise which might be present were the rolls 23 and 30, permitted to travel in engagement with each other. The roll 30, is of a length substantially coextensive with the length of the roll 11, so that it holds the note sheet in positive engagement therewith throughout the entire width of the sheet.

It will be apparent that in the embodiment of the invention illustrated, the roll 30, rests by gravity against the note sheet and roll 11, on one side, and the roll 23 on the other side, and that the lower the position taken by said roll 30, the greater will be the wedging action thereof against the note sheet, and the more forcibly the sheet will be pressed against the roll 11. This wedging action is regulated at will by shifting the roll 23, toward and away from the roll 11, the closer said rolls approximate each other, the less the wedging action will be, as the wedging roll will be disposed higher up relative to the axes of the rolls 11, and 23, and is, therefore, not moved into engagement with the roll 11, as positively as when it is in a lower position.

While I have described the wedging device and the means for adjusting the same as being "rolls" I desire to positively state that my invention is not to be limited to such forms as other elements of different form or structure may be devised for accomplishing the same objects, and still fall within the intended scope of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a mechanism of the character described, the combination of a feed roll for a note sheet, an element movable toward and away from said roll, and a wedging device supported by said roll and element and acting to press the note sheet into engagement with said feed roll when the note sheet is in playing position.

2. In a mechanism of the character described, the combination of a feed roll for a note sheet, an element movable toward and away from said roll, and a wedging roll supported by said feed roll and element, and acting to press the note sheet into engagement with said feed roll when the note sheet is in playing position.

3. In a mechanism of the character de-

scribed, the combination of a feed roll for a note sheet, an element movable toward and away from said roll, and a wedging roll resting of its own weight upon said feed roll and element, and acting to press the note sheet into engagement with the feed roll when the note sheet is in playing position.

4. In a mechanism of the character described, the combination of a feed roll for a note sheet, a roll movable toward and away from said feed roll, and a wedging roll supported by said feed roll and movable roll, and acting to press the note sheet into engagement with the feed roll when the note sheet is in playing position.

5. In a mechanism of the character described, the combination of a feed roll for a note sheet, a roll movable toward and away from said feed roll, and a floating wedging roll supported by said feed roll and movable roll, and acting to press the note sheet into engagement with the feed roll when the note sheet is in playing position.

6. In a mechanism of the character described, the combination of a feed roll for a note sheet, an element movable toward and away from the feed roll, a wedging device supported by the feed roll and said element and engaging the feed roll to press the note sheet into engagement with said feed roll when the note sheet is in playing position, and means for regulating the wedging action of said wedging device.

7. In a mechanism of the character described, the combination of a feed roll for a note sheet, an element movable toward and away from the feed roll, a wedging roll supported by the feed roll and said element to press the note sheet into engagement with said feed roll when the note sheet is in playing position, and means for regulating the wedging action of said wedging roll.

8. In a mechanism of the character described, the combination of a feed roll for a note sheet, an element movable toward and away from the feed roll, a wedging roll supported by said feed roll and element, and means for changing the position of the wedging roll to regulate the wedging action thereof.

9. In a mechanism of the character described, the combination of a feed roll for a note sheet, an element located adjacent to but out of contact with the feed roll, and a wedging element acting between the feed roll and said first-named element to hold the note sheet in positive engagement with the feed roll when the note sheet is in playing position.

10. In a mechanism of the character described, the combination of a feed roll for a note sheet, a movable element located adjacent the feed roll, a wedging roll supported by said element in engagement with the feed

roll to hold a note sheet in positive engagement therewith when the note sheet is in playing position, and means to move the movable element to regulate the wedging action of said wedging roll.

11. In a mechanism of the character described, the combination of a feed roll for a note sheet, a frame movably mounted adjacent said roll, a roll journaled on said frame, means for adjusting said frame toward and away from the feed roll, and a floating wedging roll supported by said feed roll and the roll on said frame, and acting to hold the note sheet in positive engagement with the feed roll when the note sheet is in playing position.

12. In a mechanism of the character described, the combination of a feed roll for a note sheet, a frame movably mounted adjacent said roll, a roll journaled on said frame, a spring for urging said frame toward the feed roll, means for limiting the movement of said frame, and a floating wedging roll supported by said feed roll and the roll on said frame, and acting to hold the note sheet in positive engagement with the feed roll when the note sheet is in playing position.

13. In a mechanism of the character described, the combination of a feed roll for a note sheet, a frame pivotally mounted adjacent said roll, a roll journaled on said frame, a spring for urging said frame toward the feed roll, means for limiting the movement of said frame, and a floating wedging roll supported by said feed roll and the roll on said frame, and acting to hold the note sheet in positive engagement with the feed roll when the note sheet is in playing position.

14. In a mechanism of the character described, the combination of a feed roll for a note sheet, a roll mounted adjacent but out of contact with said feed roll, and having a resilient bearing surface, and a floating wedging roll supported on said feed roll and said second-named roll, and acting to hold the note sheet in positive engagement with the feed roll when the note sheet is in playing position.

15. In a mechanism of the character described, the combination with an element over which a note sheet passes, of an element adjacent but out of contact with said first named element, and a wedging element acting between said first-named and second-named element to hold the note sheet in positive engagement with said first-named element when the note sheet is in playing position.

16. In a mechanism of the character described, the combination with an element over which a note sheet passes, of an element adjacent but out of contact with said first-named element, and a wedging roll supported by said elements and acting to hold the note

sheet in engagement with the first-named element when the note sheet is in playing position.

5 17. In a mechanism of the character described, the combination with an element over which a note sheet is adapted to pass, of an element adjacent said first named element and a wedging element acting between said first named and second named elements, to

hold the note in positive engagement with said first named element when the note sheet is in playing position.

In testimony whereof I have hereunto set my hand.

FRED R. GOOLMAN.

Witnesses:

CHARLES F. TERHUNE,
HARRY C. WALKER.