

C. W. NYSTRÖM.
 AUTOMATIC KEYBOARD PLAYER.
 APPLICATION FILED APR. 27, 1910.

1,058,329.

Patented Apr. 8, 1913.

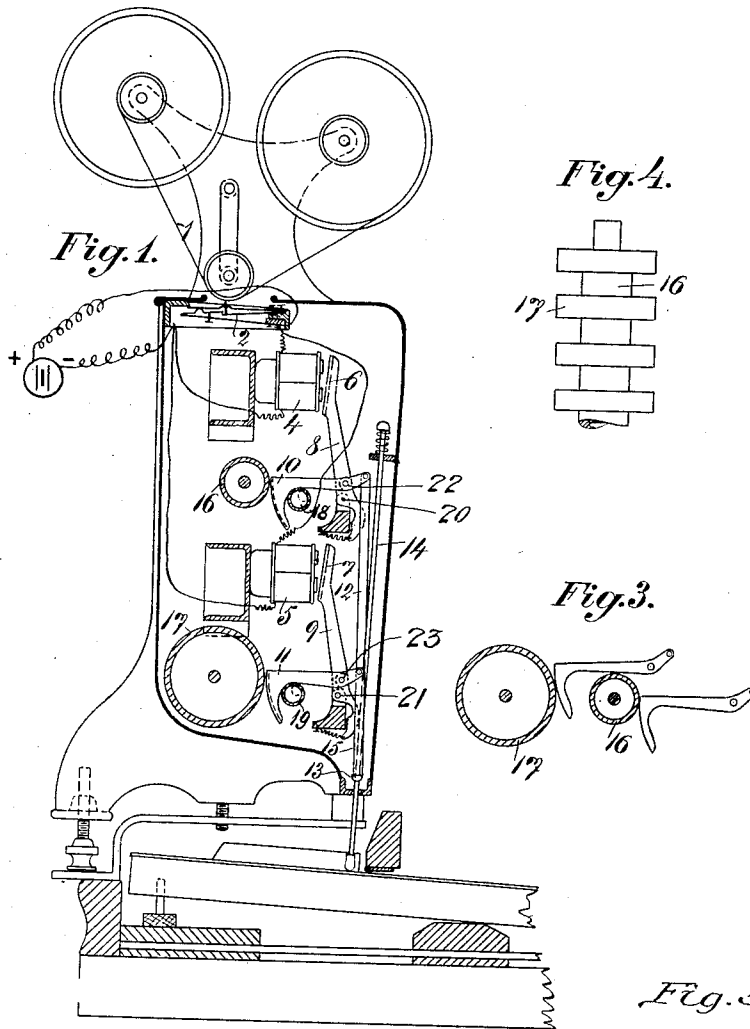


Fig. 4.

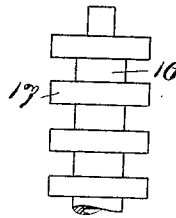


Fig. 3.

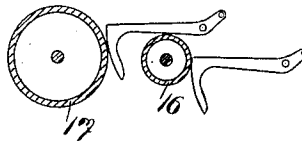
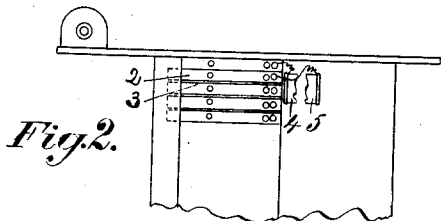
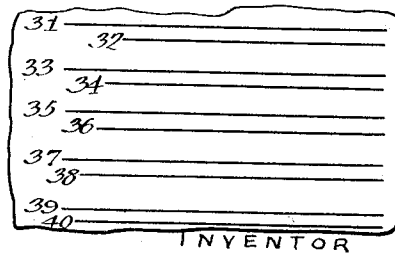


Fig. 5.



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UNITED STATES PATENT OFFICE.

CARL WILHELM NYSTRÖM, OF KARLSTAD, SWEDEN.

AUTOMATIC KEYBOARD-PLAYER.

1,058,329.

Specification of Letters Patent.

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Application filed April 27, 1910. Serial No. 558,025.

To all whom it may concern:

Be it known that I, CARL WILHELM NYSTRÖM, engineer, a subject of Sweden, residing at Karlstad, Sweden, have invented
5 new and useful Improvements in Automatic Keyboard-Players, of which the following is a specification.

The present invention refers to improvements in automatic keyboard players.

10 For reproducing the variations of the intensity of the tones played, two or more reproducing members have been used for each key, and a corresponding number of arc shaped pieces, which successively enter into
15 action, depressing the key with different pressures.

This invention consists in the employment of two or more rotating cylinders, each co-operating with an arc shaped piece and rotating with different peripheral velocities,
20 whereby the arc shaped pieces will move with different velocities and depress the key with different velocities.

On the drawing Figure 1 is a vertical section of the apparatus. Fig. 2 is a part of a plan of the same. Figs. 3 and 4 show
25 modifications. Fig. 5 shows part of a note strip having impressions formed therein.

1 indicates the advancing note strip which
30 in a previously known manner is provided with two or more impressions for each played tone, and against which reproducing members in a number, corresponding to the number of impressions for each tone, are
35 abutting. The drawing shows the device for one key only, and two reproducing members 2, 3 are supposed to be provided to control the key actuating means.

4 and 5 indicate electromagnets, electrically connected with the reproducing members 2 and 3 respectively. The armatures 6, 7 of the electromagnets are carried by levers 8, 9, pivotally mounted at 20 and 21 respectively to which levers are pivoted arc shaped
45 pieces 10 and 11 at 22 and 23 respectively. The arc shaped piece 10 is pivoted to a rod 12, abutting against a shoulder 13 on a key actuating member or spindle 14, resting on the key, whereas the piece 11 is pivoted to a
50 rod 15 abutting against said shoulder 13. In front of the arc 10 is placed a rotating cylinder 16 and in front of the arc 11 another rotating cylinder 17 is arranged. Said two cylinders may have the same diameter
55 and rotate with unequal velocities, or one of them may be of less diameter than the

other, and rotate with the same angular velocity. The essential feature is that the peripheral velocities of the cylinders 16 and 17 are unequal. When the reproducing
60 member 2 enters an impression in the note strip 1 an electric circuit is closed through the electromagnet 4, whereby the arc shaped piece 10 is moved to contact with the rotating cylinder 16, so that the arc 10 is turned
65 and the rod 12 begins to depress the key with a speed corresponding to the peripheral velocity of the cylinder 16. Then the second reproducing member 3 enters the second impression on the note strip, whereby the electromagnet 5 is made active, causing the arc
70 11 to contact with the cylinder 17 and thereby impart to the key by means of the rod 15, a speed corresponding to the peripheral velocity of the cylinder 17. As it now is
75 supposed, that the diameter of the cylinder 17 is larger than that of the cylinder 16, the peripheral velocity of the cylinder 17 is greater than that of the cylinder 16, and thus the key will be depressed with greater
80 velocity during the last portion of its depression. The point of time, when said increased velocity will take place, is determined by the impressions on the note strip
85 1 in a previously known manner.

The cylinders 16 and 17 are shown in Fig. 1 placed one above the other, but they may also be placed one in front of the other, whereby the arcs 10 and 11 are placed, as
90 shown in Fig. 3. The cylinders may also be coaxial, whereby the cylinder 17 is divided so as to constitute flanges on the cylinder 16, as illustrated in Fig. 4.

The supporting members 18 and 19 serve to support the arcs 10, 11 and are journaled
95 eccentrically, so that the arcs can be lifted or lowered by turning the supporting members, thereby varying the stroke of the arcs, so as to suit the degree of depression of keys according to the instrument in question. As
100 shown in Fig. 5, there are two impressions 31 and 32, 33 and 34, etc., formed for each note or tone.

What I claim is:—

1. In an automatic keyboard player, in
105 combination, a plurality of key actuating members, there being one member for each key, a plurality of devices engaging with each of said members for actuating the same, said actuating devices comprising pivoted
110 arc-shaped portions, rotating cylinders adapted to be engaged by said actuating de-

vices and rotating with different peripheral velocities, and means controlled by the music strip for successively moving the arc-shaped portions of said actuating devices corresponding to any key into contact with said cylinders.

2. In an automatic keyboard player, in combination, a plurality of key actuating members, there being one member for each key, a plurality of devices engaging with each of said members for actuating the same, said devices comprising pivoted arc-shaped portions, a plurality of cylinders rotating with different peripheral velocities adapted to be engaged by said arc-shaped portions, and electromagnetic means controlled by the note strip for successively moving the arc-shaped portions of the actuating devices associated with any key into contact with their associated cylinder.

3. In an automatic keyboard player, in combination, a plurality of key actuating members, a plurality of rods engaging with each of said members for actuating the same,

each of said rods being operatively connected to a pivoted member having an arc-shaped portion, a plurality of cylinders rotating with different peripheral velocities adapted to be engaged by said arc-shaped portions, a plurality of levers upon which said pivoted members are mounted, armatures carried by said levers, electro-magnets cooperating with said armatures, and means controlled by the note strip for successively energizing the electromagnets corresponding to any key whereby the arc-shaped portions of the actuating devices corresponding to the said key will be successively moved into contact with the associated rotating cylinders.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL WILHELM NYSTRÖM.

Witnesses:

WALDEMAR BOMAN,
I. EKEBOHM.

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