

C. BERGLAND.  
SHEET MUSIC TRACKING DEVICE.  
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1,081,422.

Patented Dec. 16, 1913.

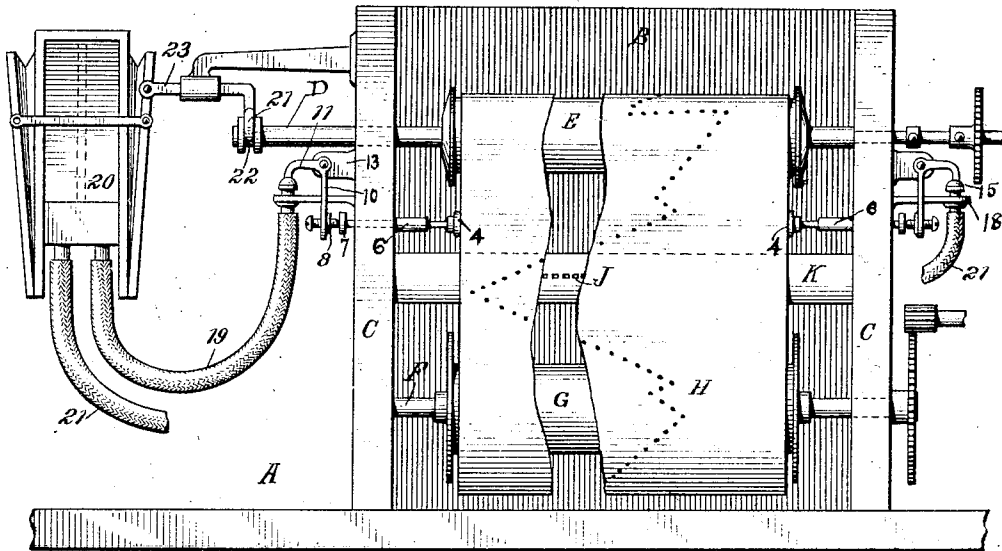


Fig. 1.

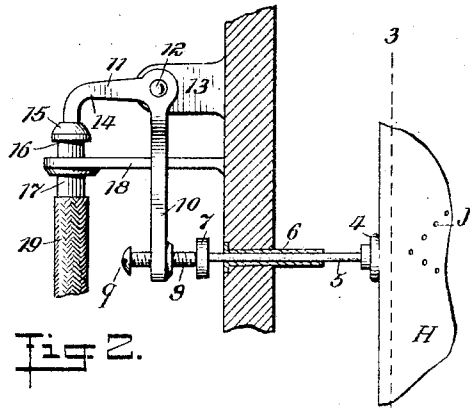


Fig. 2.

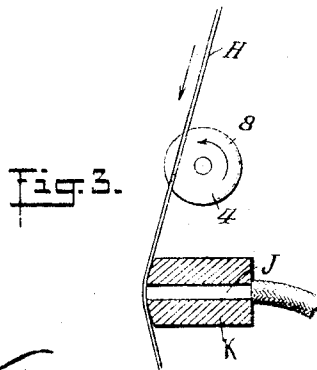


Fig. 3.

WITNESSES

I. B. Gray.  
H. R. Bauer

INVENTOR

Carl Berglund

# UNITED STATES PATENT OFFICE.

CARL BERGLAND, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO LAUTER COMPANY,  
OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## SHEET-MUSIC-TRACKING DEVICE.

1,081,422.

Specification of Letters Patent.

Patented Dec. 16, 1913.

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*To all whom it may concern:*

Be it known that I, CARL BERGLAND, citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Sheet-Music-Tracking Devices, of which the following is a specification.

My invention relates in general to improvements in the regulating of a traveling member over an actuating mechanism and particularly relates to means for maintaining suitable operative relation between the perforations in a music sheet and the air ducts in the tracker bar of a pneumatically operated self playing musical instrument. With the devices of this character now in general use the adjustment of the sheet relative to the ducts in the tracker bar are controlled either by the covering or uncovering of apertures in the tracker bar by the edge of the sheet, or, by the engagement of the edge of the sheet, beyond the tracker bar, by a bearing flange, which apertures and flange, in turn control suitable sheet shifting mechanisms. In these devices the irregularity in the paper is not detected until the same has reached the ducts, or in some cases has even passed beyond the same, so that the sheet is readily shifted after the particular irregular portion has passed the ducts. In order to overcome this difficulty, rapid working sheet shifting mechanisms have been introduced, but it has been found that they work so quickly that the sheet is frequently thrown too far in the desired direction.

It is one of the objects of this invention to retain the positive sheet shifting mechanism and to provide inaugurating means so far in advance of the tracker bar that the sheet shifting mechanism will have time to functionate before the actuating parts of the sheet reaches the tracker bar.

It is a further object to simplify this inaugurating mechanism and to provide a means for delicately adjusting the engagement of the same with the edge of the music sheet and further it is an object of my invention to minimize the friction between the edge of the music sheet and the inaugurating mechanism and to so dispose the exhaust release forming a part of said mechanism relative to the traveling sheet that lost motion is eliminated and the valve is in sym-

pathy with any transverse wandering of the sheet.

With the above and other objects in view as will more fully hereinafter appear, the present invention consists in certain novel details of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters indicate corresponding parts in all the figures, and in which—

Figure 1. is a front elevation of a portion of a self playing piano at the spool box, showing a physical embodiment of my invention, Fig. 2. is a detailed enlarged front elevation, partly in section, of a valve and sheet engaging mechanism; and Fig. 3. is a detailed sectional view through the tracker bar and taken on the line 3—3 of Fig. 2. looking in the direction of the arrow.

Referring to the embodiment of the invention illustrated there is shown mounted on the support A, a spool box B. Suitably journaled in the side walls C and extending through the same is the shaft D carrying the music spool E and the shaft F carrying the take-up roll G, which spool and roll carry the music sheet H over the ducts J in the tracker bar K, which parts may be arranged as is usual with instruments of this class.

Disposed on opposite sides of the sheet in advance or above the tracker bar and bearing on the edge of the sheet is a button 4. As this button and its attached parts are duplicated on opposite sides of the sheet, but one will be described. The button 4 forms the inner end of a plunger 5, rotatably mounted in a bearing 6 extending through the side walls C of the spool box B. The outer end of the plunger 5 is formed into a bearing or stop head 7 of cork or other suitable material. As shown more particularly in Fig. 3 the edge of the paper contacts with the rounded face 8 of the button 4 in advance of its axis of rotation so that the paper traveling sheet H passing over the face of this button rotates the same thereby reducing the friction between the button and sheet.

Bearing on the outer face of the head 7

is the end of an adjusting screw 9 in screw threaded engagement with the depending arm 10 of a bell-crank lever valve 11 fulcrumed at 12 to a bracket 13 suitably supported from the wall C. The horizontal arm 14 of the valve 11 has a depending valve head 15 adapted to close the outlet 16 in the upper end of the nipple 17 which is supported by the bracket 18 and forms the terminus of a tube 19 leading to one of the two chambers of the pneumatic 20. Connecting the other chamber of the pneumatic with the valve on the other side of the sheet is the tube 21. By this construction of valve it will be seen that springs with their varying tensions are eliminated and the head 15 rests on the outlet 16; the arm 10 may be made as long as desired so that a slight transverse movement of the music sheet will be reduced at the head 15 to positively lift said head from the outlet 16. Further by adjusting the screw 9 the normal contact of the button 4 with the edge of the music sheet may be varied at will.

It will be noted that the outlet 16 from the pneumatic 20 and the valve mechanism are within the closed compartment and not open to the outside atmosphere thereby greatly protecting said pneumatic from the infiltration of dust.

As is usual with devices of this character the transverse movement of the sheet H on the tracker bar K is restored to its normal condition relative to the ducts J by moving the spool E in the direction opposite to the movement of the music sheet. While any well known sheet shifting device may be used I have illustrated a construction in which an arm 23 extends from a movable part of the pneumatic 20 and has a yoke 21 straddling a collar 22 on the shaft D.

Releasing the pressure, positive or negative, in the pneumatic from either one or the other of the chambers will shift the shaft D and spool E thereby shifting the music sheet H on the tracker bar K. Any movement of these parts necessarily takes time so that, in order that the music sheet

be in proper position on the tracker bar, the sheet shifting inaugurating button 4, is positioned a sufficient distance in advance of the tracker bar so as to insure the setting of the sheet in its normal operative position by the time the part thereof which has actuated the button reaches the tracker bar.

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

1. The combination of a tracker bar and a traveling music sheet, means including a pneumatic for maintaining said sheet in operative position relative to said tracker bar, and a bell crank lever valve controlling said pneumatic, a plunger having an end contacting with the edge of the traveling sheet and the other end contacting with an arm of said lever, and means regulating the contact of said plunger with said arm thereby to adjust the bearing of said plunger on the edge of said sheet.

2. In a self-playing piano, sheet shifting means including a freely mounted revolving and reciprocating shaft having sheet engaging means on one end and a valve engaging means on the other end and a valve adjustable relative to said shaft.

3. In a player piano, the combination with a traveling music sheet, of pneumatic means for actuating said sheet transversely of its line of travel, said means including a valve opening, a valve in the form of a bell crank lever having a pendant arm and an arm normally extending from the vertical, said extending arm having a valve head on the under side thereof, the weight of said headed arm tending to maintain said head on said opening to close the same and a connection between said sheet and said pendant arm.

In testimony whereof I affix my signature in presence of two witnesses.

CARL BERGLAND.

Witnesses:

H. R. BAUER,  
S. R. CAIRNS.