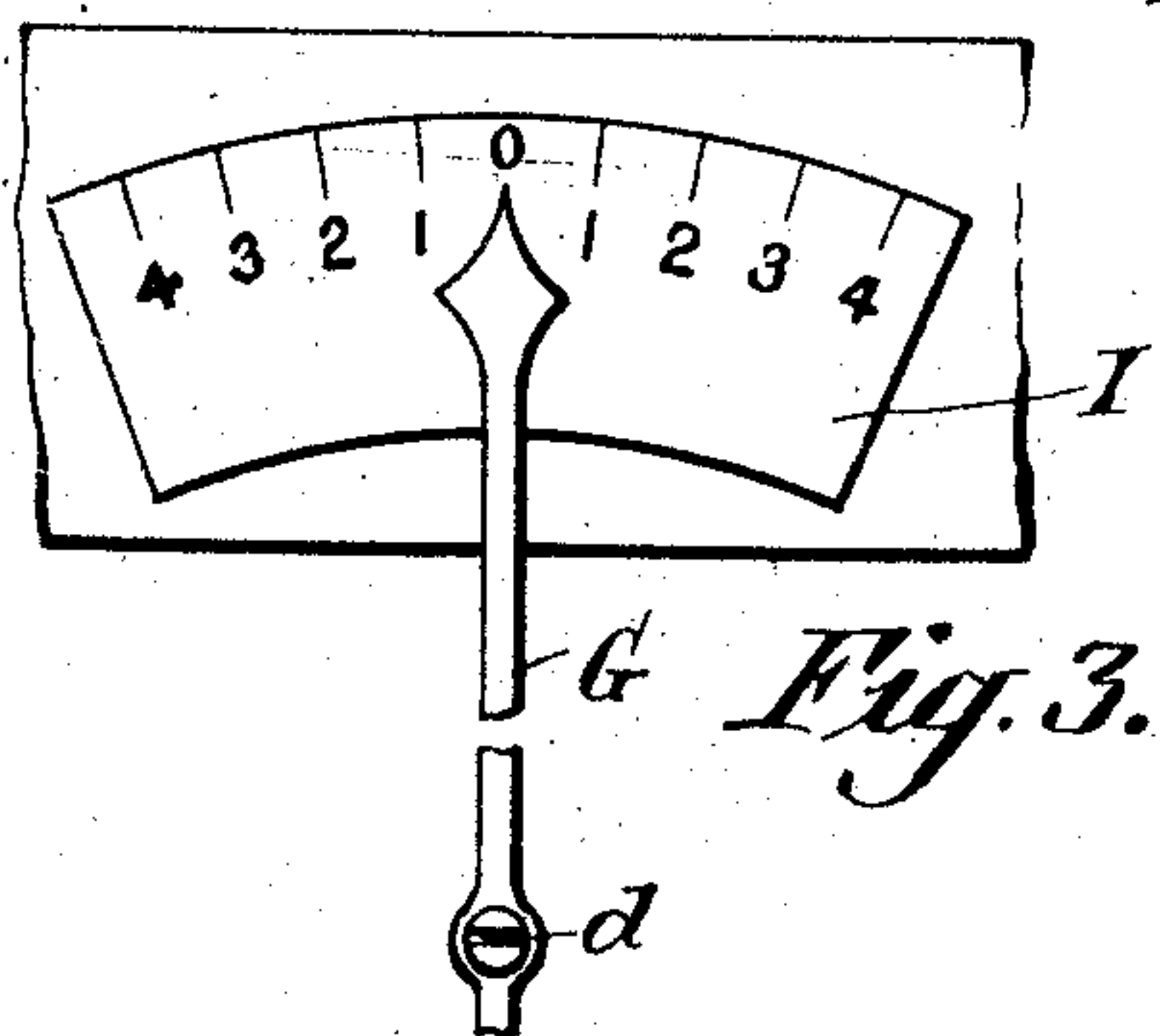
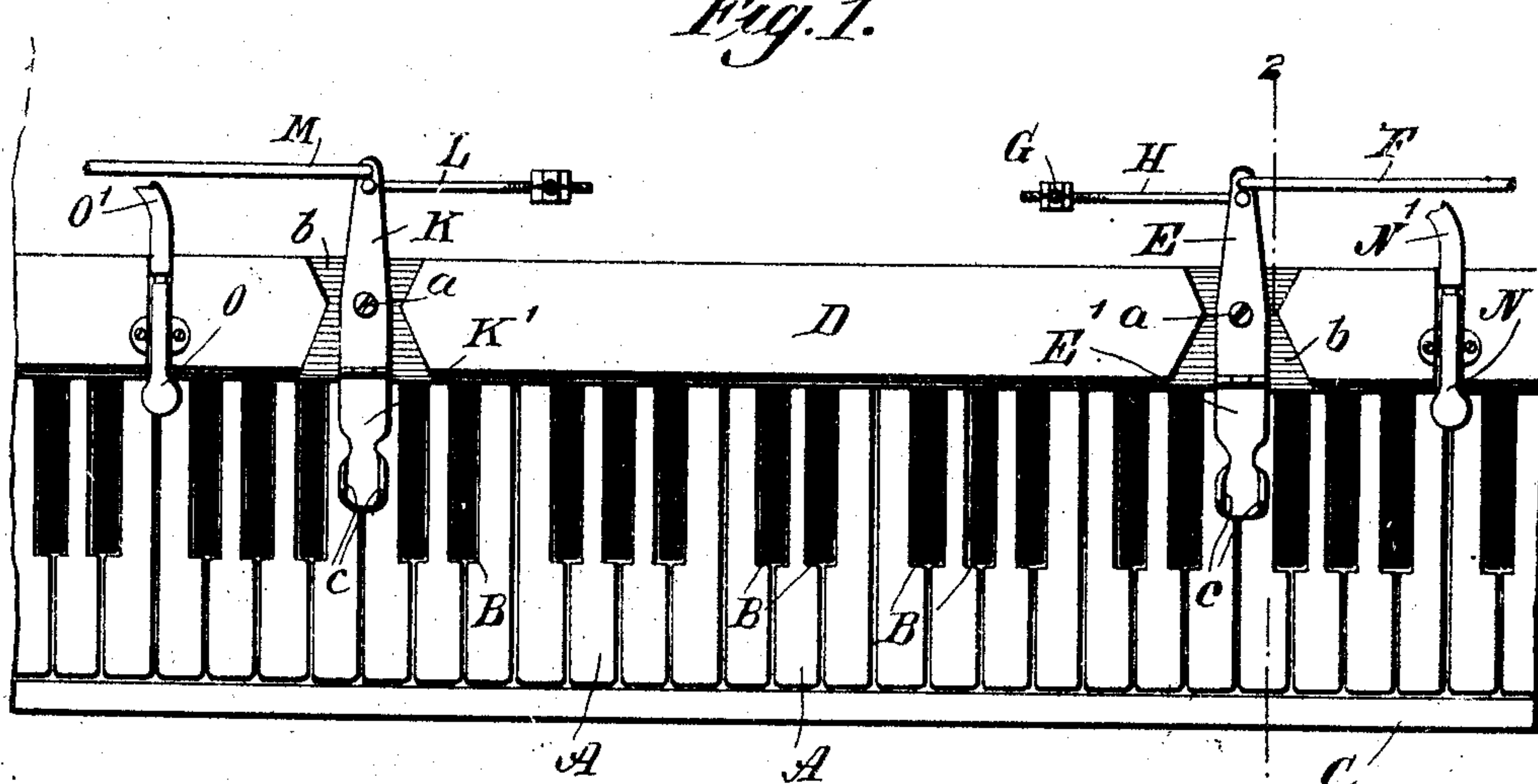


No. 881,318.

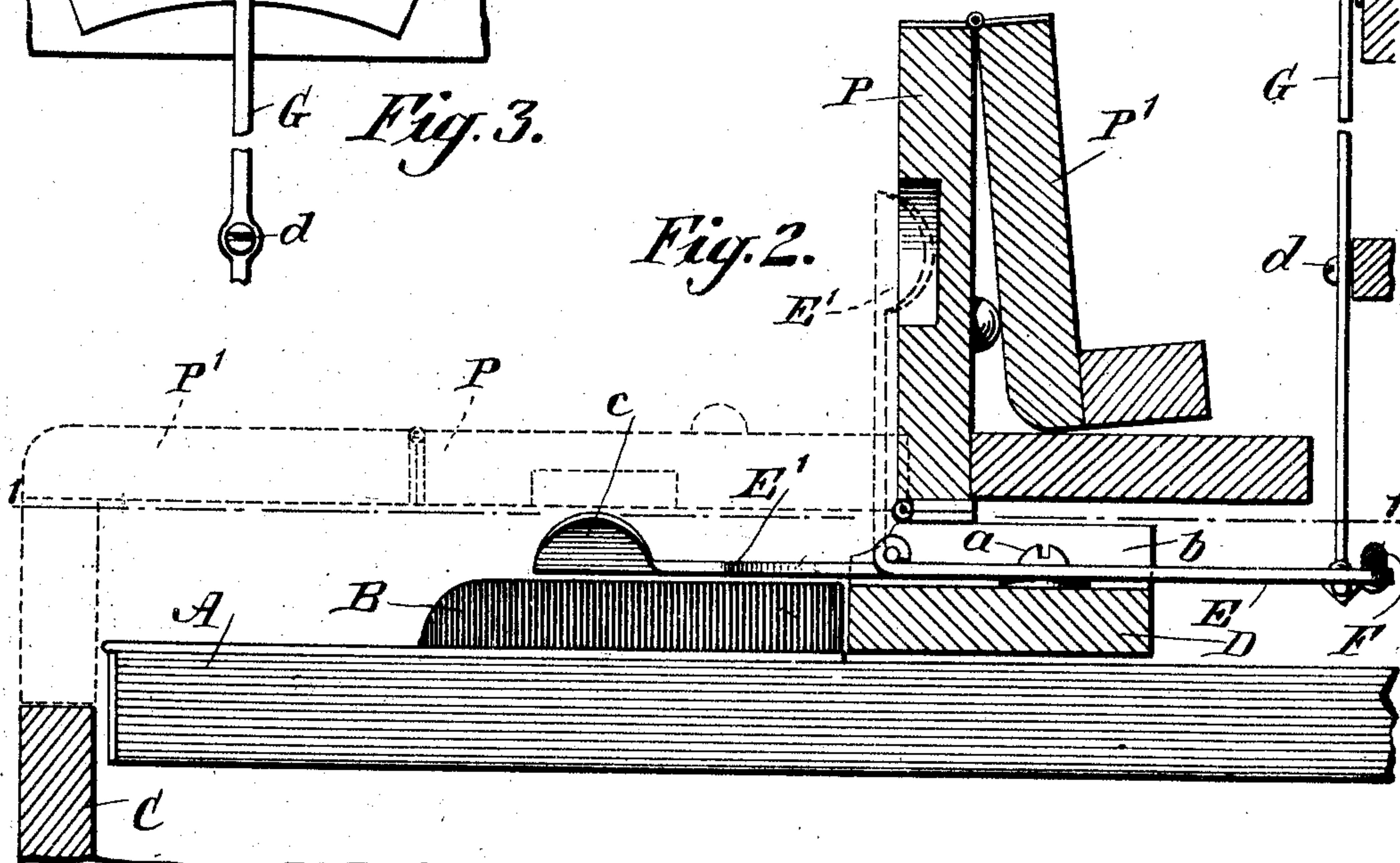
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B. A. HOGLUND.  
AUTOMATIC MUSICAL INSTRUMENT.  
APPLICATION FILED FEB. 7, 1906.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC MUSICAL INSTRUMENT.

No. 881,318.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed February 7, 1906. Serial No. 299,946.

*To all whom it may concern:*

Be it known that I, BERNDT ALFRED HOG-  
LUND, a citizen of the United States, residing  
at Williamsbridge, borough of the Bronx,  
5 city of New York, New York county, and  
State of New York, have invented certain  
new and useful Improvements in Automatic  
Musical Instruments, of which the following  
is a full, clear, and exact specification, refer-  
10 ence being had to the accompanying draw-  
ings, and the reference characters marked  
thereon.

My present invention relates to that class  
of musical instruments whereon the playing  
15 is accomplished through instrumentalities  
operated by air pressure, but whereon the  
playing may be accomplished in the usual  
manner by manipulation of the keys. These  
instruments are ordinarily known as pneu-  
20 matic musical instruments, and they may  
be in the form of pianos or organs or other  
similarly keyed instruments, to either variety  
of which my improvements are applicable.

The object of my invention is to provide  
25 a pneumatic musical instrument with a  
simple, cheap, efficient and convenient  
means for regulating the playing by the  
pneumatic apparatus, and chiefly to locate  
and arrange the levers or stops within con-  
30 venient reach of the fingers of the operator  
and in such manner that they will in no way  
interfere with the usual manipulations of the  
keys when the instrument is to be played by  
the hands, and further to so arrange these  
35 levers or stops so that the hands of the  
operator may always rest in a natural and  
easy manner upon the bank of keys while  
the pneumatic instrument is in operation.

To accomplish all of the foregoing and to  
40 secure other and further advantages in the  
matters of construction, location and use,  
my invention consists in certain new and  
useful peculiarities of construction, relative  
arrangement and location of parts and par-  
45 ticular combinations, as will be herein first  
fully described and then pointed out in the  
claims.

In the accompanying drawings forming  
part of this specification, Figure 1 is a plan  
50 view of a portion of a key board of a piano  
showing my improvements applied in con-  
nection with the rail or cross piece above  
the keys, the view being taken on a plane  
through line 1—1 of Fig. 2. Fig. 2 is a view  
55 in cross section and elevation on a plane  
through line 2—2 of Fig. 1 and looking

towards the left of that figure. Fig. 3 is an  
elevation showing the pointer and gradu-  
ated plate of one of the indicators which are  
employed.

In all these figures like letters of reference, 60  
wherever they occur, indicate corresponding  
parts.

A, A, are the white keys and B, B, the  
black keys of a piano or other similar musical 65  
instrument, the said instrument being fitted  
to be operated by pneumatics according to  
any of the well known systems.

C is a rail or cross piece in front of the  
bank of keys and D a rail or cross piece lo- 70  
cated above the bank and back of the black  
keys as is customary in these instruments.

E is a lever movable horizontally and piv-  
oted, as at *a*, within the rail D. To receive  
this lever the rail D is suitably recessed below 75  
its top, as at *b*, within which recess all the  
necessary horizontal movements of the lever  
are possible. The lever is preferably fitted  
to be moved by application of the thumb,  
although it might of course be moved with 80  
the finger, and it is supplied with an exten-  
sion, *E'*, reaching out through the front of  
the cross piece D so as to be conveniently en-  
gaged by the thumb or finger for adjusting it,  
its extremity being provided with slight up- 85  
turned portions *c* to facilitate the engage-  
ment. Connected with the opposite end of  
this lever is a rod, F, leading to the portion of  
the pneumatic apparatus by which the move-  
ments of that apparatus may be controlled, 90  
preferably for the timing of the apparatus,  
although this particular lever might, as is ap-  
parent, be connected through the connecting  
rod F with the apparatus for varying the ex-  
pression rather than for varying or controlling 95  
the time. The extent of movement of the  
lever is indicated by the position of an index  
or pointer located in convenient position.

G represents an index, the same being con-  
nected with the lever E by a rod H, the index 100  
being pivoted at a convenient point on the  
front of the instrument, as at *d*.

I is a graduated plate secured upon the  
front of the instrument and having its zero  
about opposite the pointer when the letter is 105  
in vertical position. The index plate may be  
graduated in any desired manner from zero  
in either direction, or in any other suitable  
manner as may be preferred.

If the above be the means for regulating 110  
the time of the playing, then the lever at the  
other side of the figure may be regarded as



the one for regulating or varying the expression of the playing, or the touch, that is, whether the touch is to be made light or heavy, weak or strong. K is a second lever similar to the one at E, similarly mounted in place in the rail D and provided with an extension piece K<sup>1</sup>. The rod L connects with another index like the one at G which in its position with respect to its corresponding graduated plate will show the position of the lever. M is a rod leading to the portion of the pneumatic apparatus by which the expression is regulated or varied. With these two levers and their connections the time and the expression of the playing may be regulated as may be required.

To suitably execute the playing, it is necessary to provide means for varying the expression for particular chords or particular short intervals, and for this purpose I employ another set of small levers, one of which is represented at N, the same being arranged and located within a suitable recess of the rail D and at a convenient distance from the extension E<sup>1</sup> of lever E, so that when the thumb is engaged with the extension E<sup>1</sup>, the lever N may be struck by one of the fingers.

N<sup>1</sup> is a rubber tube leading to the pneumatic which controls the expression of the playing. The end of the lever N which projects in front of the cross rail D is intended to be depressed, and when depressed it opens the inlet to tube N<sup>1</sup>, thereby venting the pneumatic with which it is connected, as readily understood. On the opposite side is a similar lever O and a similar tube O<sup>1</sup> by which the forte apparatus may be vented, and the connections of these two levers may be reversed as may those of levers E and K. Levers N and O are comparatively small and do not project in front of the rail D far enough to interfere with the manipulation of the keys. The extension pieces E<sup>1</sup> and K<sup>1</sup> are, however, hinged so that they may be turned up and thus out of the way when the instrument is to be played with the hands.

P and P<sup>1</sup> represent sections of a hinged cover for the key boards of ordinary form. This cover is shown turned up in full lines in Fig. 2 and turned down in dotted lines. The hinged extension E<sup>1</sup> is shown down in full lines and turned up and out of the way in dotted lines. If necessary to accommodate the projections c, the underside of the section P of the cover may be suitably recessed, but this is not necessary in many of the forms in which these covers are constructed.

During the mechanical operation of the instrument the hands of the operator may conveniently rest upon the keys, the latter then being usually locked in position, and

the levers may be conveniently and quickly operated as occasion may require to vary the time, or the expression, or both.

Having now fully described my invention, what I claim as new herein and desire to secure by Letters Patent, is:—

1. In an automatic musical instrument, the keys, a cross rail having an open recess in its top above the keys, and a horizontally movable lever for varying or regulating the playing, said lever being pivoted in the recess in the cross rail and movable horizontally above the keys, the parts being combined and arranged substantially as and for the purposes set forth.

2. In an automatic musical instrument, the combination with a regulating lever, of a fixed scale, a pointer connected with the lever and movable with relation to the fixed scale, and the cross rail having an open recess in its top, said lever being mounted and horizontally movable in the open recess in the top of the cross rail and over the keys, substantially as and for the purposes set forth.

3. In combination with the key board of a musical instrument and a cross rail above the keys, said cross rail having an open recess in its top, a time lever and a separate expression lever, the time lever being horizontally movable in the recess in the top of the rail and the expression lever being vertically movable upon the top of the cross rail above the keys, all arranged to operate substantially in the manner and for the purposes set forth.

4. In combination with the key board and cross rail of an automatic musical instrument, said cross rail having recesses in its top, two time levers and two expression levers, the time levers being each horizontally movable in the recesses in the top of the rail and the expression levers being mounted and vertically movable upon the top of the rail, all arranged substantially in the manner and for the purposes set forth.

5. The combination with the key board and the cross rail above the same, said cross rail having an open recess in its top, of a lever pivoted in the open recess in the top of the rail and being horizontally movable therein, said lever being provided with a hinged projecting part arranged to be turned up and out of the way of the keys, substantially as and for the purposes set forth.

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

BERNDT ALFRED HOGLUND.

Witnesses:

C. SEDGWICK,  
J. M. HOWARD.