

(No Model.)

F. A. RICHTER.  
MUSICAL INSTRUMENT.

No. 519,737.

Patented May 15, 1894.

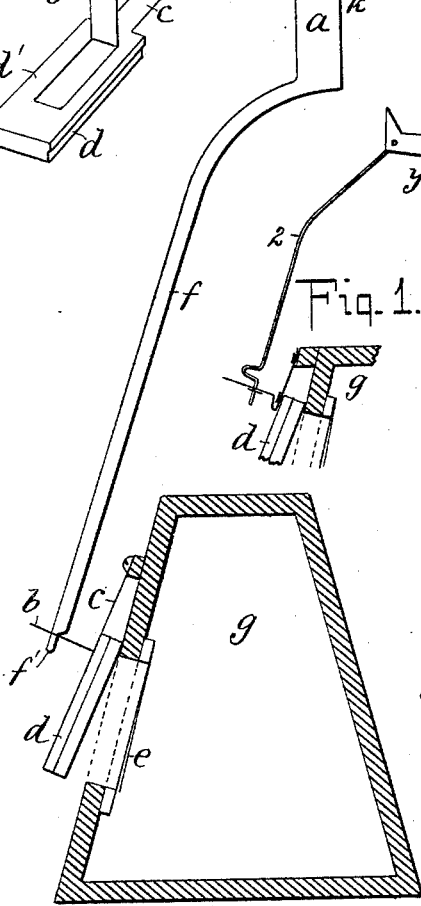
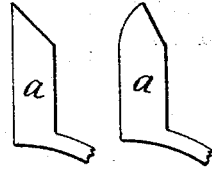
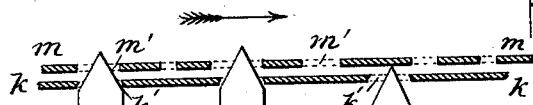
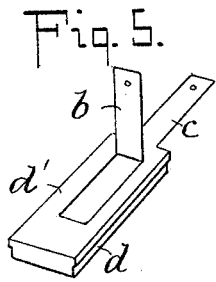


Fig. 2.

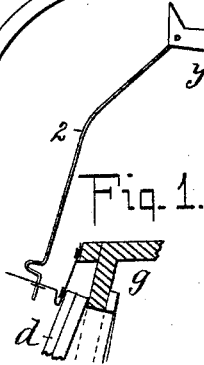


Fig. 1.

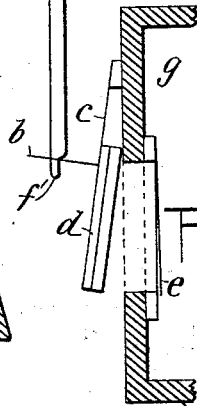


Fig. 3.

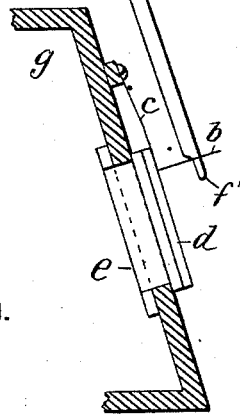


Fig. 4.

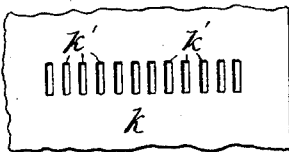


Fig. 6.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

FRIEDRICH ADOLF RICHTER, OF RUDOLSTADT, GERMANY.

## MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 519,737, dated May 15, 1894.

Application filed November 16, 1893. Serial No. 491,143. (No model.)

*To all whom it may concern:*

Be it known that I, FRIEDRICH ADOLF RICHTER, a subject of the King of Bavaria, residing at Rudolstadt, a city of the prin-  
5 ciple of Schwarzburg-Rudolstadt, Germany, have invented certain new and useful Im-  
provements in Musical Instruments, of which the following is a specification.

My invention relates to reed valves for au-  
10 tomatic musical instruments, and has for its object to improve and simplify the construction of reed valves employed in the above described class of instruments. I attain this  
15 object by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an elevation partly in section of a form of reed valve hitherto in use. Figs. 2  
20 and 4 are views showing reed valves mounted on a reed-box and having my improvement applied thereto. Fig. 3 is an elevation of a modification. Fig. 5 is a detail view of my improved reed valve. Fig. 6 is a detail view  
25 of the guide-plate so called. Figs. 7 and 8 are details hereinafter referred to.

The opening and closing of reed valves for  
automatic musical instruments has hitherto  
30 been accomplished, as shown in Fig. 1, by causing the points of the pivoted lever  $y$  supported by a suitable pivot  $x$  and connected to the reed valves  $d$ , by wire 2, to be moved up  
and down by a perforated note-plate or a note-  
35 plate provided with elevations which is moved over said points.

It will be understood that the reed valve  
35 moved by a spring, which, when the lever  $y$  is in its normal position, will be under tension, and will serve to open the reed valve when the lever  $y$  is allowed to move from its  
40 normal position by entering a perforation in the note-plate, or riding over an elevation, when the note-plate is provided with elevations.

According to my invention I actuate the  
45 reed valves by means of levers  $f$  having points  $a$ , which levers are preferably made of one piece and rest directly and are supported upon the spring tongue  $b$  of the reed valve  $d$ ,  
(preferably having points  $f'$  which pass  
50 through apertures in the spring tongue  $b$ ,) the reed valve  $d$  being held under tension by

a spring  $c$  made integral with the spring  
tongue  $b$ . My preferred method of forming  
the springs for the reed valve  $d$  is to stamp  
out and bend up a tongue as  $b$  from a plate  $d'$   
55 having also integral therewith the spring  $c$ .  
The reed valves cover suitable valve seats in  
the reed-box  $g$  in which are located the reeds  
 $e$ . The points  $a$  of the levers  $f$  project through  
apertures  $k'$  in the guide-plate  $k$ . Over these  
60 projecting points passes a note-plate  $m$  hav-  
ing perforations  $m'$  of varying lengths, or else  
provided with elevations (not shown).

The operation of the device is as follows:  
The normal position of the levers and reed  
65 valves is shown in Fig. 4, wherein the point  
 $a$  projecting through the aperture  $k'$  rests  
against the traveling note-plate  $m$  and holds  
the reed valve firmly against the reed-box and  
the spring  $c$  under tension. As soon as an  
70 aperture in the note-plate comes opposite the  
point of the lever, the tension of the spring  
 $c$  forces the point  $a$  through the perforation  
in the note-plate, raising the reed valve  $d$  and  
holding it open during the time that the ap-  
75 erture  $m'$  is opposite the point  $a$ . This is the  
position of playing, and is shown clearly in  
Figs. 2 and 3. As a note-plate  $m$  continues to  
move, the edge of the perforation  $m'$  will press  
against the inclined face of the point  $a$  and  
80 force it down, at the same time moving the  
lever  $f$  and closing the reed valve  $d$ .

I may employ points  $a$  having a variety of  
surfaces, two of which are shown in Figs. 7  
and 8, in order to accomplish the closing of  
85 the reed valve  $d$  by a suitable cam action be-  
tween the point  $a$  and the edges of the per-  
forations  $m'$  in the note-plate.

I do not herein limit myself to the precise  
devices shown, as the device may be greatly  
varied by any skilled mechanic, without de-  
parting from the spirit of my invention.

What I claim, and desire to secure by Letters Patent, is—

1. In an automatic musical instrument  
combination of a reed-valve  $d$ , a spring  
supporting the same under tension, a tongue  
90  $b$  integral with the spring  $c$  and bent  
at an angle to the reed valve, a lever  $f$   
one end bearing directly upon the  
and supported thereby and having

end projecting into the path of a note plate and operated thereby substantially as described.

2. In an automatic musical instrument, a reed valve having a spring, and a spring tongue stamped out of the same piece of metal as the spring, and bent up to form a bearing for an operating lever, substantially as described.

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

FRIEDRICH ADOLF RICHTER.

Witnesses:

AUGUST MÜHLE,  
A. VOGT.