

N<sup>o</sup> 15,675



A.D. 1896

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COMPLETE SPECIFICATION.

Improvements in or connected with the Plucking and Damping Devices of Mechanical Musical Instruments.

I Dr. ADOLF RICHTER of Rudolstadt in the Empire of Germany, Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

This invention relates to plucking and damping apparatus for steel reeds or tongues which differs from such apparatus as heretofore constructed by the fact that the pivotted plucking lever instead of having a fixed plucking point, is provided with one or two small plucking wheels each capable of revolving about its own axis. By this arrangement the plucking of the reeds is effected with certainty, and also a smooth entrance or gliding of the engaging nose in the perforations of the music sheet is obtained, whilst two reed combs can be plucked simultaneously, which has not been possible heretofore when using perforated music sheets.

In the accompanying drawings

Fig. 1 shows the lever with the engaging nose *a*, the arm *b*, and the arm *c*, by which latter arm the small plucking wheel *d* (Figs. 2 and 3) is carried.

Fig. 2 illustrates the lever with a pawl *k* which is pressed by means of the spring *l* into the teeth of the small plucking wheel *d*.

Fig. 3, shows the lever with a pawl *m* which is rocked by the music sheet (that acts upon the arm *n*) and which is thus brought into engagement with the teeth of the small wheel *d*.

Figs. 4, 7 and 10, show applications of the levers and plucking wheels, the lever being in its position of rest, and provided with the ~~small plucking wheel~~ *d*. In these figures the lever has its engaging nose (and in Fig. 10, also with the arm *n* of the pawl *m*) in the perforation of the music sheet *h*, and is kept in that position by the pressure of the spring *e* until it is moved by the onwardly moving music sheet into the position shown by Figs. 5, 8 or 11. In this latter position the teeth of the small wheel, as shewn at Figure 5, bear against the fixed stop *f*, which may consist of a wire, a strip of sheet metal, or the like; or as shown in Figs. 8 and 11, the teeth of the small wheel bear against the pawl *k* or *m*, and thereby obtains the requisite support for plucking the reed. When the reed is plucked, the small plucking wheel is moved by the rotation of the lever backwards to such an extent as to enable the reed when plucked, to vibrate without hindrance (Figs. 6, 9, and 12). In the upward movement of the lever, the small wheel slides with a revolving motion past the reed which is damped by the damping spring *i* or *o*, the said wheel touching the said reed gently with one tooth.

Instead of the spring *i* which is fixed to the lever, there may be employed a spring, not attached to the lever to act as a damper, which spring bears elastically against the front edge of the reed. In this case, the unattached damping spring *o*, Figs. 7—9, is formed at its upper end with a bent out portion which takes around the head *p* of the pivot of the small plucking wheel, or around another projection on the plucking lever, in such a manner that the damping spring is drawn away from the reed during the downward movement of the lever, and is held back (Fig. 9) until the lever moves upwards again. The damping spring *o* may in some cases be employed without an outward bend, but in such a case the arm *c* of the lever is prolonged and bent over at *q* (Figs. 3, 10, 11 and 12) in the manner indicated by the sectional plan *x—y* Fig. 3.

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*Impts. in the Plucking and Damping Devices of Mechanical Musical Instruments.*

The slot, shewn in the said plan at  $x-y$ , takes over the damping spring  $o$  and draws it back from the reed, just before the latter is plucked, as shown by Fig. 12.

When the reeds of two reed combs are to be plucked by one lever at one and the same time, the said lever is provided with two small plucking wheels, which are arranged either in the position shown by Fig. 13, or in that shown by Fig. 14, 5 according as the reeds are arranged.

Having now particularly described and ascertained the nature of this invention and in what manner the same is to be performed I declare that what I claim as my improvements in or connected with the plucking and damping devices of mechanical musical instruments is as follows:— 10

1. A lever for plucking steel reeds provided with a toothed plucking wheel (instead of a fixed point) the plucking wheel being free to revolve about its axis, so that when the lever moves down, the wheel bears with one tooth against a fixed stop or pawl, whilst with another tooth it plucks the reed or tongue, and upon the lever again moving up, the said wheel bears with one tooth against the reed, and is rotated about its axis whereby all the teeth of the said wheel are consecutively employed for the plucking action substantially as set forth. 15

2. In a lever plucking device of the kind specified in Claim 1, the provision of another plucking wheel for the purpose of enabling the reeds of two reed combs to be plucked at one and the same time by means of one and the same lever device 20 substantially as set forth.

3. In a lever plucking device of the kind specified in Claim 1, the arrangement of one or two damping springs on the lever, whereby on the upward movement of the lever the said damping springs bear against the front edge of the reed, and thereby act to damp the latter, before the tooth of the plucking wheel comes in contact with the reed substantially as set forth. 25

4. The combination of the lever specified in Claim 1, with a free or unattached spring which bears elastically against the forward edge of the reed, in such a manner that on the downward movement of the lever, the spring is engaged by a projection or by a slotted or hooked arm of the lever, is drawn away from the reed, and is held back until the lever again moves upward substantially as set forth. 30

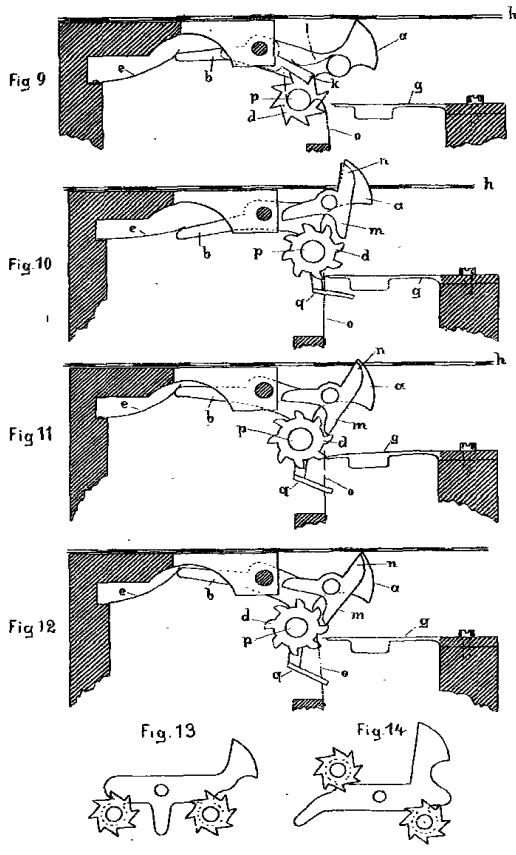
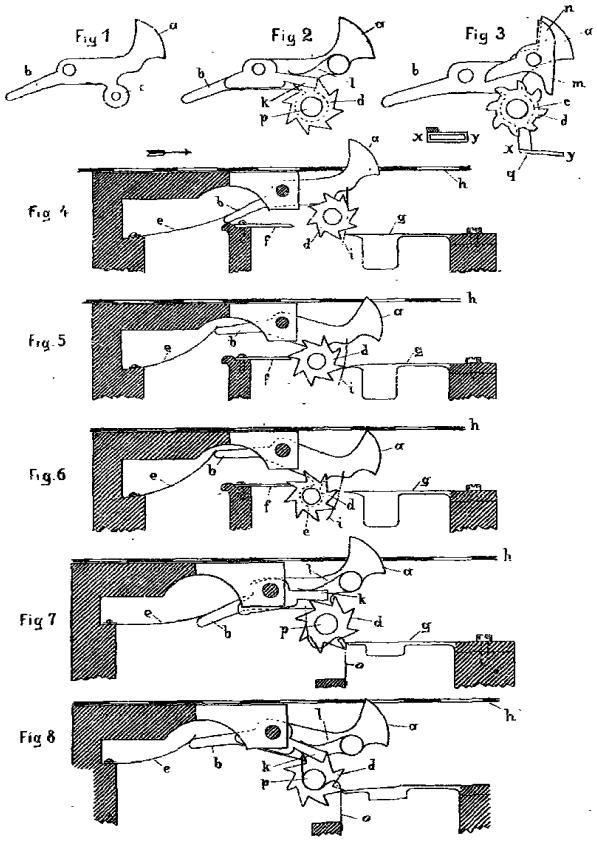
5. The general arrangement and combination of parts composing my improvements in plucking and damping devices all constructed and acting substantially as and for the purposes described and illustrated with reference to the accompanying drawings. 35

Dated this 15th day of July 1896.

BREWER & SON,  
London and Leeds, Agents for the Applicant.

SHEET 1

SHEET 2



This Drawing is a reproduction of the Original on a reduced scale.

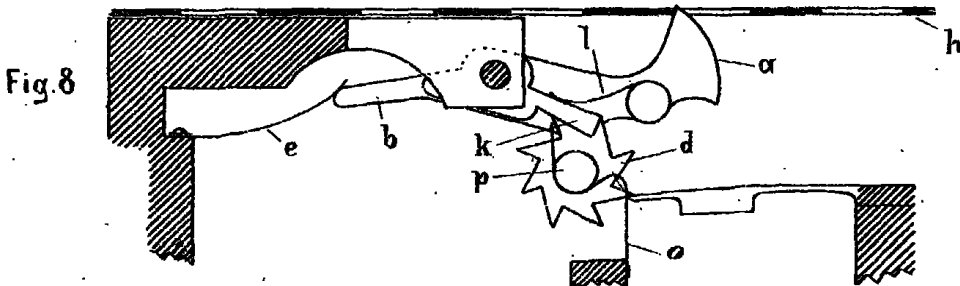
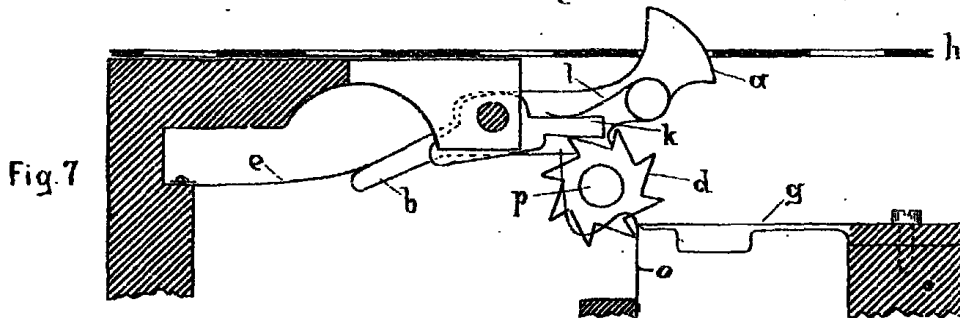
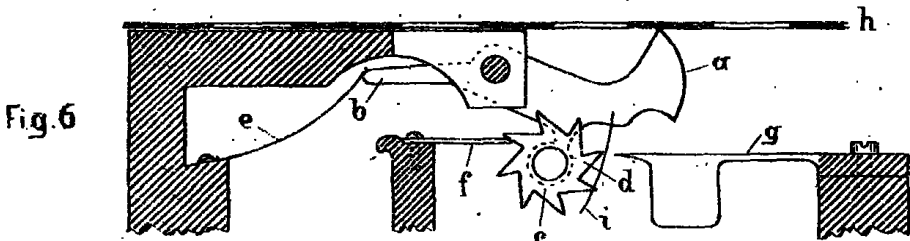
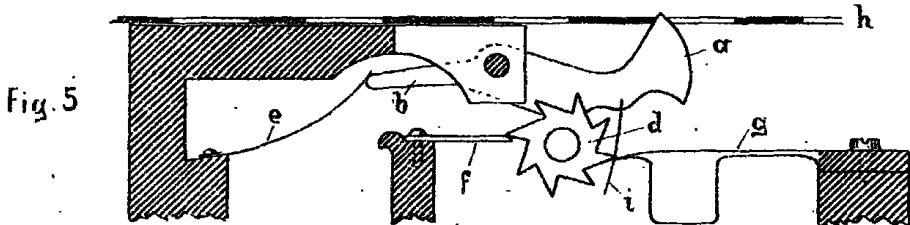
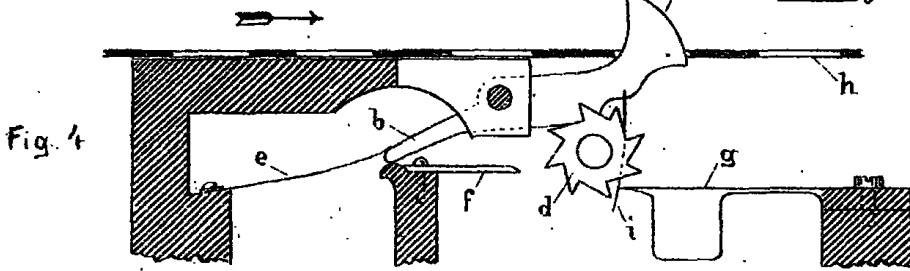
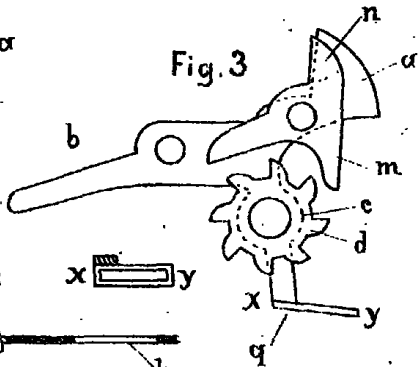
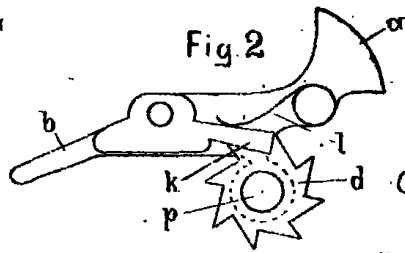
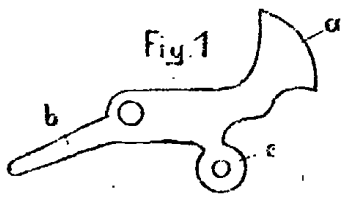


Fig. 9

Fig. 10

Fig. 11

Fig. 12

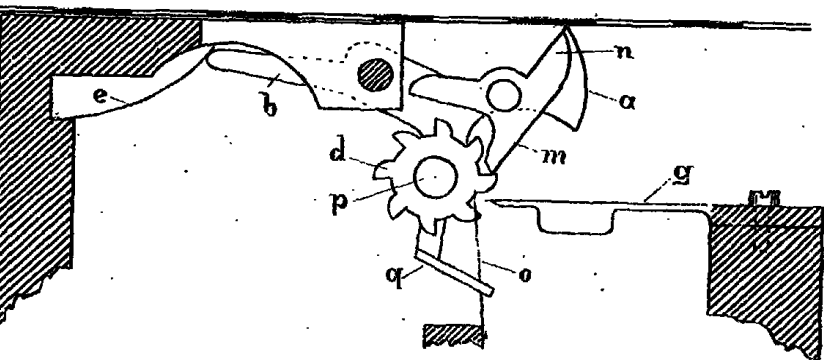
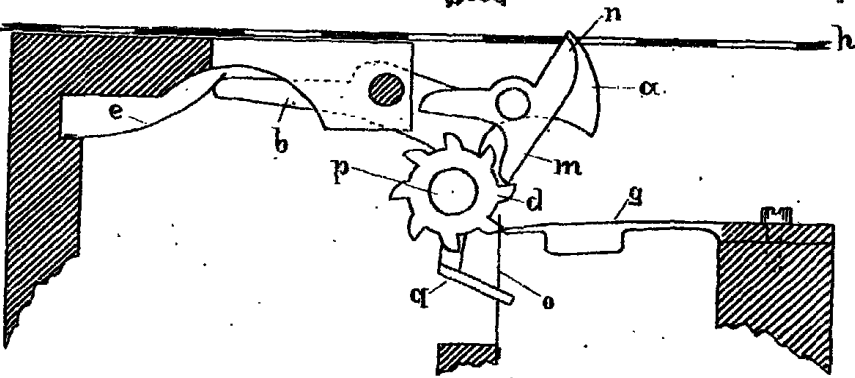
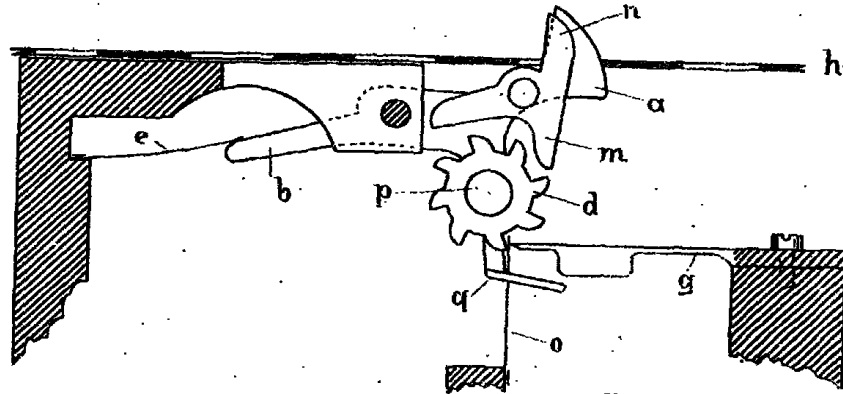
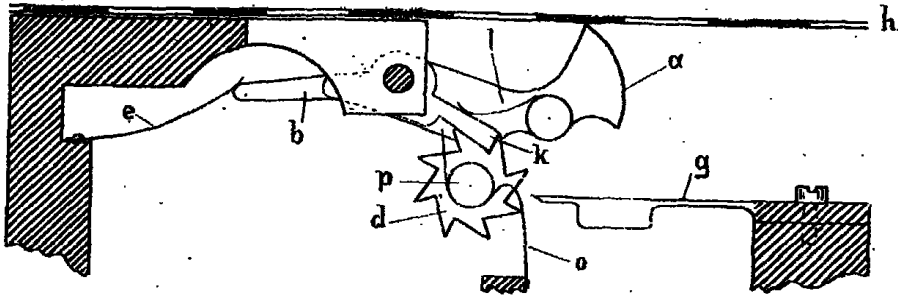
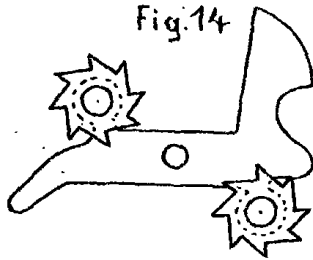
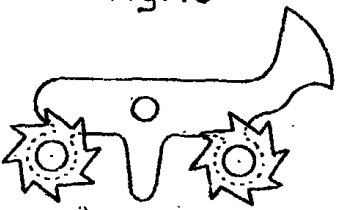


Fig. 13

Fig. 14



[This Drawing is a reproduction of the Original on a reduced scale]

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