

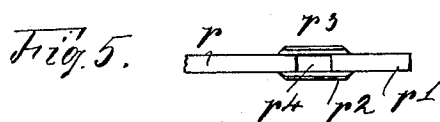
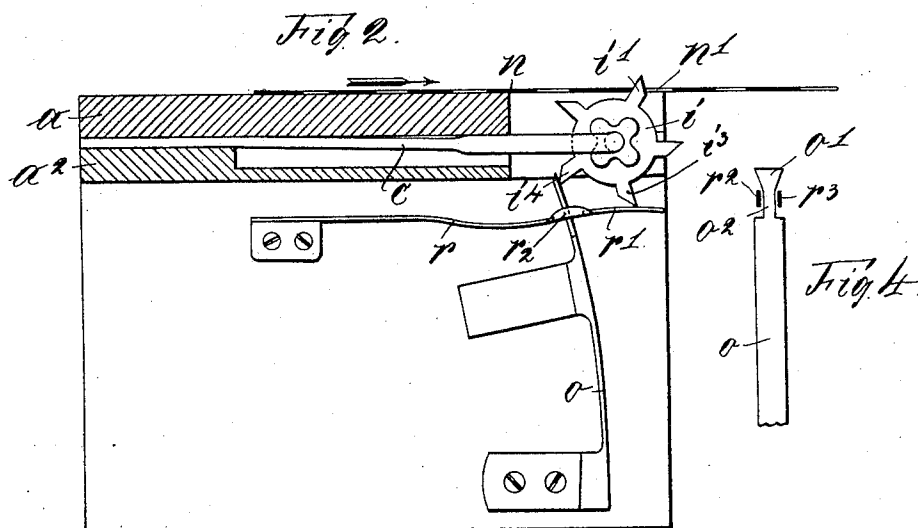
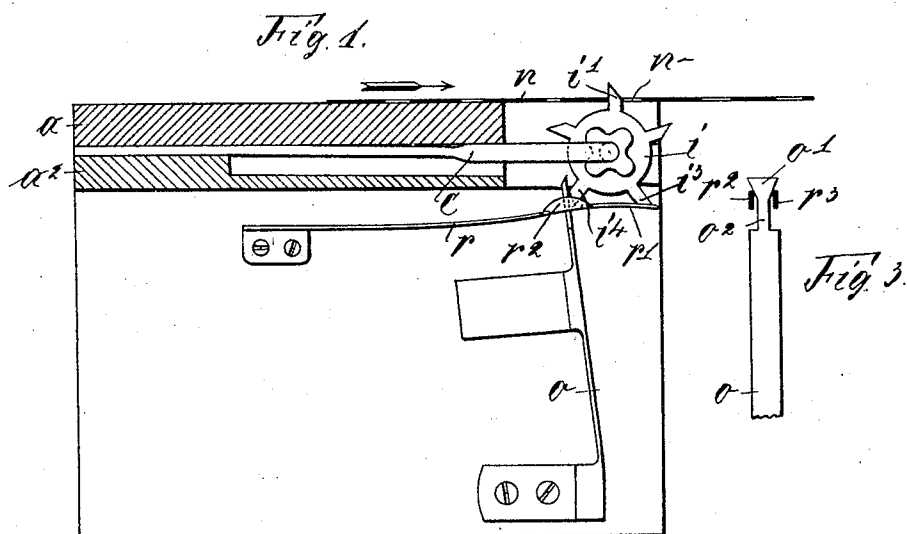
(No Model.)

2 Sheets—Sheet 1.

A. VERNAZ.
MUSICAL INSTRUMENT.

No. 576,293.

Patented Feb. 2, 1897.



Witnesses:
Emil Kayser
Paul Wollenberg.

Inventor.
Alexis Vernaz
by
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(No Model.)

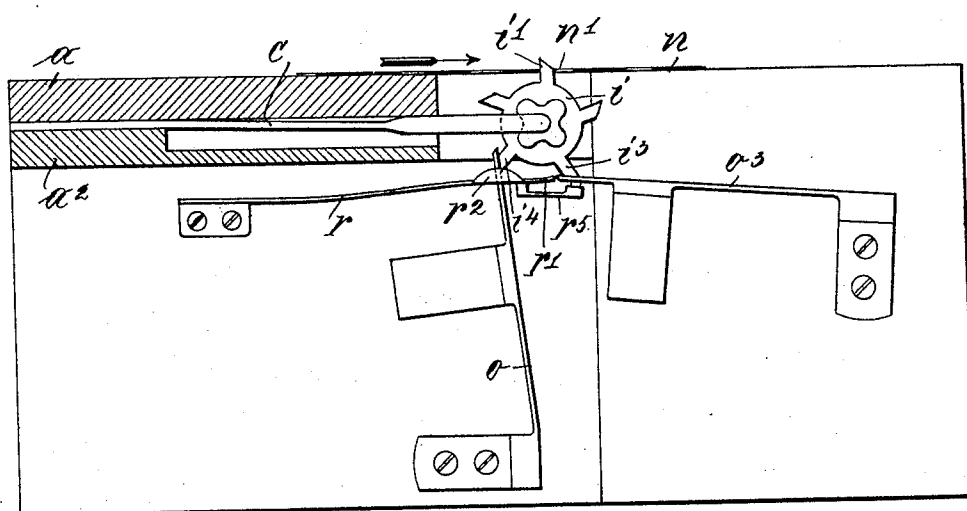
2 Sheets—Sheet 2.

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Fig. 6.



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UNITED STATES PATENT OFFICE.

ALEXIS VERNAZ, OF STE. CROIX, SWITZERLAND, ASSIGNOR TO MERMOD FRÈRES, OF SAME PLACE.

MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 576,293, dated February 2, 1897.

Application filed September 26, 1896. Serial No. 607,106. (No model.)

To all whom it may concern:

Be it known that I, ALEXIS VERNAZ, a citizen of the Republic of France, and a resident of Ste. Croix, Canton of Vaud, Switzerland, have invented certain new and useful Improvements in Musical Instruments, of which the following is an exact specification.

This invention refers to musical instruments of the kind in which tongues are operated from a perforated note-plate by the mediation of sprocket-wheels. My improvements in musical instruments of said kind relate to means for damping the tongues after they have been operated by the respective sprocket-wheels.

My improvements consist in the construction, arrangement, and combination of parts, as hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the appended claim.

In order to make my invention more clear, I refer to the accompanying drawings, in which similar letters denote similar parts throughout the different views, and in which—

Figure 1 is a side view of my improved arrangement, the plates a a^2 being in section. Fig. 2 is a view similar to Fig. 1, but the sprocket-wheel, the tongue, and the damping-spring being each in another position. Fig. 3 is a front view of a portion of the tongue, together with two portions r^2 r^3 of the damping-spring. Fig. 4 is a view similar to Fig. 3, but said portions r^2 r^3 being in another position. Fig. 5 is a plan of a portion of the damping-spring. Fig. 6 shows a modified form of construction, the damping-spring being made to act upon two tongues.

Referring to Figs. 1 and 2, a a^2 are two superposed plates, between which are held as many springs c as there are tongues o in the musical instrument in question. Each of said springs supports a sprocket-wheel i . n is the perforated note-plate, which is held down upon the plate a by any suitable means. In consequence of the note-plate being thus kept depressed the sprocket-wheels are also kept depressed, and the springs c are thus put under tension. This, however, is the case only as long as there is a non-perforated portion of the note-plate over the sprocket-wheel. The latter is allowed to rise into the position

shown in Figs. 1 and 2 when a perforation of the note-plate arrives over the sprocket-wheel, or, more precisely, over the next tooth of the same. Suppose the note-plate n to move in the direction indicated by the arrow and the perforation n' to have arrived over the tooth i' of the sprocket-wheel i . Then said tooth will be pressed into said perforation by the spring c , which had been under tension up to that time. From that moment the sprocket-wheel i is rotated by the note-plate n , Figs. 1 and 2.

The tongue to be operated by the sprocket-wheel, or, in the case assumed, by the tooth i' of the sprocket-wheel, is shaped in a particular manner, in that its free end or top is first reduced in breadth at o^2 , Figs. 3 and 4, and is then formed into a sort of wedge o' . Said reduced portion o^2 takes through a slot r^4 of the damping-spring r , Fig. 5, the free end of which takes below the sprocket-wheel i in such a manner that said damping-spring may be operated by said wheel.

The end portion proper, r' , of the damping-spring is connected with the main portion r by two ledge-like portions r^2 r^3 , which are bent upward in such a manner that they are able to catch or hold the wedge o' of the tongue o , as shown in Fig. 3. The position shown in Fig. 3 corresponds to the position shown in Fig. 1, and the position shown in Fig. 4 corresponds to that shown in Fig. 2.

Shortly after the sprocket-wheel has commenced turning under the influence of the moving note-plate the damping-spring r is depressed by the tooth i^3 of said wheel acting upon the end portion r' of said spring. The tongue o thus being freed is now operated—i. e., strained—by the tooth i^4 . The latter leaves the tongue in about the same moment in which the tooth i^3 of the sprocket-wheel, as well as the end portion r' of the damping-spring, arrives in the lowest position, and the tongue is now perfectly free to sound. The end portion r' of the damping-spring is in its lowest position when the sprocket-wheel has again been depressed by a non-perforated portion of the disk n . The tongue remains thus free of the damping-spring during the whole of that time and is checked only when the sprocket-wheel is al-

lowed to rise by a perforation of the disk n arriving over the next tooth of the wheel.

In instruments in which there are two sets of tongues each damping-spring may well be employed for acting upon—*i.e.*, for damping—two tongues. In such a case the end portion r' of the damping-spring is provided with an elongation r^5 , Fig. 6, that takes below the end portion of the other tongue. o^3 is said other tongue. The tongue o^3 is operated by the tooth i^3 of the sprocket-wheel in the same moment in which the tongue o is operated by the tooth i^1 of the sprocket-wheel. In other words, the tooth i^3 leaves the tongue o^3 in the same moment in which the tooth i^1 leaves the tongue o . The tongue o^3 while being depressed by the tooth i^3 depresses in its turn the elongation r^5 of the damping-spring r , or, more precisely, the whole of this spring and the tongue o , or, more precisely, the wedge-like head o' , Figs. 3 and 4, of the same is thus freed from the side portions $r^2 r^3$, Figs. 3 and 4, of said spring r . The latter is kept depressed by the tooth i^3 of the sprocket-wheel moving from the tongue o^3 upon the end portion r' of the damping-spring, and the

two tongues are thus free to sound as long as the damping-spring is thus kept depressed.

Having now particularly described the nature of my invention, what I desire to secure by Letters Patent of the United States is—

In a musical instrument having tongues, sprocket-wheels for operating said tongues, and a perforated note plate or plates for operating said sprocket-wheels, the combination with the said tongues, of damping-springs $r r'$ having bent-off portions $r^2 r^3$, and a slot r^4 between said portions; the tongues taking through said slots, and having each a broadened portion o' adapted to be caught up between and by said bent-off portions $r^2 r^3$; said damping-springs being arranged so as to be adapted to be operated by the said sprocket-wheels, for the purpose as described.

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

ALEXIS VERNAZ.

Witnesses:

BENJAMIN H. RIDGELY,
E. F. BARRY.