(No Model.)

A. VERNAZ.

DEVICE FOR ADJUSTING SPROCKET WHEELS IN MUSICAL INSTRUMENTS.

No. 565,649. Patented Aug. 11, 1896.

Fig. 1.

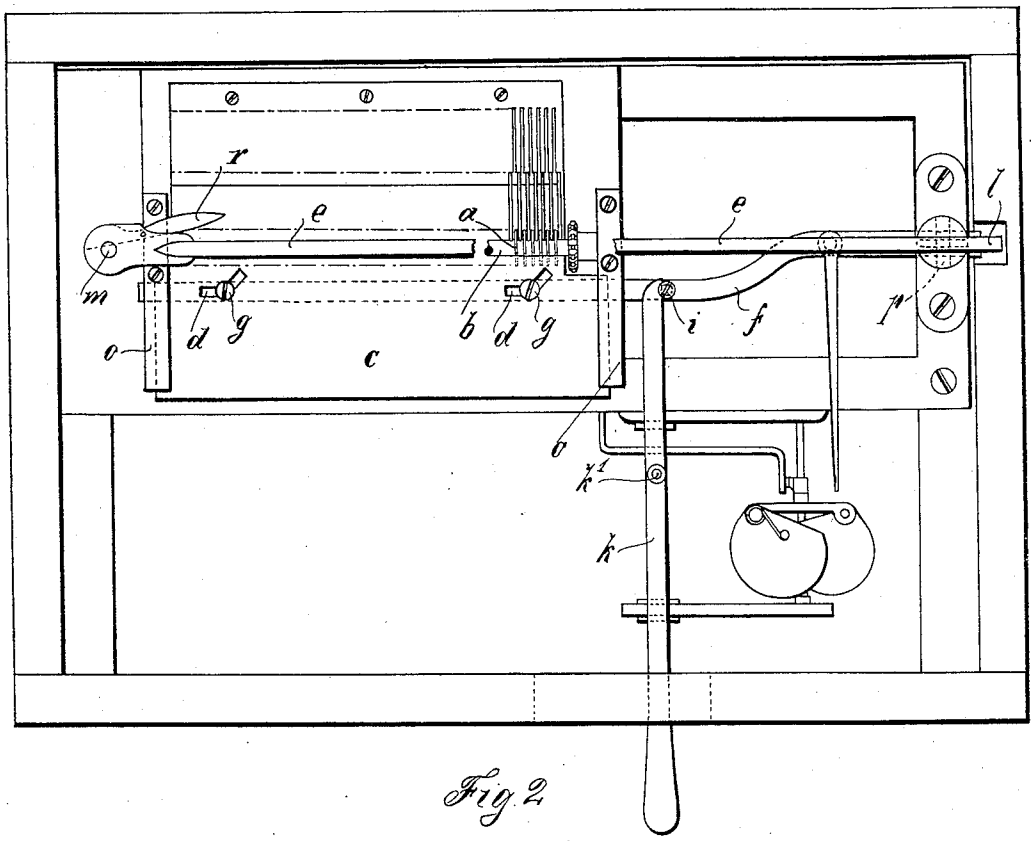


Fig. 2.

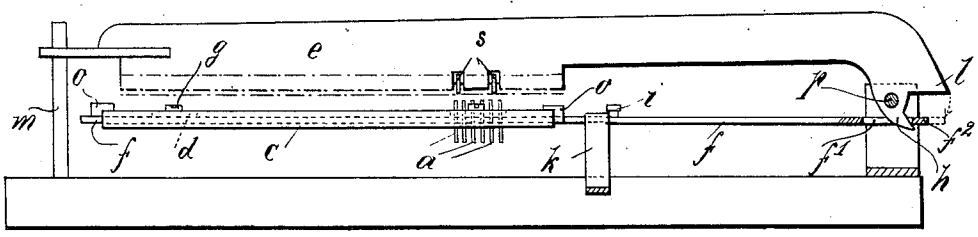


Fig. 3.

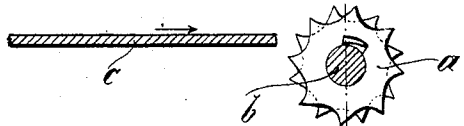
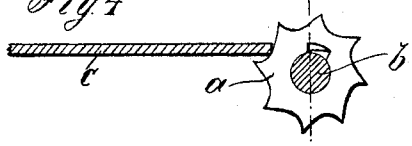


Fig. 4.



Witnesses:
Arthur Walther
Emil Kayser

Inventor:
Alexis Vernaz
by: Munn & Co
Attorney.

UNITED STATES PATENT OFFICE.

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

DEVICE FOR ADJUSTING SPROCKET-WHEELS IN MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 565,649, dated August 11, 1896.

Application filed January 6, 1896. Serial No. 574,543. (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 a new and useful Device for Adjusting the Sprocket-Wheels in Musical Instruments, of which the following is an exact and clear specification.

This invention refers to musical instruments of that kind in which reeds or tongues are operated from a note plate or disk by the mediation of sprocket-wheels. When on using such an instrument a tune has just begun playing, and the hearer is perhaps not satisfied with that respective tune, there is in said instruments no possibility of interrupting that tune and letting therefor another one be played. The note plate or disk having said first tune may be removed from the instrument, it is true, but the irregular order of the teeth of the sprocket-wheels does not allow of substituting another disk for the removed one.

The purpose of my invention, therefore, is to make an exchange of the note-plates possible, also, if a tune has just begun playing or has not finished playing, respectively. I attain that purpose by furnishing the musical instrument with means adapted to adjust the sprocket-wheels after the note plate or disk has been removed in such a manner that the teeth of said sprocket-wheels form as many parallel lines as there are teeth upon one of said wheels.

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 plan of my novel device. Fig. 2 is a front view of the same, and Figs. 3 and 4 are two detail views drawn on a larger scale and showing two different positions of the adjusting device proper.

The adjusting device proper is, in the form of construction shown, formed by a plate *c*, Figs. 1 to 4, held by guides *o*, Figs. 1 and 2. The axle *b*, carrying the sprocket-wheels *a*, is situated behind said plate *c*. Said wheels are loosely arranged upon said axle, and each of them may therefore turn independent of its neighboring onēs. They are operated by a circular note-plate, (not shown,) the fulcrum for which is formed by the central pin *m*, Figs. 1 and 2, and which is guided above the said sprocket-wheels by a lever *e*, having its fulcrum formed by the pin *p*, Fig. 2. Said lever is therefore moved down into its proper position only after the note-plate has been put upon the pin *m*, and it is then secured to the latter by means of the latch *r*, Fig. 1. This is a means known to every one versed in the art in question, as is also the large number of small rolls *s*, Fig. 2, attached to the lower rim of the said lever. The latter is further at its right hand (in close proximity to its fulcrum) provided with two noses *h l*, the purpose of which will be described hereinafter.

Suppose the instrument has just commenced to play a tune, and the hearer wishes to have that tune replaced by another one, the wheel-work (not shown) of the instrument is stopped, and the lever *e* is raised, so as to allow of the removal of the respective note plate or disk. The sprocket-wheels are now, as a matter of course, in perfect disorder, and must therefore be adjusted before another note-plate can be put in proper position into the instrument. Said adjustment is performed by shoving the plate *c* from its normal position or position of rest, Fig. 3, against the sprocket-wheels, Fig. 4, so that the latter are all brought in line, or their teeth form as many straight and parallel lines as there are teeth upon one of said wheels, respectively.

To prevent the person making that exchange of the note-plates from forgetting the adjustment of the sprocket-wheels, I prefer to let said adjustment be automatically performed, or, in other words, to connect the plate *c* with any of the parts that are compulsorily moved when a disk is exchanged. In the form of construction shown I have connected the plate *c* with the lever *e* in the following manner.

A bar *f*, Figs. 1 and 2, arranged below the plate *c*, parallel to the axle *b*, is supported from said plate by screws *g* taking through angular slots *d* of the said plate. Said slots do not form guides for said bar *f*, but the latter is guided by suitable recesses in the guide-

pieces *o* in such a manner that the said bar can be displaced only in its longitudinal direction. If, therefore, the bar *f* is displaced to the right, the screws *g* enter the oblique portions of the slots *d* and withdraw the plate *c* from the sprocket-wheels *a*. Said plate is then in the position shown in Fig. 3. To shove the said plate against the sprocket-wheels and adjust them, Fig. 4, the bar *f* is displaced in the reverse direction, when the screws *g* will move from the oblique portions of the slots *d* to the straight portions thereof. Said two displacements of the bar *f* are effected by the lever *e*, or more precisely by the noses *h l* of the same. The nose *h* takes into a slot *f'*, Fig. 2, of the bar *f* and acts upon the portion f^2, that closes the right-hand end of said slot. The nose *l* acts also upon said portion, but from the outside thereof. Owing to the smallness of the said portion *f'* with regard to the distance between said two noses, there is a pause between the action of the nose *h* and that of the nose *l*. The note-plate to be exchanged is, and must be, removed from the instrument during that pause, as will become more clear from the following.

Suppose a disk be removed and the adjusting-plate *c* be in its normal position, Fig. 3, the lever *e* is at first raised so little only that the nose *l* strikes upon the portion f^2 of the bar *f*. The position of said lever is then such a one that said disk may easily be removed from the sprocket-wheels and from the central pin *m*. Thereafter only said wheels are adjusted by raising the lever *e* completely, so as to cause the bar *f* to be displaced by said lever, and to displace in its turn and shove against the sprocket-wheels the adjusting-plate *c*. The fresh disk is then placed into the instrument, and the lever *e* is completely moved down upon said disk and secured in position by the latch *r*. The screws *g* have then moved from the straight portions of the slots *d* into the oblique portions thereof.

I wish it to be understood that the adjusting device proper, *c*, need not indispensably be formed by a plate and need not be moved in a horizontal plane, but I may as well make use of a sufficiently strong wire, and I may cause either said plate or said wire to move throughout its whole length in a curve lying, as a matter of course, in a vertical plane, or in parallel vertical planes, respectively. The idea of invention may be turned into practice in a variety of forms of construction, all bearing on the principle that a rigid part extending along the whole series of sprocket-wheels is arranged so as to be adapted to be moved against said wheels.

For the sake of completeness, I wish finally to remark that I prefer to withdraw the adjusting-plate *c* in two stages from the sprocket-wheels. The first stage is effected by the lever *e* on moving the latter down upon the note-plate. The second stage is effected from hand by means of a lever *k*, Fig. 1, that is fulcrumed at *k'* and acts upon a pin *i*, secured to the bar *f*. During the first stage the screws *g* move from the left-hand ends of the slots *d* to the middle thereof. During the second phase they pass into and through the oblique portions of said slots and effect only now the withdrawal proper of the plate *c*.

Having thus fully described the nature of this invention, what I desire to secure by Letters Patent of the United States is—

1. In a musical instrument having tongues, sprocket-wheels for operating the latter, and note-plates for operating said sprocket-wheels, the combination with the latter, of means adapted to adjust them so as to bring their teeth in line, for the purpose as described.

2. In a musical instrument having tongues, sprocket-wheels for operating the latter, and note-plates for operating said sprocket-wheels, the combination with the latter, of a rigid part extending along the series of the said sprocket-wheels, and adapted to be pushed against, and withdrawn from, said series, for the purpose as described.

3. In a musical instrument having tongues, sprocket-wheels for operating the latter, and note-plates for operating said sprocket-wheels, the combination with the latter, of a horizontal plate extending along the series of the said sprocket-wheels, and adapted to be pushed against, and withdrawn from, said series, for the purpose as described.

4. In a musical instrument having tongues, sprocket-wheels for operating the latter, and note-plates for operating said sprocket-wheels, the combination with the latter, of a rigid part extending along the series of the said sprocket-wheels, and adapted to be pushed against, and withdrawn from, said series; means for automatically operating said rigid part on exchanging said note-plates, for the purpose as described.

5. In a musical instrument having tongues, sprocket-wheels for operating the latter, and note-plates for operating said sprocket-wheels, the combination with the latter, of a horizontal plate extending along the series of the said sprocket-wheels; a bar arranged parallel to the said series, and having projections taking into oblique slots of said plate; said bar having at its outer end a cross-piece adapted to be operated with dead-play from either of two noses provided at the bar for holding the note-plates in proper gear with said sprocket-wheels, substantially 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.