



# United States Patent Office.

THOMAS P. KNOX, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 104,324, dated June 14, 1870.

## IMPROVEMENT IN VIOLINS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all to whom these presents shall come:*

Be it known that I, THOMAS P. KNOX, of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have made an invention of certain new and useful Improvements in Violins, Bass-Viols, &c.; and do hereby declare the following to be a full, clear, and exact description thereof, due reference being had to the accompanying drawing making part of this specification, and in which—

Figure 1 is a longitudinal section, and

Figure 2, a transverse section of a violin containing my invention.

Figure 3 is a representation of the face of the inner side of a violin, showing more completely the application of my invention.

The object of this invention is to provide an attachment to violins, bass-viols, guitars, &c., whereby greater volume, depth, and brilliancy of harmony is obtained, and consists in applying to a suitable portion of the instrument, an additional set of strings, and a fork metallic body or bodies, susceptible of greater or lesser vibrations, the arrangement of parts being such that vibrations of sound produced by the bow upon the primary strings shall produce corresponding or sympathetic vibrations of the auxiliary strings and the fork, and, as a consequence, add to the sounds produced by the primary strings.

By referring to the drawing above mentioned, as accompanying this specification, and which illustrates my invention—

A denotes the body of a violin, B being its neck; C its finger-board; and *a' a'' a''' a''''* its strings, such component parts being made and combined in the usual manner.

In carrying out my invention, as far as at present experiments have enabled me to determine best, I apply to the inner face of the belly and below the sounding-board *c* of the instrument, a duplicate or auxiliary set of strings, *b' b'' b''' b''''*, these strings being disposed opposite the primary strings, and their ends being confined in a suitable manner, in order to vary their tension, at or near opposite ends of the side *c'*, such strings being provided with bridges *d d*, as represented.

Below the auxiliary strings *b*, &c., and within the interior of the violin, I dispose a fork or other proper-shaped piece of metal, *f*, susceptible of musical vibrations, such fork *f* being suspended from its apex horizontally, or thereabouts, within the instrument, in a suitable manner.

In place of one fork at one end of the instrument, two or more of smaller capacity may be applied, according to the peculiar effect desired.

The vibrations of the primary strings, through the medium of the side or body of the violin, are transmitted to, and so as to cause counter or duplicate vibrations of the auxiliary strings and the fork.

The fork, which may be of varying forms, is connected to the instrument at the point most favorable for vibrations, and harmonizes with the A-string of the outer or primary series, it being understood that both the primary and auxiliary strings are tuned to concert pitch, as is universally the case, and which is considered the standard pitch of violins.

The auxiliary strings are tuned G, D, A, and E, that is, an octave lower than the primary strings, although, in practice, for some instruments, it may be found desirable to change this relative pitch, and make the auxiliary strings the highest. This, however, will be a matter of taste or experiment, and not in any way affecting the character of my invention.

So with regard to the fork or its equivalent, as before stated, two or more may be found to produce a better effect than one.

I am aware that auxiliary strings have been employed before this in violins, and to this I lay no claim, my invention consisting in the combined use of the strings and fork to produce a much fuller and richer tone than has heretofore been practicable with ordinary violins or like instruments.

The strings should preferably be of metal, as non-metallic strings would be more difficult to keep at the proper pitch.

The result arrived at by the adoption of my invention, as before stated, is to add to a great degree to the volume, depth, and brilliancy, as well as softness of tone of an instrument, the combined harmony produced by the additional strings and metallic fork producing a singularly rich and pleasing effect.

The invention may be applied with equal facility and good results to bass or double-bass viols, or to guitars.

### *Claim.*

Having now described my invention, and the manner in which the same is or may be carried into effect,

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

The combination, with a violin, of an auxiliary or duplicate set of strings, and one or more forks, or their equivalent, arranged within the body of the violin, substantially as and for the purposes specified.

Witnesses:

THOMAS P. KNOX.

FRED. CURTIS,

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