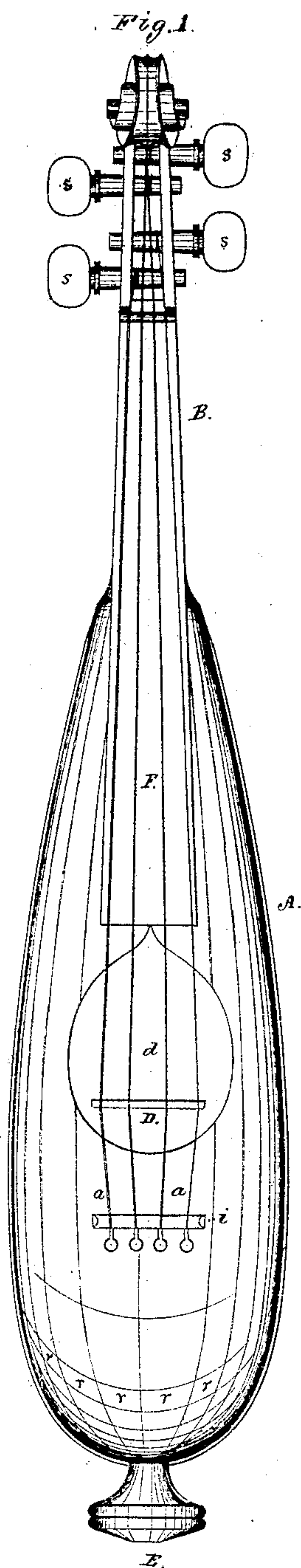


M. H. COLLINS.

Improvement in Musical Instruments.

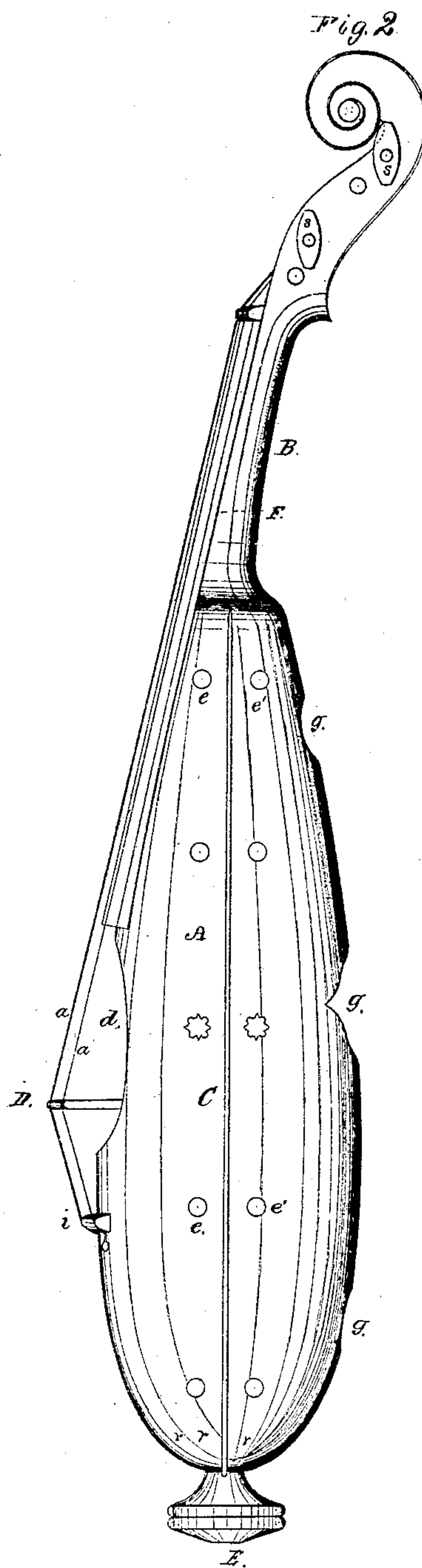
No. 129,653.

Patented July 23, 1872.



Witnesses.

F. P. Hale
J. L. Hale.



Inventor.

M. H. Collins

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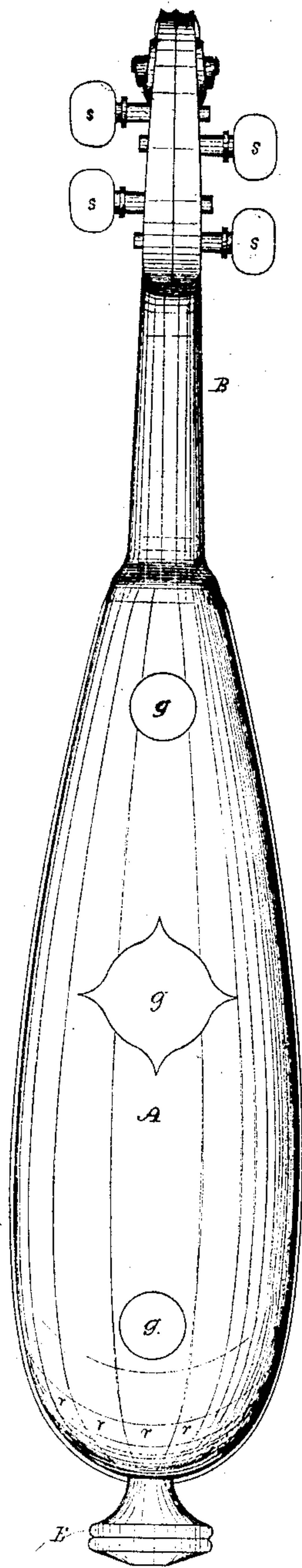
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Fig. 3.



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T. Le. Hale.

Fig. 5.

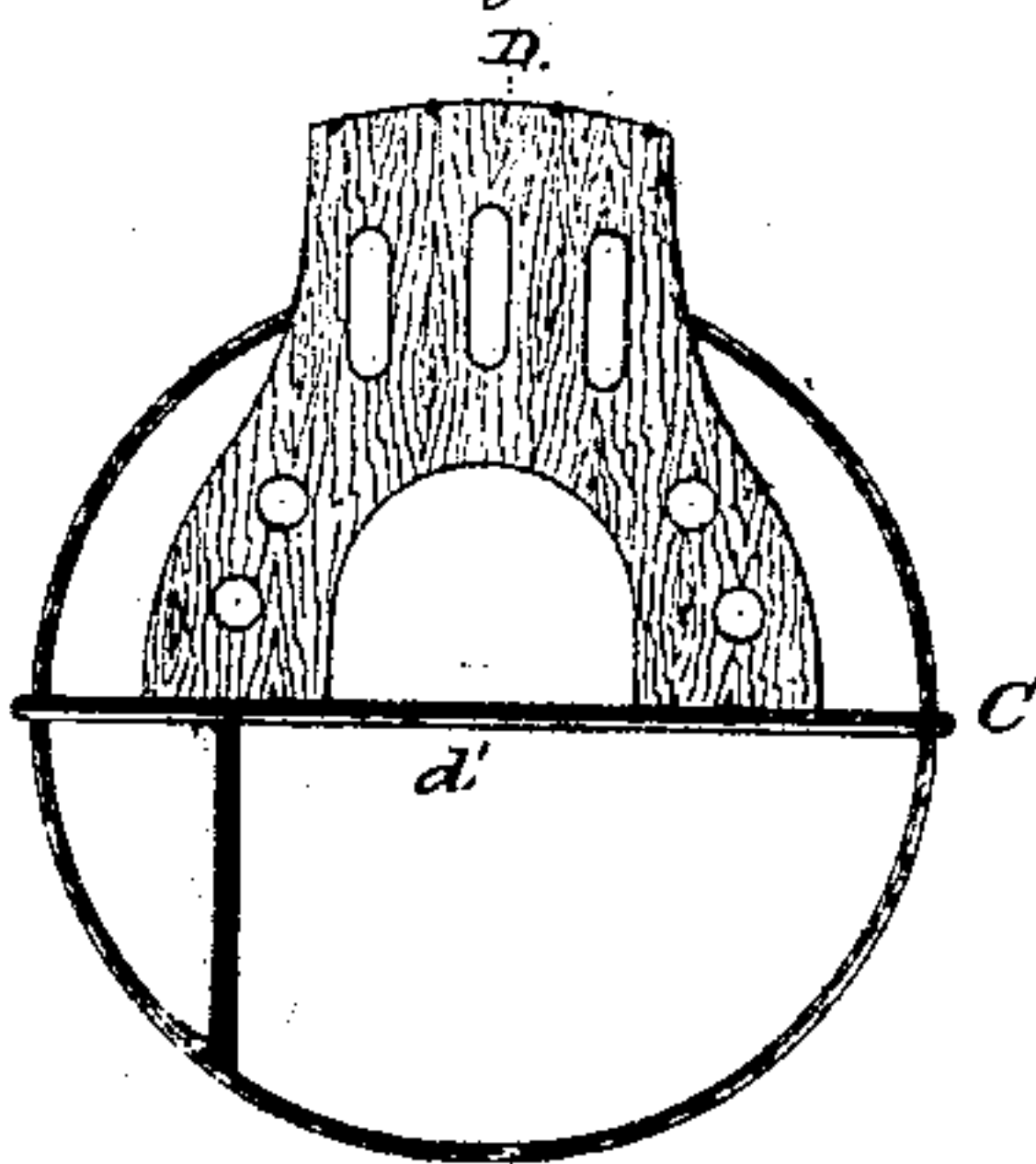


Fig. 6.

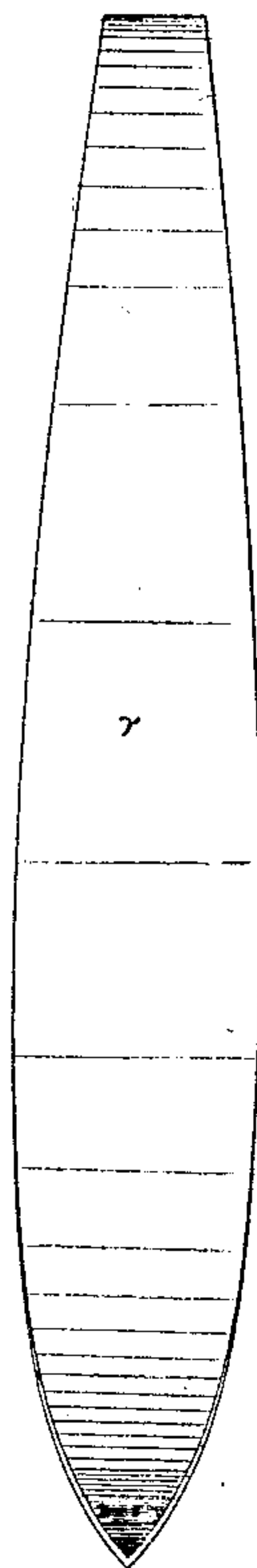


Fig. 7.

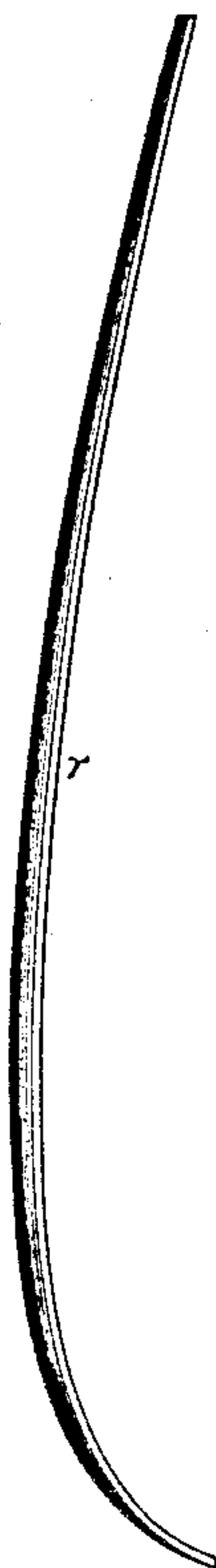
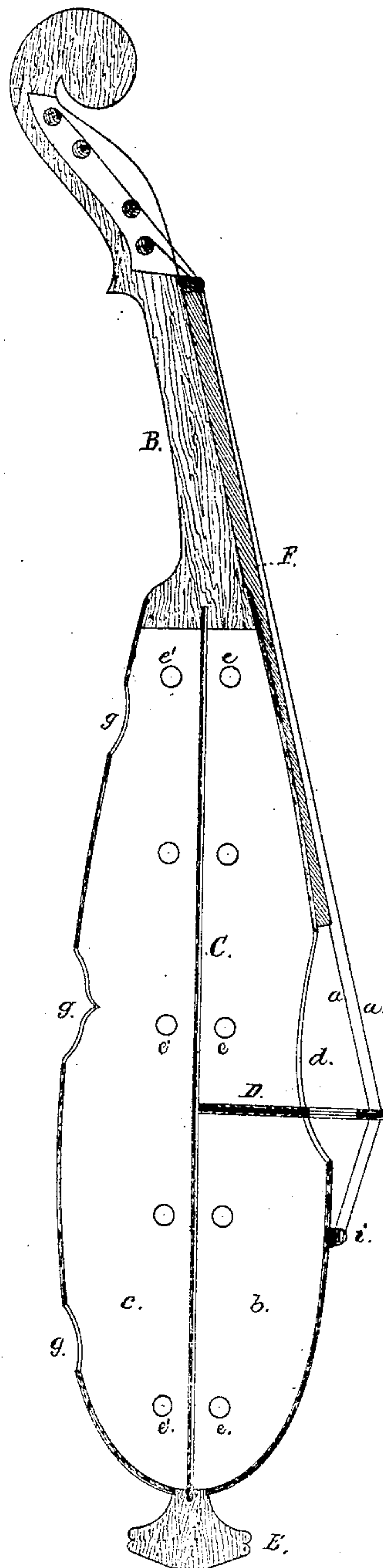


Fig. 8.



Fig. 4.



Inventor.

M. H. Collins

UNITED STATES PATENT OFFICE.

MICHAEL H. COLLINS, OF CHELSEA, MASSACHUSETTS.

IMPROVEMENT IN MUSICAL INSTRUMENTS.

Specification forming part of Letters Patent No. 129,653, dated July 23, 1872.

To all whom it may concern:

Be it known that I, MICHAEL H. COLLINS, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Musical Instruments, of which the following is a specification, the said improvements being represented in the accompanying drawing, in which—

Figure 1 denotes a top view, Fig. 2 a side elevation, Fig. 3 a bottom view, Fig. 4 a longitudinal section, and Fig. 5 a transverse section of an instrument, which I term the "Echo Viol," as embodying my improvement.

My invention relates to that class of musical instruments provided with strings, of which the violin is the type.

The object of my invention is to produce an instrument or class of instruments which, while being played upon, shall combine the most exquisite sweetness with the greatest fullness and volume of tone; and my invention consists in sundry novel characteristics in the construction of the instrument, and the combination of the parts, as will be hereinafter referred to and fully described.

In the said drawing, A denotes the body of the instrument, which is of a hollow conoidal shape. This body or case may be made of two pieces of wood hollowed out and connected at their edges; or the same may be formed of a series of curved ribs or plates, *r*, having the form as shown in Figs. 6 and 7, which, respectively, denote side and sectional views of the same, the said ribs being fitted over a "former" or block having the desired shape, and glued together at their edges. As shown in the drawing, and as I consider the best and most practical form, the shell or body is duplex or composed of two layers or series of ribs or strips of wood, the joints of the two series being so disposed as to break or lap over those of the contiguous or fellow layers. If desirable to strengthen the same, a strip or layer of camel's-hair cloth or other thin textile fabric may be interposed between the two laminae of the body or affixed to the under surface of the inner one. B is the neck of the instrument, to which the upper ends of the ribs or body are firmly secured. *s s s s* are the screw-pins. *a a a a* are the strings. C is the sound-board, which may be either flat or curved in transverse section, the same being disposed

within the body of the instrument, and so as to extend from end to end both centrally and longitudinally thereof, and thereby divide the interior into two chambers, *b c*. The sound-board, as shown in the drawing, extends through and beyond the body of the instrument, whereby a strong and firm support thereof is secured. The sound-board may be made of a single plate of wood, or two or more pieces glued together, the grain of which may run diagonally at right angles or in parallelism. In the latter case I prefer to insert a piece of camel's-hair cloth or other thin meshed fabric or material between the two impinging faces of the laminae or layers, as shown in Fig. 8, the object of such interposed medium being to increase the firmness of the board.

I would remark that care must be exercised in obtaining the requisite thickness of the sounding-board, which experience and the size of the instrument will readily determine. For an instrument of the length and size of an ordinary violin, from one-twelfth to one-sixteenth of an inch is a good thickness. I would further remark that a sheet of brass or other suitable metal may be employed for the sounding-board; but I prefer that constructed of wood, as it gives a smoother and more pleasing tone.

By the above-described peculiar arrangement of the sound-board, two reverberatory chambers are produced. The chamber immediately underneath the strings having a large opening, *d*, formed in the top thereof for the emission of the sound, though I do not limit my invention to the employment of a single sound-port, as more may be used without changing the character thereof. There are also one or more series of sound ports or openings, *e e*, &c., disposed on the sides of the said chamber. The inferior or lower chamber *c* is also furnished with one or more sound ports or openings, *g g*, &c., on its under face, and also has a series of holes, *e' e'*, &c., (corresponding with those of the upper chamber,) upon its lateral faces, as seen in Fig. 2. The openings made in each chamber should be of such size as to permit an easy escape of the sound therefrom, and the area of the sound-passages in each chamber should be equal in order to attain the most perfect clearness, sweetness, and volume of tone. Were the lower chamber not

so harmonized or tuned, the sound produced in such chamber would be of a dull, muffled character, and would thereby injure the liquid purity and clearness of that emitted from the superior chamber. This harmonizing or tuning of the two chambers, so as to attain a most perfect clearness and blending of the reverberations or echoes emitted from the two chambers, is one of the peculiar features of my invention.

D is the bridge, which is arranged upon the top of the sounding-board, and extends up through the opening made in the top of the body. *d'* is a brace, which extends transversely across the chamber *c*, and is affixed to the under surface of the sounding-board, and directly underneath the bridge, and is supported by a post resting upon the bottom surface of the chamber *c*. This bridge I form of two or more thicknesses or layers of wood having their grain running diagonally or at right angles, such being for the purpose of giving it greater stiffness, and thereby enabling it to retain its normal position under the tension of the strings. This peculiar arrangement of the bridge—viz., upon a sound-board or base disposed within the body of the instrument, or below the upper surface of the body, and so as to extend up through the same—I believe to be novel. It will be evident that the lower chamber or part of the body could be dispensed with and still a good sounding instrument be obtained; but such will not produce that sweetness, fullness, and harmonious effect that is attained by the employment of the two chambers, as described. E is a chin-rest, which is affixed to the lower end of the body portion, as shown in the drawing. This rest may be of an oval or circular shape, such being to enable the performer to easily support the instrument, and readily turn it into any desirable position while in use. This rest, if desirable, may be covered with an elastic material, such as India rubber, for instance. F is the finger-board, which extends downward and is firmly secured to the neck and body of the instrument, although, if desirable, the same may be suspended from the neck portion in the ordinary manner.

In my improved instrument I employ no tail-piece, as used in the ordinary violins and other analogous instruments, but extend the strings over a rest, *i*, and affix their lower ends directly to the body, their upper ends being affixed to the screw-pins in the ordinary manner.

I do not confine my invention to the precise external form as shown, as the same may be varied according to circumstances.

I would remark that the strength and volume of the tone depend upon the size of the instrument, and such may be made of any desirable length and width—the wider the sound-board the deeper and fuller the tone.

Having described my invention, what I claim is—

1. The combination of the sound-board with the body of the instrument, substantially in manner and for the purpose set forth.

2. The combination of the sound-board with the bridge and the strings, under the arrangement as shown and described.

3. The body formed of a series of thin strips or layers, arranged and combined together substantially as set forth.

4. The arrangement of the bridge, with respect to the sound-board and body of the instrument, as shown and described.

5. The bridge formed of two or more laminæ or layers of wood, arranged in manner as described.

6. The chin-rest or holder E, formed and applied to the body substantially as and for the objects stated.

7. The combination, with the sound board or case, of a layer of cloth or woven fabric, as and for the purpose stated.

8. The instrument or "echo viol," as described, consisting of the body A provided with sound-chambers and sound-ports, as set forth, the sound-board, the bridge, and strings, arranged and combined together substantially in manner as specified.

M. H. COLLINS.

Witnesses:

F. P. HALE,
F. C. HALE.