2 Sheets—Sheet 1.

M. H. COLLINS.

MUSICAL INSTRUMENT.

No. 191,029. Patented May 22, 1877.

Fig. 1.

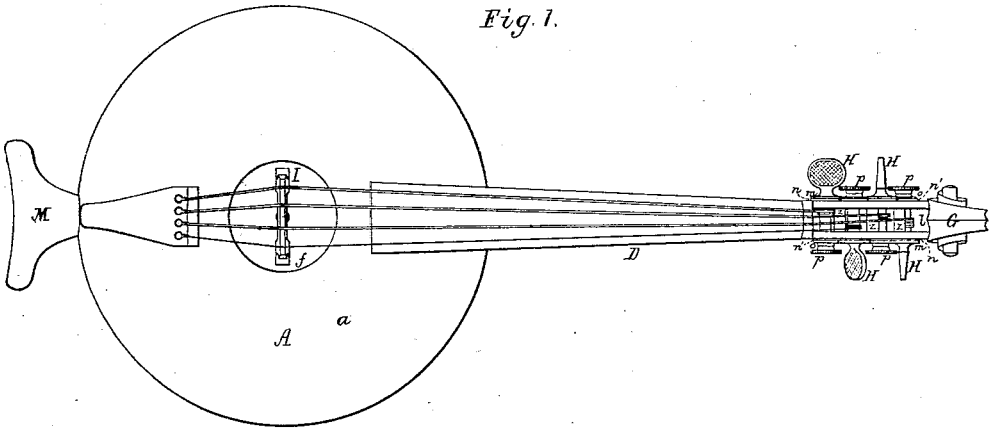


Fig. 2.

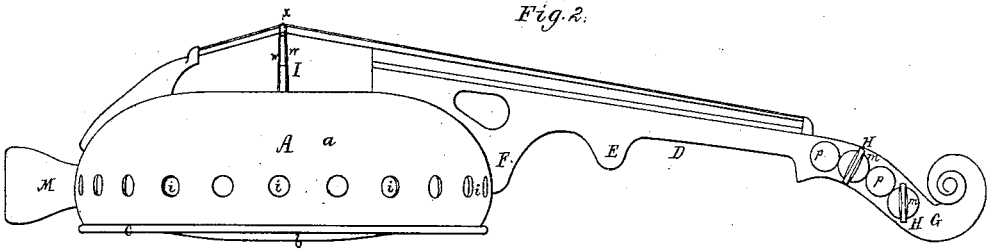
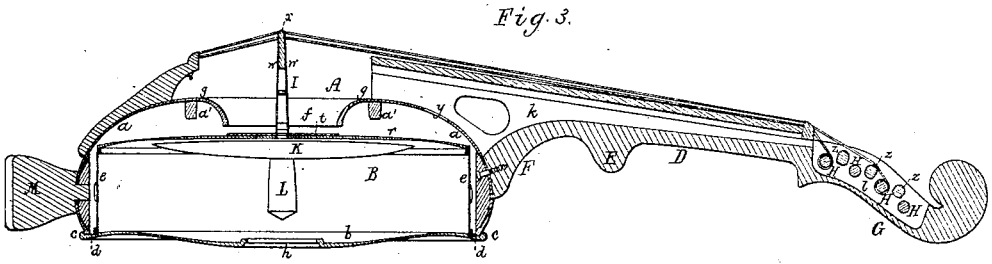


Fig. 3.



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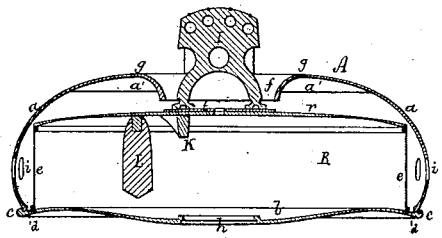
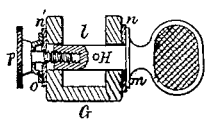


Fig. 10



Witnesses.

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L. A. Russell

Inventor

Michael Henry Collins,

by his attorney

R. H. Eddy

2 Sheets—Sheet 2.

M. H. COLLINS.

MUSICAL INSTRUMENT.

No. 191,029. Patented May 22, 1877.

Fig. 6.

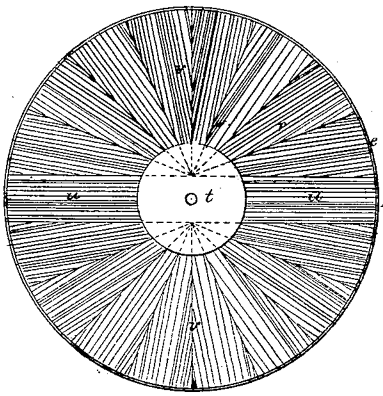


Fig. 5.

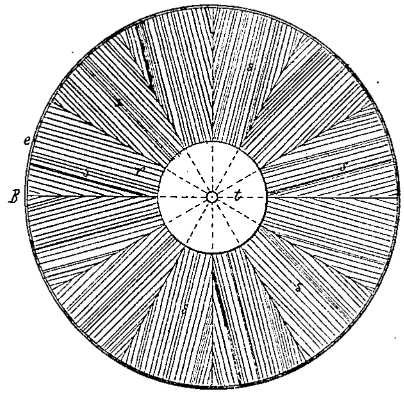


Fig. 8

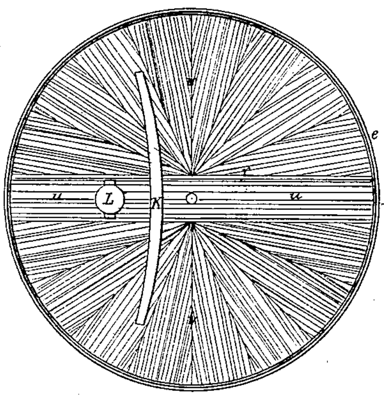


Fig. 9.

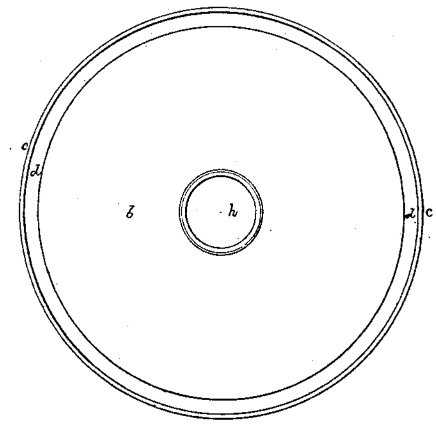


Fig. 7.

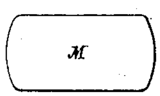
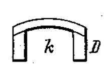


Fig. 11.



Witnesses.
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L. N. Möller.

Inventor
Michael Henry Collins
by his attorney.
R. H. Eddy

UNITED STATES PATENT OFFICE.

MICHAEL HENRY COLLINS, OF EAST MEDWAY, MASSACHUSETTS.

IMPROVEMENT IN MUSICAL INSTRUMENTS.

Specification forming part of Letters Patent No. **191,029**, dated May 22, 1877; application filed April 30, 1877.

To all whom it may concern:

Be it known that I, MICHAEL HENRY COLLINS, of East Medway, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Stringed Musical Instruments; and do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a side elevation, Fig. 3 a longitudinal section, and Fig. 4 a transverse section, of a violin embracing my invention, such invention being also applicable to various other instruments of like character. Figs. 5 and 6 are top views of the sounding-board. Fig. 7 is a rear-end view of the chin-rest. Fig. 8 is an under-side view of the sounding-board. Fig. 9 is a top view of the bottom piece of the case or body. Fig. 10 is a transverse section of the head, taken through one of the straining-pins and its clamping devices. Fig. 11 is a view of the lower end of the neck.

To distinguish the instrument hereinafter explained from ordinary violins, I have termed it the "Echolin," it having all the properties of a violin, though much superior thereto in the volume, power, and sweetness of its tone, and in sensitiveness as respects the bow.

The body or case of the instrument, as well as the sounding-board, is, as represented, circular, in order that such body may be formed by means of a turning-lathe. Such body and sounding-board are dome-shaped, to insure strength and other advantages thereto.

In the drawings, A represents the body as composed of a dome, *a*, and a disk or bottom, *b*. The bottom is provided with a lip or flange, *c*, and a concentric groove, *d*, arranged with and extending around it, in manner as shown. The lip encircles the dome at its lower part, and serves to strengthen the bottom as well as that of the dome. The groove is to receive the annulus *e* of the sounding-board B, and to support it, in manner as shown, concentric with, and at its proper distance from, the case, the inner edge of the groove having a diameter corresponding to that of the interior of the annulus at its lower part. If desirable, the sounding-board at bottom may be in contact with the lower part of the body of the case.

The dome *a* has at its center a circular aperture or mouth, *f*, from which the dome rises to the crown *g*, and thence curves down to its base, such rendering the dome much stronger than it would be were it entirely convex, it being concave within its crown and convex from the latter to the base or sides.

Furthermore, there is applied to the inner surface of the dome, and to extend across it, as shown, two braces, *a'*, they serving to prevent the dome from crippling and being split under the strain of the strings.

The bottom of the case has an opening, *h*, at its center, besides which there is a series of openings, *i*, in the flanks or sides of the case. The neck D, where over the dome, is channeled or chambered, as shown at *k*, and rests on and is fastened to the dome, such neck being provided with an auxiliary hand-rest, E, arranged and projecting down from it, and with respect to the main hand-rest F, in manner as represented.

The head G has, to strengthen it, a series of partitions or braces, *z*, extending across its open chamber *l*, and between the straining-pins H, each of which is furnished with a shoulder, *m*, to bear against a friction-washer, *n*, arranged on the pin and between the shoulder and the head G. Each straining-pin also has another such washer, *n'*, against which a metallic washer or disk, *o*, is forced by a clamp-screw, *p*, that goes through the two washers *n' o*, and screws into the straining-pin, all being arranged with the head in manner as shown in Fig. 10. By means of the friction-washers and the clamp-screw and the shoulder of the straining-pin, such pin will be held firmly against the strain of the string.

The sounding-board B, disposed within the case concentrically, is, as represented in the drawings, composed of a dome, *r*, and a supporting-annulus, *e*, arranged as shown.

This dome I construct of a series of sectoral sections, *s*, each of which has the grain of the wood running lengthwise of it, so as to range radially, or nearly so, with the center of the dome, such sections being glued together at their edges, and also to the upper edge of the

annulus. At its crown the dome has fixed on it a thin disk, *t*, of wood, which serves to support the sectors, to stiffen the dome at the crown, and to sustain the bridge I.

In Fig. 6 the dome of the sounding-board is represented as having an intermediate arched strip, *u*, and two series of sectors, *v*, disposed therewith, as shown. The grain of each part should run lengthwise of it.

Although I have represented the top *r* of the sounding-board as dome-shaped, it may be flat or otherwise suitably formed. It being supported by the annulus on which it rests renders it so independent of the case that it can vibrate to better advantage than would result were it without the supporter and extended directly across the case and fastened to the sides thereof.

On its lower side the sounding-board dome is provided with a curved brace, K, which should be arranged under the bass-string, and ranging lengthwise thereof. Besides strengthening the dome, this brace evens the vibrations of the bass-string, and brings up the third string to its proper tone. Near the brace there is extended down from the dome, in manner as shown, an inverted post, L, which I term the "voicer," which gives boldness of volume to the instrument, and keeps the strings from trembling improperly.

The bridge I, I form of three layers or strata, *w x w*, of wood, glued together. The middle layer has its grain ranging upward, while that of each of the others runs horizontally or across the grain of the said middle layer; or, instead of the above, the two outer layers may have the grain ranging upward, and that of the middle layer ranging horizontally. This is to prevent the strings from cutting into and wearing the bridge.

The chin-rest M, extended from the case in manner as shown, is elongated, and has its upper and lower edges parallel or slightly curved. This affords a better support for the instrument than is obtained from a round or circular knob-formed chin-rest, as shown in my Patent No. 129,653.

There may be in the dome of the case an opening, *y*, leading into the chamber at the lower part of the neck.

Having thus described my improved musical instrument, what I claim therein as of my invention is as follows—that is to say:

1. The sounding-board B, composed of the dome or top *r* and its annular supporter *e*, arranged as represented and described.

2. The circular case A, dome-shaped, and provided with the mouth or bridge-hole, and elevated around the same, all substantially as set forth.

3. The sounding-board top, composed of sectors or sections *s*, in whole or in part, as shown arranged, and having the grain of the wood of each disposed lengthwise, as described.

4. The sounding-board top, composed of a series of sectors or sections, *s*, arranged as shown, and provided with the disk or bridge-rest *t*, as explained.

5. The combination of the circular and dome-shaped case A with the sounding-board B, composed of the top *r* and the annular supporter *e* thereof, all arranged as set forth.

6. The disk-bottom *b* of the case, provided with the flange *c* and groove *d*, in combination with the dome-shaped top, and with the sounding-board, arranged with and applied to such bottom, substantially as represented.

7. The voicer L, arranged and combined with the sounding-board, as set forth.

8. The bridge composed of three layers, *w x w*, of wood, having their grain arranged substantially as explained.

9. The neck D, provided with the auxiliary hand-rest E, arranged between the head G and the main hand-rest F of such neck, as set forth.

10. The neck D, open at its lower end, and arranged to project over and rest upon the case-dome, and chambered, as represented.

11. The elongated chin-rest M, having its upper and lower edges substantially parallel, as set forth.

12. The head G, provided with the cross-braces *z*, arranged in its chamber *l*, and with reference to the straining-pins, all substantially as explained.

13. The straining-pin H, provided with the shoulder *m*, disk *o*, washers *n n'*, and clamp-screw *p*, and the head G, arranged as specified.

14. In combination with the dome-shaped top of the sounding-board, the curved brace K, arranged in the direction of, and under, the bass-string, as set forth.

15. The dome-shaped case, provided with the transverse braces *a' a'*, arranged in the crown and on opposite sides of the mouth of the dome, as described and shown.

MICHAEL HENRY COLLINS.

Witnesses:
R. H. EDDY,
J. R. SNOW.