

(No Model.)

W. H. BRADY.

VIOLIN.

No. 251,405.

Patented Dec. 27, 1881.

Fig. 1.

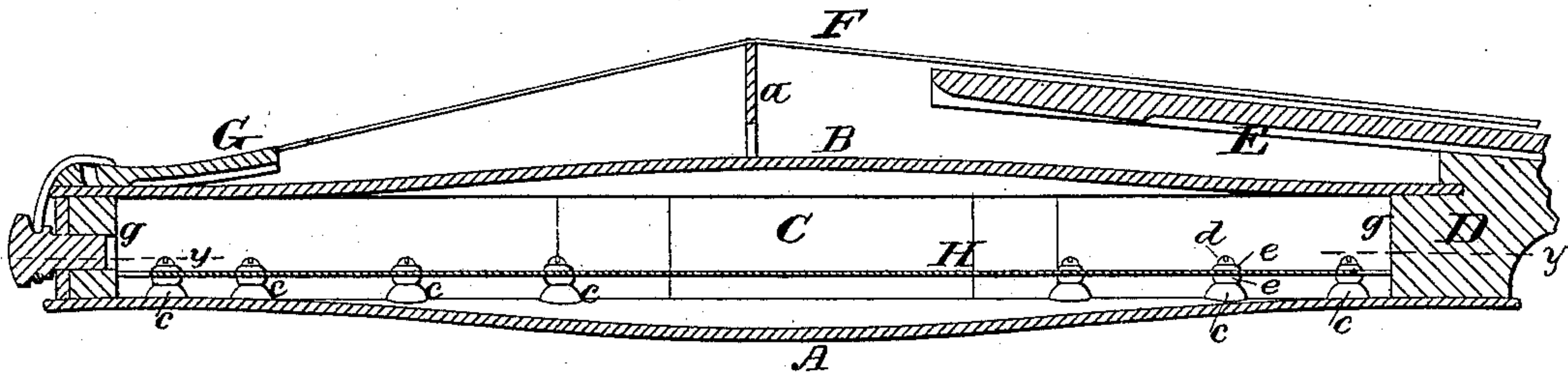


Fig. 2.

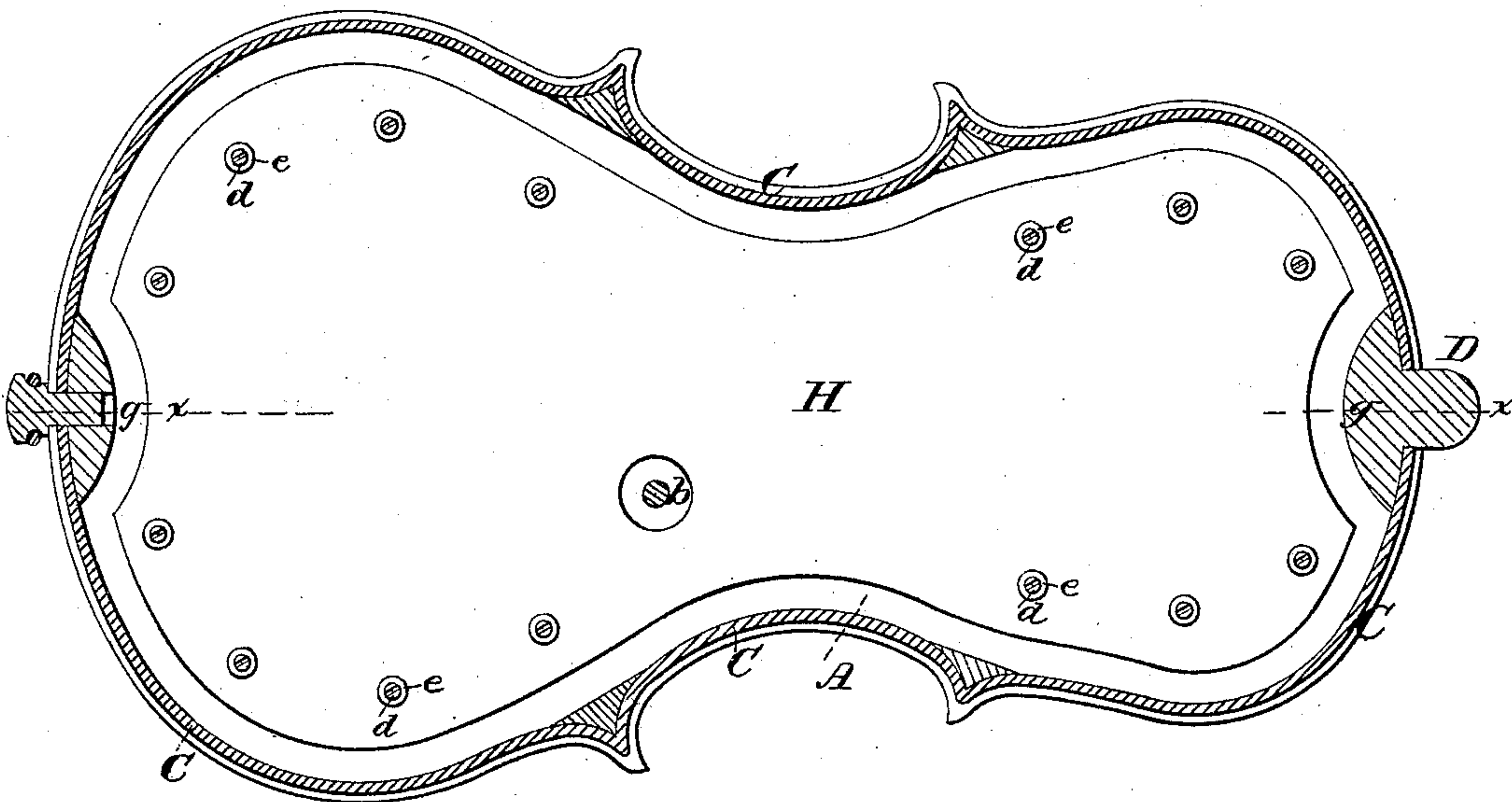
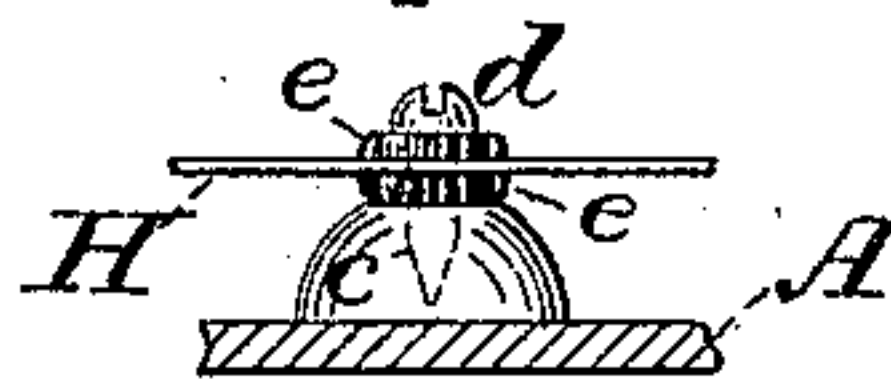


Fig. 3.



ATTEST:

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VIOLIN.

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To all whom it may concern:

Be it known that I, WILLIAM H. BRADY, a citizen of the United States, residing at Hackensack, in the county of Bergen and State of New Jersey, have invented certain Improvements in Stringed Musical Instruments, of which the following is a specification.

My invention relates to such musical instruments as the violin, viola, violoncello, &c., but especially to the violin, the object being to enhance the sweetness, volume, and purity of the tone; and it consists, essentially, in mounting upon the inner face of the back of the instrument a thin plain metal plate raised somewhat above the back on blocks or supports which connect it only with the back, and at points a little way from the edge of the same, and so as to leave the edge of the metal plate substantially free. This plate is preferably made about the shape of the back of the instrument and somewhat less in size, so as to leave a clear space all around its edge. The sound-post passes through an opening in the plate, which it does not touch.

In the drawings, which serve to illustrate the application of my improvement to a violin, Figure 1 is a vertical longitudinal section of the violin provided with my improvement, taken in the plane of the line *xx* in Fig. 2. Fig. 2 is a horizontal section of the same, taken in the plane of the line *yy* in Fig. 1. Fig. 3 is an enlarged detail view, showing a method of securing the plate in the violin.

Let A and B represent respectively the back and belly of a violin; C, the curved sides; D, a part of the neck; E, the finger-board; F, the strings; G, the tail-piece; *a*, the bridge, and *b* the sound-post. All of the above parts are arranged in the usual manner.

H is a thin plain plate, of metal, preferably cut to approximate very nearly to the shape of the inside of the violin and somewhat less in size, as clearly shown in Fig. 2. I prefer to make this plate of thin sheet-brass; but other metals may be employed.

Arranged around the back A, a little distance from the sides D, and glued or otherwise secured to the inner face of the back, are studs or blocks *c c*, preferably of wood, which bear up and support the plate H, and communicate the vibrations of the back thereto in

playing. The plate is preferably secured to the blocks by means of screws *d d*, washers *e e*, of hard material, gutta-percha, hard rubber, &c., being interposed between the plate and the screw-heads and blocks. In Fig. 3 I have shown this attachment or fastening device on a large scale. In lieu of this mode of fastening the plate H in position, I may employ small wooden blocks glued to the back at the proper points, and having grooves or notches in their inner faces to receive the edge of the plate and support it; and to prevent the plate from rattling it may be packed with rubber where it rests in said notches.

I have shown the plate H as mounted upon fourteen blocks, seven on each side, and all arranged near the ends, the waist or central part being unsupported. This is the preferred arrangement; but a lesser or greater number of supports might be used without materially affecting the tone of the instrument. As the vibrations of the back cease at the end blocks, *g g*, of the violin, and also at the sides C, and as these parts do not vibrate, I do not permit the plate H to reach or come in contact therewith; nor do I support the plate from the central or more vibratory parts of the back, as it might interfere with the vibration of the back, which it is desirable to avoid.

I have observed, also, that when a plate of metal is confined around its edge its vibrations are muffled, while if it is supported only at the middle it has a rumbling vibration, like that of a gong. To avoid both of these difficulties I mount the plate on supports arranged at or near its edge, but leave the edge substantially free, as shown. I employ a plain thin plate, as ribs or corrugations across it would destroy its vibrations and render it useless. The sound-post *b* passes through the plate without touching it, as shown, the opening through which it passes being large enough to prevent this. The office of the sound-post being to transfer the vibrations from back to belly, and vice versa, it is necessary, when a diaphragm is mounted in a violin on the end blocks or sides, or both, as has been done, to have two sound-posts, one extending from the back to the diaphragm and one opposite this, from the belly to the diaphragm. This is necessary, as the vibrations must be communicated to the dia-

phragm so mounted from the sounding-boards. In my construction this is neither desirable nor necessary, as the vibration of the plate comes from the back on which it is mounted.

5 I am fully aware that extra sets of strings and tuning-forks have been arranged inside of violins and similar instruments, and that glass diaphragms or plates mounted on the end blocks have been proposed, as well as coiled-
10 wire bells secured to the back and belly. The objection to some of these, as the glass and the tuning-forks, is that they vibrate with little intensity and produce very little effect on the tone. The objection to the wires and bells is
15 that their vibrations mingle and clash, and cannot be controlled. Wooden diaphragms arranged to divide the hollow of the instrument into two parts, as before stated, have been employed with good results; but this
20 construction tends to produce a "woody" tone, and is rather expensive.

I am also aware that ribbed metal plates secured at one end to the inner face of the belly of a guitar have been proposed. As before
25 stated, this form of plate will not produce any appreciable effect on the tone, as the ribs will substantially prevent vibration; and if the ribs were omitted and the plate attached only at the end the vibrations would produce the rumble
30 of a gong, and would confuse the notes of the instrument. I make my plate for violins thin, flat, and of uniform thickness, and mount it, as before stated, on the vibratory back of the instrument, but somewhat near the margin of
35 the same, so as not to interfere with its free vibration, and thus produce sweet, full, and resonant tones, which are not attainable by the

employment of wooden or glass diaphragms or plates, and tones which do not run into each other and produce confused sounds, such as
40 heard when the loud pedal of the piano is employed.

Having thus clearly set forth the distinctive features and advantages of my invention, I claim—

1. A violin or similar stringed instrument
45 provided with a thin plain plate of metal, H, of uniform thickness, mounted on blocks or studs secured to the inner face of the back A, as and for the purposes herein described.

2. A violin or similar stringed instrument
50 provided with a thin plain metal plate, H, corresponding in shape substantially with the shape of the inside of the back, said plate being mounted on blocks *c c*, fixed to the inner
55 face of the back, near its margin, the edge of the plate being substantially free and unattached to either the sides C or end blocks, *g g*, and provided with an opening through which the sound-post *b* may pass without touching,
60 as set forth.

3. The combination, with the violin proper, of the plate H, shaped as shown, and provided with an opening for the sound-post, the block
65 *c c*, mounted on the inner face of the back, the attaching-screws *d d*, and the hard washers *e e*, all arranged as and for the purposes set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM H. BRADY.

Witnesses:

ARTHUR C. FRASER,
HENRY CONNETT.