

(No Model.)

J. VIVIER.
VIOLIN.

No. 535,312.

Patented Mar. 5, 1895.

FIG. 1

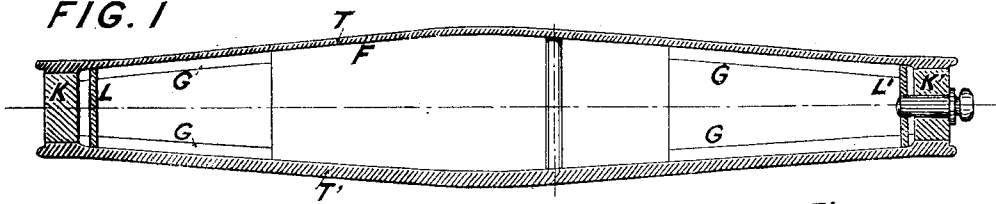


FIG. 2

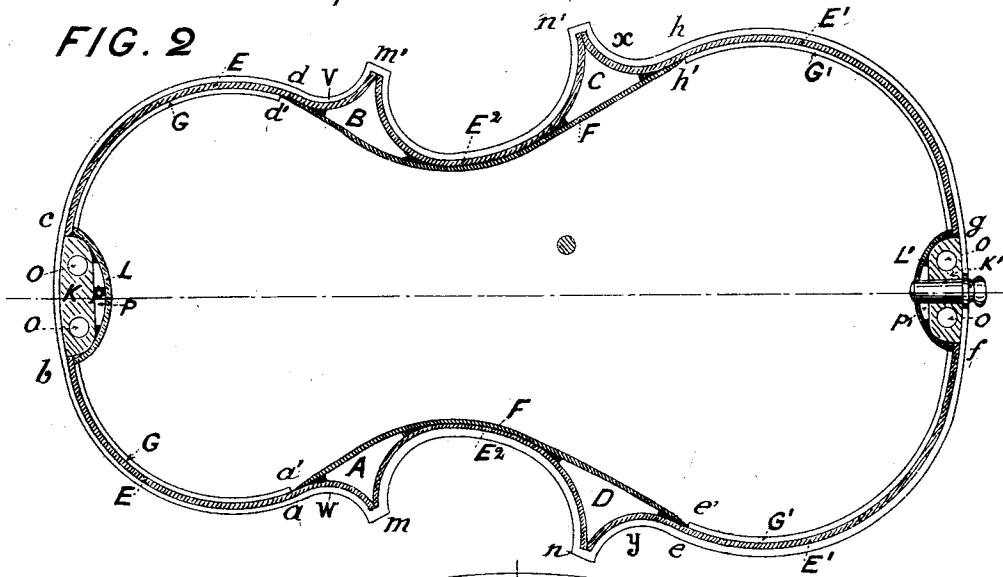


FIG. 3

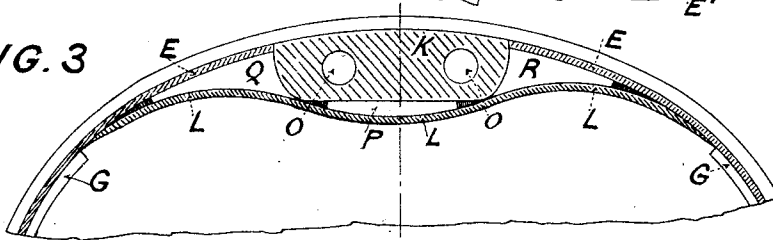
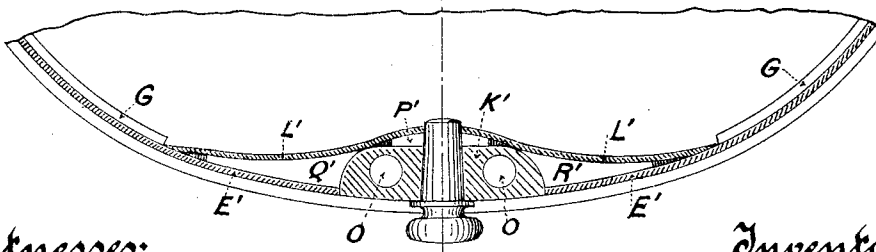


FIG. 4



Witnesses:

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UNITED STATES PATENT OFFICE.

JOSEPH VIVIER, OF BRUSSELS, BELGIUM.

VIOLIN.

SPECIFICATION forming part of Letters Patent No. 535,312, dated March 5, 1895.

Application filed December 11, 1893. Renewed February 9, 1895. Serial No. 537,756. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH VIVIER, a subject of the King of Belgium, and a resident of St. Gilles, Brussels, in the Kingdom of Belgium, have invented certain new and useful Improvements in Violins and other Stringed Instruments, of which the following is a specification.

My invention relates to improvements in the organization of orchestral instruments belonging to the violin kind wherein the incitation of vibration is by means of the bow and the invention especially relates to improvements in such organs of the body of the instrument as are faulty or present obstacles to the free and regular vibrations of the sounding boards; and the object of my invention is to provide an instrument which has great qualities of strength and sonorousness united with a great equality and uniformness in the purity of sound. It is well known that the construction of stringed instruments of this class is founded on the reinforcement of the sound which is done by the vibration of strings placed in contact with the sounding board and by the air which is held by the body of the instrument. It follows that by such an enforcement of the sound the period of the oscillations of the string is equal to the oscillations of the sound board and the air held in the body of the instrument, and a multiple of these oscillations produce the harmonics.

The invention consists essentially in modifying the interior of instruments of this class by means of supplemental stays or splices and by the formation of closed air compartments without changing the exterior form and thus admits of transforming both old style or ancient and modern instruments in conformity with my system as will hereinafter appear.

In the accompanying drawings:—Figure 1, represents a vertical longitudinal section; Fig. 2, a horizontal section of the body of an instrument illustrating my invention, and Figs. 3, and 4, horizontal sections of the extreme ends of violin altos and violoncellos, illustrating a modification or additional features thereof.

The top band E is inwardly curved at *a, b, c, d*, and outwardly curved at *a, m*, and at *d, m'*, and the bottom band E', is inwardly

curved at *e, f, g, h*, and outwardly curved at *e, n* and *h, n'*, the bands E, E', being spliced by the band E², to form the narrow part or waist of the body and also to form the four open bows *v, w, x, y*, which adorn the corners *m, m', n, n'*, of all violins.

The top band E, is stayed at its lower and upper inner edges from *a*, to *b* and from *c*, to *d*, by splices G, and the bottom band E', is similarly stayed at its lower and upper inner edges, from *e*, to *f*, and from *g*, to *h*, by similar splices G', for more securely uniting them to the cover T, and the back T', of the instrument.

The inner recess A, B, C, D, upon the interior of the body opposite the corners *m, m', n, n'*, are left open in all violins and are according to my system considered defective organs of the body, which I endeavor to remedy by placing the double splices F, which extend on the one side from *a'*, to *e'*, and upon the opposite side from *d'*, to *h'*, thus reinforcing the structural anatomy at the waist or weak part of the instrument and forming closed spaces of the recesses A, B, C, D, when the cover T, and back T' of the instrument are hermetically sealed thereon and also sealed to the side pieces adjacent thereto. The confined air within the closed spaces A, B, C, D, will thus be reinforced to increase the elasticity and facilitate the vibratory movement of the cover T and back T' and greatly increase the strength and sonorousness of the instrument.

The double splices F, above described are made of pear wood, and are veneered at their middle portion to the inner sides of the middle or waist splices E², and are also secured at their ends at the points *d', a'*, of the top-band E, and at the points *h', e'*, of the bottom band E', adjacent respectively to the ends of the splices G, G'.

Fillets *l* of wood are secured at the angles of intersection between the splices F, and the bands E, E', E², and thus brace the bands at the points most liable to give way. The hollow columns A, B, C, D, thus formed at the narrow point of the body and the reinforcement of the splice F, will give great strength at the narrow part or waist which has heretofore been a weak point, and the closed air spaces formed within the columns

will greatly reinforce the vibratory movement of the back and cover as hereinbefore described.

The top of the cover T, and the back T', are connected with the top band E, in the centerline of the instrument by an upper bracket brace K, to which the neck of the instrument is attached in the usual way and in order to reinforce this bracket brace structurally to give greater strength to the instrument and also to reinforce the sound boards and render them sensitive to vibrations, I have inclosed the brace bracket K having air spaces *o o*, by a splice L, of pear wood or other suitable wood which reaches from the point *b* to the point *c*, to leave a space P, between it and the bracket K, and to answer the same purpose, I have inclosed the bracket brace K' also provided with air spaces *o o*, at the bottom of the body with a similar splice L', which reaches from the point *f*, to *g*, to leave a space P', between it and the inner end by the said splice.

By the construction and system claimed by me the sound board rests as ordinarily in instruments on the entire circumference—that is, on the outer bands E, E', E², with the only difference that the bands E, E', E², are strengthened at the inner sides *a'*, *d'*, *e'*, *h'*, by the double band F, and between the points *a*, *b*, *c*, *d* and *e*, *f*, *g*, *h*, by the double bands G, and also strengthened around the brackets, K, K', respectively near the neck and button by the single bands L, L', as hereinbefore described.

In large stringed instruments of the violin kind, such as alto and cello, the brackets K, K', next to the neck and button are reduced as much as possible to give greater sonorousness to the sound of the instrument and the bands L, L', disposed of as shown in Figs. 3 and 4 of the drawings. The splices in such instances are larger than shown and described with reference to Figs. 1 and 2, and are curved inwardly at their ends and thus form double reversed curves, which extend beyond the ends of the bracket braces K, K', and hermetically seal the spaces Q, P, R, at the top and the spaces Q', P', R', at the bottom of the instrument.

It will be readily perceived from the foregoing, that instruments of both modern and the older or ancient pattern may be completely or partially altered, that is to say, the capable violin maker can make or use any or all of the different modes herein described, should it be found necessary to alter or improve faulty instruments.

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

1. A stringed instrument body of the violin kind comprising the outer bands, and reinforcing bands at the side bows hermetically sealed to form air spaces upon opposite sides and at the waist of the instrument, substantially as described.

2. A stringed instrument body comprising the outer bands, the bracket brace at the end, the cover and back, and the inner reinforcing band forming an inclosed space between the said brace and inner band, substantially as described.

3. A stringed instrument body comprising the outer bands, the bracket brace at the end of the body, the cover and back, and the double inner reinforcing band curved at its ends and united to the said bracket, and outer bands to form inclosed spaces upon opposite sides of said bracket brace, substantially as described.

4. A stringed instrument body comprising the outer bands, the cover and back, and the bracket brace at the end of the body having holes to form air spaces upon opposite sides of the central line of the instrument, substantially as described.

5. A stringed instrument comprising the outer bands E, E', E², the bracket brace K, K', the cover and back, the inner reinforcing splices F, P, P' and the top and bottom splices G, G', substantially as described for the purpose specified.

In testimony that I claim the foregoing as my invention I have signed my name in the presence of two subscribing witnesses.

JOSEPH VIVIER.

Witnesses:

S. DELANNUY,
GREGORY PHELAN.