(No Model.) 2 Sheets—Sheet 1.

C. GITTUS.

PIN OR PEG FOR STRINGS OF MUSICAL INSTRUMENTS.

No. 605,043. Patented May 31, 1898.

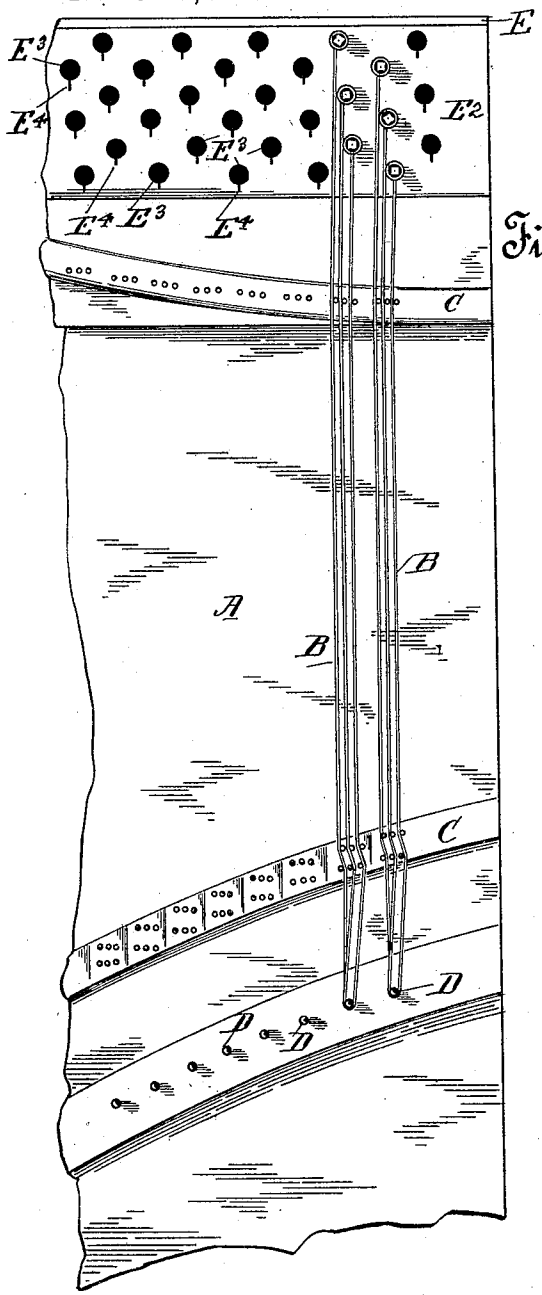


Fig. 1.

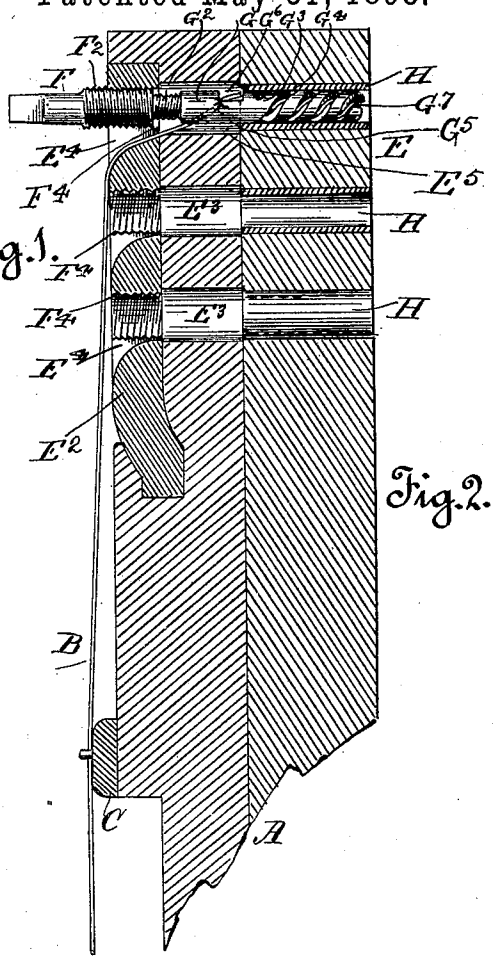
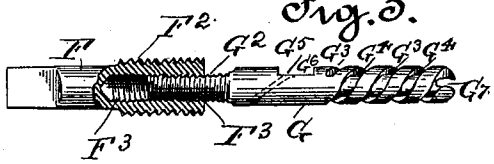


Fig. 2.

Fig. 3.



Witnesses.

The Fellmonteverde

L. C. Gittus.

Inventor.

Charles Gittus

by A. H. Ste.-Marie.

atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

C. GITTUS.

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Fig. 4.

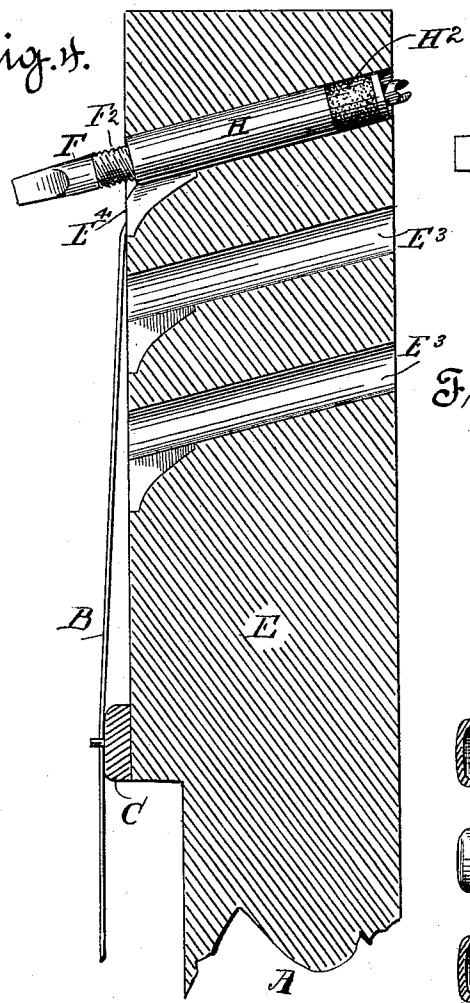


Fig. 5.

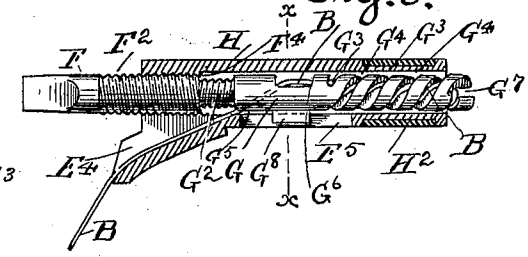


Fig. 6.

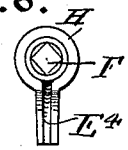


Fig. 7.

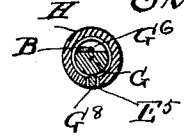


Fig. 8.

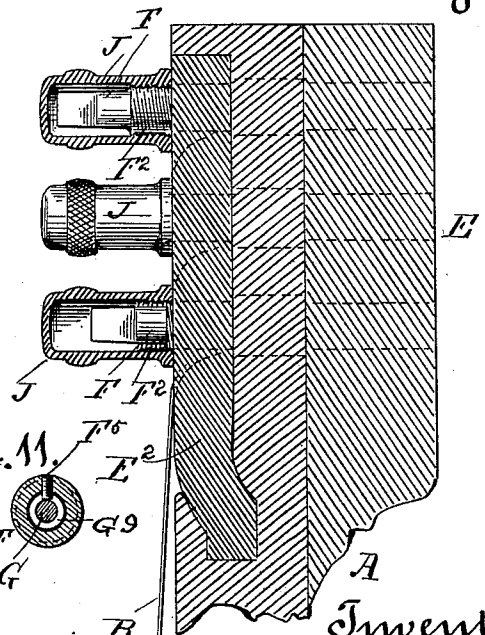
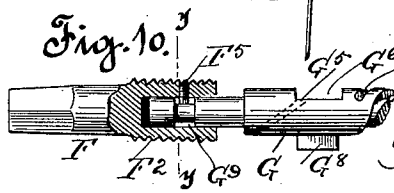


Fig. 9.



Fig. 11.

Fig. 10.



Witnesses.

H. Montevercle.

L. C. Gittus

Inventor.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES GITTUS, OF LONDON, ENGLAND, ASSIGNOR OF ONE-THIRD TO CHARLES GITTUS, JR., AND LOUIS C. GITTUS, OF GOLDEN GATE, CALIFORNIA.

PIN OR PEG FOR STRINGS OF MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 605,043, dated May 31, 1898.

Application filed December 29, 1897. Serial No. 664,481. (No model.)

To all whom it may concern:

Be it known that I, CHARLES GITTUS, a subject of Her Majesty the Queen of Great Britain, and a resident of the city of London, England, have invented certain new and useful Improvements in Pins or Pegs for the Strings of Wire-Strung Musical Instruments, of which the following is a specification.

My invention relates to an improved pin for holding the wires or strings of wire-strung musical instruments, and especially of pianofortes of all kinds.

The object of the said invention is to provide means for securing the quick, accurate, and permanent adjustment of the strings of the pianoforte and other musical instruments of the stringed group, so they may be tuned readily and kept in tune a much longer time than is possible with the use of any other stringing and tuning device heretofore known.

In setting forth the nature of my invention I will describe the same with especial view to its application to an upright piano of ordinary construction, reference being had to the drawings hereto annexed, in which—

Figure 1 is a front elevation of part of a string-frame such as is employed in this form of pianoforte and to which my improvements aforesaid are applied; Fig. 2, an enlarged longitudinal section through the upper end of the said Fig. 1; Fig. 3, a detailed view, partly in section, of one form of tuning-pin and parts thereto related made according to my invention and specially adapted for use on a string-frame having a metal wrest-plate; Fig. 4, a view similar to Fig. 2, but showing a wrest-block entirely made of wood and a tuning-pin having a metal socket fitted in the said block; Fig. 5, a detached side view of the socket and pin and related parts shown in the said Fig. 4, the socket appearing in section; Fig. 6, a front end view of the construction shown in the said Fig. 5; Fig. 7, a cross-section on the line $x\,x$ of the same Fig. 5; Fig. 8, a sectional elevation of part of a string-frame provided with tuning-pins made like those shown in the preceding figures, but having in addition cases or covers placed over their heads; Fig. 9, a top view of one of the said cases or covers; Fig. 10, a side elevation, partly broken and partly in section, of a tuning-pin of modified construction; and Fig. 11, a cross-section taken from the line y y of the said Fig. 10.

Similar letters of reference indicate similar parts throughout.

Let A designate the string-frame of an upright pianoforte; B, the strings or wires thereof; C, the bridges or other similar supports over which the said strings or wires are passed and stretched; D, the hitch-pins around which one end of each string or wire is looped or otherwise secured; E, that part of the string-frame known as the "wrest-block" or "wrest-plank" and receiving the tuning-pins or wrest-pins, hereinafter described, to which the other end of each string or wire is attached, and E^2 the wrest-pin piece or metal plate placed over the wrest-block in some pianofortes and through which the tuning-pins are screwed into the wrest-block.

My improved means aforesaid for holding and adjusting the strings or wires B consist, essentially, of two parts—first, a screw-plug F, having an external thread F^2 and an internal thread F^3 in opposite directions and adapted to be screwed into the wrest-plate E^2 or other equivalent part of the wrest plank or block E, and, second, a pin G, provided at one end with a screw-thread G^2, adapted to engage in the interior screw F^3 of the plug aforesaid and having at its other end a double-spiral groove—that is, a groove formed of two consecutive spiral channels G^3 G^4, in which the wire B is coiled.

The pianoforte-wire B passes in the first instance through a hole G^5, cut obliquely from a point at the circumference of the said pin G toward its center and in the direction of its axis, and from this it passes into a deep recess or slot G^6, forming a continuation of the said hole. It is then coiled in the spiral groove G^3 until it reaches the end of the pin, passes through a slit G^7 at the end, and returns along the groove G^4, and is finally cut off at the end thereof. In consequence of this manner of arranging the wire upon the pin

the wire is not bent at any abrupt angle, and when strung to the required pitch the strain is equally distributed over its whole surface in such a manner as to obviate any partial strains on parts thereof, and thereby diminish the risk of breakage. The wire B, after being secured to the pin G in the manner aforesaid, is strung over the front of the wrest plank or plate in the usual manner and inserted with the pin into one of the pin-holes E^3, provided therein, the wire passing through a sloping way or slot E^4 underneath the pin. Where a wooden wrest-plank is employed, metal sockets H are inserted therein, the same lining the pin-holes E^3 and having each a lip suitably protruding to afford the lead or inclined passage-way $E^{4\times}$ for the several strings or wires B to run in, as illustrated in Fig. 4. In such a case each socket H is provided with the necessary internal thread F^4 for receiving the external thread F^2 of the screw-plug F. Where a metal plate like E^2 is used to cover or face the wrest-plank, a socket H′ without a lip may be employed, the slot or way E^4 being cut or formed in the plate itself, as shown in Figs. 1 and 2. As indicated in the said Fig. 2, the sockets H′ in the latter case need not extend entirely through the pin-holes in the wrest-plank, and the thread for the screw-plug may be formed in the plate E^2.

The pin G, with the wire thereto attached, is driven into and held in the wrest-plank through the agency of the screw-plug F, aforementioned, the thread F^2 of which is made to engage the thread F^4 within the hole E^3, provided for the said plug, whether the latter thread be formed in the wrest-plank or the plate or socket thereof, as hereinabove stated. The external thread F^2 of the plug is preferably made right-handed, and the oppositely-running internal thread F^3 is therefore left-handed, and so is the external thread G^2 of the pin G, which is made to engage therein. It follows that when the screw-plug F is turned to the right and advanced in the hollow screw F^4 of the wrest-plank the inside screw F^3 of the said plug is worked off the thread G^2 of the screw-pin G, and the latter also advances in the wrest-plank, thereby tightening the wire fastened to the said pin. On the contrary, when the screw-plug is turned to the left it works out of the wrest-plank, while its interior screw F^3 works in on the screw-pin, and both the said screw-plug and screw-pin are drawn back, producing in consequence a proportionate slack in the pianoforte-wire. The threads F^2 and F^4 on the one hand and the threads F^3 and G^2 on the other may be made either of the same pitch or of differential pitch, as desired. In the drawings hereto annexed I have shown the threads F^2 F^4 as being coarser than the threads F^3 G^2, so that the screw-pin having the finer thread will not be run in or out of the wrest-plank too rapidly by the screw-plug, and the wire under its control may be adjusted with the greatest precision and tuned to a nicety. This is optional, however, and the same result may be accomplished with more or less care by reversing these conditions or making the screw-plug and screw-pin with threads of the same pitch. The outer part of the plug F is made square in cross-section, so that it may be turned with an ordinary tuning-key. It covers entirely the front end of the screw-pin G and practically forms the head of it.

In order to hold the pin G in the proper position and to prevent it from turning around and thus causing extra strains upon the wire B, a slot may be cut in the bottom of the hole E^3 provided therefor in the wrest-plank or iron frame corresponding thereto or in the socket H thereof, as at E^5, in which will engage a feather or rib G^8, forming part of the said pin, or any equivalent device, so as to secure that the pin can only move forward or backward in one plane. Nevertheless I do not limit my invention to a tuning-pin of which the said slot and feather are essential features, as it may work fairly well without these, and the same have therefore been purposely omitted from the three figures of the first sheet of drawings hereunto annexed.

The several pins G, to which the strings B are attached, may be set in the wrest-plank at any convenient angle, as the drawings suggest, though it is preferable to place them at an angle slightly more or less than ninety degrees to the direction of the strings, in order to have these latter adjusted in the best manner for convenience of manufacture and tuning. Where the wrest-plank is all made of wood and metal sockets for the pins are used, such as are shown in Figs. 4 to 7, I prefer making these sockets with a circumferential groove, which I fill with paper packing H^2 or other material readily taking cement, so the same will not fail to adhere to the wood. I thus avoid the danger of the metal sockets with the pins therein slipping off the pin-holes of the wooden wrest-plank, especially if they be inclined, as shown.

In certain cases I make the pin G without a screw-thread and simply fitting in the plug F aforesaid in the manner of a socket, as represented in Figs. 10 and 11. The pin is then provided with an annular groove G^9, in which engages a small stud F^5, screwed into and projected inwardly from the plug F. It will be seen that as the plug is screwed in or out of the wrest-plank the stud engaging the annular groove in the pin will cause the latter to either advance or recede with the plug, as the case may be, or I may arrange the threaded end of the pin to screw into a collar (not shown) which will interlock by means of suitable slots and projections with the screw-plug. The plug in such cases can be constructed with a smooth bore inside; but the arrangement first described is preferable, and the modification illustrated in Figs. 10 and 11 and the other here spoken of are re-

ferred to merely to point out changes of construction which fall within the scope of my invention.

If thought requisite, a cover or case J, of brass or other suitable material, may be screwed or placed over the plug F, covering the head of the pin, as shown in Figs. 8 and 9. This would insure a pleasing uniformity of appearance where, owing to the various degress of tension given to the different wires, some of the tuning-pins are driven down into the wrest-plank more than the others.

The string holding and adjusting apparatus hereinbefore described may be made in any suitable material. I have constructed the screw-plugs of brass and the screw-pins of steel, but other metals or materials may of course be employed if found advantageous. The exact arrangement of the parts is also capable of variation to some extent, according as the invention is to be applied to square, upright, or grand pianofortes or other wire-strung musical instruments.

Having now described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a stringed musical instrument, a double-acting apparatus of the nature described consisting of a screw-plug having an external thread and an internal thread in opposite directions, a string-holding pin provided with a screw-thread adapted to engage in the interior screw of the said plug, and a wrest-plank with a suitable hole into which the plug is screwed and wherein it may be turned either forward or backward so the pin and string will be moved with it at the same time and in the same direction by its opposite threads, substantially as set forth.

2. In an apparatus of the nature described, a string-holding pin made with a double-spiral groove the channels of which are suitably joined and in which the string may be coiled in opposite directions, substantially as set forth.

3. In a stringed musical instrument, a device for the purpose described comprising a screw-plug having an external thread engaging a screw-threaded hole in the wrest-plank, a string-holding pin provided with a screw-thread engaging a screw-thread on said screw-plug running in opposite direction to the first-mentioned external thread, said string-holding pin being provided with a spiral groove, substantially as set forth.

4. In an apparatus of the nature described, a pin having a hole cut obliquely from a point at its circumference toward its center and in the direction of its axis and a recess or slot forming a continuation thereof, and having a spiral groove combined with a string one end of which is passed through the said hole and recess or slot and thence wound about the said pin in said spiral groove, and a wrest-plank into which the pin is driven at an angle to the direction of the main part of the string and having a sloping way or passage through which is led the end of the string that is attached to the pin, substantially as set forth.

5. In an apparatus of the nature described, a wrest-plank provided with a screw-threaded hole, combined with a spirally-grooved pin inserted therein, a string coiled in the groove of said pin, a screw-plug engaging in the said hole, and means connecting the said pin and screw-plug whereby the same may be driven in and out of the wrest-plank together, substantially as set forth.

6. In an apparatus of the nature described, the combination of a wrest-plank having a suitable hole, a socket provided with a circumferential groove and packing therein that will take cement whereby the same may be firmly secured in the said hole, and a string-holding pin arranged to enter the said socket, substantially as set forth.

7. In an apparatus of the nature described, a wrest-plank having a suitable number of pin-holes and string-holding pins provided with means whereby said pins can be driven at a variable depth therein, combined with covers or cases of uniform height or length bearing on the face of the wrest-plank about the holes thereof and covering the heads of the several pins, substantially as shown.

8. In a stringed musical instrument, a double-acting apparatus of the nature described consisting of a screw-plug having an external thread and an internal thread in opposite directions, a string-holding pin provided externally with a spiral groove and also provided with a screw-thread adapted to engage in the interior screw-thread of the said plug, and a wrest-plank with a suitable hole into which the plug is screwed and wherein it may be turned either forward or backward so that the pin and string will be moved with it at the same time and in the same direction.

CHARLES GITTUS. [L. S.]

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