

No. 648,758.

Patented May 1, 1900.

H. KNAPTON.
PIANOFORTE.

(Application filed June 14, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

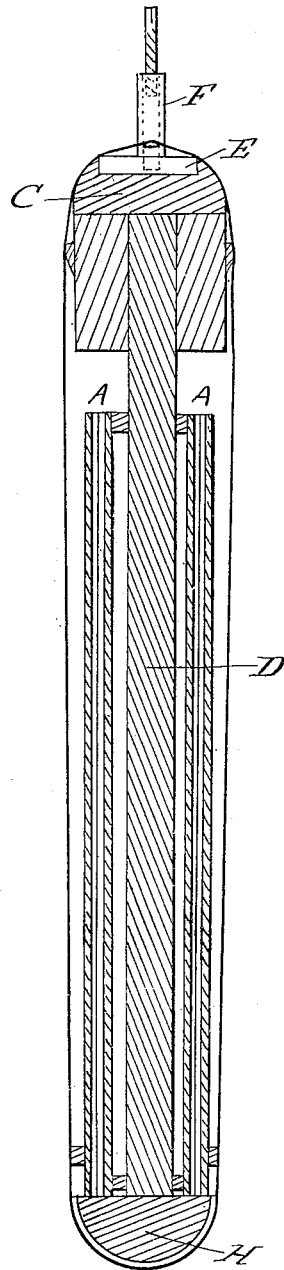
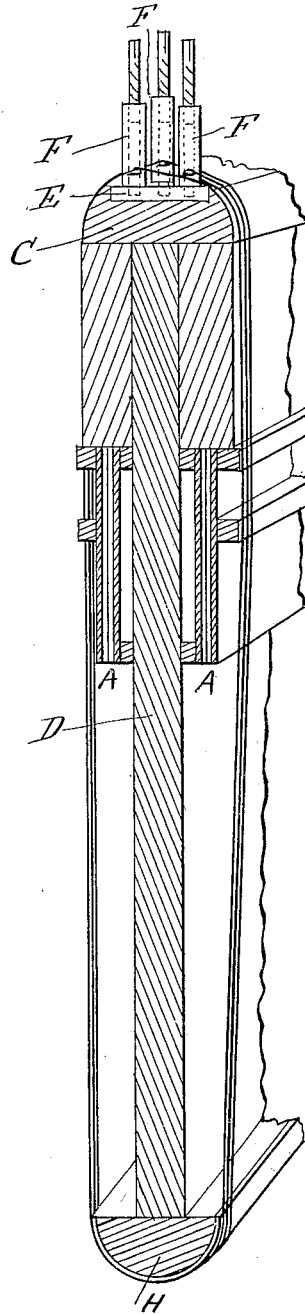


Fig. 2



Witnesses

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UNITED STATES PATENT OFFICE.

HARRY KNAPTON, OF LONDON, ENGLAND.

PIANOFORTE.

SPECIFICATION forming part of Letters Patent No. 648,758, dated May 1, 1900.

Application filed June 14, 1899. Serial No. 720,521. (No model.)

To all whom it may concern:

Be it known that I, HARRY KNAPTON, a subject of the Queen of Great Britain and Ireland, and a resident of London, county of Middlesex, England, have invented certain

Improvements in Pianofortes and Similar Instruments, (for which I have obtained a French patent dated May 24, 1899,) of which the following is a specification.

Referring first to the annexed drawings, Figure 1 shows a view of the bass end, and Fig. 2 a view of the treble end, of the instrument, in which may be seen the central support or "back" D and the two sounding boards A A. The strings—one at the bass end and three at the trichord treble end—are represented as going completely around, starting from the tuning-pin at *d* and terminating at the same point. Fig. 3 is inserted only to show the position of the damper M and not the action as a whole. In Fig. 4 are shown apertures marked B' B' B' to allow the passage of the upper treble-strings, which are not necessarily so long, although continuous, as in the bass. Fig. 5 shows my method of giving tension to the strings, the screw *e* abutting on a fixed pin *a*, raising a loose casing *c*, and with it a projection either at the top or bottom, marked *d*. It is to this projection that the two ends of the string are attached.

I now proceed to describe in detail.

In a frame or case not differing essentially from the ordinary cottage-frame as at present manufactured and with a view to producing an improved tone both in quality and quantity I place and arrange the following:

First. In a pianoforte I provide a central support or back made of wood for the reception of the strings and tuning arrangement, which is fully described later on, together with the method of dual stringing.

Secondly. By sounding boards or bellies made of three thicknesses of wood glued together on the round—that is to say, glued together so as to give a convex shape, that is, slightly bowed, the same as a violin-belly is made—and with the grain of the center piece running directly across the grain of the two other pieces. The central support of the instrument—namely, that portion which takes the strain when the strings are in tension—I

place between the two sounding boards or bellies.

Thirdly. A plank C, Figs. 1 and 2, is secured on the top of the central support D, and upon this plank C is fixed an iron plate E, with holes spaced out in the usual manner for the reception of the pins F, which are of a particular pattern necessary for securing the proper tension of the strings. The pin is worked upon the telescope principle, which will have the effect of tightening or loosening the string to an extreme nicety. The description of the pin F is as follows: Over a center piece of iron flattened on two sides is fitted a casing which does not quite reach the bottom, having at the top a solid head *b*. On one side of the flattened part of the casing a small distance from the bottom is fixed a small projection *d* for the reception or support of the string. A hole is tapped through the solid head, into which an elevator-screw *e* with squared top is inserted, working upon a center hole or seat in the center stem *a*. In the horizontal grand pianofortes these pins will be arranged in the front of the rest-plank. The mode of operation of the tuning-pins is as follows: The tuning-key is inserted on the squared head of screw *e*, and the outer casing *c* is raised or lowered, as required, by means of the elevator-screw *e* operating on the center hole or tap of casing *c*. As has been explained, the strings rest upon the projections *d*, attached to the outer casing *c*, and the raising or lowering of the outer casing must necessarily tighten or relax the tension of the strings. The central support is provided at the bottom with a hard core, preferably a long piece of metal H, running the whole length, or any number of shorter pieces. The strings are passed right around the central support and sounding-boards and two ends of the string then fastened together at the back of the instrument, just below the ledge or projection *d* mentioned in the description of the pin, thus creating a continuous string. This string is now placed in position on the projection *d*, of the pin ready for tuning. Bridges not differing essentially from those now in use are placed in their proper position; but I arrange that the top bridge at the back may be made in sections, as its position is fixed

after tuning has been commenced in some instances. In order to allow the strings to pass entirely around the central support, &c., as described, the central support will be fixed to the two ends of the case, leaving the bottom free and clear, the shoe or core H being provided to prevent the strings from becoming embedded, as would be the result in unprotected wood.

Fourthly. By an improved damping arrangement, to be used singly or in duplicate, the front set M will be arranged so that the damping will take place immediately behind the spot where the hammer L strikes the string. The set of dampers will be arranged in the aperture caused by the front sounding-board not being carried right up to the top plank, as shown in Figs. 1 and 4. Each damper will be furnished with a pin N, which will protrude between the strings to receive the lift O of the push-piece as each note is struck, Fig. 3, the whole set being lifted in the usual way by the right pedal. There is also another set arranged at the back of the instrument, which may be made of one piece, there being no necessity for division, as in the case of the front set, and this set may be operated by a third pedal or knee-swell or stop. There will therefore be three pedals, or two pedals and knee-swell or stop, one for each set of dampers and one for soft or celeste action.

The sounding boards or bellies are marked A, Figs. 1 and 2 showing the various thicknesses of which they are made. I prefer to connect the two bellies by one or more posts, as usual with the front and back of a violin. To insure the complete sympathy of the sounding-boards, one or more holes will be made through the central support of much larger diameter to allow of the free passage of the said posts, the object being, as before mentioned, to insure sympathy and not for strength. Fig. 4 gives a general view of the front of the instrument. The apertures marked B' B' B' are inserted to avoid useless length of string in the upper notes, although of course strings of a uniform length might be used without disadvantage. It is usual in all pianos to have shorter strings at the treble portion. Consequently I am compelled to make apertures for the strings to pass through in order to obtain the same effect, my mode of stringing being continuous or "all round." The blocks of hard wood (marked B B B) are added for strength and are shod conformably to the description of the shoeing H of the central support D. The pin arrangement is shown in Fig. 5.

The dampers marked are just in touch with the strings, whence they may be removed by the pedals, as already described.

There is no reason for the back damper to be behind the strings, as with the front, and it may be placed on either back or front of the strings.

The application of the herein-described dual stringing is suitable to the horizontal grand pianoforte and similar instruments, but obviously many alterations would be necessary in matters of detail.

What I claim is—

1. A pianoforte having a central wooden support D with end pieces C and H adapted to have strings passed thereabout, said central support being made to sustain the strain or pressure of the strings free from any metallic frame or additional support, and strings passed continuously about the support and end pieces, substantially as described.

2. A pianoforte having a central wooden support D with end pieces C and H adapted to have strings passed thereabout, said central support being made to sustain the strain or pressure of the strings free from any metallic frame or additional support, and sounding-boards supported clear from or out of contact with the central support, said central support being located between the sounding-boards, and strings passed continuously about the support and sounding-boards, substantially as described.

3. A support and sounding-board, a pin-support on the top or upper edge of the support and provided with a tuning-pin having a set-screw for the pin and a string extended or looped continuously about the support and leaving both branches of the loop free from or movable along the support, both of said branches being connected to the pin, substantially as described.

4. A support and sounding-board provided with a tuning-pin and a string looped continuously about the support so as to have both branches of the loop stretched or tuned by the pin, substantially as described.

5. A support, a sounding-board and a string extended about the support, combined with a hammer, a damper placed on line with the hammer and on the side of the string opposite to that struck by the hammer, a damper-actuating pin N extended past the string, a push-piece for actuating the pin, and a hammer-actuator to which the push-piece is connected, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses:

HARRY KNAPTON.

Witnesses:

HERBERT D. JAMESON,
A. NUTTING.