A. HERRLING.

COMBINATION WIND AND STRINGED INSTRUMENT.

APPLICATION FILED JAN. 24, 1908.

915,293.

Patented Mar. 16, 1909.

2 SHEETS—SHEET 1.

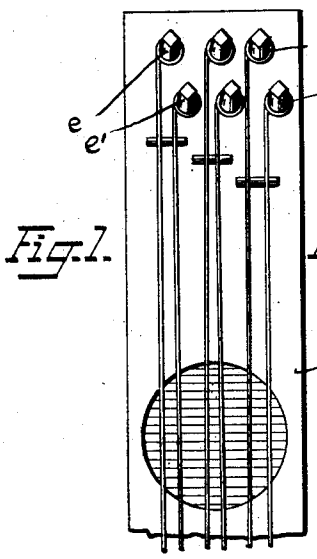


Fig. 1.

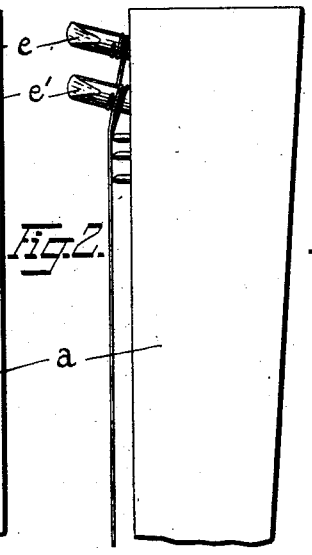


Fig. 2.

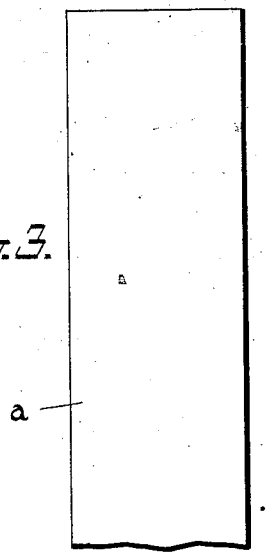
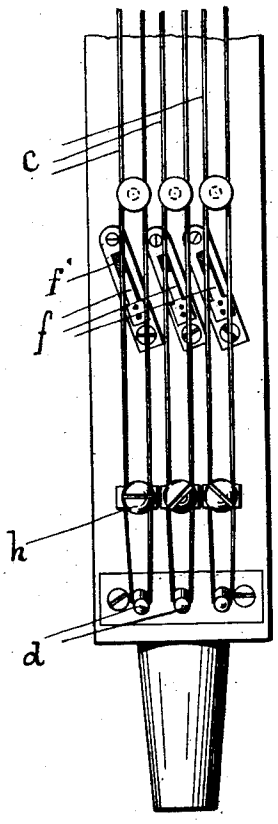
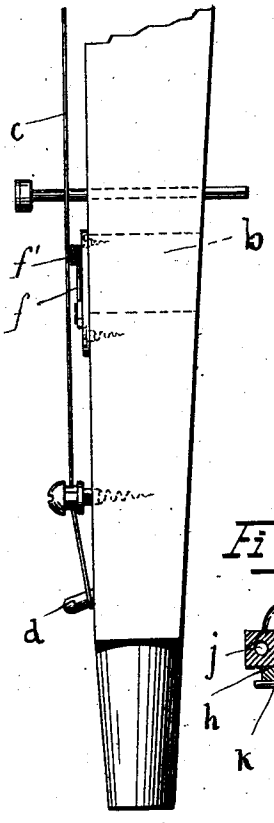


Fig. 3.





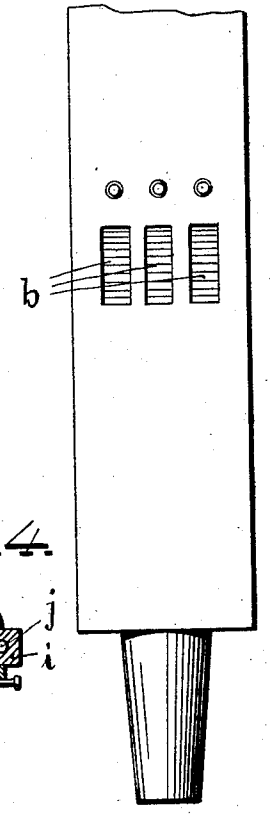
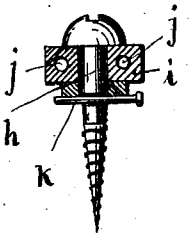


Fig. 4.



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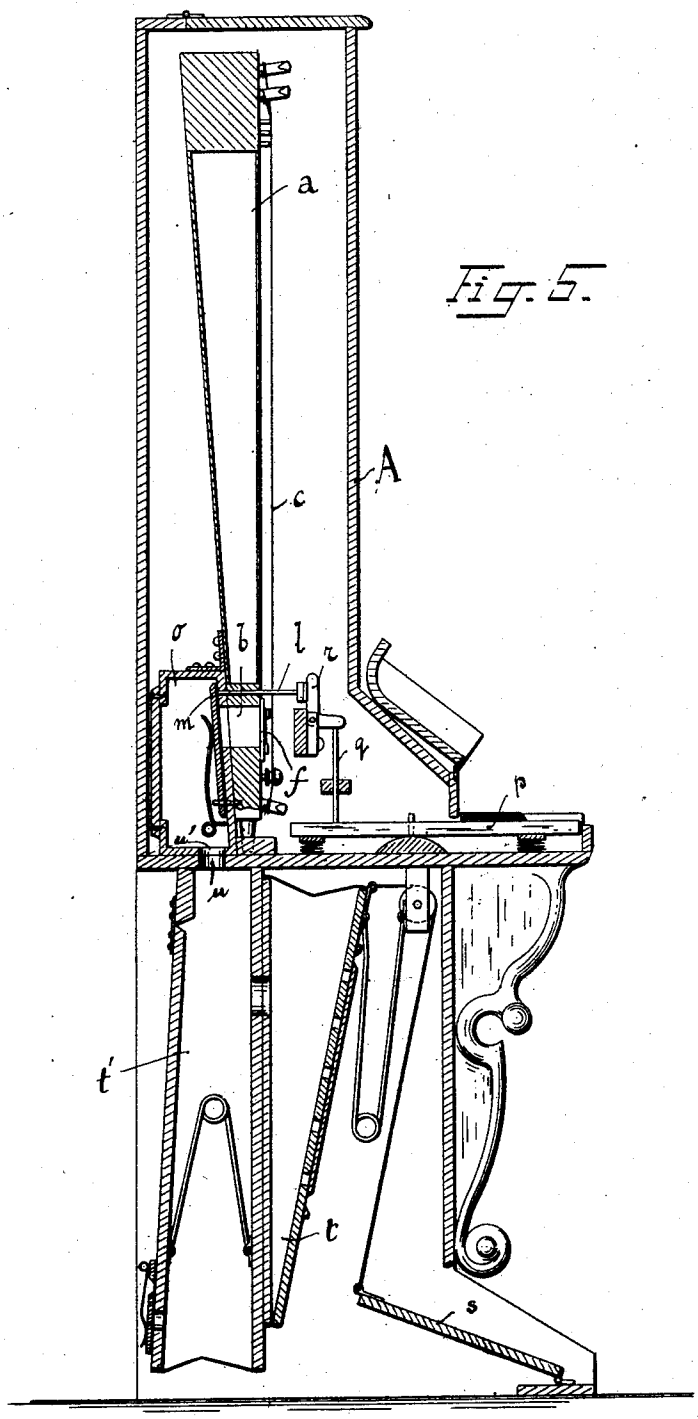

Fig. 5.

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COMBINATION WIND AND STRINGED INSTRUMENT.

No. 915,293. Specification of Letters Patent. Patented March 16, 1909.

Application filed January 24, 1908. Serial No. 412,471.

To all whom it may concern:

Be it known that I, ALFRED HERRLING, a subject of the German Emperor, and a resident of New York, county of New York, State of New York, have invented certain new and useful Improvements in Combination Wind and Stringed Instruments, of which the following is a specification.

The present invention relates to sound-producing devices for musical instruments and consists of a wooden resonant having the shape of an organ pipe, and which is equipped on its face surface with a number of strings and reeds.

The object of my invention is to arrange the device in such a manner that when the reeds are set in vibration by an air current they will act against the strings causing them to sound and to produce a combination reed and string tone, which will be more harmonious and less keen than the reed tones.

Another object of my invention is to provide means, whereby the tuned strings can be readily adjusted in position relative to the reeds.

My invention will be more fully understood from the accompanying drawings in which similar reference letters denote corresponding parts and in which—

Figure 1 is a front view; Fig. 2 a side view; Fig. 3 a rear view of the sound producing device; Fig. 4 a detail thereof; and Fig. 5 a vertical section of a harmonium equipped with my new sound-producing device.

With reference to the drawings, *a* denotes the wooden resonant body which has the shape of an ordinary organ pipe. At the lower portion this body is provided with a series of transverse openings *b* at the front end of which reeds *f* of ordinary construction are arranged that are suitably secured to the resonant body *a*. Longitudinally over the face surface of the latter steel strings *e* are spanned of which each is doubled by bending it around a pin *d* secured in the lower portion of the body *a*. The two ends of the doubled strings are wound around and secured each to a separate pin or key *e*, *e'*. In the present example I have shown the resonant body to be equipped with three doubled strings.

The reeds *f* are arranged in an inclined position relative to the vertical axis of the body *a* (Fig. 1) so that the projection or nose *f'* of each reed will register only with one branch of a doubled string. When the reed is set in vibration by air current, as will be hereinafter fully explained, its projection *f'* will strike only that portion or branch of the doubled string with which it registers and cause the same to vibrate, producing a sound, the pitch of which is normally somewhat higher than that of the reed. By the pegs *e*, *e'*, however, the strings can be tuned so as to have a higher or lower pitch. As both branches of the doubled string are equally tuned, the unaffected branch of the string will follow the vibrations of the other branch and will also sound.

Near the point where the strings are doubled an adjusting device is provided for each string by means of which the strings can be adjusted relative to the reeds. This adjusting device consists of an ordinary wood screw *h* on which is loosely mounted a block *i*. This block is provided with holes *j* through which the branches of the doubled strings are passed. The block is held against displacement by a pin *k*. By screwing the screw *h* up or down the strings can be more or less raised or lowered relative to the vibrators, so that when owing to the influence of temperature, the strings have changed their position with respect to the vibrators, the same can be readily readjusted.

In Fig. 5 I have shown by way of example a harmonium A which is equipped with my new sound-producing device. Transversally projecting through the upright resonant body *a* are pins *l*, the rear ends of which are adapted to act against spring actuated valves *m* which normally close the openings *b* toward the wind chest *o* arranged at the rear of the resonant body *a* within the harmonium A. Movement to the pins *l* is transmitted from the keys *p*, upon the depression of the latter, by means of rods *q* connected with bell crank levers *r* that act against the headed ends of said pins *l*. The pedal *s* operates bellows *t*, *t'* which through openings *u*, *u'* are in connection with the wind chest *o*. Upon the depression of a key *p* of the harmonium the corresponding valve *m* will be opened and allow air by suction to rush in through opening *b* into the wind chest *o* in which the air has been rarefied by the operation of the bellows. By this air current the reed or tongue will be set in vibration, and be caused thereby to act on the doubled string, owing to which a new tone will be produced which is a

combination reed and string tone, sounding more harmonious than the reed tone alone.

What I claim and desire to secure by Letters Patent is:

1. In musical instruments, a sound producing device, comprising a resonant body having transverse openings, vibrators or reeds attached to said body covering one end of said openings, doubled strings longitudinally spanned over said resonant body and extending over said reeds one branch of said doubled string being acted upon by the said reed.

2. In musical instruments, a sound producing device, comprising a resonant body having transverse openings, vibrators or reeds attached to said body covering one end of said openings, and arranged at an angle to the longitudinal axis, doubled strings longitudinally spanned over said resonant body and extending over said reeds one branch of said doubled string being acted upon by the said reed.

3. In musical instruments, a sound producing device, comprising a resonant body having transverse openings, vibrators or reeds attached to said body covering one end of said openings, doubled strings longitudinally spanned over said resonant body and extending over said reeds one branch of said doubled string being acted upon by the said reed, and means for the adjustment of the strings relative to said reeds.

4. In musical instruments, a sound producing device, comprising a resonant body having transverse openings, vibrators or reeds attached to said body covering one end of said openings, and arranged at an angle to the longitudinal axis, doubled strings longitudinally spanned over said resonant body and extending over said reeds one branch of said doubled string being acted upon by the said reed, and means for the adjustment of the strings relative to said reeds.

5. A musical instrument, comprising a wind chest, resonant bodies arranged in front of said wind chest and having transverse openings leading into the latter, valves controlling said openings, vibrators or reeds arranged at the opposite end of said openings, doubled strings longitudinally spanned over said resonant bodies and of which one string extends over said reeds, and means for actuating the said valves.

6. A musical instrument, comprising a wind chest, resonant bodies arranged in front of said wind chest and having transverse openings leading into the latter, valves controlling said openings, vibrators or reeds arranged at the opposite end of said openings at an angle to the longitudinal axis of the resonant bodies, doubled strings longitudinally spanned over said bodies and of which one string extends over said reeds.

7. A musical instrument, comprising a wind chest, resonant bodies arranged in front of said wind chest and having transverse openings leading into the latter, valves controlling the said openings, vibrators or reeds arranged at the opposite end of said openings at an angle to the longitudinal axis of the resonant bodies, doubled strings longitudinally spanned over said bodies and of which one string extends over said reeds, and means for actuating the said valves.

8. In musical instruments, a sound-producing device, comprising a resonant body having transverse openings, vibrators or reeds attached to said body and covering one end of said openings, doubled strings longitudinally spanned over said resonant body and of which one string extends over and is acted upon by the said reed, a screw working in the resonant body and a block loosely carried by said screw and having openings for the passage of the strings, said screw and block serving as an adjusting device for said strings.

9. In musical instruments, a sound-producing device, comprising a resonant body having transverse openings, vibrators or reeds attached to said body and covering one end of said openings, doubled strings longitudinally spanned over said resonant body and of which one string extends over and is acted upon by the said reed, a screw working in the resonant body, a block loosely carried by said screw and having openings for the passage of the strings, said screw and block serving as an adjusting device for said strings, and means for preventing said block from displacement.

Signed at New York this 22 day of January, 1908.

ALFRED HERRLING.

Witnesses:

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MAX D. ORDMANN.