No. 883,222. PATENTED MAR. 31, 1908.

H. MÜLLER & J. STEIN.

STRINGED MUSICAL INSTRUMENT.

APPLICATION FILED AUG. 12, 1905.

3 SHEETS—SHEET 1.

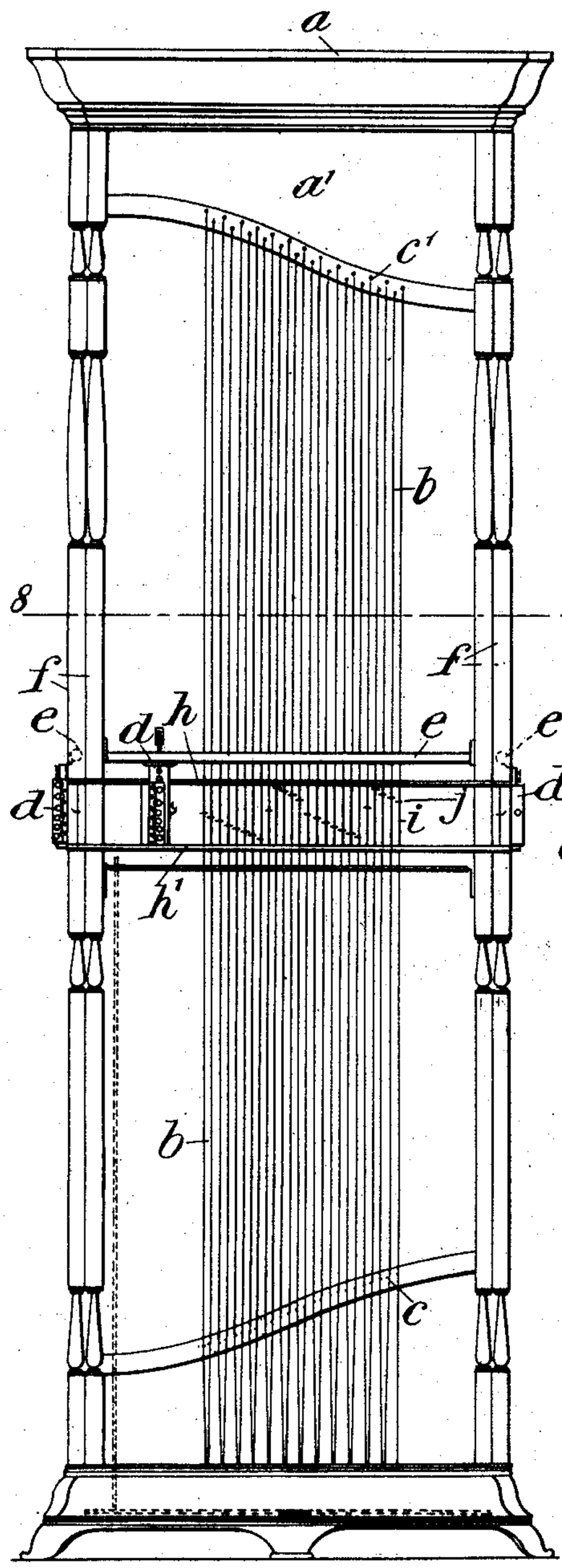

Fig. 1.

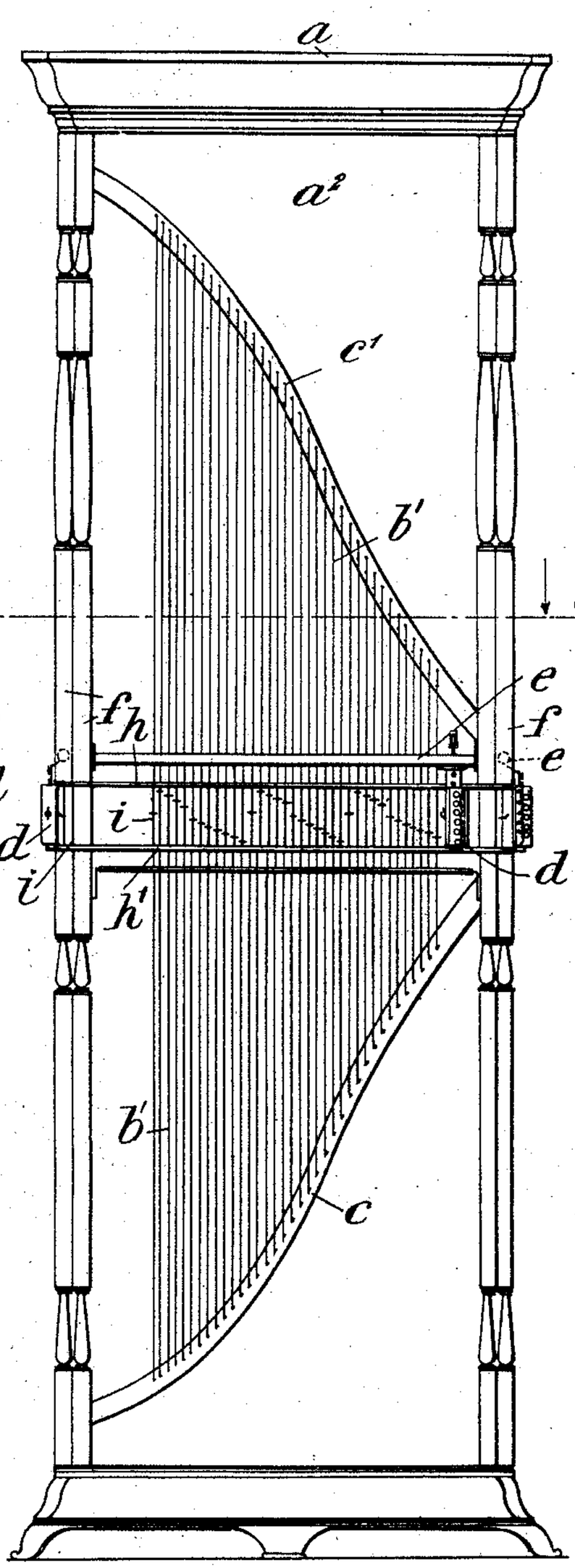

Fig. 2.

Witnesses
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3 SHEETS—SHEET 2.

Fig. 3.

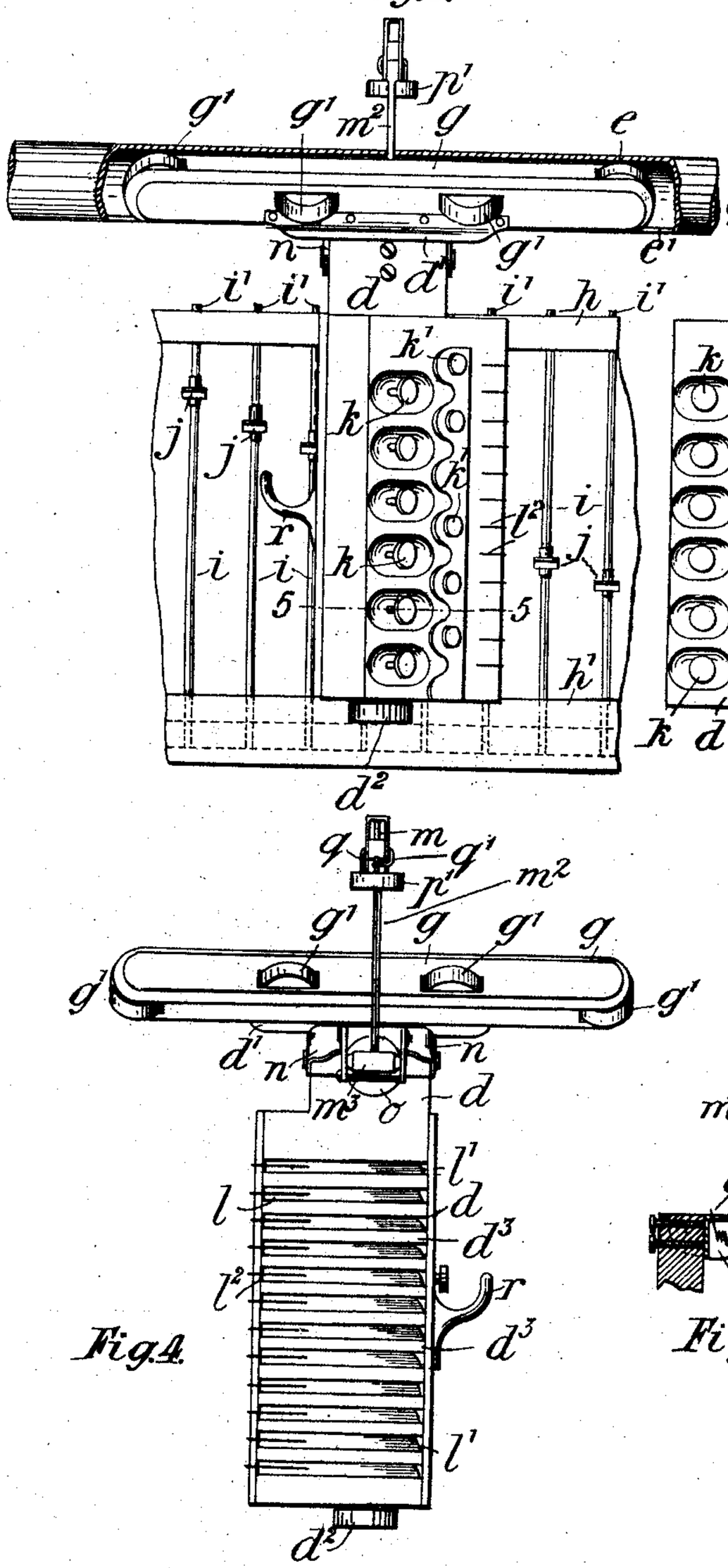

Fig. 4.

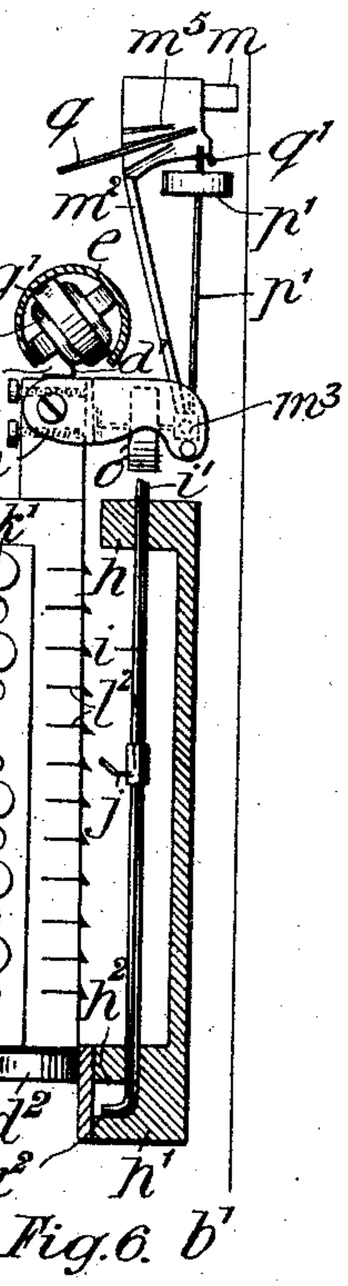

Fig. 6. b'

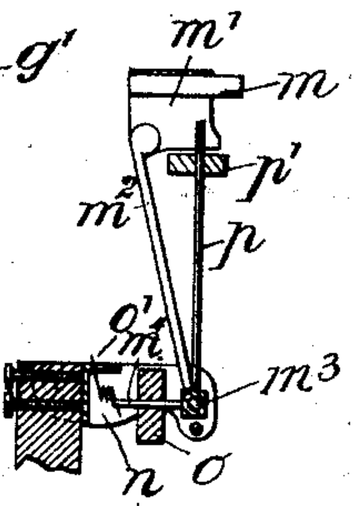

Fig. 7.

Witnesses

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3 SHEETS—SHEET 3.

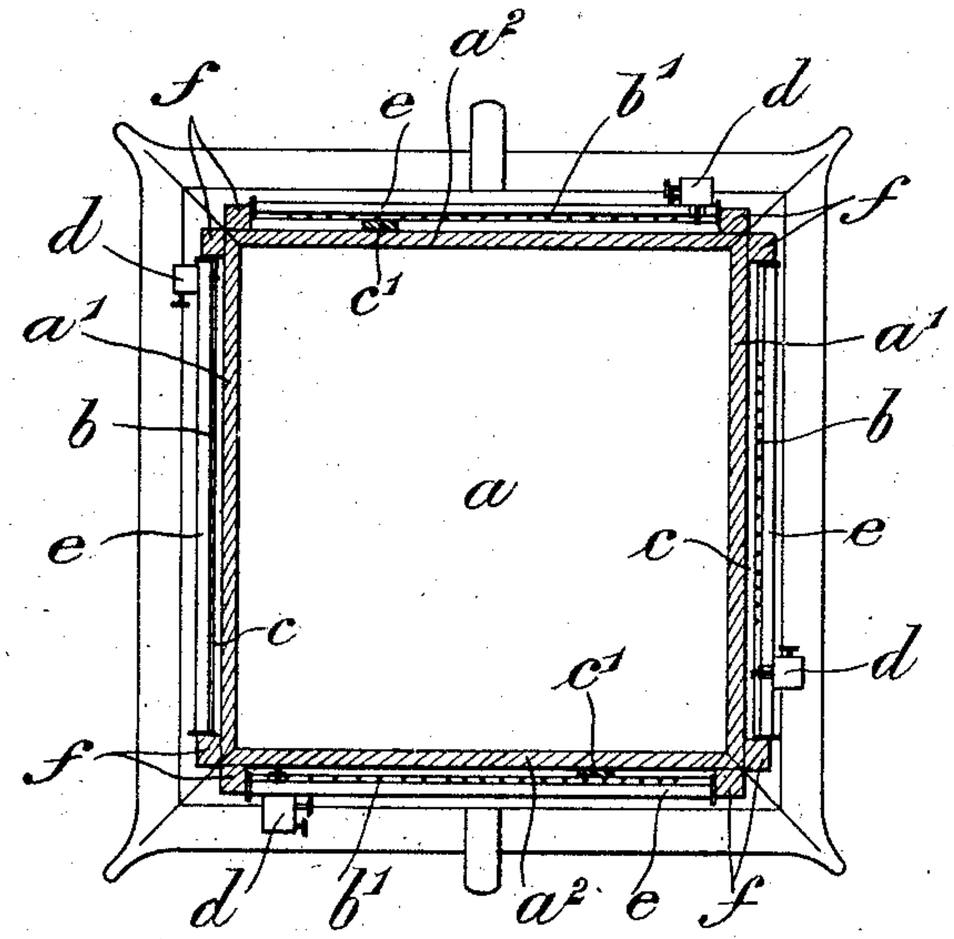

Fig. 8.

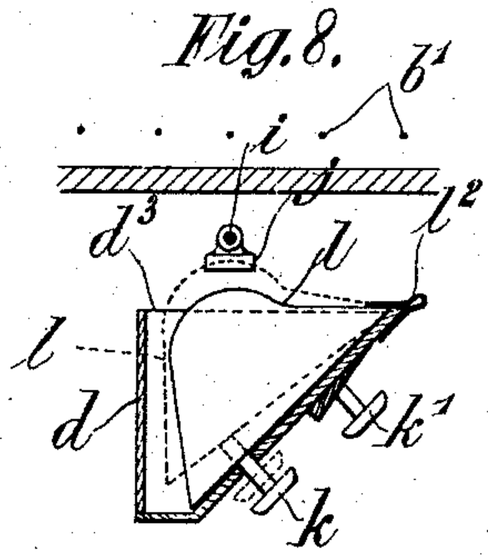

Fig. 5.

Witnesses
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Henry Müller
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UNITED STATES PATENT OFFICE.

HENRY MÜLLER AND JACOB STEIN, OF LONDON, ENGLAND.

STRINGED MUSICAL INSTRUMENT.

No. 883,222. Specification of Letters Patent. Patented March 31, 1908.

Application filed August 12, 1905. Serial No. 273,959.

To all whom it may concern:

Be it known that we, HENRY MÜLLER, a citizen of the United States, residing at London, England, whose post-office address is 62 Newington Green road, Islington, London, England, and JACOB STEIN, a subject of the King of Great Britain and Ireland, and residing at London, England, whose post-office address is 1 Ayliffe road, New Kent Road, London, England, have invented certain new and useful Improvements in and Relating to Stringed Musical Instruments, of which the following is a specification.

This invention relates to stringed musical instruments and has for its object to provide an instrument producing effects which cannot be produced in existing instruments.

The invention relates to a device for selecting the strings to be plucked and for simultaneously plucking them, which device is mounted upon a slide and having operating keys mounted upon it conveniently operable by the fingers of the hand, by which a reciprocating movement is given to the slide. The invention furthermore consists of means for moving the plectrum for plucking the selected strings, and in various constructional features which are hereinafter described as applied in an instrument constructed according to the invention.

In the drawings, Figure 1 is an elevation of one side of an instrument provided according to the invention having four sides upon which strings are mounted, base strings being provided upon the side illustrated. Fig. 2 is an elevation of the instrument upon another side upon which treble strings are provided, the two remaining sides of the instrument being provided with strings the same as respectively illustrated in Figs. 1 and 2. Fig. 3 is an elevation from the back upon an enlarged scale of the operating device. Fig. 4 is an elevation from the front of the operating device corresponding to Fig. 3. Fig. 5 is a detail section on the line 5, 5 (Fig. 3). Fig. 6 is a sectional elevation of the operating device corresponding to Fig. 3, and Fig. 7 is a detail sectional side elevation of the plectrum carrying arm and connections. Fig. 8 is a section of the instrument on the line 8, 8 Fig. 2.

In carrying the invention into effect as illustrated in the accompanying drawings, I provide a rectangular casing *a* having four sides, two of which *a'* a^2 are shown in Figs. 1 and 2 upon which base strings *b* and treble strings *b'* are respectively mounted. The player seated near the corner of the instrument may play upon two sets of strings, while a second player seated at the opposite corner may play upon the strings on the opposite sides. The strings are mounted across the sounding box constituted by the casing *a* upon pins *c'* being capable of being turned by means of a key for regulating the tension of the string for tuning. The string operating devices *d*, of which one only advantageously is provided upon each side, are each mounted conveniently to slide within a tubular guide *e* transversely arranged across the strings *b b'*, and secured to the frame parts *f* of the casing *a*. A slide *g* is provided having runners *g'* disposed in various positions, by which the slides may each run within the tubular guide *e*, a slot *e'* being formed through which the connecting part *d'* passes, and by which the slide *g* is connected to the operating device *d*.

In Figs. 3, 4, and 6, the operating device *d* is shown for operation by the right hand which is held with the thumb resting in the bracket *r*, and the fingers in position upon the keys *k k'*.

Immediately beneath the tubular member *e*, two parallel rails *h h'* are provided, the ends of which are secured to the frame parts *f* and serve to carry the vertical pins *i* capable of being lifted so that the upper extremities *i'* may protrude above the top rail *h*. The pins *i* are advantageously arranged to be directly in front of the strings, and are provided with upwardly inclined lugs *j* so arranged that upon the depression of any key corresponding to any particular note the lug *j* and corresponding pin *i* will be lifted which will cause the plectrum to be projected forward to pluck the string by which that note is given out.

The pins *i* are advantageously provided with their lower extremities i^2 diverted outwardly so that thus their movement may be restricted within the channel h^2 in the rail *h'*. The lugs *j* it will be understood are arranged in vertical series, and similarly the keys *k k'* are also arranged in corresponding vertical series, each key being carried by a pivoted member *l* having an inclined edge *l'*, which serves, upon the depression of the key, to contact with the lug *j* and thus to uplift the corresponding pin *i*. The members *l* are each advantageously hinged on springs 12 by which the keys *k k'* are maintained in their

outward position, and the members l are separated one from the other by fixed partitions d^3.

The main body of the operating device d is conveniently provided at its lower extremity with a roller d^2 to run upon the rail h'.

The plectrum m is pivotally mounted upon a fixed bracket n secured to the upper end of the body of the operating device d. The plectrum is mounted within a jaw piece m' upon a stem m^2 pivoted at m^3 to the sides of the bracket n. The pivot m^3 carries a transverse arm or spindle m^4, upon which a roller o is mounted, the arm or spindle m^4 being normally depressed by means of a spring, o', or the like, by means of which the stem m^2 of the plectrum m is normally maintained in position away from the strings b b'.

The pivot m^3 conveniently carries a spring arm p whose upper extremity carrying the pad or roller p' tends to normally pass outward. The pad or roller p' serves to rest upon the strings on the operation of the plectrum and serves to limit the extent to which the plectrum protrudes.

The movement of the roller or pad p' is limited by means of the pivoted crank arm q q' which is provided to move within a groove m^5. Upon the arm q being depressed the extremity q' is raised and allows the spring arm p of the pad or roller p' to pass outwardly, thus limiting the protrusion of the plectrum.

It will be understood that in operation the operating device d will be reciprocated upon the slide e and rails h h' by means of one hand, by which at the same time the keys k k' may be depressed according to the notes or effects to be produced, so that thus the corresponding members l are caused to protrude to uplift their complementary parts i upon the reciprocation of the device. The protrusion of the upper extremity i' of the pin i will thus serve upon the passage of the plectrum roller o over it to cause the forward movement of the plectrum m, so that thus the strings corresponding to the keys k k' are plucked.

What we claim as our invention and desire to secure by Letters Patent is:—

1. In a stringed instrument a sliding device, keys provided thereon, sliding pins operated by the keys and a plectrum operated by the sliding pins in the manner and substantially as described.

2. In a stringed instrument a tubular guide, a slide moving therein, an operating device attached thereto and keys provided on the operating device substantially as described.

3. In a stringed instrument a sliding device, keys provided thereon, sliding pins operated by the keys, a plectrum operated by the sliding pins and means for limiting the movement of the plectrum substantially as described.

In testimony whereof we have hereunto signed our names to this specification in the presence of two subscribing witnesses.

HENRY MÜLLER.
J. STEIN.

In presence of—
H. D. MURESK,
G. L. LÜBEKS.