

(No Model.)

J. F. S. PIZZUTI.
MUSICAL INSTRUMENT.

No. 458,238.

Patented Aug. 25, 1891.

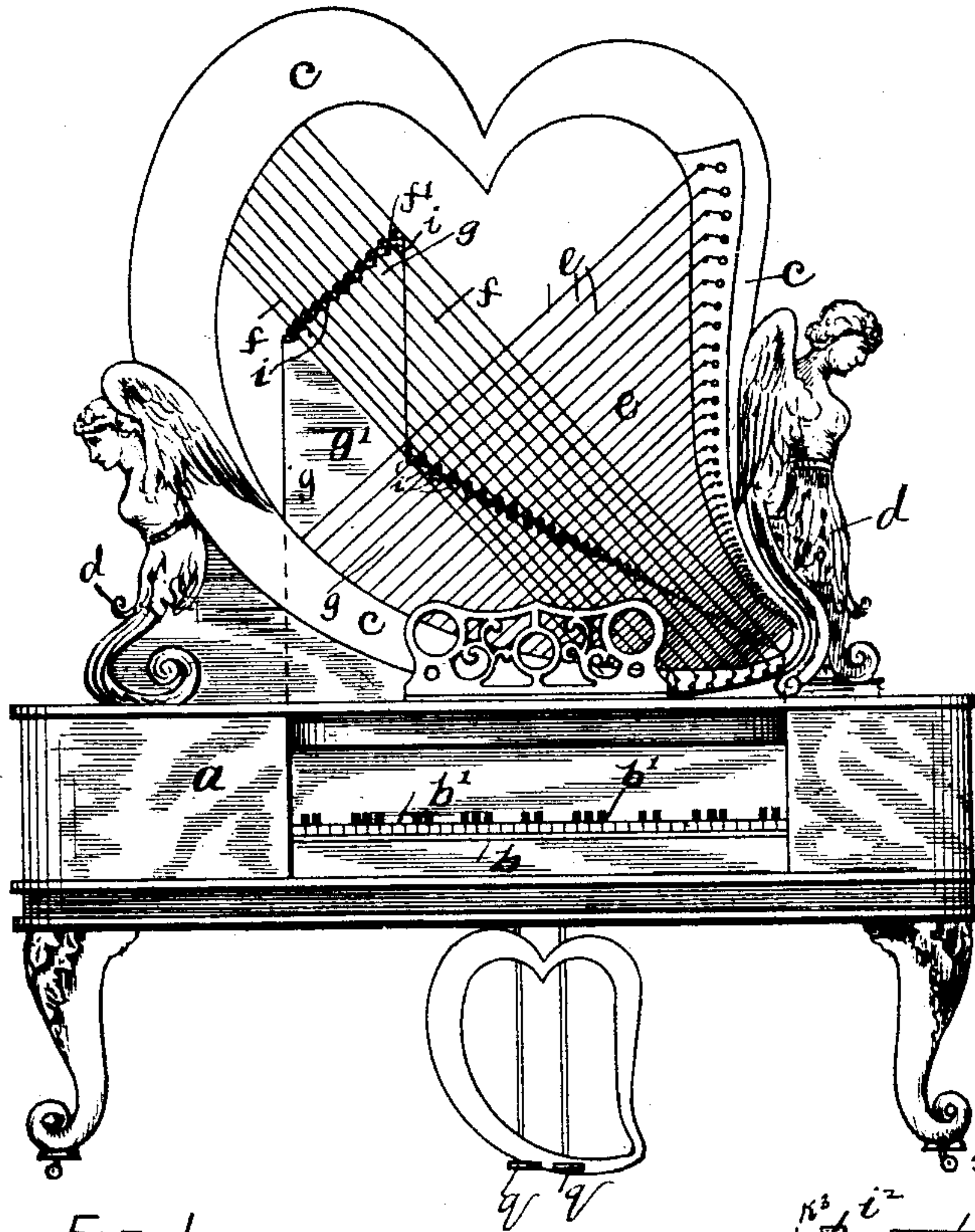


FIG. 1

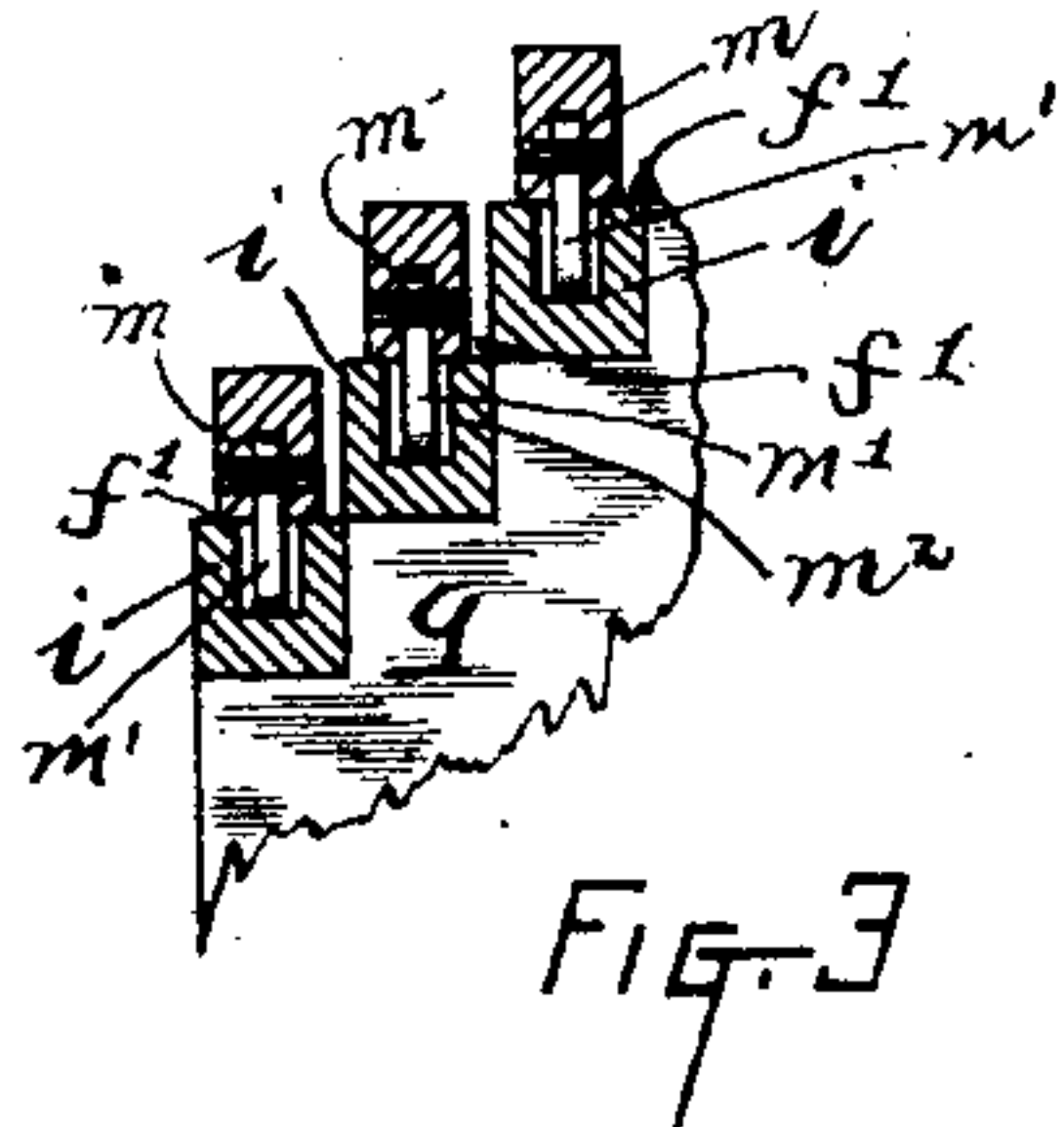


FIG. 3

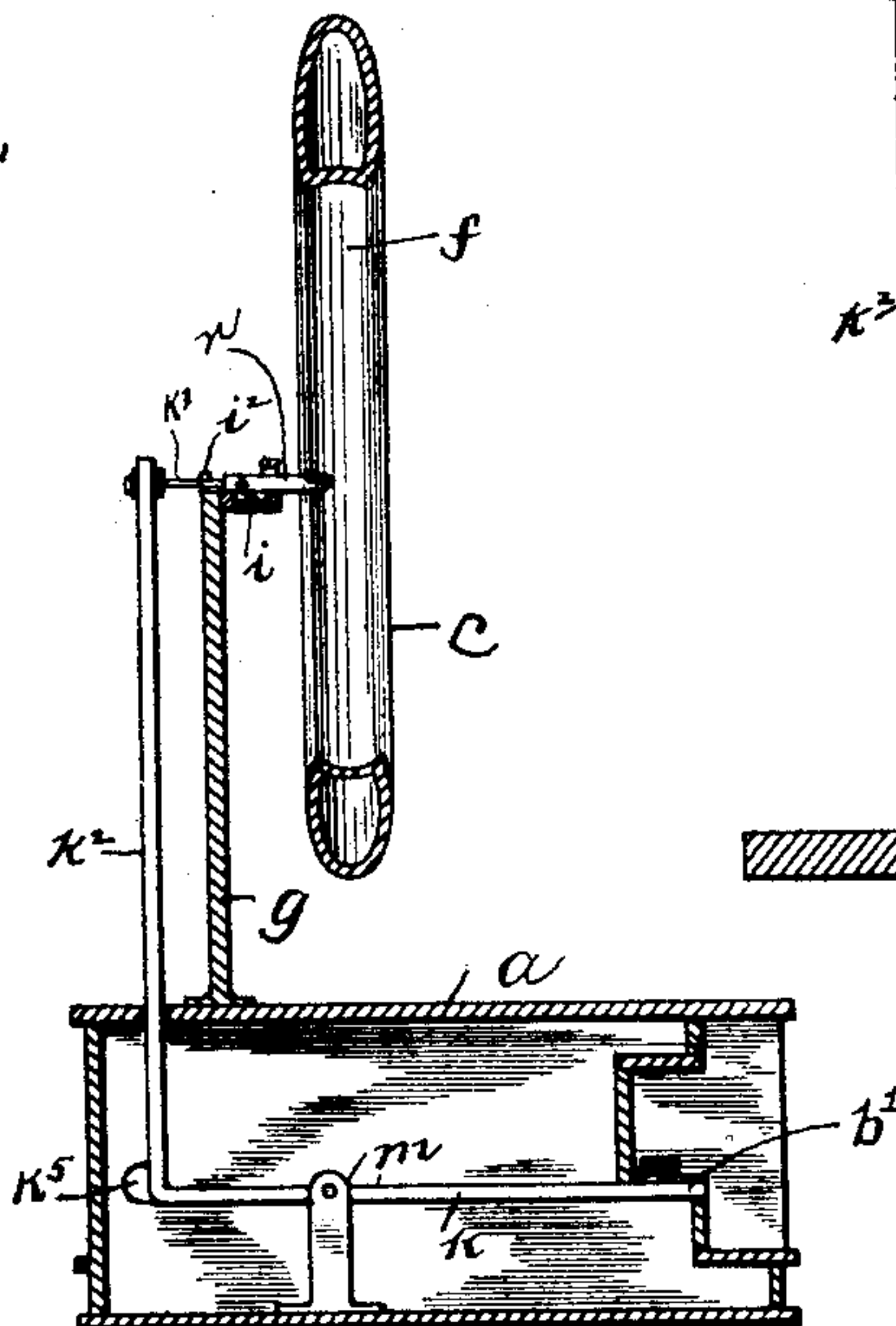


FIG. 4

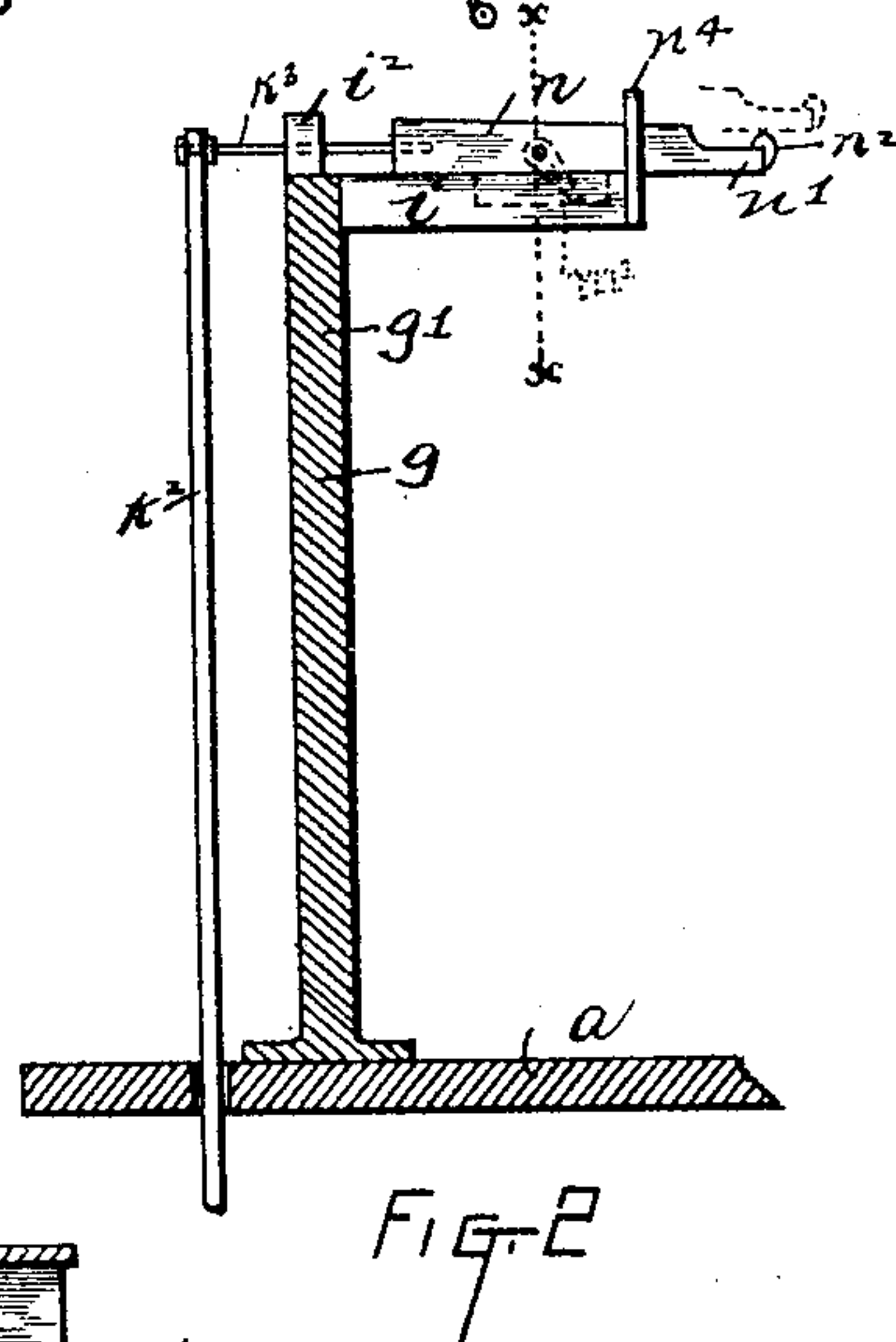


FIG. 2

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JOSEPH S. F. PIZZUTI, OF COLUMBUS, OHIO.

MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 458,238, dated August 25, 1891.

Application filed December 12, 1890. Serial No. 374,432. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH S. F. PIZZUTI, a citizen of Italy, residing at Columbus, in the county of Franklin and State of Ohio, have
5 invented a certain new and useful Improvement in Musical Instruments, of which the following is a specification.

My invention relates to musical instruments; and the objects of my invention are
10 to provide means for picking the strings of a harp by the manipulation of piano or similar keys, and to accomplish this object in a neat and effective manner without complication. These objects I accomplish in the manner
15 illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of my improved musical instrument. Fig. 2 is a detail view showing partly in section and partly in elevation means for picking the harp-strings.
20 Fig. 3 is an enlarged transverse section on line $x x$ of Fig. 2; and Fig. 4 is a vertical section through the instrument body or case, showing a side elevation of one of the string-picking arms and its position with relation to the harp-strings.

Similar letters refer to similar parts throughout the several views.

a represents the body or casing of my improved instrument, which is preferably in the form of a "square" piano or organ body or casing.

b represents the key ledge or shelf, above which is supported, as hereinafter described,
35 a row of piano or organ keys b' .

Supported, as shown, upon the upper side of the piano body or case is a stringed harp c , the frame of which is approximately heart-shaped and is slightly inclined laterally.

d represents suitable ornamental brackets or supports which project upwardly from the upper side of the body a , near each end thereof, the harp-frame being supported, as shown, between said supports.

45 In forming my improved instrument I preferably employ two sets of harp-strings, the soprano set extending, as shown at e , diagonally between the harp-frame sides in the lower half thereof, while the bass-strings f extend from the lower end of the frame in diagonal parallel lines to the upper portion of the left frame lobe, and are so connected with

said frame as to cross the soprano-strings at right angles and at a distance in front thereof. This form of harp and the arrangement of the
55 bass and soprano strings are substantially shown in my application for patent, Serial No. 365,791, filed September 22, 1890, and are not, therefore, thought to require a more detailed description at this time.

On the upper side of the body a , in rear of the harp c , is supported the base of an approximately L-shaped board or plate g , which is of a width corresponding to the width of the key-board. The vertical arm g' of this
60 plate g , which is at the left, extends to a point in rear of the bass-strings f of the harp, and has its upper end so inclined or beveled as to cross the plane occupied by the upper portion of said bass-strings at an angle, as shown
65 in Fig. 1. The upper inclined end of the plate-arm g' is cut in the form of notches or steps f' , as shown, the notches or steps thus formed corresponding with the number of bass-strings. The upper side of the lower horizontal arm of the plate g is also stepped and
70 inclined as provided for the arm g' , said stepped and inclined portion extending across the plane occupied by the soprano-strings e at an angle therewith, as shown.

Projecting forwardly from each step of the plate g is an arm i , which has its upper side flush with the upper side of said plate-step and which has its forward end terminating at a short distance in rear of the harp-strings.
85 Each of said plate-steps has projecting upwardly therefrom a bearing-lug i^2 .

k represent the lower parallel and horizontal arms of bell-crank levers, said arms k being fulcrumed upon suitable bearing-lugs m ,
90 which project from the bottom or floor of the case a and extend upwardly within said case. The outer ends of these arms k project through the usual key-slots in the front of the piano-body and form the keys, as shown at b' . The
95 rear and vertical arm k^2 of the bell-crank lever extends upwardly through the upper side of the piano case or body and terminates in rear of one of the lugs i^2 of the plate g .

n represents the sliding arms, one of which,
100 as shown in the drawings, rests upon each of the outwardly-extending plate-arms i . Each of these sliding arms n has its outer or forward end reduced in size to form a finger n' ,

as shown, said finger being provided at its end with an upwardly-projecting tip n^2 of rubber or other suitable material. The rear end of each of the sliding arms n is connected
 5 with the upper end of one of the lever-arms k^2 by a rod k^3 , the latter passing through a lug i^2 , as shown. Formed in the under side of each of the arms n at about the center of its length is a recess m , in which is pivoted
 10 the upper end of a pawl m' , the lower end of which projects, as shown, within an oblong recess m^2 in the side of the arm i , near the outer end of the latter. Each of the arms n passes through a suitable keeper n^4 , which ex-
 15 tends upwardly from the outer end of the key l beneath. The length of the pawl m' is such that when the arm n , to which it is pivoted, is supported flatly upon the arm i as to cause said pawl to be inclined slightly forward and
 20 have its lower end portion resting upon the bottom of the recess m^2 at a point near the forward end of the latter.

The number of picking-fingers n' , which, as hereinafter described, employed to pick the
 25 strings of a harp, correspond with the number of strings.

The method of operating my improved musical instrument is as follows: A pressure upon one of the keys b' —such as is used in
 30 manipulating the keys of a piano—will result in the upper arm of the pivoted bell-crank, of which said key forms a part, being pressed forward. This forward movement of the upper end of the bell-crank arm will result in
 35 the corresponding forward movement of the sliding arm n through the connection of the latter with said arm k^2 by the rod k^3 . The forward movement of the arm n will be continued horizontally until the lower end of the pivoted
 40 pawl of said arm comes in contact with the ends of the recess m^2 of the fixed arm i , when, as will be seen, said arm n will be elevated and caused to travel forward a short distance in the arc of a circle until the pawl has turned
 45 over and has traveled backward in its recess a sufficient distance to allow the arm n to drop to its original position upon the arm i , when the key being released, said arm n will be drawn backward upon the arm i , which
 50 backward movement of said arm n will result from the weight of the lower portion of the arm k^2 , which is affixed thereto, as shown at k^5 . The picking-arm n is thus driven rearwardly until the pawl comes in contact with
 55 the rear end of the recess of the arm i , when said pawl is again turned toward the front

and the arm n again dropped horizontally upon the arm i . These picking-fingers n' are so supported as to cause them to pass during
 their first forward movements to points be- 60 neath and in front of the harp-strings, the latter being picked by the following upward movement of the fingers through the contact of the projecting finger-tips n^2 and the strings. The picking movements thus having been ac- 65 complished, the following downward and rearward movement of the arms n , hereinbefore described, will result in the fingers being forced rearwardly between the strings free from contact therewith. It will thus be 70 seen that to the desired harp-string may be imparted substantially the same picking movement which is attained through picking the strings by the hand. It will be observed that the picking-arms are so arranged with rela- 75 tion to the strings of the harp and are so connected with the keys of the instrument-body a as to admit of the picking of such strings as correspond in name or note with the keys pressed, and that the manipulation of the 80 harp-strings may thus be accomplished with ease and accuracy without the necessity of applying the fingers of the hand to the strings.

If desired, I may so connect the pedals q with the lever-arms k as to regulate the for- 85 ward movement of the arms n connected therewith, and thereby produce a greater or less pressure of the picking-fingers upon the strings, and consequently softer or louder musical tones. 90

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

In a musical instrument, the combination, with the case a and a stringed harp upon said 95 case and an approximately L-shaped plate supported upon said case in rear of said harp, the arms of said plate being inclined and stepped, as described, of key-arms in the form of bell-crank levers journaled within said case, 100 a picking-arm, and a finger projecting from each of said key-arms in rear of each of the harp-strings, said picking-arms resting upon said plate-steps or plate-arms projecting there- 105 from and adapted to be made to engage with or pick said harp-strings, as described, by pressure upon the lower end of said key-arms, substantially as specified.

JOSEPH S. F. PIZZUTI.

In presence of—

BARTON GRIFFITH,
 C. C. SHEPHERD.