

**No. 612,005.**

Patented Oct. 4, 1898.

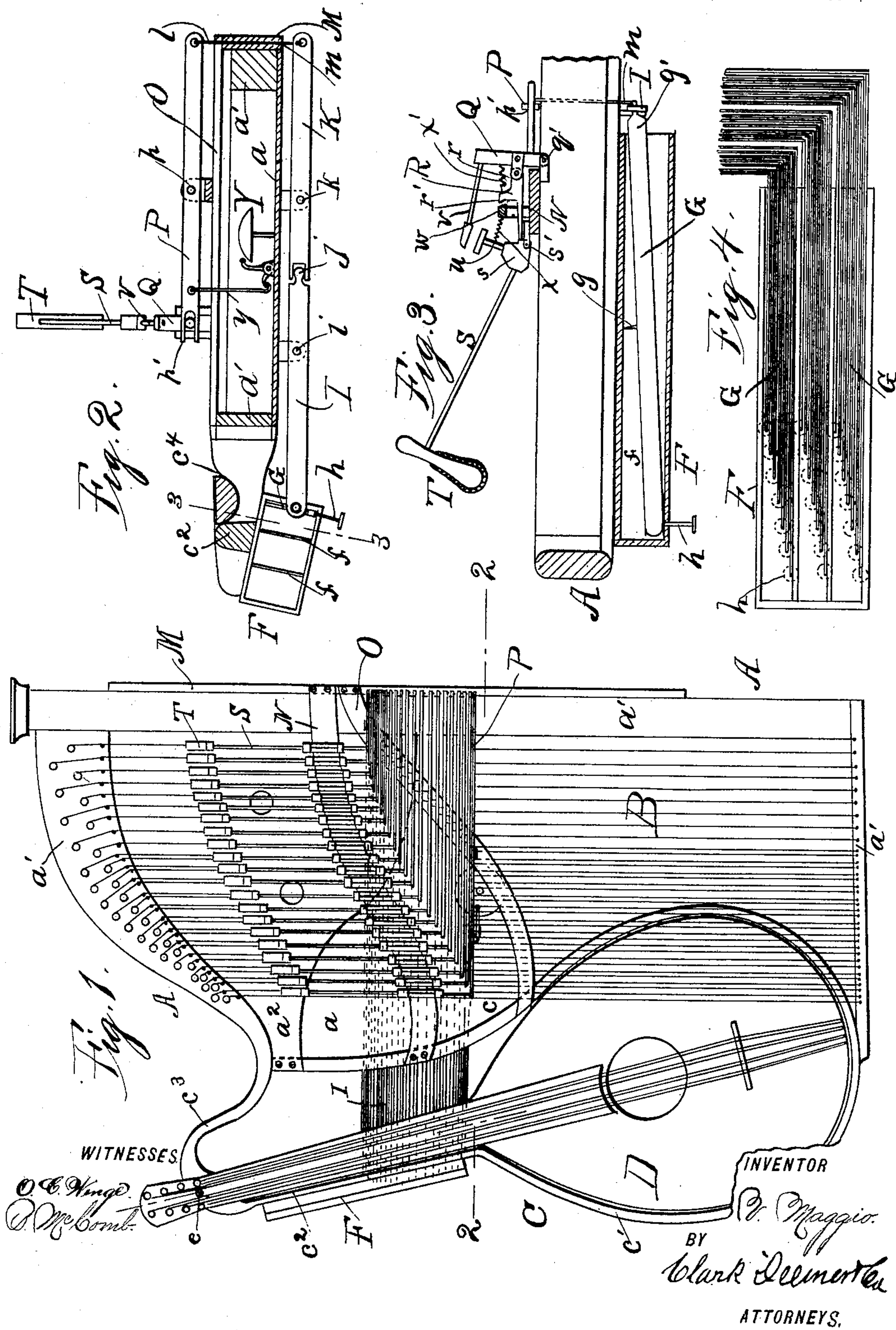
**V. MAGGIO.**

**MUSICAL INSTRUMENT.**

(Application filed Sept. 30, 1897.)

(No Model.)

**2 Sheets—Sheet 1.**



**WITNESSES.**

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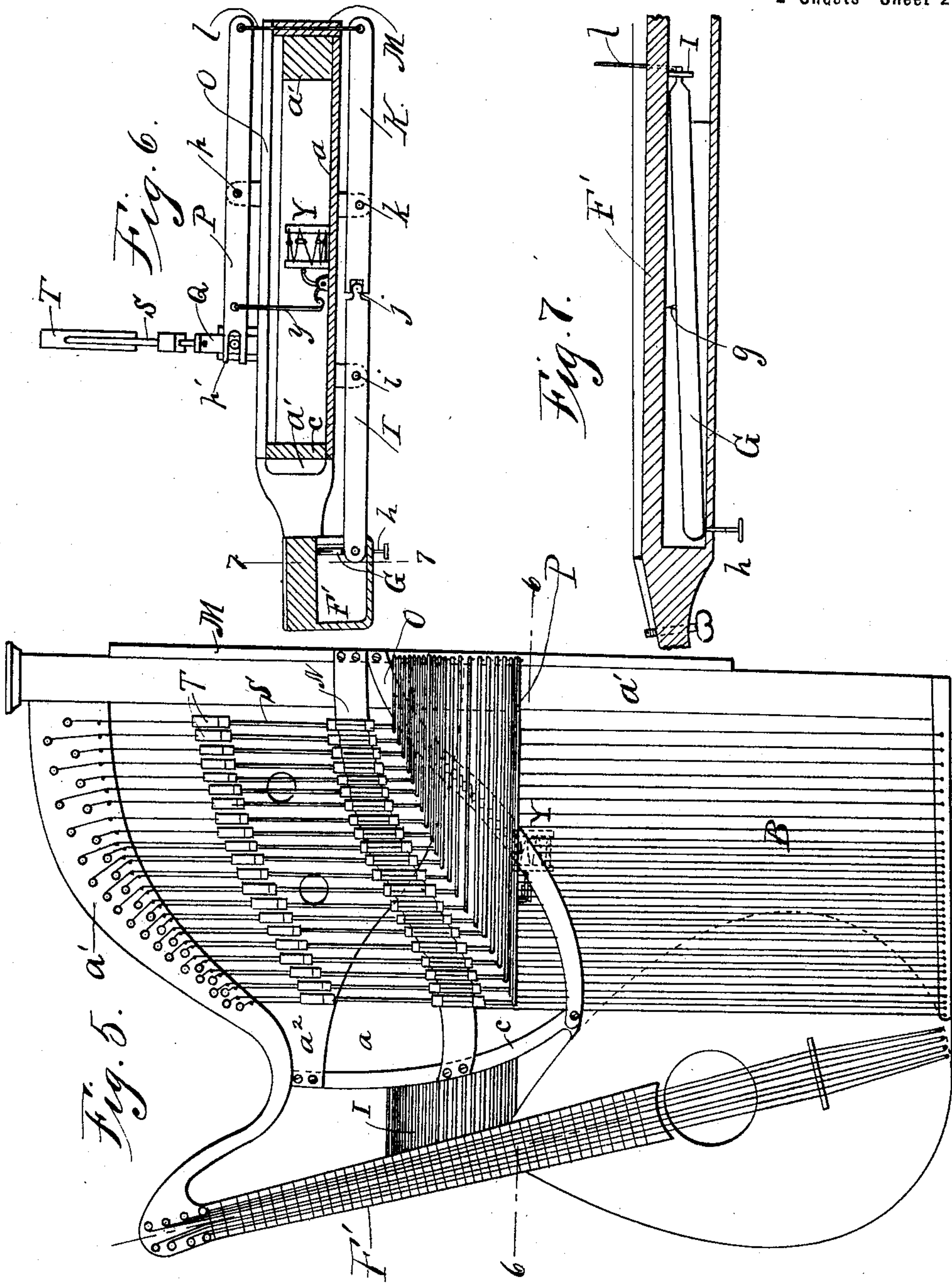
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# UNITED STATES PATENT OFFICE.

VINCENT MAGGIO, OF MIDDLETOWN, NEW YORK.

## MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 612,005, dated October 4, 1898.

Application filed September 30, 1897. Serial No. 653,592. (No model.)

*To all whom it may concern:*

Be it known that I, VINCENT MAGGIO, a subject of the King of Italy, and a resident of Middletown, county of Orange, and State of New York, have invented certain new and useful Improvements in Musical Instruments, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar letters of reference indicate corresponding parts.

This invention relates to musical instruments, and has special relation to an improved attachment to mandolins by which is produced a combination or concert device embodying a harp or other attachment arranged in connection with a mandolin, the whole being adapted to be operated or played upon by one person.

The object of my invention is to provide a simple and improved musical instrument of this character in which the different mechanisms are so constructed and combined that convenience in operation and compactness are secured.

In the drawings, Figure 1 is a face or plan view showing a harp attachment arranged in combination with a mandolin according to my invention. Fig. 2 is a transverse sectional view taken on the line 2 2, Fig. 1. Fig. 3 is a detail sectional view taken on the line 3 3, Fig. 2, illustrating the hammer mechanism. Fig. 4 is a diagram or plan showing the relative arrangement of the strings and keys. Fig. 5 is a plan view illustrating the combination of a harp and mandolin mechanism in permanent relation in one instrument according to my invention and improvements. Fig. 6 is a transverse sectional view taken on the line 6 6, Fig. 5. Fig. 7 is a detail sectional view taken on the line 7 7, Fig. 6.

Referring to the drawings, A designates a framework which in general contour may resemble that of a harp, comprising a back board *a* and a surrounding raised rim or flange *a'*, upon which is supported a sounding-board *a<sup>2</sup>* and the strings B, the latter being arranged in the usual or any other suitable or desired manner. Any desired number of strings may be employed.

The sounding-board *a<sup>2</sup>* is constructed of metal (preferably wrought-iron) and is supported upon the rim or flange *a'* above the

back board *a* and below the strings at the top of the harp-frame, as shown in Fig. 1. This arrangement of a sounding-board comprised in the mechanism of my improved combined musical instrument insures tone and volume and is especially adapted for use in relation to the harp mechanism employed in my invention, said harp mechanism being relatively smaller than is usual in ordinary separate harp instruments.

At its rear end the frame A is constructed to form a pocket C, adapted to receive and retain a mandolin D, said pocket being of curved general contour to conform to the mandolin. The relative construction and arrangement are preferably such that the mandolin when secured in position in connection with the harp attachment is at an angle to the longitudinal plane of the series of strings B, as shown in Fig. 1, for the purpose of facilitating the convenient operation of the instrument.

The pocket C is formed by curved flanges or rims *c* and *c'*, respectively, comprised in the framework A and conforming at their lower portions in their general curvature to the shape of the body of the mandolin. The relative construction is such that when the mandolin is seated in the pocket-opening formed by the flanges *c* and *c'* its string-face is about on a plane with the series of harp-strings B. The top portion of the outer flange or rim *c'* runs parallel with the neck of the mandolin, as shown at *c<sup>2</sup>*, and in the flange or rim portion *c<sup>3</sup>*, above said straight portion, is formed a concaved seat or rest *c<sup>4</sup>* for the reception of and corresponding to the neck of the mandolin.

The mandolin is detachably secured in position by means of a bolt or screw *e*, passing through its head and the top flange *c<sup>3</sup>*.

Upon the back of the flange *c<sup>2</sup>* of the framework, in a position adjacent to the neck of the mandolin, so that the keys can be readily and conveniently operated by the left hand of the operator, is a box or casing F, having a series of parallel slots *f*, in which are mounted levers G, balanced upon a fulcrum-pin *g* and having their lower ends projecting from the end of the box, as at *g'*. The inner ends of these levers carry keys or finger-pieces *h*, the stems of which project through corresponding openings in the back of the box or casing



F. The relative arrangement is preferably such that the series of keys are diagonally arranged, as shown in the diagrammatic view Fig. 4, and there is a key and its lever for  
5 each string of the series B.

Connected with the projecting ends of the respective levers G is a lever I, fulcrumed at the back of the back board, as shown at *i*, which has a knuckle-joint connection, as at  
10 *j*, with a similar lever K, which latter is also fulcrumed, as at *k*, at the back of the back board *a*. Upon the outer end of the lever K a connecting wire or link *l* extends upward through a slot or opening *m* in a flange M, ar-  
15 ranged in parallel position against the front end of the harp-frame A and carrying a bridge N, preferably curved, extending transversely across the sounding-board *a*<sup>2</sup> and back board *a* to the inner flange *c* of the mandolin-re-  
20 taining frame. (See Fig. 1.) A bridge O is similarly arranged below the bridge N, both of these bridges N and O being supported above the series of strings B by means of the flanges M and *c*, and upon the lower bridge  
25 O are fulcrumed, as at *p*, a series of levers P, having their outer ends connected to the respective connecting-wires *l* and their inner ends bifurcated, as at *p'*, to form a loose piv-  
30 otal connection with the lower arm of a right-angular lever Q, fulcrumed, as at *q'*, to the front edge of the bridge N and having its front arm projecting upward above the lat-  
ter. To said front arm is pivotally connected, as at *r*, a finger R, which projects forward  
35 over the bridge N and bears against a suitable hub-block *s* at the rear end of a lever S, suitably fulcrumed, as at *s'*, to the top or rear edge of the bridge N and carrying at its free  
40 end a hammer T, operating with relation to one of the harp-strings B. An upward-pro-  
jecting arm *u* may be arranged at the rear end of the hammer-lever S, against which an-  
other arm *v*, projecting forward from the front arm of the right-angular lever Q, is  
45 adapted to bear.

The movement of the hammer mechanism may be limited by contact of a finger *r'* upon the top of the finger R with a bridge-piece  
50 *w*, arranged upon the bridge N, and I may also provide springs for controlling the hammer mechanism between the finger *u* and  
bridge *w*, as at *x*, and between the finger *r'* and the front arm of the right-angular lever  
Q, as at *x'*. (See Fig. 3.)

55 It will be understood that the levers G are arranged in parallel position, that the levers I and K are likewise arranged in parallel po-  
sition and at right angles to the levers G, that the top levers P are arranged in parallel po-  
60 sition in a plane corresponding to that of the levers I and K, and that the hammer-lever mechanisms are arranged in parallel position  
at right angles to the levers P, and that a separate lever connecting and operating  
65 mechanism extends between each key *h* to the hammer mechanism for each string B of the harp attachment.

I may provide a bell mechanism, as at Y, Fig. 2, within the body of the harp-frame A, operated by a connecting-link *y*, extending  
70 to a lever, as at P, and I may also similarly provide a drum, cymbal, or analogous mech-  
anism adapted to be operated by connection with the top levers P and their intervening  
key-operating mechanisms, if desired. 75

If desired, I may employ in the harp mech-  
anism a pedal mechanism such as is ordina-  
rily used in harps. Any suitable number of  
pedals may be employed, and they may be  
80 arranged in a series at the bottom or base of  
the harp-frame A, so that they can be oper-  
ated by the right hand of the musician in lieu  
of with the feet, or the pedal mechanism may  
be carried in any suitable manner through  
85 the harp-frame or through a tubular exten-  
sion thereof to bring the pedals into position  
for operation with the feet. The detail fea-  
tures of such pedal mechanism are not herein  
illustrated, for the reason that the ordinary  
harp-pedal mechanism may be employed; but  
90 the combination of such pedal mechanism  
with my invention, as herein shown and de-  
scribed, will be desirable in some instances  
for the purpose of producing a greater range  
of variation in the tones of the harp mech-  
anism, and if the pedal mechanism is carried  
95 to the base of the harp-frame A the complete  
instrument can be conveniently operated with  
the two hands of a single person. The pedal  
may also be arranged at any other suitable or  
100 convenient point upon the harp mechanism.

My invention may embody a detachable  
mandolin in connection with a harp attach-  
ment, as shown in Figs. 1 and 2, in which  
case I term it a "concert harp attachment  
105 for mandolins," or it may embody a mandolin  
and harp mechanism permanently combined  
in one instrument, as shown in Figs. 5, 6, and  
7, in which case I term it a "concert harp-  
mandolin." In the form shown in Figs. 5, 6,  
110 and 7 the rear end framework or flanges *c'*  
and *c*<sup>2</sup> are dispensed with and the mandolin  
is formed as an integral part of the frame A,  
the top flange *c*<sup>3</sup> being simply continued to  
form the head and neck of the mandolin por-  
115 tion, as shown at *c*<sup>4</sup>. In this construction I  
also dispense with the separate box or casing  
F, connected to the portion *c*<sup>2</sup> of the frame,  
and in lieu thereof arrange the key mechanism  
directly in the neck of the mandolin portion,  
120 as shown at F', so that it extends through  
and projects therefrom. This permanent  
combination of the mandolin and harp in one  
instrument is effected with a more simple  
construction than is necessary when the man-  
125 dolin is detachably arranged in connection  
with the harp mechanism, and it also insures  
greater convenience and facility in use.

The operation and advantages of my in-  
vention will be readily understood by those  
130 skilled in the art to which it appertains. The  
instrument may be held in a convenient po-  
sition, so that the mandolin can be played  
upon with the right hand, while with the



thumb of the left hand the series of keys *h* may be depressed. When a key *h* is depressed, the outer end of the lever *G* will move rearward, thus operating the knuckle-jointed levers *I* and *K*, so that the outer end of the latter is forced rearward, which will pull the outer end of the top lever *P* rearward by means of the connecting wire or link *l* and cause the inner end of said lever *P* to move forward and throw the right-angular lever *Q* and its pivotal arm *R* upward until the latter forces the hammer-lever *S* downward and the hammer strikes the respective string.

By means of the same key-and-lever mechanism which extends to and includes the top levers *P* and is employed to operate the hammer mechanism *I* may operate by connection with said top levers *P* the bell mechanism *Y* or any other suitable or adapted musical mechanism contained within or connected to the framework *A* to produce an imitation of different musical instruments.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A musical instrument, embodying a harp the frame of which is extended laterally, said lateral extension being provided with a pocket adapted to receive a mandolin, a mandolin seated therein, a series of key-operated levers adapted to operate hammers arranged over the strings of the harp and adapted to strike the said strings, said keys being arranged in close relation to the fret-board of the said mandolin and adapted to be operated by the hand used on the mandolin fret-board, substantially as shown and described.

2. In a musical instrument embodying a harp and a mandolin attached thereto, a series of harp-strings arranged in pairs, each pair being struck by a single hammer and adapted to produce harmonious chords in accompaniment with the mandolin, levers and keys adapted to operate said hammers, said keys being arranged in close relation with the fret-board of the mandolin, as and for the purpose set forth.

3. A musical instrument, embodying a frame carrying a harp and having a lateral extension upon which is positioned the fret-board

and the main body of a mandolin, a series of strings strung upon said fret-board in the usual manner with mandolins, and a series of strings strung across the harp portion, a series of hammers arranged over the harp-strings and adapted to strike said strings, a series of levers adapted to operate said hammers, and a series of keys by means of which said levers are operated, said keys being arranged in close relation to the fret-board of the instrument, substantially as shown and described.

4. In a musical instrument embodying a harp and mandolin, harp mechanism comprising a box or casing arranged in longitudinal relation with the fret-board of the mandolin and adapted to inclose operating-levers provided with projecting keys, said operating-levers being pivotally connected with intermediate levers extending across the under side of said harp, connecting-wires pivotally connected to the free end of said intermediate levers, and pivotally connected to hammer-operating levers extending transversely across the upper side of said harp over the strings thereof, and a series of hammers operated thereby, said hammers being fulcrumed to a fixed bridge extending across the upper side of said harp and over its strings, said hammers being adapted to strike the strings of said harp when actuated by the operator through the medium of the connecting-levers, and a bell or chime device embodying a gong or series of gongs mounted within said harp and a series of hammers adapted to strike said gong when actuated by a rod pivotally connected therewith, the other end of said rod being connected pivotally with the hammer-operating levers, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 25th day of September, 1897.

VINCENT MAGGIO.

Witnesses:

C. SEDGWICK,  
B. McCOMB.