

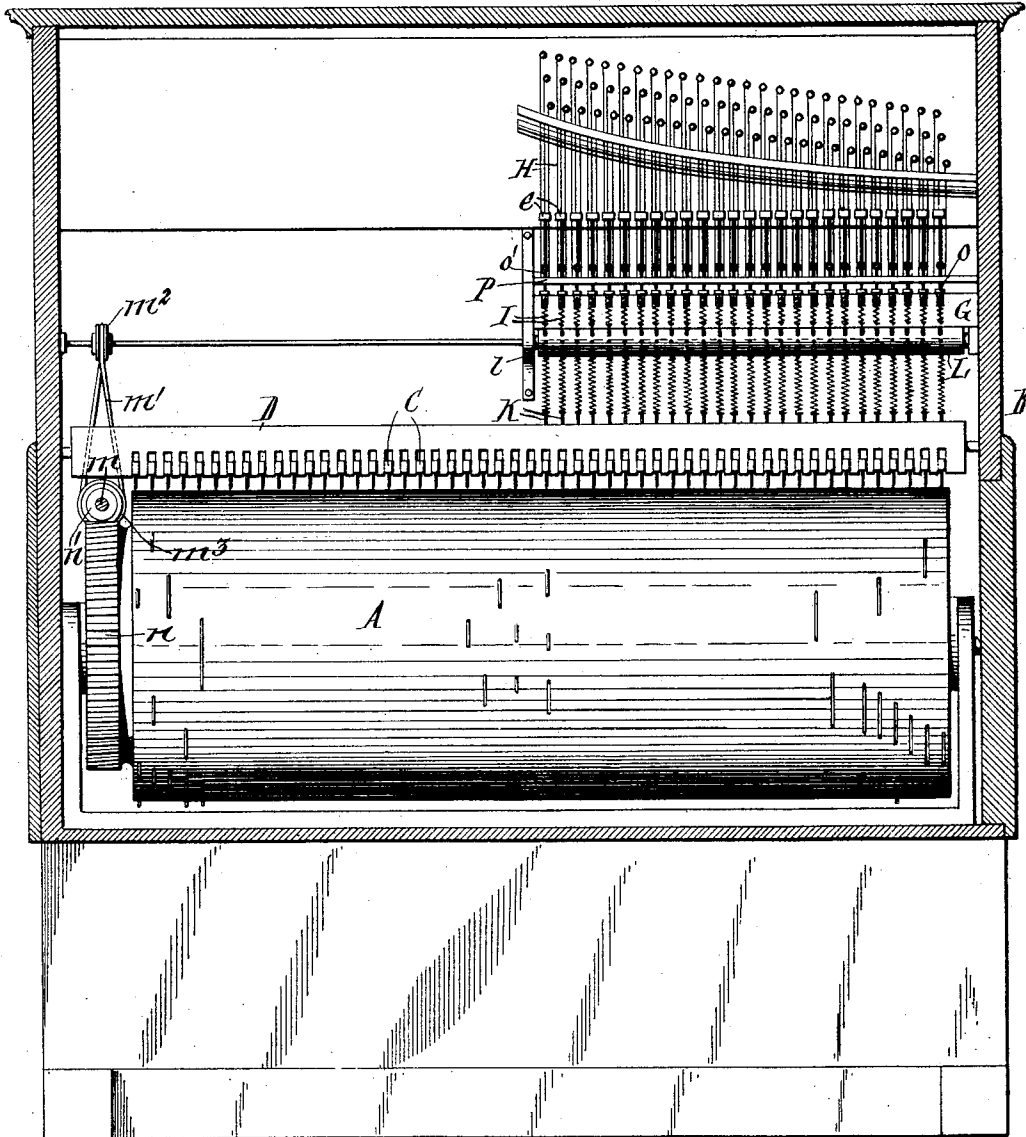
L. GRISERI.
AUTOMATIC PIANO.
APPLICATION FILED APR. 9, 1906.

961,122.

Patented June 14, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

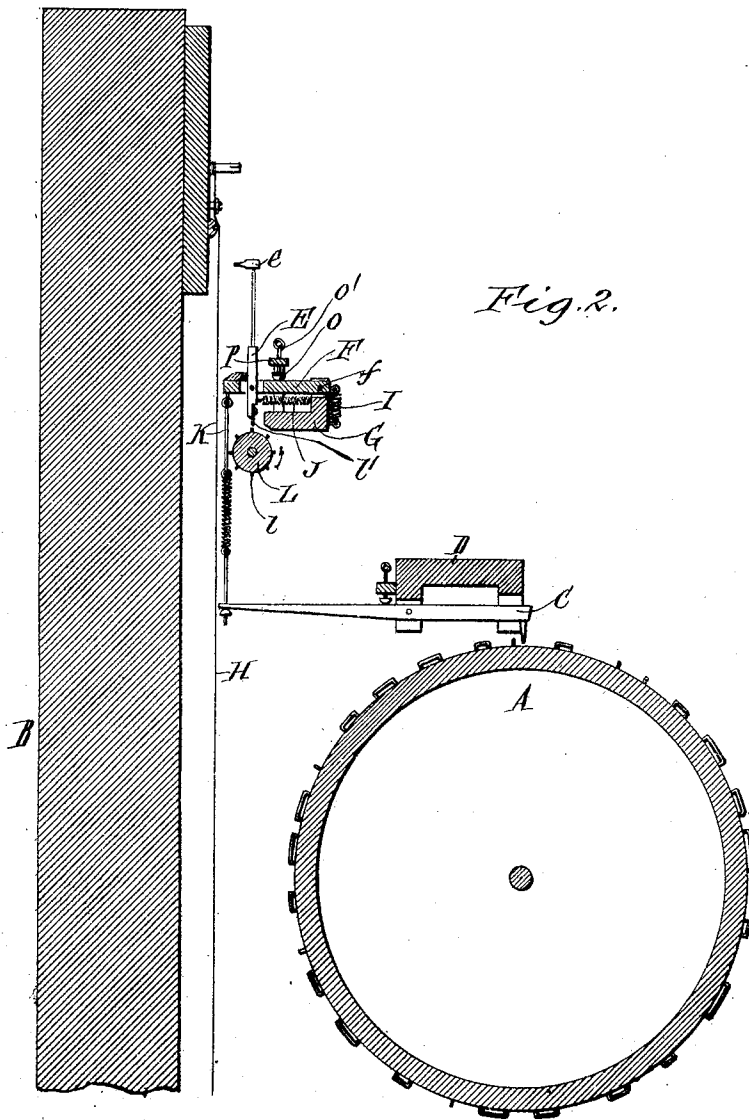
Louis W. Gutz.
Ruth L. Lovell.

Lorenzo Griseri,
Inventor
by Geyer & Popp
Attorneys

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3 SHEETS—SHEET 2.



Witnesses:

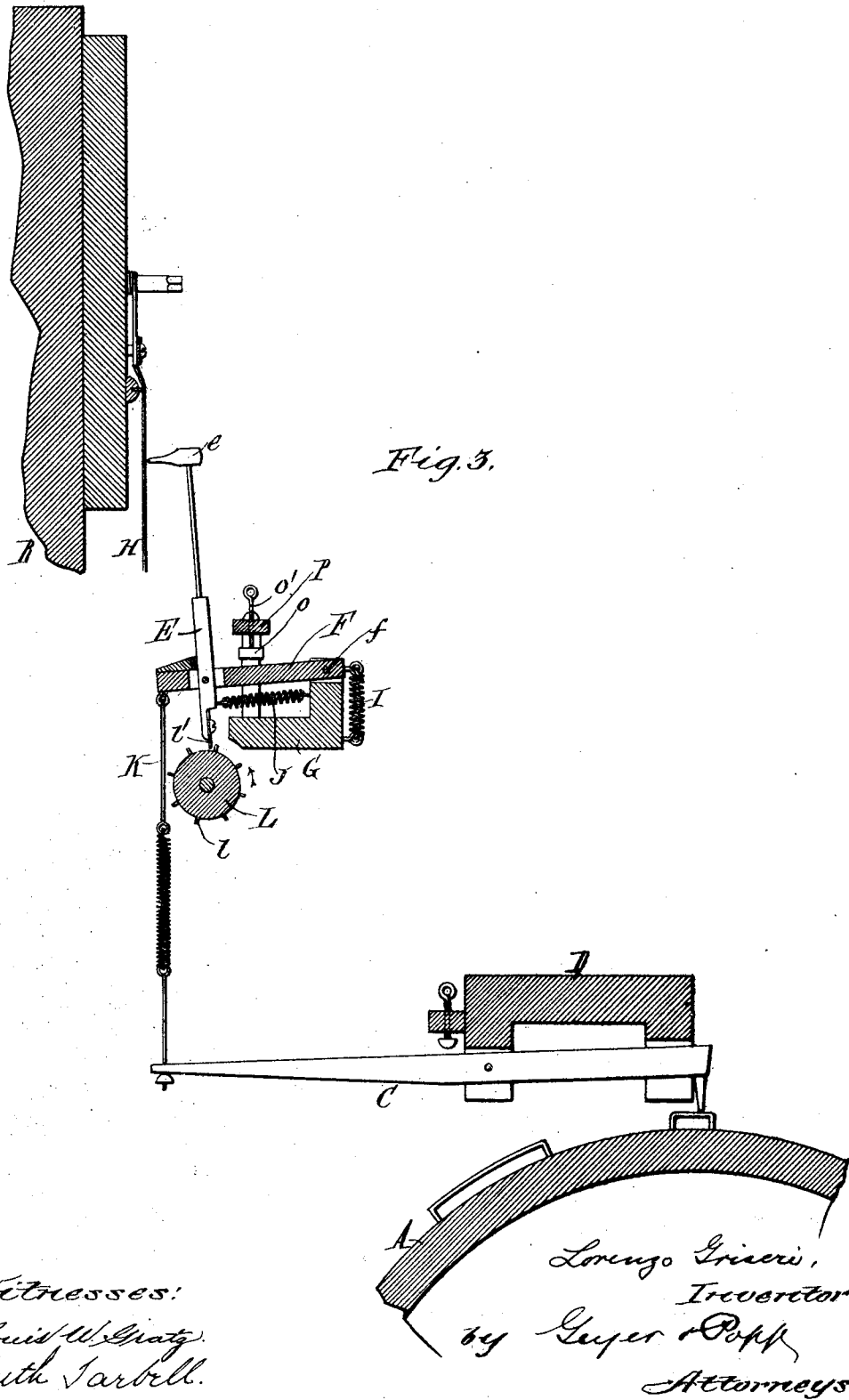
Louis W. Glatz.
 Ruth Tarbell.

Lorenzo Griseri,
 Inventor
 by Geyer Popp
 Attorneys

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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

LORENZO GRISERI, OF NEW YORK, N. Y.

AUTOMATIC PIANO.

961,122.

Specification of Letters Patent. Patented June 14, 1910.

Application filed April 9, 1906. Serial No. 310,775.

To all whom it may concern:

Be it known that I, LORENZO GRISERI, a subject of the King of Italy, residing at New York, in the county and State of New York, have invented a new and useful Improvement in Automatic Pianos, of which the following is a specification.

This invention relates to that class of mechanical or self-playing pianos which are provided with means for effecting a rapid vibratory action of the hammers particularly those of the treble so as to produce the effect of a mandolin.

The object of my invention is the provision of a simple and inexpensive action of this kind.

In the accompanying drawings consisting of three sheets: Figure 1 is a sectional front elevation of a mechanical piano embodying the improvement, showing only the hammers which constitute the mandolin section of the piano action. Fig. 2 is a fragmentary transverse section thereof showing one of the hammers in its inoperative position. Fig. 3 is a similar view, on an enlarged scale, showing the hammer in its operative position.

Similar letters of reference indicate corresponding parts throughout the several views.

A indicates a pin barrel arranged horizontally in the case B, and C the vertically swinging keys pivoted in the customary slotted supporting bar D.

e indicates the hammers of the mandolin action arranged above the keys C and each mounted at the upper end of an upright lever E pivoted near its lower end to a vertically swinging arm or lever F. The latter is pivoted by a transverse pin *f* to a horizontal supporting bar G arranged in front of the strings H and made of the proper length to carry all of the levers F.

I is a spring connecting the front end of the lever F with the supporting bar G and tending to elevate the rear end of said lever, and J is a similar spring connecting the lower arm of the hammer lever E with said supporting bar and tending to swing the hammer rearwardly against the corresponding string, the last named spring being arranged underneath the lever F.

The rear end of the lever F is connected with the rear end of the corresponding key C by a rod K, so that when the front end of the key is elevated by a pin of the rotary

barrel the lever F and the hammer-lever carried by it are depressed.

L is an actuating or vibrating device for swinging the several hammer-levers in one direction preferably away from the strings. The device shown in the drawings consists of a rotary horizontal drum or cylinder arranged below the series of hammer-levers and having annular rows of trip-pins or projections *l* one row for each lever. By the rapid rotation of the cylinder L in the direction of the arrow, these pins trip in quick succession over a metallic wear plate or tongue *l'* secured to the lower end of the lever, when the latter is lowered into the path of the pins by the actuation of the corresponding key C. While the hammer-lever is thus momentarily held in its depressed position, it is rapidly vibrated by the alternate action of the trip pins and the spring J in an obvious manner, causing the hammer-head to strike the string numerous times for every note and producing a mandolin effect. When the raised key clears the pin of the barrel, the spring I of the corresponding lever F raises the latter sufficiently to withdraw the companion hammer-lever out of the path of the trip-pins *l*, as shown in Fig. 2.

The hammer actuating drum L may be driven by any suitable means. In the construction shown in the drawings, the drum-shaft is driven from a shaft *m* arranged at right angles thereto, by a belt *m*¹ running around pulleys *m*² *m*³, the shaft *m* being in turn driven from the pin barrel by worm-gearing *n*, *n*¹. Suitable means are provided for limiting the upward stroke of the carrying-levers E. The devices shown in the drawings consist of a series of buttons *o* arranged immediately above said levers and carried by vertical adjusting screws *o*¹ arranged in a fixed supporting bar P which extends across the series of levers.

The arrangement of the springs I on the front side of the supporting bar G facilitates the assemblage of the parts and the adjustment and renewal of the springs.

I claim as my invention:—

1. In a musical instrument of the character described, the combination of a support, a vertically-swinging carrying lever pivoted to said support, a hammer-lever pivoted to and carried by said carrying lever and extending below the same, a vibrating device arranged below the hammer-lever and hav-

ing projections adapted to swing said lever
in one direction, a spring connected with
the hammer-lever to swing the same in the
opposite direction, a second spring connect-
5 ing the carrying lever with said support
and tending to hold its rear end in its ele-
vated position, and means connected with
the rear portion of said carrying lever for
depressing the same, substantially as set
10 forth.

2. In a musical instrument of the charac-
ter described, the combination of a support,
a vertically-swinging carrying lever pivoted
to said support, a hammer-lever pivoted to
15 and carried by said carrying lever, a vibrat-
ing device arranged below the hammer-lever
and having projections adapted to swing

said lever in one direction, a spring arranged
on the lower side of the carrying lever and
connected with the hammer-lever to move 20
the same in the other direction, a second
spring connected with said carrying lever
and normally holding its rear end in its ele-
vated position, and means connected with
the rear portion of the carrying lever for 25
depressing the same, substantially as set
forth.

Witness my hand this 19 day of March,
1906.

LORENZO GRISERI.

Witnesses:

P. BROWN,
J. L. KALMAN.