

No. 622,464.

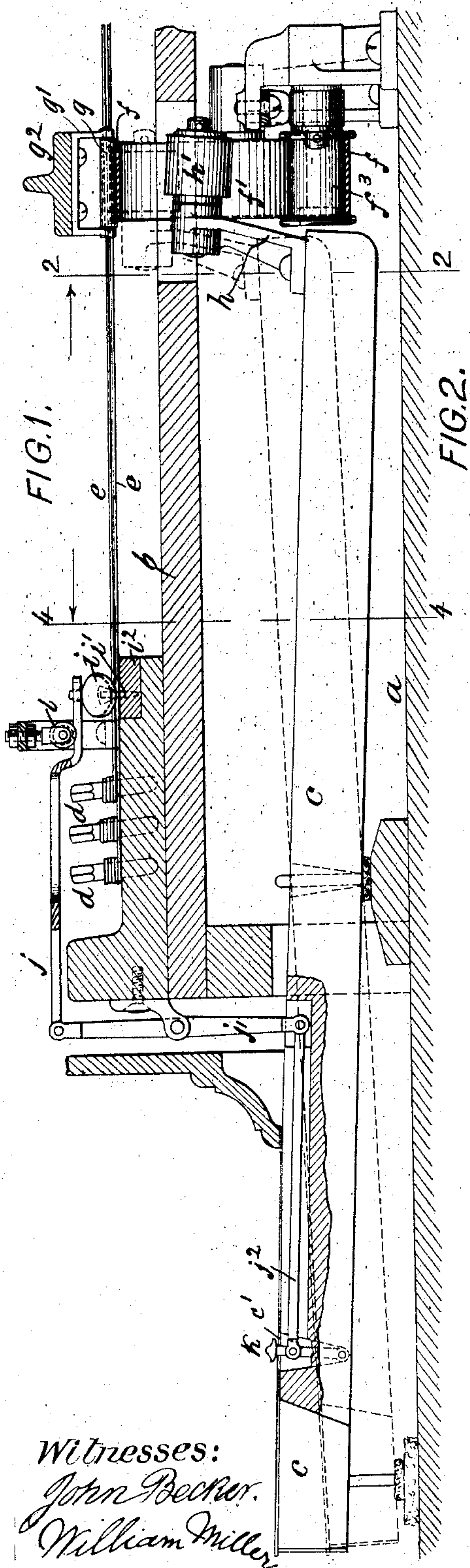
Patented Apr. 4, 1899.

K. GRIENAUER:

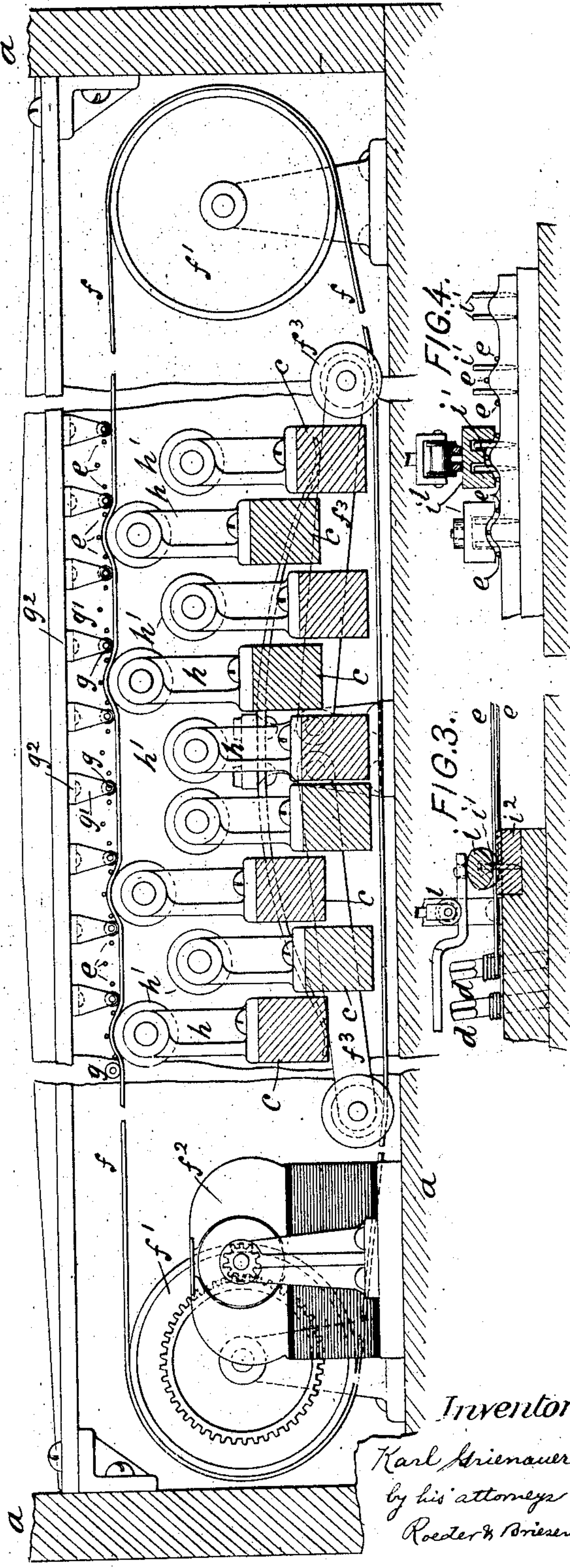
PIANO.

(Application filed Oct. 20, 1898.)

(No Model.)



Witnesses:
John Becker.
William Miller



Inventor:

Karl Srienauer
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UNITED STATES PATENT OFFICE.

KARL GRIENAUER, OF NEW YORK, N. Y.

PIANO.

SPECIFICATION forming part of Letters Patent No. 622,464, dated April 4, 1899.

Application filed October 20, 1898. Serial No. 694,114. (No model.)

To all whom it may concern:

Be it known that I, KARL GRIENAUER, a citizen of Austria-Hungary, and a resident of New York city, county and State of New York, have invented new and useful Improvements in Pianos, of which the following is a specification.

This invention relates to a piano in which the sound is produced in imitation of a violin or similar stringed instrument by drawing a band or bow across the strings. In addition to this bow the piano is provided with pads adapted to be rocked upon the strings after the keys of the latter have been struck, so as to obtain a tremolo or vox-humana tone effect.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of portion of a grand piano embodying my invention; Fig. 2, a vertical cross-section on line 2 2, Fig. 1; Fig. 3, a detail of the rocking attachment *i*; and Fig. 4, a section on line 4 4, Fig. 1.

The letter *a* represents the case of a grand or upright piano. *b* is the sounding-board. *c* are the keys, and *d* the wrest-pins. The strings *e* are arranged as usual, preferably in sets of three for each note. Across the rear-ends of the strings *e* is arranged, at a slight distance below the same, a transverse endless band or "bow" *f*, running over pulleys *f'* and receiving motion from a suitable motor *f*², while a tension device *f*³, of suitable construction, engages the lower portion of the band.

Between the sets of strings *e* and slightly below the same are placed in a plane between the strings and the band *f* anticontact devices which have for their object to hold the band off all those strings the corresponding keys of which have not been struck. These anticontact devices are shown to consist of rollers *g*, hung in bearings *g'*, which depend from a rail *g*², secured to case *a*.

The action of the piano is so constructed that the band *f* is held against the strings *e* as long as the corresponding key remains depressed. To this effect I secure to the rear end of each key a bearing *h*, in which is free

to turn a roller *h'*, that is adapted to engage the band *f* upon the depression of the key and bulge it into contact with the strings. Thus the movable band will vibrate the set of strings desired; but owing to the anticontact-rollers *g* the band will be held off the neighboring sets of strings to avoid discords.

In order to produce a tremolo or vox-humana effect, I cause each set of strings to be engaged by a pad *i*, free to rock longitudinally upon a pin *i'*, projecting upwardly from a rail *i*². The pad *i* has a rounded contact-surface which engages the string, and by rocking the pad in a plane corresponding to the longitudinal axis of the string after the latter has been sounded by the endless band a tremolo-tone effect will be obtained. The pad *i* is connected by arm *j*, lever *j'*, and arm *j*² to a pin *k*, pivoted within a socket *c'* of the key *c*. A pressure-roller *l* or similar device bearing upon the arm *j* holds the pad *i* in permanent contact with the strings *e*. The motor being started to feed the band *f* across the strings, the instrument is played in the usual manner by striking the keys *c*. If a tremolo-tone effect is desired, the pin *k* is moved back and forth within the struck key to produce a corresponding rocking motion of the pad *i* upon the sounding-string.

What I claim is—

1. In a piano, the combination of a string, with a rounded pad engaging the same, and means for rocking the pad longitudinally upon the string, substantially as specified.
2. In a piano, the combination of strings and keys, with a transverse movable band, means connected to the keys for bringing the band into contact with the strings, pads engaging the strings, and pins pivoted to the keys and adapted to actuate the pads, substantially as specified.

KARL GRIENAUER.

Witnesses:

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