

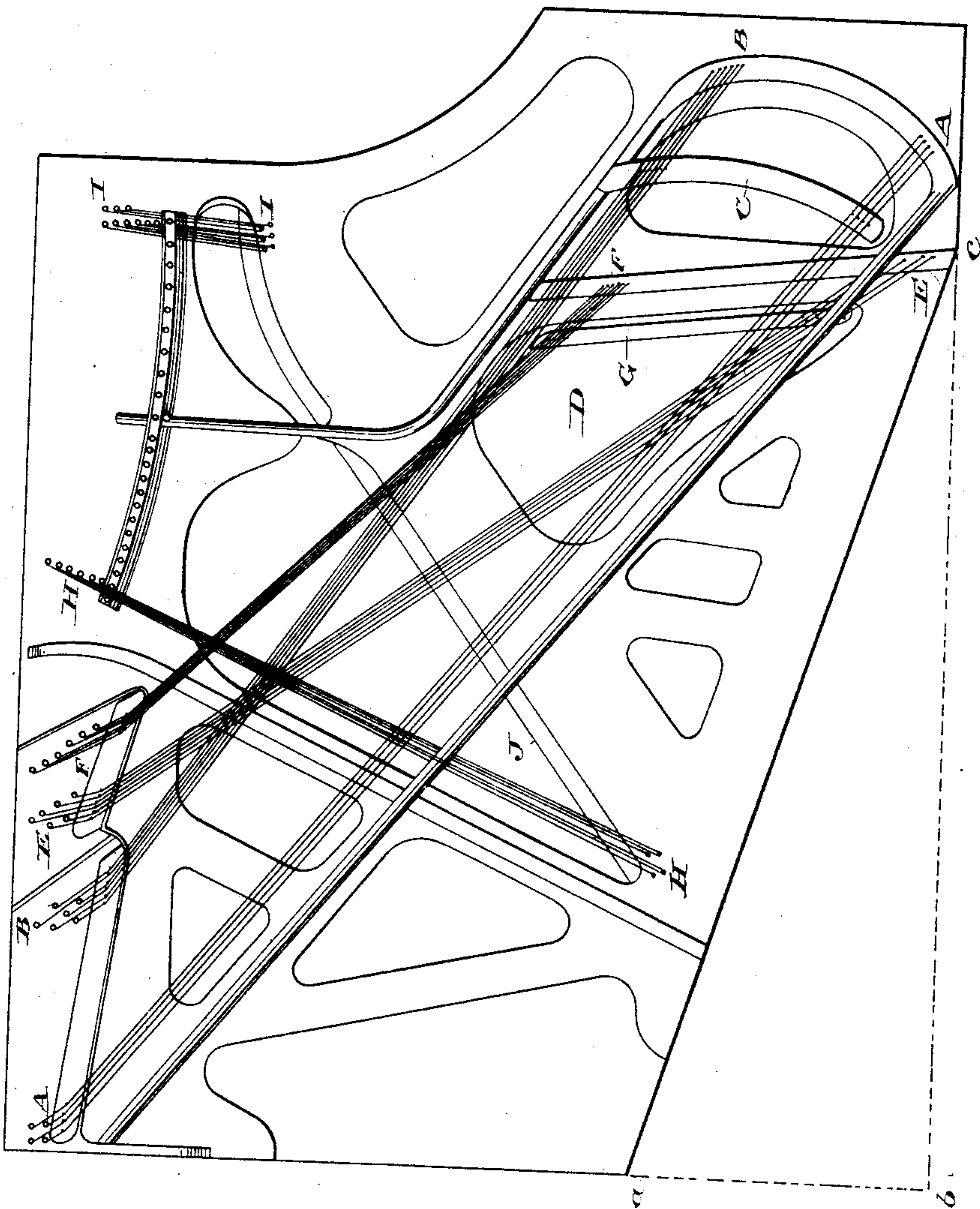
(No Model.)

F. A. R. GÜNTHER.

STRINGING PIANOS.

No. 327,439.

Patented Sept. 29, 1885.



Witnesses.

J. B. Fetherstonhaugh  
Charles C. Baldwin

Inventor.

F. A. R. Günther  
by Donald C. Rider & Co  
Attys



# UNITED STATES PATENT OFFICE.

FREDERIC ANTON RUDOLPH GÜNTHER, OF TORONTO, ONTARIO, CANADA.

## STRINGING PIANOS.

SPECIFICATION forming part of Letters Patent No. 327,439, dated September 29, 1885.

Application filed April 2, 1885. (No model.) Patented in Canada July 22, 1885, No. 22,134.

*To all whom it may concern:*

Be it known that I, FREDERIC ANTON RUDOLPH GÜNTHER, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, musician, have invented certain new and useful Improvements in Piano-Fortes, of which the following is a specification.

The object of the invention is to secure in an upright piano the full tone of the concert grand piano; and it consists, essentially, in so arranging the strings forming the scale that those strings constituting the lower bass shall be long, and bring into action the largest possible proportion of the sounding-board, while the higher bass and middle and treble strings are arranged so as to bring no more sounding-board into action than is absolutely necessary to produce the required tone.

The drawing represents my improved scale, only a sufficient number of the strings being shown to indicate the particular position of each set of strings forming the scale.

In the drawing, the strings running between A and B constitute the lower bass. These strings are held by tuning-pins in the ordinary way, and rest upon a bridge, C, supported by the sounding-board D. This bridge C is sufficiently deep to support the strings of the lower bass high enough to permit the higher bass-strings and middle note strings to pass below them and vibrate freely without contact. The higher bass-strings extend from E to F, and pass over a bridge, G, resting on the sounding-board D sufficiently deep to support the strings E F, high enough to permit the strings of the middle notes to pass below them, and yet not sufficiently high to come in contact with the strings of the lower bass, space being left between the three sets of strings to allow the free independent vibration of each set. The middle note and treble-note strings extend from H to I. These strings pass below both the lower bass and higher bass strings, and are secured in the ordinary way, but rest upon a bridge, J, which rests upon and is supported by the sounding-board D.

In upright pianos as now constructed the

lower bass-strings extend substantially in the same direction as shown in the drawing; but the higher bass and middle note strings all extend in the same direction, which is substantially the same as that of the strings marked H I.

If the strings of the higher bass were made as long as those shown in the drawing when set at the angle that they are now usually set—that is to say, substantially parallel with the middle notes—then there would be too much sounding-board brought into action for the satisfactory and harmonious action of the middle and treble notes, and the quality of the tone would be entirely different from that produced by the arrangement of my improved scale. By arranging the strings forming the lower bass so that they extend from the extreme angles, as it were, of the iron frame, I am enabled to bring into action the largest possible surface of the sounding-board, thus obtaining the desired full tone of the bass notes; and, further, by extending the higher-bass and tenor strings in the direction indicated, I am enabled to obtain all the sounding-board that is required; and, also, by arranging the middle note and treble strings in the direction indicated I am still able to obtain as long strings as desirable, and to bring as much sounding-board into action as required, and at the same time am enabled to damp off or dispense with a large portion of the sounding-board, (indicated by the letters *a*, *b*, and *c*,) which would utterly destroy the effect of the scale were it permitted to remain, and which portion of the sounding-board I would not be able to dispense with were it not from the fact that I have arranged my scale in the manner indicated.

I am aware that three sets of strings have been arranged in different directions, running in different planes, and such, therefore, is not broadly claimed herein.

What I claim as my invention is—

A piano-forte scale having lower bass-strings A B supported on bridge C at a sufficient height to have the higher bass and middle note strings pass below them and vibrate without contact, the higher bass-strings E F

supported on bridge C at a height sufficient  
to allow the middle-note strings to pass below  
without contact, and the middle note and  
treble strings H I supported on a bridge, J,  
5 as shown, the several sets of strings passing  
upon different planes in different directions,  
as shown, whereby the sound-board D is cut

off and damped at *a b c*, all combined and op-  
erating as and for the purposes set forth.

Toronto, March 27, 1885.

FREDERIC ANTON RUDOLPH GÜNTHER.

In the presence of—

J. M. JACKSON,

I. E. MAYBEE.