

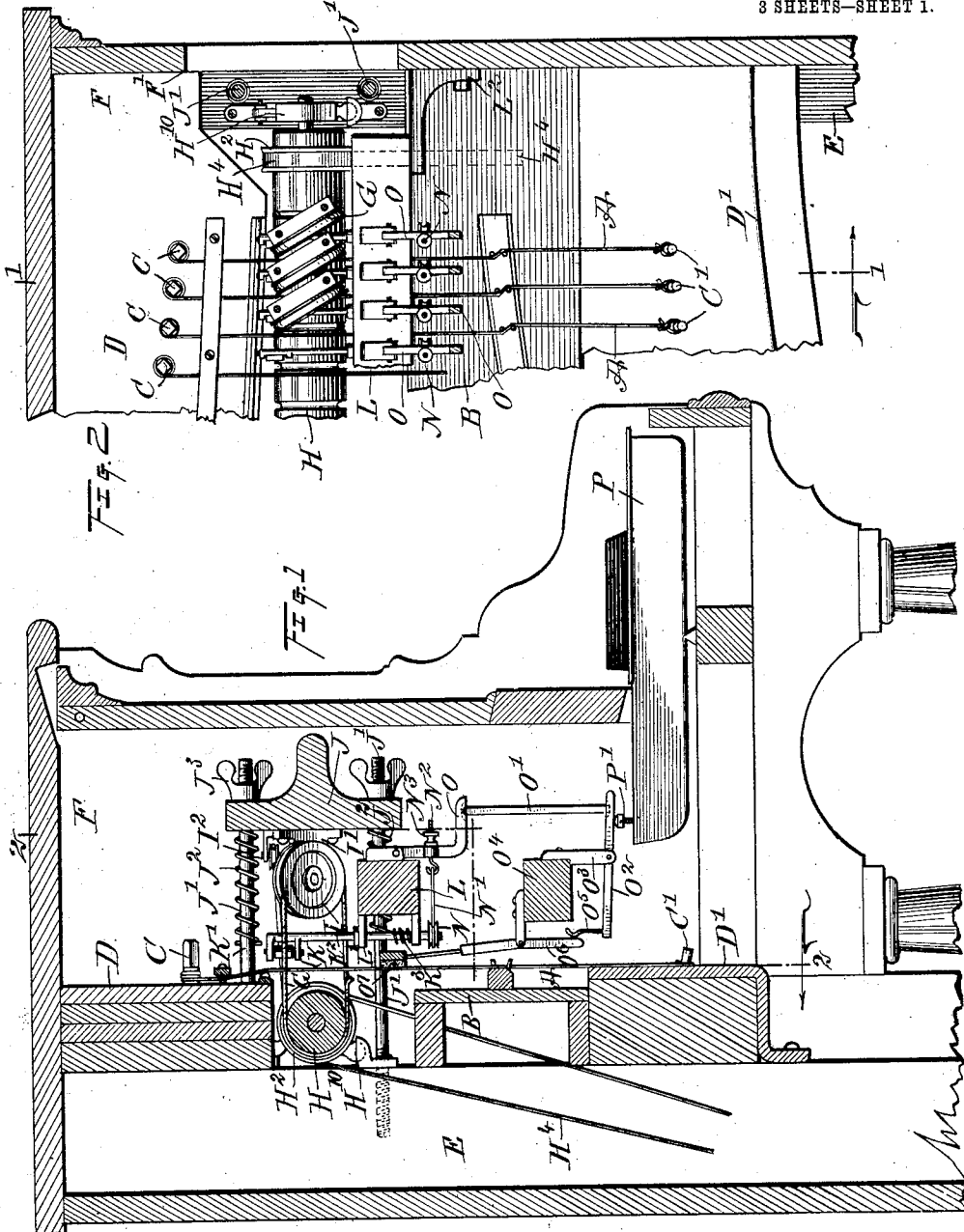
No. 846,268.

PATENTED MAR. 5, 1907.

F. H. WATSON.  
VIOLIN PIANO.

APPLICATION FILED JAN. 6, 1906.

3 SHEETS—SHEET 1.



WITNESSES:  
*John J. Smith*  
*Rev. J. H. Smith*

INVENTOR  
*Frank Hilliard Watson*

BY  
*Mum & Co*  
ATTORNEYS



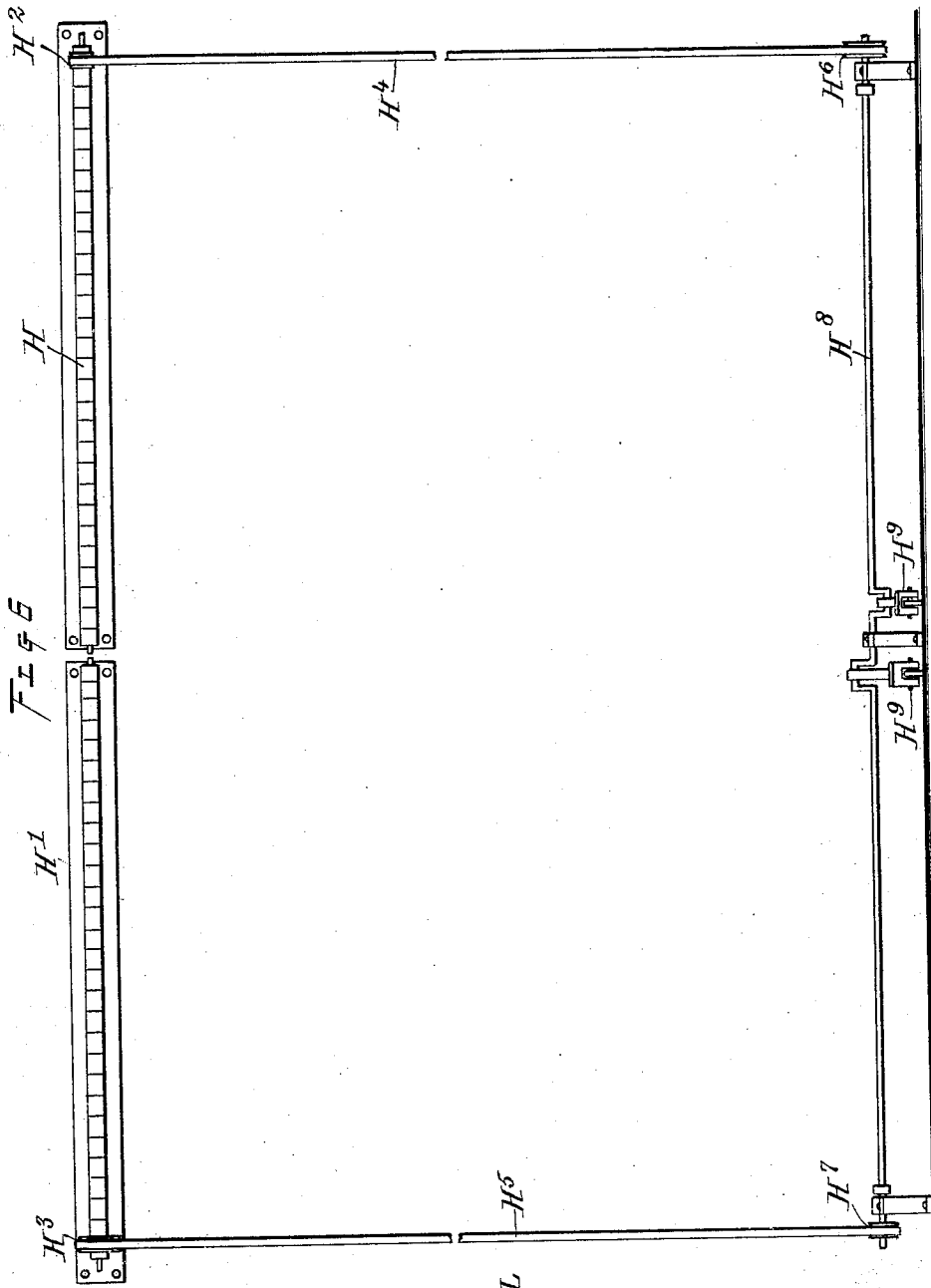
No. 846,268.

PATENTED MAR. 5, 1907

F. H. WATSON.  
VIOLIN PIANO.

APPLICATION FILED JAN. 6, 1906.

3 SHEETS—SHEET 3



WITNESSES:

*John J. Kutz*  
*Rev. J. H. H. H.*



INVENTOR

*Frank Hilliard Watson*

BY

*Mum & Co*  
ATTORNEYS

# UNITED STATES PATENT OFFICE.

FRANK HILLIARD WATSON, OF HUNTINGDON, TENNESSEE.

## VIOLIN-PIANO.

No. 846,268.

Specification of Letters Patent.

Patented March 5, 1907.

Application filed January 6, 1906. Serial No. 294,924.

*To all whom it may concern:*

Be it known that I, FRANK HILLIARD WATSON, a citizen of the United States, and a resident of Huntingdon, in the county of Carroll and State of Tennessee, have invented a new and Improved Violin-Piano, of which the following is a full, clear, and exact description.

The invention relates to musical instruments in which a traveling resinous band is moved against the strings on the operator playing the keys of the keyboard.

The object of the invention is to provide a new and improved violin-piano which is simple and durable in construction and arranged to insure the proper sounding of the treble and bass strings and to allow of conveniently placing the resinous band in position.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a cross-section of the improvement on the line 1 1 of Fig. 2. Fig. 2 is a sectional front elevation of the same on the line 2 2 of Fig. 1. Fig. 3 is a reduced plan view showing separate grooved rollers carrying separate resinous bands or belts for sounding the treble and bass strings of the piano. Fig. 4 is an enlarged plan view of the improvement. Fig. 5 is an enlarged cross-section of a rail and the means for pressing the endless band against the strings. Fig. 6 is a side elevation of the driving device for the rollers over which pass the endless bands. Fig. 7 is a plan view of the means for pressing an endless band against a string, the means being in front when the key is pressed.

The treble strings A and the bass strings A' are stretched in the usual manner over the sounding-board B of the piano, and the ends of the said strings are connected with the tuning-pins C and the hitch-pins C', of which the tuning-pins are mounted in the usual manner in the wrest-plank D, while the hitch-pins C' are secured on a metallic support D', both the wrest-plank D and the support D' being secured in the usual manner to the back frame E of the piano, the several

parts described being arranged within a suitable casing F. Now in order to sound the treble strings A and the bass strings A' two separate and distinct resinous bands or belts G and G' are provided, passing over grooved rollers H and H', provided at their ends with pulleys H<sup>2</sup> H<sup>3</sup>, over which pass belts H<sup>4</sup> H<sup>5</sup>, (see Fig. 6,) also passing over pulleys H<sup>6</sup> H<sup>7</sup>, secured to a crank-shaft H<sup>8</sup>, adapted to be turned by suitable pedal mechanism H<sup>9</sup> or by a motor or the like.

By reference to Fig. 6 it will be seen that the pulleys H<sup>2</sup> H<sup>6</sup> are differently proportioned relative to the pulleys H<sup>3</sup> H<sup>7</sup>, so that when the shaft H<sup>8</sup> is turned the rollers H H' are rotated at different speeds of a predetermined ratio, so that a traveling motion is given to the endless belts or bands G and G' at a corresponding speed. The band G is preferably narrow in comparison to the broader band G', and the roller H is preferably rotated at a higher rate of speed than the roller H' to insure a proper sounding of the treble strings A and the bass strings A', respectively.

It is understood that for sounding the treble strings A in the proper manner it is desirable to have a comparatively narrow or light resinous band traveling at a high rate of speed, and for properly sounding the bass strings A' a broader or heavier band traveling at a lower rate of speed is desirable.

The rollers H and H' are journaled in removable bearings H<sup>10</sup> to allow of conveniently removing either roller H or H' through a suitable opening F' in the corresponding end of the casing F. By this arrangement the replacing of a worn-out band by a new one can be facilitated.

Each of the bands G and G' also passes over pulleys I, journaled in bearings I', secured to the rear face of a rail J, made in sections, one for each band G G', each section being mounted to slide transversely on rods J', secured to the back frame E of the piano, and each section of the said rail J is pressed in a forward direction by springs J<sup>2</sup>, coiled on the rods J'. The forward ends of the rods J' are screw-threaded to receive thumb-nuts J<sup>3</sup> to allow of regulating the position of the sections of the rail J, with a view to hold the bands G and G' taut and also to allow of moving the sections of the rail J inwardly when it is desired to replace a worn-out band G or G' by a new one. However, each of the

sections of the rail J is pressed forwardly by the springs J<sup>2</sup>, so as to hold the corresponding band G or G' taut.

Each of the pulleys I is set approximately  
 5 at an angle of forty-five degrees (see Figs. 1, 2, and 4) to allow the upper run of a band G or G' to pass transversely and at right angles to the sounding-board B from the top of the pulley I to the top of the corresponding roller  
 10 H and H' and on one side of the string, the bottom run of the band returning and passing from the bottom of the roller H and H' to the bottom of the next following pulley I. At the ends of each roller H or H' the band G  
 15 or G' passes over separate pulleys I<sup>2</sup>, journaled in brackets I<sup>3</sup>, attached to the corresponding section of the rail J, the band extending from one pulley I<sup>2</sup> to the other, so that a continuous traveling motion is given  
 20 to the corresponding band G or G' on rotating the roller H or H', and the upper runs of the bands G and G' extend close to a corresponding string A or A' and at right angles thereto. Now in order to move this upper  
 25 run of the band G and G' gradually in engagement with its string A or A' to sound the same the following arrangement is made: A friction-roller K is adapted to engage the upper  
 30 upper run in engagement with the corresponding string A or A', and the said friction-roller K is journaled in an arm K', attached to or forming part of a rock-shaft K<sup>2</sup>, disposed vertically and mounted to turn in suitable  
 35 bearings L', arranged on a rail L, secured by brackets L<sup>2</sup> to the casing F or to the back frame E. The shaft K<sup>2</sup> is pressed by a torsion-spring K<sup>3</sup> to normally hold the friction-roller K out of engagement with the  
 40 upper run of the band G or G', and on the lower end of the rock-shaft K<sup>2</sup> is secured a grooved pulley N, on which winds a belt or a cord N', connected with a hook-bolt N<sup>2</sup>, held in a lever O, fulcrumed on the rail L, each  
 45 hook-bolt N<sup>2</sup> being provided with a nut N<sup>3</sup>, butting against the lever O, so as to allow adjustment of the hook-bolt and the cord N' to bring the rock-shaft K<sup>2</sup> normally in proper  
 50 position—that is, with the friction-roller K out of engagement with the upper run of the band G or G'. When, however, an upward-  
 55 swinging motion is given to the lever O, then the cord N' pulls on the pulley N to turn the shaft K<sup>2</sup> against the tension of the spring K<sup>3</sup> to move the friction-roller K in engagement  
 60 with the upper run of the band G, so as to press the said upper run against the string A or A' to sound the same, owing to the travel of the band G or G'. Each lever O is en-  
 65 gaged by a jack-rocker O<sup>2</sup>, fulcrumed on a flange O<sup>3</sup>, secured to the central rail O<sup>4</sup> of the instrument, the said jack-rocker O<sup>2</sup> resting on a capstan P' of the piano-key P of usual  
 construction and under the control of the per-

former. Now when the key P is pressed then an upward-swinging motion is given to the lever O to rock the shaft K<sup>2</sup> with a view to press the upper run of the band G or G' in  
 70 engagement with the corresponding treble or bass string A or A' to sound the same. The jack-rocker O<sup>2</sup> is provided with a damper-spring O<sup>5</sup>, engaging a damper-lever O<sup>6</sup>, carrying the usual damper O<sup>7</sup>, normally en-  
 75 gaging the string A or A', it being understood that on pressing the piano-key P the damper O<sup>7</sup> is moved out of engagement with the string at the time the string is engaged and  
 80 sounded by the corresponding upper run of the band G or G'.

When the instrument is in use, a continuous rotary motion is given to the rollers H and H', as previously described, so that the  
 85 bands G and G' are caused to travel at a different rate of speed with the upper runs of the said bands adjacent to the corresponding  
 90 strings A and A'. The performer on pressing the keys P causes the corresponding runs to be forced over in engagement with the strings A and A', so as to sound the same in har-

mony with the keys pressed.  
 As shown in Fig. 1, the rollers H and H' are located directly under the wrest-plank D and between the strings A A' and the back-  
 95 frame E. By this construction an exceedingly compact sounding device is provided which takes up comparatively little room and at the same time brings the sounding device in the same relation to the strings to  
 100 properly sound the same. By making the connection between the keys P and the rock-shaft K<sup>2</sup> in the manner described very little power is required on the part of the per-  
 105 former to keep the band G or G' in engagement with a string A after the corresponding key is pressed—that is, very little power is required to hold the key in a pressed position,  
 110 as then the arm K' stands approximately at right angles to the band G or G'. (See Fig. 7.) When the player releases the pressed key, the spring K<sup>3</sup> returns the shaft K<sup>2</sup> and arm K' to normal position to release  
 the band G or G'.

The violin-piano shown and described is very simple and durable in construction,  
 115 composed of comparatively few parts not liable to get easily out of order.

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

1. A violin-piano provided with a narrow resinous traveling band for engagement with the treble strings and a broad resinous band for engagement with the bass strings.
2. A violin-piano having a resinous travel-  
 125 ing band for engagement with the strings, a plurality of inclined pulleys over which passes the said band, and a removable grooved and driven roller for the said band.
3. A violin-piano having a resinous travel-  
 130

ing band for engagement with the strings, a plurality of inclined pulleys over which passes the said band, and a removable grooved and driven roller for the said band, the latter extending transverse of the sounding-board and the said roller being arranged below the wrest-plank and between the strings and the back post of the violin-piano.

4. A violin-piano provided with an endless band for sounding the piano-strings, a grooved roller over which passes the band, inclined pulleys over which passes the said band, supports for the pulleys extending at one side thereof and means for keeping the said band taut.

5. A violin-piano provided with an endless band for sounding the piano-strings, a grooved roller over which passes the band, inclined pulleys over which passes the said band, bearings for supporting the pulleys and extending at one side thereof and spring-pressed means for keeping the said band taut.

6. A violin-piano provided with an endless band for sounding the piano-strings, a grooved roller over which passes the band, pulleys over which passes the said band, and a spring-pressed movable rail carrying the said pulleys.

7. A violin-piano provided with an endless band for sounding the piano-strings, a grooved roller over which passes the band, pulleys over which passes the said band, a rail carrying the said pulleys, fixed rods for the rail to slide on, and springs coiled on the said rods and pressing the said rail for holding the said band taut.

8. A violin-piano provided with an endless band for sounding the piano-strings, a grooved roller over which passes the band, pulleys over which passes the said band, a rail carrying the said pulleys, fixed rods for the rail to slide on, springs coiled on the said rods and pressing the said rail for holding the said band taut, and adjusting-nuts screwing on the said rods against the said rail.

9. A violin-piano provided with a casing having an opening in its end, an endless band for sounding the piano-strings, a grooved roller over which passes the band, pulleys over which passes the said band, and removable bearings for removably supporting the said roller to allow of running the roller sidewise through the opening in the end of the piano-casing.

10. A violin-piano provided with a resinous traveling band for engagement with the

strings of the piano, a spring-pressed rock-shaft disposed vertically and provided at its upper end with means for engaging the said band to press the latter against a string, a pulley on the lower end of said rock-shaft, a cord passing over the said pulley, a lever, an adjustable connection between the lever and the said cord, and key-controlled means for imparting a swinging movement to said lever.

11. A violin-piano provided with a resinous traveling band for engagement with the strings of the piano, a spring-pressed rock-shaft disposed vertically, a rail carrying bearings in which the rock-shaft is mounted to turn, the said rock-shaft being provided at its upper end with means for engaging the said band to press the latter against a string, a pulley on the lower end of said rock-shaft, a cord passing over said pulley, key-controlled means for exerting tension on the said cord, the said means including a lever fulcrumed on the said rail, and a device adjustable in the said lever and connected with the cord, and means for adjusting the said device.

12. A violin-piano provided with a resinous traveling band for engagement with the strings of the piano, a spring-pressed rock-shaft, a friction-roller carried by said rock-shaft for engaging the band to press the latter against a string, a pulley on the said rock-shaft, a cord passing over said pulley, a hook-bolt connected with the cord, a lever in which the hook-bolt is adjustably held, and means controlled by a piano-key for imparting swinging motion to the said lever.

13. A violin-piano provided with resinous traveling bands, one for engagement with the treble strings, and the other for engagement with the bass strings, rollers over which pass the said bands, means for driving the rollers at different speeds to cause the band for the treble strings to travel at a higher rate of speed than the band for the bass strings, inclined pulleys for the bands to pass over and spring-pressed rails carrying the said pulleys, the rails being located opposite the corresponding rollers.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK HILLIARD WATSON.

Witnesses:

C. M. WATSON,

O. C. GILES.