

No. 675,149.

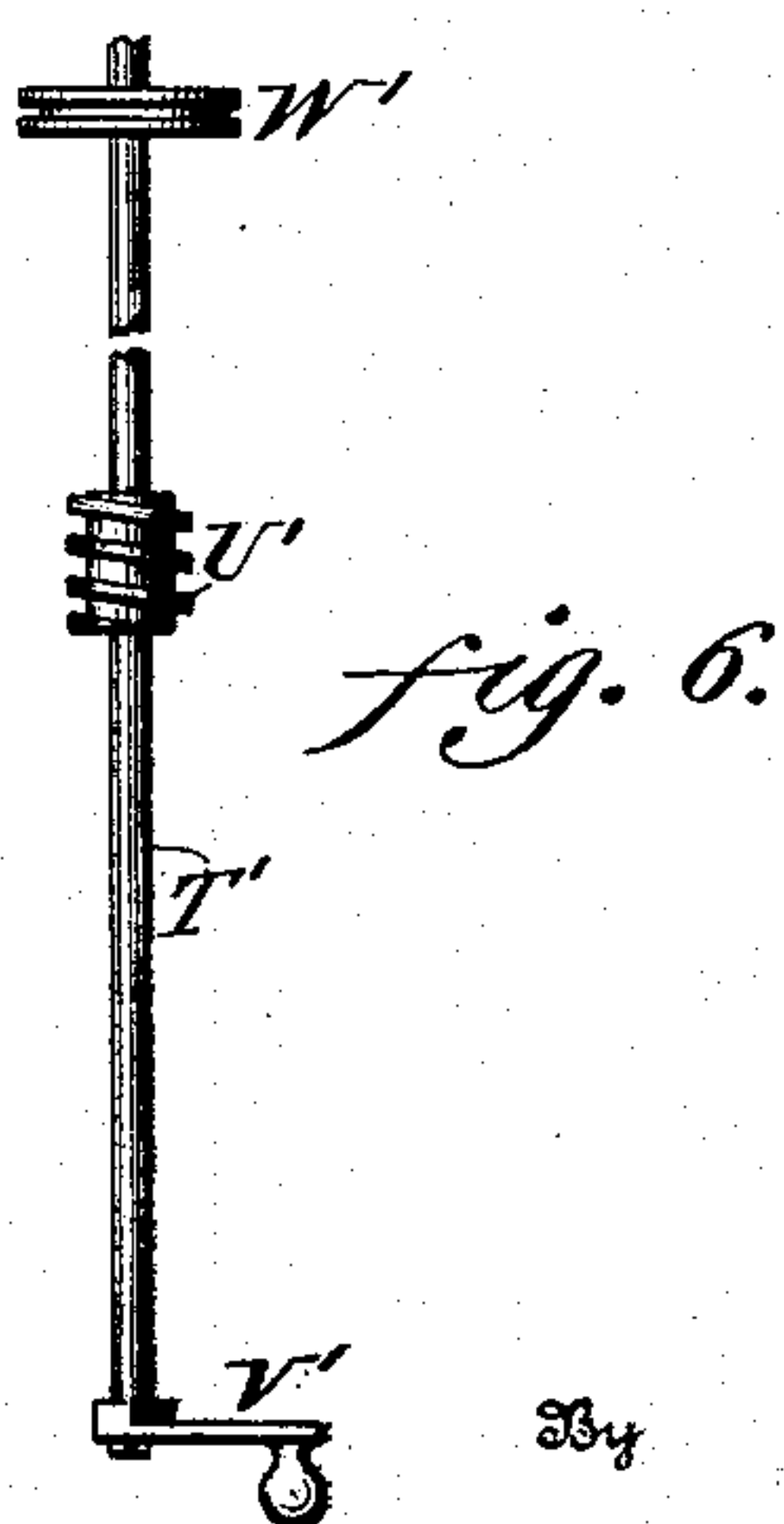
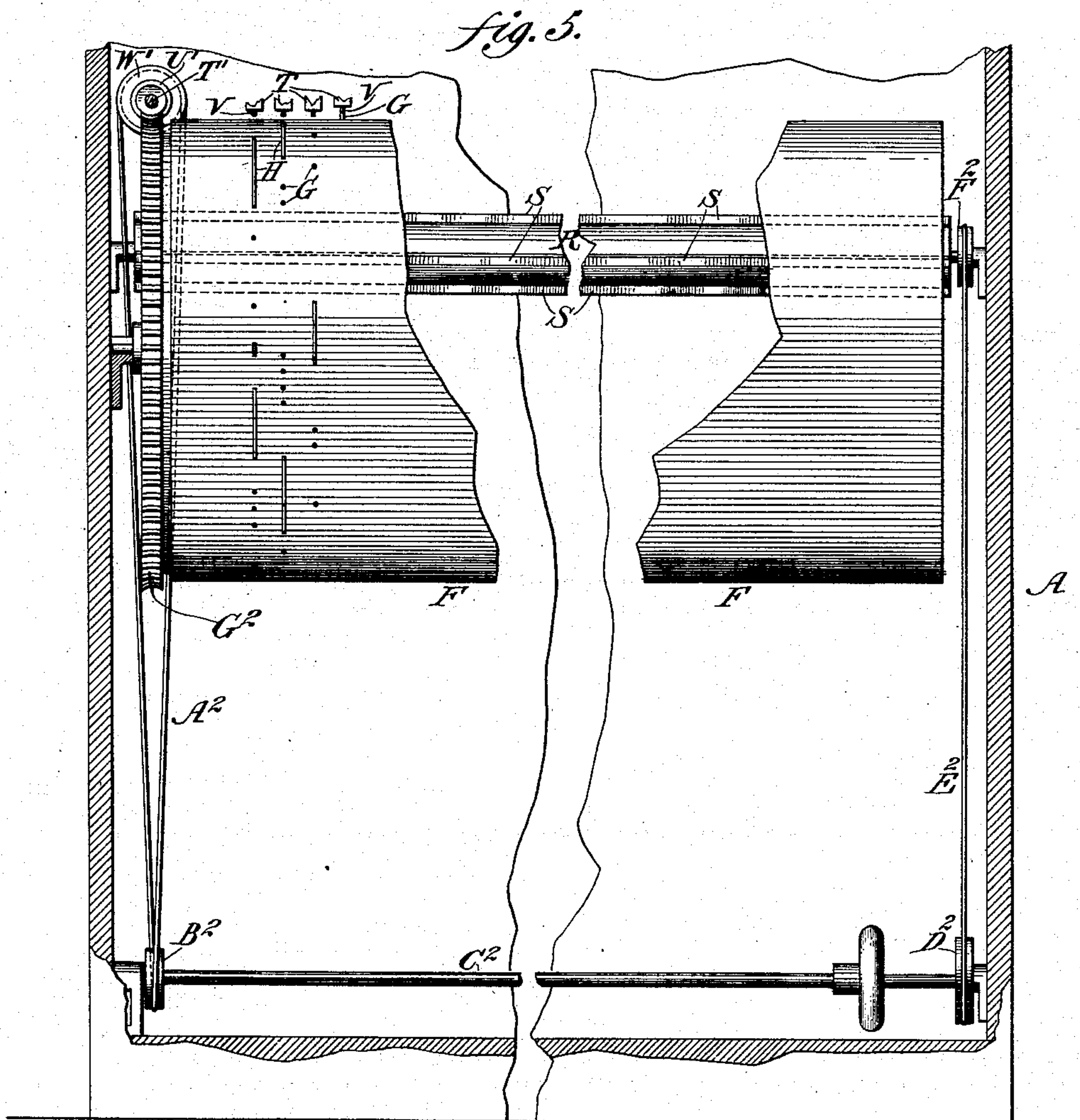
Patented May 28, 1901.

A. CAPRA.
MECHANICAL PIANO.

(Application filed July 5, 1900.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses
L. Howille,
D. F. Chagel.

Inventor
Alessandro Capra.
Wiederheim & Lautens,
Attorneys

UNITED STATES PATENT OFFICE.

ALESSANDRO CAPRA, OF PHILADELPHIA, PENNSYLVANIA.

MECHANICAL PIANO.

SPECIFICATION forming part of Letters Patent No. 675,149, dated May 28, 1901.

Application filed July 5, 1900. Serial No. 22,508. (No model.)

To all whom it may concern:

Be it known that I, ALESSANDRO CAPRA, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Mechanical Pianos, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of an improvement in mechanical pianos whereby a succession of impulses is imparted to a hammer, that the sound may be continuous and closely resemble the human voice or a stringed instrument.

It further consists in novel details of construction, all as will be hereinafter set forth.

Figure 1 represents a partial side elevation and partial sectional view of a portion of a mechanical piano embodying my invention. Fig. 2 represents a front elevation of a portion of the mechanism detached. Fig. 3 represents a plan view of a portion of the mechanism detached. Fig. 4 represents a partial front elevation and partial sectional view of mechanism shown in Fig. 1 on a reduced scale. Fig. 5 represents a partial front elevation and partial sectional view of a mechanical piano, showing a slightly different construction. Fig. 6 represents a plan view of a detached portion thereof.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a mechanical piano having the usual casing and being provided with a motor B, which is of any suitable construction, having the gear C connected therewith, which meshes with the pinion D, the latter meshing with the gear E, which is connected with the cylinder or drum F of the organ, said drum being provided with pins G of usual construction and having the elongated pins or bridges H at certain points where it is desired to have a long or prolonged note. The pinion D is mounted on a shaft J, which extends across the mechanical piano, and is provided on its opposite end with a gear K, which meshes with a pinion L, to which is suitably connected the gear M, which meshes with a pinion P, mounted on a shaft Q, which shaft carries the drum R, having spurs or ridges S extending the length thereof, said drum extending the length of the cylinder.

T designates a lever, which is suitably supported or pivoted at U and being provided at one end with a projection or stud V and having a spring W suitably connected for holding the same in normal position. One end of the lever is split, as at A', and has the bar B' pivoted thereto, which latter is provided with the wedge-shaped face C' and actuated by a spring D'.

E' designates a hammer which is suitably supported by the hammer-shank F', which has a slot G' therein, having an extension H² at an angle thereto, and is supported on a wire or bar H', the lower end of said hammer-shank having the finger J' pivoted thereto, which is provided with a roller K' and is actuated by the spring L', it being noted that the wedge face C' of the bar B' is adapted to pass between the finger J' and the hammer-shank F'.

M' designates strings of the piano, and N' designates the support for the wire or bar H', which extends the length of the piano.

As the parts sometimes need adjustment, owing to warping or on account of the weather, &c., the bar T can be adjusted by the screw-eye Q', which is also adjustable and provided with a felt packing R' to deaden the sound when the bar T returns to its normal position, the screw-eye S' being adapted to adjust the split end of the bar T, and with it the bar B'.

In Fig. 5 I have shown a construction wherein the motor is dispensed with, and in this case I employ a shaft T', provided with the worm U' and the crank V', extending beyond the casing of the piano. On the shaft T' is the pulley W', over which passes the belt or cord A², which also passes around the pulley B² on the shaft C², the opposite end of said shaft C² being provided with a pulley D², over which passes the cord or belt E², which also passes around the pulley F² and imparts motion to the drum R, provided with the spurs S, it being seen that the drum F is provided with a worm-wheel G², meshing with the worm U'.

The operation is as follows: The motor is wound and the piano is started, the gear C imparting motion to the pinion D and in turn to the gear E on the drum F, which is revolved. As the pin V on the lever T strikes the pins G the end is raised and the opposite

end, carrying the bar B', is depressed, which forces the wedge C' between the finger J' and the hammer-shank F' and forces the same apart and the roller K' on the finger J' into the path of the spurs S. The gear M operates the pinion P, and with it the drum R, and the spurs S strike the roller K' on the finger J', forcing away the same, and with it the lower end of the hammer-shank F', which when released permits the hammer E' to strike the string M', thus giving forth the required sound. When, however, the pin V travels on the bridge or elongated pins H, the roller K' will be held in the path of the spurs S for a certain length of time, and owing to the very rapid revolution of the drum R the said spurs S will strike the said pulley K' in such quick succession that an innumerable number of impulses will be imparted to the hammer E', which strikes the string M', so as to give a continuous sound, it being seen that when the pin V leaves the said bridge H the parts will resume their normal position and the roller K' will be out of the path of the spurs S until the next pin is reached. As the parts are sometimes affected by the weather, the screw-eyes Q' and S' are properly operated in order to place the parts in operative position.

By providing the hammer-shank F' with the bayonet-slot G' the said hammer-shank can be quickly removed from the wire H', should one of the parts be broken, and a new one quickly replaced in position, it of course being apparent that the said hammer-shanks are actuated for returning the same to their normal position.

In the construction shown in Figs. 5 and 6 the same operation and parts are employed, excepting that the motor is dispensed with and the power transmitted by turning the shaft T', which operates the cylinder F and the drum R.

It will of course be evident that various changes may be made in the device herein shown and described, and I do not therefore desire to be limited in every instance to the exact construction thereof.

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

1. In a mechanical piano, a cylinder, a hammer, its shank, means for imparting motion to said cylinder, a lever acting in conjunction with said cylinder and devices interposed between said means and the hammer-shank thrown into operative position by said lever, acted upon by said means to impart a succession of impulses to said hammer to produce a continuous sound.

2. In a mechanical piano, a cylinder, means

for imparting motion thereto, a lever acting in conjunction with said cylinder, a hammer and a drum suitably operated having spurs thereon which are adapted to impart a succession of impulses to produce a continuous sound, a pivoted part on the hammer-shank interposed between the said drum and shank, and a bar movable with said lever and interposed between the shank and pivoted part.

3. In a mechanical piano, a cylinder, means for imparting motion thereto, pins of varying length on said cylinder, a lever contacting therewith, a hammer suitably supported and means including a wedge pivotally suspended from said lever for imparting a succession of impulses to said hammer.

4. In a mechanical piano, a cylinder, means for imparting motion thereto, pins on said cylinder, a lever adapted to contact with said pins, a hammer-shank having a pivotally-mounted part thereon, a drum having spurs thereon, and means for throwing the pivoted part into the path of the spur-drum, whereby a succession of impulses is imparted to said shank by said spurs.

5. In a mechanical piano, a cylinder, means for imparting motion thereto, a lever suitably supported, pins on said cylinder with which one end of said lever is adapted to contact, a hammer-shank, a rod carried by said lever, a wedge on said bar adapted to move said hammer-shank and a drum carrying spurs adapted to impart a succession of impulses to said hammer-shank.

6. In a mechanical piano, a cylinder, means for imparting motion thereto, pins on said cylinder, a drum having spurs thereon, means for operating said drum, a lever adapted to contact with said pins, a hammer-shank, a finger pivoted on the hammer-shank and means connected with said lever for placing said finger on the hammer-shank in the path of the spurs on said drum.

7. In a mechanical piano, a cylinder, pins thereon, means for imparting motion to said cylinder, a drum having spurs, means for imparting motion thereto, a lever adapted to contact with said pins, a bar carried by said lever, and a hammer-shank, a finger attached to said shank carrying a roller, said finger being adapted to be placed in the path of said spurs by said bar.

8. In a mechanical piano, a wire or rod, a slotted bar, hammer-shanks and slots in said hammer-shanks having extensions which are adapted to receive said wire or rod.

ALESSANDRO CAPRA.

Witnesses:

JOHN A. WIEDERSHEIM,
C. D. McVAY.