

(No Model.)

A. CAPRA & G. B. RISSONE.

AUTOMATIC CYLINDER PIANO.

No. 384,121.

Patented June 5, 1888.

Fig. 4.

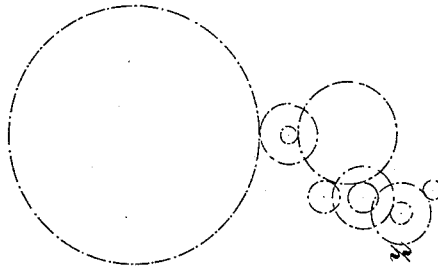


Fig. 3.

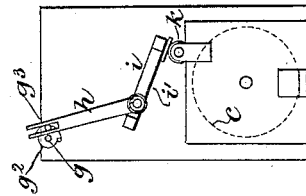


Fig. 2.

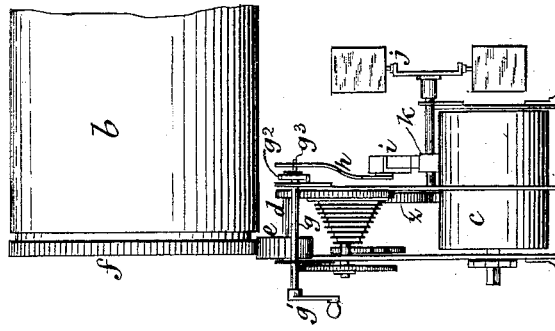
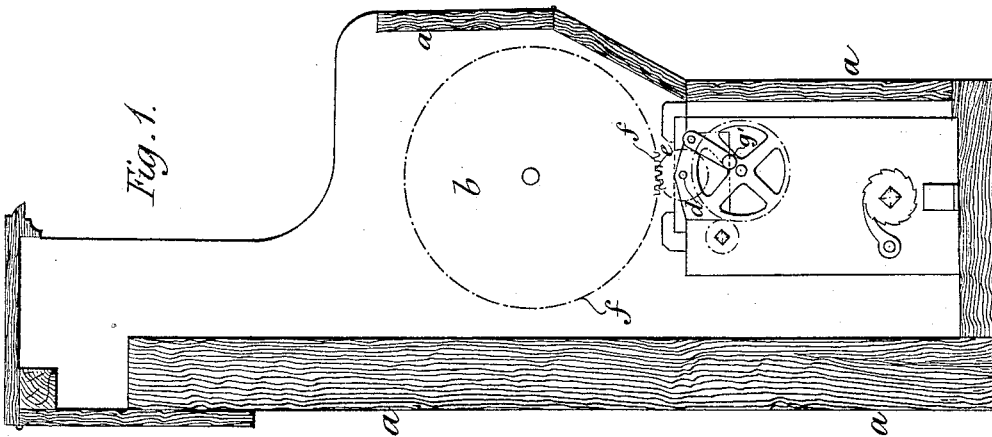


Fig. 1.



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# UNITED STATES PATENT OFFICE.

ALESSANDRO CAPRA AND GIOVANNI BATTISTA RISSONE, OF CLERKENWELL, COUNTY OF MIDDLESEX, ENGLAND; SAID CAPRA ASSIGNOR TO SAID RISSONE.

## AUTOMATIC CYLINDER-PIANO.

SPECIFICATION forming part of Letters Patent No. 384,121, dated June 5, 1888.

Application filed March 7, 1888. Serial No. 266,454. (No model.) Patented in England February 4, 1884, No. 2,702.

*To all whom it may concern:*

Be it known that we, ALESSANDRO CAPRA and GIOVANNI BATTISTA RISSONE, both of 30 Great Warner Street, Clerkenwell, in the county of Middlesex, England, mechanical piano manufacturers, subjects of the King of Italy, have invented certain new and useful Improvements in Automatic Cylinder-Pianos, (for which we have received Letters Patent in Great Britain, 10 No. 2,702, dated February 4, 1884,) of which the following is a specification.

This invention relates to improvements in automatic or self-acting cylinder-pianos; and it consists in an improved method of arranging 15 and combining the spring-barrel or actuating mechanism with the pin barrel or cylinder (on which the tunes are arranged) to act upon the mechanism and hammers which strike the strings of the instrument, and to an improved 20 method of regulating the speed of such actuating mechanism. Heretofore the spring-barrel and mechanism combined therewith have been arranged at the end or in a line with the cylinder or pin-barrel, thereby occupying considerable space in the direction of the length 25 of the case of the musical instrument or piano, and rendering it almost compulsory to employ a comparatively short cylinder, and thus limiting the effective musical power of the instrument.

Now, according to our improvements, we mount or arrange the spring-barrel and actuating mechanism below the cylinder or pin-barrel, which can thus be made to correspond 35 in length with the length of the key-board or series of notes comprising the automatic piano. The space hitherto occupied by the spring-barrel and actuating mechanism is thus utilized to increase the range of the instrument and 40 render it more effective. The handle at the front for playing the instrument is dispensed with, and a better tone is also produced. The actuating mechanism is so arranged as to be capable of adjustment in order to drive the 45 cylinder or pin-barrel at different rates of speed to suit the music being played.

In order that our improvements may be clearly understood and readily carried into

practice, we will proceed to describe the drawings hereto annexed.

In the drawings, Figure 1 is an end elevation 50 of our improved automatic cylinder-piano, showing the driving mechanism in position with regard to the pin-barrel. Fig. 2 is a front view of the driving mechanism. Fig. 3 is an 55 end view of the mechanism we employ for driving the pin-barrel at different speeds, and Fig. 4 is a diagram showing the pitch-lines of the gearing of the driving mechanism.

*a a* is the case of the instrument, and *b* is the 60 pin-barrel. These are arranged in the manner usual in automatic pianos.

In order to give the requisite motion to the pin-barrel *b*, we make use of the following mechanism: *c* is a strong spring-barrel, which, by 65 means of a cord or chain and the usual train of wheels, gives motion to a shaft, *d*, on which is a pinion, *e*, the teeth of which gear with a ring of teeth, *f*, on the end of the pin-barrel *b*. By arranging the parts in the manner shown, 70 the pin-barrel *b* can be made much longer than usual, thus giving the instrument greater range of compass.

In order to drive the pin-barrel *b* at different speeds to suit the music being played, we make 75 use of the following parts: *g* is a shaft projecting through the end of the case of the instrument and having fixed on it a handle, *g'*. The opposite end of the shaft *g* carries a disk, *g''*, on which is a pin, *g'''*, which is received in the 80 fork of a forked lever, *h*. The lever *h* is pin-jointed to the bar *i*, to the underside of which is secured a spring-blade, *i'*, having at its end a pad of soft material, which is pressed by the spring against the surface of a roller, *k*, carried 85 by the axis of the fly *j*, which is driven by the usual train of gear, and in order to prevent noise we find it advantageous to make the wheel (marked *z*) of some material other than metal, and for this purpose ebonite or some 90 like material answers well.

When it is desired that the music shall be played slowly, the pad carried by the spring-blade *i'* is caused (by turning the handle *g'* in one direction) to exert a greater pressure on 95 the roller *k*, thus retarding the axis of the fly

*j*. On the other hand, when the music requires to be played quickly, by turning the handle *g'* in the opposite direction the roller *k* is relieved from the pressure of the pad carried by the spring *v'* and the whole power of the mechanism is utilized in driving the instrument. The spring-blade *v'* is capable of exerting sufficient pressure on the roller *k* to stop the instrument entirely, or the bar *i* might carry a stop to come against a pin carried by the roller *k*. By these means a great range of speed is given to the instrument, thus enabling all classes of music being properly and effectively played, a condition hitherto unattainable in musical instruments of this class.

Having thus described the nature of our invention and the manner of performing or carrying the same into practice, we would have it understood that we make no claim to the ap-

plication of self-acting mechanism consisting of the spring-barrel *c* and pin-barrel *b* to automatic cylinder-pianos, neither do we claim any of the parts separately, which are well known and in common use; but

What we claim is—

In automatic cylinder-pianos, the actuating mechanism consisting of the spring-barrel *c*, with train of wheels and speed-regulating device *g g' g² g³ h i i' j*, and wheel *z*, combined with and mounted below the pin-barrel *b*, substantially as and for the purposes set forth.

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