No. 648,194. Patented Apr. 24, 1900.

A. CAPRA.

SELF PLAYING PIANO OR ORGAN.

(Application filed Sept. 15, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 2.

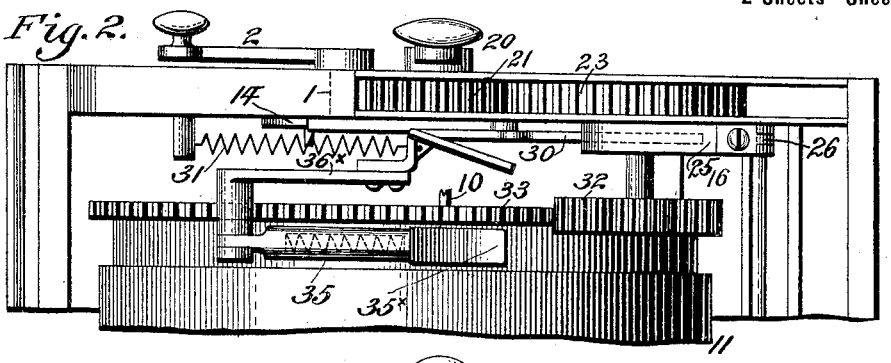

Fig. 1.

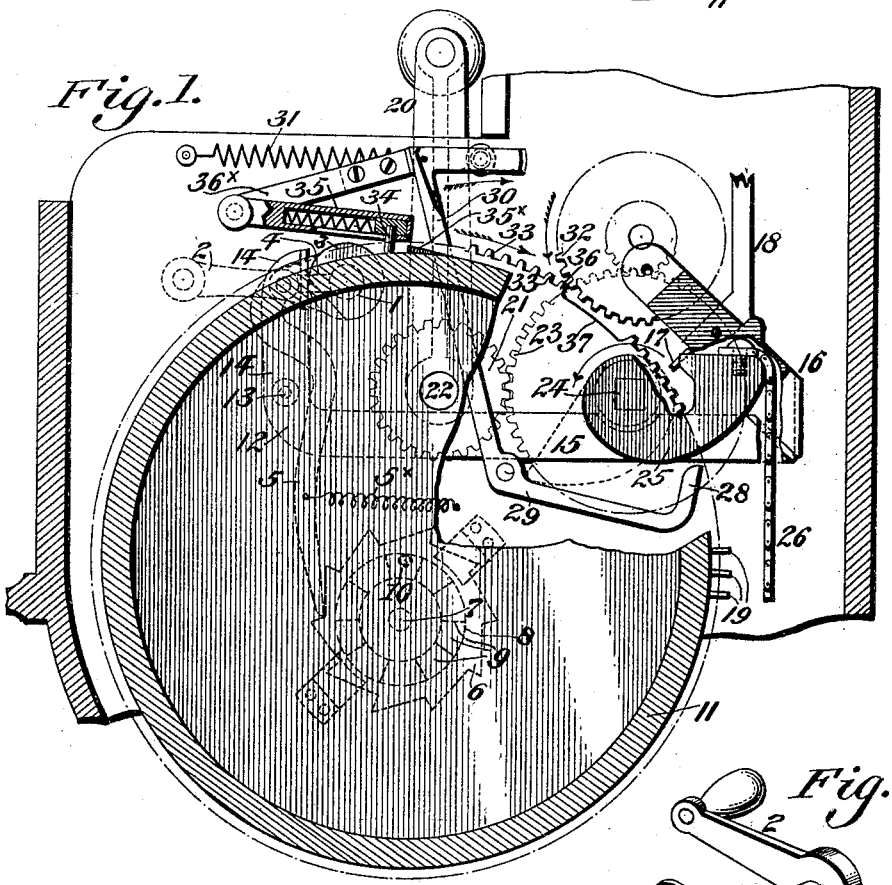

Fig. 4.

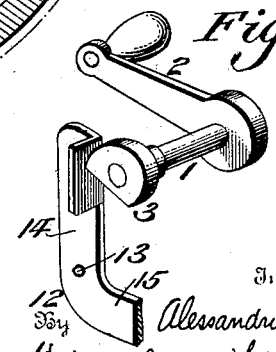

Fig. 5.

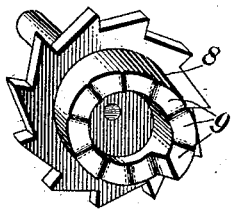

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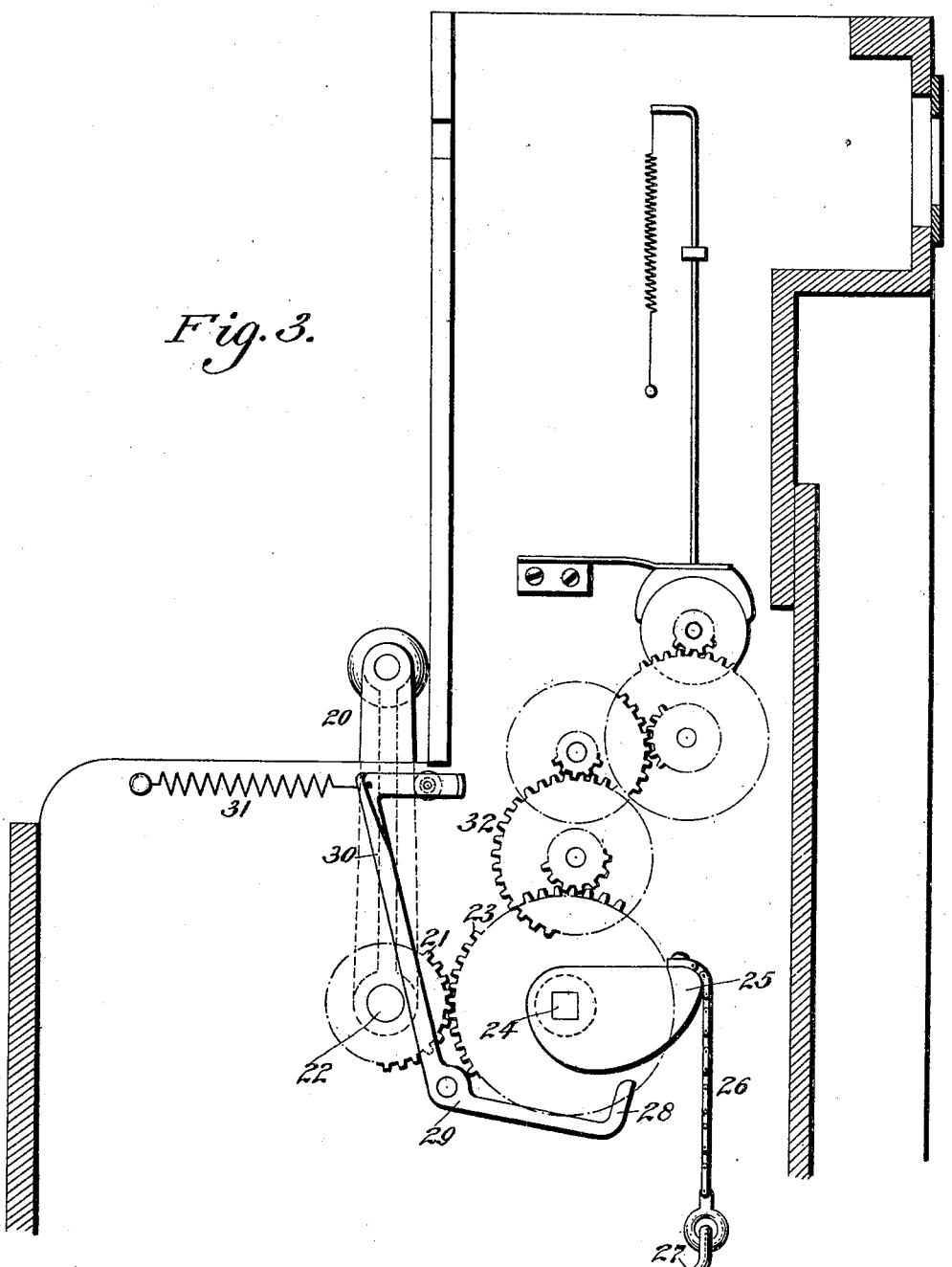
Fig. 3.



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UNITED STATES PATENT OFFICE.

ALESSANDRO CAPRA, OF PHILADELPHIA, PENNSYLVANIA.

SELF-PLAYING PIANO OR ORGAN.

SPECIFICATION forming part of Letters Patent No. 648,194, dated April 24, 1900.

Application filed September 15, 1899. Serial No. 730,563. (No model.)

To all whom it may concern:

Be it known that I, ALESSANDRO CAPRA, a subject of the King of Italy, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Self-Playing Street Pianos or Organs, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of an improved construction of a self-playing street piano or organ, the novel features of which will be hereinafter fully set forth, and particularly pointed out in the claims.

Figure 1 represents a side elevation, partly in section, of a self-playing street piano or organ embodying my invention. Fig. 2 represents a plan view of Fig. 1. Fig. 3 represents a side elevation of the winding mechanism. Fig. 4 represents a perspective view of the device for actuating the hammers of a key-bar. Fig. 5 represents a perspective view of a ratchet wheel or device for permitting the changing of a tune, the same being seen in side elevation in Fig. 1.

Similar figures of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates a shaft suitably journaled and having secured thereto the handle 2, a cam 3, and an arm 4, which latter has pivoted thereto a pawl or dog 5, which is held in position by the spring $5^{\times}$ and engages the teeth of a ratchet-wheel 6, secured to a shaft 7, journaled in the organ-casing or other means and for the purpose of changing from one tune to another. The ratchet-wheel 6 is provided with a ring 8, whose working face is formed with steps 9, against one or the other of which abuts the journal 10 on one end of the music-cylinder 11, it being noted that the journal 10 is eccentric to the shaft 7.

12 designates a bell-crank lever fulcrumed at 13 to a suitable point, the upright member 14 of which abuts against the cam 3, while the outer extremity of the horizontal member 15 supports a portion of the key-bar 16, so that the pins 17 of the hammers 18 may be thrown out of the path of the pins 19 on the cylinder 11 when the latter is shifted to produce a change in the tune.

The winding of the instrument is effected by turning the handle 20, which is mounted on the shaft 22, which carries the pinion 21, which meshes with the gear 23 on the shaft 24, which carries the cam 25, having attached thereto the connection 26, which is secured to the tension device 27. The rotation of the cam 25 causes the end thereof to contact with the portion 28 of the bell-crank 29, the other arm 30 thereof having the spring 31 attached thereto. The gear 23 imparts motion to the gear 32, which meshes with the rack 33, whereby the music-cylinder 11 is actuated. After the instrument has been wound the arm 30 is moved toward the right, which is caused by the contact of the cam 25 with the portion 28. This will cause the spring-pressed pin 34 to abut against the tooth $35^{\times}$ on the cylinder 11 and rotate the latter sufficiently to bring the tooth 36 into mesh with the teeth of the gear-wheel 32, so that the cylinder 11 will be rotated thereby in order to play a tune, it being noted that the pin 34 receives motion from the arm 30 by means of the sleeve 35, pivoted to the projecting member $36^{\times}$ of said arm 30. The rack 33 is mutilated at 37, it being apparent that by this means when the mutilated portion is in the position seen in Fig. 2 relatively to the gear-wheel 32 the cylinder 11 receives no motion therefrom and must consequently come to a stop, which takes place when a tune is ended.

By following out the train of gearing it will be seen that the tension of the spring will operate the cylinder 11, and the required series of pins 19 will contact with the pins 17, and thus play a tune. When the handle 2 is actuated in the proper direction, the cam 3 will rock the lever 12, and thus throw the key-bar 16 sufficiently to cause the pins 17 to move out of the path of the pins 19 of the cylinder 11, and during the above-described movement of said handle 2 the pawl 5 imparts motion to the ratchet 6 and rotates the same, thereby causing the step 9, against which abuts the journal 10 of the cylinder 11, to leave the same, and also causes the step immediately in the rear of the former one to take its place, and thus move the cylinder 11 in a longitudinal direction the distance of one step, and thereby bring a new series of pins 19 into action in order to change the tune. The handle 2 is then returned to its normal position,

which permits the lever 12 to likewise return to its normal position and cause the key-bar to also return into its proper position, and thus again bring the pins 17 of the key-hammers into the path of certain of the pins 19 of the cylinder 11.

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

1. In a self-playing instrument, a shaft carrying a cam, a bell-crank lever actuated thereby, said lever being adapted to actuate a key-bar, a pawl or dog actuated in unison with said cam, a ratchet-wheel engaged by said dog, a stepped surface on said ratchet-wheel and a cylinder, having a journal engaging the steps on said surface.

2. In a self-playing instrument, a winding device therefor, a cylinder having a tooth thereon, and a spring-pressed pin actuated in unison with said winding device and adapted to engage said tooth.

3. In a self-playing instrument, a cylinder having a rack thereon, a portion of said rack being mutilated, a gear-wheel adapted to engage said rack, tension devices for rotating said wheel, rack and cylinder, a tooth on the latter, a spring-pressed pin engaging said tooth, and means for actuating said tooth during the winding of the instrument.

4. In a self-playing instrument, a cam having a connection therefrom to a spring, a bell-crank, means for actuating said cam, the latter being adapted to strike the portion 28 of said bell-crank, an arm 30 attached thereto, a spring-actuated pin carried by said arm, a cylinder 11, a tooth engaged by said pin, a mutilated rack on said cylinder, and a gear-wheel engaging said rack, said wheel being actuated by the tension of said spring.

5. In a self-playing instrument, a shaft 1, means for rotating the latter, connections from said shaft to a dog, a ratchet-wheel engaged by said dog, and having on a side thereof a stepped surface, a drum or cylinder 11, a journal for said drum adapted to contact with the said stepped surface, a shaft for said ratchet-wheel, said journal being located eccentrically to said wheel whereby the lateral shifting of said cylinder is effected by the rotation of said ratchet-wheel when it is desired to change a tune.

6. In a self-playing instrument, a shaft 1, means for rotating the latter, a cam on said shaft, a cylinder and a bell-crank lever, having one member abutting against said cam and its other member supporting a key-bar, whereby the hammers on the latter can be adjusted when said cylinder 11 is shifted.

7. In a self-playing instrument, a cylinder having a tooth $35^{\times}$ thereon, a spring-pressed pin adapted to engage said tooth during the winding of the instrument, a series of teeth on said cylinder, a gear adapted to engage said teeth, said cylinder and the teeth thereon being rotated in the direction of said gear during the completion of the winding of said instrument.

8. In a self-playing instrument, a bell-crank lever, means for rocking the latter when the instrument is wound up, tension devices for said lever, a cylinder having a tooth $35^{\times}$ thereon, and a spring-pressed pin carried on an arm of said lever and adapted to engage said tooth and propel said cylinder.

9. In a self-playing instrument, a shaft, means for actuating the latter, a cam on said shaft, a cylinder suitably supported, ratchet mechanism connections common to said ratchet mechanism and cylinder for shifting said cylinder laterally, and a lever having a portion thereof abutting against said cam and its other member supporting a key-bar, whereby the hammers on the latter can be adjusted when said cylinder is shifted.

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