No. 712,595. Patented Nov. 4, 1902.

E. C. REUTLINGER & R. SCHALLER.

MECHANICAL SINGING BIRD.

(Application filed Mar. 3, 1902.)

(No Model.) 2 Sheets—Sheet 1.

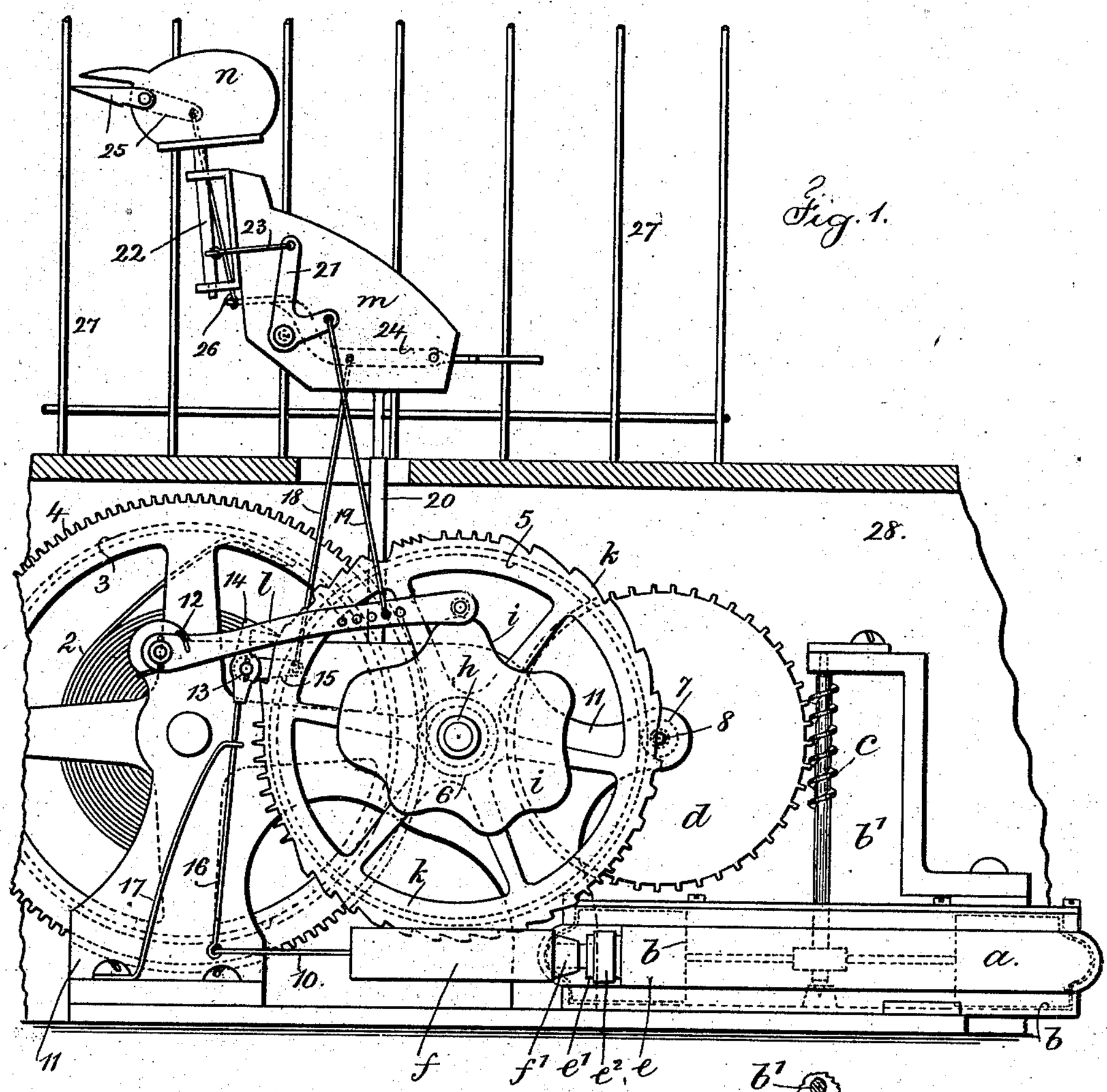

Fig. 1.

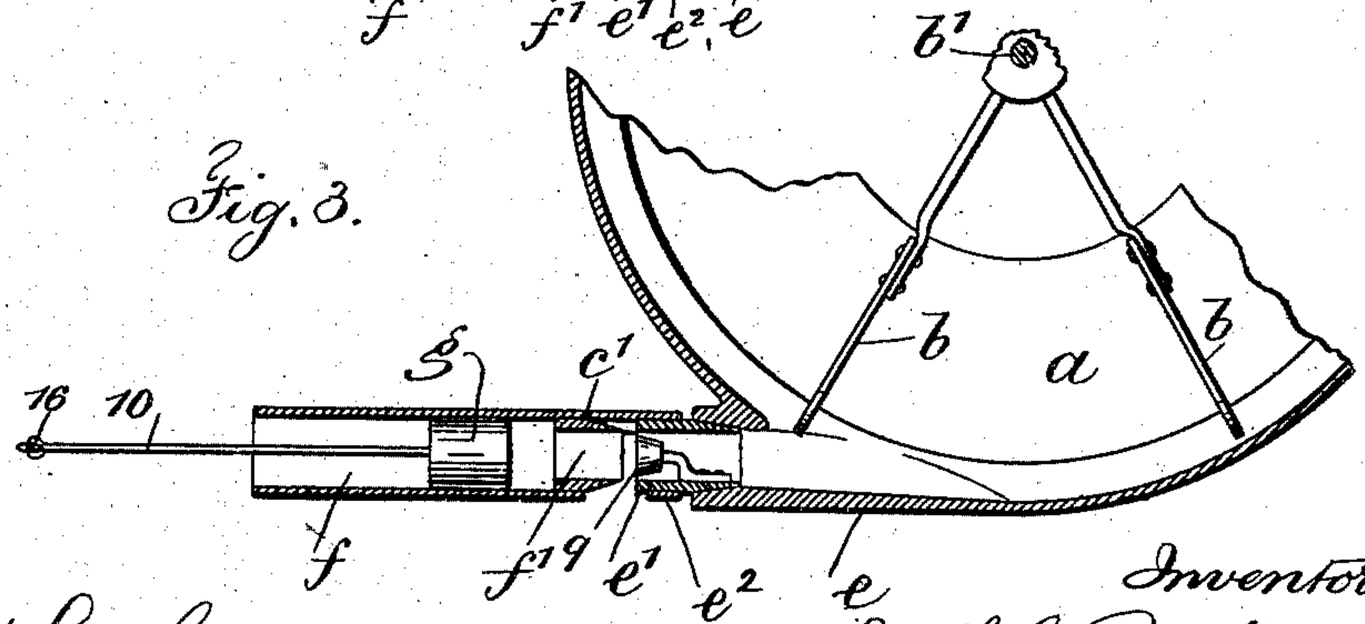

Fig. 3.

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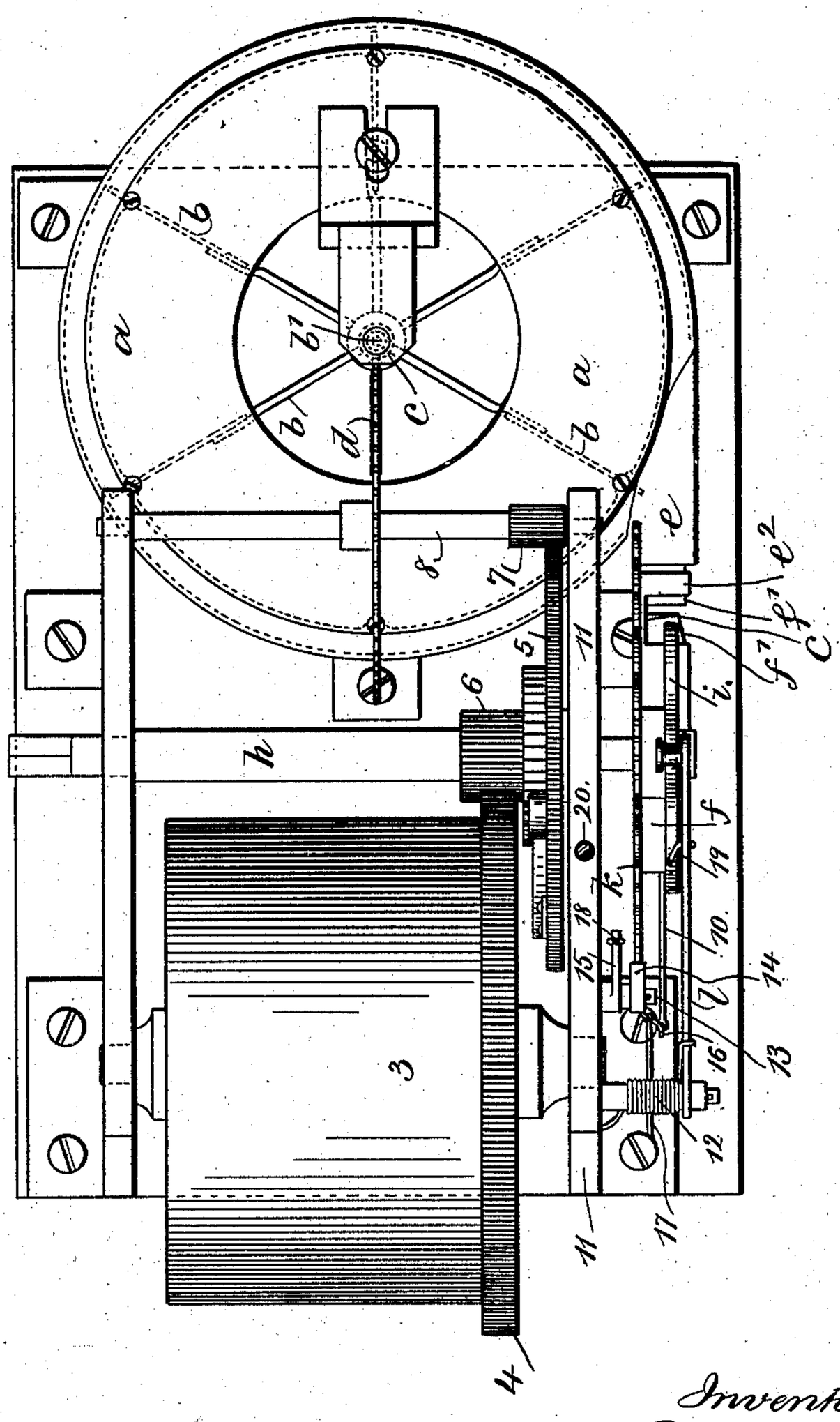

Fig. 2.

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UNITED STATES PATENT OFFICE.

EMIL C. REUTLINGER AND RICHARD SCHALLER, OF WEST HOBOKEN, NEW JERSEY.

MECHANICAL SINGING BIRD.

SPECIFICATION forming part of Letters Patent No. 712,595, dated November 4, 1902.

Application filed March 3, 1902. Serial No. 96,360. (No model.)

To all whom it may concern:

Be it known that we, EMIL CARL REUTLINGER, a citizen of the Republic of Switzerland, and RICHARD SCHALLER, a citizen of the United States of America, both residing at West Hoboken, in the county of Hudson and State of New Jersey, have invented an Improvement in Mechanical Singing Birds, of which the following is a specification.

Mechanical singing birds have heretofore been constructed and actuated by a motor, usually a clock mechanism and a bellows, the movements of which were effected by the motor. From the bellows the intermittent air pulsations were employed for producing the sound, the variations in the sound-waves being controlled by devices set in motion by the motor and usually comprising note and cam wheels for each pair of bellows and devices simultaneously actuated for effecting movements of the body of the bird.

Our invention relates to similar mechanism.

The object of our invention is to dispense with the bellows device and the intermittent air pulsations, which produce discord and irregularities in the musical tones. We employ a motor of any desired form, a mechanical bird, a note-wheel, and mechanical devices actuated by the motor for effecting the movements of the mechanical bird, and in combination therewith we employ a blower operated by the motor and to which a steady continuous movement is imparted by a toothed wheel and worm actuated by the motor, so that thereby the air-pressure is continuous and not intermittent. The air is forced by the blower through devices forming a whistle, and a piston and piston-rod are employed and moved along in part of said devices by mechanism actuated by the note-wheel to vary the length and rapidity of the air movements, so as to produce sounds similar to the singing of a bird. The continuous movement of air produced by the blower enables us to successfully operate these devices with a single note-wheel. Hence the number of parts is reduced over and above similar devices heretofore employed, the parts are less liable to get out of order, and the device is less expensive.

In the drawings, Figure 1 is a vertical section representing our improvement. Fig. 2 is a plan of the same and section through the standard of the bird mechanism, the parts of the case being removed; and Fig. 3 is a horizontal section centrally of the blower and whistle device and illustrating the upper portions of the same.

The motor employed by us may be of any desired character. We, however, prefer a spring-actuated motor and train of gears similar to a clock-movement, and for this purpose have illustrated in the drawings such a device, in which 2 represents the spring and 3 the spring-barrel. 4 5 are gears, 4 being upon the spring-barrel and 5 upon the shaft *h*, upon which shaft is also a pinion 6, meshing with the gear 4, and a pinion 7 on a shaft 8 meshes with the gear 5.

The blower-case *a* is of circular form in plan and preferably with a rounded periphery in elevation, and the same is connected to a suitable base which also forms the bottom of the case for the motor. The blower *b* comprises a series of blades mounted upon arms projecting from a hub upon the blower-shaft *b'*, and said shaft is mounted in suitable bearings at its respective ends, one of said bearings being in the bottom of the blower-case and the other in the free end of an angular arm secured to the blower-case. Upon the blower-shaft *b'* is a worm *c*, and a toothed wheel *d* is upon the shaft 8 of the motor mechanism, the spring 2 turning the spring-barrel and the gear 4 rotating the pinion 6, shaft *h*, gear 5, pinion 7, shaft 8, and toothed wheel *d* and by the said toothed wheel acting upon the worm *c* and rotating the blower-shaft and blower.

Tangentially from one side of the blower-case is a tube *e*, in the open end of which is fitted a tapering sleeve *e'*. An annular opening is formed in the free end of this sleeve by means of a plug 9, slightly smaller in diameter than the open end of the sleeve and securely held in place by a bracket-arm fastened to the sleeve. (See Fig. 3.) The plug is preferably tapering and largest at the exposed end, and the air under pressure from the blower is forced past this plug and emerges from the annular opening around the same.

Axially in line with this sleeve and the tube *e* is a tube-section *f*, the tube-section being cut away at one end, so as to form an arm *c'* and ring e^2. The ring e^2 passing over and around the sleeve *e'* acts to hold the tube-section *f* to the sleeve *e'* and in line therewith and provides a longitudinal movement to effect the adjustability of the parts, and as the ring e^2 is separated a short distance from the tube-section the intervening space is filled by a tapering tubular end *f'*, secured to the tube-section *f*, the open end of the tubular end *f'* being in close proximity to the annular opening in the sleeve *e'* and the internal diameter of said sleeve *e'* and of the tubular end *f'* substantially agreeing.

A piston *g* is within the tube-section *f*, and a piston-rod 10 extends therefrom, and at its end said rod 10 is connected to a rod 16. The shaft *h*, carrying the pinion 6 and gear 5 at one end, passes through the side frame 11, and on the end of this shaft *h* is a cam-wheel *i* and note-wheel *k*. An arm *l* is pivoted to the side frame 11 and is actuated by a spring 12, which presses a pin on the free end of said arm against the surface of the cam-wheel *i*. A post 13 is secured to the side frame 11, and upon the sleeve around said post is a pawl-tooth 14 and crank 15, which are preferably integral with said sleeve. The pawl-tooth 14 is connected to the aforesaid rod 16, and the point of the pawl-tooth bears upon the note-wheel *k*, and a spring 17 is fastened to the base of the side frame 11, and its free end is formed as an eye surrounding the rod 16. The tendency of the spring 17 is to keep the pawl-tooth 14 in contact with the note-wheel, and as the note-wheel *k* revolves the pawl-tooth vibrates as the result of the irregular surface or teeth of the note-wheel, and this action causes a longitudinal movement of the piston *g* in the tube-section *f* and a movement of air in the tube-section forward of the said piston, and the air emerging through the annular opening in the sleeve *e'*, acting in connection with the movement of the piston *g*, produces a whistling sound of varying pitch, or, in other words, musical notes closely agreeing with the notes of a singing bird.

To the crank 15 is connected a rod 18, and to the arm *l* is connected a rod 19, these rods extending upward from their points of connection. A standard 20 upon the side frame 11 carries the bird body-plate *m*. The bird head-plate *n* is connected to a post 22, pivotally mounted in bracket-bearings on the forward portion of the bird body-plate. On one side of the plate *m* is pivoted a bell-crank lever 21, to which the rod 19 is connected at its upper end, and on the other side of the plate *m* is a pivoted arm 24, to which the upper end of the rod 18 is connected. This arm 24 extends beyond the body-plate *m* to represent the tail of the bird.

A link 23 is connected at one end to the bell-crank lever 21 and at its other end to an arm projecting from the post 22. A pivot-pin passes through the head-plate *n*, and on the respective ends of the same are the pivoted bill and the crank 25, a rod 26 being connected to the crank at one end and to the pivotal arm 24 at the other end.

We have illustrated in Fig. 1 part of a case 28, which may advantageously be employed to inclose the motor, the same having an opening for the standard 20 and the rods 18 and 19, the mechanical bird being above the case, and we have illustrated bars 27, which may form part of an inclosing cage for the bird in an effort to make the device as complete as possible.

In the movement of the parts the arm *l* is actuated by the cam-wheel *i*, and this arm is forced down by the spring to keep its position against the cam-wheel, and as the said arm rises and falls it actuates the rod 19, the bell-crank lever 21, the link 23, turning the post 22 and swinging the head-plate *n* from side to side, thus imitating the head movements of a bird, it being a fact that the body-plate *m* and the head-plate *n* are so made in a frame as to be covered with the skin and feathers of a bird, and in use the device has the appearance of a real bird.

With the swinging movement of the crank 15, which is produced by the movement of the pawl-tooth 14 by the note-wheel, the rod 18 is operated, and the same swings the arm 24, actuating the rod 26, and the pivoted bill and crank 25, said parts producing the effect of the bird opening its mouth and shaking its tail as the sounds are produced by the whistle device hereinbefore described, so that the mechanical bird in the swinging of the head, the opening of the mouth, and swinging of the tail has all the movements imparted thereto of a real bird while singing.

We claim as our invention—

1. In a mechanical singing bird, the combination with a motor device, and a mechanical bird, of a blower mechanism actuated by the motor, a whistle device operated by the continuous current of air from the blower, a note-wheel and cam-wheel actuated by the motor, devices operated by the cam-wheel and note-wheel for effecting movements of the mechanical bird, a pawl-tooth actuated by the note-wheel, a piston forming part of the whistle device and a spring-actuated connection between the pawl-tooth and the piston, substantially as and for the purposes set forth.

2. In a mechanical singing bird, the combination with a motor, a mechanical-bird mechanism, a device for producing a continuous current of air, a whistle or sound mechanism actuated thereby, and a cam on the note-wheel shaft, of a spring-actuated arm *l* set in motion by the cam-wheel and a connection therefrom to the mechanical bird, a post on the frame of the mechanism, a sleeve upon said post, a pawl-tooth and crank integral with said sleeve, a connection from the crank to the mechanical bird, a spring for causing the pawl-tooth to bear upon the note-wheel,

and a connection from the pawl-tooth to the whistle or sounding mechanism, substantially as set forth.

3. In a mechanical singing bird, the combination with a motor, of a blower-case and a blower mechanism actuated by the motor and producing a continuous current of air under pressure, a tube extending from the blower-case tangentially, a sleeve in the end of said tube, a plug of smaller diameter in the end of the sleeve and between which and the sleeve there is an annular opening, and devices in connection with these parts and actuated by said motor, whereby a whistling sound of varying pitch, resembling the singing of a bird, is produced, substantially as set forth.

4. In a mechanical singing bird, the combination with a motor, of a blower-case and a blower mechanism actuated by the motor and producing a continuous current of air under pressure, a tube extending from the blower-case tangentially, a sleeve in the end of said tube, a plug of smaller diameter in the end of the sleeve and between which and the sleeve there is an annular opening, a tube-section axially in line with the sleeve, an extension of the tube-section surrounding the sleeve and connecting the parts, a tapering tubular end to the tube-section in proximity to the annular recess leaving a space between the said tubular end and said annular opening, the length of said space being adjustable by the connection between the tube-section and the sleeve, and a piston in the tube-section, substantially as set forth.

Signed by us this 1st day of March, 1902.

EMIL C. REUTLINGER.
RICHARD SCHALLER.

Witnesses:
GEO. T. PINCKNEY,
ARTHUR SERRELL.