

(No Model.)

5 Sheets—Sheet 1.

F. JEWELL.
MECHANICAL TOY.

No. 413,517.

Patented Oct. 22, 1889.

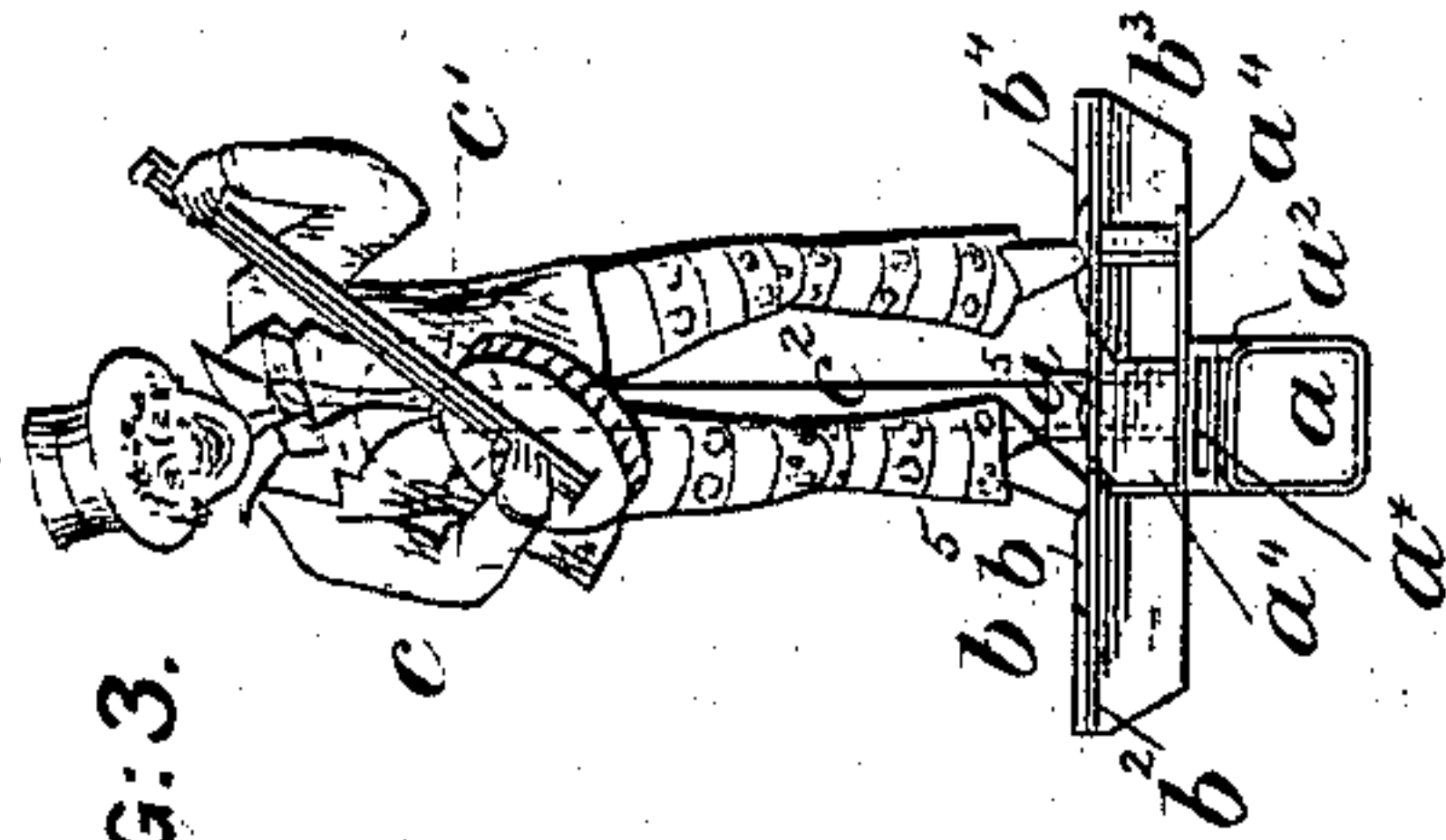


FIG: 3.

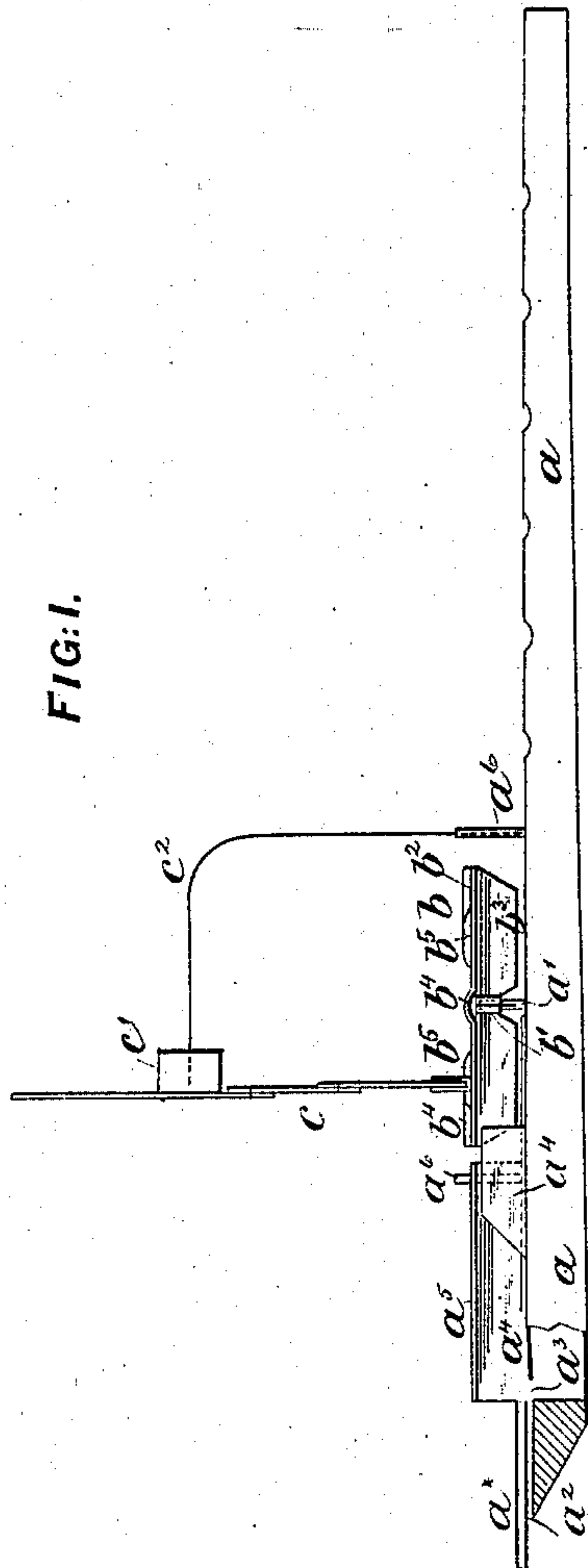


FIG: 1.

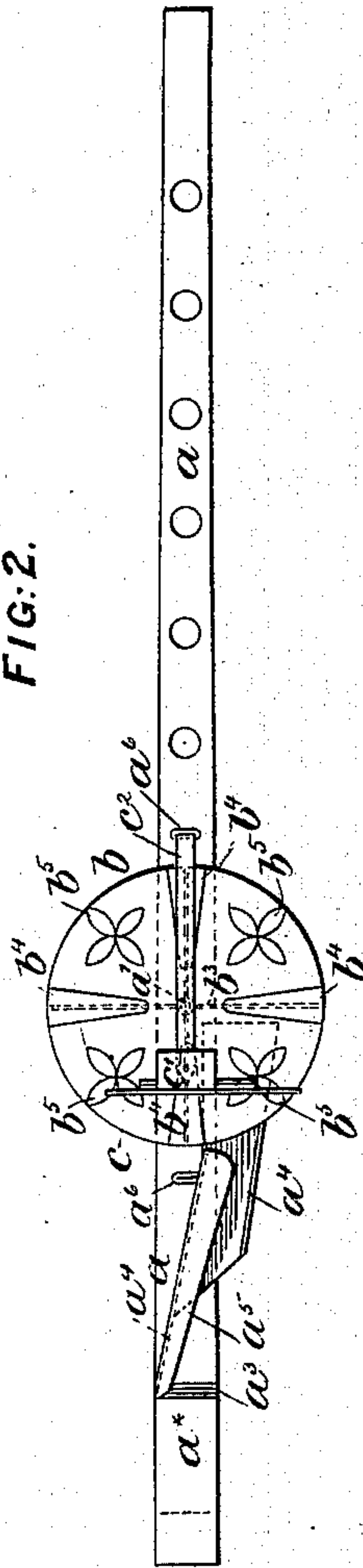


FIG. 2.

Attest
Emma Arthur
J. A. Noplin

Inventory
Frederick Jewell
By Knight Bros.
Atty

F. JEWELL.
MECHANICAL TOY.

No. 413,517.

Patented Oct. 22, 1889.

FIG:7.

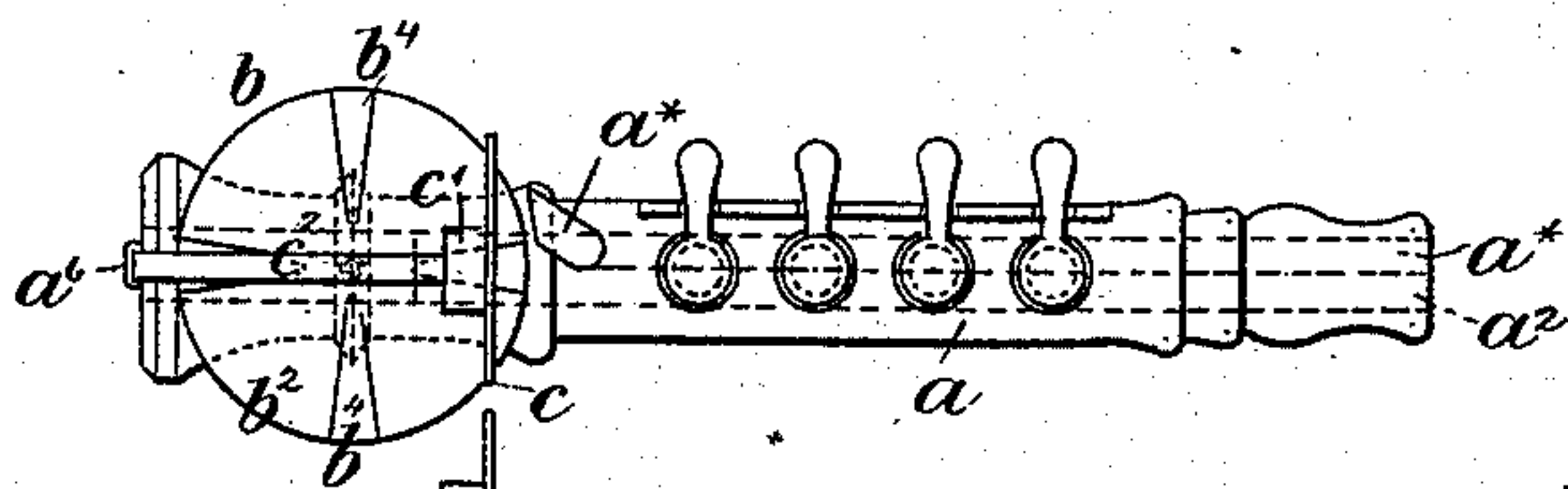


FIG:8.

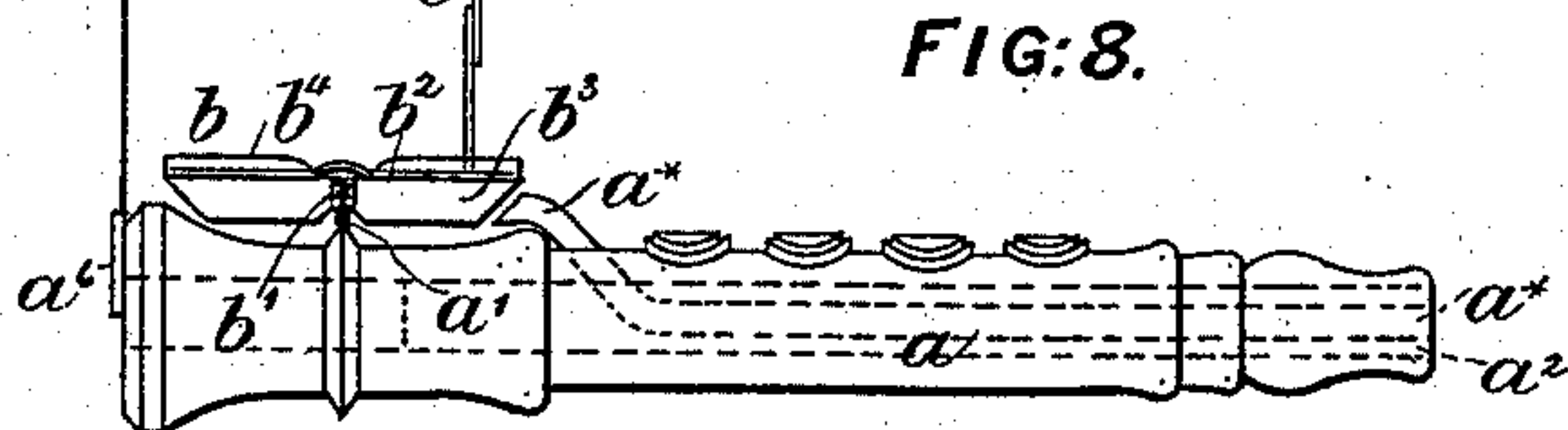


FIG:10.

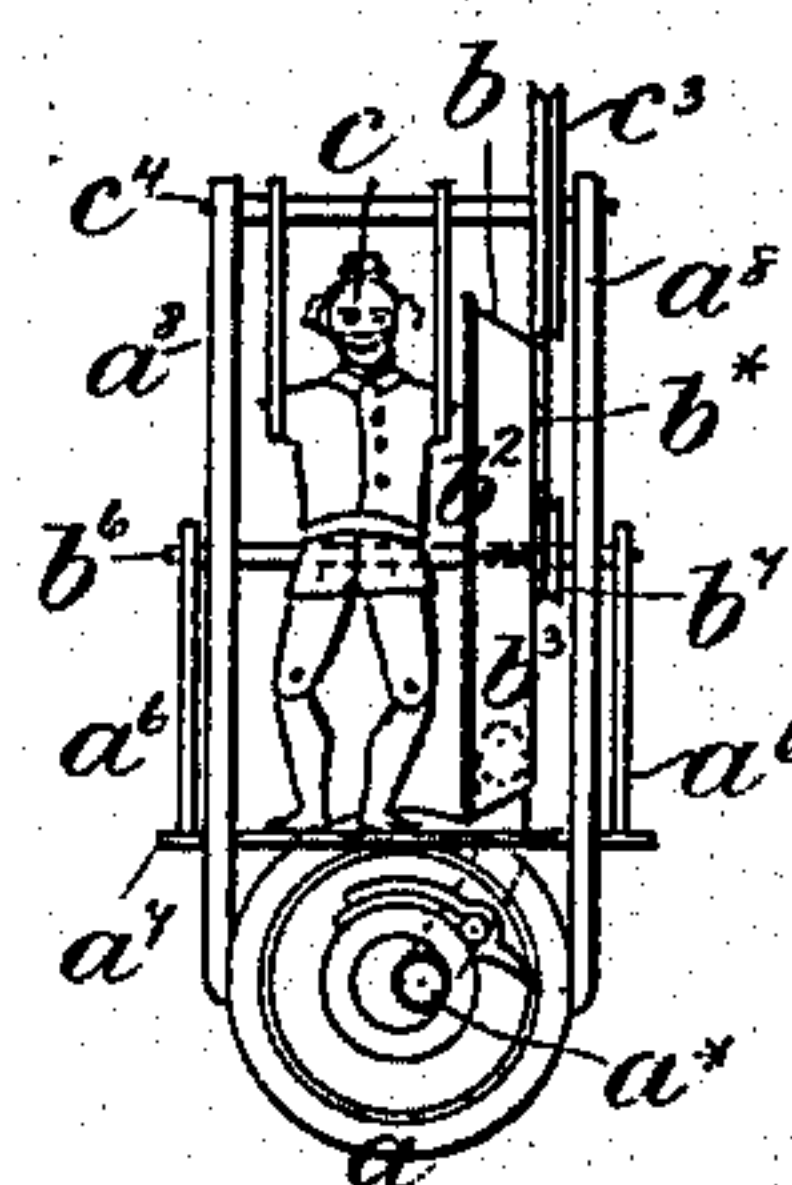


FIG:9.

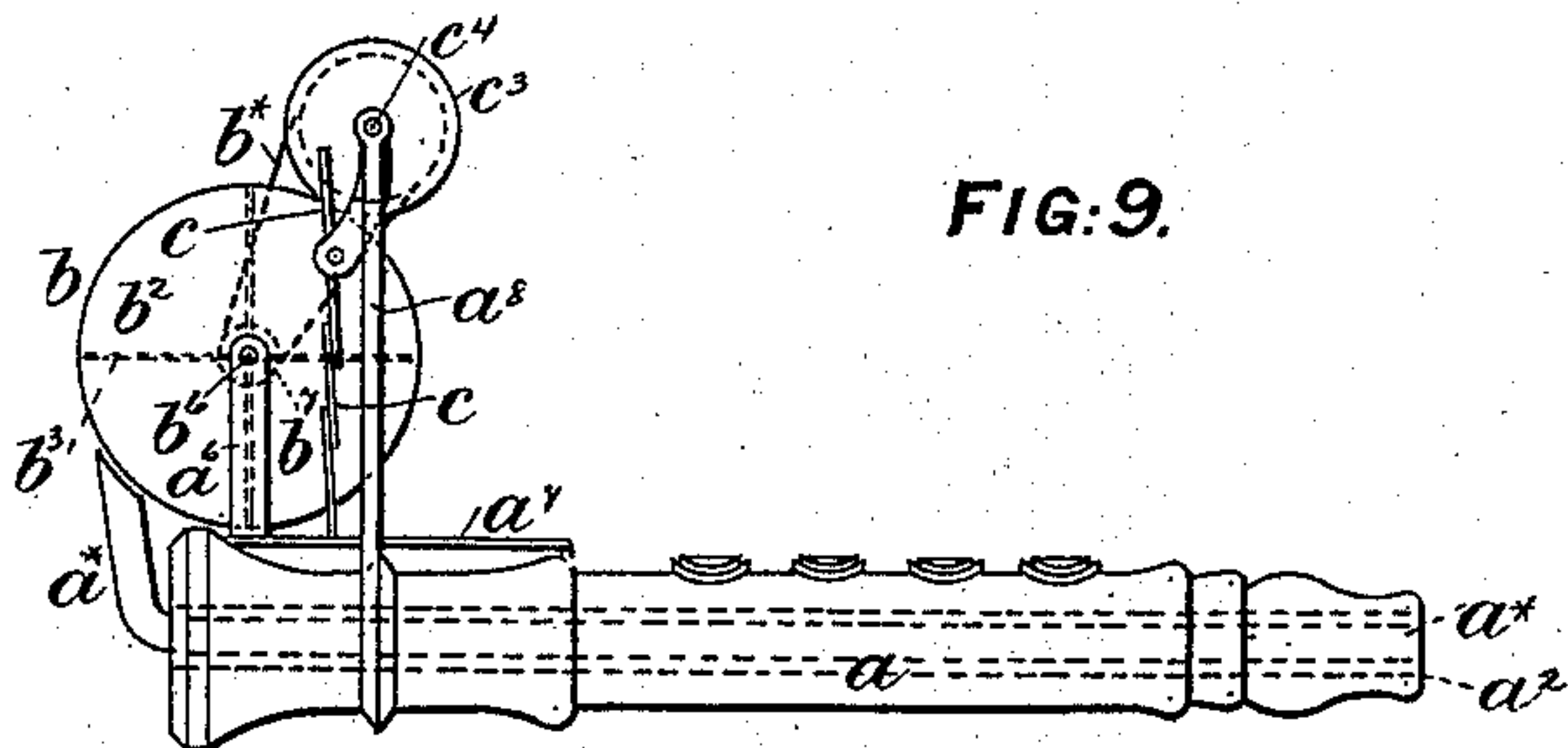


FIG:11.

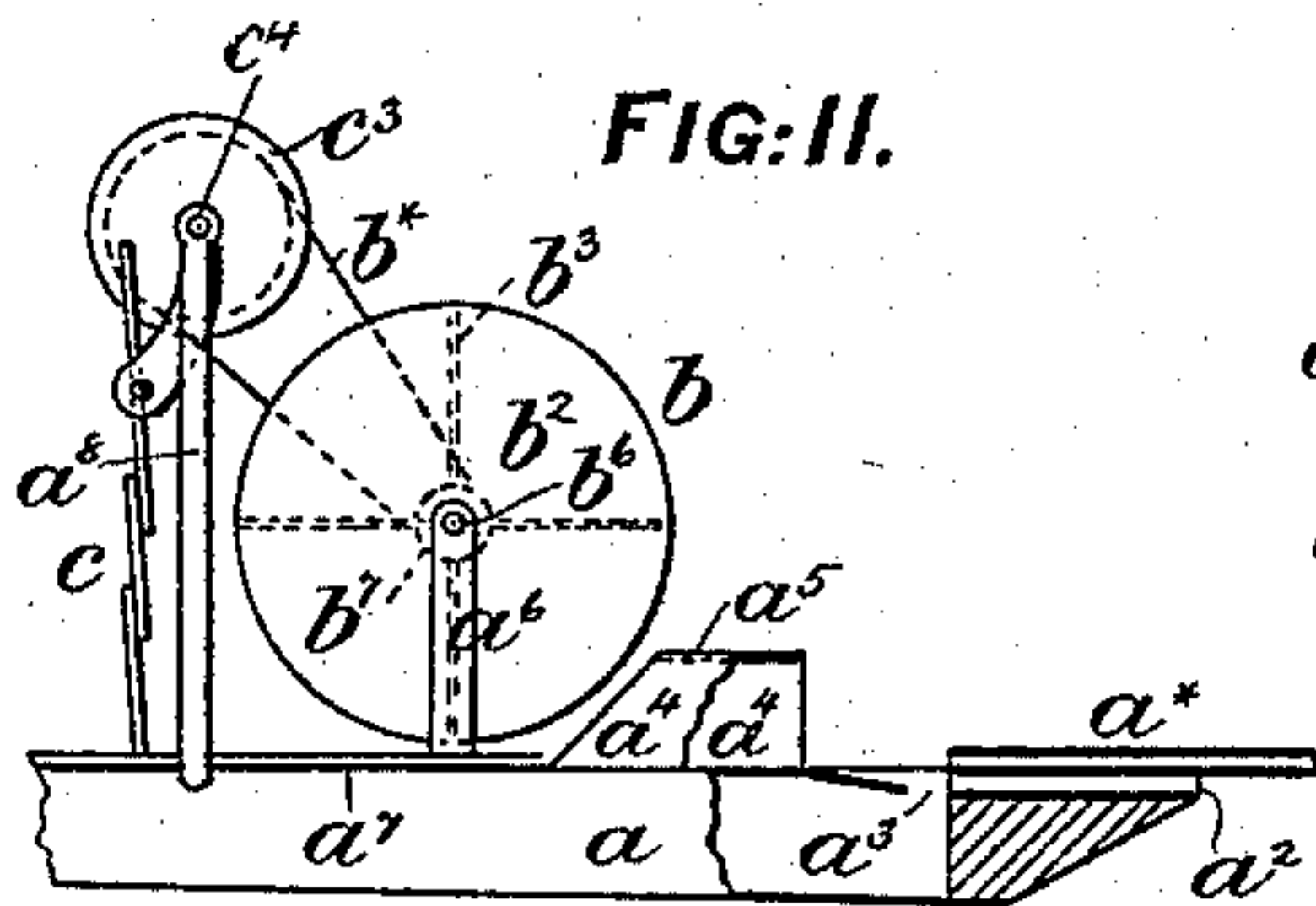


FIG:13.

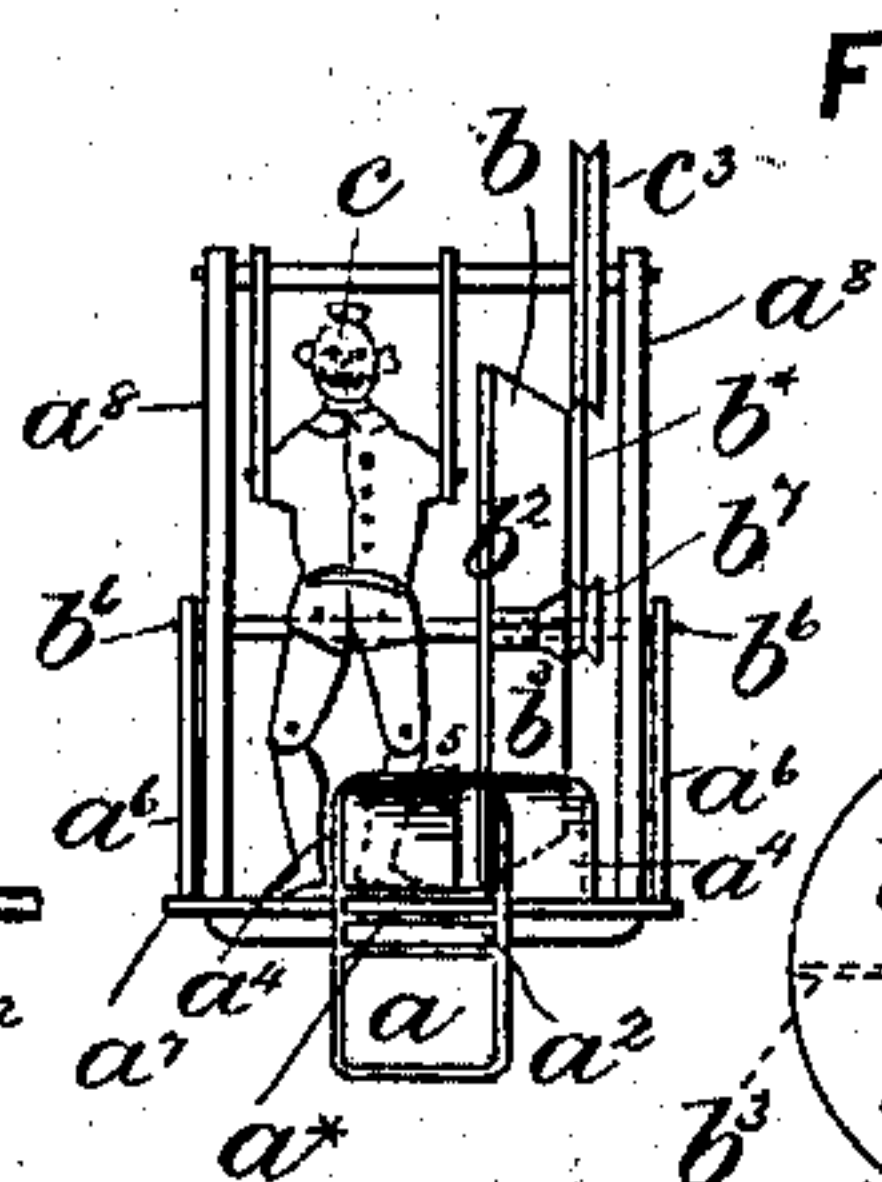


FIG:14.

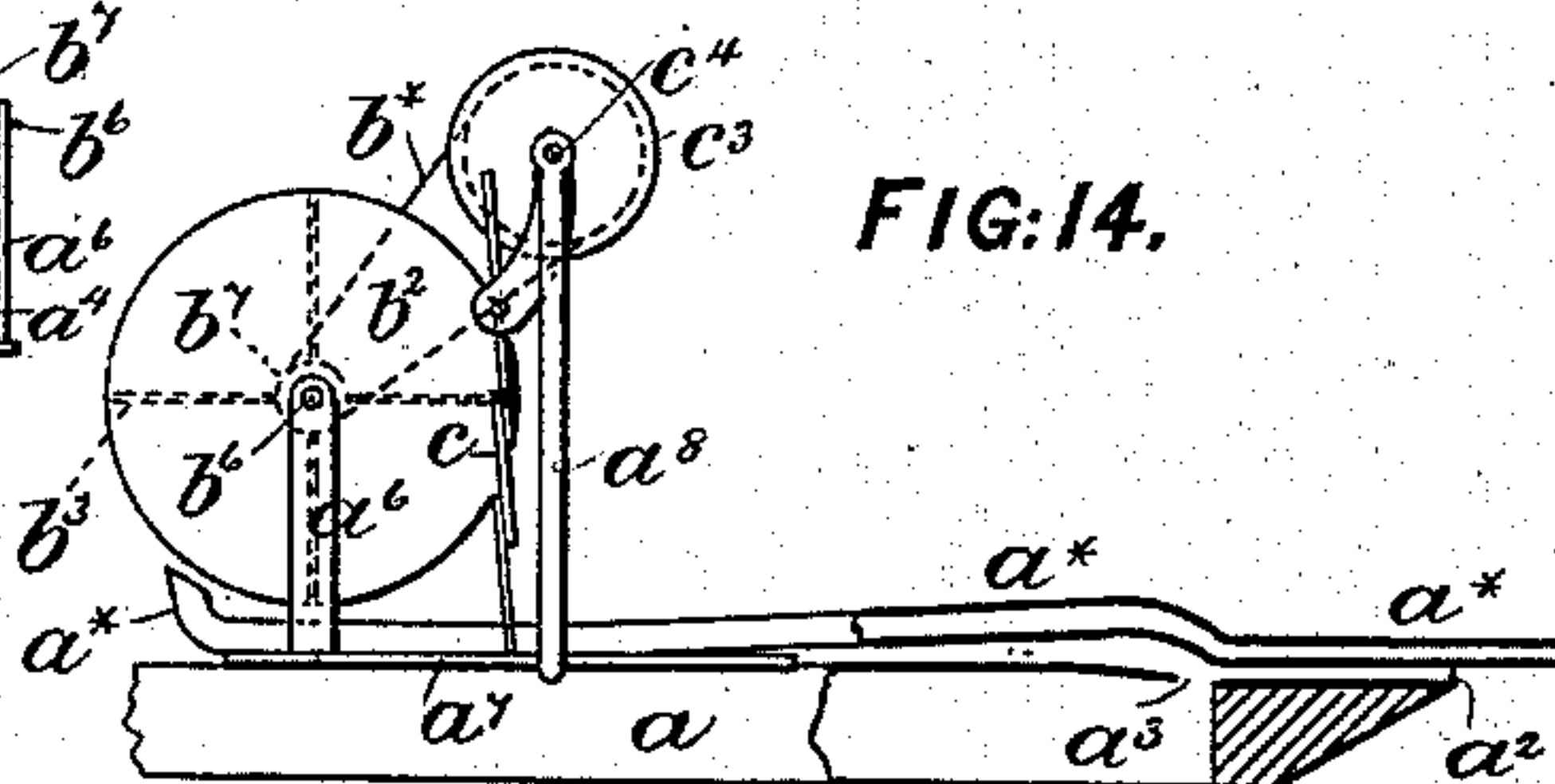
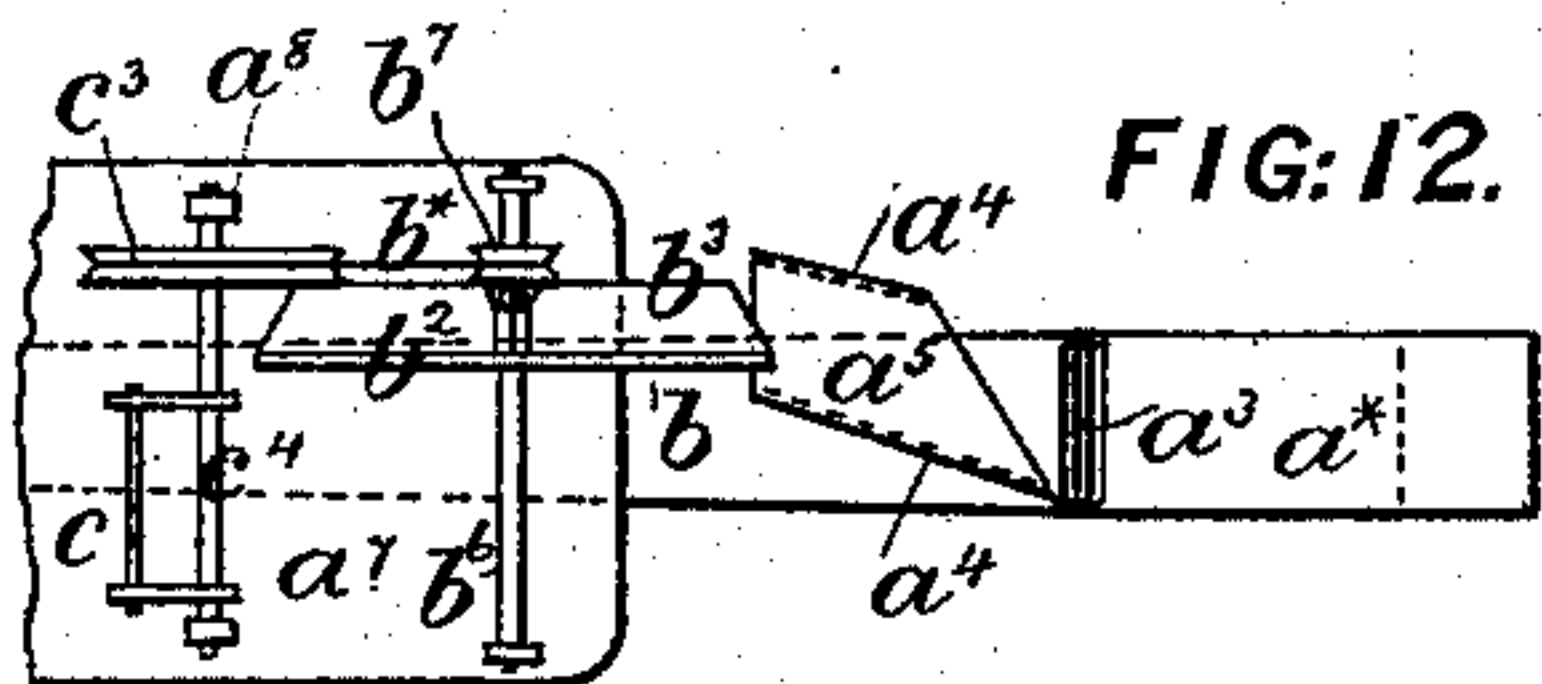


FIG:12.



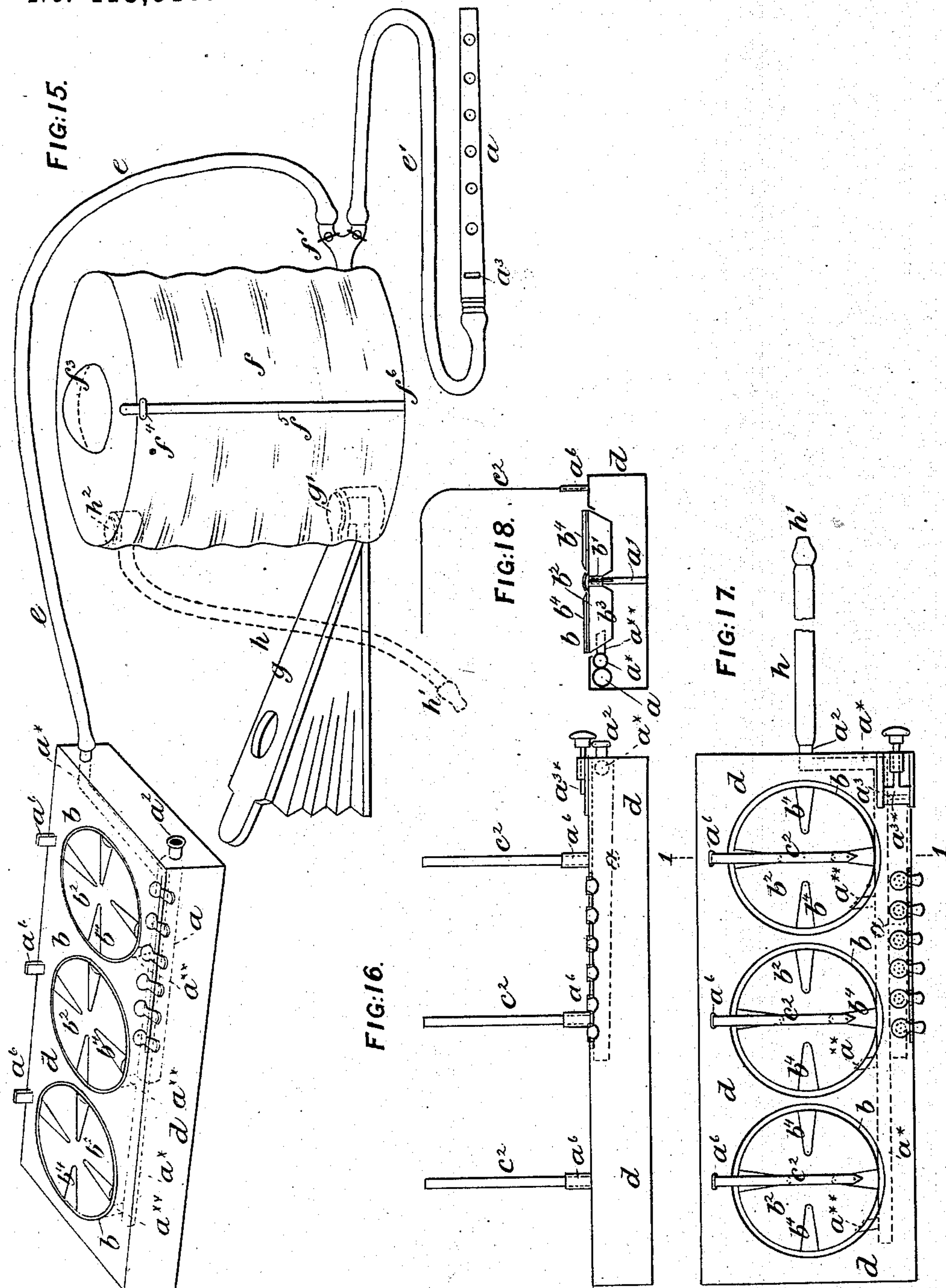
Attest
Emma Arthur
F. A. Hopkins

Inventor
Frederick Jewell
By Knight Bros.
Atty.

F. JEWELL.
MECHANICAL TOY.

No. 413,517.

Patented Oct. 22, 1889.



Attest
Emma Arthur
f. a. No. 10112

Inventor
Frederick Jewell
By Knight & Co.

(No Model.)

5 Sheets—Sheet 5.

F. JEWELL.
MECHANICAL TOY.

No. 413,517.

Patented Oct. 22, 1889.

FIG. 19.

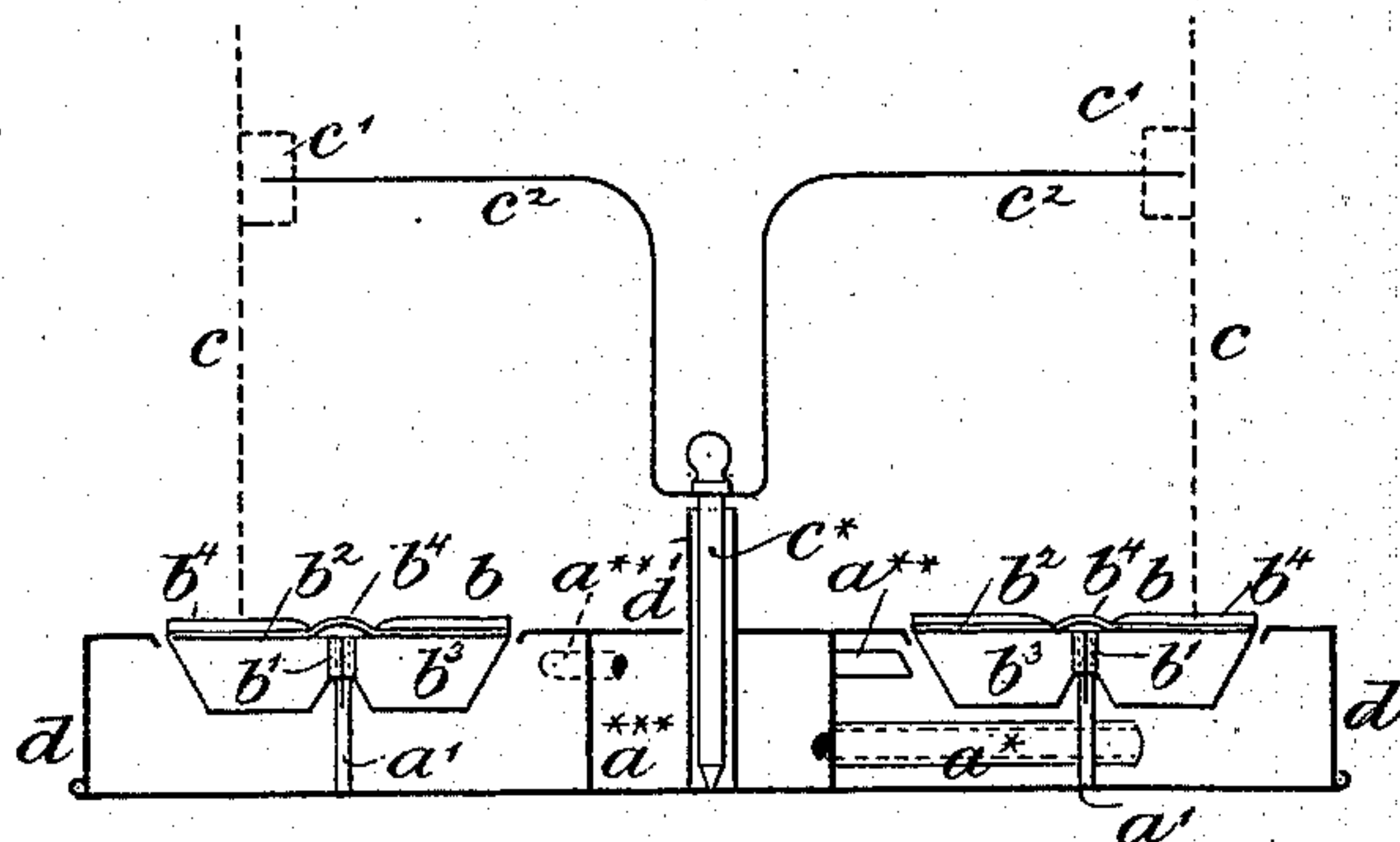
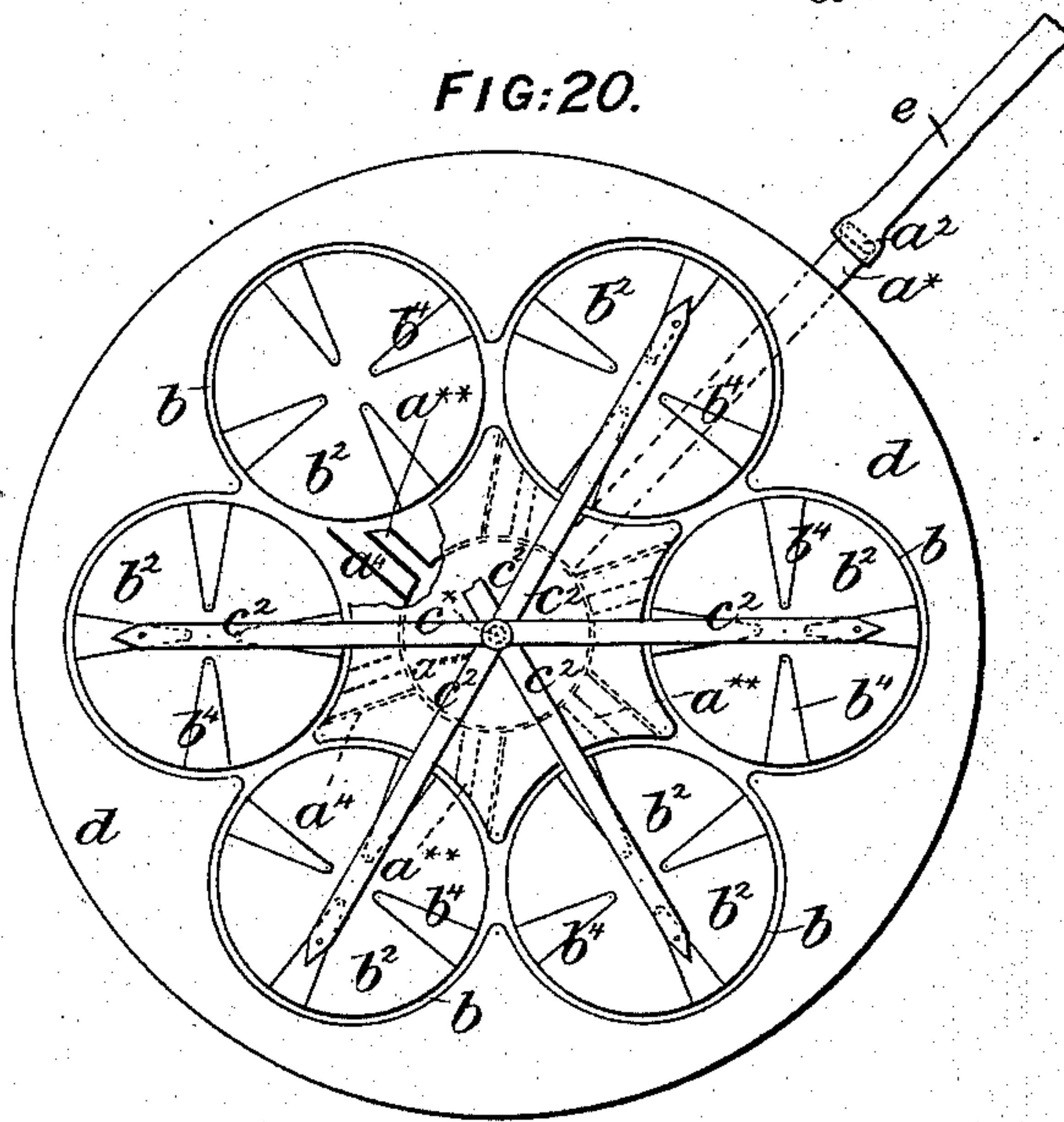


FIG. 20.



Attest
Emma Arthur
f. A. Hopkins

Inventor
Frederick Jewell
By Knights Bros.
Stylo.

UNITED STATES PATENT OFFICE.

FREDERICK JEWELL, OF PECKHAM, COUNTY OF SURREY, ENGLAND.

MECHANICAL TOY.

SPECIFICATION forming part of Letters Patent No. 413,517, dated October 22, 1889.

Application filed November 17, 1888. Serial No. 291,108. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK JEWELL, engineer, of 11 Dennett's Grove, Peckham, in the county of Surrey, England, a subject of the Queen of Britain, have invented certain new and useful Improvements in Mechanical Toys, of which the following is a specification.

The invention relates to that class of mechanical toys in which a current of air by acting upon a suitable motor is caused to give motion to a dancing acrobatic or other figure or figures in imitation of the movements of a living person or persons or to give motion to other objects or mechanism; and the object of the invention is to combine such a device or devices with a simple musical instrument—such, for example, as an ordinary tin whistle or a clarionet—in such manner that the act of blowing by the mouth or otherwise, as hereinafter explained, will produce the desired musical sounds and at the same time give motion to the dancing or other figures or moving objects.

In order that the said invention may be more clearly understood and readily carried into effect, I will proceed, aided by the accompanying drawings, more fully to describe same.

In the drawings, Figure 1 is a side view, partly in section, illustrating the application of the invention to an ordinary tin whistle. Fig. 2 is a plan, and Fig. 3 is an end view thereof. Fig. 4 is a side view representing a similar instrument in which the arrangement of parts for conveying a current of air to the motor is slightly varied, and Fig. 5 is a plan thereof. Fig. 6 represents an instrument similar to that shown at Figs. 1, 2, and 3, but provided with two motors and corresponding parts. Fig. 7 is a plan representing a clarionet with the invention applied thereto, and Fig. 8 is a side view thereof. Fig. 9 represents a side view of a similar instrument in which the motor and coacting parts are arranged vertically instead of horizontally, and Fig. 10 is an end view thereof. Fig. 11 represents a sectional side view of a portion of a tin whistle having a vertically-arranged motor applied thereto. Fig. 12 is a plan, and Fig. 13 is an end view thereof. Fig. 14 is a sectional side view representing a similar ar-

range ment of motor, but a modified additional air-conduit. Fig. 15 represents an arrangement of parts for storing air and giving motion to several motors and sounding one or more instruments. Fig. 16 is a side view illustrating a modified device for giving motion to several motors and sounding one instrument. Fig. 17 is a plan thereof, and Fig. 18 is a transverse section taken on the line 1 1 of Fig. 17, and Fig. 19 is a transverse section, and Fig. 20 is a plan illustrating a further modification in the arrangement of parts for giving motion to several figures or objects.

In the several figures of the drawings like parts are indicated by similar letters of reference.

Referring to Figs. 1, 2, and 3, *a* represents an ordinary tin whistle, the mouth-piece of which is furnished with a flattened air-tube a^2 and a transverse slot a^3 , as usual, and preferably with an additional flattened air-tube a^* , as hereinafter described, so that by the use of the main tube alone the figures may be caused to move in time to the music, and by using the additional air-tube their movements may be accelerated. Upon the upper side of the barrel of the whistle *a* is fixed a vertical pivot or axis a' , which is sharpened or pointed at its upper end to form a V center, upon which is received a short tube or socket b' of a motor *b*, the center or pivot a' taking a bearing against the under side of a disk b^2 , forming part of the motor *b*. Upon the under side of the disk b^2 are arranged a number of vanes or plates b^3 , converging to the center thereof, and upon these plates or vanes b^3 a stream or current of air is directed from the transverse slot a^3 in the whistle and additional tube a^* by means of two vertical guides a^4 , fixed to the upper side of the barrel of the whistle *a* in such manner that the current of air impinging upon the plates or vanes b^3 will cause the motor *b* rapidly to revolve. One, or it might be both, of the vertical guides a^4 is or are preferably formed with a horizontal flange a^5 in order more perfectly to direct the current of air. The disk b^2 of the motor *b* is provided upon its upper side with a number of projections, some taking the form of radial or converging ribs b^4 and others taking the form of stars b^5 , or they might be of other desired shape, in order to impart the necessary

movements to a human figure *c*. The figure *c* is formed with flexible joints, as is well understood, and upon its back is fixed a disk *c'*, of cork, or other means of connecting it with the upper or free end of a flexible or spring support *c²*, which is cranked or bent at its upper end, so as to overhang the motor *b*, and at its lower end is supported in a socket *a⁶*, fixed upon the barrel of the whistle *a* at one side of the motor *b*. A similar socket *a⁶* is provided upon the whistle *a* at the other side of the motor *b*, in order that the position of the figure *c* may be reversed when desired. Upon blowing into the mouth-piece of the whistle the air issuing from the transverse slot *a³* and the flattened tube *a** is by the vertical guides *a⁴* caused to impinge directly upon the plates or vanes *b³* of the motor *b*, and thus impart a rapid rotary movement thereto, the ribs or projections *b⁴* *b⁵* upon the disk *b²* coming into contact with the feet of the figure *c* and giving the desired movements to such figure. Thus if a tune be played upon the whistle *a* the figure will move in accordance therewith, its movements being to some extent regulated by the rapidity of the playing, so that a lively tune—such as a horn-pipe—will produce rapid movements of the figure, but a more even or slower tune—such as a waltz—will produce correspondingly slower or more deliberate movements thereof. The additional flattened air-tube *a** is arranged upon the ordinary air-tube *a²*, one end projecting beyond said tube and the other end stopping short of the transverse slot *a³*. The arrangement of parts represented at Figs. 4 and 5 is substantially the same as that shown in the previous figures, except that in this case the additional air tube or conduit *a** becomes narrower or is otherwise so shaped and directed as it approaches and recedes from the transverse slot *a³* that it does not offer any obstruction to the current of air issuing therefrom. In the arrangement shown it is carried partly along the side of the instrument and terminates close to the motor *b*, and the inner side of it forms an extension of one of the vertical guides *a⁴*. By the employment of an additional air-tube *a**, as hereinbefore described, it is possible either to give an accelerated movement to the figure at the times desired or to move the figure independently of the music and generally to direct a more powerful current of air upon the motor, thus producing better effects than when employing only waste air issuing from the slot *a³* as the motive power.

The device shown at Fig. 6 is substantially the same as that represented at Figs. 1, 2, and 3; but in this case the instrument is furnished with two motors *b* and corresponding parts, so that two figures—male and female, for example—might be caused to dance in unison. It will be evident that with slight modifications the additional air way or ways or conduit or conduits *a** (shown at Figs. 4

and 5) may also be employed in connection with this construction of instrument.

At Figs. 7 and 8 the invention is shown applied to a key-note instrument of the clarinet class. In this case the additional air tube or conduit *a** passes along the interior of the barrel of the instrument and passes out therefrom near to the motor *b*, where its end is turned or bent at a suitable angle to properly direct the current of air upon the vanes or blades *b³* of the motor *b*. It will be evident that in this arrangement also the additional air tube or conduit *a** may, if desired, be caused to project beyond the mouth-piece of the instrument, as hereinbefore explained with reference to Figs. 1 to 5.

At Figs. 9 and 10 is shown an instrument of a similar class to that last hereinbefore referred to; but in this case the motor *b* is mounted vertically upon a horizontal shaft or axis *b⁶*, supported in standards *a⁶*, rising from a table or platform *a⁷*, upon which the figure normally stands. Upon the shaft or axis *b⁶* is fixed a small band wheel or pulley *b⁷*, and from this pulley *b⁷* a band *b** passes around another and larger band wheel or pulley *c³*, fixed upon a horizontal shaft *c⁴*, supported in standards *a⁸*, rising from the instrument, and upon this shaft *c⁴* are fixed the hands or extremities of the arms of the figure *c*, or there might be several of such figures so arranged. By means of this device the figure is caused to turn over and over upon the shaft *c⁴*, after the manner of an acrobat upon a horizontal bar or trapeze. If desired, this arrangement of parts may, with slight modifications, be employed in connection with an ordinary tin whistle of the character hereinbefore referred to, as represented at Figs. 11 to 14.

In the device shown at Figs. 11, 12, and 13 an arrangement of air ways or tubes *a²* *a** and guides *a⁴* similar to those represented at Figs. 1, 2, and 3 is employed. In the device shown at Fig. 14 the additional air-tube *a** is carried along the outside of the barrel *a* of the whistle, and its end is turned or bent upward, so as to properly direct the current of air upon the motor *b*.

At Fig. 15 is shown a method of giving motion to a number of figures and of insuring a constant current of air to the corresponding motors and musical instruments. In this arrangement a clarinet *a* is placed within a case *d* in such manner that the notes or keys appear on the outside of the top of the box or case *d*, and an airway or fitting *a²* for a flexible pipe projects from the end thereof. Several motors *b* are so mounted within the case *d* that their disks *b²* are about flush with the top thereof, and the necessary current of air is conveyed to the motors *b* through a conduit *a** and angular or tangential offshoots *a*** therefrom. This conduit *a** is by a flexible pipe *e* and a fitting *f'* connected with a flexible air chamber or reservoir *f*, which is formed

with a solid top f^2 , carrying a weight f^3 , such top f^2 being provided with eyes or loops f^4 on its periphery, encircling rods or guides f^5 , carried by the bottom f^6 , whereby the top f^2 is guided in its rise and fall. The fitting f' is bifurcated, and a second flexible pipe e' is connected with one of its branches and conveys a supply of air to a whistle a ; or, when it is desired to play the clarionet, the flexible pipe e' may be disconnected from the whistle a and connected with the air tube or fitting a^2 of the clarionet in the box or case d , and, if preferred, the fitting f' or the flexible pipes e or e' may be provided with suitable cocks or valves, so that either may be closed when desired. The flexible chamber f may be furnished with a bellows g , provided with a check-valve g' to prevent the return of the air to the bellows, which bellows may be worked either by the hand or foot in order to supply the necessary current of air; or, if desired, a flexible tube h , provided with a mouth-piece h' and a check-valve h^2 , as shown by the dotted lines, may be employed in lieu thereof, in which case the operator will supply the necessary air-current from his mouth.

By the use of a flexible air chamber or reservoir, such as f , a constant and uninterrupted current of air is supplied to the musical instruments and apparatus.

In the modification represented at Figs. 16, 17, and 18 an instrument a of the whistle class is substituted for the clarionet in the box d , and this instrument is preferably formed with a closed end and provided with key-notes similar to those of a clarionet, a slide or stop a^{3*} being employed to close the transverse slot a^3 when the instrument is not required to be played. The necessary current of air may be supplied from the mouth of the performer through a mouth-piece h' and flexible pipe h , connected with the conduit a^* by the fitting a^2 ; or, if desired, the instrument may be connected with the flexible air-chamber by means of a flexible pipe, such as e .

At Figs. 19 and 20 a number of motors for dancing figures are shown arranged in a circular form, and in this case the necessary current of air is supplied from a reservoir f , also supplying a musical instrument. This current of air is conveyed through a conduit a^* , leading into a central air-chamber a^{***} , from which a number of tangential offshoots a^{**} direct the current onto the blades or vanes b^3 . Guides a^4 are arranged one on one side of each tangential offshoot a^{**} , in order to insure the current of air acting only on its corresponding motor b . The flexible or spring supports c^2 for the figures are all fixed to a central pin or shaft c^* , which is received into a tube or socket d' , and at its lower end, where it takes a bearing upon the bottom of the case d , is sharpened or pointed, so that it will

be capable of revolving freely together with the supports c^2 . By means of this arrangement the several figures, in addition to the dancing movement imparted thereto, as hereinbefore described, will all partake of a circular movement, the radius of which circle will be determined by the length of the supports c^2 , projecting from the central pin or shaft c^* , and the figures will thus gradually move from one disk to another round the entire series.

I would here remark that the accompanying drawings represent the best means that I am acquainted with for carrying the invention into effect; but I do not confine myself thereto, as it will be evident that the details of construction of the instrument a , the motor b , the figure c , and other parts may be considerably varied without departing from the peculiar character of the invention; and it will be understood that many objects other than human figures may be combined with a musical instrument and set in motion in manner substantially as herein shown and described.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a mechanical toy, the combination, with a whistle, clarionet, or other similar wind musical instrument having an air-duct, of one or more dancing or moving figures or objects and a suitable motor or motors for the figures, having an independent air-duct, said air-ducts being adapted to receive a supply of air together or separately, whereby the figures or objects are adapted to move in time to the music, or said figures or objects may receive an accelerated movement from the air-current passing through the independent duct of the motor independently of the air-current of the instrument, substantially as set forth.

2. In a mechanical toy, the combination, with a whistle, clarionet, or other wind musical instrument, of one or more dancing or moving figures or objects, a suitable motor or motors driven by means of an air current or currents, whereby said figures or objects may be set in motion, and a flexible air reservoir or container for supplying the necessary air to both the motor or motors and said wind instrument, said reservoir when compressed causing the figures or objects to move in time to the music, substantially as shown and described.

FREDERICK JEWELL.

Witnesses:

C. M. WHITE,

F. W. WOODINGTON,

Both of 27 Southampton Buildings, London.