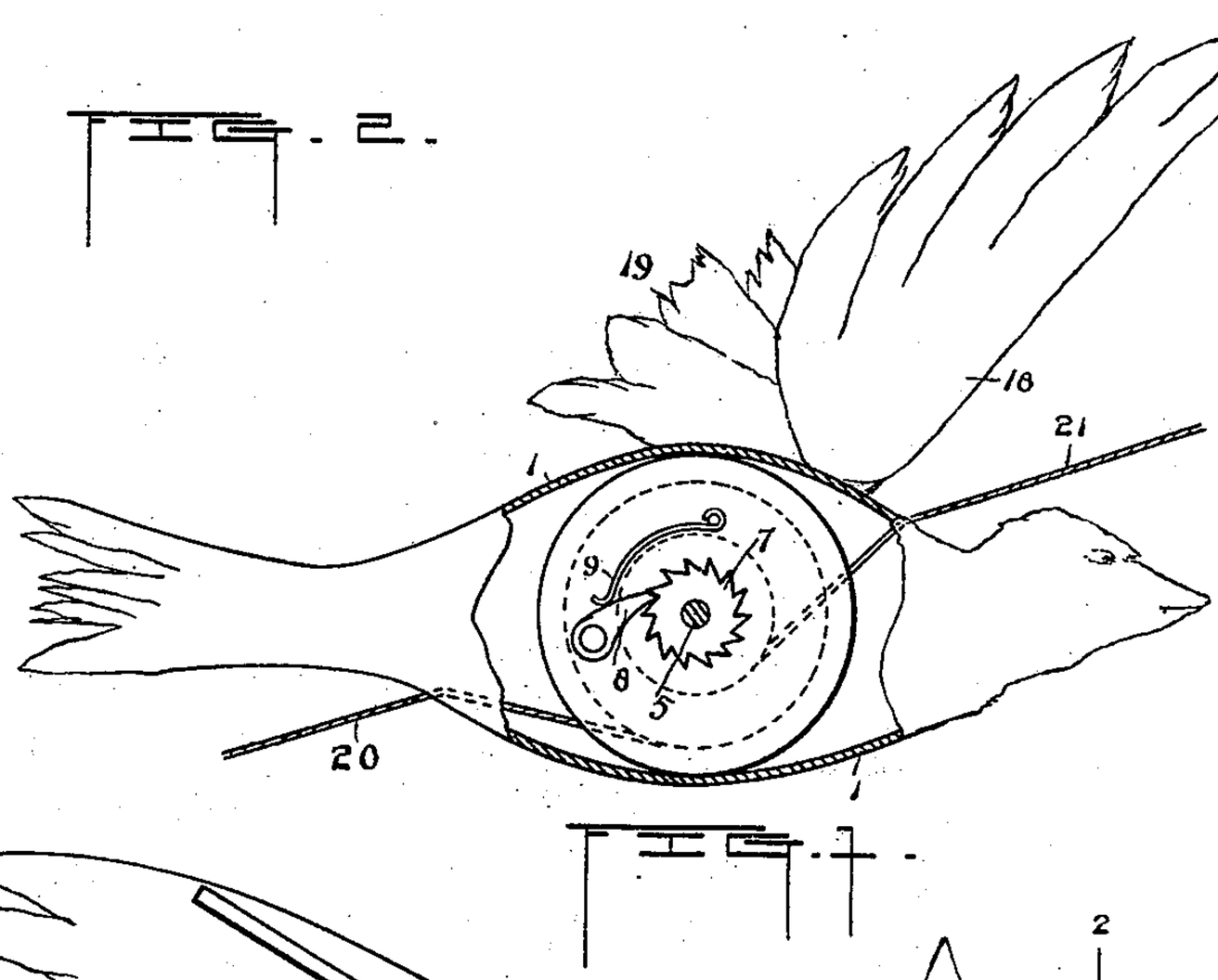
(No Model.)

A. H. KELLER.

TOY.

No. 547,553. Patented Oct. 8, 1895.

FIG. 2.



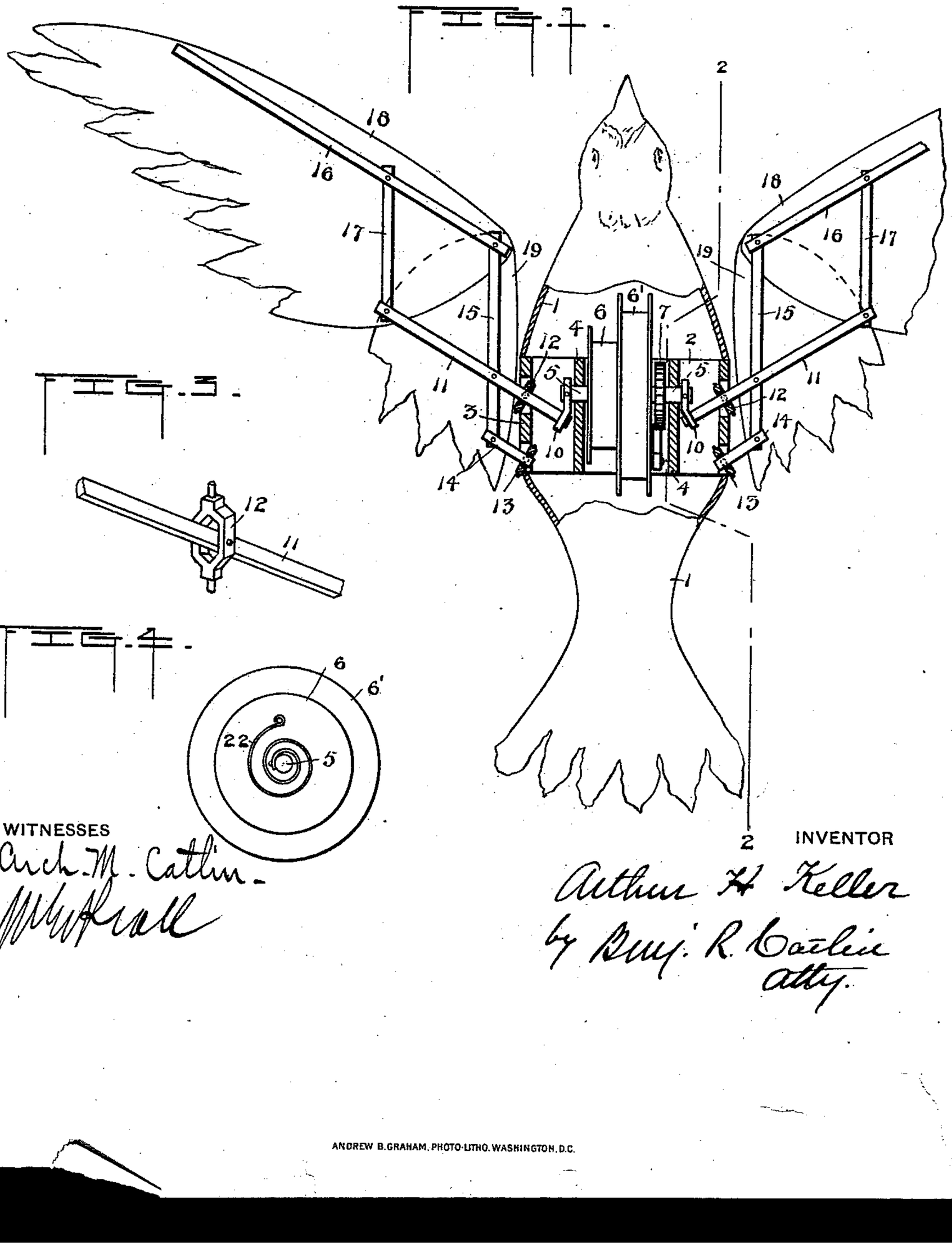


FIG. 3.

FIG. 4.

WITNESSES

Arch. M. Catlin.

INVENTOR

Arthur H. Keller

by Benj. R. Catlin

Atty.

UNITED STATES PATENT OFFICE.

ARTHUR H. KELLER, OF DURANGO, COLORADO.

TOY.

SPECIFICATION forming part of Letters Patent No. 547,553, dated October 8, 1895.

Application filed December 29, 1894. Serial No. 533,323. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR H. KELLER, a resident of Durango, in the county of La Plata and State of Colorado, have invented certain new and useful Improvements in Toys; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

The invention relates to toy figures, and particularly to mechanism for imitating the flight of birds and other winged creatures; and it has for its object to increase the life-likeness of this class of toys without unduly increasing complexity of construction and cost of manufacture; and it consists in the matters hereinafter described and particularly pointed out.

In the accompanying drawings, Figure 1 is a plan, parts being broken away. Fig. 2 is a vertical section on line 2 2 of Fig. 1, and Figs. 3 and 4 are views of details.

Numeral 1 denotes an outer shell or body inclosing and supporting mechanism for moving wings and simultaneously advancing the figure.

2 denotes a frame having its outer parts 3 in practically the same plane as the sides of the body 1 of a bird or other winged creature and constituting, if desired, an integral part thereof. 4 represents partitions fixed in said body, which provide bearings for a shaft 5. Upon this shaft is loosely supported a differential pulley comprising the unequal sheaves 6 and 6′.

7 denotes a ratchet-wheel made fast on shaft 5 and adapted, together with said shaft, to be driven in one direction by the pawl 8 attached to the pulley. The engagement with the ratchet-wheel of the pawl is maintained by a spring 9, which, however, yields and permits the pulley to be rotated independently in a backward direction when desired.

10 represents crank-arms, by the medium of which the wing-supporting frames are moved. These consist each of an arrangement of jointed arms or levers resembling a pantograph. Each arm 11 is attached to and operated by a crank. It has its fulcrum in a universal joint at 12, such as represented in Fig. 3. At 13 is pivotally supported by a similar joint a short arm 14. The arms 11 and 14 are each pivoted to a third arm or bar 15, which, at its outer extremity, is also pivoted to a long bar 16. The outer end of bar 11 is also loosely connected to bar 16, preferably at some point intermediate its ends, by a pivoted bar 17. These arms and bars support and move wings comprising, in the present instance, two parts 18 and 19, pivotally connected to the bars 16 and 15. The wing-covers may be made of fan-like form and composed of several parts. The parallelogram formed by the parts 11, 15, 16, and 17 continuously changes its angles in operation, which causes the opening and folding of the wing-surfaces. In the present illustration the covers or wing-surfaces consist each of two parts 18 and 19. The part 18 is attached to bar 15 only and part 19 to bar 16 only, whereby free movement of the parts is provided for. More than two covers or wing-surfaces 18 and 19 may be provided in each wing, if desired. The wing-covers, as well as the shell or body, can be made of leather, paper, metal or other material. Feathers would be suitable for the wings.

20 denotes a cord attached to and adapted to be wound on the larger member 6′ of the pulley, and 21 is a cord simultaneously attached to the smaller member 6. These extend out through holes, one in the upper part and the other in the lower rear portion of the body, as shown.

The device is prepared for operating by first winding cord 20 upon sheave 6′ of the pulley. The cord 21 then being held by the hand or attached to some fixed object, such as a hook or screw in a wall or ceiling, preferably overhead, the cord 20 can then be pulled to unwind it and the shaft will be rapidly rotated by means of the driving pawl and ratchet. The rotation of the shaft and its crank-arms will cause each part of the lever or arm 11 to describe a cone, the two cones having their apices in the fulcrum of the lever in the universal joint. The short arm 14 will also describe a similar figure. These arms 11 and 14 keep the bar 15 parallel with the axis of the body. The effect of thus rotating these arms will be to similarly rotate the whole system of arms and the superposed cover, imparting to the whole the appearance of wings in motion. At the same time that cord 20 is

unwound cord 21 is wound, with the effect to cause the progression of the figure, so that it advances simultaneously with the fluttering movement of the wings and thus affords a lifelike imitation of the movements of a bird. When the tension on cord 20 ceases, the gravity of the figure will cause the cord 21 to unwind from sheave 6. The bird settles downwardly with wings at rest and winds cord 20. Obviously a spring 22 (see Fig. 4) could be substituted for gravity as a motive power in the retreating movement, in which case the flight of the bird need not be upward.

Having thus fully described my invention, what I claim is—

1. In a figure for imitating the flight of a winged creature, a body, a crank shaft supported within said body, a differential pulley and suitable pulley cords, in combination with a rotatable moving arm 11 loosely connected to a crank shaft and having a universal-joint connection to the body and supporting a part representing a wing surface or the like, substantially as set forth.

2. In a figure for imitating the flight of a winged creature, a body, a crank shaft supported within said body, a differential pulley and suitable pulley cords, in combination with arms 11 and 14 each having a universal-joint connection to the body and the former connected to the shaft by arms 10 and said arms 11 and 14 supporting and rotatably moving one or more parts such as 18 and 19, substantially as set forth.

3. In a figure for imitating the flight of a winged creature, a body, a crank shaft supported within said body, a differential pulley and suitable pulley cords, in combination with arms 11 and 14 having a universal-joint connection to the body, said arms having pivoted parts such as 18 and 19, the arms being connected by pivoted bars 15, 16 and 17 forming a changeable parallelogram, substantially as set forth.

4. In a figure for imitating the flight of a winged creature, the body 1, the partitions 4, the crank shaft having bearings in said partitions and devices for rotating the shaft in combination with arms 11 loosely connected by arms 10 to the crank shaft and supported by a universal-joint in the body wall, parts representing wings or the like outside of said body, and loose connections intermediate said parts and said arms 11, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ARTHUR H. KELLER.

Witnesses:

FREDERICK MENTZEL,

ALBERT MORAWETZ.