No. 895,186. PATENTED AUG. 4, 1908.

T. A. KILLMAN.

MECHANICAL TOY.

APPLICATION FILED JUNE 6, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

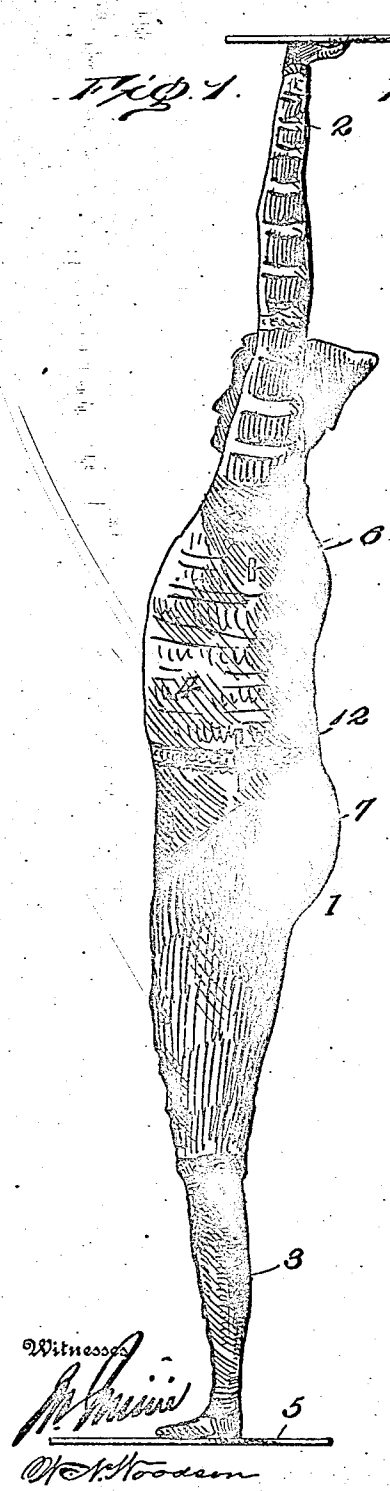
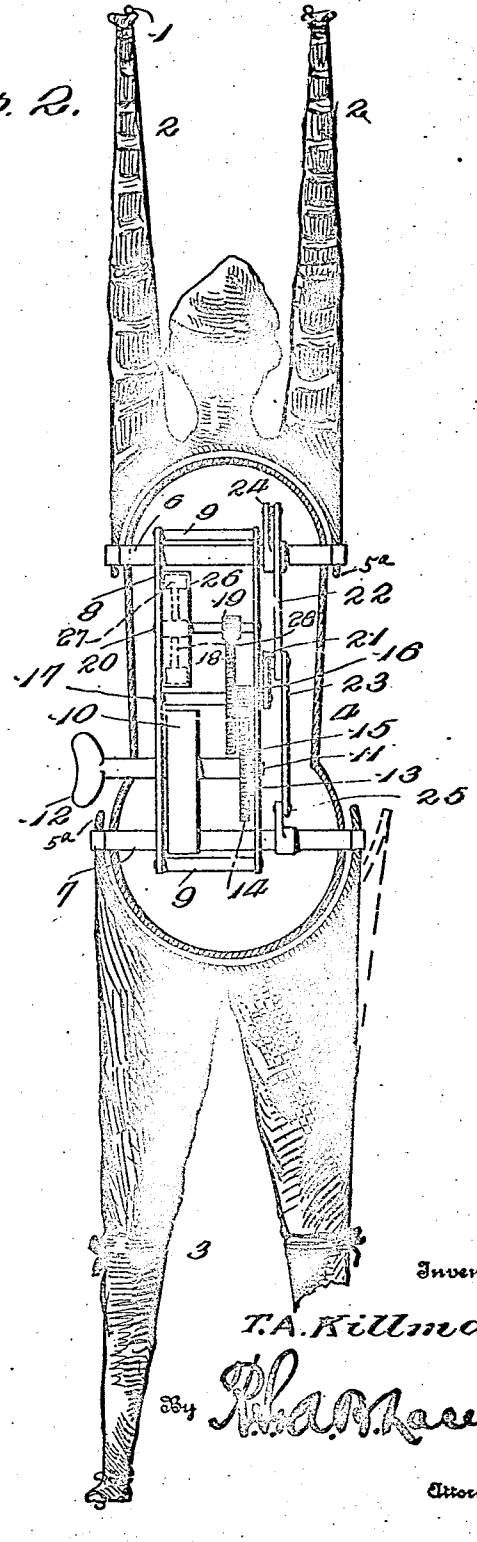


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

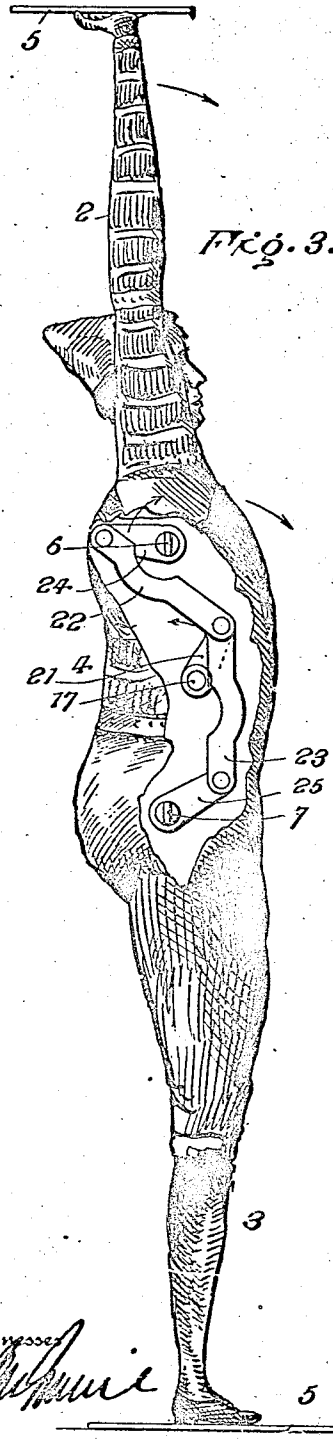
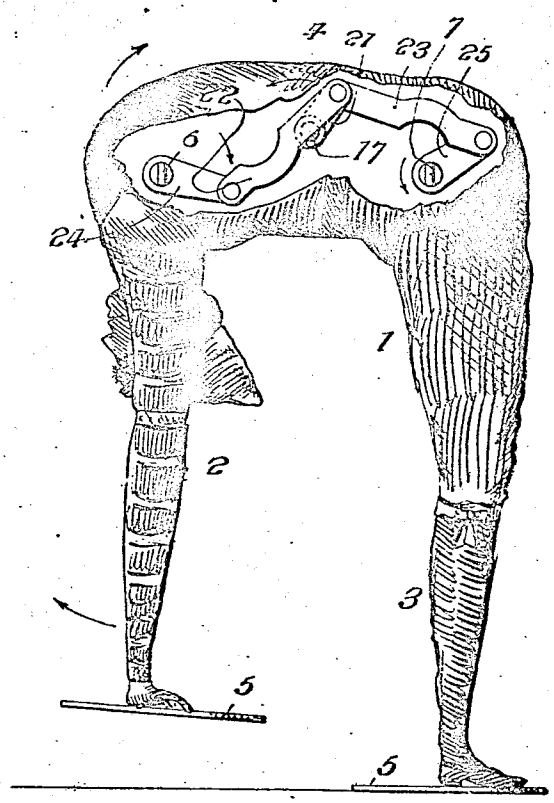


Fig. 4.



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MECHANICAL TOY.

No. 895,186. Specification of Letters Patent. Patented Aug. 4, 1908.

Application filed June 6, 1907. Serial No. 377,606.

To all whom it may concern:

Be it known that I, THOMAS A. KILLMAN, citizen of the United States, residing at Nashville, in the county of Davidson and State of Tennessee, have invented certain new and useful Improvements in Mechanical Toys, of which the following is a specification.

This invention appertains to toys of the automaton type in which the figure simulates the feats of an acrobat or athlete in turning hand springs or somersaults.

The purpose of the invention is to devise a toy of the character aforesaid which is reliable in operation, substantial and durable in structure and not liable to easily get out of repair or require the service of a skilled mechanician to assemble the parts or to clean and lubricate the same when required to remove dirt or obstructing matter, or to oil the moving parts.

For a full description of the invention reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which:

Figure 1 is a side view of a toy embodying the invention. Fig. 2 is a rear view thereof, a portion of the body being in section to illustrate the driving mechanism, and the dotted lines showing how the head and arm and the leg sections may be detached from the body section. Fig. 3 is a side view of the toy, a portion of the middle or body section being broken away to show the relation of the several shafts, the cranks attached thereto and the connecting links. Fig. 4 is a view similar to Fig. 3, showing the relation of the parts when the toy is about to make a hand spring, the extreme sections being in vertical position and the middle section in horizontal position.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The toy may be of any form representative of man or beast and as illustrated, is typical of man and comprises sections which are articulated, said sections corresponding to the upper, middle and lower portions such as the head and arms, the trunk and the legs. For convenience, the head and arms section will be designated as the upper section, the legs as the lower section and the trunk or body as the middle section. The several sections are jointed so as to articulate, thereby admitting of the sections occupying different relative positions such as assumed by an athlete or acrobat when turning hand springs or somersaults.

To give stability to the toy, extension pieces 5 are attached to the extremities of the upper and lower sections, said extensions consisting of wires or strips which project in front and in the rear of the respective sections to give ample support to the toy. The upper section 2 comprises the head and arms of the figure, whereas the lower section 3 comprises the legs. The middle section or body 4 is hollow so as to inclose and house the actuating mechanism and opposite ends are made rounding to admit of a neat and close fit being had therewith of the upper and lower sections. The inner or articulating ends of the upper and lower sections are formed with extensions 5^a which embrace opposite sides of the middle section and receive the projecting ends of terminal shafts 6 and 7 which are journaled to opposite end portions of the middle section. The extensions 5^a are sufficiently pliable or elastic to admit of their outward movement as shown by the dotted lines in Fig. 2 when it is required either to place the upper and lower sections in position, or to remove them from the middle section. The projecting ends of the shafts 6 and 7 are flattened, made angular or otherwise constructed to engage with corresponding openings formed in the extensions 5^a to cause the respective upper and lower sections to turn with the shafts 6 and 7 which is essential to the operativeness of the toy. By constructing the toy in a way to admit of the upper and lower sections being detached from the middle section, it may be more conveniently packed for storing and shipping.

The middle or body section comprises a shell and an inner frame-work supporting the operating gearing. The inner frame-work comprises plates 8 and connecting posts 9. The frame-work is supported upon the shafts 6 and 7 so as not to interfere with their free rotation. The driving power con-

sists of a spring 10, one end of which is connected to the shaft 7 and the opposite end to a shaft 11 which is mounted in the frame-work and which is adapted to be turned by means of a key 12. A ratchet wheel 13 is fast to the shaft 11. A gear wheel 14 is loose on the shaft 11 and has ratchet connection therewith by means of a spring actuated pawl 15 pivoted thereto and coöperating with the teeth of the ratchet wheel 13. The gear wheel 14 is in mesh with a pinion 16 fast to a shaft 17 journaled in the frame-work and provided with a gear wheel 18 which in turn is in mesh with a pinion 19 fast to a shaft 20 journaled in the frame-work. The shaft 17 is provided with a crank 21 which is connected by links 22 and 23 with cranks 24 and 25 fast to the respective shafts 6 and 7. The shaft 17 is the driver and when the spring 10 is wound, tends to rotate continuously in the same direction and through the cranks 21, 24 and 25 and the links 22 and 23 cause the figure to turn hand springs or somersaults.

When the toy is in upright position with either section lowermost, the crank fast to the lowermost section is slightly inclined to the horizontal, whereas the driving crank 21 and the crank fast to the uppermost section occupy an approximately horizontal section. Inasmuch as the sections 2 and 3 alternately change position, they alternate in becoming the fixed section about which the figure turns in making the hand spring or somersault in much the same manner as an athlete or tumbler. The crank 21 is driven to the right, hence the figure or toy is operated in a forward direction. Obviously a back hand spring or somersault may be accomplished by arranging the mechanism so as to drive the crank 21 to the left. The fixed section of the toy is that which occupies the lowermost position and rests upon the surface, whereas the movable sections embody the middle section and the section in position to move upward and forward.

In the operation of the toy, the movable and fixed sections alternate so that the fixed section in the succeeding movement becomes the movable section, and the movable section, the fixed section. The fixed and driving cranks and the links 22 and 23 aline a moment before the movable section completes its movement and break-joint upward as the said movable section completes its movement, thereby giving an initial impetus to the fixed section when starting on its upward and forward movement in the operation of the toy in performing the hand-spring or somersault movement. The crank of the fixed section becomes the point of resistance for the cranks of the other two sections as will be readily comprehended.

For controlling the speed of the toy and preventing a too rapid movement of the same when first wound, a governor mechanism is included in the train of gearing and consists of a band 26, weights 27 and light spring arms 28 connecting the weights 27 with the shaft 20. The spring arms 28 are of U-form and should the shaft 28 attain a high speed, the weights 27 are thrown outward against the inner wall of the band 26, thereby retarding the movement of the toy so as to equalize the action thereof.

Having thus described the invention, what is claimed as new is:

1. In a toy of the character described, the combination of a middle section, end sections pivotally connected to the middle section, and an actuating mechanism mounted upon the middle section and having an operative connection with both of the end sections to swing the same with respect to the middle section, the said end sections alternately constituting a base and point of resistance about which the middle section and opposite section swing to impart a hand spring movement to the toy.

2. In a toy of the character described, the combination of a middle section, end sections pivotally connected to the middle section, a crank member rigid with each of the end sections, an intermediate crank member upon the middle section, actuating means for the intermediate crank member, and links connecting the intermediate crank member to the crank members of the end sections, each end section alternately constituting a fixed section about which the other two sections swing and the crank member of the fixed section being a point of resistance, for the remaining two crank members.

3. In a toy of the character described, the combination of a middle section, shafts journaled in opposite ends of the middle section and provided with cranks, end sections rigid with the respective shafts, and actuating means coöperating with the cranks to rotate the shafts and swing the end sections with respect to the middle section, the end sections alternately acting as fixed sections about which the other two sections swing and the crank upon the shaft of the fixed section being a point of resistance for causing the actuating mechanism to operate the shaft of the other end section.

4. In a toy of the character described, the combination of a middle section, a shaft journaled in each end of the middle section, said shafts being provided with crank members, an end section rigid with each of the shafts, an intermediate shaft journaled upon the middle section and provided with a crank member, means for actuating the intermediate shaft, and link members connecting the crank member of the intermediate shaft to the crank members of the end shafts, the end sections alternately constituting fixed sections about which the other two sections

swing and the crank member of the shaft of the fixed section being a point of resistance for the remaining two crank members.

5. In a toy of the character described, the combination of a middle section, transverse shafts journaled in opposite ends of the middle section and provided with crank members, an end section rigid with each of the end shafts, a frame-work supported by the two end shafts, a drive shaft journaled upon the frame-work, means for actuating the drive shaft, and an operative connection between the drive shaft and the crank member of each of the end shafts, the end sections alternately constituting fixed sections about which the remaining two sections swing and the crank member of the shaft of the fixed section being a point of resistance for the crank member of the shaft of the opposite end section.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS A. KILLMAN. [L. S.]

Witnesses:
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W. A. BUNTIN.