(No Model.)

R. A. SMITH.

TOY.

No. 545,541. Patented Sept. 3, 1895.

Fig. 1.

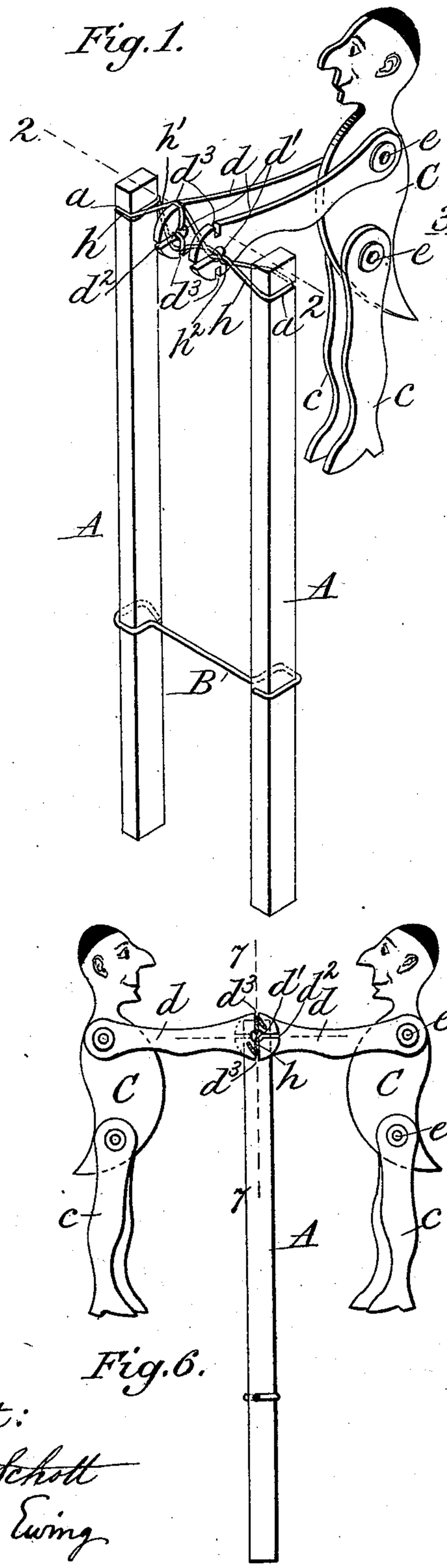


Fig. 6.

Fig. 2.

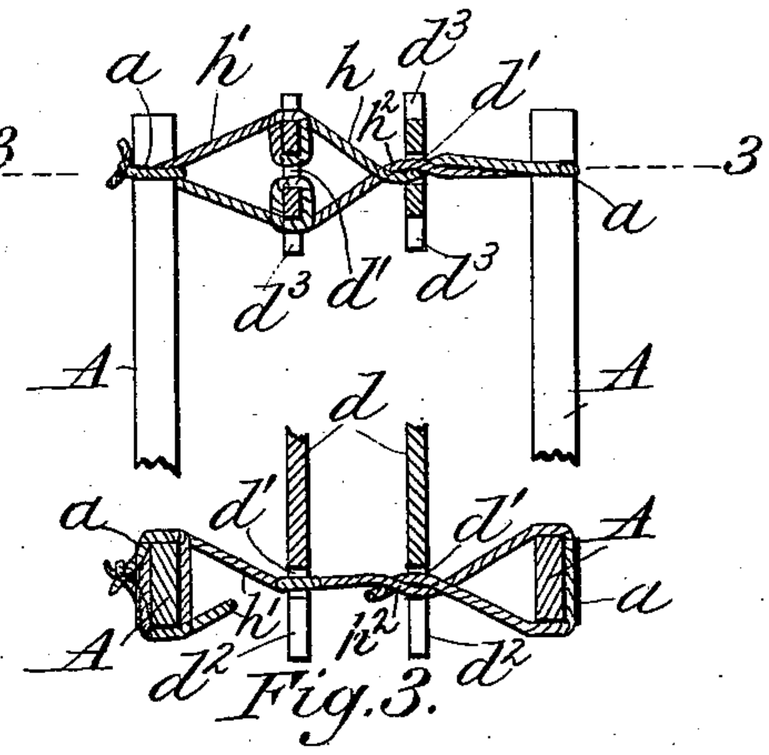


Fig. 3.

Fig. 4.

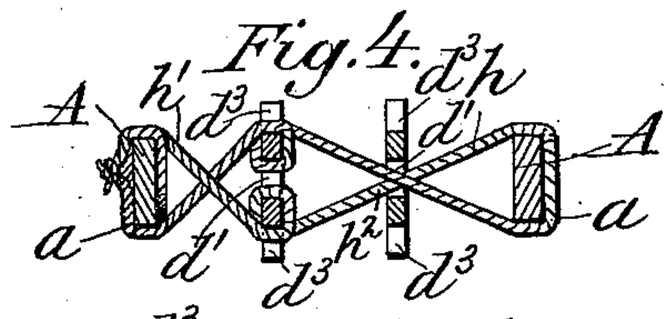


Fig. 5.

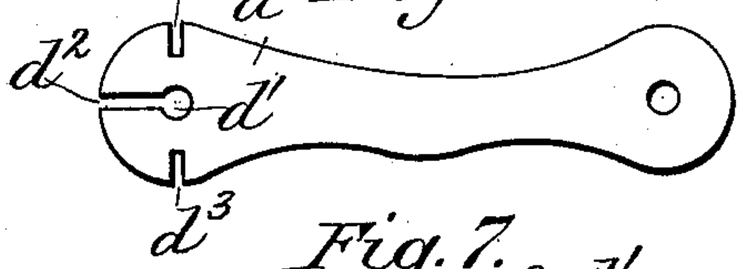


Fig. 7.

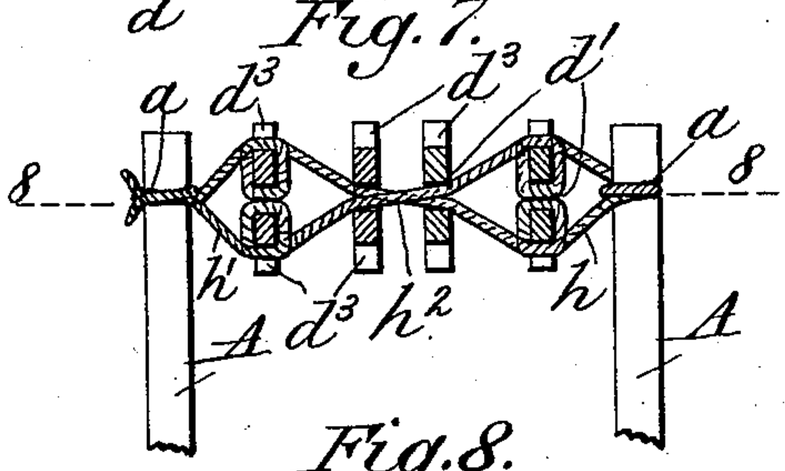
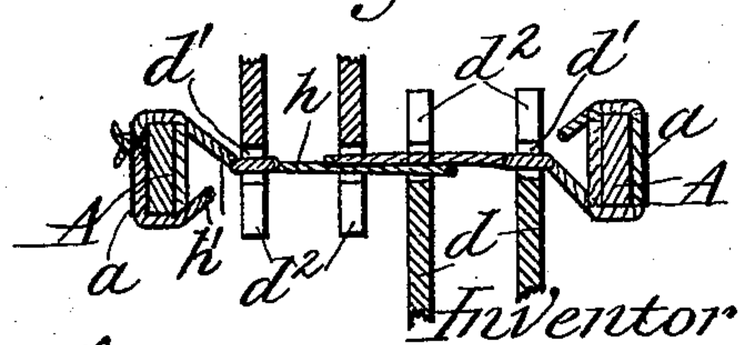


Fig. 8.



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UNITED STATES PATENT OFFICE.

REUBEN A. SMITH, OF EAST WEARE, NEW HAMPSHIRE.

TOY.

SPECIFICATION forming part of Letters Patent No. 545,541, dated September 3, 1895.

Application filed May 1, 1895. Serial No. 547,744. (No model.)

To all whom it may concern:

Be it known that I, REUBEN A. SMITH, a citizen of the United States, residing at East Weare, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Toys, of which the following is a full, clear, and exact description, such as will enable those skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings.

This invention relates to improvements in toy gymnasts of that class in which the puppet consists of a body and limbs loosely hinged together and is suspended by cords in such a manner in an elastic frame so that by varying the strain on the said cords the puppet is caused to gyrate.

It relates more particularly to improvements in the constructions shown in Patents No. 171,703 and No. 239,869, granted to me January 4, 1876, and April 5, 1881, respectively. In the manufacture of these devices the principal cost is in the assembling of the several parts, and more especially in the stringing. In the constructions shown in the above-named patents, in stringing the puppets to the frame it is necessary to use a needle in order to pass the cord through the several apertures in the arms. In the present instance it is proposed to do away with the use of the needle and thereby save the time which would be expanded in preparing, threading, and manipulating the same. In the constructions shown in the above patents, where more than one puppet is used it is necessary to insert a washer between the inner arms, as shown in the earlier patent, to prevent them from binding, and thereby insure their independent movement. In the present instance it is proposed to do away with the washer, and by twisting the cords in a manner to be explained the independent action of the arms will be secured.

The invention consists in the novel construction, combination, and arrangement of parts, such as will be hereinafter fully described, pointed out in the appended claims, and illustrated in the accompanying drawings.

In the accompanying drawings, in which similar letters of reference designate corresponding parts, Figure 1 is a perspective view of a device embodying the invention, but one puppet being shown, its arms being held at right angles to the frame. Fig. 2 is a detail elevation, partly in section, on the line 2 2 of Fig. 1, the view in this instance being enlarged. Fig. 3 is an enlarged detail view showing a horizontal section on the line 3 3 of Fig. 2. Fig. 4 is a view similar to that shown in Fig. 3, the puppet in this instance, however, being suspended directly beneath the cords. Fig. 5 is an enlarged detail view showing a side elevation of one of the arms. Fig. 6 is a side elevation, partly in section, showing two puppets, their arms being at right angles to the frame. Fig. 7 is a vertical section on the line 7 7 of Fig. 6. Fig. 8 is a horizontal section on the line 8 8 of Fig. 7. It is to be observed that these last two views are enlarged.

Referring to the drawings by letter, the elastic frame work consists of the side pieces A A, connected at intermediate points by the spring B. This spring forms an elastic fulcrum for the side pieces, and it is secured at its ends to the latter by being crimped around the same. Between the upper ends of the side pieces the puppet is suspended. The latter consists of the body C, the legs *c c*, and the arms *d d*, the limbs being loosely hinged to the body by the rivets *e e*. As the arms *d d* are made alike, a description of one will suffice for both. The extremity of the arm *d* is provided with an aperture *d'* and is bifurcated by the slot d^2, extending through the arm to the said aperture. It is to be observed that the diameter of the aperture is greater than the width of the slot, for a purpose which will be hereinafter explained. Notches d^3 d^3 are also formed in the extremity radial to the aperture and at right angles to the slot d^2. They extend but a short distance into the wood. By means of the aperture, slots, and notches in each of the arms, and a cord, the puppet is suspended between the upper ends of the side pieces, so that by varying the pressure on the lower ends of the side pieces, thereby varying the strain on the cord, the puppet can be caused to gyrate.

The manner of stringing is as follows: The puppet, the parts forming the same having been previously assembled, is laid on a table

with its arms extended above its head and between the ends of the side pieces A A, the legs and the lower ends of the said pieces extending in opposite directions. A cord *h*, of the required length, is wound at one end around an end of one of the standards in the groove *a*. It is then wound around one of the bifurcations formed in the extremity of the nearest arm, the cord being passed through the slot d^2 into the aperture d' and into one of the notches d^3 d^3. The cord is then passed through the slot d^2 of the other arm into the aperture d' of the same. The cord is not wound around the bifurcations of the second arm, but passes directly to the upper end of the second side piece and is wound around the same in the groove *a*. It is then again passed through the aperture d' of the second arm. It then passes to the first arm and is wound around the remaining bifurcation and is finally secured by tying the ends of the same. In passing between the side pieces the cord is twisted in two places, at h' between the first post and the first arm, and at h^2, where it passes through the aperture d' in the second arm. The twist in the first instance is to cause the puppet to gyrate when a strain is brought to bear on the same, and in the second instance it serves to hold the second arm in its proper position relatively to the first arm. The description so far has been applied to a device having but a single puppet. It is obvious, however, that it can be applied where there is more than one.

Figs. 6, 7, and 8 show the invention applied to a device having two puppets. The construction in this instance is substantially the same as when but one puppet is used, except that the outer arms of both puppets have their bifurcations wrapped. Formerly in the construction of these devices it was necessary to insert a washer between the inner arms to keep them in their proper relative positions. By twisting the cords where they pass through the apertures of the inner arms, as at h^2, the use of the washer is done away with. It is to be observed that this twist at h^2 serves in no way to gyrate the arms. The gyration is caused by the twists in the cords between the arms, around the bifurcations of which it is wound, and the adjacent side pieces, as at h' h', the sole purpose of the twist at h^2 being to hold the unwound arms in their proper relative positions.

It has been stated that the diameter of the aperture d' in the extremity of the arm is greater than the width of the slot leading from the same. If there should be no enlargement at the inner end of the slot, the cords would be liable to displacement. By having the enlargement they are not so liable and at the same time have sufficient room to move without being chafed.

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

1. In a device of the class described, a puppet arm having an aperture formed in its extremity and a slot bifurcating the said extremity and leading into the aperture, the width of the slot being less than the diameter of the aperture, substantially as described.

2. In a device of the class described, the combination of the side pieces connected at intermediate points, the puppet arms, the extremity of each arm having an aperture formed therein and bifurcated by a slot leading into the aperture but of less width than the diameter of the said aperture, and also having notches radial to the aperture and at right angles to the slot, and the cord passing between the ends of the side pieces, wound around the bifurcations of one of the said arms and twisted as it passes through the aperture in the other arm, substantially as described.

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

REUBEN A. SMITH.

Witnesses:
STORY A. SMITH,
GRANT BURROUGHS.