M. M. DONDO.

MARIONETTE.

APPLICATION FILED MAR. 3, 1920.

1,350,711.

Patented Aug. 24, 1920.

Fig. 1,

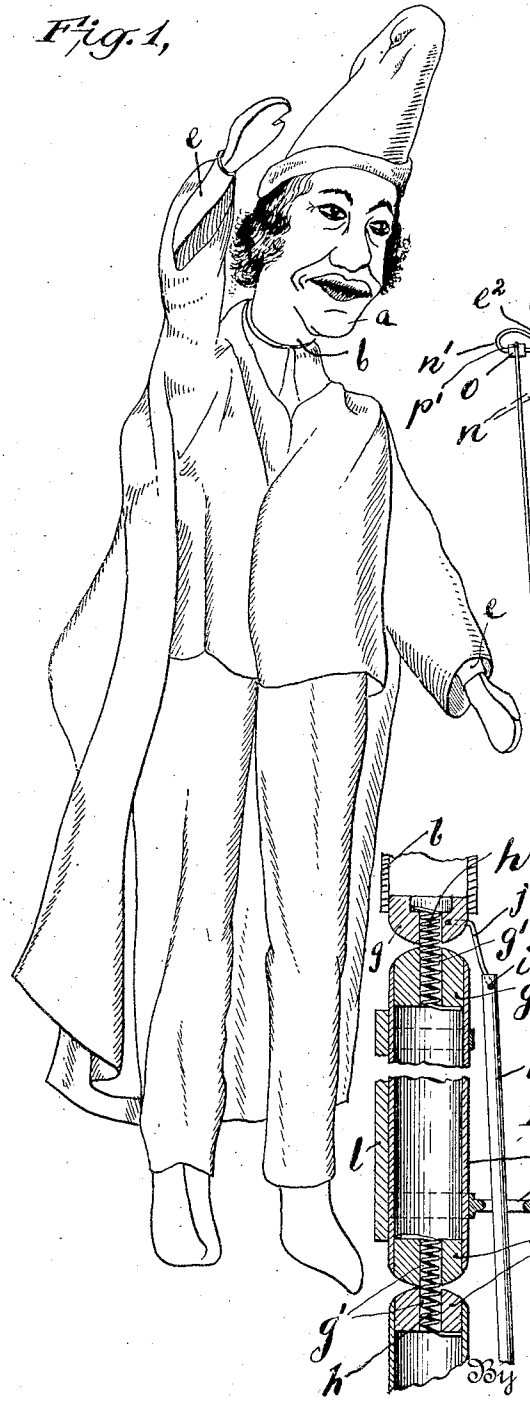

Fig. 2,

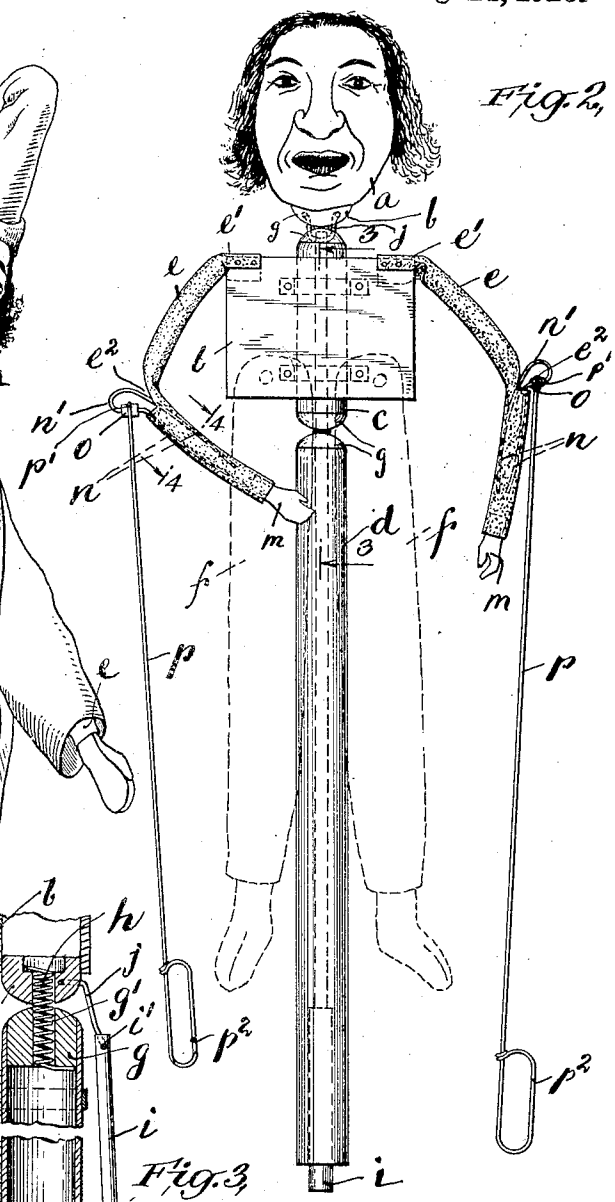

Fig. 3,

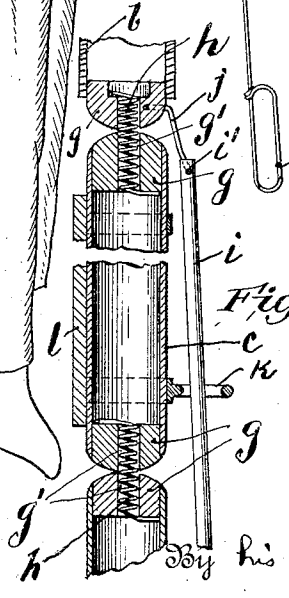

Fig. 4,

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UNITED STATES PATENT OFFICE.

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MARIONETTE.

1,350,711. Specification of Letters Patent. Patented Aug. 24, 1920.

Application filed March 3, 1920. Serial No. 363,000.

To all whom it may concern:

Be it known that MATHURIN M. DONDO, a citizen of the French Republic, residing at New York, in the county of New York and State of New York, has invented certain new and useful Improvements in Marionettes, of which the following is a specification.

The present invention relates to figures used as puppets or marionettes and has for its object to improve the construction thereof, so as to enable a graceful reproduction of human actions or emotions as true to nature as possible and with ease and convenience.

This result has not been obtainable with the construction hitherto in use. The reason for this is, that the movable or operable parts of the figures as now constructed, are joined together in such a way that only angular movements can be carried out. Moreover, the operable parts are manipulated from above the stage by pull strings which necessitate the employment not only of a separate string for each part of the figure, but several strings for one and the same part, to effect composite movements of the latter. Moreover, the movements that can be imparted by pull strings even when executed with great skill and care, are more or less jerky or sudden, while to effect thereby different movements of a single organ synchronously is very difficult, if not actually impossible. The difficulty of manipulating such string pulled figures is still more aggravated when several members thereof have to be operated simultaneously.

It is, therefore, another object of my invention to simplify the construction, and facilitate the manipulation of a figure by providing operating members, each of which will permit a variety of movements of an operable part of the figure.

With the above objects in mind, the operable parts of the figure according to my invention are so joined together that they are capable of universal arcuate movements, and are operated by means of rigid push members so suspended therefrom as to be capable of transmitting vertical and lateral movements to said parts.

In the accompanying drawing in which similar reference characters denote corresponding parts, Figure 1 illustrates a dressed marionette constructed according to my invention, Fig. 2 shows an elevation of the stripped marionette, Fig. 3 is a vertical section on line 3—3 of Fig. 2 and Fig. 4 a cross section on line 4—4 of Fig. 2.

The figure is composed of a head *a* having a hollow neck portion *b*, a trunk composed of two superposed sections *c d*, arms *e e*, and legs *f f*. Since with figures of this character, as distinguished from mechanical toys, the legs are not operated, they are treated here as mere appendages and have no means attached to them for their operation.

The invention consists in so constructing and joining the operable organs of the figure that graceful movements thereof will be attained with the least possible number of elements and with ease and convenience.

I accomplish this object by the construction to be presently described, although, it must be expressly stated that various modifications may be made without departing from the principle of my invention and that I, therefore, do not limit myself to the details shown and described.

The trunk sections *c d* are preferably made of tubular members of suitable material. The joints between these two sections *c d* and between the upper section *c* and the neck portion *b* of the head, each consists of two substantially cylindrical members or plugs *g* centrally perforated as at *g'* to receive a spring coil *h* engaging and movably connecting the plugs together. The adjoining end surfaces of the plugs are preferably spherically rounded to allow of their rolling on top of one another. The plugs are adapted to fit in the hollows of the tubular sections and in the hollow of the neck and to be suitably fixed in position therein, either by gluing, or otherwise. By these means the operable parts such as the head, and the trunk sections are able to move both horizontally and vertically, the joints between them acting like ball or other universal joints with the advantage that the springs connecting the plugs not only have the tendency to automatically return the parts into normal position, but permit the bending or vertical movements to be carried out in a graceful, more or less arcuate manner but not at acute angles.

For the manipulation of the head, or the trunk sections, or both simultaneously, I provide a single rigid member or push rod *i*. This member or rod *i* is perforated at its upper end as at *i'* and engages with its perforation a hook or loop *j* fixed to and

projecting from the rear of the neck portion of the head. The rod which extends downwardly at the rear of the trunk sections is passed through a loop *k* fixed to and projecting from the upper trunk section *c* so that when the rod is swung rearwardly on the hook *j* it will pull on the loop *k* and cause the upper section to tilt forwardly thereby executing an arcuate forwardly directed bending movement. By simultaneously raising the member or rod *i*, the head too, will be given a forwardly directed arcuate bending movement, while by twisting the rod around its axis the head will be swung horizontally. This horizontal movement of the head can be carried out synchronously with its bending movement of the head or with the bending movement of the upper trunk section or with the bending movement of both, the head and upper trunk section, as the case requires. Thus a single element suffices to carry out synchronously several movements of one or several parts.

While the arms *e* may be constructed on the same principle as the trunk sections, I prefer to give the arms the following construction:

To permit graceful movements of the arms, the latter are made flexible or elastic throughout and consist in the present embodiment of my invention of rubber tubings. The upper end of each arm is cut away to form a short flap *e'* for its attachment to the trunk body. The shoulders of the figure may be formed by a rigid member *l*, in form of plate or the like which is suitably fixed to the upper trunk section *c*. The hands *m* are fixed in the lower open ends of the tubes *e e*. At the elbow portion each tube *e* is cut out to form an opening or mouth e^2 to receive a looped member *n* made of a piece of spring wire or the like, bent upon itself. The two legs of this looped member extend downwardly in the lower part of the tube or arm *e* and are held in place therein by friction, at the same time reinforcing the arm. The loop *n'* extends somewhat outwardly through the elbow opening e^2 of the arm and carries on its lower part a roller *o* or the like capable of freely rotating thereon. A rigid member *p* of wire or other suitable material is formed with a coil *p'* at it upper end whereby it is rigidly connected to said roller *o*. The members which are adapted to extend downwardly in the manner shown in Fig. 2 and which at their lower ends are each formed with a grasp p^2 serve for the manipulation of the arms.

By raising or lowering the members *p* the arms will be swung vertically on the upper flap shaped joints *l'* while the rollers *o* will freely turn on the loops *n'*. A twist of the members *p* will result in the turning of the lower part of the arm toward or away from the trunk portion of the figure, while by simultaneous raising and twisting of the member *p*, the respective arm may be given any movement according to the action desired to reproduce.

Owing to the particular construction described, the movements imparted to the operable organs will always be arcuate instead of angular and therefore more graceful, and a single member for each arm is thus sufficient to impart all desired movements to the upper and lower parts thereof.

The upper part of the loop *n'* will serve as a stop for the member *p* when the latter is raised, thus limiting the movement of said member in upward direction. The members for manipulating the movable parts of the figure projecting downwardly and operable from below the stage will be entirely hidden from the eye of the observer when the figure is dressed, and the movements of the figure executed thereby will appear more natural than when performed by the pulling of strings.

One of the great advantages of my new construction is that it requires but little skill to manipulate the figures, so that the latter may be manufactured also for use as toys.

What I claim and desire to secure by Letters Patent is:

1. In a figure, movable organs and a joint between each pair of adjoining organs capable of permitting universal and at the same time arcuate movements of said organs and rigid means for moving said organs relative to one another.

2. In a figure, a head, a trunk made of at least two sections, joints between said head and said trunk, and said two trunk sections, each of said joints including a spiral spring permitting universal and arcuate movements of the connected parts and a single rigid member for moving said head and trunk relative to one another.

3. In a figure representing a marionette, a pair of arms each capable of universal and arcuate movements at the shoulders and elbow portions and a rigid member secured to the elbow portion of each arm for moving the lower and upper parts of said arm relative to one another.

4. In a figure representing a marionette, a pair of arms of flexible material and a rigid member so connected to the elbow portion of each arm as to be capable of pushing and twisting actions and thereby of imparting movements in different directions to said arm.

5. In a movable figure, operable hollow organs and a joint between said organs, said joint comprising members engaging the hollows of said organs and a spiral spring connecting said members together, for the purpose specified.

6. In a movable figure, operable tubular

members, and universal joints between each two adjoining members, said joints comprising plugs having their adjoining surface spherically rounded and adapted to fit and be fixed in said tubular members, and a spiral spring centrally borne in and movably connecting said plugs.

7. In a movable figure, arms each made of tubular flexible material, having an opening at the elbow, a looped member carried by the lower part of the arm and a rigid member pivotally connected to said looped member.

8. In a figure, a movable head, a sectional movable trunk, universal joints between said head and trunk and said trunk sections and a common rigid member pivotally connected to said head for imparting movements to said head and trunk sections separately and jointly.

9. In a figure, a movable head, a sectional movable trunk, joints between said head and trunk and between said trunk sections, a rigid operating member pivotally connected to and suspended from the head and means on said trunk engaging said rigid member, whereby movement can be imparted either to the head alone, the trunk alone, or to both head and trunk simultaneously.

10. In a movable figure, a trunk, arms each made of flexible tubular members movably secured to said trunk and formed with an opening at the elbow portion, a spring member frictionally engaging the lower part of the tubular arm and formed with a loop projecting outwardly through the said elbow opening and a rigid member pivotally suspended from said loop and serving for the manipulation of the arm.

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

MATHURIN M. DONDO.

Witnesses:
MAX D. ORDMANN,
JOSEPH T. MCMAHON.