I. SCHÖNHERZ.

PAPER TOY.

APPLICATION FILED MAR. 1, 1912.

1,037,335. Patented Sept. 3, 1912.

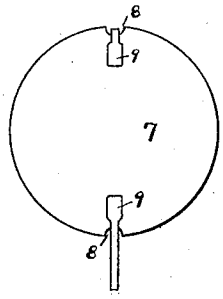

Fig. 3.

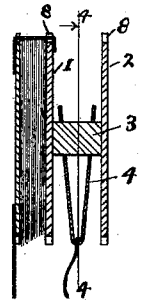

Fig. 2.

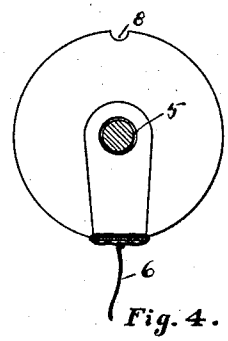

Fig. 4.

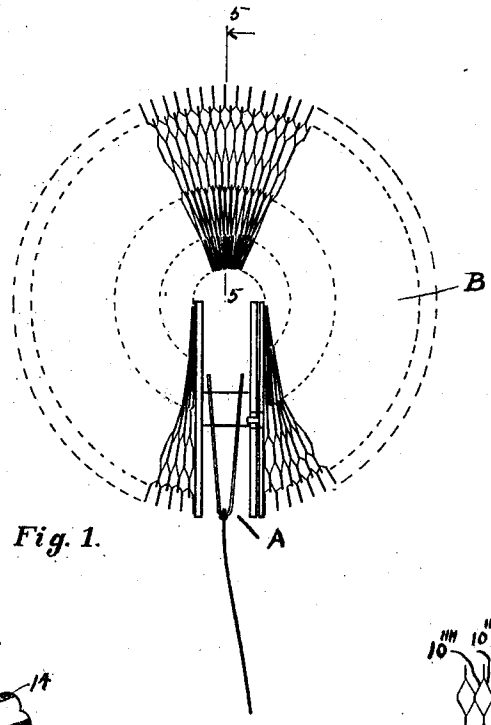

Fig. 1.

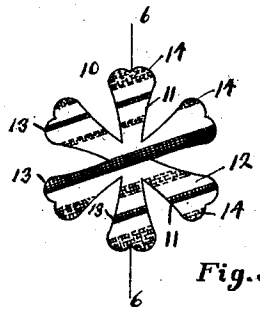

Fig. 5.

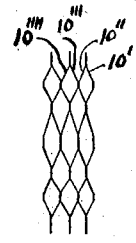

Fig. 6.

WITNESSES

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PAPER TOY.

1,037,335. Specification of Letters Patent. Patented Sept. 3, 1912.

Application filed March 1, 1912. Serial No. 680,844.

To all whom it may concern:

Be it known that I, ISAAK SCHÖNHERZ, a subject of the Austro-Hungarian Empire, and a resident of Vienna, Austria-Hungary, have invented certain new and useful Improvements in Paper Toys, set forth in the following specification.

This invention relates to paper toys.

An object thereof is to provide a simple and inexpensive toy or amusement device having a novel and attractive appearance and capable of being collapsed, when not in use, for convenience in packing.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists of the features of construction and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings wherein is shown one of the various possible embodiments of my invention; Figure 1 is a plan view of the device when secured in extended form, ready for use, omitted portions thereof being indicated by broken lines; Fig. 2 is a horizontal sectional view of the collapsed device, the parts being turned to bring the fasteners into the plane of cross-section; Fig. 3 is an end elevation with the parts disposed as in Fig. 2; Fig. 4 is a sectional view taken on the line 4—4 of Fig. 2; Fig. 5 is a sectional view taken on line 5—5 of Fig. 1, between adjacent layers of material and showing in detail the shape of each layer and the manner of gluing; Fig. 6 is a diagrammatic view showing the arrangement of adjacent layers of material in the plane indicated by line 6—6 in Fig. 5.

Similar reference numbers refer to similar parts throughout the drawings and specification.

Referring to the drawings, A indicates a rotatable frame or truck, comprising two wheels or disks 1 and 2, made of card board or other suitable material, an axle 3 to which the wheels are rigidly fastened at their centers and a tongue 4. The latter consists of a strip of card board or other material folded at its longitudinal center in the form of an elongated V and perforated near its ends, as at 5, to fit loosely about the axle 3. A string or other flexible means 6 attached to the tongue at the fold therein is provided to facilitate drawing the device along the floor or other surface. A third disk 7 similar to wheels 1 and 2 serves a purpose to be hereinafter described, and when the toy is extended for use forms a part of the truck. These three disks are provided with registering notches 8, two to each disk; and disk 7 carries thin metal strips or fasteners 9 which, when the parts are collapsed as shown in Fig. 2, are bent down so as to grasp the adjacent wheel 1 and, when the parts are in the position shown in Fig. 1, take over and grasp the other wheel 2. The notches 8 are so disposed as to permit the downturned fasteners to occupy a position wholly within the circumferences of the disks in whichever position the latter are united.

B, the body of the toy, consists of a plurality of layers 10 of tissue paper, or like flexible material of suitable size and shape glued or pasted together at certain points, so that the body may be collapsed or extended after the well known manner of an accordion and will also be of a flexible and elastic nature. To insure these ends I make each of said layers in the form of a mutilated disk, the periphery being regularly indented as at 11 to produce a number of radial arms 12. Referring to Fig. 5 which shows the form of these layers, it will be seen, that the adhesive is applied to the corresponding sides of alternate layers, as 10′ and 10‴ in Fig. 6, in parallel bars 13, as shown by the full-line cross-hatching in Fig. 5. It is applied also to the intervening alternate layers as 10″ and 10⁗ in Fig. 6, along a similar series of parallel bars 14, as shown by the broken-line cross-hatching in Fig. 5. The several layers thus secured to one another, produce a cellular structure when the body is expanded, the appearance of which differs considerably and artistically

with the point of view. A clear conception of this cellular structure may be had by comparing Figs. 1 and 6, the first showing the structure as it appears from the left side of Fig. 5, and the latter as seen along the section line 6—6. The entire series of layers may be pasted together, the sheets being left unfinished, and the whole may then be stamped or cut to the desired shape by the use of a suitable die. Having completed the tissue body B, the layer at one end thereof is secured by means of an adhesive to the side of the disk 7 opposite to that supporting the fasteners 9. The other end layer of the tissue body is similarly secured to the outer side of the wheel 1. The tissue body is then stretched or extended and the disk 7 brought around and secured to the distant wheel 2 by means of the fasteners, when the device will take the form shown in Fig. 1, which is a flexible tore or ring of which the frame or truck A forms a connecting member between the ends of the tissue body B. The arms 12 of the united layers produce a plurality of radially spaced ridges extending throughout the length of the tissue body of the tore.

The operation follows. Placing the toy on the floor in the position shown in Fig. 1 and holding the string 6, a slight pull by the operator suffices to draw the device along, the wheel truck or frame revolving by reason of its frictional contact with the carpet. The motion of the wheels is transmitted to the ends of the flexible tissue and, without perceptible delay, to the entire body. The motion now obtaining throughout the whole device is that known to physicists as a vortex ring. To the spectator, looking down upon it, the toy appears as an elastic tore, or ring, revolving outwardly on its circular core or axis, and undergoing, at the same time, a lateral translation along the floor in the direction of the operator.

In practice, the several arms of each tissue layer are differently and artistically colored; and the layers are united to bring all arms of one color into circumferential alinement. In motion, the effect is extremely spectacular and beautiful, for each of the richly colored ridges, in turn, rises from the inner circle of the tore, passes outwardly expanding as it goes, and then gracefully descends to the figure's outer circle, beyond which it is gradually lost to view.

As many changes could be made in the above construction and apparently widely different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed and what is desired to be secured by United States Letters Patent is:—

1. In a toy of the character described, in combination, a tore comprising a wheel member and a flexible body attached to opposite sides thereof and adapted, when said wheel member rotates, to revolve about its circular core substantially as a vortex ring; and means for drawing said toy along a plane surface to cause the rotation of said wheel member.

2. In a toy of the character described, in combination, a tore comprising a wheel member capable of being rolled along a plane surface and a flexible body attached to opposite sides thereof, said tore being adapted, when said wheel member rotates, to revolve about its circular core substantially as a vortex ring.

3. In a toy of the character described, in combination, a wheel member capable of being rolled along a plane surface; a collapsible body having an end thereof secured to a side of said member and capable of longitudinal extension; and means adapted, when said body is extended, to secure the free end thereof to the other side of said wheel member.

4. In a toy of the character described, in combination, a wheel member capable of being rolled along a plane surface; a collapsible body having an end thereof permanently secured to a side of said member and capable of longitudinal extension; and means adapted to secure the free end of said body to said wheel member alternatively upon either side thereof.

5. In a toy of the character described, in combination, a wheel member; a collapsible body having an end thereof permanently secured to a side of said member and capable of longitudinal extension; means adapted, when said body is extended, to secure the free end thereof to the other side of said wheel member; and means for drawing said toy along a plane surface to rotate said wheel member.

6. In a toy of the character described, in combination; a wheel frame comprising a pair of disks rigidly secured to the ends of a short axle; a third disk; a plurality of layers of tissue paper pasted together to form a collapsible body of cell-like structure, said body being permanently secured at one end to said third disk and at the other end to the outer side of one of said pair of disks; means for fastening said third disk in parallel relation and adjacent the outer side of the other of said pair of disks; and a tongue loosely attached to said axle.

7. In a toy of the character described, in combination, a wheel frame comprising a pair of disks rigidly secured to the ends of a short axle, a tongue loosely attached to said axle, a plurality of layers of tissue

paper of different colors pasted together to form a collapsible body of cell-like structure, said body being permanently secured at one end to one of said disks and means for securing the free end of said body to the other of said disks.

In witness whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ISAAK SCHÖNHERZ.

Witnesses:
RUDOLF TROST,
CHARLEY BERG.