(No Model.) 2 Sheets—Sheet 1.

W. M. CAMPBELL.

TOY.

No. 320,429. Patented June 16, 1885.

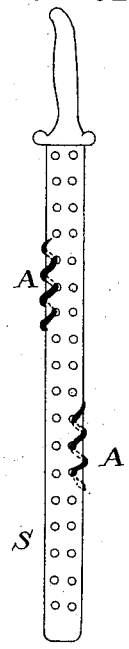


FIG. 1.

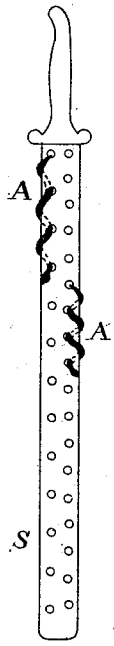


FIG. 2.

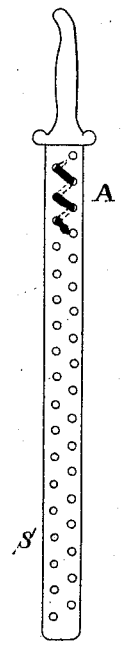


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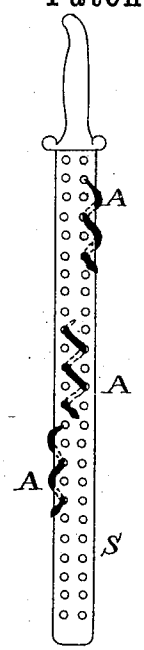


FIG. 4.

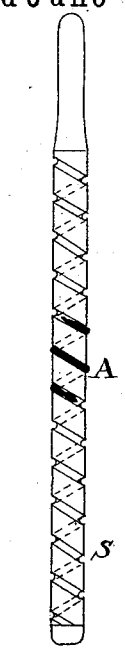


FIG. 5.

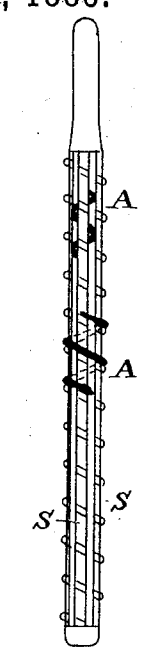


FIG. 6.

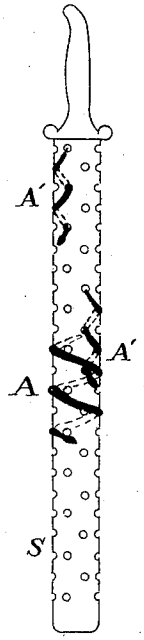


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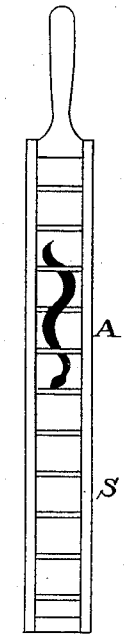


FIG. 8.

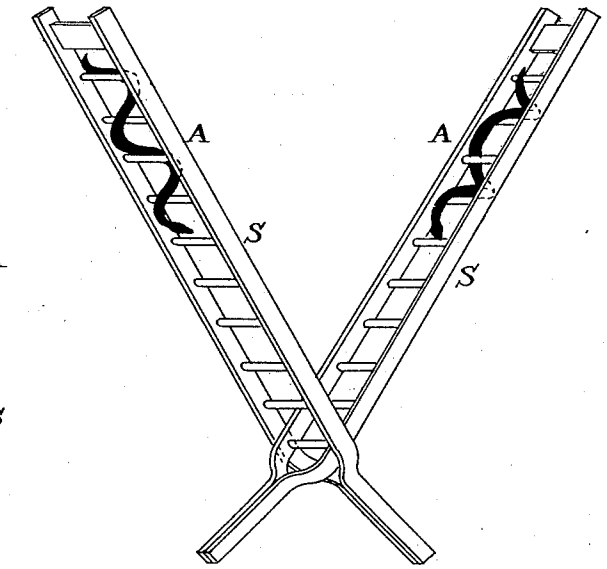


FIG. 9.

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(No Model.) 2 Sheets—Sheet 2.

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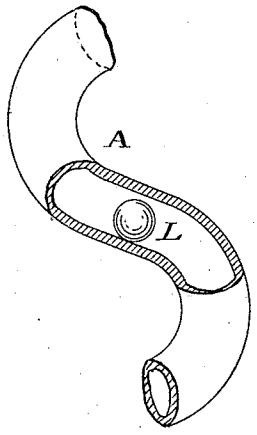


FIG. 10.

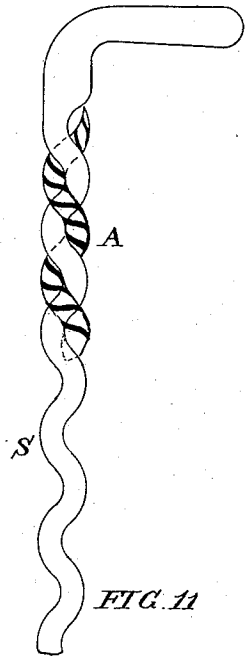


FIG. 11

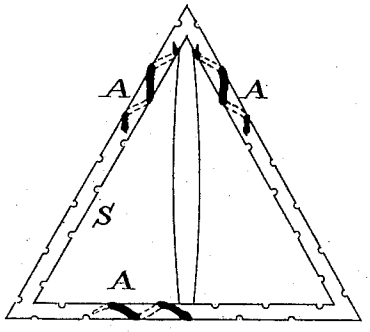
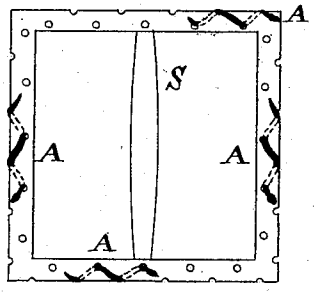


FIG. 12.



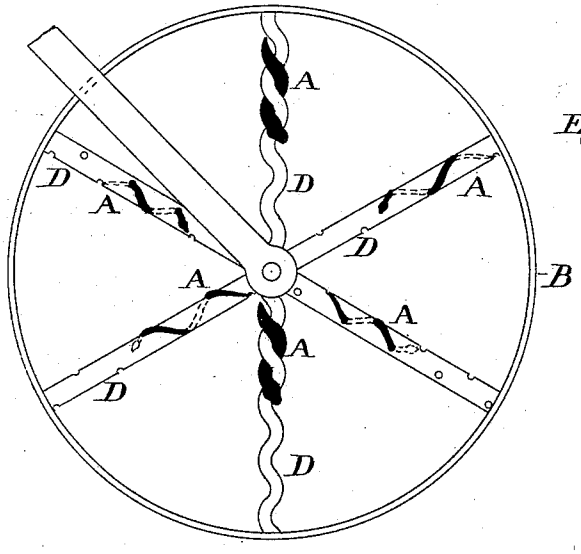


FIG. 13.

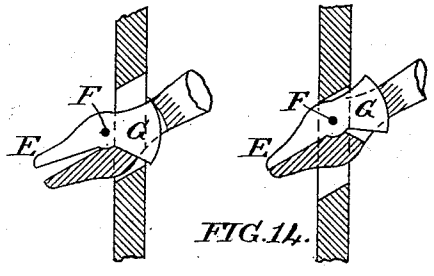


FIG. 14.

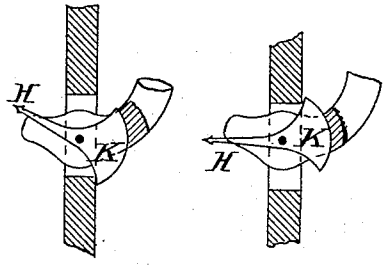


FIG. 15.

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UNITED STATES PATENT OFFICE.

WILLIAM M. CAMPBELL, OF LONDON, ENGLAND.

TOY.

SPECIFICATION forming part of Letters Patent No. 320,429, dated June 16, 1885.

Application filed July 14, 1884. (No model.) Patented in England May 8, 1884, No. 7,441; in Germany July 5, 1884, No. 30,069; in Belgium July 5, 1884, No. 65,699, and in France July 5, 1884, No. 163,168.

To all whom it may concern:

Be it known that I, WILLIAM MAXWELL CAMPBELL, a subject of the Queen of England, residing at London, England, have invented an Improved Toy, (for which I have applied for English Letters Patent on the 8th of May, 1884, under No. 7,441,) of which the following is a specification.

My invention relates to a novel device suitable for a toy; and it consists of one, two, or more helical bodies formed of any suitable material in the shape of a twisted serpent, rendered conspicuous by any suitable vivid color or pattern of coloring, mounted in a frame or other supporting device, as described below. The special peculiarity of these serpents is that their convolutions form a helix or screw-thread, and, further, they are made of any material (metal or other) of such density as will afford a suitable rate of movement, which rate will depend upon their weight.

In order that my invention may be the better understood I now proceed to describe the same, reference being had to the drawings hereunto annexed, and to the letters and figures marked thereon.

As will be seen from all the figures thereon, the common feature in my various devices is that I mount the imitation serpent or serpents upon a pole, lath, bar, or structure, either perforated with holes or provided with convenient apertures, or with a helical grooved path, so that the weight of the imitation serpents causes them to spirally descend the pole, bar, or lath, or other form of support, and by their convolutions to pass in and out of the holes or apertures pierced in the lath or other support at such intervals as correspond with the pitch of the spiral of the imitation serpent, or to revolve in a helical path made to a similar pitch to that of the imitation serpent. Where holes are used they are carried through the lath or bar at an angle corresponding to the pitch of the said spirals.

One convenient form of my improved toy is in the shape of a broad-bladed sword of any suitable material, a series of holes being pierced through the sword, either a single row along each edge or a double row through the body of the sword.

In Figure 1 two imitation snakes, A A, are shown of similar pitch and similar direction of helix, each snake passing through a series of holes and embracing the edge of the sword S. In Fig. 2 the two snakes A A are shown of different pitch and reversed direction of helix. In Fig. 3 the imitation snake A passes in and out of a double series of holes perforated through the center of the blade of the sword S. Fig. 4 shows a triple set of snakes A A A, one embracing each edge and passing through a set of perforated holes, and a third passing through two sets of perforations in the middle. In Fig. 5 the imitation snake A revolves round a cylindrical core, S, cut to the same pitch as the snake. Fig. 6 shows such a core constructed of bars S S, with snakes A A revolving both outside and inside the said core with reversed directions of helix. It may be convenient to make this mounting or support of glass. Fig. 7 shows a snake family, the large snake A revolving round the exterior of the support S, and the two small snakes A′ A′ revolving through suitable apertures in the support and within the larger snake. Fig. 8 shows a snake A revolving in and out of the rungs of a ladder, S. Fig. 9 shows a pair of ladders, S S, combined on the lazy-tong principle, whereby the velocity of descent of the two snakes A A may be varied according to the angle of the ladders. Fig. 10 is a sectional detail of a hollow-bodied imitation snake A, within which the ball L, preferably of metal, is inserted, so as to rattle as the snake descends. Fig. 11 shows a spirally-twisted stick, S, provided with a handle, such as a walking-stick, the stick being twisted to the same pitch as that of the imitation snake A wound round it, which latter by its gravity descends in spiral convolutions to the lower end of the stick. Fig. 12 shows examples of a triangular and square frame, S S, round the peripheries of which suitable holes are pierced to allow of the convolutions of a series of helical imitation snakes, A A, as hereinbefore described. Fig. 13 shows a wheel, B, mounted on a suitable handle, C, and provided with a series of radial spokes, D D, of different form—that is, embodying a series of the foregoing-described supports—around each of which a snake or snakes A will revolve as each spoke becomes inclined at a sufficiently vertical position in

the course of the revolution of the wheel. Fig. 14 shows in detail the head of an imitation snake in which the upper jaw, E, is made movable on a pivot, F, and is caused to open when passing through the perforations of the support by the edge of the perforation striking the projecting face of the cam G, formed in the same piece with the upper jaw. If the pivot F offers just sufficient resistance to maintain the jaw in position, either open or shut, the jaw will be alternately opened and shut by the cam being struck first by the upper edge and then by the lower edge of the hole. This will continue alternately as the snake descends in its path. Fig. 15 shows a detail in which a movable tongue, H, may be fitted in the jaw of the snake upon a pivot and caused to move horizontally across the mouth, backward and forward, by the edges of the cam-piece K, striking alternately the sides of the apertures through which the snake is revolving.

It is obvious that many modifications are possible in the form and material of the pole, bar, or sword through or around which the imitation serpents revolve, as also in the material of which the serpents are made, without departing from the principle of my invention as hereinbefore described. The snake may also, if desired, be cast or twisted, when plastic, in position—that is, embracing the series of holes through which it is about to travel. In this case, if the holes are discontinued near to the ends of the support, the snake cannot escape from the series of holes, and thus forms a puzzle as to how it ever got there. Alternatively, after construction, the snake may be inserted into the series of holes from one end, and then egress may be closed by the addition of a handle or other part to the support.

Having now described and ascertained the nature of my invention and the manner of carrying the same into effect be it known that what I consider novel, and claim, is—

1. The combination of one or more imitation snakes coiled in the form of uniform helices or spirals, and a support or supports therefor, provided with passage-ways forming a suitable spiral path for each snake along which it may travel by gravity, substantially as herein specified, as a new toy.

2. The combination, in a toy, of one or more imitation snakes coiled in the form of uniform helices or spirals, and a support or supports therefor, provided with corresponding passage-ways in the form of holes conformed to a spiral path or paths, substantially as herein specified.

3. The combination, with a support or supports having passage-ways in the form of holes conformed to a spiral path or paths, of imitation snakes, one or more, coiled in the form of uniform helices or spirals, each extending through two or more of said holes, and provided with a movable part having a tappet projection to engage with the walls of said holes as the snake passes therethrough, substantially as herein specified.

4. The combination, in a toy, of one or more imitation snakes coiled in the form of uniform helices or spirals, a support or supports therefor, provided with a passage-way or passage-ways, forming a suitable spiral path for each snake, and a wheel within which said supports are mounted, substantially as herein specified.

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Witnesses:
JOHN C. FELL,
THOS. E. DAY.