

A. M. Allen,

Toy Rolling Cage.

No. 101,076.

Patented Mar. 22. 1870.

Fig: 1.

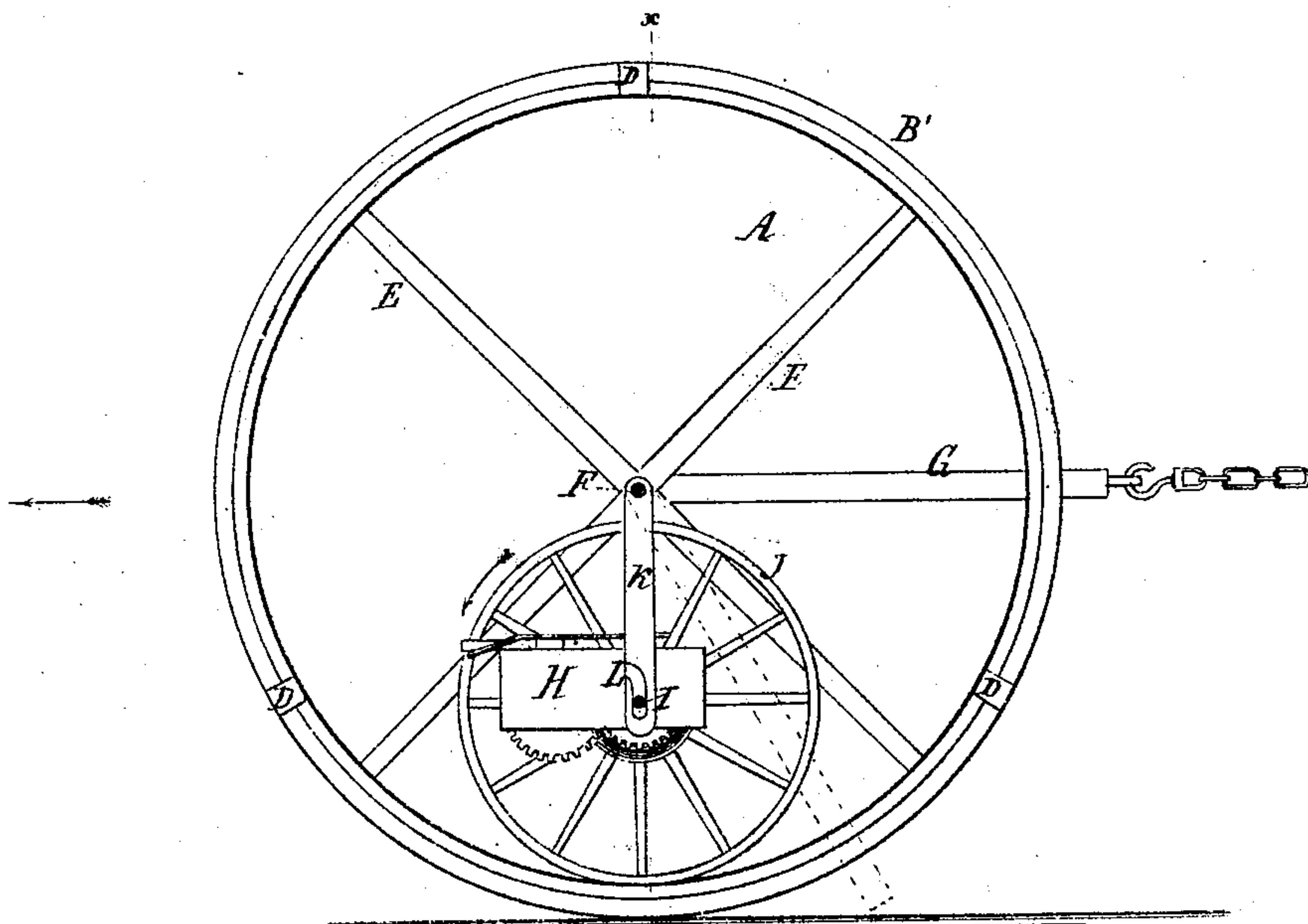


Fig: 2.

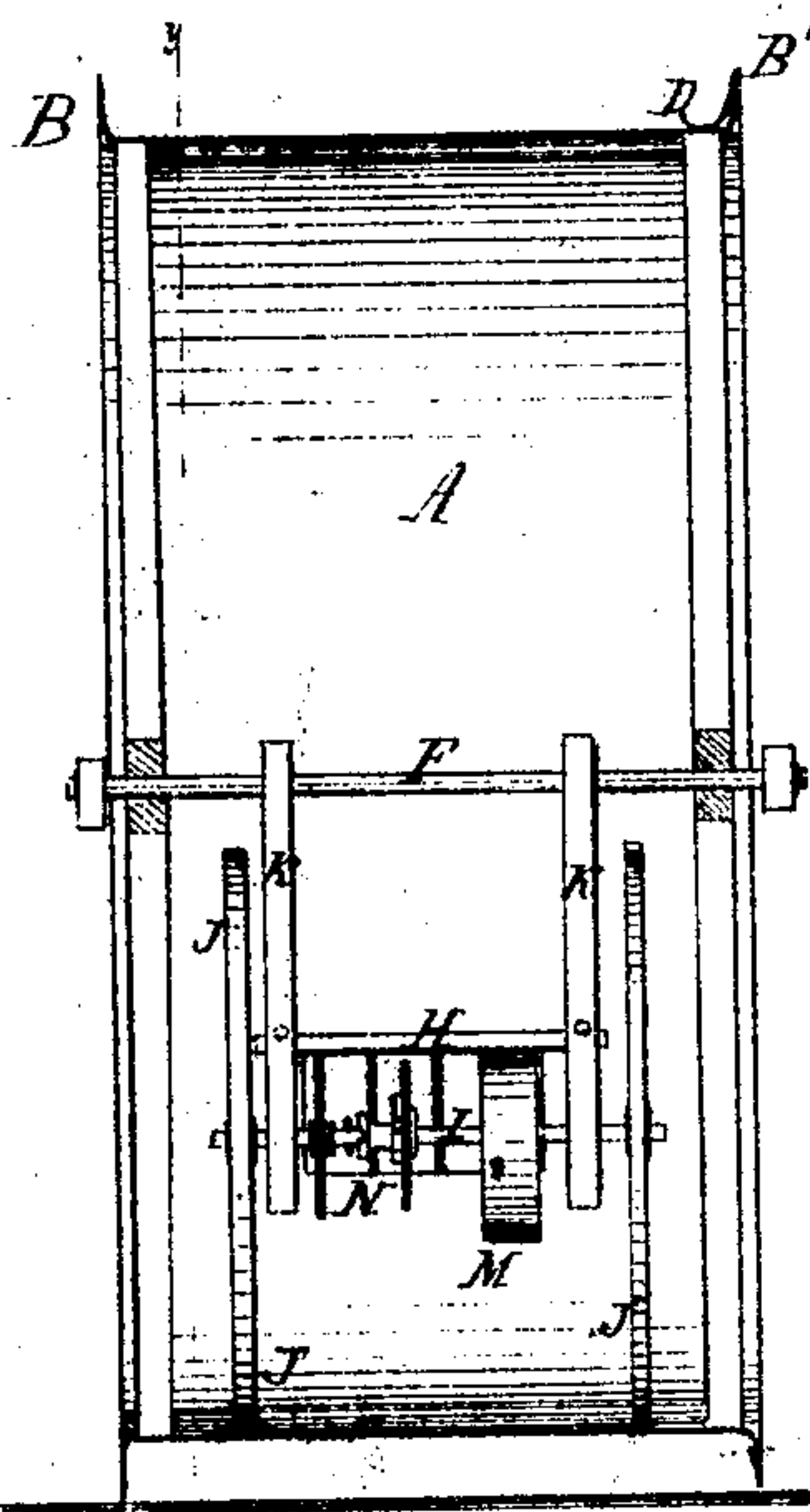


Fig: 3.

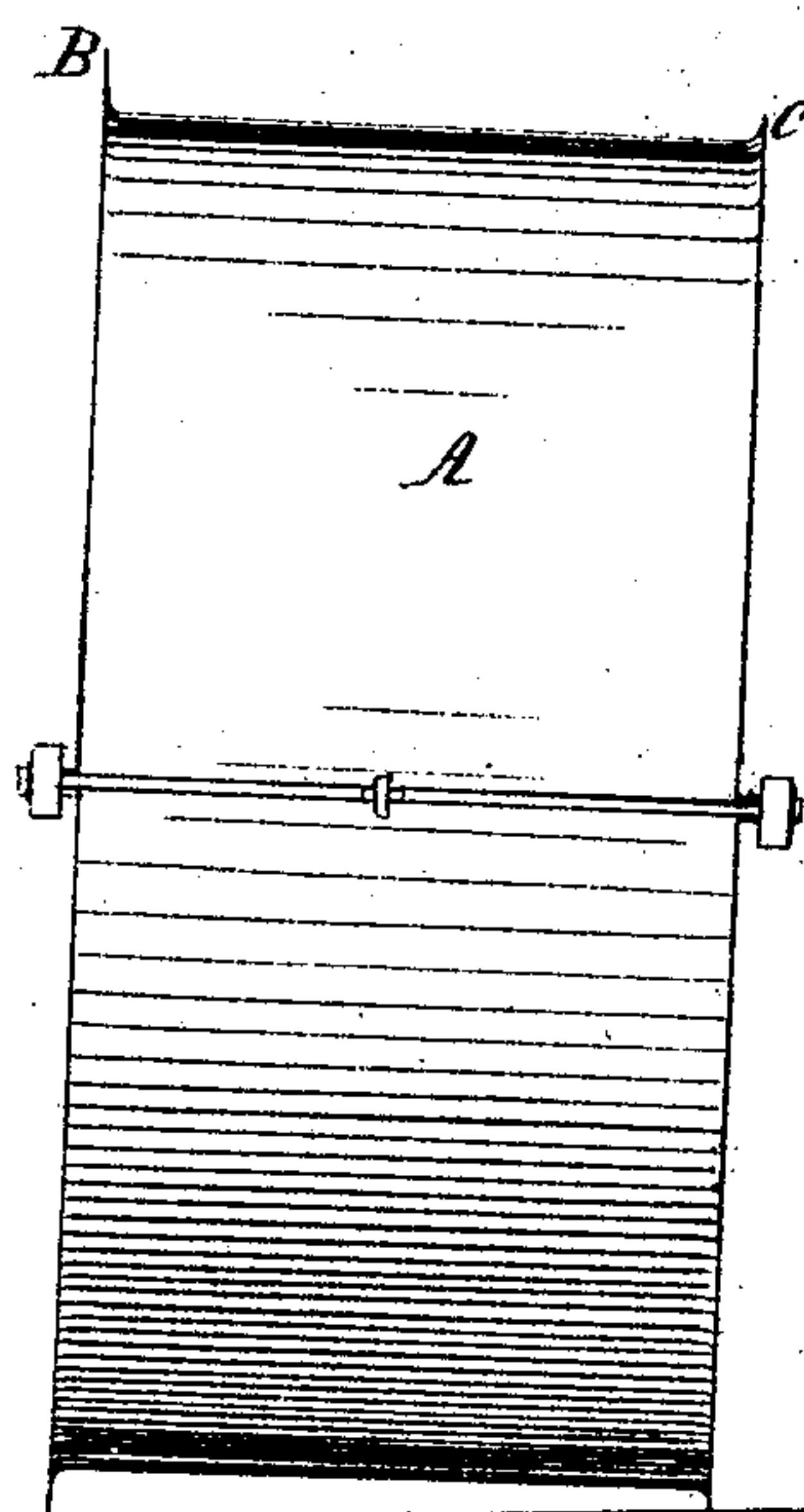


Fig: 4.



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ARTHUR M. ALLEN, OF NEW YORK, N. Y.

Letters Patent No. 101,076, dated March 22, 1870.

TOY ROLLING CAGE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ARTHUR M. ALLEN, of the city, county, and State of New York, have invented a new and improved Toy Rolling Cage; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a section of my improvement in side view, the line of section being seen at *y y*, fig. 2.

Figure 2 is a vertical axial section, in the line *x x*, fig. 1.

Figure 3 is a peripheral view, showing the invention arranged for causing motion in a circular path.

Figure 4 shows modifications of the cage, which enable me to dispense with connecting the motor-frame to the axis of the cage.

Similar letters indicate corresponding parts.

This invention consists in a toy rolling cage, constructed in such a manner that it can be rolled over a floor by spring-power, or by means of any small animal inclosed therein.

The cage consists of a cylinder of tin, pasteboard, or other light material, either open at the ends or covered with netting; and provided, at its center of revolution, with an axis, to which the motor-frame is connected.

In case spring mechanism is used, it may be used in connection with a toy-propeller for the purpose of driving the cage, and a mechanical figure may be added.

In order to make my toy run in a circle, I increase or lessen its diameter at one end or the other. If the diameter is the same throughout, or at its bearing-points or rims, it will run in a straight line.

When the toy is propelled by animal-power, or in case a powerful spring motor is used, it can be connected to another toy vehicle, as a train of cars or other toys on wheels which have no propelling apparatus, and the whole can be moved together. In order to provide for such a use of my improved toy rolling cage, I have connected with its axis a coupling for connecting such additional vehicle.

In the example of my invention here given, I have shown it provided with an ordinary spring-power arrangement and the necessary train of gearing mounted on wheels, one of which wheels, at least, must be fixed upon the axle of the last wheel in the train, and I will now proceed to describe and explain my invention with reference to this example, as shown in the drawing.

The letter A designates a cylindrical cage, at whose ends I provide rims B B'.

The rims B B' are of equal diameter, and both are retained when the toy is intended to go in a straight

course, but when it is intended to move in a curved path, I remove the rim B' from one end, leaving the cage at that end to rest on the smaller rim C, as shown in fig. 3. To enable me to make this change at pleasure, I make the rim B' and connect it to the cage in such a manner that it can be removed at pleasure.

In this instance, I have made it with spring arms D D D, which project from the inner side of the rim B' and catch over the edge of the stationary smaller rim C, in such a manner as to securely hold the rim B' to the cage, unless sufficient force is used to force the spring arms D over the smaller rim C.

Instead of effecting the alteration in the diameter of different parts of the cage in this manner, I can accomplish it by attaching to the cage, at either end, a larger rim or rolling surface, so as to tilt it to the extent desired, or I can apply to the cage at one end an expansible rim, which can be expanded from the center outward, made substantially in the same manner as the ordinary expansible chuck or other tool-holders.

The cylindrical cage A is properly strengthened, if necessary, by braces E, which serve also to form bearings for the axis F, on which I hang the ends of the coupling-bars G, which enable me to attach the cage to other rolling toys, as before mentioned.

The letter H designates a frame or box which contains a spring and the necessary train of wheels, geared together so as to communicate motion to the axis I, on which are mounted wheels J J, both of which I prefer should be fixed to said axis I, so that both are driving-wheels. There may be more than two wheels J, or only one may be employed, providing it be made wide enough to obtain the necessary friction from contact with the cage.

The wheels J rest upon the inside surface of the cage, and they and the motor-frame H are connected to the axis F of the cage by pendent arms K K, which are hung loosely on said axis, and are each made, at their lower ends, with a hook-shaped slot, L, which receives and furnishes a bearing for the axis I of the driving-wheels J, as is shown in fig. 1. This connection of the motor-frame H with the axis F of the cage serves to keep said frame in its proper relative position, but I do not confine myself to such connection for that purpose, as I accomplish the same object by making the inside of the cage concave transversely or with inclinations that meet at the middle of its length, as shown in fig. 4, and then simply setting the motor in the cage, but in such case said frame is made with three wheels, when it will automatically maintain its proper position in the cage.

The operation of the apparatus is as follows:

When the spring M is wound up, its tendency to unwind will set in motion the train of wheels N and

the driving-wheels J, which will roll upon and climb the interior of the cage so as to disturb its equilibrium by passing to one side of the center of gravity, thereby causing the cage to roll over to regain its equilibrium. The revolution and advance of the cage will continue so long as the wheels J and the motor-frame, to which they are connected, continue to climb the sides of the cage.

When I use a small pet animal instead of spring or mechanical power, I inclose the ends of the cage with netting or open-work.

A toy figure may be placed within the cage and connected with the motor or its frame, so as to give the appearance of animation to the apparatus when a live animal is not inclosed.

What I claim as new, and desire to secure by Letters Patent, is—

1. A toy, consisting of a rolling cylinder, one end of which is larger than the other, as shown; and driven by a propeller acting upon its interior surface, all as and for the purpose described.

2. The adjustable flange capable of enlarging and diminishing the diameter of one side of the rolling cylinder.

3. The hooked-shaped slots L in the arms K, in combination with the toy-propeller and cylinder, substantially as and for the purpose described.

Witnesses:

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