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H. MÜLLER

2,659,179

TOY VEHICLE

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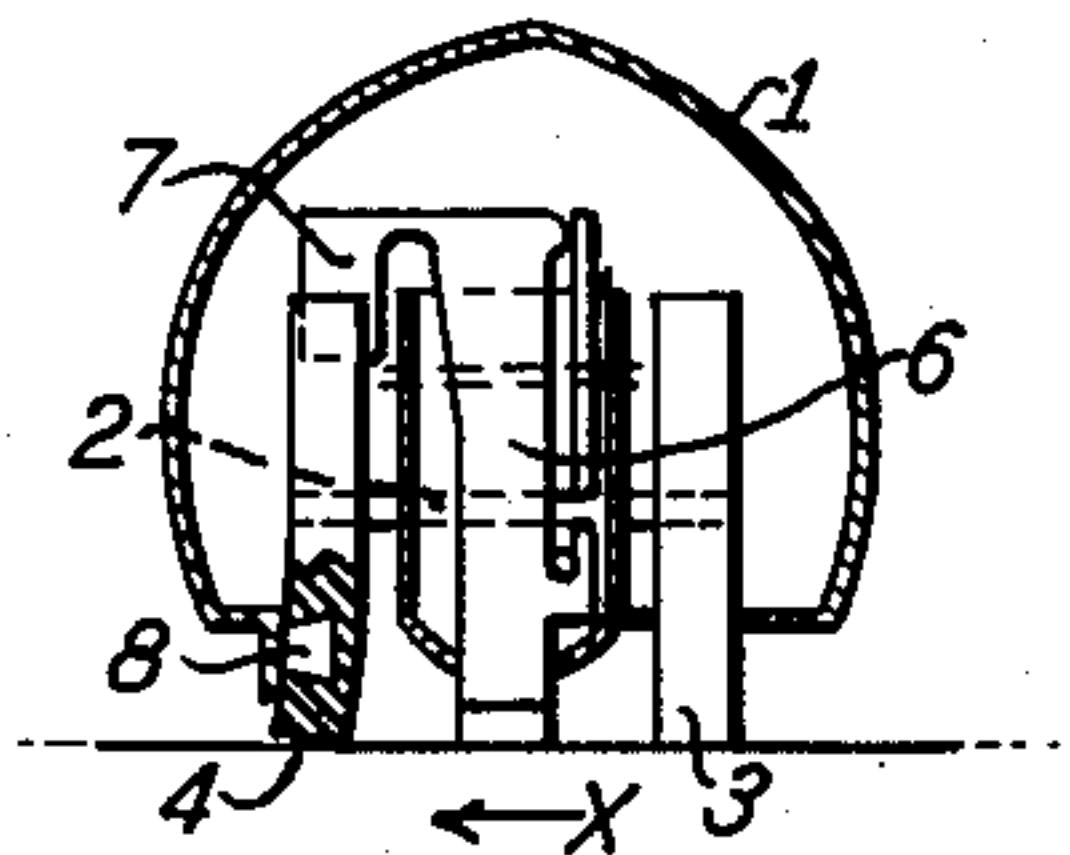


FIG. 2

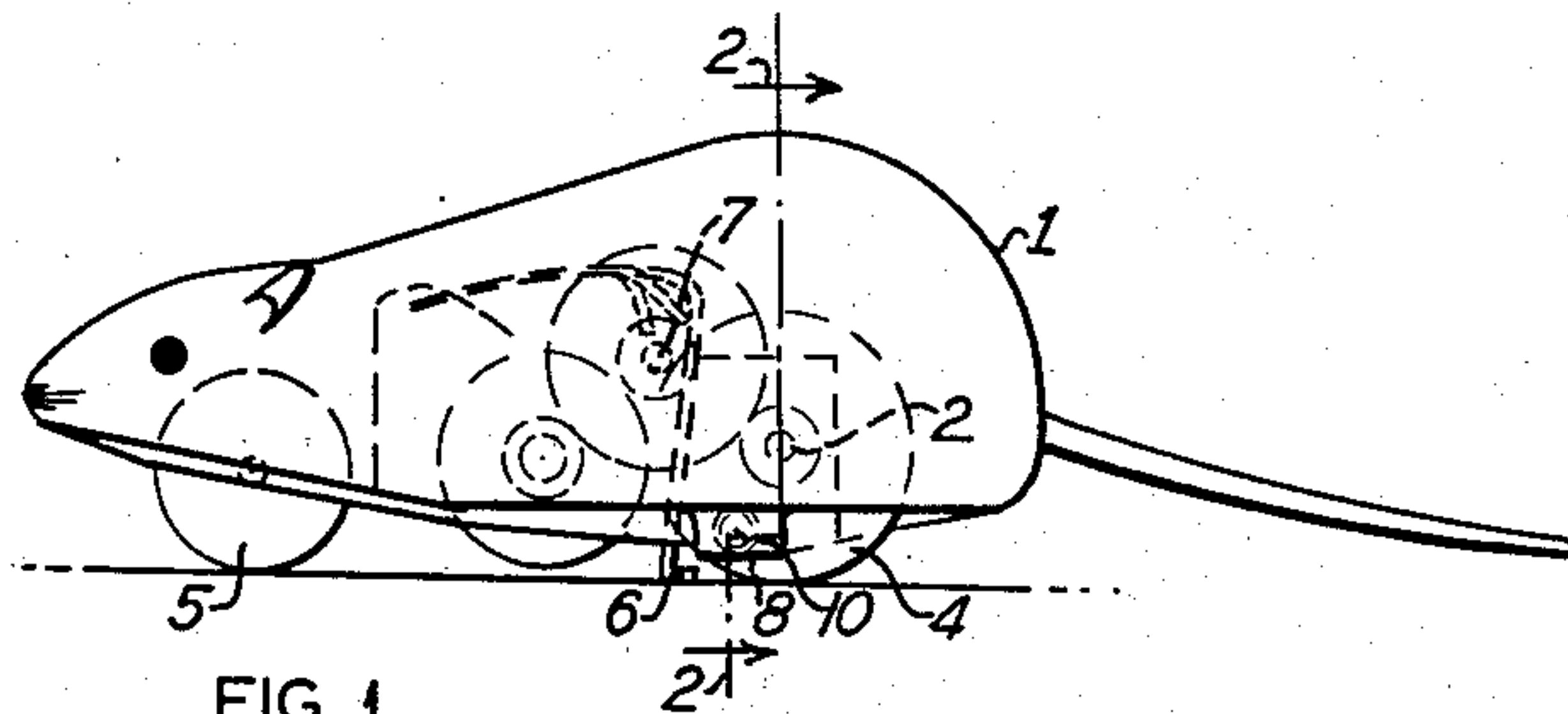


FIG. 1

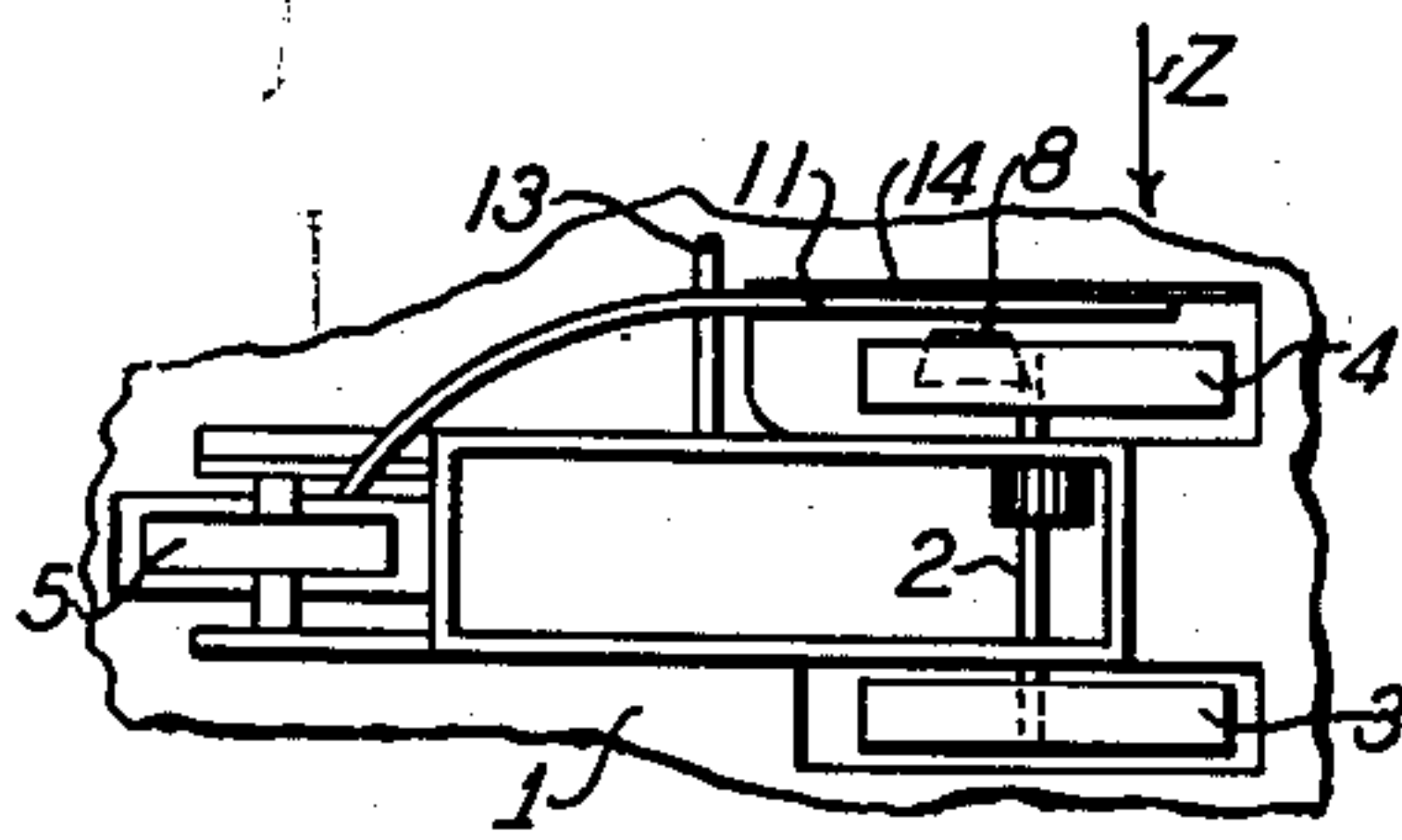


FIG. 4

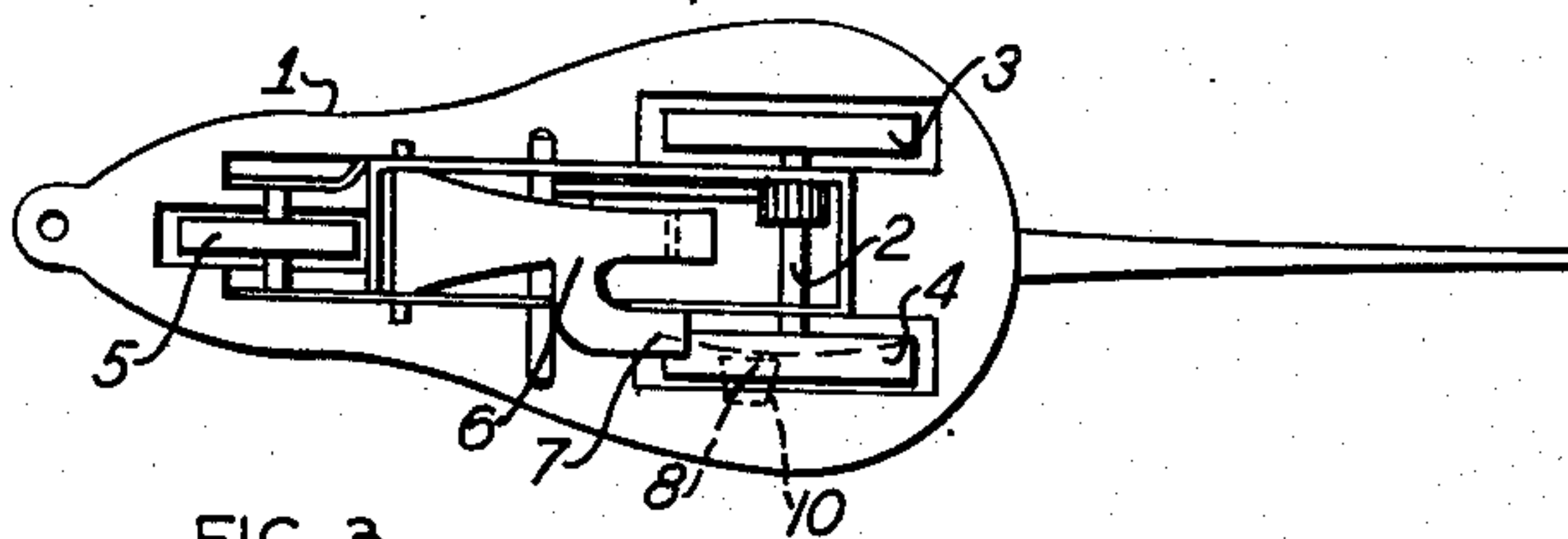


FIG. 3

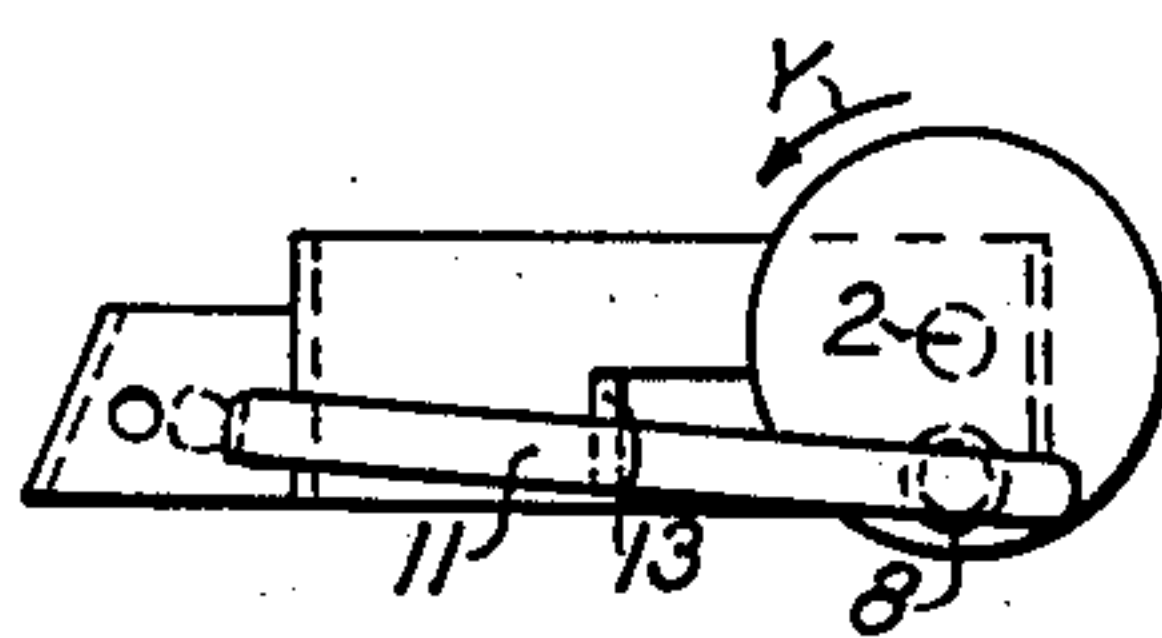


FIG. 5

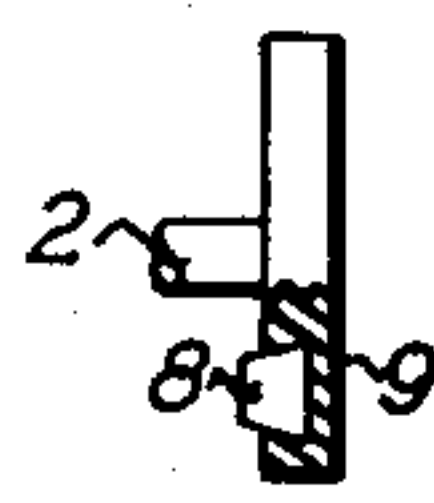


FIG. 6

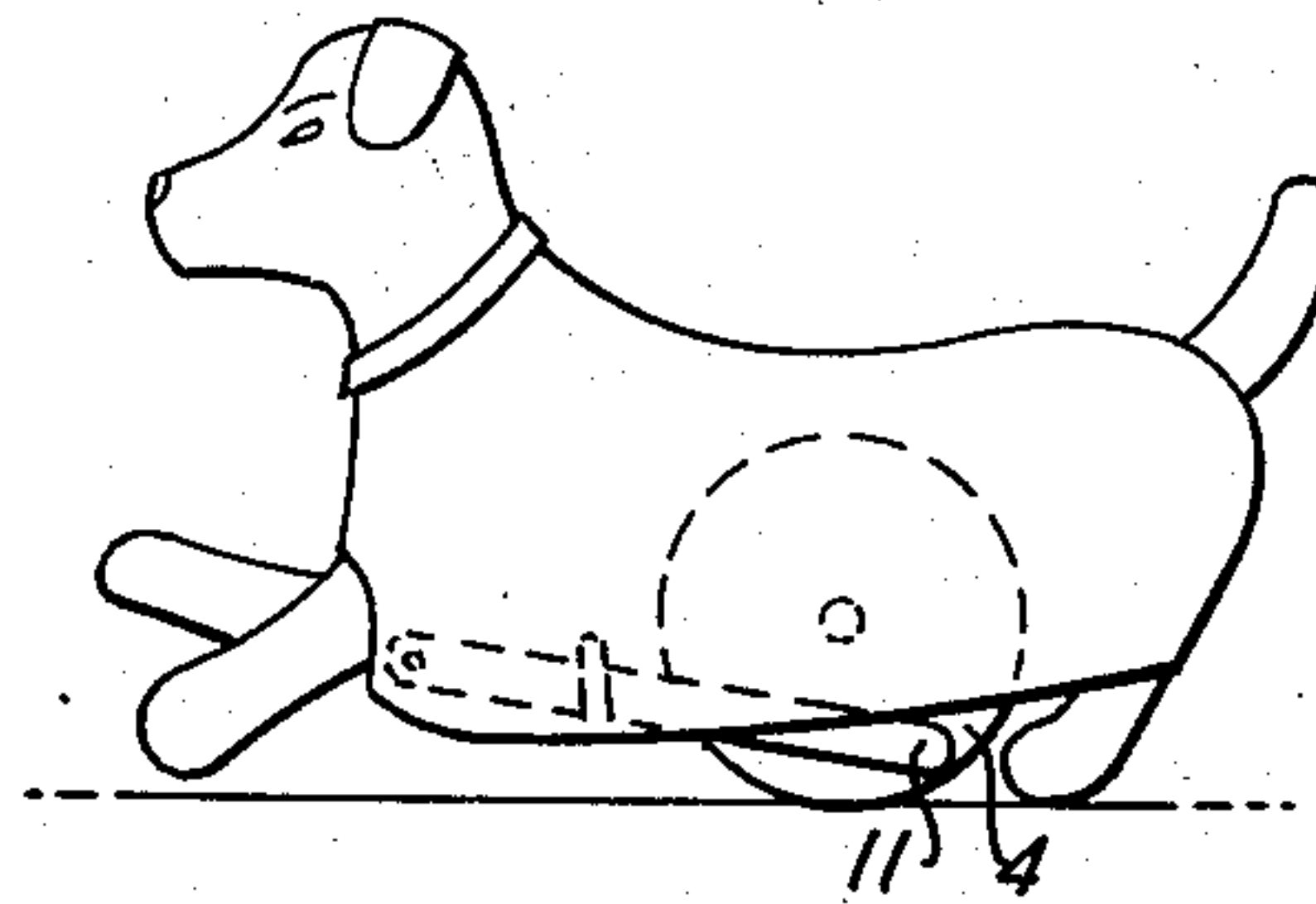


FIG. 7

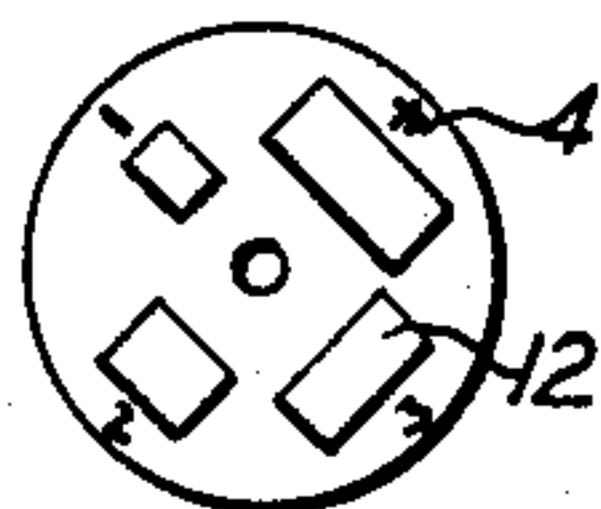


FIG. 9

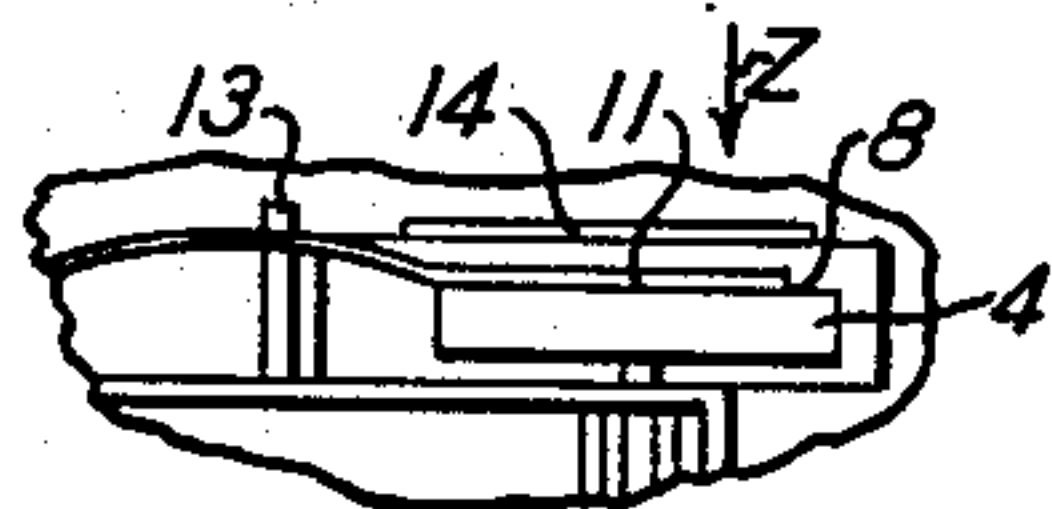


FIG. 13

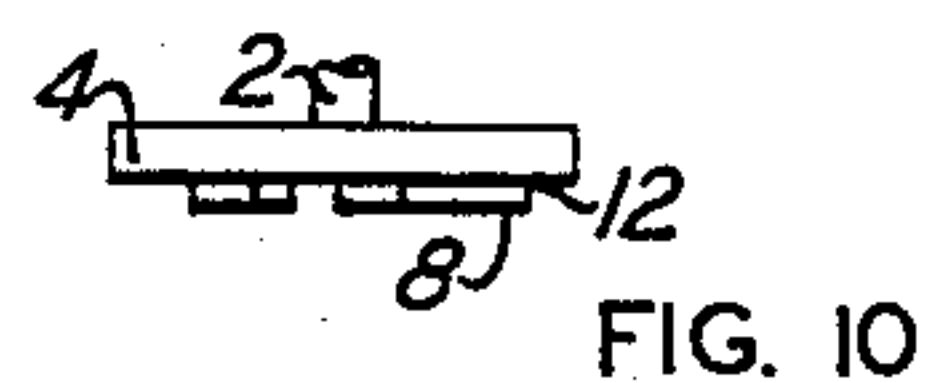


FIG. 10

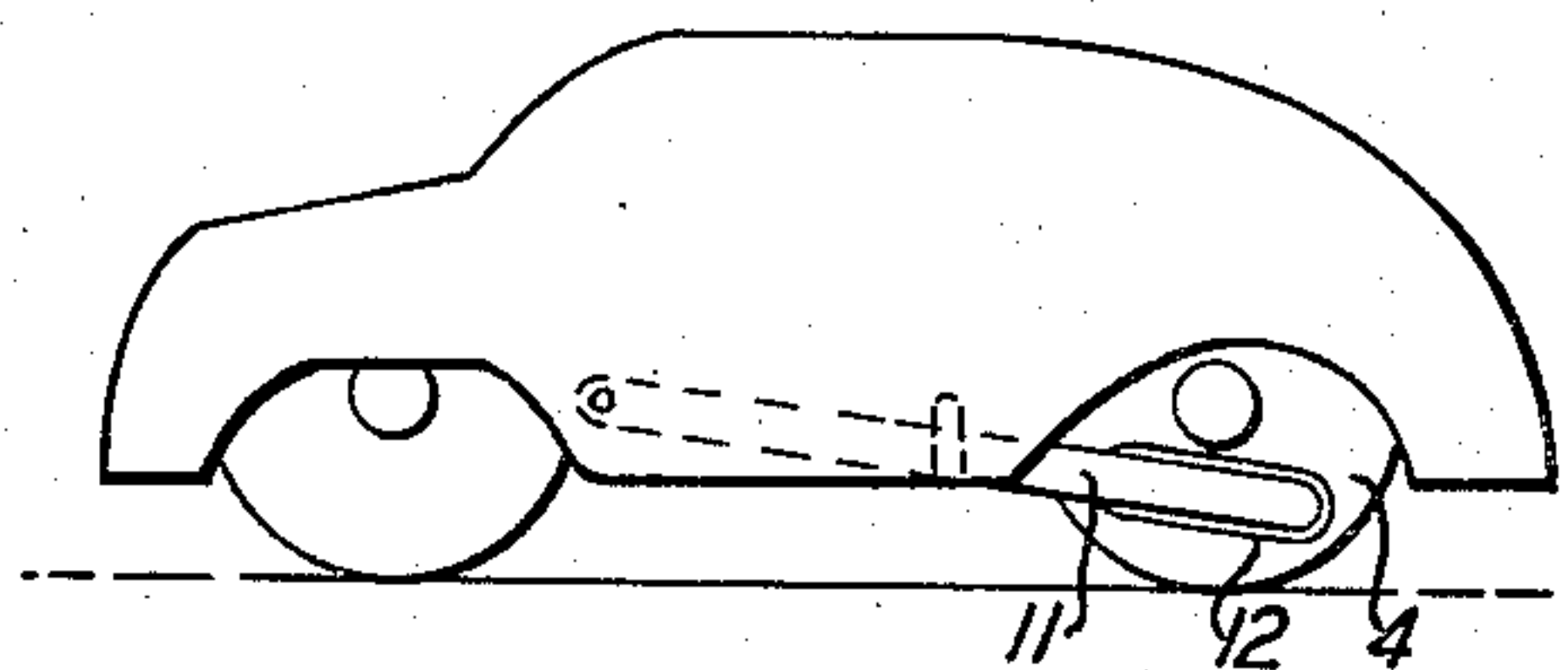


FIG. 8

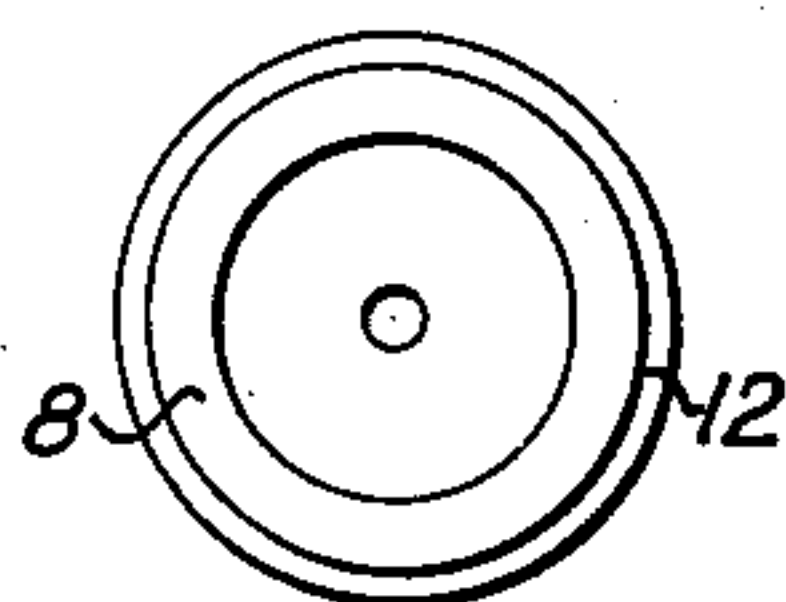


FIG. 11

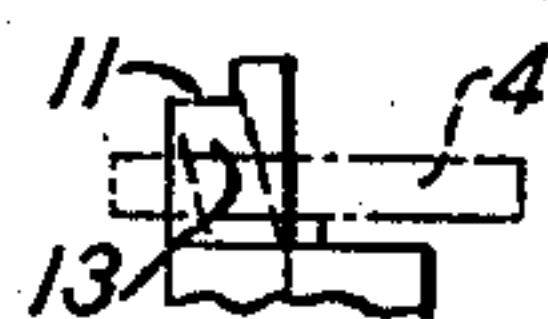


FIG. 14

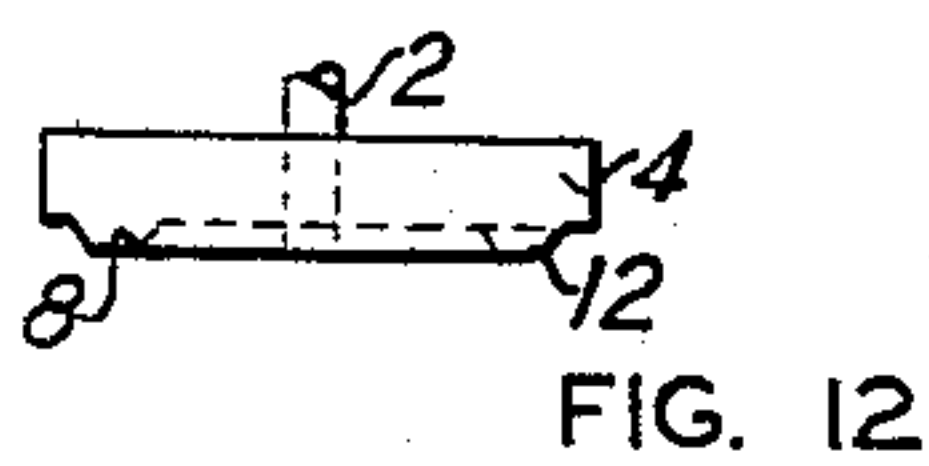


FIG. 12

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TOY VEHICLE

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5 Claims. (Cl. 46—208)

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This invention relates to a movable toy of the type having a spring motor, and simulating the shape of a mouse.

It is an object of the invention to provide a toy with an amusement effect by starting its motion after a certain time limit.

A further object of this invention resides in a toy having one or more sticky masses on a wheel or moving part cooperating with a member which will gradually separate from the mass to permit the toy to move after a time interval. An adhesive material of preferably a viscous substance is used which gradually detaches itself in aropy of stringy form under the influence of the resilient forces of the elastic adhesively sticking part and of the spring force of the motor of the toy.

A movable toy constructed according to the invention produces a most advantageous amusing effect. After winding up the spring motor the "mouse" can be placed under a piece of furniture or other object, with the result that as soon as the adhesive material has become detached, under action of the elastic or springy adhering part and of the wound-up spring of the motor, the drive is released and the "mouse" suddenly rushes forward from its hiding place.

If according to a preferred form of the invention, e. g. a pitchy adhesive material is applied to the side face of the running wheel, it will appropriately be introduced into an opening which is dove-tailed in cross section, thereby firmly sticking to the wheel so that it cannot become detached.

According to a further characteristic feature of the invention, means are provided which produce a predetermined duration of the adhesive effect, so that the start of the "mouse" toy can be effected at a time interval determined in advance. For this purpose several adhesive spots may be provided which have preferably adhesive faces of different size.

It is important that the stationary spring is parallelly spaced from the wheel, in order to insure that only the desired length of the adhesive surface is in contact. This can be obtained by the elevated adhesive spots, advantageously of different length, at the side face of the wheel, and/or by a soft pliable spring which is advantageously provided with adhesive and sticks to a side face of the running wheel which is also provided with an adhesive material.

Other and further objects, features and advantages of the invention will be pointed out hereinafter and appear in the appended claims forming part of the application.

In the accompanying drawings a number of preferred embodiments of the invention are shown by way of illustration and not by way of limitation, and in which:

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Fig. 1 is a side view of a toy mouse,

Fig. 2 is a cross section taken on line 2—2 of Fig. 1,

Fig. 3 is a top plan view with the casing removed,

Fig. 4 is a bottom view of a modified structure,

Fig. 5 is a side view of Fig. 4,

Fig. 6 is a partial section through a running wheel provided with adhesive material.

Fig. 7 is a side view of another embodiment in the shape of a dog,

Fig. 8 is a side view of a further embodiment in the shape of a car,

Fig. 9 is a side view of a running wheel provided with several adhesive sections,

Fig. 10 is a top view of the wheel of Fig. 9 with elevated adhesive spots,

Fig. 11 is a side view of a running wheel with an annular elevation for the adhesive material,

Fig. 12 is a top view of the wheel of Fig. 11,

Fig. 13 is a view similar to Fig. 4 showing the spring and,

Fig. 14 is a side view of the spacing stay for the spring.

Similar reference numerals denote similar parts in the different views.

Referring now to the drawing in greater detail, it will be seen that the toy mouse 1 is provided with a conventional spring mechanism driving the rear wheel axle 2 on which are mounted the running wheels 3 and 4. In the front the "mouse" is provided with another running wheel 5.

The "mouse" is appropriately provided with a drop lever 6, acting as a stop lever and contacting the floor during the movement of the toy. As the toy is lifted from the floor, e. g. when winding up the spring of the mechanism, the drop lever 6 falls, its side lug 7 abutting a rotary part, consisting as illustrated, of the running wheel 4, with the result that this part is prevented from rotating. By this means the mechanism is stopped as long as the toy is not on the floor. Consequently, the motor cannot run down as long as the toy is not in its running position.

In the embodiment according to Figs. 1-3, at least the running wheel 4 is a wheel with a solid rubber tire. The adhesive material 8 (e. g. shoe-maker's pitch) is placed into this wheel, according to Fig. 6, in such a way that it is introduced into a recess 9 of the running wheel which recess is of dove-tail cross section. The adhesive material protrudes a little beyond the side surface of the running wheel. The stationary adhesive counterpart is formed by a lug 10 of the casing which cooperates with the adhesive material on the running wheel. It will be understood that the wheel can also be provided with any other adhesive material.

After winding up the spring of the mechanism,

the running wheel 4 is somewhat pressed outward by manual means, in the direction of the arrow X, so that adhesive material 8 assumes a position for connection with the lug. If the toy is then placed on the floor, preferably under or behind a proper object, the adhesive material ultimately detaches itself from lug 10, first because the running wheel 4 tends to return into its original position; secondly, because the power of the spring motor tends to turn the running wheel 4. As soon as the adherence between the adhesive material 8 and the lug 10 ceases, the "mouse" begins its travel and rushes surprisingly out of its hiding place.

In the modification according to Figs. 4 and 5, there is provided as a stationary adhesive part a flat spring 11 which is spring urged in the direction parallel to the rotary wheel axle and may be kept in a tensioned position by means of the spacing stay 13, so that the spring, which is in a tensioned position, gradually loses its adherence to the wheel. The spring is arranged in such a way that, as indicated in Fig. 5, it extends in a rearwardly direction and adapted to contact the lower portion of the wheel. The flanged edge 14 cut out from the recessed bottom limits the outward motion of the spring.

In this case, after winding up the spring motor, the spring arm 11 is pressed against the wheel 4 in the direction of arrow Z, Fig. 4, in such a way that the desired adherence between the spring and the adhesive material 8 is produced.

By way of an alternative construction instead of being provided on the rotary part, the adhesive material may be provided on the stationary part, e. g. upon the lug 10 or upon the flat spring 11 or on both of these parts.

It is possible to provide a plurality of adhesive spots, especially of different size, advantageously marked by numerals, and being elevated and covered with adhesive material 8, e. g. portions 12 covered with adhesive, as shown in Figs. 9 and 10, so that the person in order to regulate the duration of the adherence, has his choice to use a smaller or larger adhesive portion. By this means the period of time elapsing until the start of the toy can be determined in advance due to a greater or less surface adherence. Nearly the same effect can be obtained by pressing the adhesive part of the spring against the cooperating adhesive surface on a longer or shorter length of the side of the wheel or only an elevated longitudinal adhesive surface is provided with adhesive material. In the embodiments according to Figs. 4-13, this is possible, for instance, by pressing only the end part of the flat spring 11 against the adhesive material in such a way that only part of this material adheres to the spring.

The possibility of regulating the duration of the adherence in advance results in the advantage that the surprising effect is forthcoming in the desired moment. It is, moreover, possible to run races and the like with the toy.

It will be understood that the invention is not restricted to a toy in the form of a mouse. It may also be applied to other running toys or toy vehicle. Thus e. g. an autocar, a motorcycle, a dog or a horse may be kept at the "starting place" in order to begin rushing forward at the starting call after a predetermined lapse of time. In case of a toy in the form of a dog, the impression can be produced as if the dog is placed in motion after the detachment of the adhesive material, simultaneously by the call of his master.

As the adhesive mass gradually deforms itself in stringy or ropy form due to the power of the spring motor, one can notice in advance when the toy will start. From this fact a lot of playing possibilities result, especially for skillful observers. Consequently, this fact can be made use of for special playing purposes.

While the invention has been described in detail with respect to certain now preferred examples and embodiments of the invention it will be understood by those skilled in the art after understanding the invention, that various changes and modifications may be made without departing from the spirit and scope of the invention, and it is intended, therefore, to cover all such changes and modifications in the appended claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A wheeled toy comprising a spring motor, driving mechanism, one of the supporting wheels, being operatively connected with the driving mechanism, a stationary part fixed to the frame of the toy, and a sticky, adhesive section on the side of the wheel to cooperate and contact the stationary part by adhesion to prevent the driving mechanism from moving the toy until after a time interval which the said section separates from its stationary part due to loss of adhesion by the sticky section on the stationary part to thereafter permit the driving motor to drive the toy.

2. A wheeled toy according to claim 1, in which the stationary part is in the form of a spring which gradually detaches itself under action of the spring force.

3. A wheeled toy according to claim 1, in which the movable wheel is composed of solid rubber and the stationary part is a spring arm adapted to contact the movable wheel and resiliently urged in a direction away from the adhesive section on the rubber wheel.

4. A wheeled toy according to claim 1, in which the movable wheel is composed of solid rubber and the stationary part is a spring arm adapted to contact the movable wheel and resiliently urged in a direction away from the adhesive action on the rubber wheel, and in which the adhesive section is embedded in a recess in the rubber wheel which is approximately dove-tailed in cross section.

5. A wheeled toy according to claim 1, in which the movable running wheel is composed of solid rubber and the stationary part is a spring arm adapted to contact the movable wheel and resiliently urged in a direction away from the adhesive section on the rubber wheel, and in which the adhesive section is composed of a plurality of adhesive portions embedded in a plurality of recesses provided in spaced relation in one side of the rubber wheel, the adhesive portions being of different sizes to provide a selective duration of time of adherence of the said portion to the spring arm.

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