A. HUCK.

ELECTRIC TOY.

APPLICATION FILED MAR. 29, 1910.

983,717.

Patented Feb. 7, 1911.

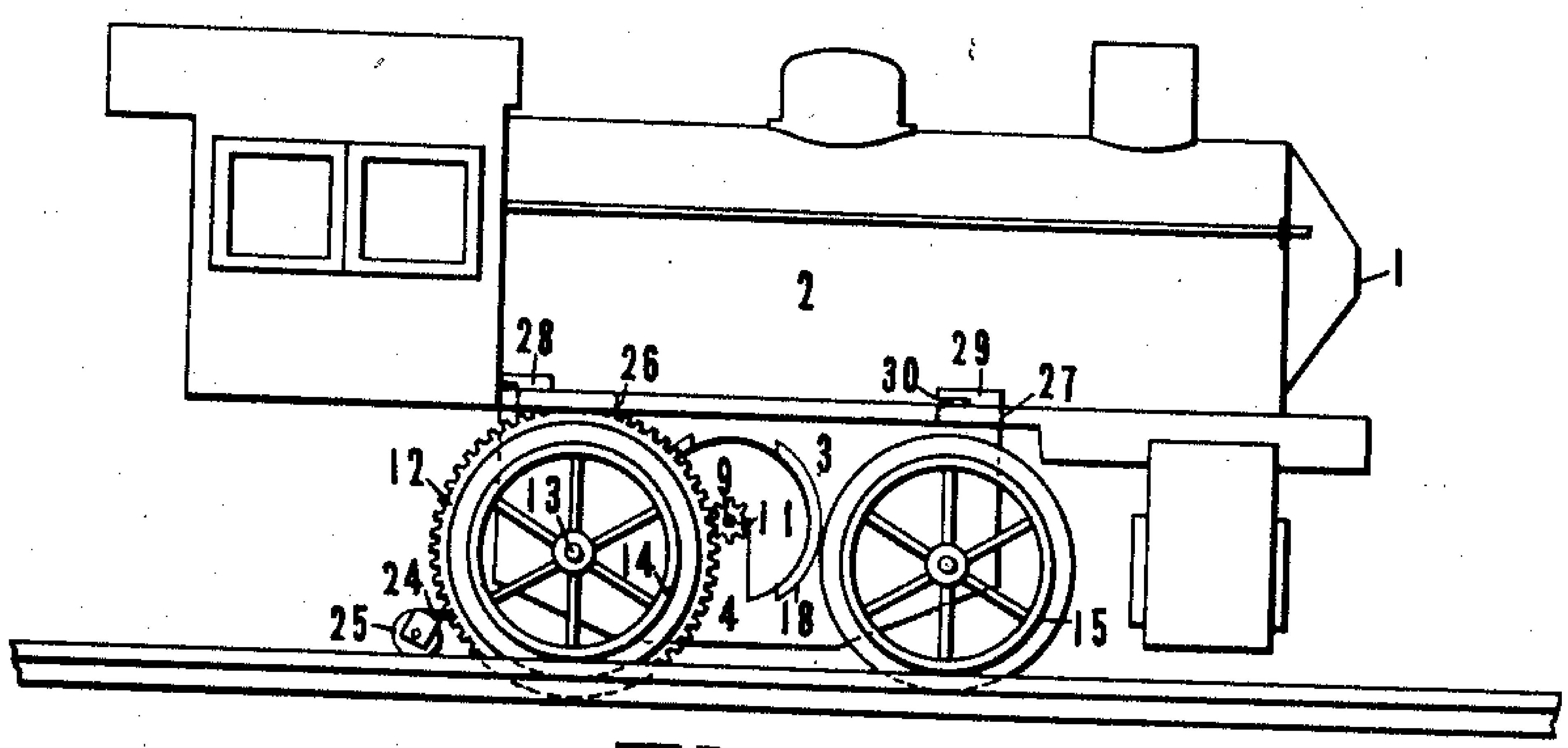

Fig-1-

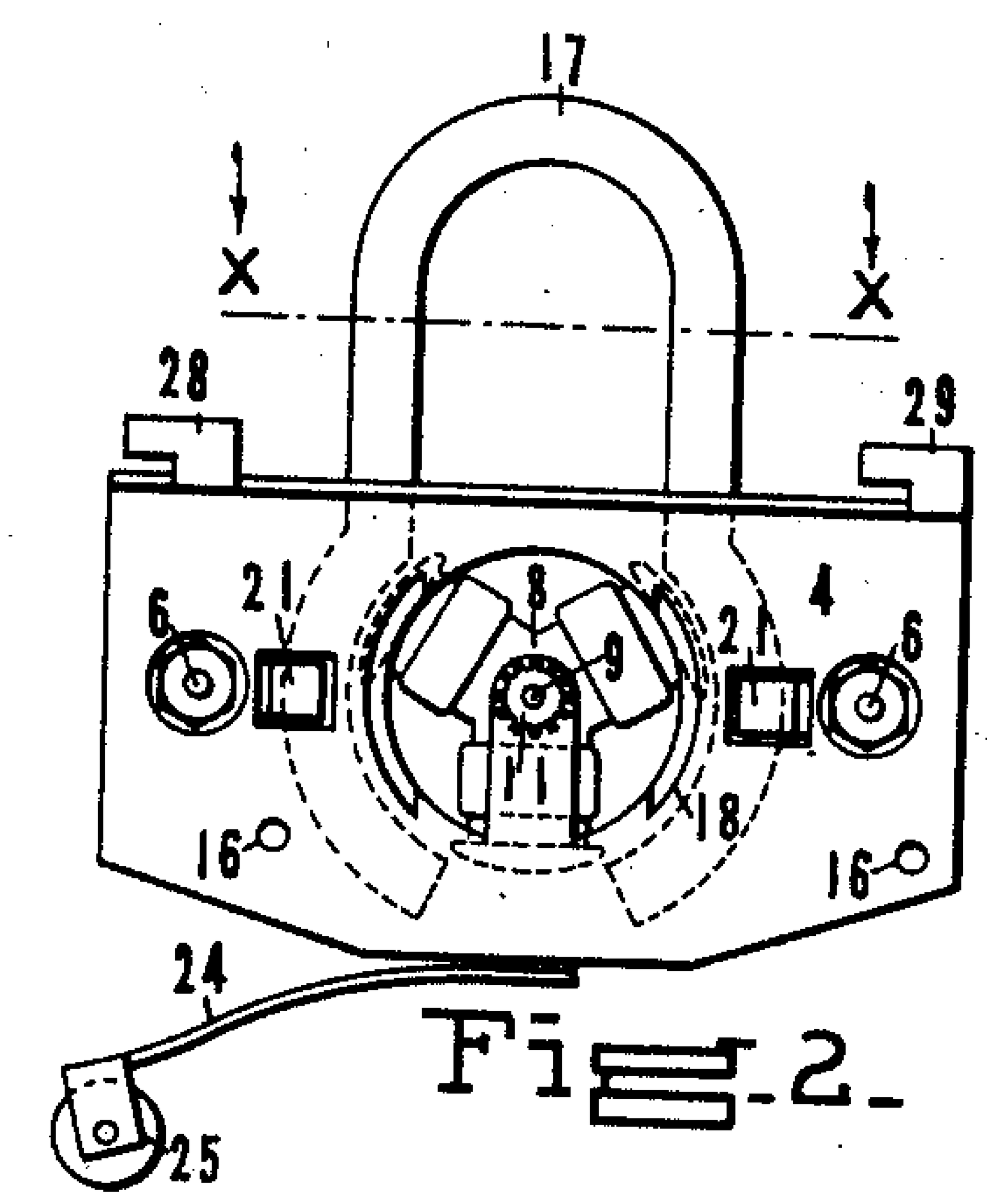

Fig-2-

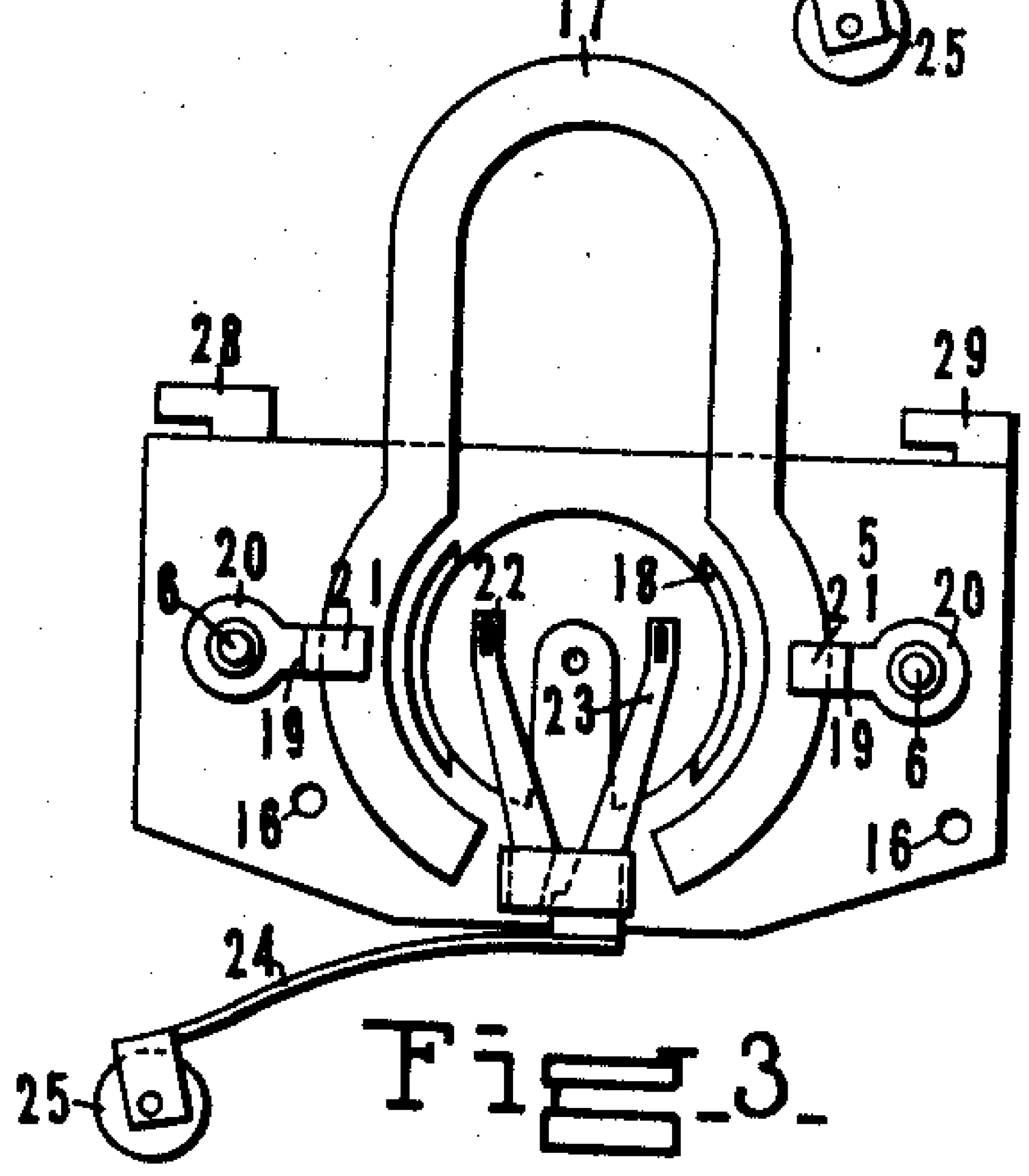

Fig-3-

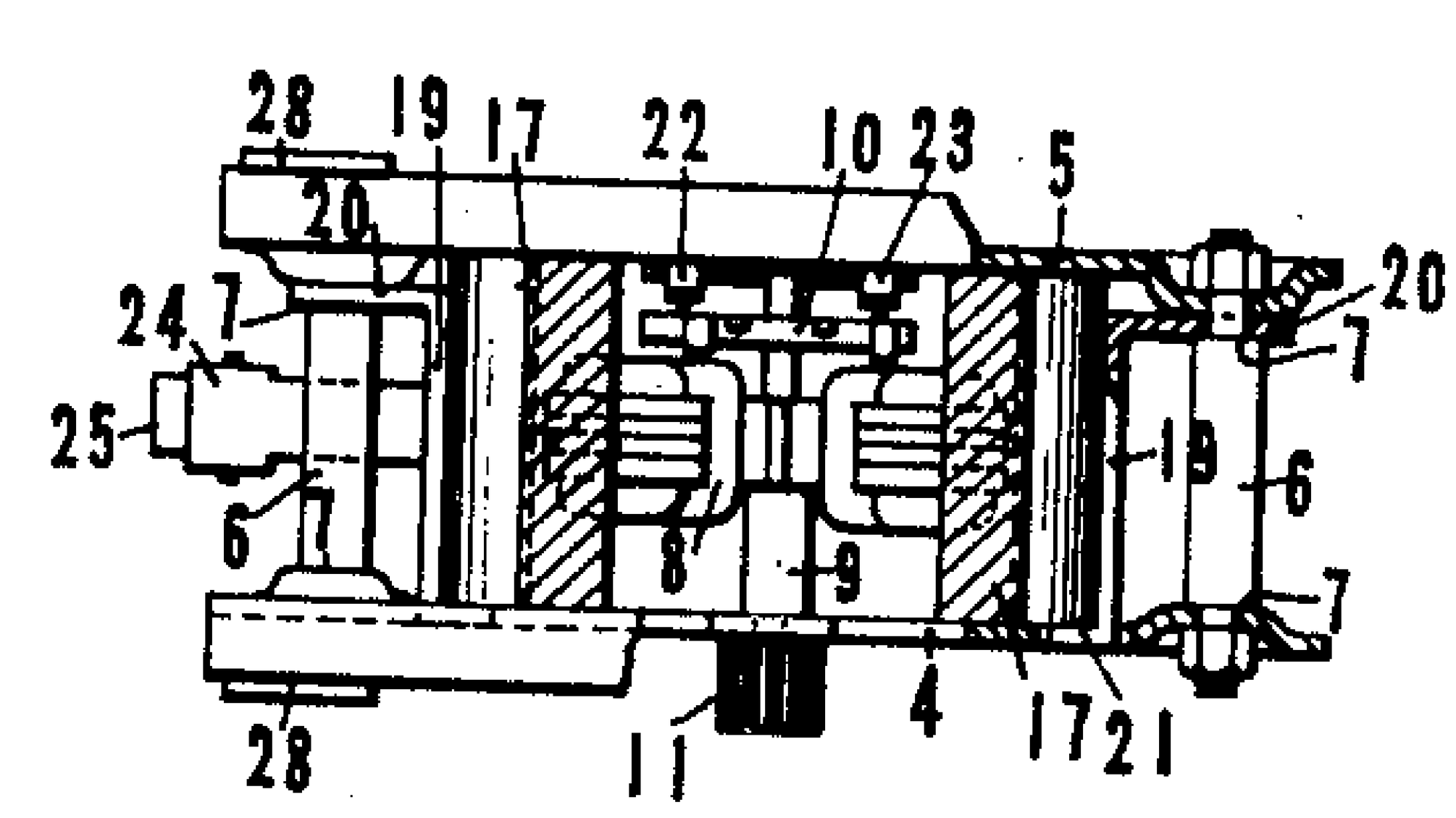

Fig-4-

WITNESSES:

INVENTOR

Albert Huck

BY

ATTORNEYS

UNITED STATES PATENT OFFICE.

ALBERT HUCK, OF NUREMBERG, GERMANY, ASSIGNOR TO KARL BUB, OF NUREMBERG, BAVARIA, GERMANY.

ELECTRIC TOY.

983,717. Specification of Letters Patent. Patented Feb. 7, 1911.

Application filed March 29, 1910. Serial No. 552,183.

To all whom it may concern:

Be it known that I, ALBERT HUCK, a subject of Bavaria, residing at Nuremberg, Kingdom of Bavaria, Germany, have invented certain new and useful Improvements in Electric Toys, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to electric toys, and with regard to the more specific features thereof, to the construction of the motor and truck thereof. One of the objects thereof is to provide a simple and compact arrangement of motor parts adapted to be easily and economically made and assembled. Another object thereof is to provide a practical device of this character wherein the parts constituting the driving mechanism are self-contained and easily detachable from the body of said device.

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

The invention accordingly consists in the features of construction, combinations of elements 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 various possible embodiments of this invention,—Figure 1 is a side elevation of an electric toy with its driving mechanism attached; Fig. 2 is a side elevation of the motor and frame therefor; Fig. 3 is a similar view with the front plate and armature removed; Fig. 4 is a combined plan and sectional view of the motor parts upon the line X—X of Fig. 2, portions of the plate flanges being broken away.

Similar reference characters refer to similar parts throughout the different views of the drawings.

In order that certain features of this invention may be more readily understood, it may here be noted that if it be attempted to place the field magnet of the motor between two plates and to hold it in the desired position merely by the pressure of said plates thereon, it will be found difficult to assemble the parts in their proper relation to one another, and when assembled the parts will be easily displaced, causing great inconvenience. In the present device these difficulties are overcome by securing the magnet to only one of the side plates of the motor frame, and accomplishing this by means of clamping members, made preferably of sheet metal. In this way the various motor parts can be readily assembled, after which the other side plate may be put in place and bolted to the first plate.

Now referring to the drawings, 1 denotes an electric toy having a body portion 2 and a detachably connected driving mechanism 3. The latter comprises two side plates 4 and 5 secured together by means of bolts 6 having shoulders 7 formed thereon for properly spacing said plates. A motor armature 8 of any desired type, the preferred form being ring wound upon a plurality of radial projections of the core, is provided with a shaft 9 journaled upon the said side plates, the armature being located therebetween. Said shaft is provided with a commutator 10 and a pinion 11, the latter being arranged to mesh with a gear 12 secured upon the axle 13 of the rear driving wheels 14, which with the forward wheels 15 are journaled in the apertures 16 provided for that purpose in the said plates. A permanent magnet 17 extends downwardly between said plates and is formed to have its pole pieces concentrically arranged with reference to said armature. The side plates are pressed in as at 18 to provide surfaces which facilitate the centering of said magnet in the position described. The magnet is preferably secured in place by means of clamping members 19 which are fastened to one plate only of the motor frame. In the present embodiment two of these members are shown having an angular form, being bent at one end in one direction to provide a flange 20 through which the bolts 6 extend, and at the other end they are bent in the opposite direction to provide means 21 adapted to take over the magnet and to hold the same securely against plate 5. The brushes 22 and 23 for the motor are both carried by the same plate 5 to which the magnet is secured, the brush 23 being insulated therefrom and connected to a flexible member 24 provided at its outer end with a roller 25 adapted to engage the contact rail when the locomotive is placed in operative position upon a suitable track. The electrical connection to the brush 22 is accomplished through the side plates 4 and

5 and wheels 14 and 15 to the traction rails. The lower flange of the body 2 is provided with slots 26 and 27 adapted to receive angular lugs 28 and 29 formed upon said side plates. To connect the driving mechanism to the body, the rear set of lugs 28 is allowed to pass up through the slots 26 and the mechanism as a whole is moved rearwardly, at the same time allowing the forward lugs 29 to pass upwardly through the slots 27. When in this position, the rear portion of the mechanism is held securely in place by reason of the contact between the projecting portion of the lugs 28 and the said body flange, and the forward portion is prevented from dropping down by passing a strip 30 of some thin metal under the projecting portion of lugs 29, between the same and the said flange.

It will, therefore, be seen that this invention is one well adapted to attain all of the ends and objects hereinbefore set forth in an exceedingly simple and practical manner, and that from a structural point of view the parts can be quickly and economically made and readily assembled.

As many changes could be made in the above construction and many apparently widely different embodiments of this 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.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

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

1. In an electric toy provided with a motor, in combination, a pair of plates spaced apart, an armature journaled therebetween, a field magnet, and means adapted to secure said magnet to one of said plates, said plate having a portion thereof surrounding the armature journal formed to assist in holding said magnet in concentric relation to said armature.

2. In an electric toy provided with a motor, in combination, a pair of plates, means adapted to hold said plates in spaced relation to one another, a field magnet, and means adapted to be secured to one of said plates by said spacing means and to rigidly support said magnet.

3. In an electric toy provided with a motor, in combination, a pair of plates rigidly spaced apart, an armature journaled therebetween, a pair of brushes carried by one of said plates, one of said brushes being insulated therefrom, a permanent field magnet, and means adapted to clamp said magnet to said brush supporting plate.

4. In an electric toy provided with a motor, in combination, a pair of plates, means adapted to hold said plates in spaced relation to one another, an armature journaled upon said plates, a current taking device, a pair of brushes secured to one of said plates, one of said brushes being in electrical contact therewith and the other of said brushes being insulated therefrom and having connection with said current-taking device, a field magnet, and means adapted to clamp said magnet to said brush supporting plate.

5. In an electric toy provided with a motor, in combination, a pair of plates, means adapted to hold said plates in spaced relation to one another, an armature journaled upon said plates, a pair of brushes secured to one of said plates, one of said brushes being in electrical contact therewith and the other of said brushes being insulated therefrom and having connection with a current-taking device, a field magnet, and means adapted to clamp said magnet to said brush supporting plate, said plates having portions formed thereon to assist in holding said magnet in operative relation to said armature.

6. In combination with the body of an electric toy, a pair of plates spaced apart, angular lugs formed upon said plates for detachably securing same to said body, and a field magnet disposed between and supported by one of said plates.

7. In combination with the body of an electric toy, a pair of plates having portions formed thereon adapted to detachably secure said plates to said body, means adapted to hold said plates in spaced relation to one another, a field magnet, and means adapted to be secured to one of said plates by said spacing means and to rigidly support said magnet.

8. In combination with the body of an electric toy, a pair of plates having portions formed thereon adapted to detachably secure said plates to said body, means adapted to hold said plates in spaced relation to one another, an armature journaled upon said plates, a pair of brushes secured to one of said plates, one of said brushes being in electrical contact therewith, the other of said brushes being insulated therefrom and having connections with a current-taking device, a field magnet, and means adapted to clamp said magnet to said brush supporting plate.

9. In combination with the body of an electric toy, a pair of plates having portions formed thereon adapted to detachably secure said plates to said body, means adapted to hold said plates in spaced relation to one an-

other, an armature journaled upon said plates, a pair of brushes secured to one of said plates, one of said brushes being in electrical contact therewith, the other of said brushes being insulated therefrom and having connection with a current-taking device, a field magnet, and means adapted to clamp said magnet to said brush supporting plate, said plates having portions formed thereon to assist in holding said magnet in operative relation to said armature.

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

ALBERT HUCK.

Witnesses:
GEORG KÖRNER,
HANS RÖSCH.