

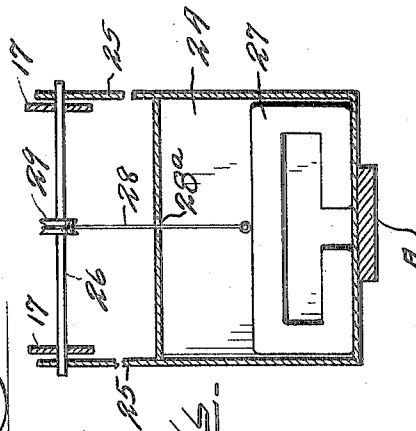
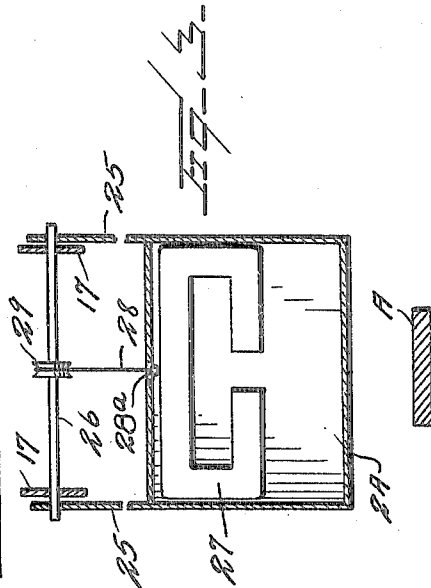
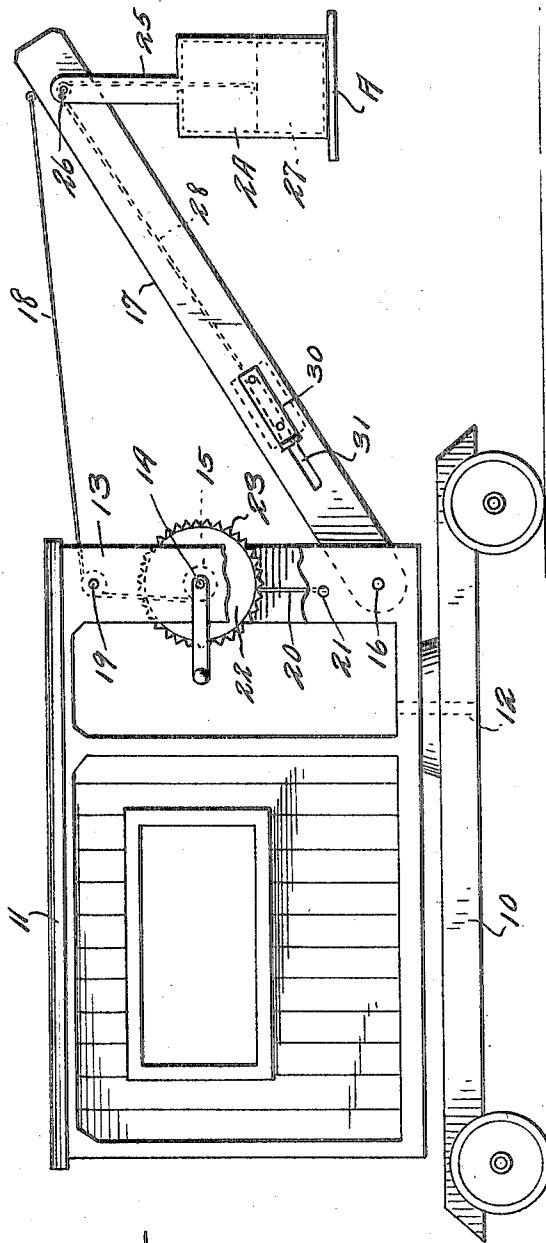
Sept. 25, 1928.

1,685,707

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TOY MAGNETIC CRANE

Filed Sept. 15, 1927



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TOY MAGNETIC CRANE.

Application filed September 15, 1927. Serial No. 219,723.

This invention relates to mechanical toys, and particularly to a toy simulating a crane.

The general object of the present invention is to provide a toy of this character which is very simple, which may be cheaply made, and which is provided with a permanent magnet whereby steel articles may be lifted by the crane.

A further object is to provide means whereby the magnet may be readily detached from the article at any point so as to permit the article to be deposited at the place desired.

My invention is illustrated in the accompanying drawing, wherein:—

Figure 1 is a side elevation of a toy crane constructed in accordance with my invention;

Figure 2 is a vertical sectional view through the magnet holder or casing, showing the magnet in elevation;

Figure 3 is a like view to Figure 2 but showing the magnet raised.

Referring to this drawing, 10 designates a base of any suitable character which may be mounted upon wheels or otherwise as desired. Swingingly mounted upon this base for rotation in a horizontal plane is the supporting frame, designated generally 11, which is made of metal and may simulate the engine housing, cab, etc., of a swinging crane. This frame is mounted for swinging movement upon the pivot pin 12 and the frame is shown as formed at one end with the vertical braces 13. Extending through these braces is the axle 14 of the winding drum 15.

Pivotally mounted at 16 upon the lower ends of these braces 13 is the crane arm 17, preferably formed of two longitudinally extending members connected to each other in any suitable manner, or this crane arm may be formed of one member. The crane arm at its outer end is connected to a cable 18 which passes over a pin or pulley 19 and down around the winding drum 15. A latch 20 is attached at 21 upon the frame and extends upward toward the drum. One flange 22 of the drum 15 may be provided with the teeth 23 with which this latch is adapted to engage so as to hold the drum from rotation. Any suitable means for this purpose may be used but the latching means which I have shown is simple, cheap and cannot readily get out of order.

Pivotally connected to the outer end of the crane arm 17 is a housing 24, preferably of aluminum. This case is rectangular in plan view and is provided with the upwardly ex-

tending ears 25 which are pivoted upon a pivot pin 26 to the members constituting the arm 17. Disposed within this housing and vertically shiftable therein is a permanent magnet 27, preferably in the form of a horse-shoe magnet, and this magnet is attached to a cable 28 which passes through an opening 28^a in the wall of the housing and extends over a pulley 29 mounted upon the pivot pin 26 to a slide 30 mounted within a guide 31. The guide and slide are provided with coacting detents so as to hold the slide in any desired position. When the slide is shifted rearward, it elevates the magnet 27 within the housing 24, and when it is shifted forward, it lowers the magnet to the bottom of the housing.

A steel bar, which is designated A, is illustrated as the article which is designed to be picked up by the magnet. When the magnet is seated or is lowered within the housing and the housing brought in contact with the steel bar or any other metallic article, the magnet will attract the bar, then by turning the handle of the winding drum the crane arm may be raised, thus raising the housing and the article as, for instance, the steel bar, which is held by attraction to the magnet. The crane may be then shifted to any desired position and the crane arm lowered to deposit the article. If it be desired to drop the steel bar or deposit it, the magnet is raised by pulling back upon the slide 30 and the distance between the magnet and the steel bar is increased until the pull exerted by the magnet becomes so weak that the bar drops. As soon as the slide 30 is released, the weight of the magnet will cause it to re-seat or drop downward within the housing 24 against the bottom wall thereof. Although the housing has been designated as preferably constructed of aluminum, it is, of course, understood that any suitable non-magnetic material may be employed. By providing the bottom wall, the use of the crane for picking up articles of smaller size than the case which otherwise would be drawn into the housing by the magnet is permitted.

While I have shown the principle of my invention in the accompanying drawing, it will be obvious that it may be embodied in many different forms without departing from the spirit of the invention as defined in the appended claims.

I claim:—

1. A magnetic crane of the character described including a crane arm mounted for

shifting movement, a magnet housing of non-magnetizable material carried by the extremity of the crane arm, a magnet disposed within the housing, and means for raising or
 5 lowering the magnet within the housing to thereby shift the magnet toward or from the lower edge of the housing.

2. A toy magnetic crane including a crane arm, a housing of non-magnetizable material
 10 pivoted to the free end of the arm, a permanent magnet disposed within the housing and vertically movable from the lower end of the housing to the upper end thereof, and means mounted upon the crane arm where by the
 15 magnet may be raised or lowered.

3. A toy magnetic crane comprising a base, a housing mounted upon the base, a crane arm pivoted upon the housing, a winding drum, a connection between the winding drum and
 20 the outer end of the crane arm whereby the crane arm may be raised or lowered, a housing of non-magnetizable material pivotally mounted upon the forward end of the crane arm, a permanent magnet mounted within the
 25 housing, and means whereby the permanent magnet may be lifted within the housing or lowered.

4. A toy magnetic crane comprising a base, a house mounted upon the base, a crane arm
 30 pivoted upon the house, a winding drum, a connection between the winding drum and the outer end of the crane arm whereby the crane arm may be raised or lowered, a magnet housing pivotally mounted upon the forward
 35 end of the crane arm, a permanent magnet mounted within the housing, means whereby the permanent magnet may be lifted within the housing or lowered including a cable attached to the magnet and extending upward
 40 through the top of the housing and then down along the crane arm, and a slide connected to said cable.

5. A toy magnetic crane including a base, a house pivotally mounted upon the base for
 45 movement in a horizontal plane, a crane arm pivotally mounted upon the forward end of the house for vertical movement, a drum operatively mounted upon the house and connected by a cable to the crane arm, means for
 50 rotating the drum and for holding it in any

rotated position, a magnet housing pivotally connected to the forward end of the crane arm, a permanent magnet mounted within the housing, a flexible element to which the permanent magnet is attached and by which the
 55 magnet may be lifted or lowered within the housing, said flexible element extending upward through the top of the housing and into the crane arm, a pulley over which the element passes, and a member mounted upon the
 60 crane arm and to which said flexible element is connected and by which the flexible element may be retracted to lift the magnet.

6. In a magnetic toy, a non-magnetic magnet housing, a support therefor permitting
 65 the housing to be raised and lowered, a magnet within the housing and means operable to raise and lower the magnet within the housing to thereby reduce or increase the distance between the lower end of the housing and the
 70 magnet to thus permit the magnet to transmit magnetism through the lower end of the housing and thus magnetize an object to be lifted, or by increasing said distance cause the detachment of the object from the magnet.

7. In a magnetic toy, a non-magnetic housing, a support therefor permitting the housing
 75 to be raised and lowered, a magnet within the housing and means operable to raise and lower the magnet within the housing in any position of the housing, whereby when the magnet is lowered to cause it to exert attraction through the lower end of the housing to
 80 thus magnetize articles and support them and when the magnet is raised with relation to the bottom of the housing to release said articles.

8. In a magnetic toy, a non-magnetic housing having a bottom, a support therefor permitting the housing to be raised and lowered, a
 85 magnet within the housing and movable relative thereto toward or from the bottom of the housing, and means operable from the exterior of the housing to raise or lower the magnet within the housing to thereby, when the magnet is lowered, exert attraction through
 90 the bottom of the housing to an article to be raised and, when the magnet is raised, cause the release of said object from the magnet.

In testimony whereof I affix my signature.

EDWARD J. KEEDY.