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COUPLER FOR TOY RAILROAD VEHICLES

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Fig. 1.

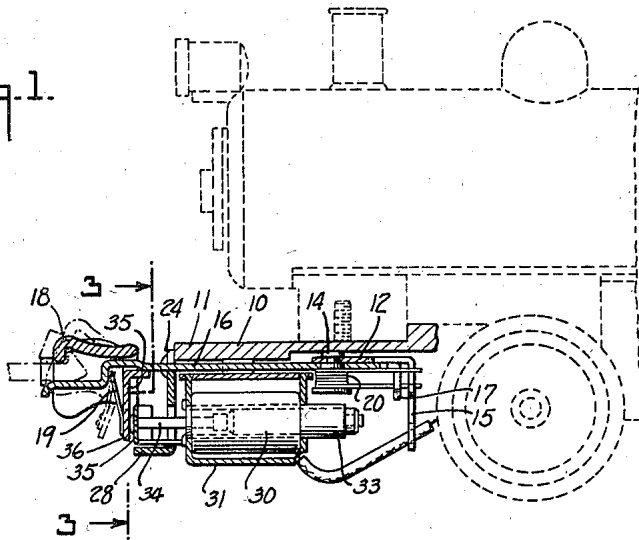


Fig. 2.

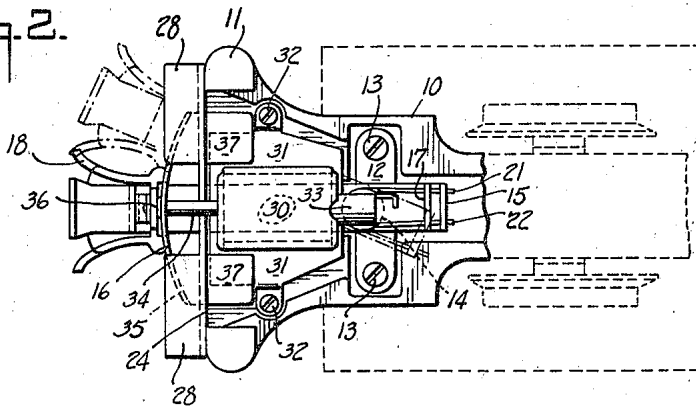
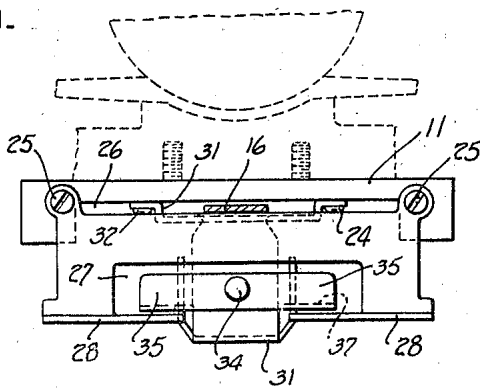


Fig. 3.



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COUPLER FOR TOY RAILROAD VEHICLES

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5 Claims. (Cl. 213—212)

The invention relates to couplers for toy rail-
road vehicles and is more particularly directed
toward an electro-magnetically operated coupler
for use on toy switch engines.

The present invention contemplates a coupler
adapted to be mounted on a toy switch engine to
be controlled remotely so that the toy locomotive
can be used for switching toy cars about on a
toy track layout.

The accompanying drawing shows, for pur-
poses of illustrating the present invention, one of
the many embodiments in which the invention
may take form, it being understood that the
drawing is illustrative of the invention rather
than limiting the same.

In the drawing:

Figure 1 is a vertical sectional view through a
fragment of a toy locomotive and through a
coupler;

Figure 2 is an inverted plan view of the front
end of the locomotive and the coupler; and

Figure 3 is a section on the line 3—3 of Fig-
ure 1, taken in the direction of the arrows.

A toy locomotive 10 has a chassis casting, the
front end of which is indicated at 11. A coupler
supporting bracket 12 is secured to the chassis
by screws indicated at 13. The bracket carries
a pivot post 14 and has a depending arm 15.
The post 14 carries a swingable coupler bar 16,
having a short extension 17 adjacent the de-
pending arm 15. The front end of the coupler
bar 16 is provided with a movable coupler head
18. While this coupler head normally lowers by
gravity, it is preferably provided with a spring
19 which urges it downwardly in a more posi-
tive fashion than where mere gravity is relied
upon. The coupler bar when used on a switching
engine is not provided with the usual coupler
hook, as it is desirable to be able to release the
car from the engine by the lifting of one coupler
head only.

The bar 16 is biased to an intermediate or mid-
position by coiled spring 20 mounted on post 14
and having ends 21 and 22, which pass by ex-
tension 17 in the bar 16 and the fixed depending
arm 15. When the bar 16 is shifted out of mid-
position, as indicated in dotted lines in Figure 2,
the lower end 22 of the spring is carried with it.
This tensions the spring and when the force
which shifted the coupler bar is removed, the
tensioned spring returns the coupler bar to the
mid-position.

The front end of the locomotive carries a cross
plate 24 secured in place by screws 25. This
plate provides a slot 26 through which the coupler

bar 16 may swing. It is cut out, as indicated at
27, and provided with forwardly extending flanges
28, 28 for purposes to be described.

A solenoid coil 30 is secured to a frame member
31, this frame member being secured to the chassis
of the locomotive by screws indicated at 32. The
frame member is shaped, as will be clear from
Figure 3, to provide space for the coupler bar 16
to swing back and forth above the frame. The
solenoid coil 30 attracts an armature 33 and
pushes a plunger 34 to the left, as shown in the
drawing, thereby actuating an arc-shaped ele-
ment 35 to bring it against the extension 36 of
the coupler head 18. It will be obvious that this
arc-shaped coupler head lifter 35 may engage the
extension 36 in any position in which it may be
by reason of the shifting of the coupler bar out
of mid-position.

The coupler head lifter 35 may be made of sheet
metal and passes through the opening 27. It has
two rearwardly extending plates 37, 37 which over-
lie the flanges 28, 28 of the cross plate 24 and
pass back alongside the coil supporting frame.

It is obvious that the invention may be em-
bodied in many forms and constructions within
the scope of the claims and I wish it to be under-
stood that the particular form shown is but one of
the many forms. Various modifications and
changes being possible, I do not otherwise limit
myself in any way with respect thereto.

What is claimed is:

1. A toy railroad vehicle having a fixed hori-
zontal solenoid coil, a coupler bar pivoted for
movement about a vertical axis and spring biased
to a mid-position over the coil axis, a coupler head
movably mounted on the coupler bar, and a re-
ciprocable armature having a curved face engage-
able with the movable coupler head to actuate the
latter irrespective of the angular position of the
bar.

2. A toy railroad vehicle having a fixed hori-
zontal solenoid coil, a coupler bar pivoted about
a vertical axis and spring biased toward a mid-
position over the coil axis, a movable coupler head
carried by the bar, and an armature operable by
the coil and engageable with the coupler head
irrespective of the angular position of the bar.

3. A toy railroad vehicle having a body, a fixed
pivot post carried by and spaced from the end of
the body, a coupler bar carried by the pivot and
extending beyond the end of the body, spring
means biasing the bar to mid-position, a movable
coupler head carried by the bar, a plate fixed to
the end of the body and supporting the free end
of the bar, a longitudinally extending solenoid coil

carried by the body below the bar when in mid-position, a core in the coil, and a coupler head shifter carried by the core and extending laterally in each direction to be opposite the coupler head in all positions of the coupler bar.

4. A toy railroad vehicle having a body, a fixed pivot post spaced from the end of the body, a coupler bar carried by the pivot and extending beyond the end of the body, spring means biasing the bar to mid-position, a movable coupler head carried by the bar, a strap carried by the body and above which the bar passes, a solenoid coil carried by the strap below the mid-position of the bar, a core in the coil, and a coupler head shifter carried by the core and extending laterally in each direction to be opposite the coupler head in all positions of the coupler bar.

5. A toy locomotive having a cast body, an end plate secured to the body and having horizontal, spaced apart end portions below the body, a coupler bar pivoted to the body and extending forwardly between the bottom of the body and the top of the end plate, a movable coupler head carried by the bar and having a downwardly extending element, a solenoid coil secured to the body to be below the bar, a core in the coil, and a coupler head lifter carried by the core and extending laterally in each direction to be opposite the downwardly extending element in all positions of the coupler bar, the coupler head lifter having guides which overlie the spaced end portions of the end plate.

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