

Feb. 12, 1963

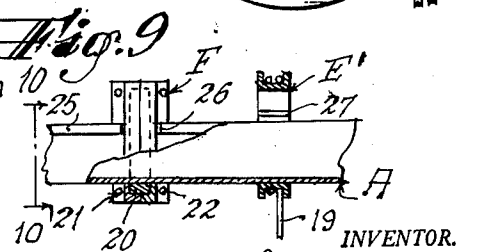
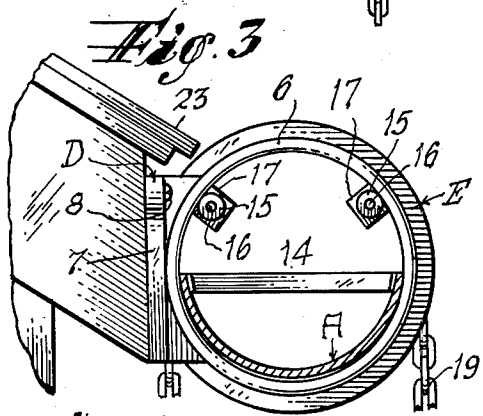
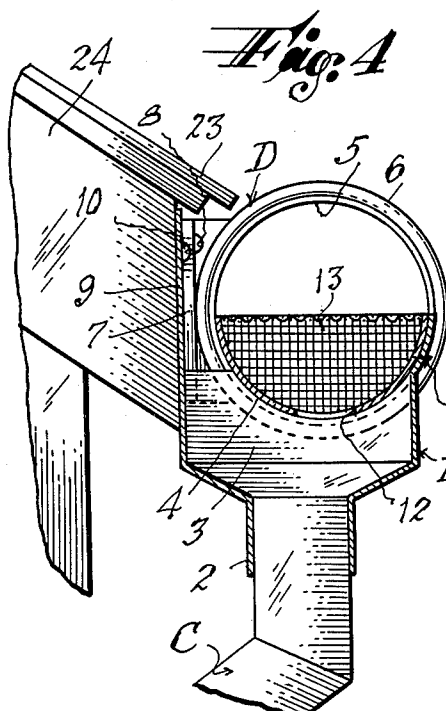
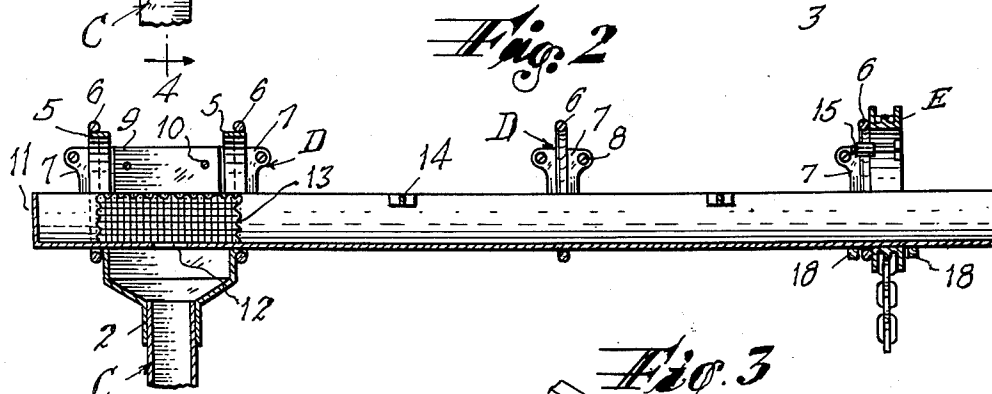
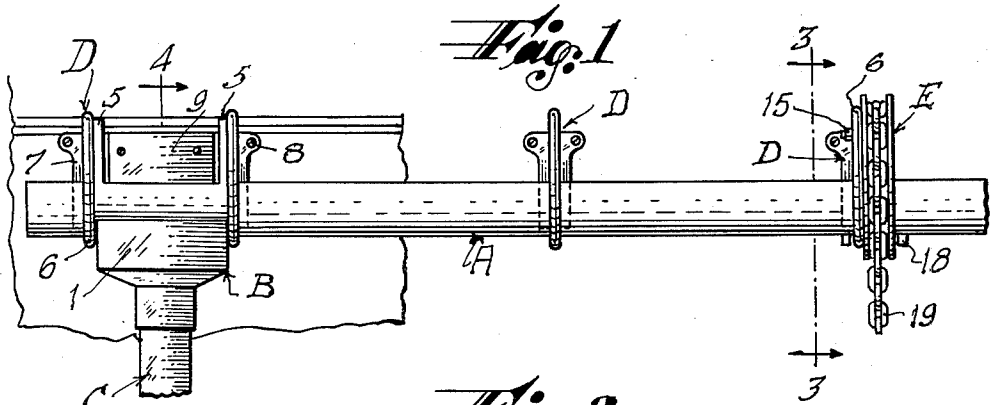
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3,077,055

COMBINED ROTATABLE EAVES TROUGH AND LEADERHEAD

Filed Sept. 28, 1960

2 Sheets-Sheet 1



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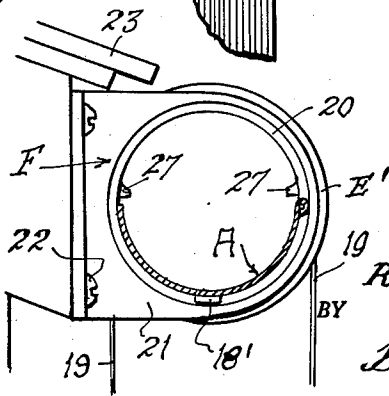
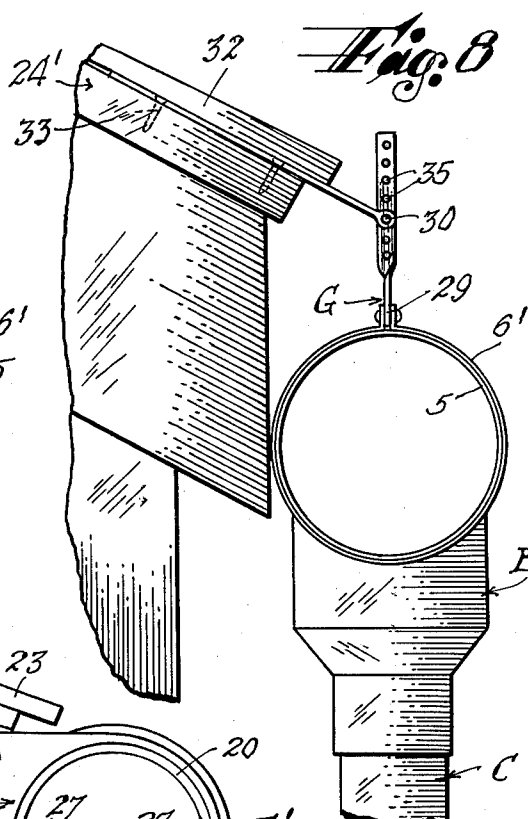
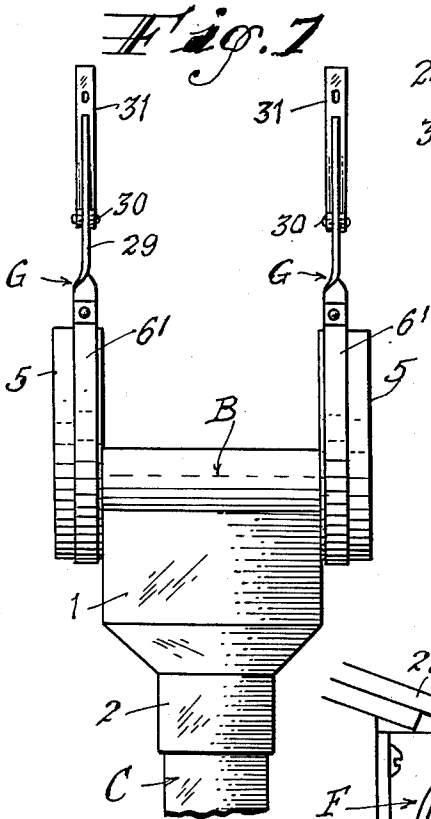
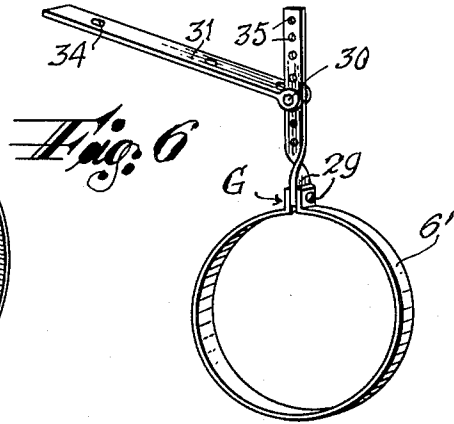
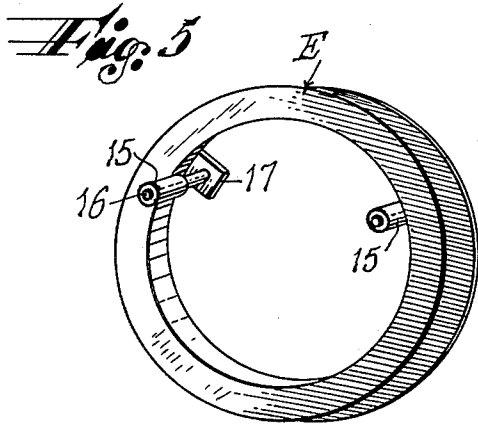
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COMBINED ROTATABLE EAVES TROUGH AND LEADERHEAD

Filed Sept. 28, 1960

2 Sheets-Sheet 2



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3,077,055
**COMBINED ROTATABLE EAVES TROUGH
AND LEADERHEAD**

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Filed Sept. 28, 1960, Ser. No. 58,922
7 Claims. (Cl. 50-5)

This application is a continuation-in-part of my co-
pending application Serial No. 644,285 filed March 6,
1957, now abandoned; and the invention relates to a
combination of an eaves trough, a downspout or leader
and a leaderhead for connecting the trough to the leader
or downspout, and more particularly the invention con-
templates such a combination wherein the trough can be
inverted for cleaning purposes, that is, to dump debris
therefrom, in a convenient manner by a person standing
on the ground.

Efforts have been made to avoid the necessity of going
on the roof of a house or other building or climbing a
ladder to clean the gutters when they become clogged with
twigs, leaves and other debris. Various schemes for that
purpose have been developed, but apparently without suc-
cess.

A primary object of the present invention is to provide
an eaves trough or roof gutter which can be mounted on
a fascia board or suspended from an eaves and associated
with a leaderhead for a leader or downspout in a novel
and improved manner whereby the gutter can be slid
longitudinally endwise through the leaderhead or the
leaderhead can be slid longitudinally onto the gutter so
that the leaderhead can be adjusted to, for example, a
previously installed downspout or leader, and after ad-
justment of the leaderhead, a hole can be cut in the bot-
tom of the gutter or trough to permit the escape of the
water from the trough through the leaderhead into the
leader, and the trough can be easily and quickly rotated
by a person standing on the ground for the purpose of
dumping debris from the trough.

Another object is to provide such a combination of an
eaves trough and a leaderhead which shall include a novel
and improved construction and combination of an eaves
trough and leaderhead and means for supporting or
mounting the combination of parts on a support such as
a fascia board of a building or the building eaves.

Still another object is to provide a novel construction
and combination of an eaves trough, support hangers or
brackets and a rotor having connected thereto a pull
chain or the like for rotating the trough in the hangers
and associated with one of the hangers and the trough in
such a manner as to guide the trough during rotation
thereof and prevent jamming of the trough when in an in-
verted or dumping position.

Other objects, advantages and results of the invention
will be brought out by the following description in con-
junction with the accompanying drawings in which

FIGURE 1 is a fragmentary elevational view of the
combined eaves trough, leaderhead, downspout, hangers
and rotor embodying the invention and mounted on a
fascia board, portions of which are broken away;

FIGURE 2 is a central longitudinal vertical sectional
view of the parts as shown in FIGURE 1;

FIGURE 3 is an enlarged transverse vertical sectional
view approximately on the plane of the line 3-3 of FIG-
URE 1;

FIGURE 4 is a similar view on the plane of the line
4-4 of FIGURE 1;

FIGURE 5 is a detached perspective view of the rotor;

FIGURE 6 is a perspective view of a modified form of
hanger for supporting the combination of trough and
leaderhead from an eaves;

FIGURE 7 is a front elevation of two of the hangers

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shown in FIGURE 6 associated with a leaderhead for
supporting the leaderhead from an eaves;

FIGURE 8 is an end view of the leaderhead and hang-
ers shown in FIGURE 7 mounted on the eaves of a build-
ing that is also shown in an end elevation;

FIGURE 9 is a fragmentary central vertical longitudinal
sectional view similar to FIGURE 2 showing a modifica-
tion of the invention; and

FIGURE 10 is a transverse vertical sectional view ap-
proximately on the plane of the line 10-10 of FIGURE 9.

Specifically describing the embodiment of the inven-
tion illustrated in FIGURES 1 through 5, inclusive, ref-
erence character A designates an eaves trough or gutter
which may be variously constructed but is preferably ap-
proximately semi-cylindrical and formed of material such
as galvanized iron, copper, plastic, etc. The trough is
associated with a leaderhead B which connects the trough
to a leader or downspout C.

In accordance with the invention, the leaderhead and
trough are so constructed that the trough may be slid
endwise or longitudinally relatively to the leaderhead, or
the leaderhead can be slid longitudinally of the trough so
that the leaderhead can be positioned at any desired point
with respect to the length of the trough, for example, to
permit the connection of the leaderhead to a previously
installed leader or downspout, and after the leaderhead has
been suitably positioned, a hole can be cut in the bottom
of the trough to allow the escape of water from the trough
through the leaderhead into the leader. The invention
also provides for free rotation of the trough relative to
the leaderhead for the purpose of inverting the gutter to
dump debris therefrom.

The leaderhead and gutter are supported on a building
in proper position with respect to the eaves of the build-
ing, the gutter by hangers D, and the leaderhead either
by fastening elements such as screws or by the hangers,
and a rotor E is connected to the trough and has a pull
chain or cord connected thereto for rotating the trough;
and the rotor is associated with one of the hangers for
guiding the trough and preventing jamming thereof in
the hangers during rotation of the trough.

More particularly describing the invention, the leader-
head includes a box-like body portion 1 having an outlet
nipple 2 to which the leader or downspout C is connected.
The end walls 3 of the body portion 1 have upwardly
facing arcuate seats 4 of approximately the same radius
as the semi-circular trough A, and rigidly connected to
each end wall 3 is a ring 5 concentric with the trough
and seat 4 and serving both as a guide for the trough,
and, if desired, for coaction with a circular ring 6 of a
hanger D which has a base portion 7 rigidly connected to
and approximately tangential with the ring for attach-
ment to a support such as a fascia board F of a building
by means of screws 8. The rear wall of the body por-
tion 3 has an extension 9 to be secured to the fascia board
by fastening members such as screws 10 for supporting
the leaderhead on the building, but if desired, and as
shown, each of the rings of the leaderhead may be snugly
fitted into the ring portion 6 of a hanger so that the leader-
head is more firmly supported on the building.

A plurality of the hangers are spaced apart longitu-
dinally of the trough, the number of hangers, of course,
depending upon the length of the trough and the spacing of
the hangers desired by the installer. The trough ex-
tends through, is supported by and is rotatable in all of
the hangers and the leaderhead; and the trough has a dis-
charge opening 12 in the bottom thereof disposed within
the leaderhead so that water will drain from the trough
through the discharge opening and the leaderhead into the
leader or downspout C. A suitable screen 13 is secured
in the trough over the opening 12 and extending out-

wardly beyond the end rings 5 of the body portion of the leaderhead to prevent debris such as leaves and twigs from clogging the discharge opening 12 and the downspout. The ends of the trough are closed as usual by end caps or plates 11. In some cases it may be desirable to insert rigid braces 14 between the longitudinal edges of the trough to prevent collapse or lateral movement of the sides of the trough. With this construction, it will be seen that during installation of the parts, the leaderhead may be slid onto and longitudinally of the trough from one end thereof to the desired point, for example, for connection to a previously installed leader or downspout, or the trough may be slid longitudinally through the hangers and the leaderhead after the leaderhead has been installed.

As hereinbefore indicated, the trough is rotated in the hangers and leaderheads by the rotor E which is shown in the form of a ring concentric with the trough and having an inside radius approximately corresponding to the radius of the outer surface of the trough. The rotor is associated with one of the hangers D so as to prevent jamming or collapse of the sides of the trough when the trough is in inverted position, and as shown, two rollers 15 are mounted on the rotor ring in circumferentially spaced relation on the respective pins 16 which are rigidly secured in lugs 17 which project radially inwardly of the ring so that the rollers will run on the ring 6 of the contacting hanger D as best shown in FIGURES 2 and 3, the rollers being disposed at the side of a diametral plane of the rotor ring opposite the trough.

The trough may be caused to rotate with the ring in any suitable manner; for example, the lugs 17 may engage the edges of the trough, or additional lugs may be provided on the ring for that purpose, or the ring may be soldered or welded to the trough.

Also any suitable means may be provided for holding the rotor ring against movement longitudinally of the trough in outward cooperative relation to the hanger ring. For example, a stop lug 18 might be secured on the outside of the trough, one in abutting relation to one end of the rotor and the other in abutting relation to the hanger ring 6 with which the rotor cooperates. It will be observed that this arrangement would also prevent longitudinal movement of the trough with respect to all of the hangers and the leaderhead, but similar means could be employed at any one of the hangers or at the leaderhead.

Instead of the association of the rotor E with one of the hangers as above described, the hangers shown in my afore-mentioned application, Serial No. 644,285, may be utilized, one at each side of the rotor E', for supporting and guiding the trough and preventing jamming or collapse of the trough in the hangers when the trough is inverted. Referring particularly to FIGURES 9 and 10, each modified hanger F is shown as including a ring member 20 concentric with and of about the same inner radius as the trough and through which the trough freely extends. This ring member 20 is housed and rotatable in a ring retainer 21 supported by the hanger F. The hanger may be secured to the fascia board or side of a building as by means of screws 22, so that the trough lies directly beneath the eaves 23 of a roof 24 in about the same manner in which the trough is mounted by the hangers D. This ring retainer 21 may be formed so as to enclose a ring member 20 and thereby confirm it against appreciable axial movement, with sufficient clearance to allow free rotation of the ring member with the associated trough in the retainer 21. The other hangers for supporting the trough do not require any equivalent of the ring members 20 and may be, for example, like the hangers D. The trough may be held against longitudinal movement relative to the ring member 20 by any suitable means. For example, the trough may be formed with outturned beaded edges 25 for notches 26 in which the ring members are seated, or stop lugs like the lugs 18' may be secured to the trough at opposite sides of the ring.

In this form of the invention, the rotor E' need not have the rollers 15 and there is no need for any means other than friction to prevent movement of the rotor E' longitudinally of the trough. For the purpose of illustrating other means for causing the trough to rotate with the rotor, the rotor ring E' is shown with inwardly projecting lugs 27 each of which abuts one edge of the trough. Also the rotor ring is shown as having a pull cord 19 attached thereto instead of a pull chain.

From the foregoing, it will be obvious to those skilled in the art that normally the trough will be disposed with its edges facing upwardly beneath the building eaves 23 to receive water from the eaves, and the water will also flow from the eaves into the trough disposed within the leaderhead through the space between the support rings 5 of the leaderhead. When it is desired to clean the trough, the operator need only stand on the ground and pull on the pull chain or cord 19 so as to cause rotation of the rotor and thereby rotate the trough into an inverted or upside-down position so that debris therein will fall therefrom by action of gravity. After the trough has been dumped in this way, a pull on the pull chain in the opposite direction will return the trough to its normal position.

In some cases it may be impossible to mount the trough on a fascia board, and the invention contemplates means for supporting the trough from the building eaves or roof when that is necessary. As shown in FIGURES 6 through 8, hangers G are provided each including a ring 6' to receive one of the support rings 5 of the leaderhead or to receive the trough as the case may be, each ring being pivotally connected to a suspension link 29 that is in turn pivotally connected at 30 to one end of a bracket bar 31, for example, to be secured to the building roof 24' beneath the shingles 32 as by nails 33 driven through openings 34 in the bracket arm into the roof, as best shown in FIGURE 8. Preferably the suspension link 29 has a plurality of openings 35 spaced longitudinally thereof and the pivot bolt 30 may be interchangeably fitted into any of said openings so that the distance of the leaderhead and trough below the building eaves may be adjusted as desired to insure proper flow of water from the eaves into the trough.

While the now preferred embodiments of the invention have been illustrated and described, it will be understood that this is primarily for the purpose of illustrating the principles of the invention and that the structural details may be widely modified and changed within the spirit and scope of the invention.

I claim:

1. An eaves trough assembly comprising in combination with a building having overhanging eaves, an approximately semi-cylindrical trough and means for mounting said trough beneath said eaves for rotation about a longitudinal axis, including hangers at spaced points in the length of the trough secured to said building, at least two of said hangers provided with ring retainers, ring members rotatably mounted in said ring retainers, said trough extending through and being supported by said ring members, a rotor connected to said trough between said two of said hangers to rotate therewith, and a flexible pull member associated with said rotor for rotating said trough about said longitudinal axis.

2. An eaves trough assembly as defined in claim 1 wherein said trough has a discharge opening, and with the addition of a leader downspout and a leaderhead having an approximately cylindrical portion in which said trough is coaxially rotatable, said leaderhead having a lateral outlet connected to said leader downspout communicating with said discharge opening of the trough.

3. An eaves trough assembly as defined in claim 2 wherein said trough has a radial discharge opening through the bottom thereof to communicate with said

outlet of the leaderhead when the trough is in normal position.

4. An eaves trough assembly comprising in combination with a building having overhanging eaves, an approximately semi-cylindrical trough having a lateral outlet opening in its bottom, and means for mounting said trough beneath said eaves on said building for rotation about a longitudinal axis including hangers secured to said building in which said trough is mounted to rotate about a longitudinal axis, a rotor connected to said trough to rotate therewith, a flexible pull member associated with said rotor for rotating said trough about said longitudinal axis, a leader downspout, and a leaderhead mounted on the building having semi-cylindrical seats disposed at opposite ends thereof which are engaged by said trough and which provide for relative movement of said leader downspout and said trough longitudinally of the trough with the leaderhead disposed intermediate the ends of the trough, said leaderhead having a lateral outlet connected to said leader downspout and communicating with the outlet opening of the trough.

5. An eaves trough assembly as defined in claim 4 wherein said hangers have ring retainers, said rotor comprises a ring through which extends said trough providing for rotation of the trough with said rotor ring, and there are a plurality of pins projecting axially from one side of said rotor ring and movable in the ring portion of one of said hangers during rotation of the trough.

6. An eaves trough assembly comprising in combination with a building having overhanging eaves, an approximately semi-cylindrical trough and means for mounting said trough beneath said eaves on said building for rotation about a longitudinal axis including supports secured to said building in which said trough is rotatably mounted, a wheel connected to said trough to rotate therewith, a flexible pull member associated with said wheel for rotating said trough about said longitudinal

axis, a leader downspout, and a leaderhead comprising an approximately cylindrical portion having an opening extending therethrough in which said trough is relatively slidable and coaxially rotatable, said cylindrical portion having a lateral outlet connected to said leader downspout, said rotor having interior substantially diametrically opposite inwardly extending lugs abutting the respective edges of said trough and said rotor being slidable longitudinally of said trough.

7. An eaves trough assembly comprising in combination with a building having overhanging eaves, an approximately semi-cylindrical trough and means for mounting said trough on said building beneath said eaves for rotation about a longitudinal axis, including ring members secured to said trough at spaced points in the length thereof and hangers secured to said building having ring retainers in each of which is rotatably mounted one of said ring members, a rotor rigidly connected to said trough to rotate therewith, a flexible pull member associated with said rotor for rotating said trough about said longitudinal axis, a leader downspout and a leaderhead comprising an approximately cylindrical portion in which said trough is coaxially rotatable, said cylindrical portion of the leaderhead having a lateral radial outlet connected to said leader downspout and said trough having a transverse opening through the bottom thereof to communicate with said outlet of the leaderhead when the trough is in normal position.

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