

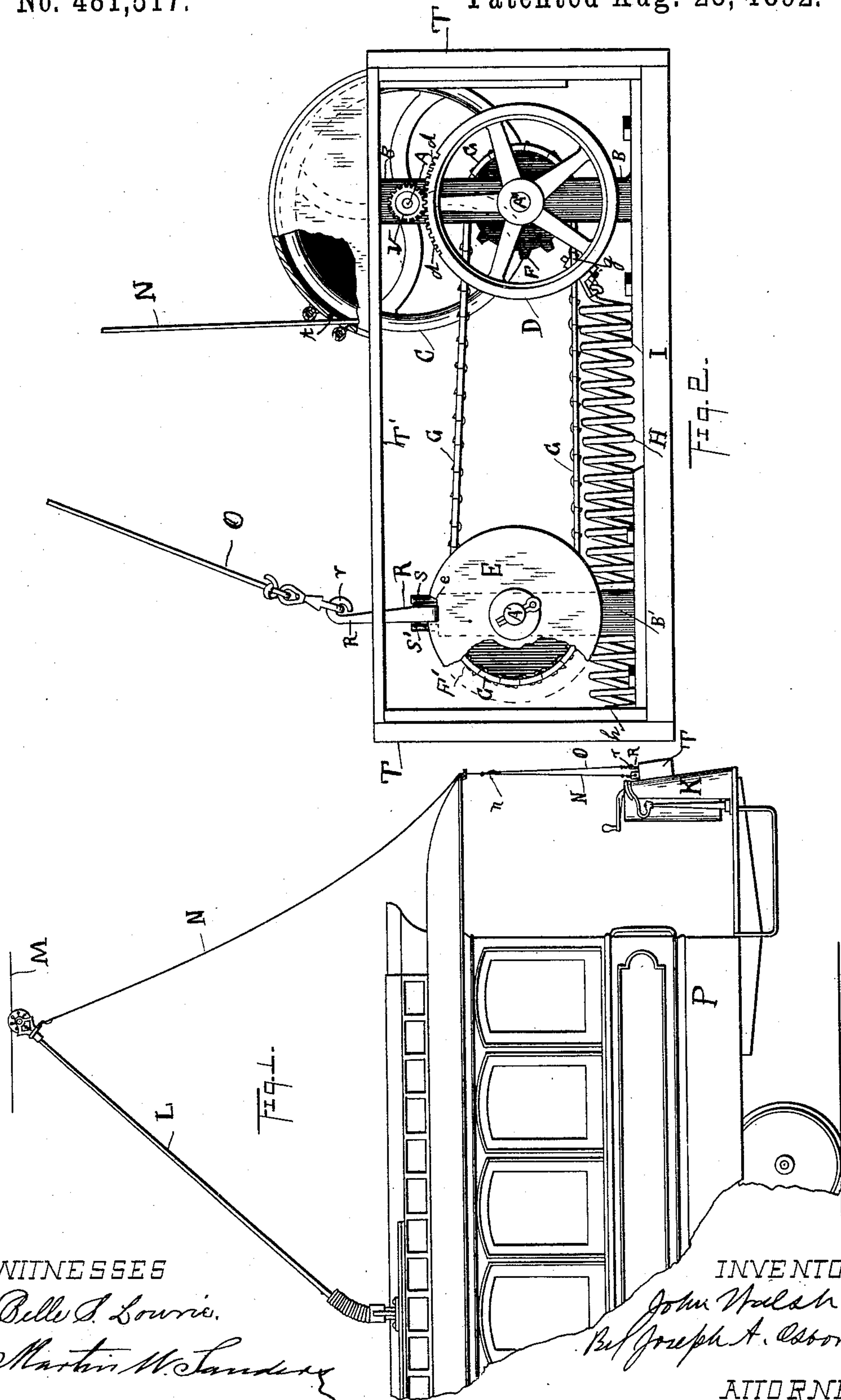
(No Model.)

2 Sheets—Sheet 1.

J. WALSH.
TROLLEY PROTECTOR.

No. 481,517.

Patented Aug. 23, 1892.



WITNESSES

Belle S. Lourie.
Martin W. Landers.

INVENTOR,

John Walsh.
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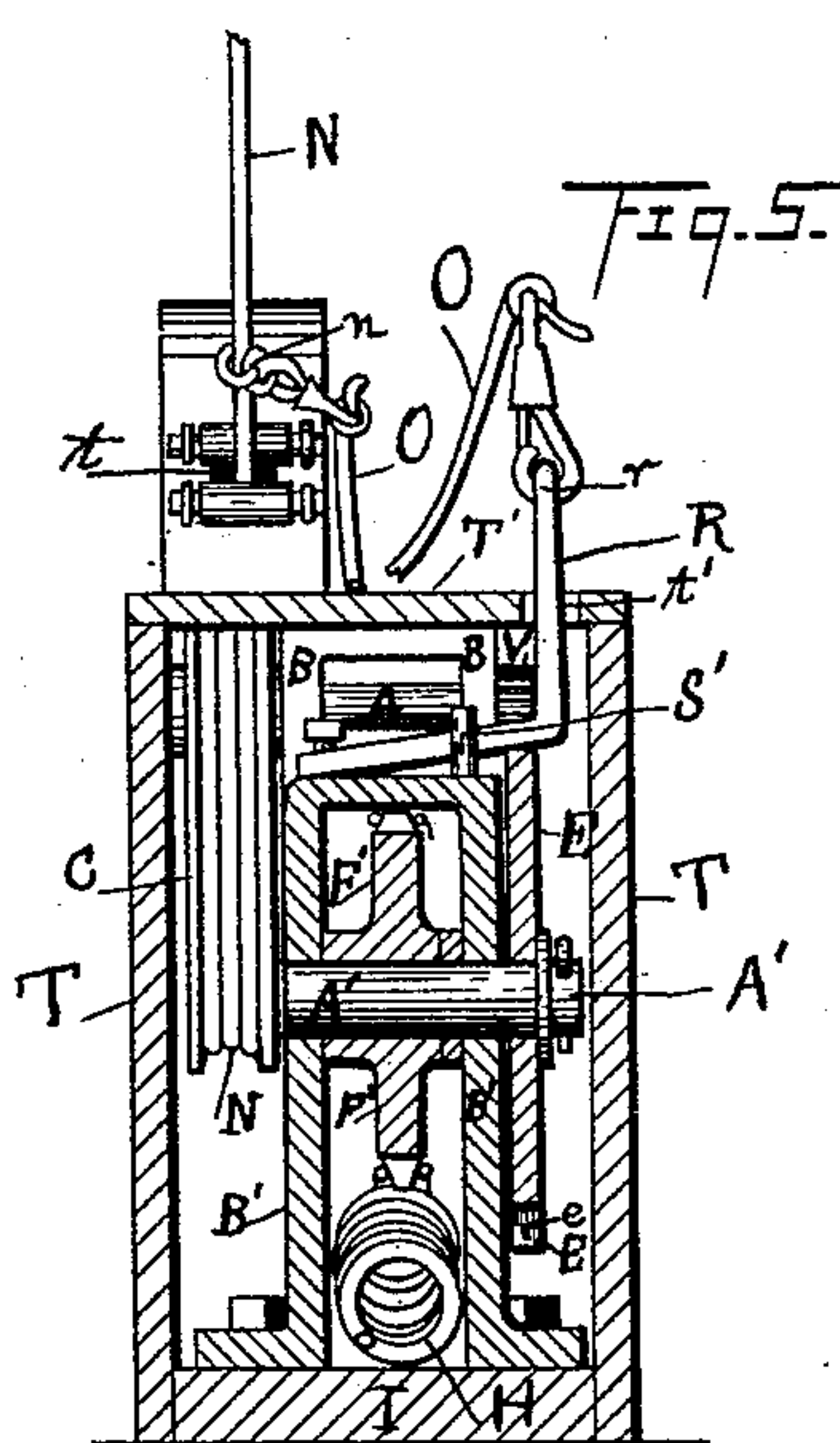
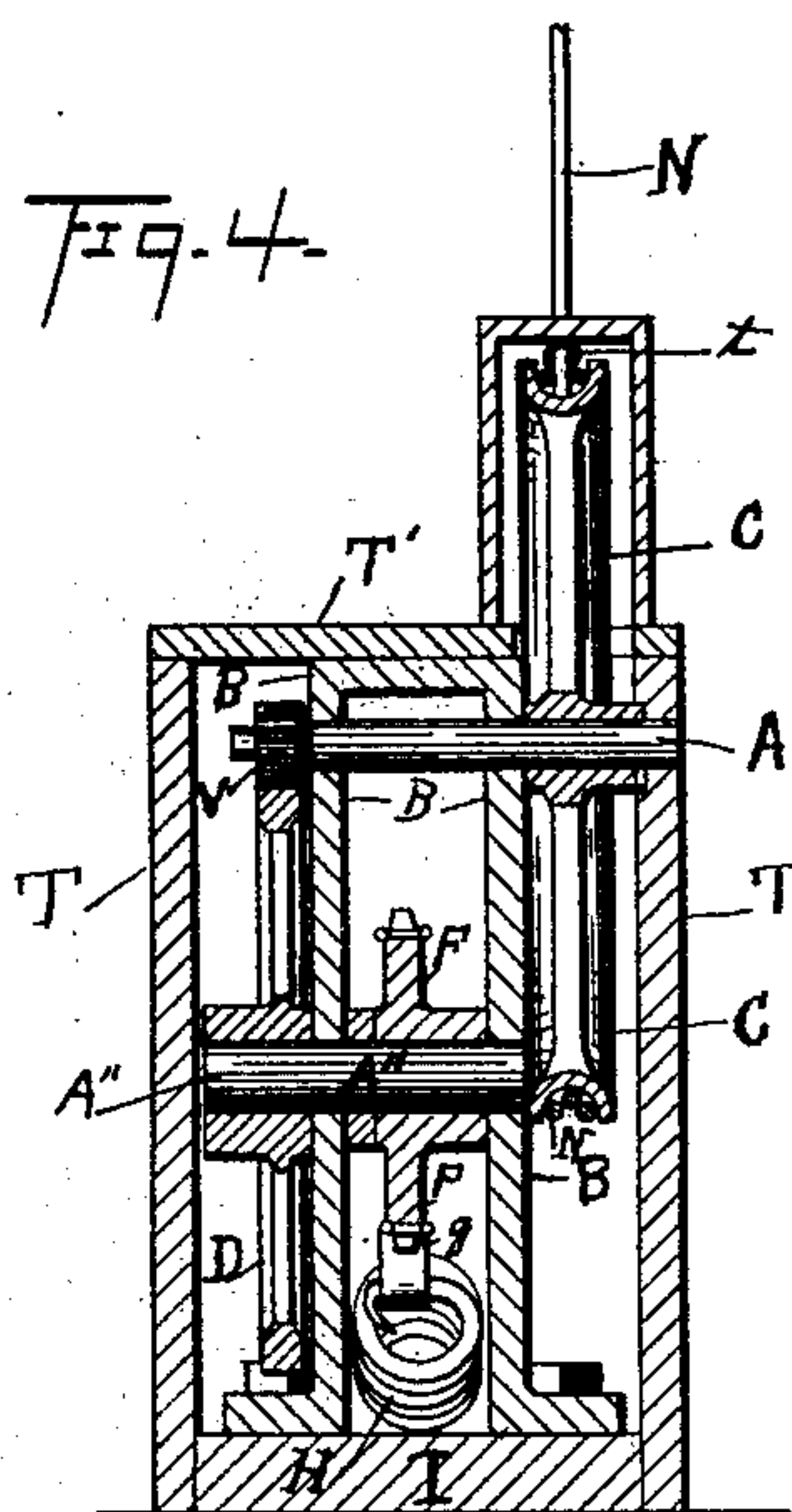
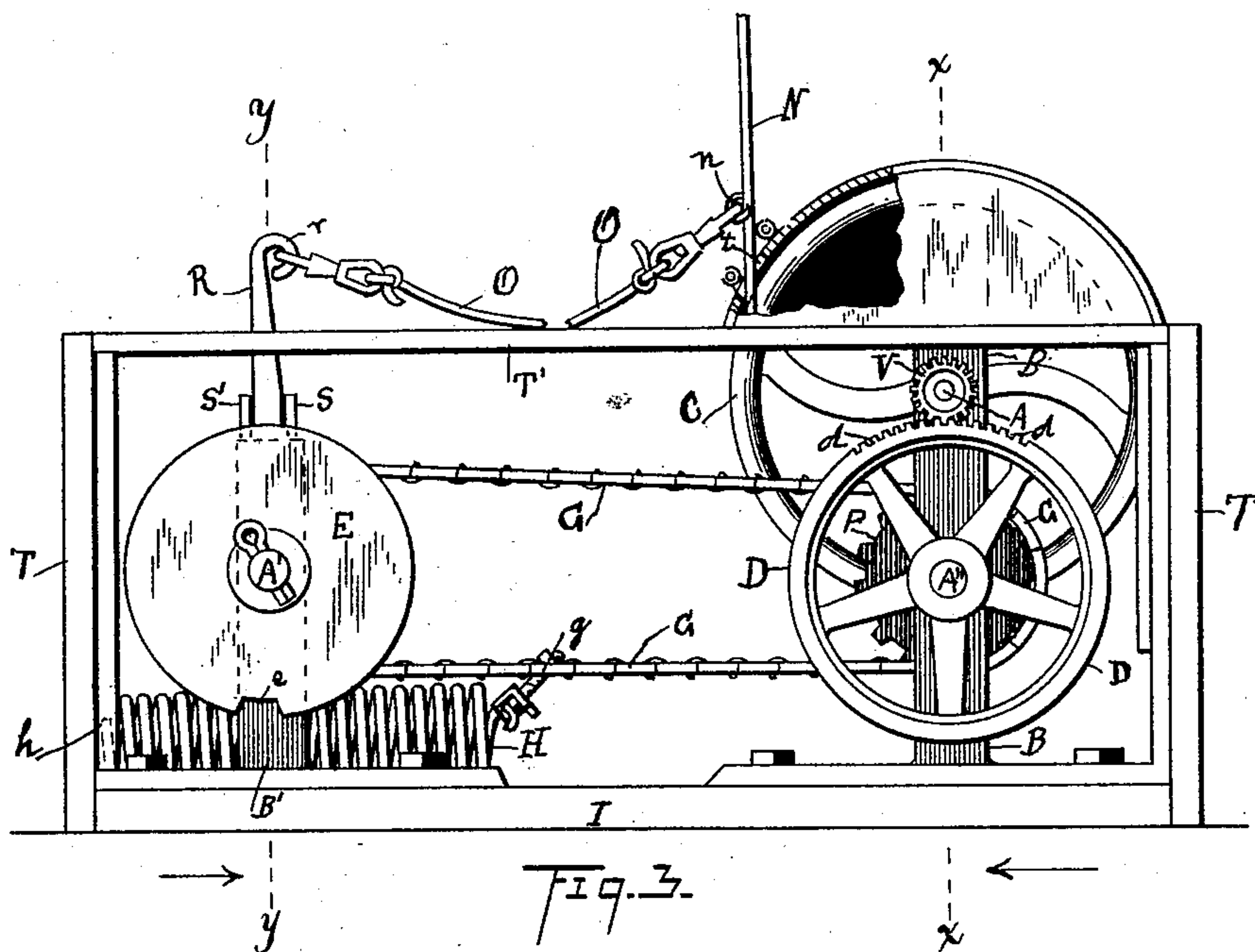
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2 Sheets—Sheet 2.

J. WALSH.
TROLLEY PROTECTOR.

No. 481,517.

Patented Aug. 23, 1892.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN WALSH, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO JACOB
FREDERICK GREYER, OF SAME PLACE.

TROLLEY-PROTECTOR.

SPECIFICATION forming part of Letters Patent No. 481,517, dated August 23, 1892.

Application filed December 23, 1891. Serial No. 416,269. (No model.)

To all whom it may concern:

Be it known that I, JOHN WALSH, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga, State of Ohio, have
5 invented a certain new and useful Trolley-Pro-
tector; and I do hereby declare the following,
with the accompanying drawings, to be a speci-
fication of my said invention.

My invention relates to means for prevent-
10 ing the trolley of electric motors in electric-
railway systems where an overhead wire is
used from springing up, so as to break the
trolley or injure it when the trolley becomes
disengaged from the trolley-wire.

15 The object of my invention is a mechanism
which will automatically draw the trolley
down when it becomes accidentally disengaged
from the trolley-wire.

With this object in view my invention con-
20 sists in the mechanism herein described, and
in the combination of parts therein, as de-
scribed, and defined in the claim.

In the drawings, Figure 1 shows a broken
section of a motor-car with my invention at-
25 tached. Fig. 2 is a side elevation of my device,
partly in section, the front of the casing be-
ing removed, and showing the position of the
parts as they remain before the trolley is dis-
placed from the trolley-wire. Fig. 3 is a view
30 of the same, showing the position of the parts
after the trolley is displaced. Fig. 4 is a sec-
tional view on the lines *xx* of Fig. 3, and Fig.
5 is a sectional view on the line *yy* of Fig. 3.

In my device, as illustrated, I is the bed,
35 upon which the supports B and B' are fixed.
These supports may be of any form or con-
struction adapted to support the mechanism
constituting the device.

In the supports B and B' are journaled
40 shafts A and A'. On the shaft A, outside the
support, is fixed a winding drum or reel C.
A shaft A'' is also journaled in the support
B. Upon the shaft A'', within the support
B, is fixed a sprocket F, and outside said sup-
45 port is a gear-wheel D, fixed upon the shaft
A''. A pinion V is fixed upon the end of the
shaft A opposite the drum C and meshes with
the gear D.

On the shaft A' is fixed a disk E, having
50 formed in its periphery a notch *e*, (said disk
E being shown in the drawings as fixed upon

the shaft A' outside the hanger B',) and a
sprocket F', fixed upon the shaft A' within
the support B'. A flat link-chain G travels
around said sprockets F' and F. A spring 55
H has one of its ends fixed to the chain G at
g and its opposite end fixed to the bed I or
other immovable object at *h*.

On the support B' there is a catch R, hinged
to said support, as illustrated. The catch R 60
has its free end turned up and a loop *r* formed
thereon, in which to fasten the check-rope O.
Said catch R is adapted to drop into and nor-
mally engages the notch *e* of the disk E when
the disk is turned with its notch *e* under the 65
catch R. The pins S S' on the support B'
prevent the catch R from having lateral move-
ment.

In the drawings, P represents a broken
section of the car. 70

K is the car-dash.

L is the trolley.

M is the overhead trolley-wire, and N is the
trolley-rope or flexible connection between
the trolley and the winding drum or reel C. 75
The trolley-rope has its lower end fastened to
the drum C at *c*, and should be long enough
to have nearly one wind around the drum
when the rope is in its normal position. A
check-rope connection O connects the catch 80
R and the trolley by being fastened to the
trolley-rope N at *n*, the opposite end of the
check-rope O being attached to the catch R
in the loop *r*. The check-rope O should be
shorter than that portion of the trolley-rope 85
N between the point *n* where the check-rope
is attached to it and the drum C. The check
O could be attached to the trolley direct in-
stead of being connected therewith through
the trolley-rope N; but the particular connec- 90
tion illustrated is preferable.

In use the trolley-rope N is pulled out from
the drum or reel C until the disk E is turned,
so that the catch R drops into the notch *e*.
The spring H will be drawn open and all 95
the parts will be in the position shown in
Fig 2. The mechanism of the device being
in this position, the trolley-rope N is loose
and will allow the trolley L to bear against
the wire M. Should the trolley L become dis- 100
engaged from the wire M it will spring up
and jerk the catch R out of the notch *e*, the

spring H will contract and, being attached at one end to the chain G, will turn or actuate the mechanism, so as to cause the trolley-rope N to wind up on the drum C, and thus pull down the trolley L.

T is a casing for the device, and T' is a lid suitably secured thereto.

t is a hole, through which passes the trolley-rope N, and t' is a hole, through which passes the upright of the catch R.

The device is fastened to the dash K by means of hangers or by other suitable means.

By changing the relative sizes of the gear-wheel D and the pinion V the trolley-rope N can be given more or less wind.

My device may take on various modifications and changes in details of form and arrangement without departing from the spirit of my invention; and I do not, therefore, limit myself to the details of form and arrangement shown and described.

What I claim as my invention is—

1. In a device of the character described, a drum and a sprocket mounted upon separate shafts, driving connection between said drum and sprocket, a sprocket and a disk having a notch cut in its periphery mounted upon another shaft, a link-chain around said sprockets, a spring having one end attached to said chain and the opposite end fixed to an immovable object, and a catch adapted to engage the notch in the disk, substantially as shown and described.

2. In a device of the character described, a support having a drum and a sprocket journaled therein, driving connection between said drum and sprocket, a support having journaled therein a shaft carrying a sprocket, and a disk having a notch in its periphery, driving connection between said sprockets, a spring having one end attached to the driving connection between the sprockets and its opposite end fixed to an immovable object, a catch, which normally engages the notch in the disk, and means for disengaging the catch from said notch, substantially as shown and described.

3. The combination, in a device of the character described, of a trolley, a winding drum or reel, flexible connection between the trolley and winding drum or reel, with means for

turning the drum or reel to wind said flexible connection thereon, which means consists in a disk having a notch in its periphery, a catch, which normally engages said notch, an auxiliary check connection O between the catch and the trolley, driving connection between the disk and winding drum or reel, and a spring to actuate said driving mechanism when the catch is disengaged from the notch in the disk, substantially as shown and described.

4. The combination, in a device of the character described, of a winding drum or reel, a disk having a notch in its periphery, driving connection between the winding drum or reel and the disk, and an auxiliary check connection O, a catch to engage the notch in the disk, the catch being adapted to be disengaged from said notch by the action of the trolley and the check connection O, and a spring adapted to actuate the driving mechanism between the disk and the drum or reel when the catch shall have been disengaged from the notch in the disk, substantially as shown and described.

5. In a device for automatically lowering a disengaged trolley-wheel, the combination of a suitable support, as I, standards, as B and B', shafts A and A², journaled in the support B, and a shaft A', journaled in standard B', the shaft A, carrying a drum C, and a pinion V, shaft A², carrying a sprocket F and gear-wheel D, and the shaft A', carrying a notched disk E and sprocket F', a suitable driving mechanism between the sprocket-wheels F and F' for operating the drum C and the disk E, a catch R, connected with the trolley and adapted to be lowered into the notch in the disk E and prevent the disk from turning while the trolley is engaged with the wire, but which will become automatically disengaged therefrom the moment the trolley leaves the wire, and a spring, as H, connected to the drum in such a manner as to automatically wind up the operating-trolley rope onto the drum, and thereby lower the trolley, substantially as and for the purpose described.

JOHN WALSH.

Witnesses:

MARTIN W. SANDERS.

E. A. CRABLE.