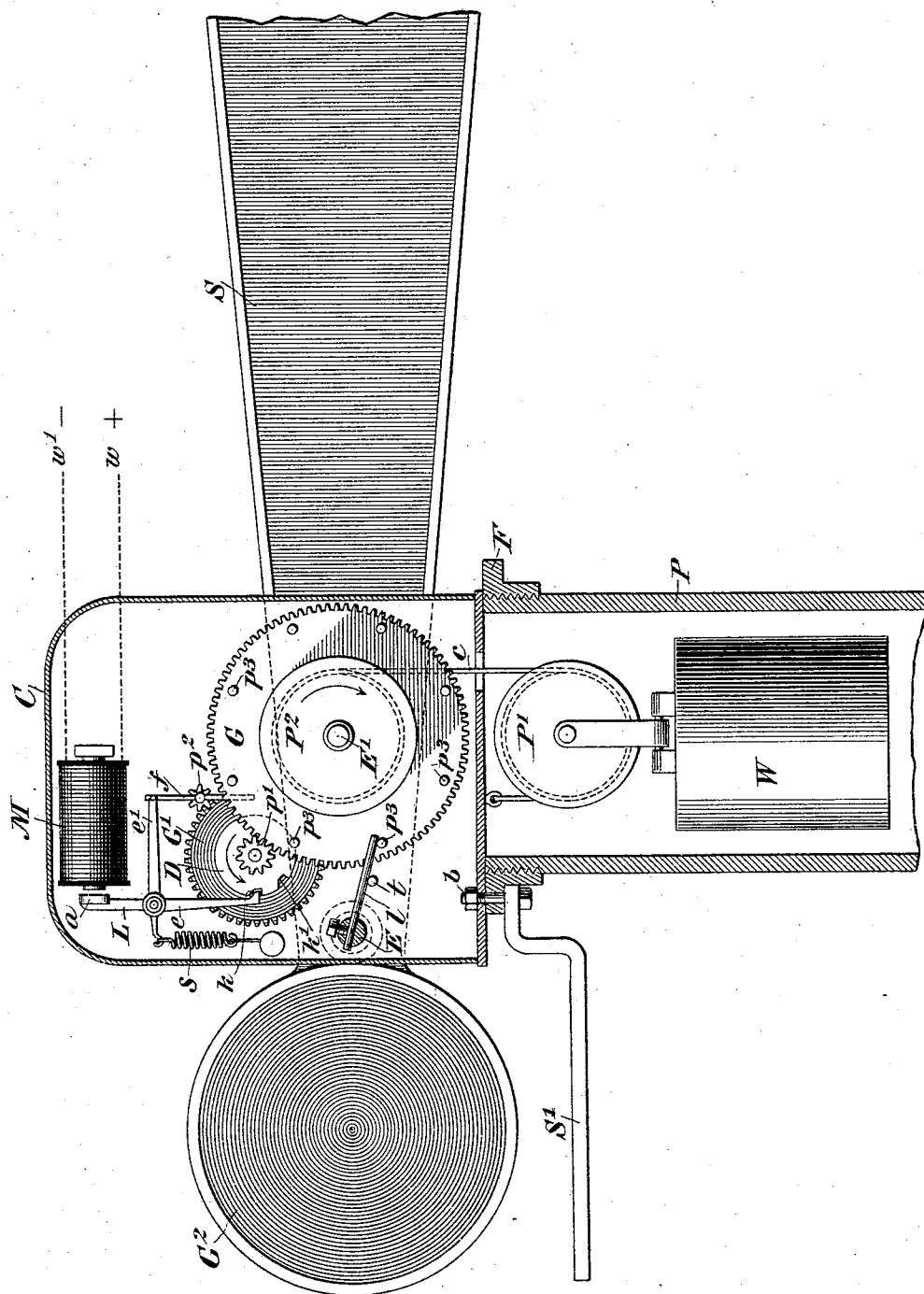


(No Model.)

W. F. Z. DESANT.
RAILWAY SIGNAL.

No. 489,629.

Patented Jan. 10, 1893.



Witnesses
C. E. Ashley
S. F. Macpeak

Inventor
Wm F. Z. Desant
By his Attorney
Charles J. Kinner

UNITED STATES PATENT OFFICE.

WILLIAM F. Z. DESANT, OF NEW YORK, N. Y., ASSIGNOR TO THE DESANT ELECTRIC COMPANY, OF SAME PLACE.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 489,629, dated January 10, 1893.

Application filed April 25, 1892. Serial No. 430,610. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. Z. DESANT, a citizen of the United States, residing at New York, in the county and State of New York, have made a new and useful invention in Railway-Signals, of which the following is a specification.

My invention is directed particularly to improvements in signals of the semaphore type, and it has for its objects: First the construction of a signal of this type which shall be cheap, simple and efficient. Second will operate in all kinds of weather with a minimum expenditure of energy; and third, shall be set to danger and safety alternately by the same power acting under the control of a single electro-magnet. I accomplish these objects by the semaphoric apparatus hereinafter described, and particularly pointed out in the claims at the end of this specification.

In order that my invention may be fully understood, reference is had to the accompanying drawing, which is a vertical sectional view of my improved semaphore, parts being shown in side elevation.

P is a hollow signal post, screw threaded at its top for the purpose of securing the screw threaded collar F, to which is secured a water tight metallic casing C, inclosing the working parts of the apparatus.

S is a semaphore arm pivoted by a shaft E in the casing C, the right hand portion of the arm being of the usual pattern and the left hand portion being provided with a colored lens G², adapted to lie in front of a lamp (not shown) but carried on a shelf S' secured to the collar F and casing C by one or more bolts b.

l is a metallic arm or lever secured by a set screw to the shaft E in the interior of the box or casing C, and maintaining the semaphore S normally at safety in the position shown, through the agency of a stop pin t in the side of the casing, the free end of the lever l resting in the position shown directly in the path of one of a series of pins p³, located at equal distances apart on the face of a gear wheel G, carried by a shaft E' which also carries a fixed pulley or drum P², which, in turn, is connected by a cord passing through a hole in the base of the casing C with a second pulley P' at-

tached to a movable weight W inclosed in the upper portion of the signal post P, one end of this cord c, being secured, as shown, to the bottom of the box or casing C. The gear wheel G meshes with a pinion p' carried by a second shaft parallel with the shaft E' and journaled also in the sides of the box.

D is a controlling disk and G' a second gear wheel, said parts being carried by the same shaft which supports the pinion p'.

p² is a second pinion meshing with the gear wheel G' and carried by a shaft which supports also a retarding fan f.

M is an electro-magnet connected by conductors w w' with circuit closing devices at the opposite ends of a section of track to be protected, and a is an armature therefor carried by a pivoted armature lever L having a retractile spring s and a pair of detent arms e e', the former being provided with a hooked extension adapted to fall into either of two notches k k' in the face of the disk D; and the latter, e', having its free end so located that it will check or release the fly fan f, by moving into or out of the path of a lateral lug or extension at one edge of said fan as will be described in connection with the mode of operation of the apparatus, which is as follows.

Suppose the apparatus to be wound up with sufficient cord upon the drum or pulley E' to permit the weight W to ultimately reach the bottom of the post, and all of the parts in the positions shown, and that a train enters a section of track momentarily closing the circuit from the battery (not shown) through the magnet M. It is thereby energized and the armature a drawn forward against the influence of the adjustable retractile spring s. This causes the lever L to withdraw the ends of the arms e e', the first from the notch k' in the disk D, and the latter out of the path of a lug or extension on one edge of the fly fan f. The weight W, therefore, acting through the pulley P', cord c, and drum P², transmits motion from the gear wheel G through the pinion p', gear wheel G', to the disk D and fly fan f, the motions of the drum E' and the disk D being in the direction of the arrows, as shown. After the disk D has advanced a distance sufficient to carry the notch k from under the hooked end of the arm e, the cir-

5 cuit is broken, but the gear wheels G G',
 disk D and fly fan *f*, continue to rotate under the influence of the weight W after the
 circuit is thus broken, for the reason that
 10 the hooked end of the arm *e* now rides on
 the face of the disk D, and maintains the
 free end of the arm *e'* out of the path of the
 fly fan *f*. As the gear wheel G advances, that
 one of the pins *p*³ lying directly under the
 15 free end of the lever or arm *l* carries said lever
 or arm with it and thereby imparts to the
 shaft E a rotary motion, and hence to the
 right hand end of the semaphore S an upward
 motion until the disk D has nearly completed
 20 its full revolution, or rather until the free or
 hooked end of the arm *e* falls into the second
 notch *k'* and checks or stops the mechanism
 with the semaphore in an upright position.
 In this position, however, the lever or arm *l*
 25 has been advanced to a point where it is almost
 out of action with the pin *p*³ which carried
 the semaphore to this vertical position.
 It (the semaphore) therefore stands locked in
 this vertical position of safety until the train
 30 passes out of the section and the circuit is
 once more closed through the magnet M a sufficient
 length of time to allow the free or hooked
 end of the arm *e* to rest upon the face of
 the disk D between the notches *k'* and *k*.
 35 The apparatus continues to advance, therefore,
 as before, and the semaphore is raised a trifle
 higher, or until the pin *p*³ passes out from
 under the free end of the lever *l*, at which
 time the semaphore drops immediately into
 the position shown in the drawing with the

free end of the lever *l* in front of the next pin
*p*³ on the face of the gear wheel G where it is
 ready for action again when the circuit is
 closed through the magnet M, the hooked end
 of the lever *e* having in the meantime fallen 40
 into the notch *k*. The semaphore in the position
 shown in the drawing is at safety and would
 of course be at danger in its elevated position,
 it being understood that the arrangement of the
 circuits (not shown) would be 45
 such that on entering a block the signal would
 be displayed at danger to incoming trains
 passing in the same direction with the train
 which last set it to danger, and to safety on
 passing out of said block, such matters being 50
 well understood by those skilled in the art.

Having thus described my invention, what
 I claim and desire to secure by Letters Patent
 of the United States, is:—

A semaphoric signal consisting of a pivoted 55
 semaphore arm having an operating lever the
 free end of which bears normally on any one
 of a series of pins carried by a power impelled
 gear wheel; a retarding device as a fly fan rotated
 by the same train; a notched controlling disk 60
 and an electro-magnet provided with an armature
 lever having two arms one of which checks the
 fly fan while the other regulates the movements
 of the semaphore arm, substantially as described.

WM. F. Z. DESANT.

Witnesses:

C. J. KINTNER,

ROBERT C. MARA.