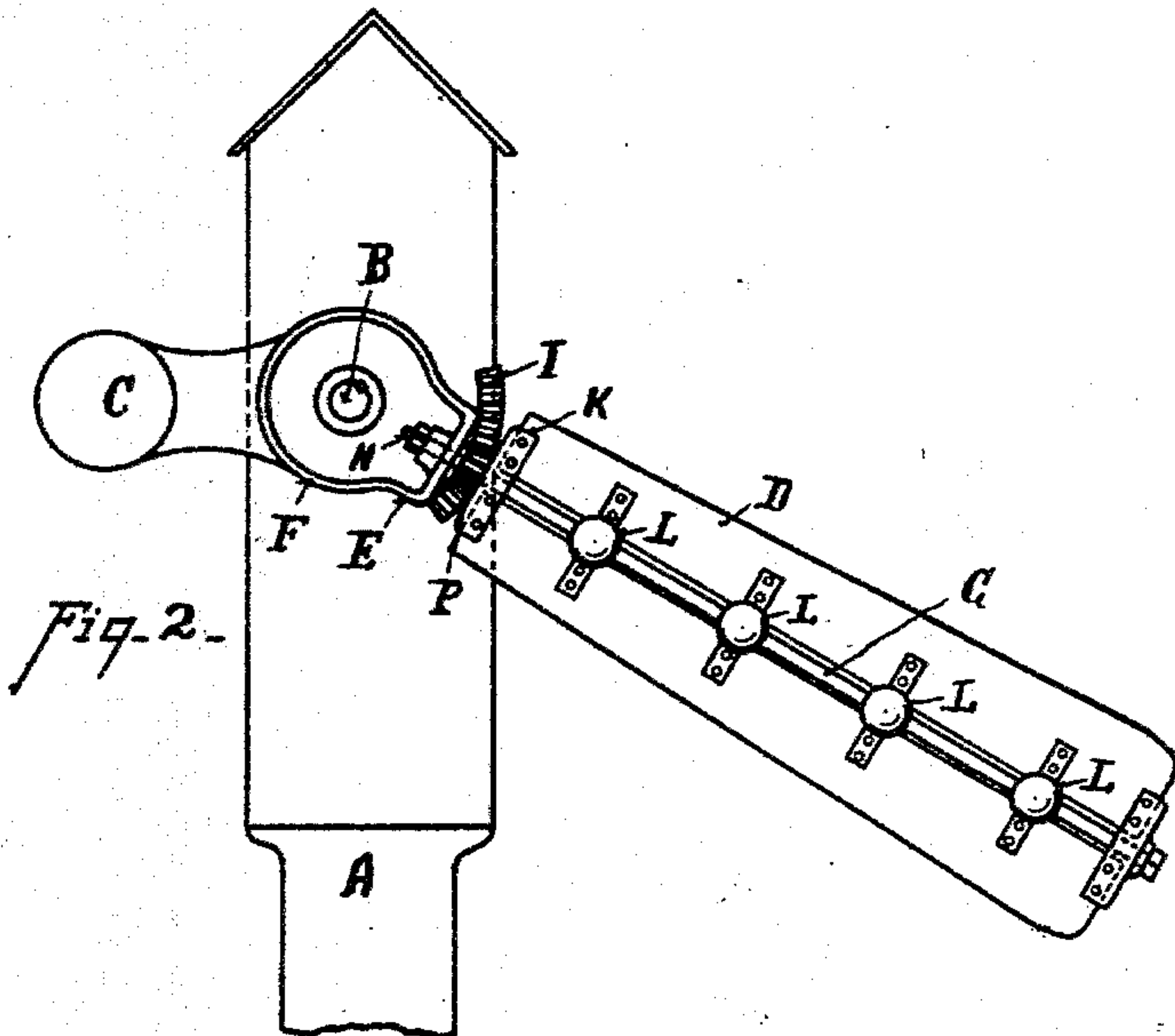
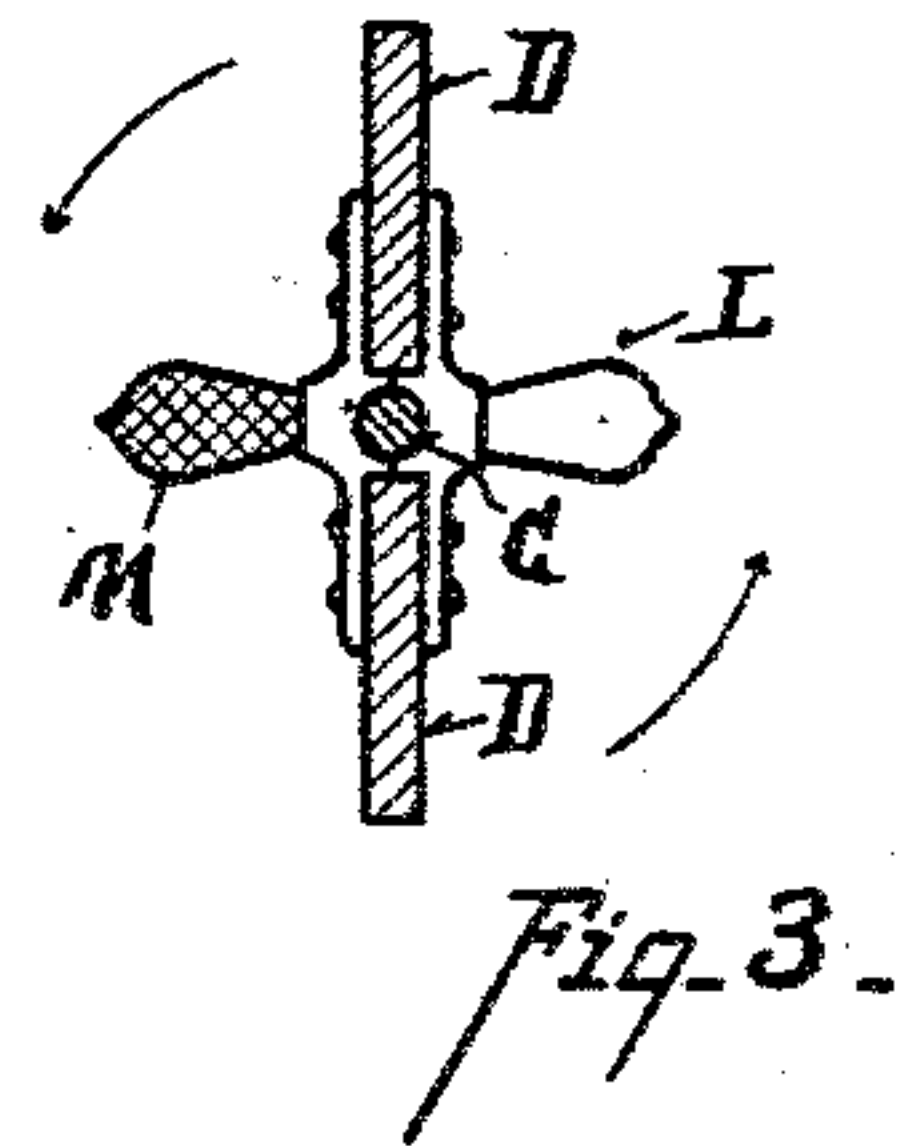
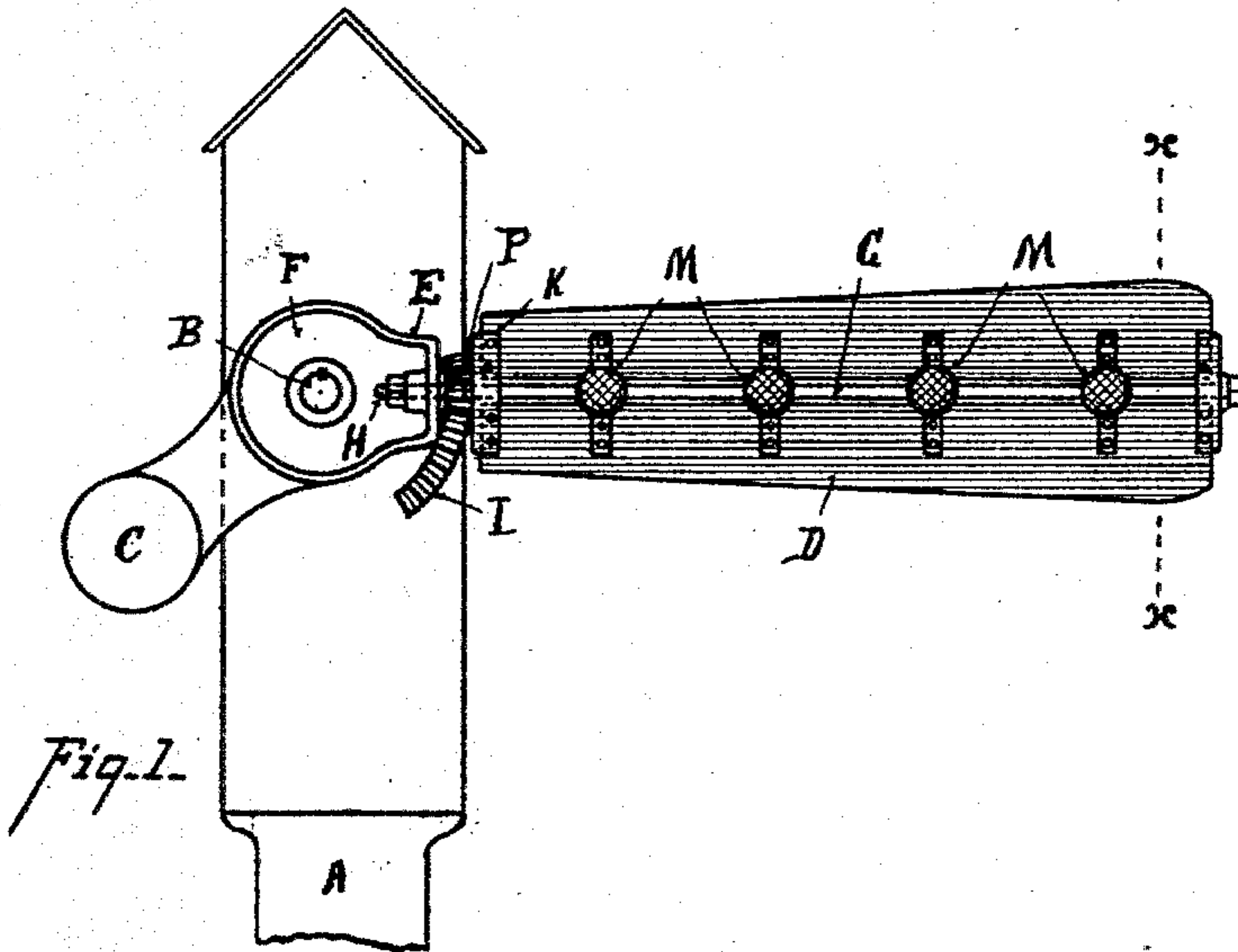


(No Model.)

E. W. HARDEN.  
RAILWAY SIGNAL.

No. 516,049.

Patented Mar. 6, 1894.



Attest—  
C. W. Miles  
T. Simmons.

Inventor—  
Edward W. Harden  
By Hood & Bond—  
Attys.



# UNITED STATES PATENT OFFICE.

EDWARD W. HARDEN, OF CINCINNATI, OHIO, ASSIGNOR TO FREDERIC C. WEIR, OF SAME PLACE.

## RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 516,049, dated March 6, 1894.

Application filed June 30, 1893. Serial No. 479,261. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD W. HARDEN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Railway-Signals, of which the following is a specification.

The object of my invention is to provide a semaphore signal with different colored lamps upon each side of the blade with mechanical devices for automatically bringing the desired color to view when the signal is raised in position of danger.

The various features of my invention are fully set forth in the description of the accompanying drawings making a part of this specification, in which—

Figure 1 is an elevation of my improvement with the blade set in the danger position. Fig. 2 is a similar view showing the blade set in position of safety. Fig. 3 is a section on line *x, x*, Fig. 1.

A represents a signal post. B a shaft upon which the signal blade is journaled for vertical movement. C the weighted arm. D the signal blade.

E represents a bracket or enlarged extension of the hub F. The signal blade D is mounted upon an axial shaft G; said shaft is secured to the hub F by a screw nut H.

I represents a segmental rack supported upon the signal post.

P represents a gear wheel connected to the blade by the bracket K and journaling on shaft G.

L represents a series of electric lamps, say of white color, attached to one side of the blade.

M represents a series of electric lamps say of red color. The lamps and blades are shown as supported in brackets in which the shaft G journals. The segment I is on a circle concentric with the journal of shaft B, hence as the signal blade moves, say downwardly, the engagement of the gear P with the rack will turn the blade. The number of teeth in the

rack and pinion are such as to make half a revolution as the blade moves from the horizontal or danger to the safety position; and it follows, of course, that when the blade is raised up the same counter movement takes place and the blade is brought back to its original position. I have shown the blade as journaled upon the shaft G and attached to and supported upon the pinion, as the preferred form of construction, but this is immaterial so long as the blade has a journal support which causes it to turn by the engagement of the pinion and rack in its vertical movement.

I have not shown the feed wires for supporting combustion in the lamps, but it is obvious they may be applied in any well known manner. The blades of course are colored on each side to correspond with the color of the lamps. I have shown but one signal blade as it is obvious the principle is the same where one or two are employed.

Having described my invention, what I claim is—

1. The combination of a post A, a pivoted swinging weighted arm C mounted on the post, a segmental rack I, a shaft G attached at one end to and swinging with the weighted arm, a signal blade D rotatable upon the swinging shaft, and a gear-wheel P attached to the inner end of the signal blade and engaging the segmental rack, substantially as described.

2. The combination of the signal blade having one or more lamps upon each side journaling upon a shaft carrying pinion P, engaging with the segmental rack I, with the post A, and shaft B journaled thereon, whereby the signal blade is revolved with each vertical movement thereof, substantially as specified.

In testimony whereof I have hereunto set my hand.

EDWARD W. HARDEN.

Witnesses:

T. SIMMONS,  
C. W. MILES.