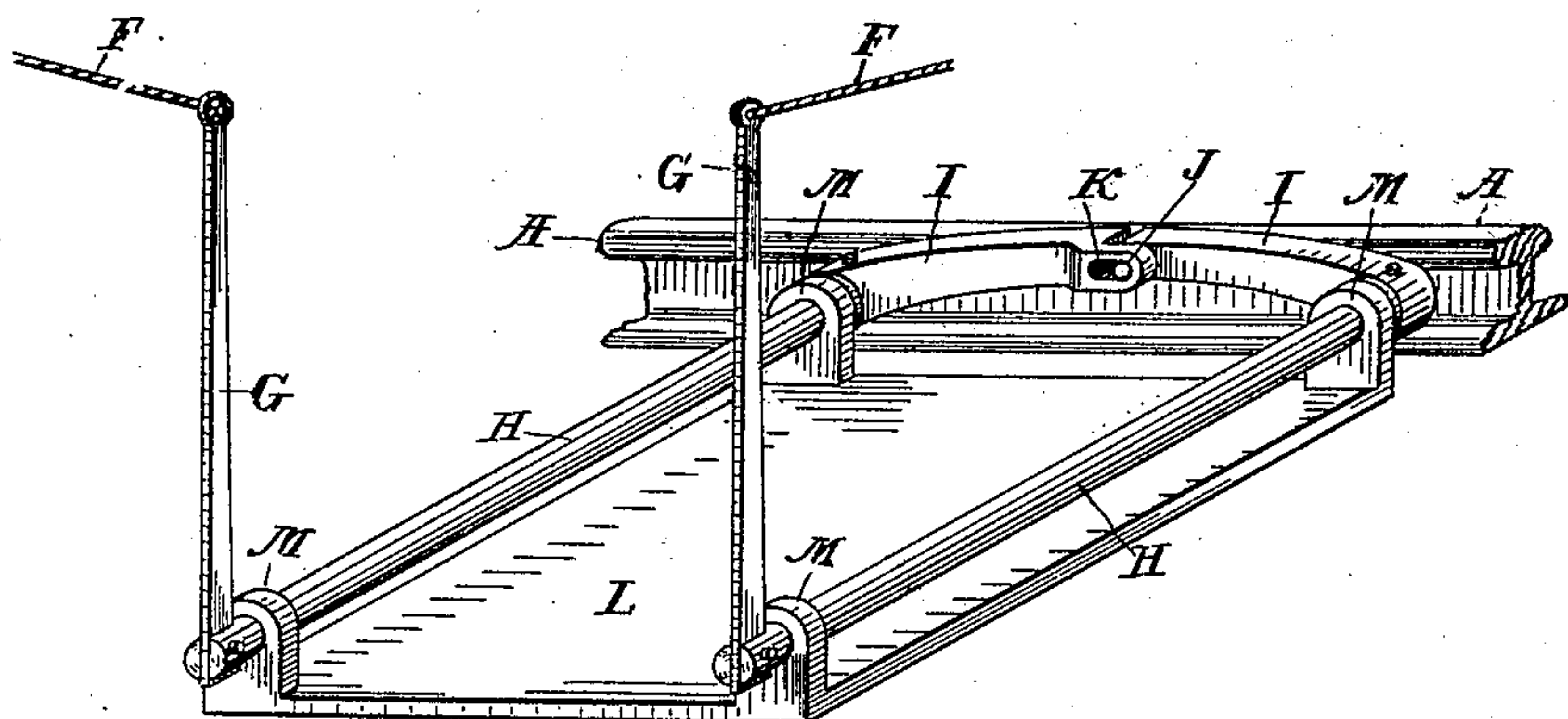
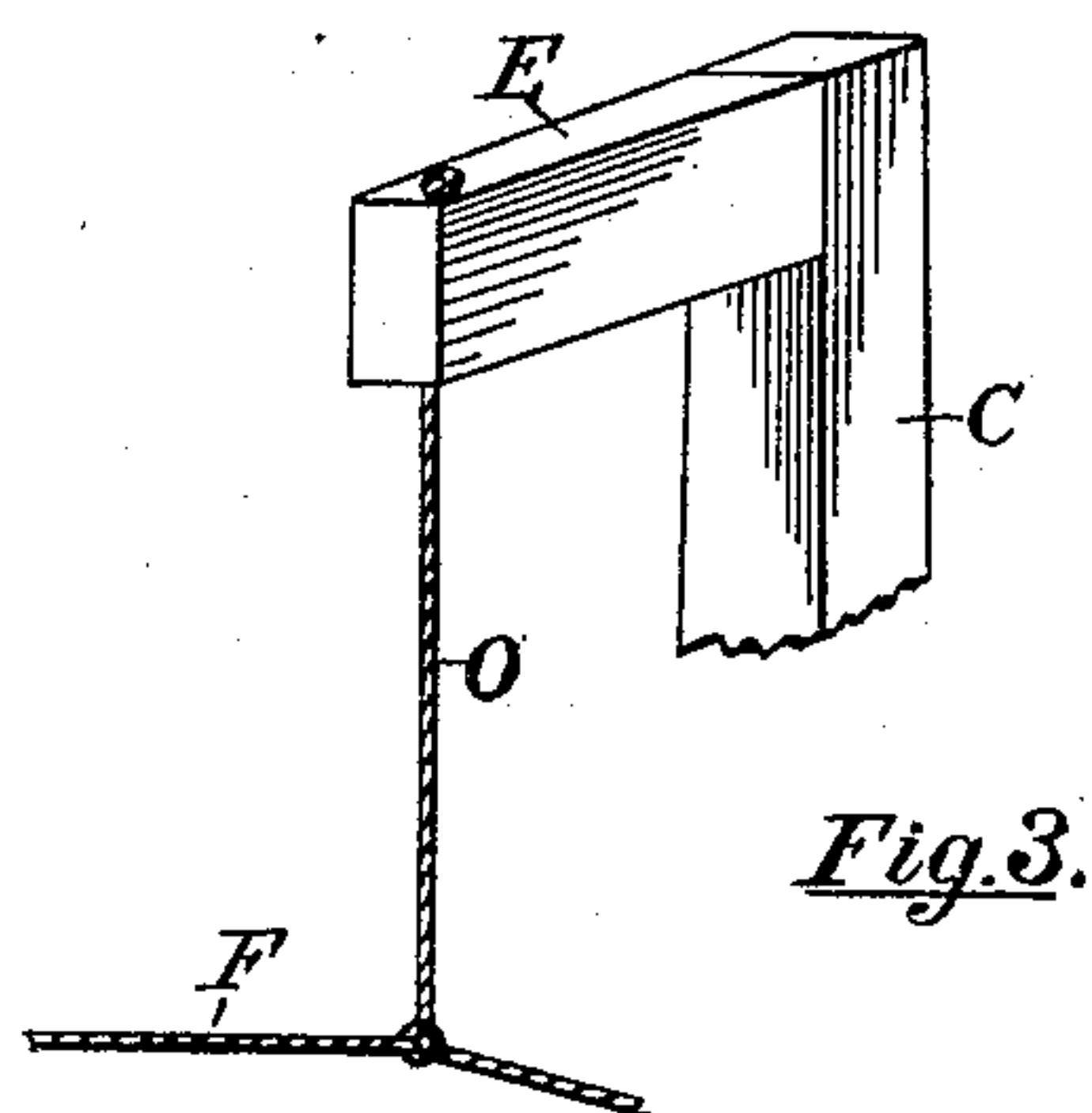
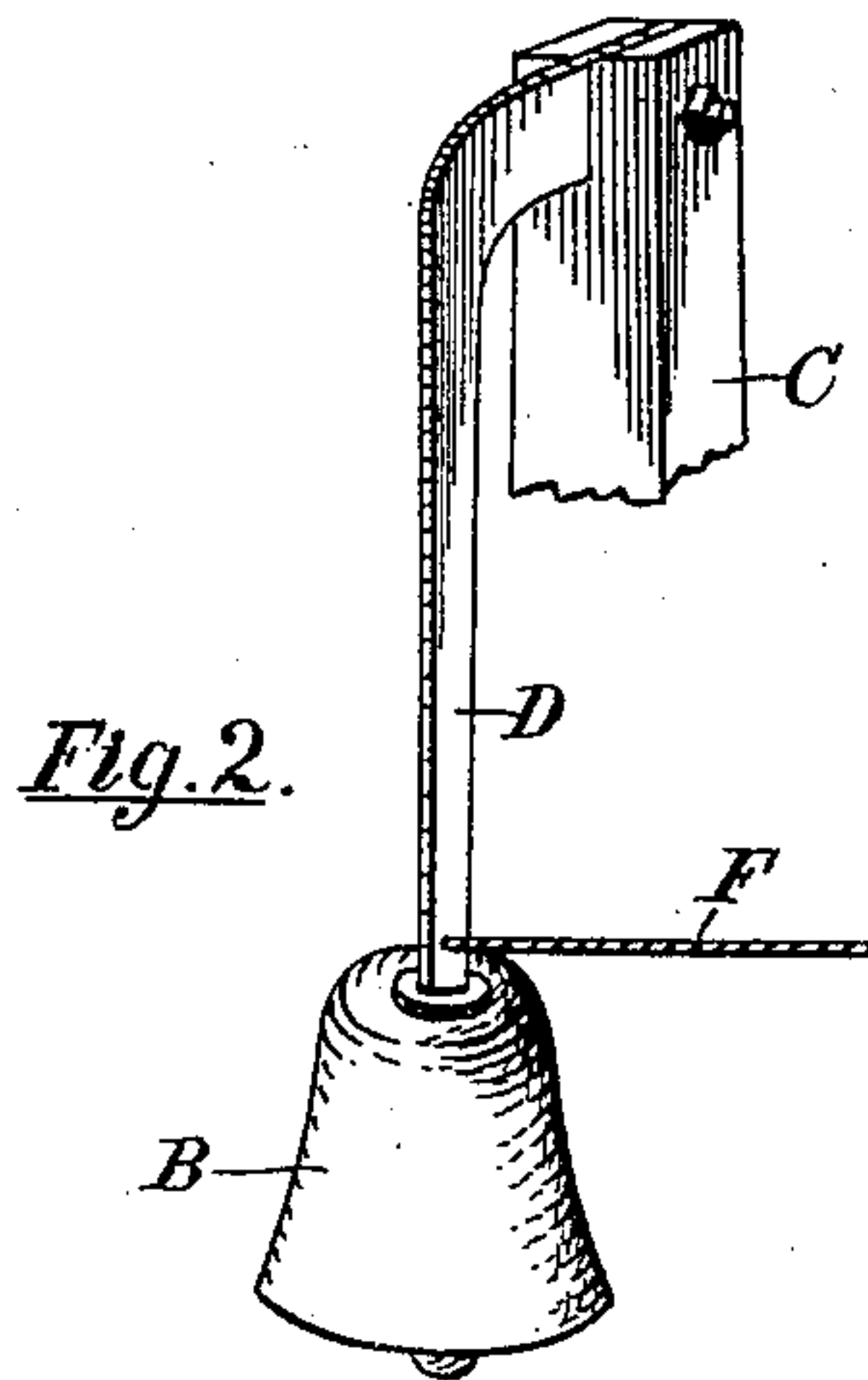
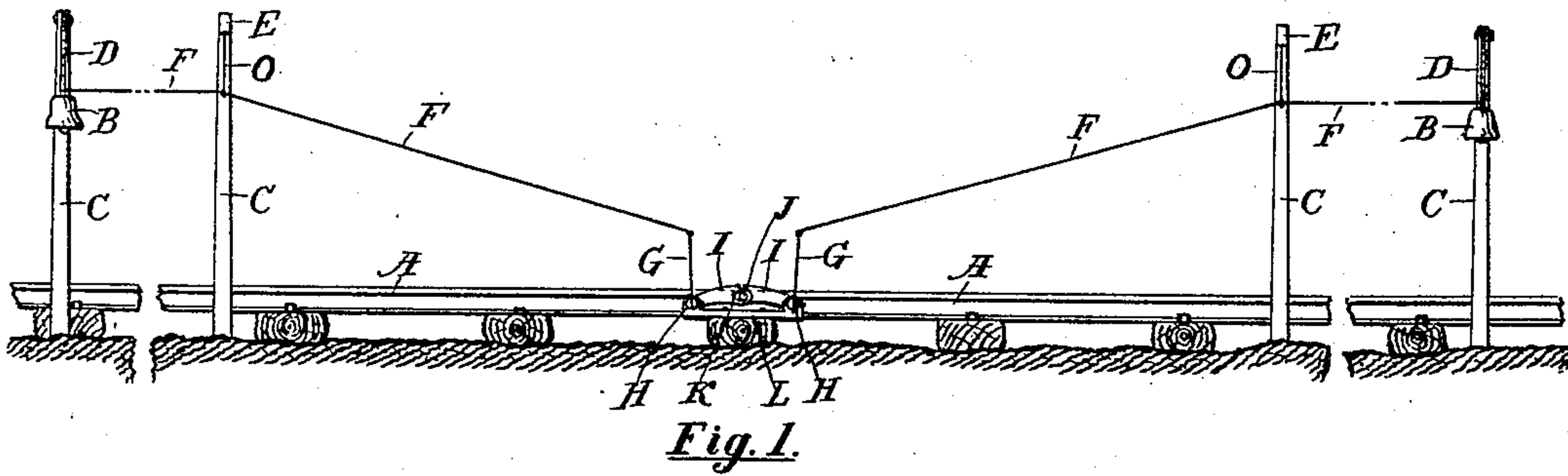


No. 773,718.

PATENTED NOV. 1, 1904.

J. CRUMLEY.  
RAILWAY SIGNAL.  
APPLICATION FILED FEB. 23, 1904.



Witnesses  
Georgiana Chace.  
Edward R. Monroe.

Inventor  
James Crumley  
By  
Luther V. Moulton  
Attorney

# UNITED STATES PATENT OFFICE.

JAMES CRUMLEY, OF GRAND RAPIDS, MICHIGAN.

## RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 773,718, dated November 1, 1904.

Application filed February 23, 1904. Serial No. 194,671. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES CRUMLEY, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Railway-Signals; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in railway-signals, and more especially to signals adapted to sound an alarm upon the approach of a railway-train and operated automatically by the train itself; and its object is to provide a simple and reliable device not likely to get out of order and cheaply constructed.

My device consists of the combination and arrangement of elements hereinafter more fully described, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a device embodying my invention; Fig. 2, a detail of the bell-support in perspective; Fig. 3, a detail of the line-support in perspective, and Fig. 4 a perspective detail of the operating mechanism.

Like letters refer to like parts in all of the figures.

A represents one rail of any railway-track. B B represent any suitable bells or other mechanically-operated alarm devices arranged at convenient points along the line of the railway and at a suitable distance from the operating means to properly indicate the approach of a train when the train is passing said means. C represents any suitable series of posts to support the bells and lines. The bells are each supported upon a flexible hanger D, preferably a flat plate, extending horizontally and thence downward from the top of one of the posts C and having on its lower and movable end a suitable bell or other alarm mechanism B. This hanger at its lower end is adapted to vibrate in a direction parallel with the track, and thus cause the bell to be sounded whenever said hanger is vibrated.

F is a line of cord, wire, or other suitable material attached at one end to the hanger D near

the bell to vibrate the same and extending thence to the operating means arranged at a sufficient distance away to properly indicate the approach of the train when passing said means. To support this line and permit the same to vibrate longitudinally, a series of posts C are provided, with horizontally-projecting arms E, from which latter depend suitable flexible supports O, preferably of cord or wire, which supports move freely at their lower ends and are attached to the line F and support the same.

To move the line F longitudinally, and thus vibrate the hangers D and bells B, I provide at a point between said bells a device consisting of the mechanism shown in Fig. 4, consisting of a suitable bed-plate L, attached to the tie alongside of the rail A of the track, said plate being provided with upwardly-projecting journal-bearings M, in which are mounted rock-shafts H, with their inner ends adjacent to and below the upper surface of the rail A and extending laterally therefrom. These inner ends of the rock-shafts are connected by upwardly and inwardly curved arms I, meeting midway between said shafts and with their vertically-movable and adjacent ends normally close to the side of the rail A and somewhat above the upper surface of the same. The adjacent ends of these arms I are connected by a pin J, inserted in one arm and movable in a slot K in the other arm, the pin engaging the end of the slot as the arms rise, and thus limiting their upward movement and traversing the slot as the arms are depressed by the passing train. In the outer ends of the rock-shafts are inserted upwardly-projecting flexible arms G, to the upper ends of which are attached the adjacent ends of the lines F, which lines extend oppositely to the respective bell-hangers D. The wheels of the passing train will engage the adjacent ends of the arms I and depressing the same will vibrate the flexible arms G, and thus produce a longitudinal vibration of the lines F, which will in turn vibrate the hangers D and ring the bells B. These lines F being extended a considerable distance are supported at intervals by means of the supports O, which also permit free longitudinal movement of the lines. The ten-



operative, or a single rock-shaft and oppositely-projecting arms G could be used to operate both signals without materially changing the construction or departing from the invention.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of a bell supported upon a flexible hanger, a railway-track, a rock-shaft, an arm attached to the rock-shaft and arranged adjacent to the track and having its movable end normally above the surface of the track, and adapted to be depressed by the wheels of a passing train, a flexible arm attached to the rock-shaft, a line connecting the said arm with the bell-hanger, freely movable pendulous supports attached to the line,

an elongated opening in the other arm, upwardly-projecting flexible arms attached to the outer ends of the rock-shafts, oppositely-extended lines connected to the upper ends of the said arms, a series of posts having horizontally-projecting arms, pendulous hangers attached to the said arms and supporting the line, horizontally and downwardly extended flexible hangers attached to the outermost posts of the series and having said lines attached thereto, and bells attached to the movable ends of said hangers.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES CRUMLEY.

Witnesses:

LUTHER V. MOULTON,  
GEORGIANA CHACE.