No. 611,149. Patented Sept. 20, 1898.

W. F. RENTON.

RAILWAY SIGNAL APPARATUS.

(Application filed May 24, 1898.)

(No Model.)

Fig. 2.

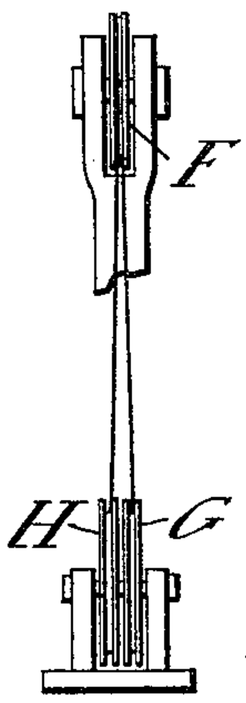


Fig. 1.

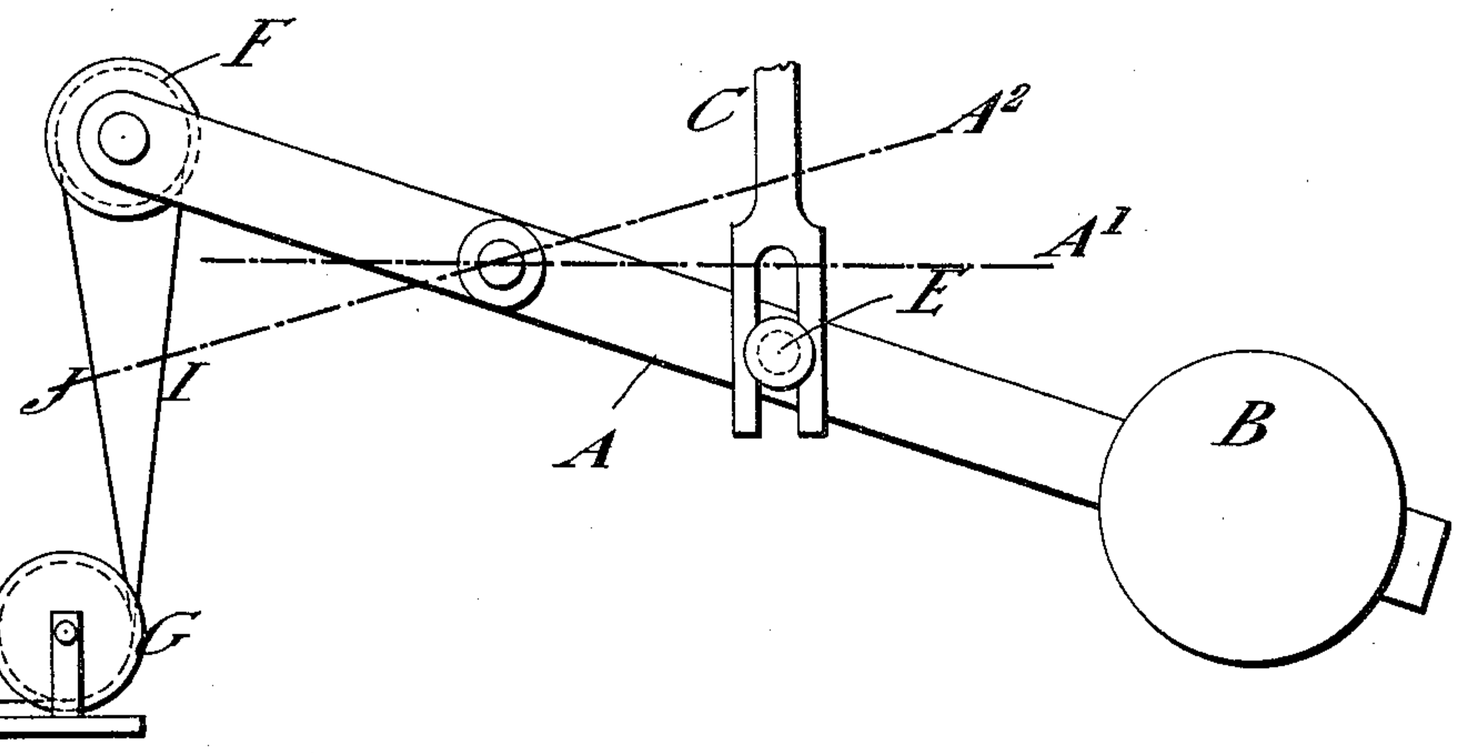


Fig. 4.

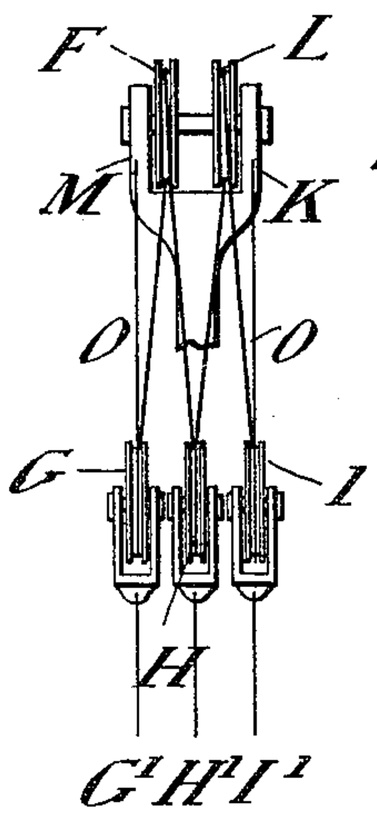
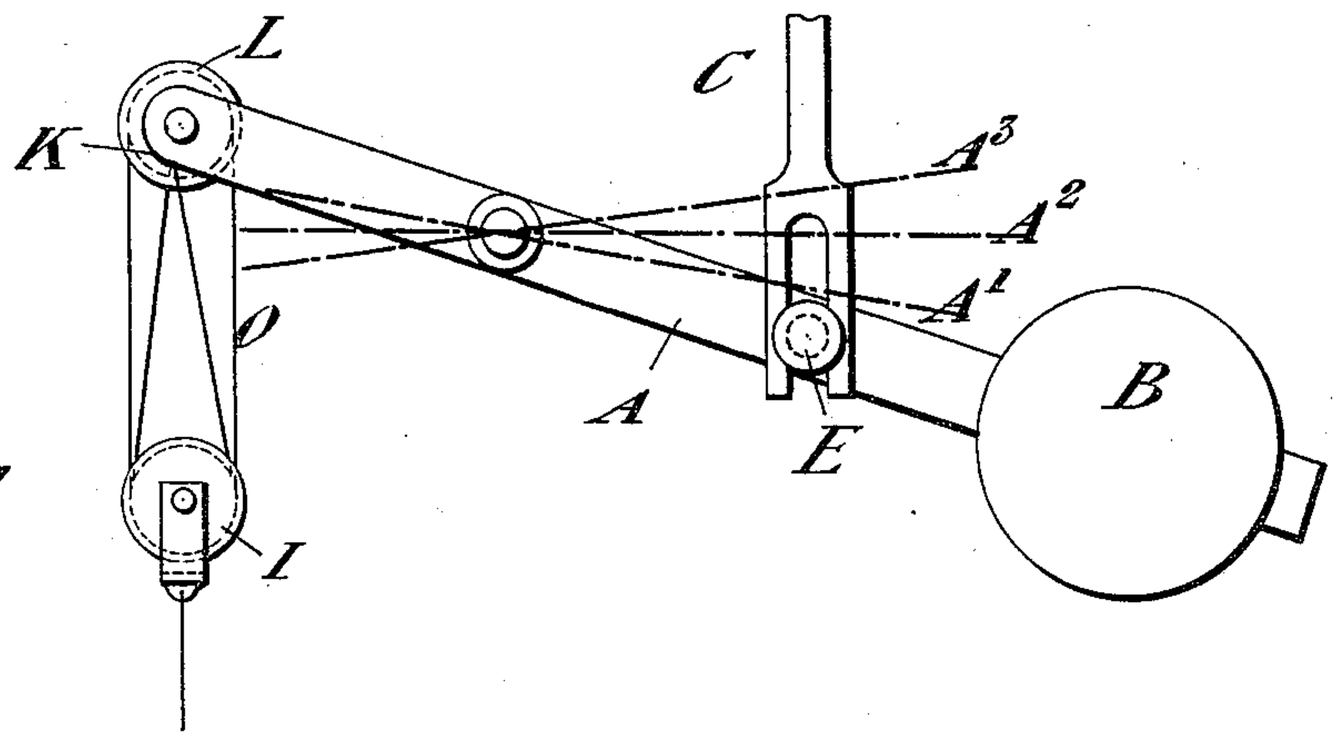


Fig. 3



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM F. RENTON, OF SHEFFIELD, ENGLAND.

RAILWAY SIGNAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 611,149, dated September 20, 1898.

Application filed May 24, 1898. Serial No. 681,571. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FREDERIC RENTON, a citizen of England, residing at No. 6 Claremont Crescent, Northumberland road, Sheffield, in the county of York, England, have invented a certain new and useful Improvement in Railway Signal Apparatus, (for which I have applied for a patent in Great Britain, dated October 26, 1897, No. 24,821,) of which the following is a specification.

In many cases a railway-signal has to be placed under the control of two or more separate and it may be distant signalmen, so that the semaphore-arm cannot be lowered to indicate "safety" unless both or all the signalmen pull over their levers for that purpose.

My invention relates to apparatus for working the signal under these conditions, as I shall describe, referring to the accompanying drawings.

Figure 1 is a side view, and Fig. 2 is an end view, of a signal-lever and its connections arranged according to my invention, so that the signal is under the control of two separate signalmen. Figs. 3 and 4 are corresponding views showing the arrangement for control of the signal by three signalmen.

Referring first to Figs. 1 and 2, the ordinary balance-weight B employed to raise the semaphore-arm to indicate "danger" is fixed on one arm of a lever A, having mounted on its other arm a pulley F, over which passes a wire I J, which is led over suitable guide-pulleys G and H and has its ends attached to both the separately-operated and it may be distant signal-levers. A pin E on the loaded arm of the lever is engaged in a slot or forked gab at the lower end of the vertical rod C, which is connected in the usual way to a lever-arm projecting beyond the fulcrum of the semaphore-arm. This slot or gab is of such length that when only one of the two signal-levers is pulled over, drawing I or J, the lever A takes the position A′ and the pin E is moved up to the end of the slot or gab without raising the vertical rod C; but when both the signal-levers are pulled over, drawing both I and J, lever A is raised to the position A^2, and the pin C then raises the vertical rod C, lowering the semaphore-arm to indicate "safety." When either signal-lever is moved back to danger position, releasing I or J, the pin E descends in the slot or gab, allowing the loaded arm of the lever to descend, raising the semaphore-arm to indicate "danger."

When the signal has to be controlled by three signalmen, the arrangement shown in Figs. 3 and 4 is adopted. The lever A has mounted on its end two pulleys F and L, and a cord or chain O, which has its ends attached to A at K and M, is passed around these pulleys and three pulleys G, H, and I, which are mounted in yokes attached to the three pulls G′, H′, and I′, leading from the three separate signal-levers. The stroke of each of these signal-levers is such that when it is pulled over the lever A is raised to A′. When two are pulled over, it is raised to A^2, and it is not until the third is also pulled over that the lever is raised to A^3, the pin E raising the rod C and so lowering the semaphore-arm to indicate "safety."

Similar arrangements of pulleys may obviously be employed when a signal has to be controlled by a greater number of separate operators.

Having thus described the nature of this invention and in what manner the same is to be performed, I declare that what I claim is—

1. In combination with the loaded lever and vertical rod employed for operating a semaphore railway-signal, a pulley mounted on the lever and a cord or chain passing over the pulley and having its ends attached to two separate signal-pulls, the pin of the lever being engaged in a slot of the vertical rod of such length as to allow free stroke of the pin due to one of the pulls substantially as described.

2. In combination with the loaded lever and vertical rod employed for operating a railway semaphore-signal a plurality of pulleys mounted on the lever, a cord or chain having its ends attached to the lever and passed over these pulleys and other pulleys in number one greater than the pulleys on the lever, each of these latter pulleys being mounted in a yoke attached to a separate signal-pull, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

W. F. RENTON.

Witnesses:
HARRY OVERTON,
W. HAGUE.