

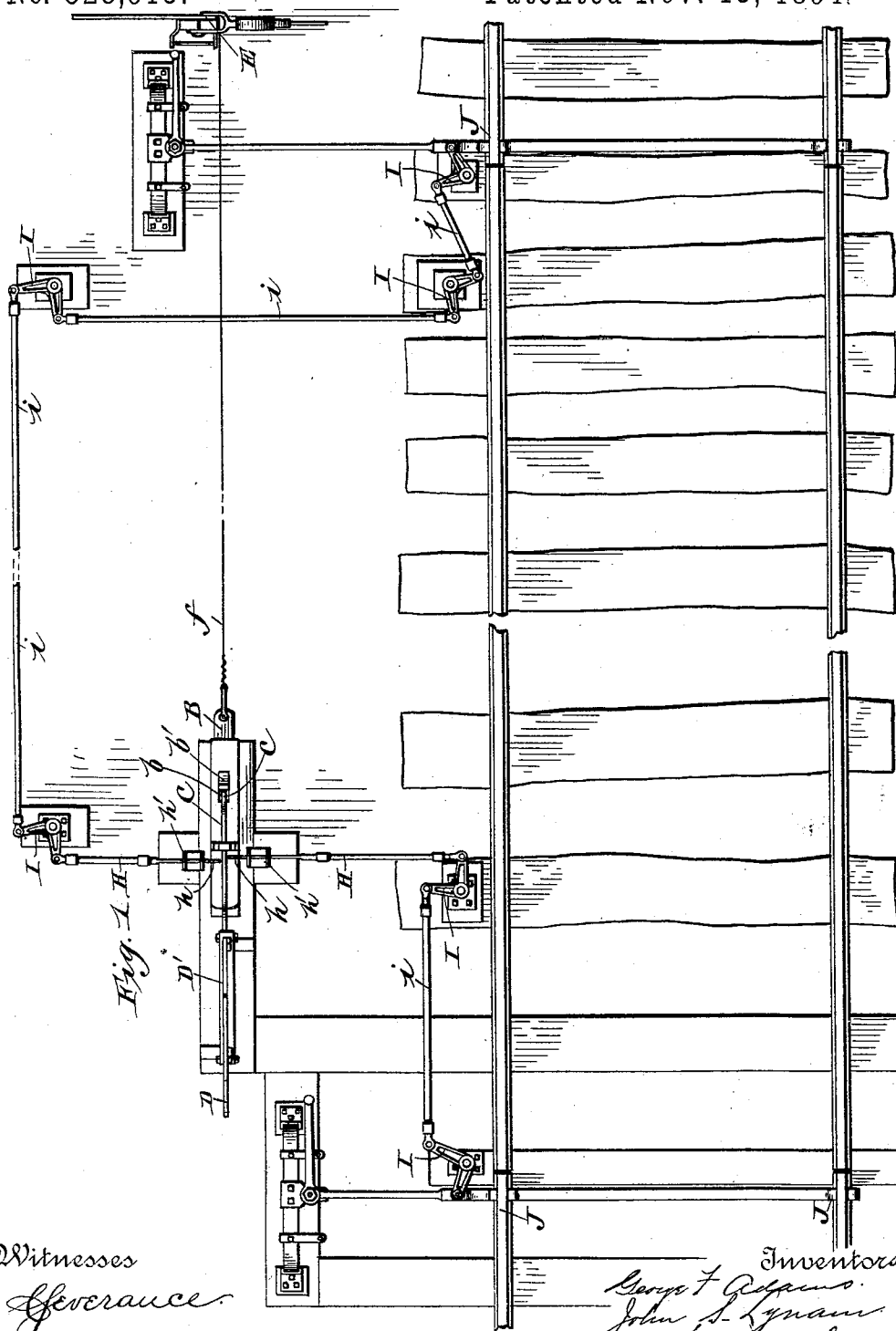
(No Model.)

2 Sheets—Sheet 1.

G. F. ADAMS & J. S. LYNAM.
RAILWAY SIGNAL.

No. 528,913.

Patented Nov. 13, 1894.



Witnesses

Cleverance

Will Harry Muzzy

Inventors

Garys & Adams

John S. Lynam

Maxim Knudsen

Attorneys

UNITED STATES PATENT OFFICE.

GEORGE F. ADAMS, OF NASHUA, NEW HAMPSHIRE, AND JOHN S. LYNAM,
OF WINCHESTER, MASSACHUSETTS, ASSIGNORS TO CHARLES S. COL-
LINS, OF NASHUA, NEW HAMPSHIRE.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 528,913, dated November 13, 1894.

Application filed February 17, 1894. Serial No. 500,551. (No model.)

To all whom it may concern:

Be it known that we, GEORGE F. ADAMS,
residing at Nashua, in the county of Hills-
borough and State of New Hampshire, and
5 JOHN S. LYNAM, residing at Winchester, in
the county of Middlesex and State of Massa-
chusetts, citizens of the United States, have
invented certain new and useful Improve-
ments in Railway-Signals; and we do hereby
10 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.

Our invention relates to improvements in
15 mechanism for operating signals on railroads
and has more especially to do with signals
operated in connection with switches and the
objects of the invention are, to automatically
release and raise the signal to danger by the
20 act of opening a switch or switches, also to
prevent the signal or semaphore being reset
at safety until said switch or switches are all
closed and the line perfectly clear of any such
obstruction. We attain these objects by the
25 devices described in the following specifica-
tion and illustrated in the accompanying
drawings, in which latter—

Figure 1. represents a top plan view of the
devices embodying our invention; the same
30 being shown in connection with two closed
switches and the semaphore being at safety.
Fig. 2 represents a side elevation of the sema-
phore operating slide and its draw bar and
operating mechanism, the switch connections
35 not being shown. Fig. 3. represents a detail
end elevation partly in section of the sema-
phore operating slide and draw bar showing
the switch bars in the positions they assume
when the switches are closed, and Fig. 4. rep-
40 represents a detail end elevation of the same
partly in section, showing one of the switch
levers under the draw bar and the latter
raised so as to allow the semaphore to rise to
danger, indicating an open switch.

45 A in the drawings represents the base por-
tion within which the semaphore operating
slide B is movably mounted. Said slide is of
I-shape in cross section and slides longitudi-
nally in a T-slot *a* formed in the base portion
50 A; said T-slot preventing all vertical move-

ment of the slide and keeping it down prop-
erly to its work. Upon the upper side of this
slide is formed a guiding yoke *a'* within which
the draw bar C slides backward and forward
and up and down. This draw bar C is piv- 55
otally connected at one end to an oscillating
lever D adapted to be operated by the switch-
man to reset the semaphore after the switches
are closed. This lever D is of the ordinary
construction and mounting and is guided in 60
its oscillations by the segmental guide D'.
The draw bar C has its forward end turned
downward so as to form a hook *c* which latter
is adapted to engage an aperture *b* formed in
the top of the slide B, a projection *b'* being 65
provided on the upper surface of the slide in
front of said aperture so as to act as a stop
against which the end of the draw bar will
abut on its forward movement and thus cause
the hook *c* to fall into the aperture *b* and en- 70
able said draw bar to interlock with and op-
erate the slide to reset the semaphore E at
safety, after the switches are closed and the
track consequently left clear.

The slide B is connected at its forward end, 75
by means of a wire or rope *f*, to the sema-
phore E which is pulled down to safety upon
the backward movement of the slide, but im-
mediately upon the hook of the draw bar be-
ing lifted out of the aperture in the slide, the 80
latter is pulled forward by the weight of the
semaphore descending and the latter set at
danger.

A single semaphore is all that is necessary
to show the condition of a number of switches 85
connected thereto.

As before stated to operate the semaphore,
and allow it to rise to danger, it is necessary
to disengage the draw bar from the slide. To
do this we provide thrust levers H one for each 90
switch; said levers having beveled ends *h*
adapted to be forced under the draw bar and
thus raise it out of engagement with the slide
when any one of the switches connected to
said levers is operated. The levers H are 95
guided so as to thrust directly under the draw
bar by vertical apertured arms *h'* through
which they pass before engaging the draw
bar. Each of the bars H is connected to its
respective switch by a series of bell crank le- 100

vers I and rods i connecting the same as shown in Fig. 1. Any suitable devices may be employed in lieu of levers H to raise the draw bar. It will thus be seen that if a switch is opened and the line consequently rendered dangerous, the act of opening said switch will cause its respective lever H to be thrust beneath the draw bar and will thus raise the latter and allow the slide to move forward and the semaphore to rise to danger. This will occur if any one of the switches connected to the device is opened or if all are so opened and the semaphore cannot be drawn down to safety until all of the levers H are withdrawn from beneath the draw bar by the closing of the switches, and the hook end of the draw bar allowed to enter the aperture in the slide and thus be able to draw it backward so as to lower said semaphore.

It can be seen from the foregoing that the semaphore is automatically set at danger by the act of opening any one of the switches connected to the system and said semaphore cannot be reset at safety until all the switches are closed and the draw bar allowed to drop into engagement with the slide.

The draw bar and slide are protected with any suitable cover to prevent anyone from tampering with them.

If a switch is opened on the main line the fact is apparent to an engineer as his train approaches as he sees the semaphore at danger and knows instantly that a switch has been left open or perhaps more than one is open. At any rate there is danger in going ahead. The signal is thus taken from the control of the switchman and placed under the control of the circumstances which should govern its conditions, which are either danger or safety.

The switches are operated by any suitable system of switch levers, and the end of one

of the bell crank levers is attached to the thrust lever which is connected to and moves the rails constituting the switch.

What we claim as our invention is—

1. In a railway signal, the combination of an operating slide connected to and adapted to operate the semaphore or signal, a draw bar, an actuating lever connected to the draw bar, said draw bar being adapted to normally engage said slide, bevel ended levers each connected to a switch and adapted to be independently thrust, by the opening of its respective switch, under said draw bar and thus release the said slide and permit the signal connected thereto to rise to danger, substantially as described.

2. In a railway signal the combination of an operating slide connected directly to and adapted to operate the semaphore or signal and provided with a hook engaging aperture and a guiding yoke, a draw bar working in said yoke and adapted to engage the aperture in said slide to operate the latter, an oscillating lever for actuating said draw bar, bevel ended levers each connected to a switch and adapted to be independently thrust by the opening of its respective switch under said draw bar and thus release the said slide and permit the signal connected thereto to rise to danger, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE F. ADAMS.

JOHN S. LYNAM.

Witnesses as to the signature of George F. Adams:

EMMA M. ADAMS,

EDWARD L. ADAMS.

Witnesses as to the signature of John S. Lynam:

F. E. PECKHAM,

IRA F. HARRIS.