

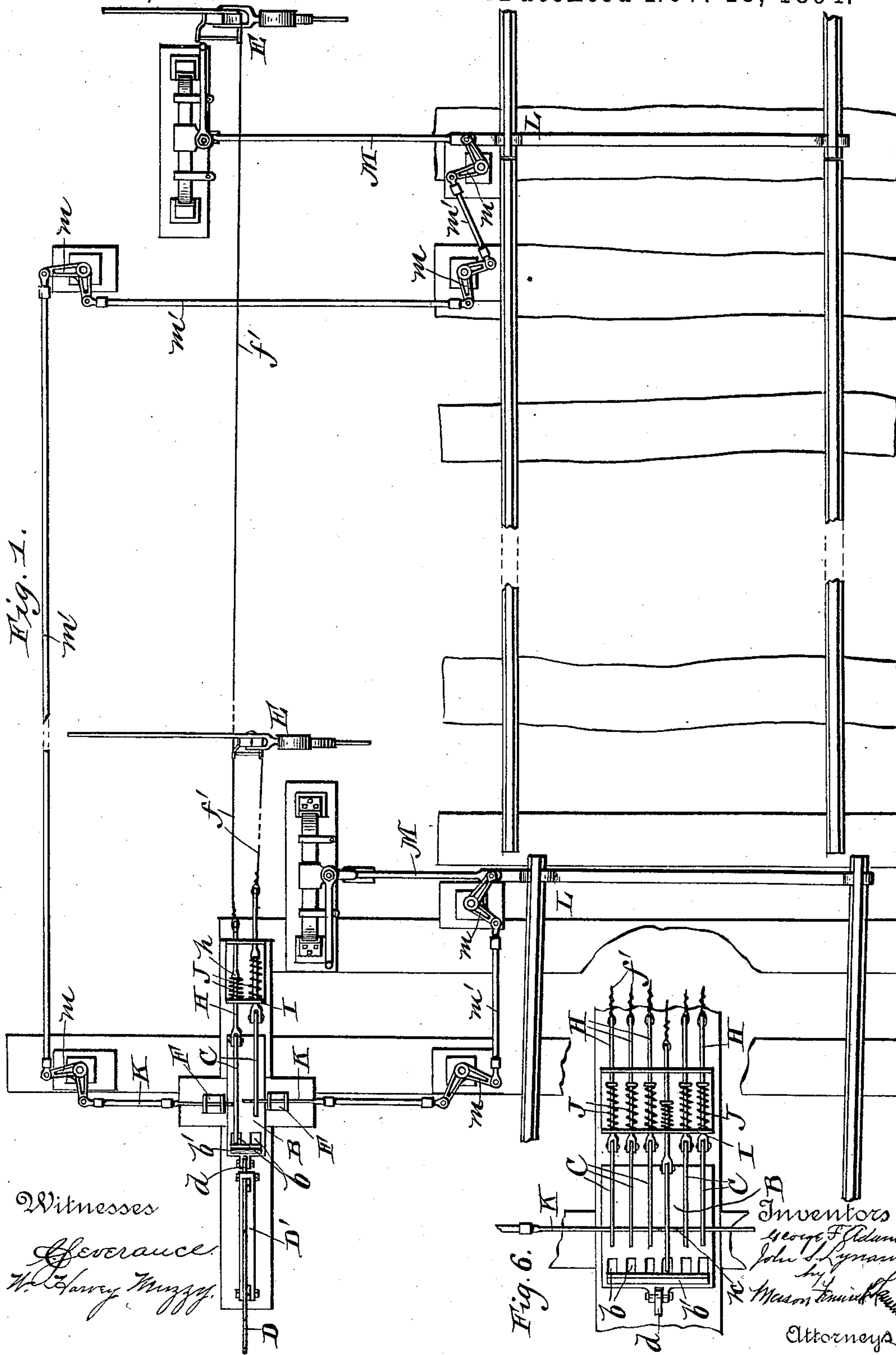
(No Model.)

2 Sheets—Sheet 1.

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

No. 528,914.

Patented Nov. 13, 1894.



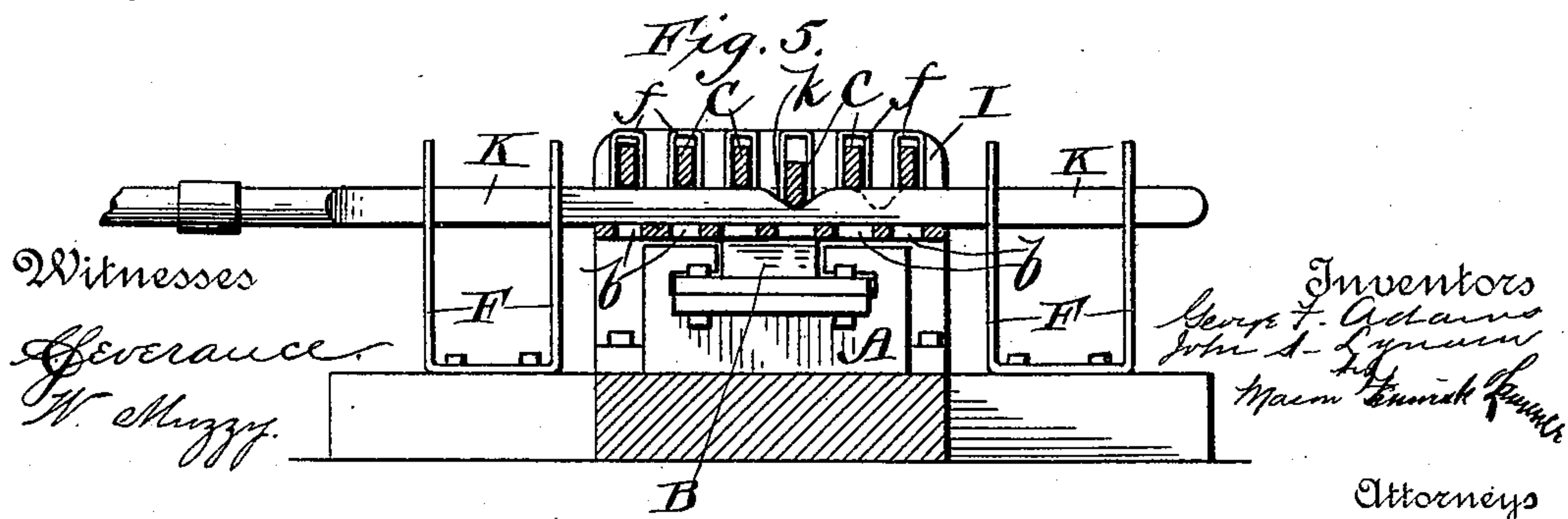
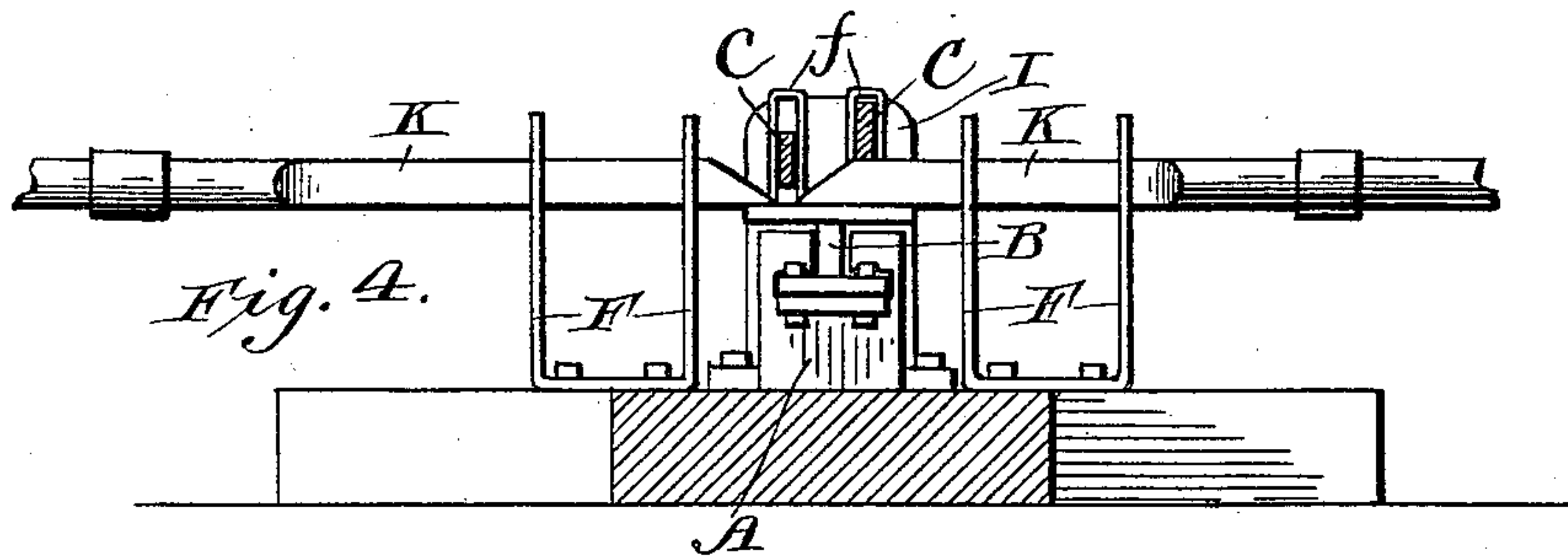
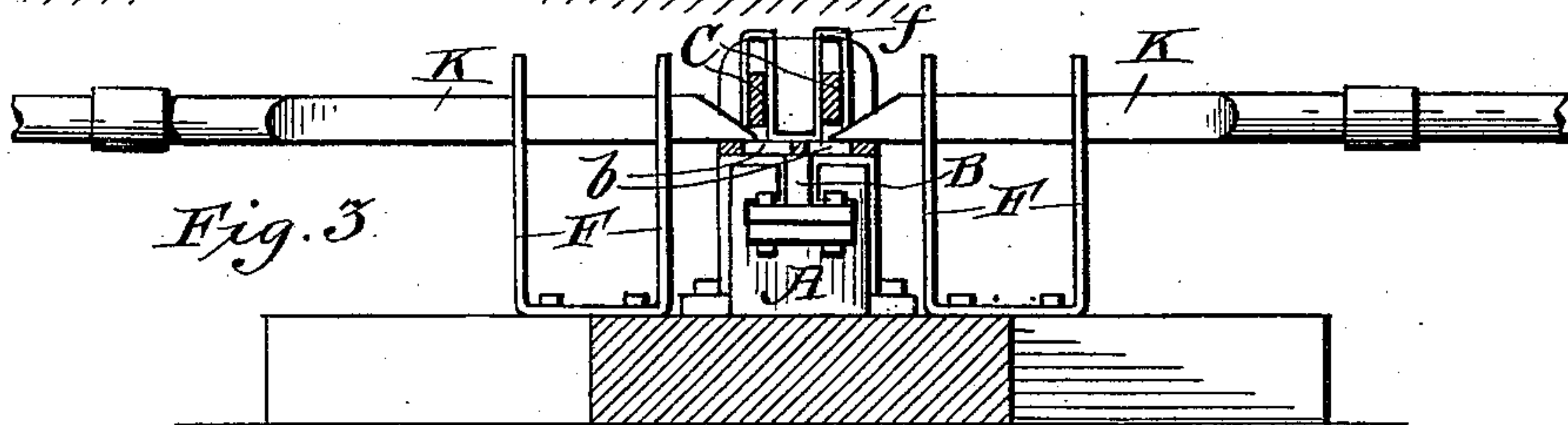
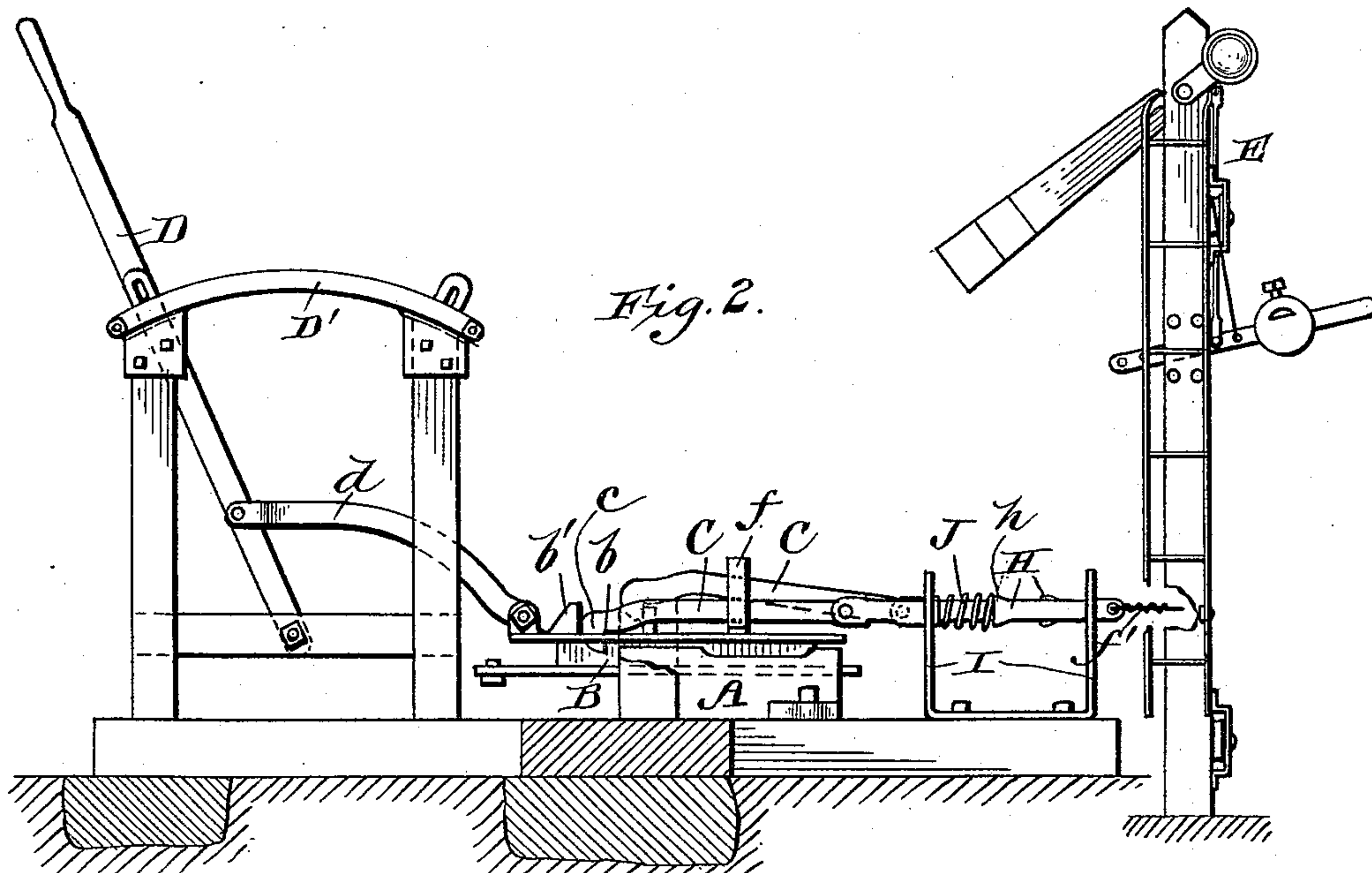
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2 Sheets—Sheet 2.

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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. 528,914, dated November 13, 1894.

Application filed February 17, 1894. Serial No. 500,552. (No model.)

To all whom it may concern:

Be it known that we, GEORGE F. ADAMS, re-
siding at Nashua, in the county of Hillsbor-
ough and State of New Hampshire, and JOHN
5 S. LYNAM, residing at Winchester, in the
county of Middlesex and State of Massachu-
setts, citizens of the United States, have in-
vented certain new and useful Improvements
in Railway-Signals; and we do hereby declare
10 the following to be a full, clear, and exact de-
scription of the invention, such as will enable
others skilled in the art to which it apper-
tains to make and use the same.

Our invention relates to improvements in
15 railway signals and has more especially to do
with signals operated in connection with
switches and the objects of the invention are,
to provide a signal for one or more switches
and mechanism connecting each switch and
20 its respective signal whereby the signal is
automatically set at danger by the opening
of said switch, also to provide mechanism for
preventing the signal representing a given
switch from being reset at safety until said
25 switch is closed, and also for preventing more
than one signal being at safety at the same
time. We attain these objects by the devices
described in the following specification and
illustrated in the accompanying drawings, in
30 which latter—

Figure 1. represents a top plan view of the de-
vices embodying our invention, showing two
switches and their signals one of said switches
being open and its respective signal at dan-
35 ger. Fig. 2. represents a side elevation of the
semaphore, draw bar operating slide, its op-
erating lever and semaphore operating draw
bars, the switch bars being omitted. Fig. 3.
represents an end elevation, partly in section,
40 of the draw bar slide, draw bars and the switch
bars; the latter being in the position that
they assume when the switches are closed.
Fig. 4. represents the same view with one of
the switch bars beneath its respective draw
45 bar, indicating that the switch is open. Fig.
5. represents an end elevation, partly in sec-
tion, of a modified form of the device pro-
vided with six draw bars and one notched
switch bar connected to six different switches;

and Fig. 6. represents a top plan view of the 50
devices shown in Fig. 5.

A in the drawings, represents the base
within which is movably mounted the draw
bar operating slide B which in turn is adapted
by means of apertures *b* cut in its upper sur- 55
face to engage and operate draw bars C con-
nected to the respective semaphores E, E.
The slide B is I-shaped in cross section and
is mounted in a T slot in the base A so as to
be capable of longitudinal movement to op- 60
erate said draw bars but is prevented any
vertical movement because of said T slot
within which it moves.

A hand lever D adapted to be operated by
the switchman is guided in its oscillations 65
by a segmental guide D' and is pivotally con-
nected to the slide B by a rod *d* and thus
upon the movement of said lever D either
backward or forward the slide is actuated in
the same direction. Upon the top of the slide 70
is provided a stop bar *b'* just in front of the
aperture *b* and against which the draw bars
C abut and their hook ends *c* are thereby
caused to fall into the said apertures.

Guiding yokes *f*, one for each draw bar are 75
provided upon the upper side of the slide B
and in these guides the draw bars move back-
ward and forward and up and down. Each
bar is pivotally connected at its rear end to
a spring restrained plunger rod H, said rod at 80
its opposite end being connected by means
of a wire or rope *f'* to a semaphore E. These
plunger rods are mounted in a yoke I, the
upturned arms of which are apertured to al-
low said plunger rods to slide longitudinally 85
therein. Each rod H is provided with an an-
nular shoulder or enlargement *h*, and a spiral
spring J is placed about the rod and bears
against this shoulder and one of the arms of
the yoke I and the draw bars connected to 90
said plungers are thus drawn backward and
the semaphores connected thereto allowed to
rise to danger when said bars are disengaged
from the slide. Any other suitable devices
for causing this action may be employed. 95
This disengagement of the rods from the ap-
ertures in the slide is accomplished by means
of bevel ended rods K, K, each connected to

a switch L, L and adapted to be automatically thrust beneath its respective draw bar to raise it out of engagement with the slide B, upon the switch connected thereto being
 5 opened. Any other suitable device for raising the bars may be employed. The ends of these thrust rods are mounted in apertured guiding yokes F so as to be guided to thrust directly beneath the draw bars when they are
 10 operated and thereby raise the same out of engagement with slide B and allow the semaphore or semaphores to rise to danger. To reset the semaphore at safety the slide B is pushed forward by moving the lever D forward, and the hook or hooks of the sema-
 15 phores at danger, enter their respective apertures in the slide and upon the reverse movement of the latter the semaphores are drawn down to safety.

20 Each of the draw bars C is connected to a separate semaphore so that the condition of each separate switch is indicated by its individual semaphore.

Each of the thrust rods K, K is connected
 25 to the thrust rod M of its respective switch by means of bell crank levers *m* and connecting rods *m'*; suitable switch operating mechanism being used.

It will be seen from the foregoing that each
 30 switch has its own independently operated semaphore.

Fig. 5 shows a modified form of the invention in which six draw bars C are used and only one thrust rod K, the latter being connected to six different switches by any suitable system of levers and being provided
 35 with a single notch *k* into which any one of the draw bars is adapted to fall and thus engage the slide and draw the semaphore connected thereto to safety, thus indicating that the particular switch represented by that
 40 semaphore is closed.

If all the switches are at danger or not in the desired connection with the line the rod
 45 K will be so moved by its connection with said switches that none of the draw bars will register with the notch *k* and therefore all the semaphores will be at danger and none of them can be drawn to safety until the switch
 50 is closed and then only one switch can be at safety at the same time. This form of our invention is only used when it is desired to have one switch only out of a series of switches in safe communication with the
 55 main line.

A weighted signal or any other suitable device may be substituted for the springs J for withdrawing the draw bars C after they have been released from the slide B by the
 60 lever K.

What we claim as our invention is—

1. In a railway signal the combination of a draw bar operating slide, means for actuating the same, draw bars adapted to engage said

slide and each operating independent sema- 65
 phores and means connected to switches and adapted to force said draw bars out of engagement with said slide to allow the semaphores connected thereto to rise to danger, substantially as described. 70

2. In a railway signal the combination of a draw bar operating slide provided with engaging apertures and guiding yokes for draw bars, means for actuating said slide, spring restrained draw bars adapted to engage said
 75 slide and each operating independent semaphores, and means connected to switches and adapted to force said draw bars out of engagement with said slide to allow the semaphores connected thereto to rise to danger, substan- 80
 tially as described.

3. In a railway signal the combination of a draw bar operating slide provided with engaging apertures, stops and guiding yokes for draw bars, an oscillating lever and connections for operating said slide, spring restrained draw bars adapted to engage said
 85 slide and each operating independent semaphores, and means connected to switches and adapted to force said draw bars out of en- 90
 gagement with the slide to allow the semaphores connected thereto to rise to danger, substantially as described.

4. In a railway signal the combination of a draw bar operating slide provided with a draw 95
 bar engaging aperture and a stop, means for operating said slide, a spring restrained draw bar provided with a hook for engaging the slide and connected to a semaphore, a bevel ended thrust rod connected to a switch and 100
 which is adapted to be thrust automatically beneath the draw bar by the opening of the switch and thereby disengage said bar from the slide, substantially as described.

5. In a railway signal the combination of a 105
 draw bar operating slide, means for actuating the same, draw bars adapted to engage said slide and each operating independent semaphores, means connected to switches and adapted to force said draw bars out of en- 110
 gagement with said slide to allow the semaphores connected thereto to rise to danger and means for actuating said draw bars to move them backward when released from the slide, substantially as described. 115

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

GEORGE F. ADAMS.
 JOHN S. LYNAM.

Witnesses as to the signature of George F. Adams:

EMMA M. ADAMS,
 E. L. ADAMS.

Witnesses as to the signature of John S. Lynam:

F. E. PECKHAM,
 IRA F. HARRIS.