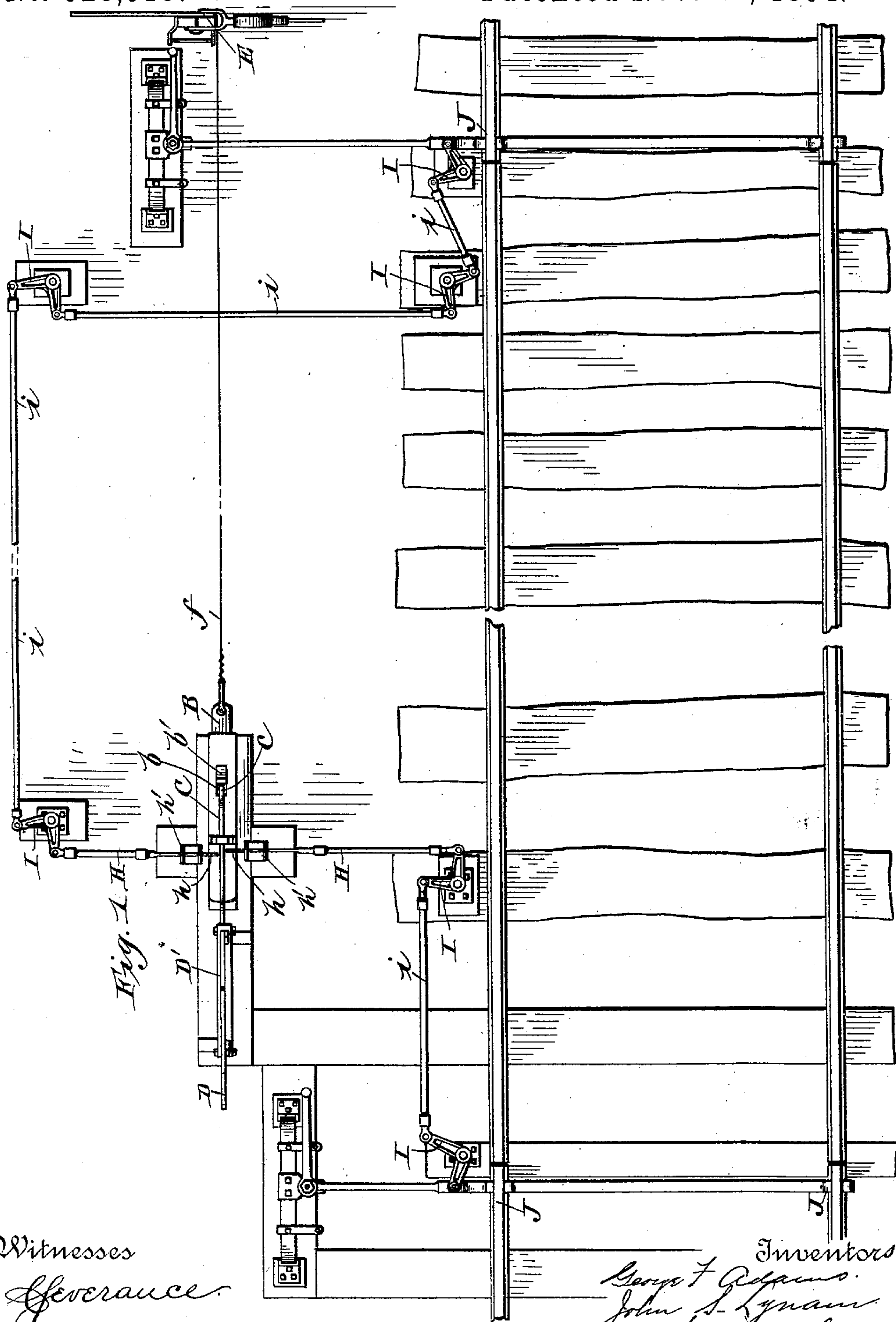


2 Sheets—Sheet 1.

No. 528,913.

Patented Nov. 13, 1894.



Witnesses

Severance.

Will Harvey Muzzey.

Inventors

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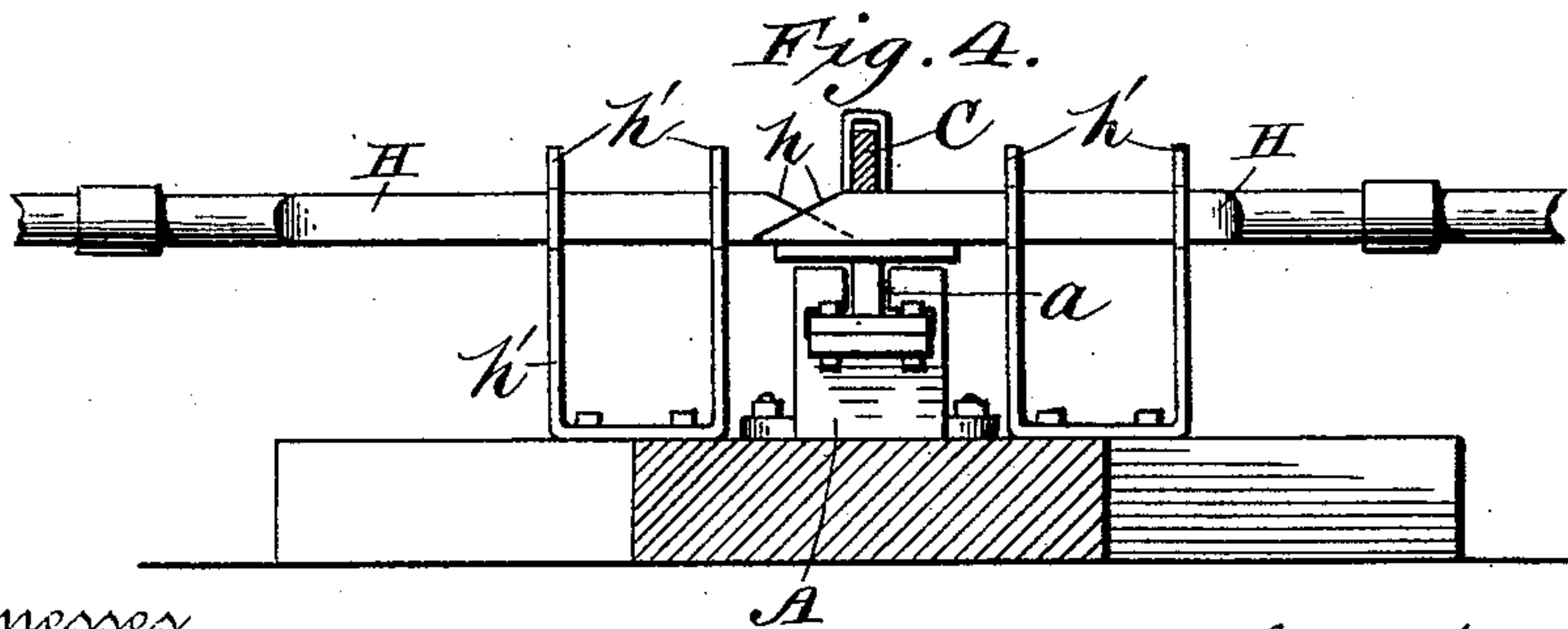
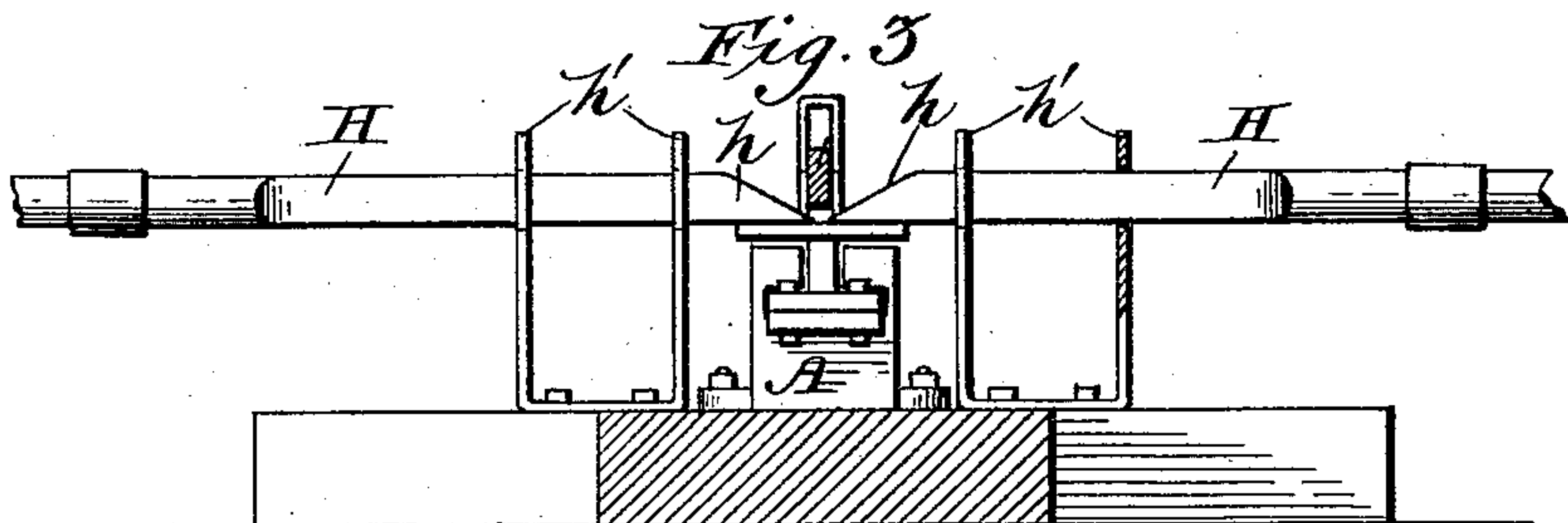
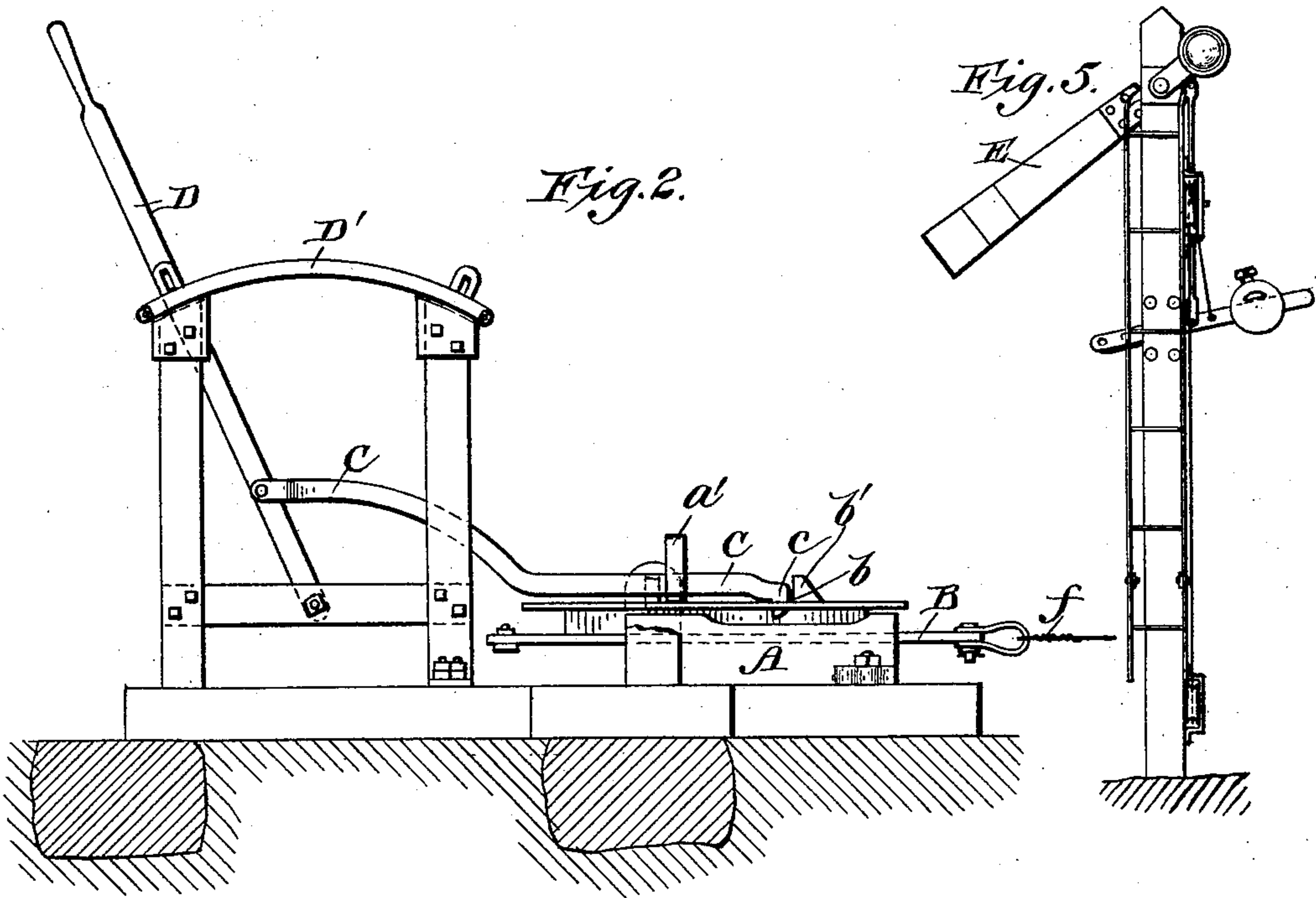
(No Model.)

2 Sheets—Sheet 2.

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

No. 528,913.

Patented Nov. 13, 1894.



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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. 528,913, 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 Hillsborough and State of New Hampshire, and JOHN S. LYNAM, residing at Winchester, in the county of Middlesex and State of Massachusetts, citizens of the United States, have invented certain new and useful Improvements in Railway-Signals; and we 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.

Our invention relates to improvements in 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 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 devices described in the following specification and illustrated in the accompanying drawings, in which latter—

Figure 1. represents a top plan view of the devices embodying our invention; the same being shown in connection with two closed switches and the semaphore being at safety. Fig. 2 represents a side elevation of the semaphore operating slide and its draw bar and operating mechanism, the switch connections not being shown. Fig. 3. represents a detail end elevation partly in section of the semaphore operating slide and draw bar showing the switch bars in the positions they assume when the switches are closed, and Fig. 4. 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.

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

ment of the slide and keeping it down properly 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 pivotally connected at one end to an oscillating lever D adapted to be operated by the switchman to reset the semaphore after the switches are closed. This lever D is of the ordinary construction and mounting and is guided in 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 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 enable said draw bar to interlock with and operate 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, by means of a wire or rope f , to the semaphore E which is pulled down to safety upon the backward movement of the slide, but immediately upon the hook of the draw bar being lifted out of the aperture in the slide, the 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 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 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 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-

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
 5 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
 10 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
 15 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.
 20 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
 25 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.
 30 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
 35 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.
 40 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. 45

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. 55

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. 65 70

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.