

2 Sheets—Sheet 1.

Patented May 17, 1898.

FIG. 2.

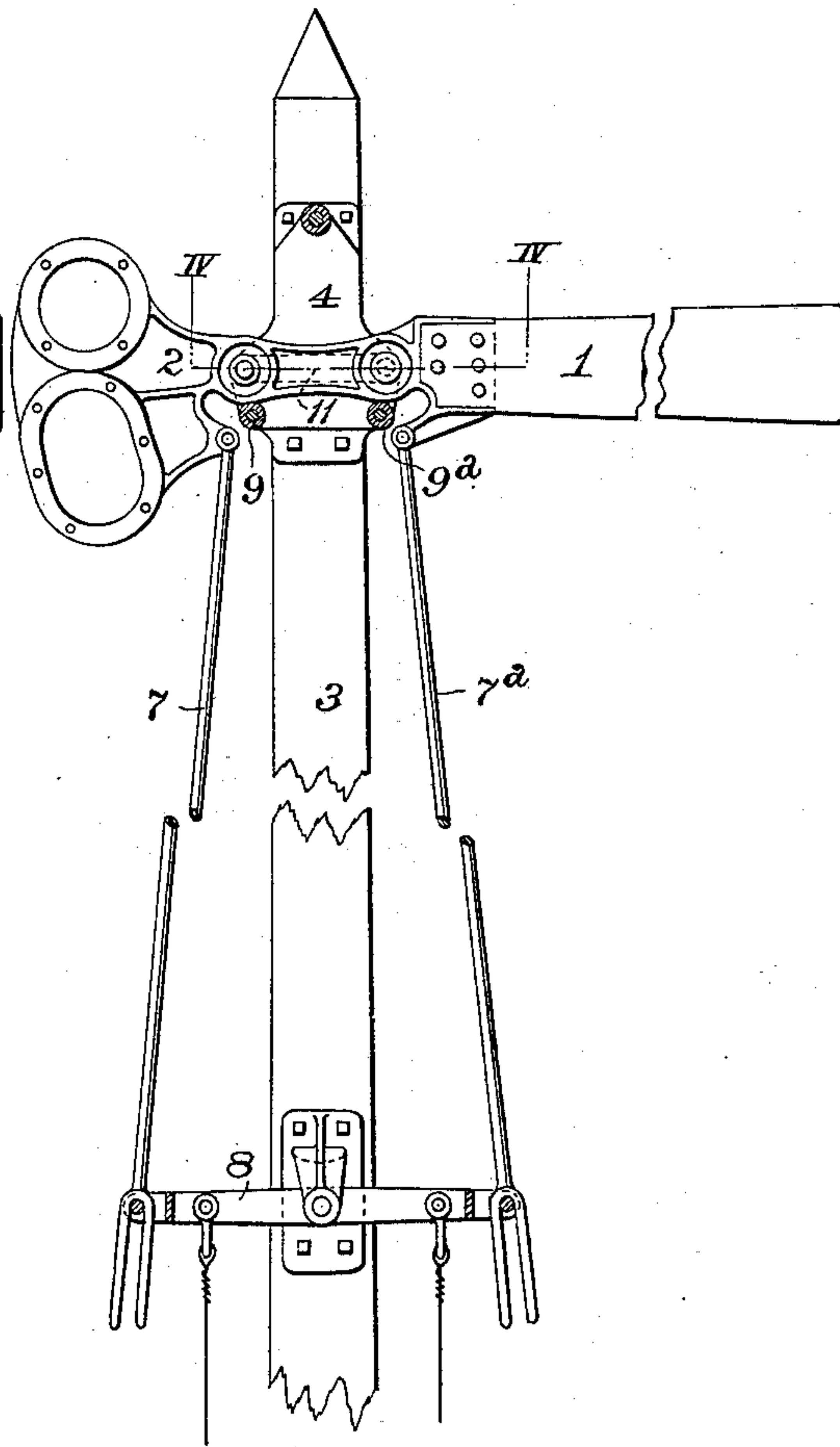
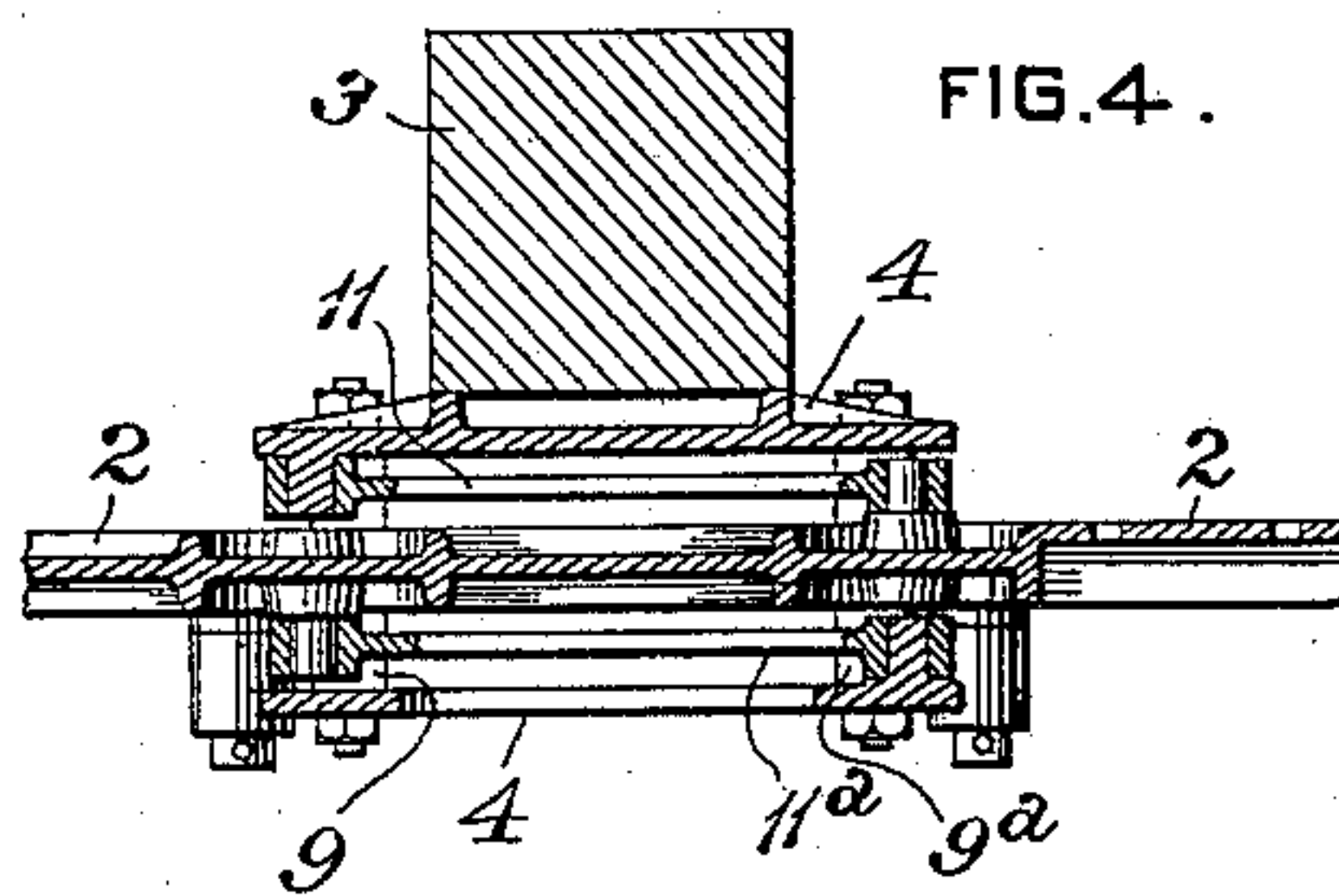


FIG.4.



**WITNESSES:**

Chas. F. Miller.  
Wm. H. Erskine

**INVENTOR,**

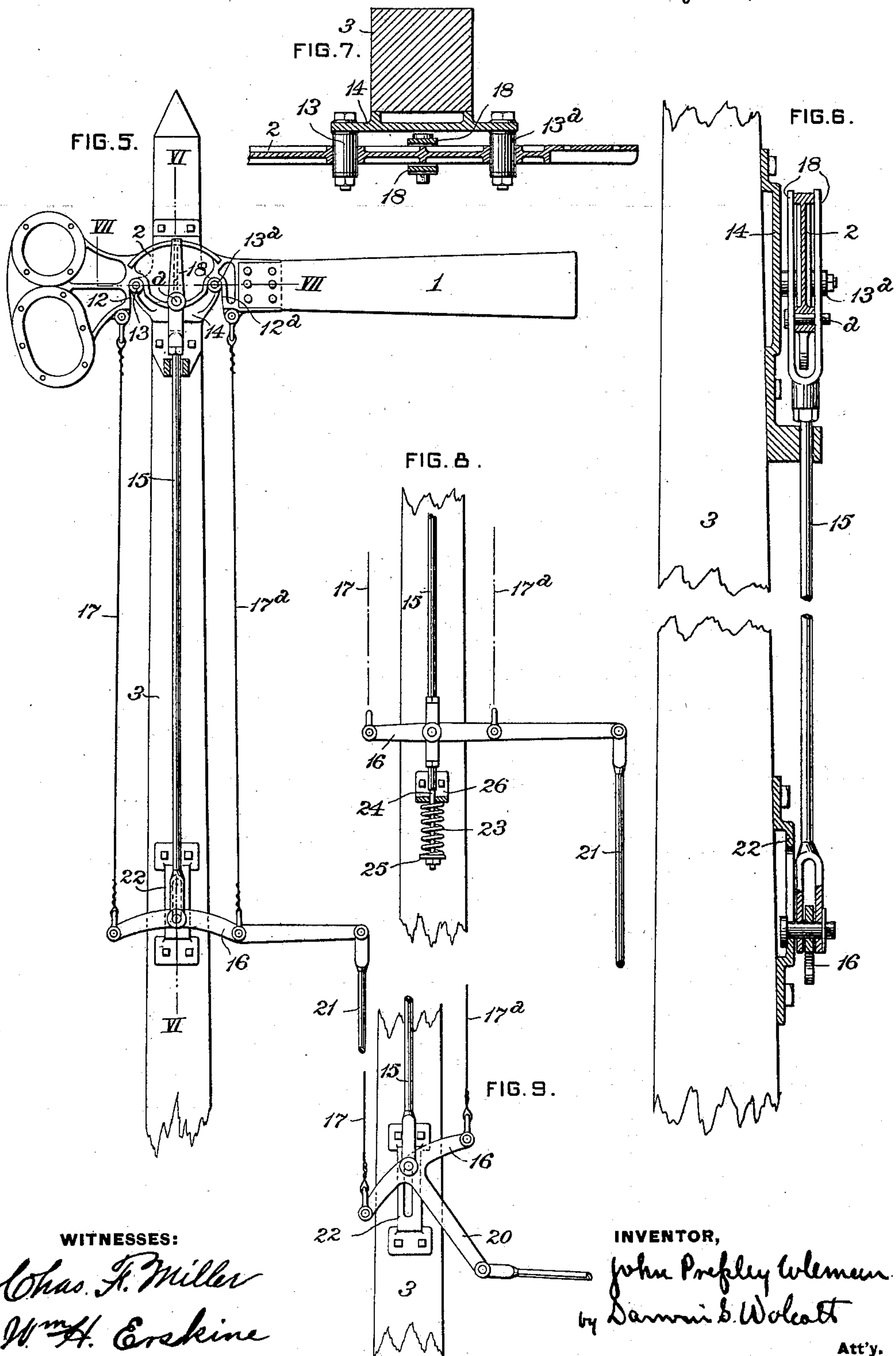
John Prefley Coleman  
by Damon S. Wolcott

**Att'y.**

2 Sheets—Sheet 2.

No. 604,303.

Patented May 17, 1898.





# UNITED STATES PATENT OFFICE.

JOHN PRESSLEY COLEMAN, OF EDGEWOOD PARK, PENNSYLVANIA, ASSIGNOR  
TO THE UNION SWITCH AND SIGNAL COMPANY, OF SWISSVALE, PENN-  
SYLVANIA.

## SIGNAL.

SPECIFICATION forming part of Letters Patent No. 604,303, dated May 17, 1898.

Application filed March 1, 1898. Serial No. 672,184. (No model.)

### *To all whom it may concern:*

Be it known that I, JOHN PRESSLEY COLEMAN, a citizen of the United States, residing at Edgewood Park, in the county of Allegheny  
5 and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Signals, of which improvements the following is a specification.

The invention described herein relates to  
10 certain improvements in railway-signals of the class or kind known as "semaphores," in which the angular position of the blade or arm with relation to its support affords the desired indications. In what is known as  
15 "permissive" block-signaling two trains are, under certain conditions, allowed in the same block, but the last train must be run under control. In order to give the necessary information in such a system of train-running,  
20 three positions of the signals controlling each block are required—to wit, "danger," indicating that the section is closed for train movements; "caution," indicating that a train is proceeding along the block, but at a considerable distance ahead of the train being signaled, and that the latter can enter the block,  
25 but must be held under control, and "safety" or "clear," indicating that the track is clear to the next block-section.

It is an essential requirement in all signaling that in case of the breakage of the connections between the signal and its operating-lever the signal might move automatically to normal or danger position. This function  
35 can readily be effected in two position-signals by weighting the spectacle end of the signal-blade, so as to cause the signal to move from an angle of forty-five degrees or less to the signal-post indicating "safety" up to a horizontal position indicating "danger." As  
40 "caution" is indicated by turning the blade up from its horizontal position to an angle of forty-five degrees or less to the signal-post, it is evident that a weight in the spectacle end  
45 of the blade will prevent any automatic movement of the signal to normal.

The object of this invention is to provide by a suitable construction of signal and its operating mechanism for the certain and automatic movement of the blade, when free to

move, from caution and clear positions to normal or danger position. In general terms the invention consists in the construction and combination substantially as hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figures 1 and 2 are views, partly in elevation and partly in section, illustrating two different forms or embodiments of my improvement. Figs. 3 and  
60 4 are sectional detail views, the planes of sections being indicated by the lines III III and IV IV of Figs. 1 and 2, respectively. Fig. 5 is a view similar to Fig. 1, illustrating a further modification of the invention. Figs. 6  
65 and 7 are sectional views, the planes of sections being indicated by the lines VI VI and VII VII, respectively, of Fig. 5. Fig. 8 is a detail view showing the employment of a spring as an auxiliary for returning the blade  
70 to normal position, and Fig. 9 is a detail view of a modification of the means for shifting the lever.

In the practice of my invention the signal, consisting of the blade 1 and casting 2, is so  
75 constructed as regards the distribution of weight that the center of gravity will coincide approximately with the point at which the blade under usages heretofore in vogue would be pivotally supported. In other words,  
80 in lieu of heavily weighting the spectacle end of the signal the latter is approximately balanced. On the post 3 is bolted a frame consisting of two side plates 4, provided with oppositely-curved slots 5 5<sup>a</sup> for the reception of  
85 pins 6 6<sup>a</sup>, passing through the signal, which is arranged between the side plates of the frame. The pins 6 6<sup>a</sup> are arranged in opposite sides of the center of gravity, and the slots are formed on arcs of circles the centers  
90 of which will coincide with the axes of the pins 6 6<sup>a</sup> when the signal is in normal position, so that the signal can be shifted around the axis of either pin. As these pins are located on opposite sides of the center of gravity,  
95 it is evident that if the signal be shifted on the axis of the pin 6 to caution position the blade portion will be heavier than the spectacle end of the signal, so that the latter will, when free to move, turn to horizontal  
100



position, where it will be held by the pin 6<sup>a</sup>, resting in the bottom of the slot 5<sup>a</sup>. When the signal is turned around the axis of the pin 6<sup>a</sup> to clear position, the spectacle end will be the heavier and will cause a return of the signal to normal position in case of the breakage of any of the connections to the operating-lever.

Rods 7 7<sup>a</sup> have their upper ends connected to the signal in such a manner that an upward movement of the rod 7 will cause the signal to move to "clear" around the axis of pin 6<sup>a</sup>, while a corresponding movement of the rod 7 will shift the signal to "caution."

The lower ends of the rods are forked or slotted for the reception of pins on the lever 8, which is pivotally mounted on the signal-post and is connected by wires or other suitable means to an operating mechanism.

In lieu of the construction shown in Figs. 1 and 3 the fulcrum of the signal may be formed by rollers 9 9<sup>a</sup>, mounted on pins secured in the side plates 4, as shown in Figs. 2 and 4. The signal-casting is provided on its under edge with curved seats 10 10<sup>a</sup>, which rest upon the rollers. The signal is held from longitudinal movement by a link 11. The link 11 has one end pivotally attached to one of the side plates at a point in line with the axis of movement of the blade when shifted on the rollers or fulcrum 9 and its opposite end pivotally connected to the signal at a point in line with its axis of movement when shifted on the rollers or fulcrum 9<sup>a</sup>, so that the signal is held from movement at all times. While one link may be generally sufficient to prevent any longitudinal shifting of the signal, it is preferred to employ a link 11<sup>a</sup> on the opposite side of the signal, but oppositely arranged.

In the constructions shown in Figs. 5 to 9 slots or recesses 12 and 12<sup>a</sup> are formed in the lower edge of the signal-blade casting on opposite sides of the center of gravity of the signal for the reception of pins 13 13<sup>a</sup>, projecting from a plate 14, bolted to the signal-post. In order to shift the signal on the fulcrum formed by these pins 13 13<sup>a</sup>, a rod 15 is pivotally connected to the signal at a point *a* midway between the slots 12 12<sup>a</sup> and extends down alongside of the post to a floating lever 16. This lever is connected at points on opposite sides of its connection to the rod 15 to the lower ends of wires or rods 17 17<sup>a</sup>, having their upper ends connected to the signal at points adjacent to the slots 12 12<sup>a</sup>. In order to guide the floating lever, the pin connecting it to the rod 15 is extended through a slot formed in a plate 22, secured to the signal post, and is provided with a head overlapping the sides of the slot, so as to prevent the lever from swinging away from the guide-plate. In order to provide a lateral support and guide for the signal, fingers 18 are formed on the upper end of the rod 15 and extend on opposite sides of the signal. The upper ends of these fingers are arranged to bear against raised ribs in the signal-casting.

The lever 16 may be formed with an extension on one end or with an arm 20 projecting at right angles therefrom for connection with the operating mechanism. When it is desired to shift the signal to clear position, the rod or pipe 21 is pulled down or the arm 20 is shifted to the left, thereby turning the lever 16 on the pin connecting the lower end of the wire 17<sup>a</sup> to the lever, thereby pressing the rod 15 upward. As the wire 17<sup>a</sup> exerts a downpull on the signal adjacent to the pin 13<sup>a</sup> the push exerted by the rod 15 will turn the signal on the fulcrum formed by the pin 13<sup>a</sup>. If the arm 20 be moved to the right or a pull be exerted on the extension of the floating lever, the latter will turn on the pin connecting the lever with the wire 17, which will hold the signal against the pin 13, so that the signal will turn on said pin as a fulcrum and the blade portion will move up to "caution."

It is characteristic of the construction shown in Figs. 5 to 10 that the fulcrum of the floating lever connected to and operating the signal are suspended from the signal and that such connection between the signal and the lever serves to hold the signal against that pin which is to form the fulcrum of the desired movement of the signal. It is also characteristic of this construction that the signal is moved to "caution" and "safety" by an upward or pushing movement of the rod 15.

If desired, a spring 23 may be arranged around the extension 24 of the rod 15, so as to bear at one end against a washer 25 on the extension and at its opposite end against a plate 26, secured to the post. This spring will be compressed when the signal is shifted from normal position and will therefore assist to return the signal to such position.

I claim herein as my invention—

1. The combination of a signal, two fulcrum for said signal and means for shifting the signal on either of the fulcrum, substantially as set forth.

2. The combination of a signal, two fulcrum supporting the signal on opposite sides of its center of gravity and means for shifting the signal on either of the fulcrum, substantially as set forth.

3. The combination of a signal, two fulcrum for supporting the signal, means for holding the signal as against longitudinal movement, and means for shifting the signal on either of said fulcrum, substantially as set forth.

4. The combination of a signal, two fulcrum supporting the signal, a floating lever, fulcrum for said lever, a rod connecting the signal and lever at points intermediate of their fulcrum, and means for holding the signal on one fulcrum when the lever is shifted in one direction and for holding it against the other fulcrum, when the lever is shifted in the opposite direction, substantially as set forth.

5. The combination of a signal, two fulcrum for supporting the signal, a floating lever,



fulera for said lever supported by the signal, and a rod connected to the signal and lever at points intermediate of their fulcrum, substantially as set forth.

return it to normal position, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JOHN PRESSLEY COLEMAN.

Witnesses:

DARWIN S. WOLCOTT,

F. E. GAITHER.

5 6. The combination of a signal, two fulera for supporting the signal, means for shifting the signal on either fulera and means rendered operative by the signal when shifted to