

(No Model.)

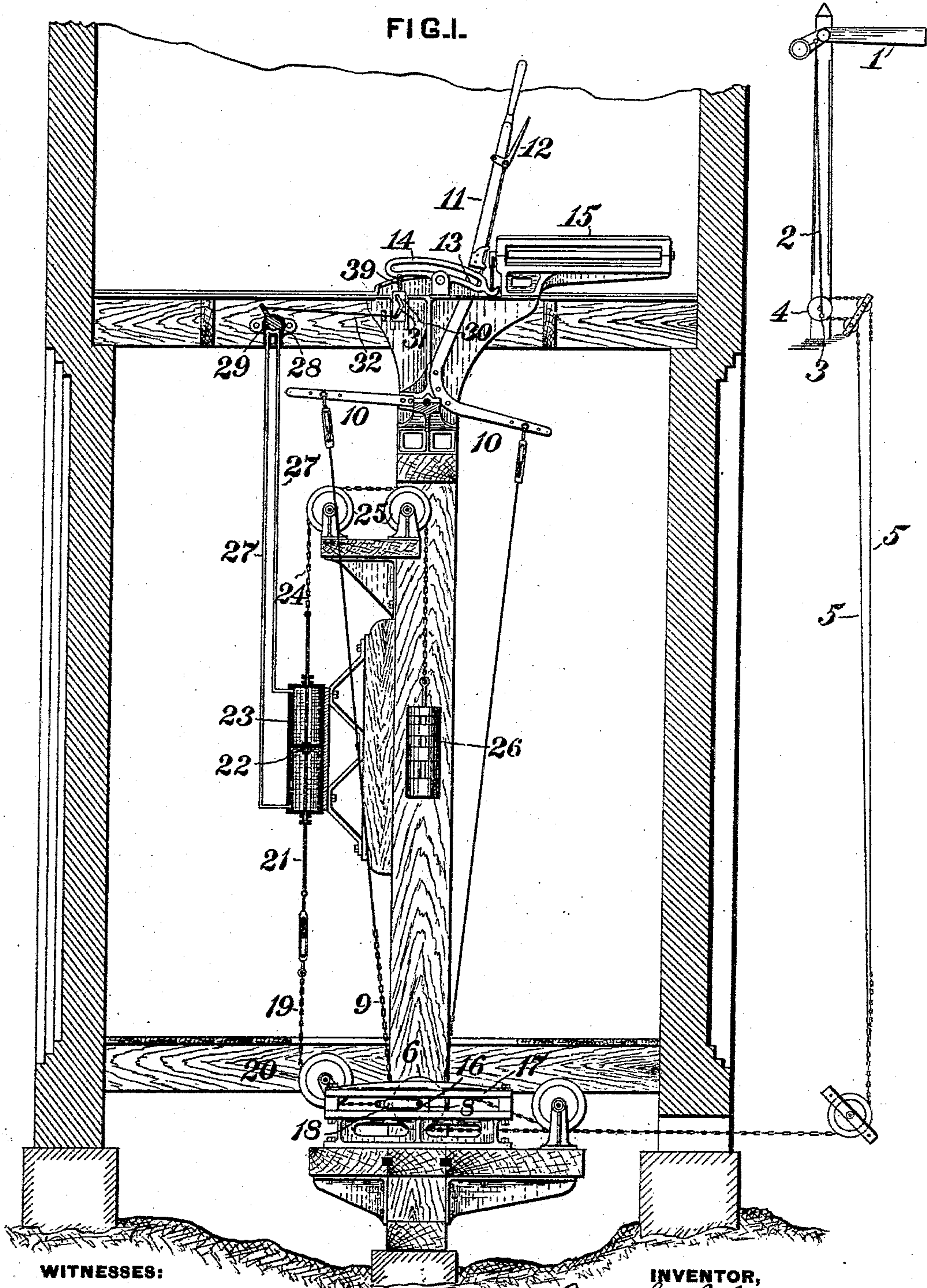
2 Sheets—Sheet 1.

J. G. SCHREUDER.  
COMPENSATOR FOR SIGNALS.

No. 515,722.

Patented Feb. 27, 1894.

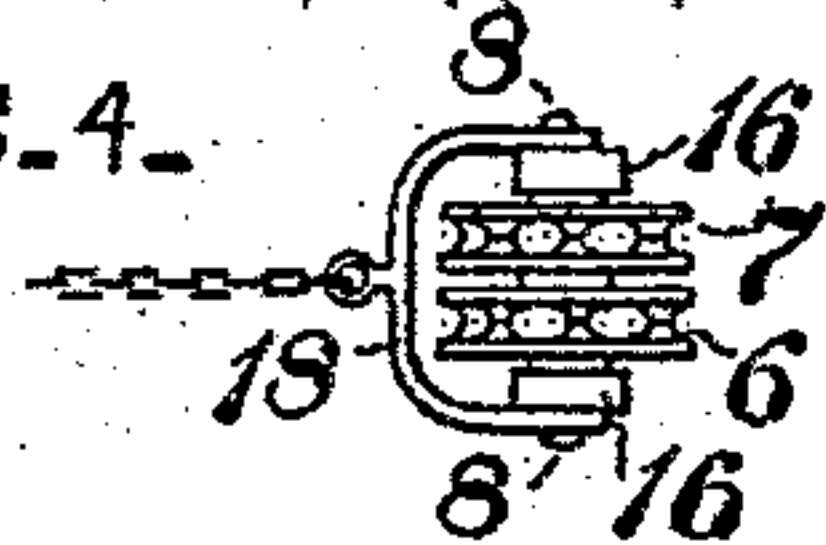
FIG. 1.



WITNESSES:

Danville S. Wolcott  
F. C. Gaither.

FIG. 4.



INVENTOR,

Jens G. Schreuder  
by George H. Christy  
Att'y.

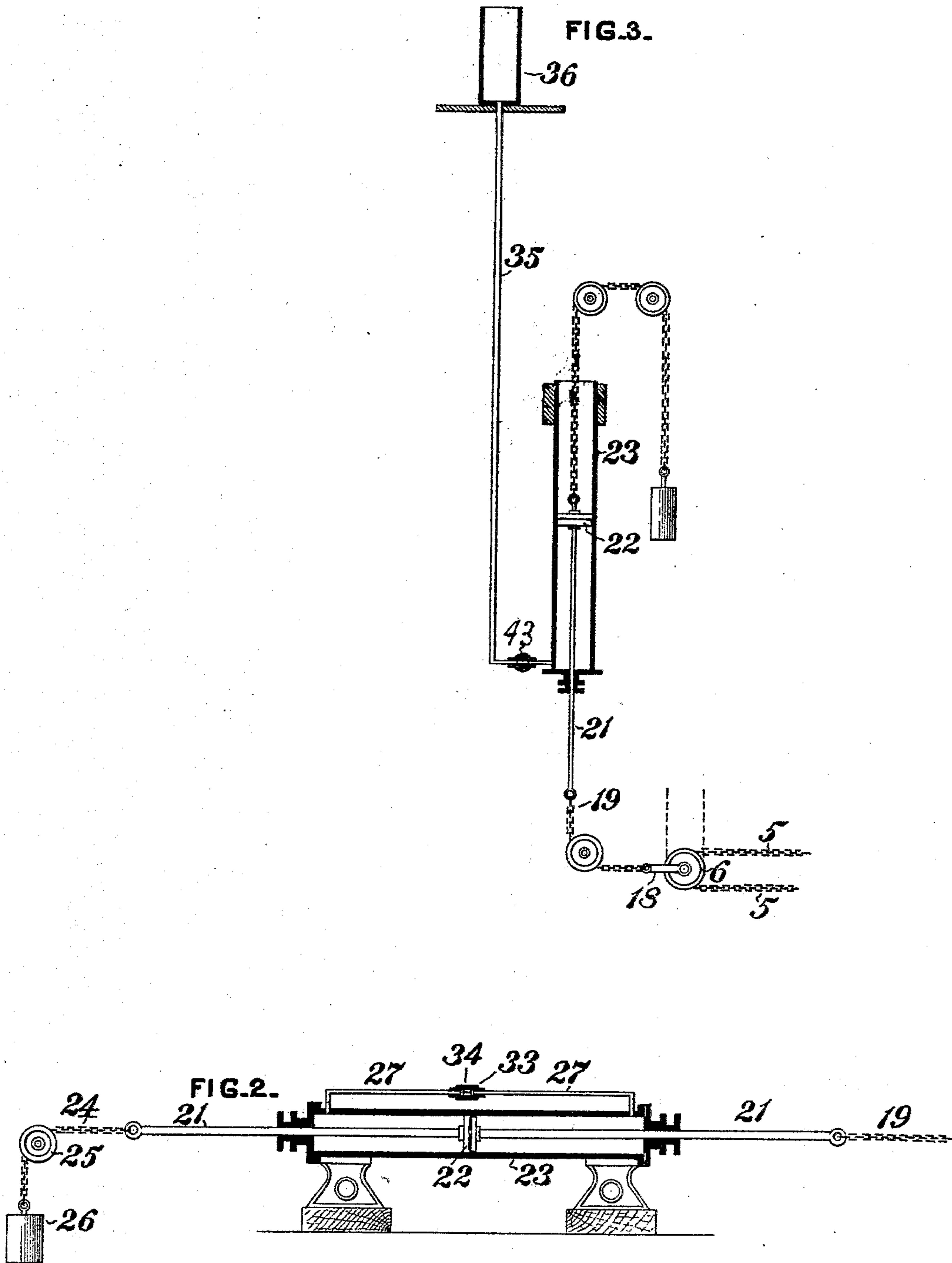
(No Model.)

2 Sheets—Sheet 2.

J. G. SCHREUDER.  
COMPENSATOR FOR SIGNALS.

No. 515,722.

Patented Feb. 27, 1894.



WITNESSES:

Danville Wolcott  
F. E. Gaither.

INVENTOR,

Jens G. Schreuder  
by George W. Christy  
Attly.



# UNITED STATES PATENT OFFICE.

JENS G. SCHREUDER, OF WILKINSBURG, PENNSYLVANIA.

## COMPENSATOR FOR SIGNALS.

SPECIFICATION forming part of Letters Patent No. 515,722, dated February 27, 1894.

Application filed March 31, 1893. Serial No. 468,558. (No model.)

*To all whom it may concern:*

Be it known that I, JENS G. SCHREUDER, a subject of the King of Sweden and Norway, residing at Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Compensators for Signals, of which improvements the following is a specification.

10 The invention described herein relates to certain improvements in devices for maintaining a constant tension upon wires extending from the operating lever to the signal, so as to assure a certain and full movement of  
15 the signal regardless of changes in temperature. And the invention has for its object the provision of a fluid pressure lock for preventing any change in the tension of the wires during the shifting of the signal from safety  
20 to danger and vice versa, but permitting the adjustment of the tension while the signal is either at safety or danger.

In general terms the invention consists in the construction and combination, substantially as hereinafter described and claimed.

25 In the accompanying drawings forming a part of this specification, Figure 1 is a sectional elevation of a signal tower showing the signal operating mechanism, my improved compensating mechanism and lock applied thereto, and the connections to a signal. Figs. 2 and  
30 3 are sectional detail views, showing certain modifications in the compensator lock. Fig. 4 is a detail view, showing the mechanism for transmitting motion from the operating lever to the signal.

35 As shown in Fig. 1, the signal 1 is operated by a rod 2, connecting the signal with an eccentric pin 3 on the wheel 4 around which  
40 passes a chain connecting the ends of the wires 5, the opposite ends of said wires at the signal tower being connected by a chain passing around a grooved pulley 6, which, together with another grooved pulley 7, is keyed to a  
45 shaft 8 so that said pulleys will rotate in unison. A chain 9 is passed around the pulley 7, and has its ends connected to the arms 10 of the signal operating lever 11, which in the construction shown is of the form employed  
50 in the Saxby and Farmer type of switch and signal mechanism. As is usual in the Saxby and Farmer machines, the lever 11 is provided

with a latch lever 12, which is connected to a block 13 adapted to slide back and forth in the rocking quadrant 14, as the lever 11 is  
55 shifted. As the latch lever is pressed in to release the lever 11, the block 13 is raised, thereby raising the end of the quadrant which is connected to the interlocking mechanism 15. The ends of the shaft 8 are mounted in blocks  
60 16 arranged in slots in a frame 17, and to the blocks or the ends of the shaft is connected a yoke 18, which is connected by a chain or other flexible means 19, passing around a guide pulley 20 to the rod 21 of the piston 22 of the cyl-  
65 inder 23. The rod 21 passes entirely through the cylinder and to the opposite end thereof is attached one end of a chain or other flexible device 24, passing around one or more guide pulleys 25, and having its opposite end  
70 attached to a weight 26. As will be readily understood, this weight will keep the signal connections under a constant tension, shifting the pulleys 6 and 7 as the connections expand, and allowing the pulleys to move in the  
75 opposite direction as the connections contract.

In order to prevent the pulleys being shifted while the lever 11 is being operated to change the signal, the ends of the cylinder are connected by pipes 27 with a valve mechanism  
80 28, and the cylinder and pipes are filled with a suitable fluid. By closing the valve 29 of the mechanism 28, thereby preventing any circulation of the fluid, the piston would be held stationary and with it the pulleys 6 and 7.  
85 When the valve 29 is open the fluid can flow freely from one end of the cylinder to the other, as the piston is shifted by the weight or the contraction of the signal connections. The valve is arranged to be operated by the  
90 quadrant, as it is shifted as heretofore described, operating through any suitable mechanism. As, for example, a plate or block 30 is connected by a rod 39 to the quadrant so as to move therewith, and in this plate or block  
95 is formed an angular slot 31 for the reception of a pin on one end of the rod 32, the opposite end thereof being connected to the valve 29. As the inner end of the quadrant is raised by the latch lever 12, the plate or block 30  
100 will be shifted until the pin on rod 32 is at the apex of the angular slot 31, thereby moving the valve 29 to a closed position. The quadrant is not shifted during the movement



of the lever 11, and consequently the valve 29 remains closed during such movement. But as soon as the lever 11 reaches the opposite limit of its stroke, the latch lever is released  
5 and the outer end of the quadrant is thereby pushed down, so shifting the plate or block 30 as to open the valve 29.

On account of the drag of a long wire, a jerk or surge is imparted to the compensating mechanism before the wire begins to respond to the movement of the operating lever 11. In the construction shown in Fig. 2, advantage is taken of this jerk to effect the closing of the valve controlling communication between the  
15 ends of the cylinder 23. In the valve casing 33 connecting the ends of the pipes 27 is placed a check valve 34 which is seated by the movement of the fluid in the cylinder and pipes due to the jerk or surge on the compensating mechanism.  
20

As the pulleys 6 and 7 can only be moved in one direction in shifting a signal, it is necessary to provide a lock as against movement in that direction only. This locking can be  
25 effected as shown in Fig. 3, where the end of cylinder toward which the piston tends to move during the shifting of the signal, is connected by a pipe 35 to a reservoir 36, so located as to keep the portion of the cylinder  
30 in front of the piston full of a suitable liquid.

In the pipe 35 is placed a valve 43 which can be closed, when the signal is to be shifted, in the same manner as the valve 29, Fig. 1, or may be made in the form of the check valve  
35 34, Fig. 2, and closed automatically by a jerk or surge on the compensating mechanism.

The invention described herein is not limited to use in connection with operating mechanism and connections, such as the operating

lever 11, its connections to the signal and to the valve controlling the movement of fluid in the cylinder 29, and the relative arrangement and construction of the compensating mechanism.

The skilled signal engineer will be readily able to apply my improvement to various forms and arrangements of signal operating mechanism without experiment or further invention.

I claim herein as my invention—

1. The combination of a compensating mechanism for signal mechanism and a fluid pressure mechanism for locking the compensating mechanism, during the shifting of the signal, substantially as set forth.

2. The combination of a compensating mechanism for signal mechanism, a fluid charged cylinder provided with a piston connected to the compensating mechanism, and a valve controlling the movements of the fluid in the cylinder, substantially as set forth.

3. In a signal mechanism, the combination of a sliding block connected to the wires leading to the signal, a weight connected to the slide and suitably arranged to maintain a constant tension on the signal wires, a fluid charged cylinder provided with a piston connected to the sliding block and movable therewith, and a valve for controlling the movements of the fluid in cylinder, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JENS G. SCHREUDER.

Witnesses:

R. H. WHITTLESEY,  
DARWIN S. WOLCOTT.