(No Model.) 3 Sheets—Sheet 1.

S. H. STUPAKOFF.

SIGNAL MECHANISM.

No. 534,235. Patented Feb. 12, 1895.

FIG. 1.

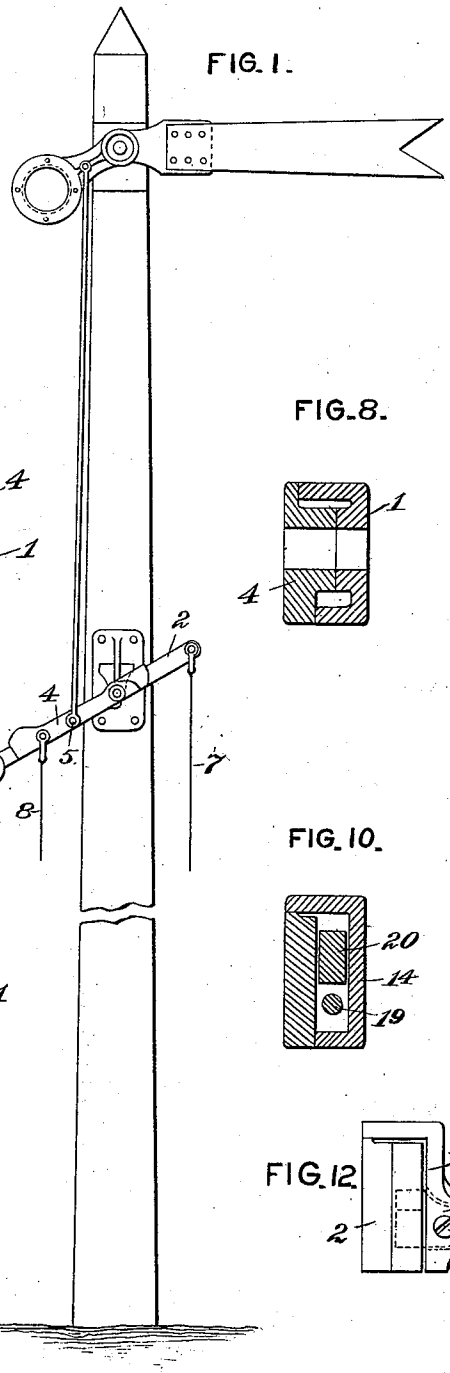

FIG. 5.

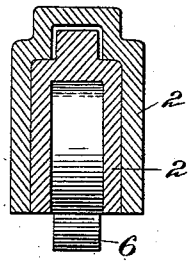

FIG. 6.

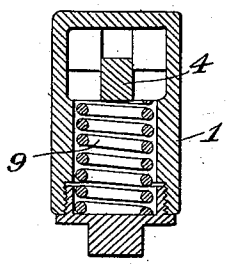

FIG. 8.

FIG. 9.

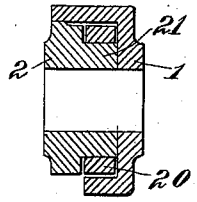

FIG. 7.

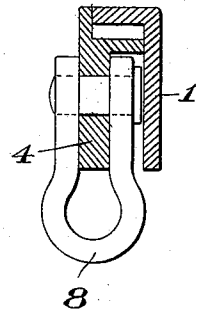

FIG. 10.

FIG. 11.

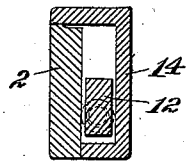

FIG. 12.

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(No Model.) 3 Sheets—Sheet 2.

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SIGNAL MECHANISM.

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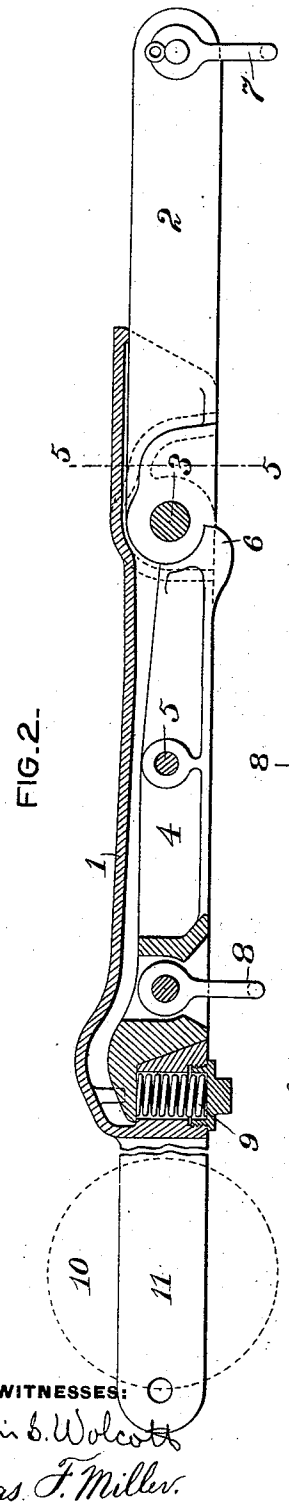

FIG. 2.

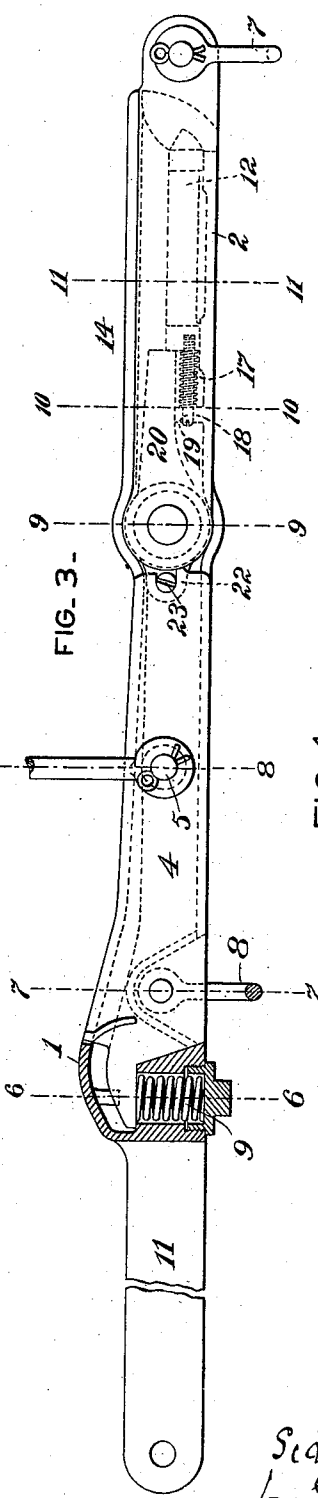

FIG. 3.

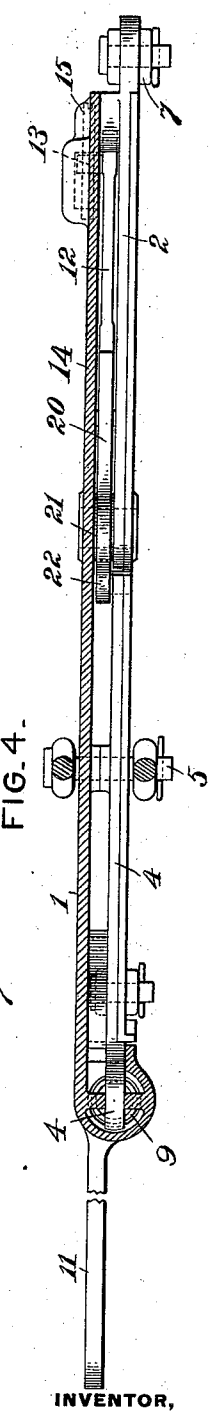

FIG. 4.

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(No Model.) 3 Sheets—Sheet 3.

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SIGNAL MECHANISM.

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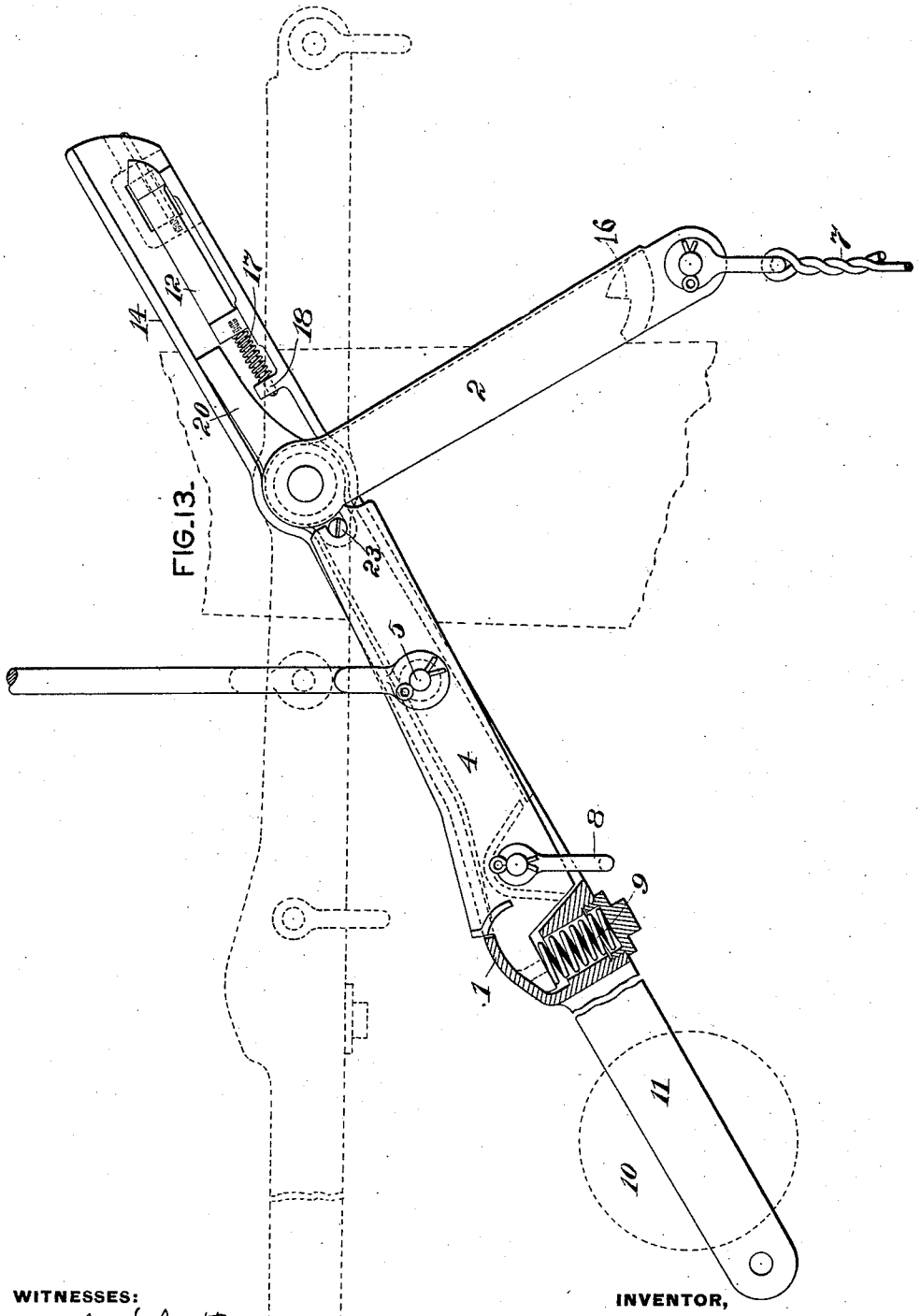

FIG. 13.

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UNITED STATES PATENT OFFICE.

SIMON H. STUPAKOFF, OF PITTSBURG, ASSIGNOR TO THE UNION SWITCH AND SIGNAL COMPANY, OF SWISSVALE, PENNSYLVANIA.

SIGNAL MECHANISM.

SPECIFICATION forming part of Letters Patent No. 534,235, dated February 12, 1895.

Application filed July 5, 1894. Serial No. 516,520. (No model.)

To all whom it may concern:

Be it known that I, SIMON H. STUPAKOFF, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Signal Mechanism, of which improvements the following is a specification.

The invention described herein relates to certain improvements in balance levers for signals. These levers are pivotally mounted upon a signal post, and are connected to the operating mechanism by wires attached to the lever on opposite sides of the pivotal point, and also by a rod to the semaphore, the connections to the semaphore being so arranged that when the lever is free to move under the action of the weight thereon, the semaphore will be shifted to danger.

It frequently occurs that the back wire, *i. e.* the one which is pulled to shift the semaphore to danger, is broken so that the operating mechanism is shifted without a corresponding change in the position of the semaphore, which will consequently remain at safety, as the weight on the balance lever is not sufficient to overcome the resistance presented by the front wire, the latter frequently being fifteen hundred to two thousand feet long.

The object of the present invention is to insure a shifting of the semaphore to danger in case of a break in the back wire.

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, Figure 1 is an elevation of a signal having my improved lever applied thereto. Fig. 2 is a view, partly in elevation and partly in section, of one form or construction of lever. Fig. 3 is a similar view of a modified construction of lever. Fig. 4 is a sectional plan view of the same. Fig. 5 is a transverse section on the line 5—5, Fig. 2. Figs. 6, 7, 8, 9, 10 and 11 are transverse sections on the corresponding lines, Fig. 3. Fig. 12 is an end view of the lever shown in Figs. 3 and 4, and Fig. 13 shows the position of the parts of the lever in case of breakage of the back wire.

In the construction shown in Fig. 2, the portion or section 1 is made U-shaped in cross-section, and of a length greater than half of the total length of the lever. The portion or section 2, which has a length equal or approximately equal to half the length of the lever, is made to fit within the recess in the section 1 and is pivoted thereto by the pin 3, by which the lever is also pivoted to the signal post, as shown in Fig. 1. The sections are held in alignment with each other by the trigger 4, which is pivoted on the section 1 by the pin 5, and is provided with a toe 6, adapted to engage a notch in the hub of section 2. The front wire 7, or the one employed for shifting the semaphore to safety, is connected to section 2 of the balance lever and the back wire 8 or the one employed for shifting the semaphore to danger is connected to the trigger 4, at or near its outer end. As long as tension is maintained on the back wire the trigger will be held with its toe 6 in engagement with the notch in the hub of the section 2, thereby maintaining the parts of the lever in normal position. As soon, however, as the back wire is broken, the spring 9 arranged in a socket in the section 1 of the lever, will force the outer end of the locking piece or trigger up sufficiently far to remove the toe 6 out of the notch in section 2, thereby permitting both sections to drop down, the movement of the section 1, under the action of the counterweight 10 mounted on an extension 11 of section 1, shifting the semaphore to danger.

In the construction shown in Figs. 3, 4 and 13, the section or part 1 is preferably made L-shape in cross-section, as shown in the sectional Figs. 6 to 11, and is extended a sufficient distance beyond its pivotal point to permit of mounting a sliding bolt therein as hereinafter described. The section 2 is made to fit within the recess in the section 1 on one side of the pivotal point of the lever, and the locking piece or trigger 4 is similarly arranged on the opposite side of the pivotal point. The bolt 12 is provided at or near its outer end with a lug 13 projecting into a recess formed in the wall of the extension 14 of section 1, and is held and guided therein by a pin 15 passing through the lug, as shown in Figs. 3, 4, 12 and 13. The bolt 12 is pressed forward so as to

engage a notch 16 in the section 2 of the lever, by a spring 17 bearing at its ends against the bolt 12, and a projection 18 on the extension 14. This spring is held in place by a pin 19 passing loosely through the projection 18 and screwing into the end of the bolt 12, whose rear end is thus guided by the pin. In order to normally hold the bolt in engagement with the section 2 when the latter is subjected to a pull, a swinging latch 20 is arranged in the rear of the bolt 12, so as to drop down into line therewith and prevent any rearward or unlocking movement of the bolt. This latch is provided at its rear end with an eye or opening adapted to fit over a boss 21 on the section 2, as shown in Figs. 4 and 9, said boss serving as a pivotal support for the latch. A rearwardly projecting lug 22 is formed on the end of the latch and is provided with a laterally projecting pin 23 adapted to engage a notch in the locking piece or trigger 4, which is pivotally connected as described by a pin 5 to the section 1.

The operation of the form of lever shown in Figs. 3, 4 and 13 will be readily understood by reference to Fig. 13, the position of the lever, when the semaphore is at safety, being indicated by dotted lines. If the back wire breaks as the operator attempts to pull the semaphore to danger, the spring 9 will force the outer end of the locking piece 4 up and thereby so shifting the swinging latch 20, that its outer end is moved from behind the bolt 12. As both the front and back wires are held under tension by a compensator, the normal pull of the latter on the front wire will be sufficient to pull down the section 2 of the lever, the bolt 12 being forced back, by the inclined faces on the end of the bolt and the notch in the section 2. As soon as the bolt 12 is disengaged from the notch in section 2, the section 1 will drop to the position shown in full lines in Fig. 13, thereby shifting the semaphore to danger. It will be understood that the spring is employed principally for forcing the bolt forward into engagement with the notch in section 2, when the latter is restored to normal position.

I claim herein as my invention—

1. In a balance lever for signals, the combination of two sections pivotally connected together, and a lock for holding such sections in operative relation to each other, and connected to one of the wires for operating the signal lever, substantially as set forth.

2. In a balance lever for signals, the combination of two sections pivotally connected together, a lock for holding such sections in operative relation to each other, and a spring for so shifting such lock as to permit of the breaking down of the lever, substantially as set forth.

3. In a balance lever for signals, the combination of two sections pivotally connected together, a bolt for holding the sections in operative relation to each other, a latch for holding the bolt as against unlocking movement, and a trigger for shifting the latch, substantially as set forth.

4. In a balance lever for signals the combination of two sections pivotally connected together, a bolt for holding the sections in operative relation to each other, a latch for holding the bolt as against unlocking movement, a trigger for shifting the latch and a spring for operating the trigger, substantially as set forth.

5. The combination of a lever consisting of two sections pivotally connected together, a signal connected to one of said sections, a lock for holding the sections in operative relation to each other, a spring for shifting the lock, and operating wires connected to one of the sections and to the lock, substantially as set forth.

In testimony whereof I have hereunto set my hand.

SIMON H. STUPAKOFF.

Witnesses:
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