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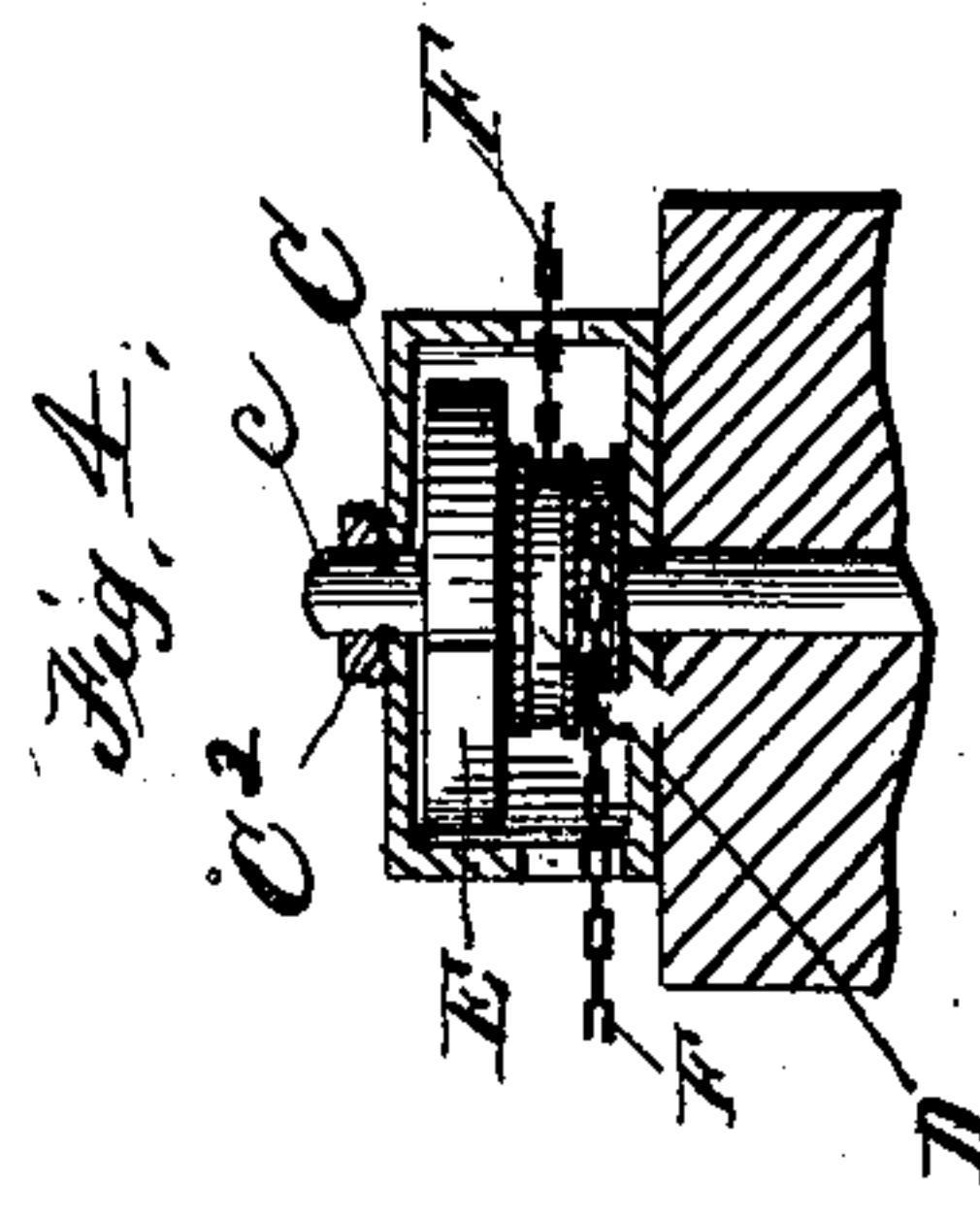
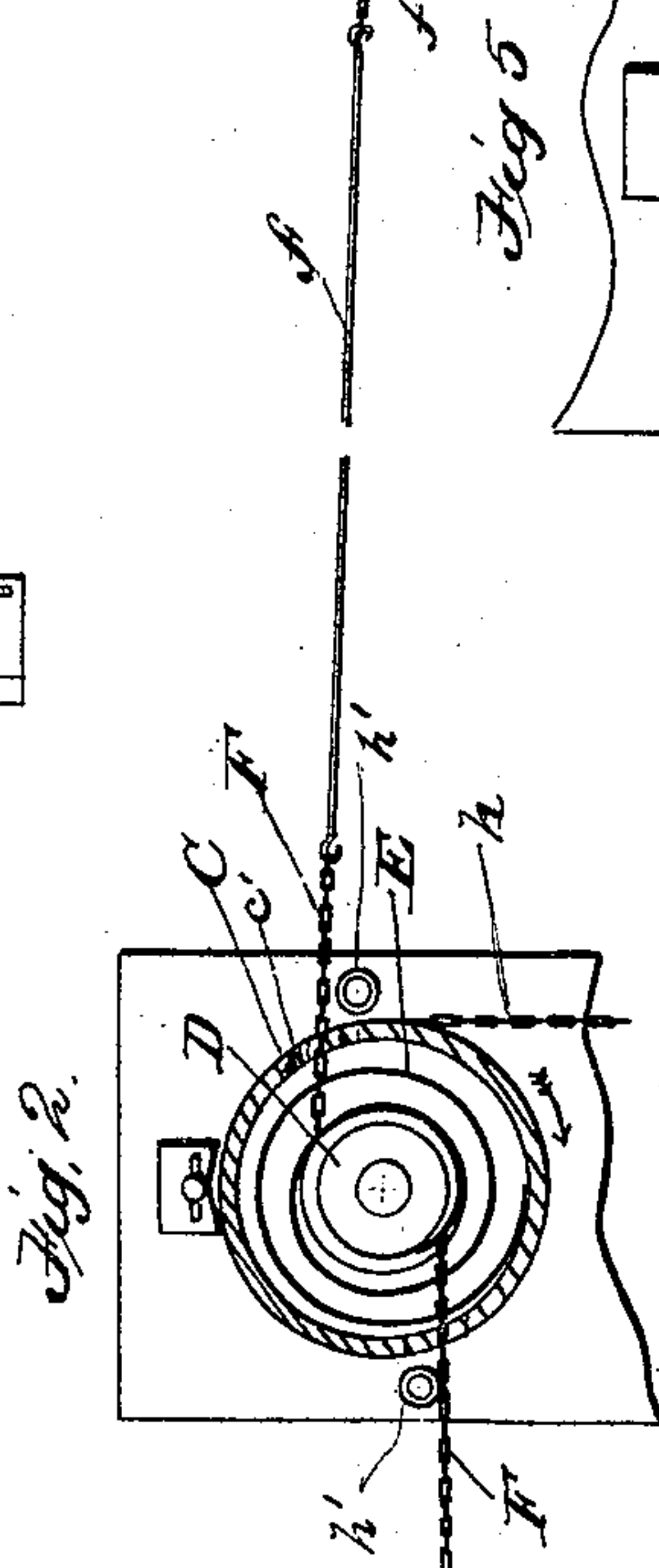
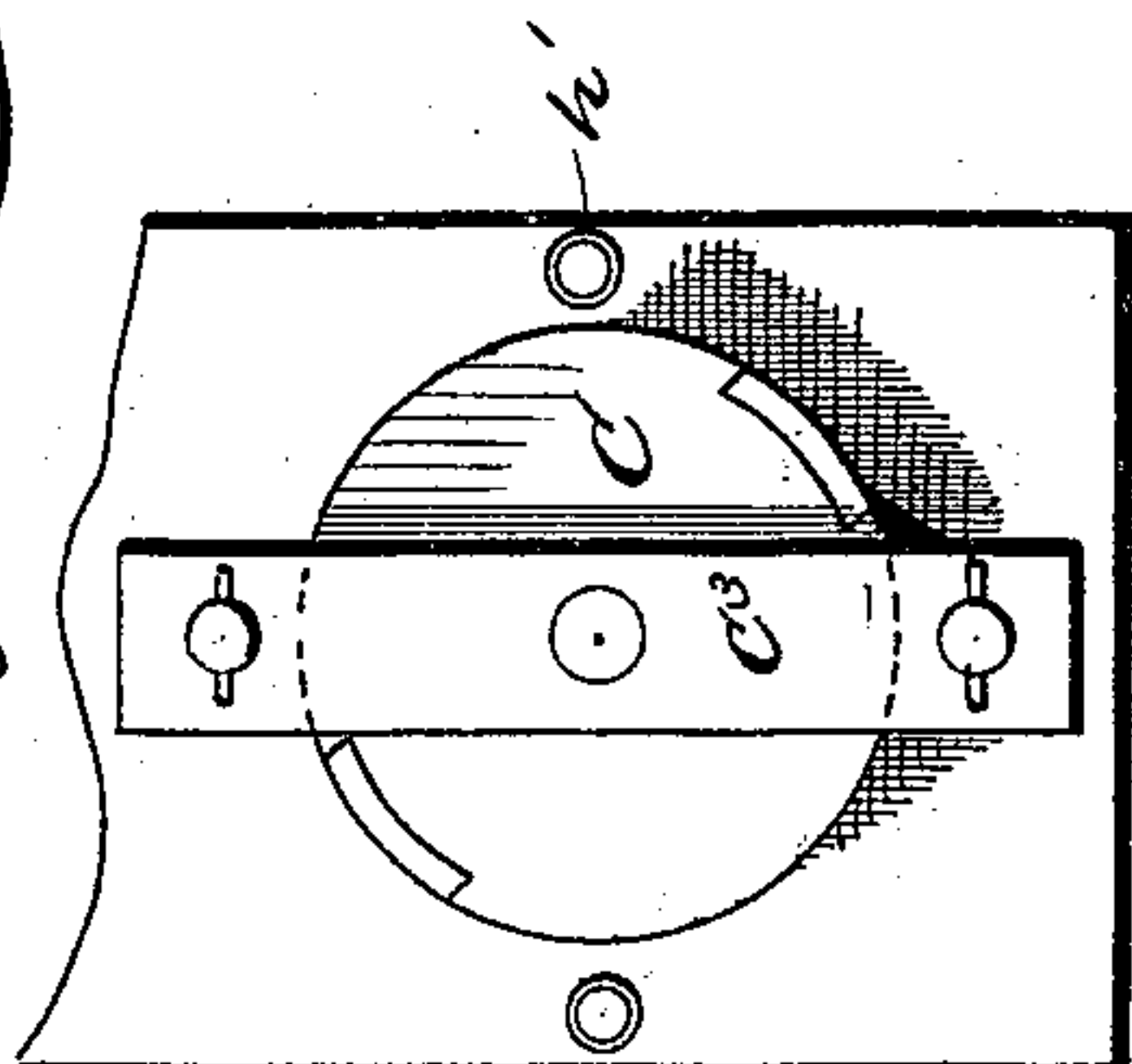
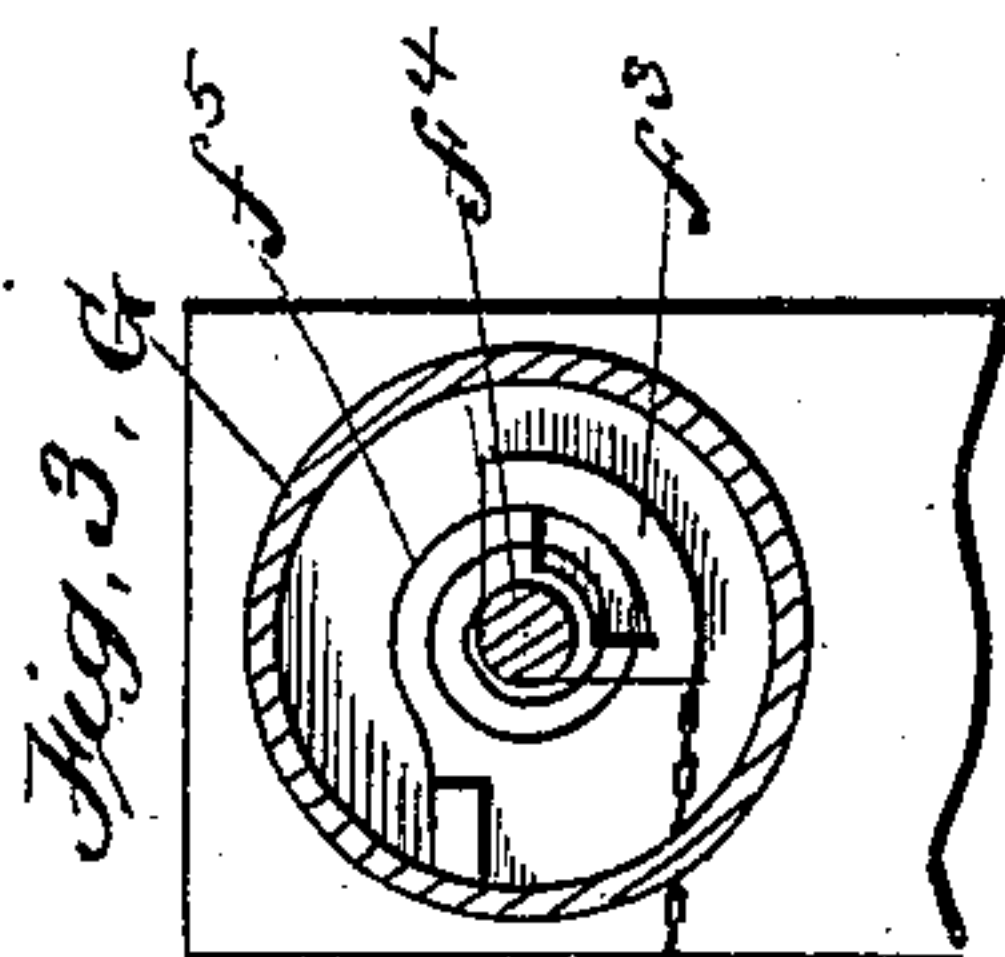
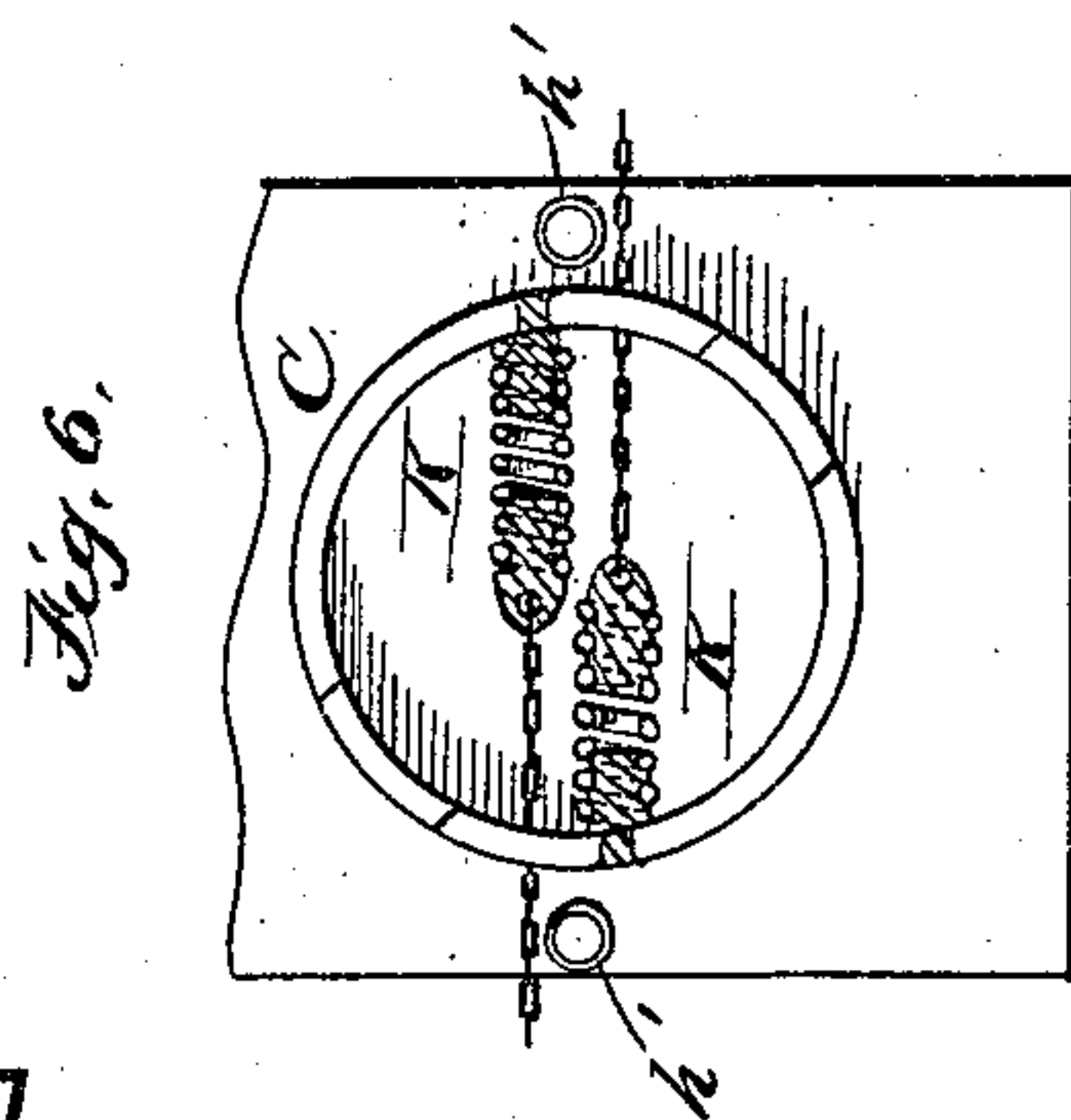
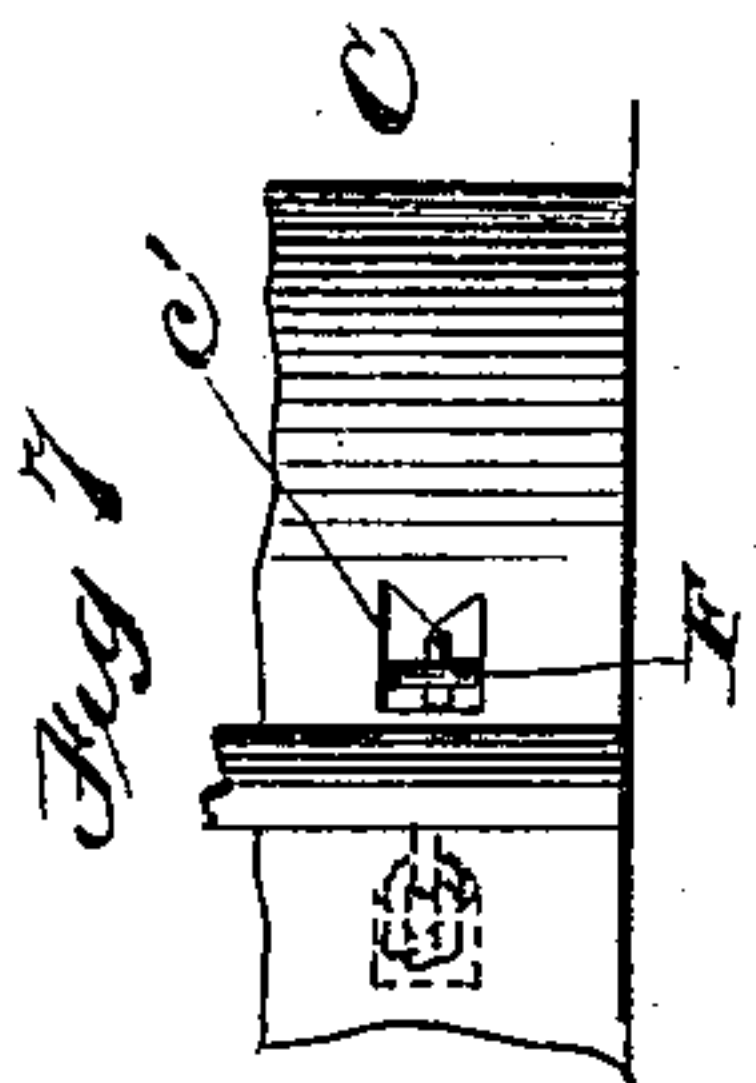
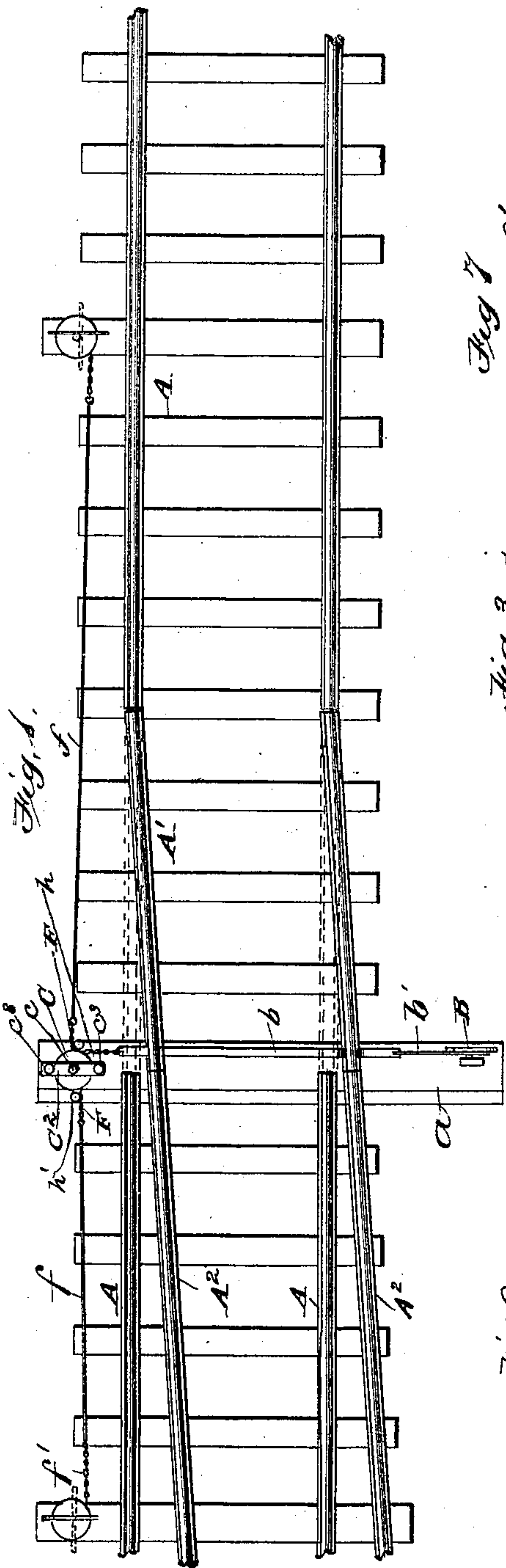
2 Sheets—Sheet 1.

A. L. WILKINSON.

AUTOMATIC SWITCH SIGNAL.

No. 312,239.

Patented Feb. 10, 1885.



attest:
W. H. Knight-
W. J. Bernhard.

Inventor:
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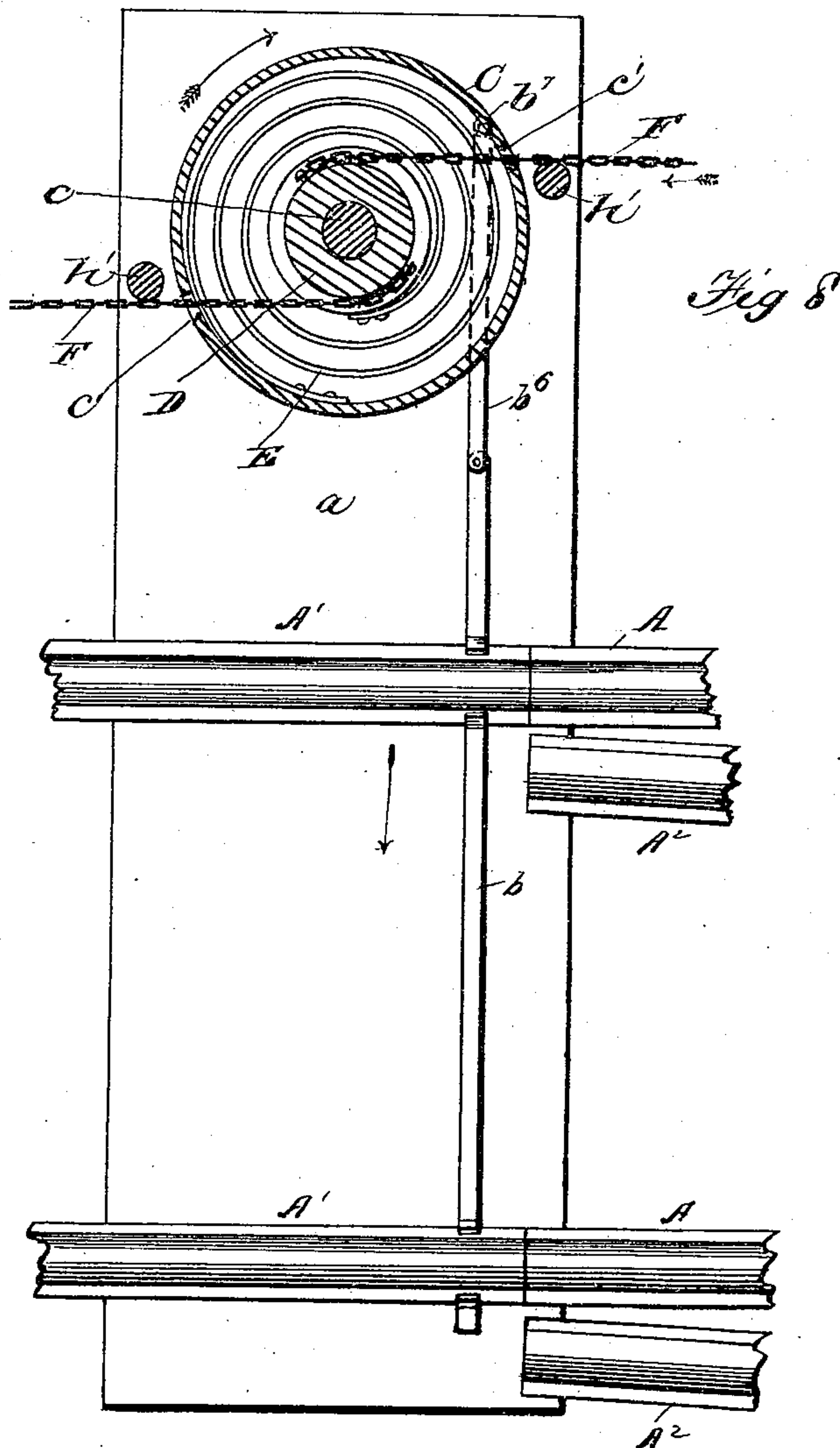
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2 Sheets—Sheet 2.

A. L. WILKINSON.
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W. D. Bernhard

Inventor:

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By Edson Bros.

Attorneys

UNITED STATES PATENT OFFICE.

ALGERNON L. WILKINSON, OF HUNTSVILLE, ALABAMA.

AUTOMATIC SWITCH-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 312,239, dated February 10, 1885.

Application filed February 6, 1884. (No model.)

To all whom it may concern:

Be it known that I, A. L. WILKINSON, a citizen of the United States, residing at Huntsville, in the county of Madison and State of Alabama, have invented certain new and useful Improvements in Automatic Switch-Signals; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in automatic railroad-signals, whereby when the switch is opened or changed from the main-line track to a side track, either by design or accident, danger-signals will be set or displayed at predetermined distances and in opposite directions from the switch, for the purpose of warning the engineers of approaching trains of such open switch.

The general object of this invention is to so connect the signals with the switch that any movement of the latter, either by design or accident, will serve to set the signal.

The especial object of the present invention is the provision of means whereby expansion and contraction, incident to changes of temperature, of the rods or wires which connect the signals, their operating devices, and the switch, is overcome, and all danger arising from the possibility of the signals becoming set, displayed, damaged, or inoperative through said expansion or contraction of the connecting rods or wires is avoided.

To the accomplishment of the above the invention consists in the construction, combination, and arrangement of parts, substantially as hereinafter described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a plan view of a portion of a railroad provided with my improvements. Figs. 2 to 5 and Fig. 7 are detached detail views of parts of the improvement. Fig. 6 shows a modification. Fig. 8 is an enlarged detail view of parts of my invention.

Similar letters of reference in the several drawings denote like parts.

Referring to the drawings, A represents the track of the main line of a railroad; A', a switch connecting such main line with a side track, 55 A². The switch A' is provided with a switch-lever, B, connected by means of a rod or link, b', to the bar b, which holds the switch-rails at proper distances apart.

As far as described the construction is similar to that in common use. 60

C represents a circular box or case, formed of metal and mounted upon a stud, c, projecting upwardly from one end of the cross-tie a, which supports the sliding or free end of the switch. The case C is free to turn upon the stud c, and serve as a drum upon which the chains leading to the signals may be wound, as hereinafter described. 65

C² represents a flat bar of metal placed above the revolving case C, and connected to the cross-tie by bolts or rods c³, as shown. The upper end of the stud c passes through and is supported by the plate C². 70

D represents a drum loosely mounted upon the stud c within the case C. 75

E represents a coiled spring placed within the case C, near the top thereof, and connected at its opposite ends to the drum D and box or case C. 80

F represents flat open-linked chains, one end of each of which is connected to the drum D, upon opposite sides thereof, as shown. The chains F pass outwardly through apertures c', formed in the case C at opposite sides thereof, 85 and are connected to one end of the signal wires or rods f. The opposite ends of the rods or wires f are connected by chains f' to a segment, f², secured to the lower end of the signal-supporting shaft f⁴, to the top of which the signal is attached. The signal proper is normally kept in the same plane as the rails by a coil-spring, f⁵, attached to the lower end of the shaft within the inclosing-case G, which is of metal, preferably circular in cross-section, and holds the segment f² and coiled spring f⁵. The signal-shaft passes downwardly through the case and into the cross-tie below, while the chains f' pass through the side of the case to the rods f. 90 100

The construction of the devices attached to the signal-shaft are similar to those shown in my former patent, No. 289,739, dated December 4, 1883, and operate in a similar manner.

The case C is rotated by a chain, *h*, one end of which is connected to said case, the opposite end being secured to the free end of the switch, whereby when the switch is moved the case C will be drawn around and serve first to engage the V-shaped notches *c'* with the chains and then to wind the chains F upon its outer surface, in which operation the case C will be aided by small chain-rollers *h'*, mounted upon studs projecting upwardly from the tie at each side of said case, and about which rollers the chains pass. The rotation of the case draws upon the chains F and rods *f*, and thereby turns the signal-shaft and displays the signal attached thereto, as will be readily understood. When the switch is in its normal closed position—*i. e.*, registering with the main line—the rods or wires *f* and chains F pass in a direct line from the drum D to the segment upon the signal-shaft, as shown in Figs. 2, 3, in which position the chain F does not touch the side walls of the aperture *c'* in the case C, through which it passes, and can therefore pass freely in and out through said aperture, and inasmuch as the coiled spring E, connecting the drum D to the case C, is weaker than the coiled springs *f*⁵ upon the signal-shaft, it follows that any expansion of the rods or wires *f* will turn the drum D without turning the signal-shaft.

To lock the chains F to the case C when it is desired to rotate the latter, I employ the following means, to wit: One of the side walls of the aperture *c'*, through which the chain passes, is made V-shaped, (see Fig. 7,) and although the chain, when the case C is in its normal position, passes freely in and out of the aperture, yet, when the case is rotated in the direction of the arrow, (see Fig. 7,) the V-shaped side wall of the aperture *c'* takes into one of the links of the chain as it passes about the roller *h'*, and thus holds it firmly clamped in position to be wound upon the outer surface of the case C.

The clamping of the chain F by the V-shaped side wall of the aperture *c'* is shown by dotted lines in Fig. 7.

In lieu of the drum D and coiled spring E, the chains F may be attached to spiral springs K, located within and attached to the side walls of the case C, as shown in Fig. 6.

The apertures *c'* in the side walls of the case C (shown in Fig. 6) are similar to those shown in the walls of the case C in Figs. 2 and 4, the chains being held and clamped in a similar manner. Backward rotation of the case C to its normal position when the switch is returned to the main line is caused by the spring *f*⁵ attached to the signal-shaft, as will be readily understood. If desired, however, such backward rotation of the case may be caused by a rigid connection between the rail-coupling link *b'* and the case, as shown in Fig. 8, in which the link *b'* is connected by a rod, *b*⁶, with a crank-pin, *b*⁷, projecting from the lower surface of the case C near one of its side edges.

In lieu of the device here shown, a rack-bar may take the place of the rod *b*⁶, the teeth of which engage with a gear-pinion secured to the lower surface of the case.

I do not confine myself to the exact construction shown and described, inasmuch as the object sought and attained by such construction—to wit, the provision of means whereby expansion and contraction of the connecting-wires of automatic railroad-signals is overcome—may be accomplished by modifying the construction shown and described herein. I do not, therefore, limit myself to the exact construction shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the scope of my invention.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In an automatic railroad-signal, the combination of the following elements: a signal mounted upon a shaft having a resetting-spring connected thereto, rods and chains connecting such signal with a compensating-drum, a rotating case inclosing said compensating-drum and connected to the switch, and means, substantially as described, for clamping the signal-chains and thereby displaying the signal when the case is rotated by the opening of the switch, as and for the purpose set forth.

2. In an automatic railroad-switch signal, the combination of a vertical signal-supporting shaft provided at its lower end, within an inclosing-case, with a resetting spring and segment, to which the chains and rods for operating the signal are attached, a compensating-drum provided with a spring, as E, whereby the turning of the signal by the expansion and contraction of the signal-rod is prevented, and a revolving case inclosing said compensating-drum and connected to the switch for operating the signals, substantially as herein set forth.

3. In an automatic railroad-switch signal, the combination of a revolving case mounted upon a suitable stud, upon which the signal and switch connecting chains are wound, said case having apertures in opposite sides thereof, as shown, through which the signal-connecting chains pass, with a revolving drum or cylinder placed within and mounted upon the shaft which carries said outer case, and a coiled spring connected at its opposite ends to the said revolving case and drum, respectively, whereby the turning of the signal by the expansion or contraction of the signal-connecting wires is avoided, substantially as herein described and set forth.

4. In an automatic railroad-switch signal, the combination of a hollow case, upon which the chain leading to the switch-rod is wound, with a spring, as E, placed within said hollow case, and connected to the chains attached to the signal-connecting rods, and the described means for clamping said chain, substantially as and for the purpose set forth.

5. In an automatic railroad-switch signal, the combination of the following elements, to-wit: the switch A', connected by chain *h* to the hollow case C, drum D, spring E, chains F, rollers *h'*, rods *f*, and chains *f'*, connecting said rods *f* with segments *f*³, attached to the lower end of the vertical shafts *f*⁴, and springs *f*⁵, all constructed and arranged substantially as herein described and set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALGERNON L. WILKINSON.

Witnesses:

W. B. LEEDY,
JNO. R. JONES.