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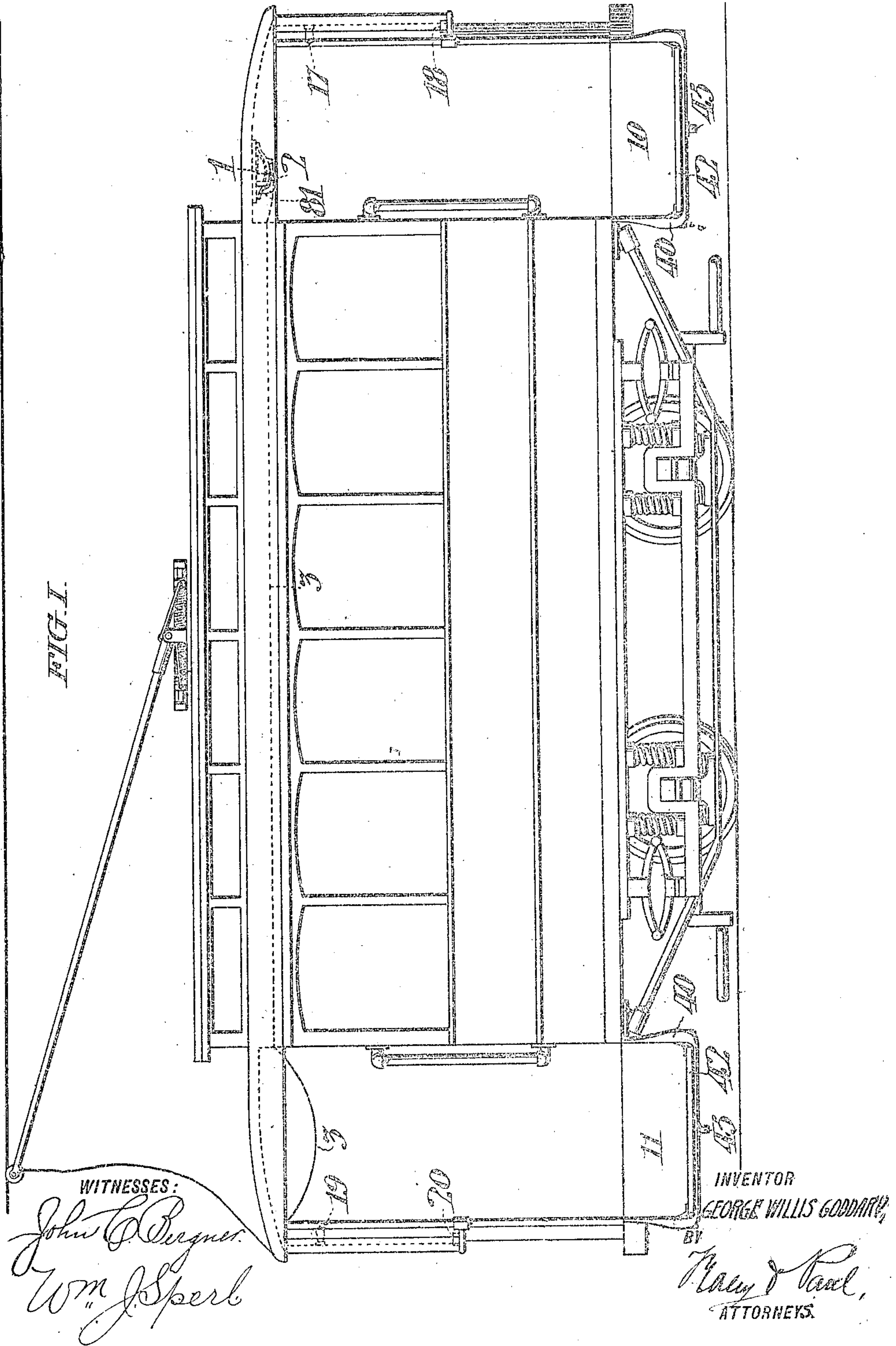
PATENTED DEC. 31, 1907.

G. W. GODDARD.

SAFETY CAR SIGNALING DEVICE.

APPLICATION FILED JAN. 15, 1907.

5 SHEETS—SHEET 1.



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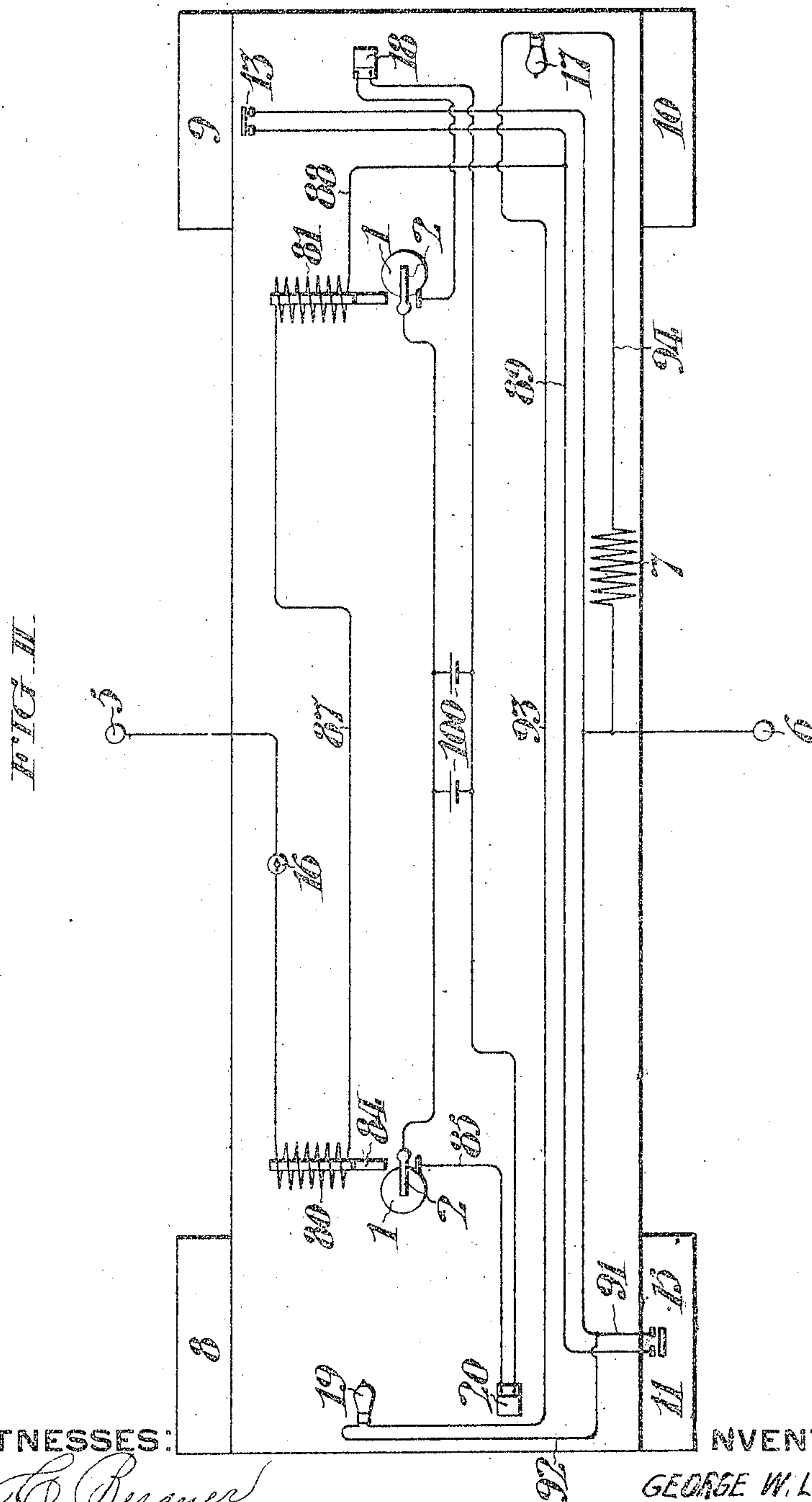
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6 SHEETS--SHEET 2.



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5 SHEETS—SHEET 3.

FIG. III.

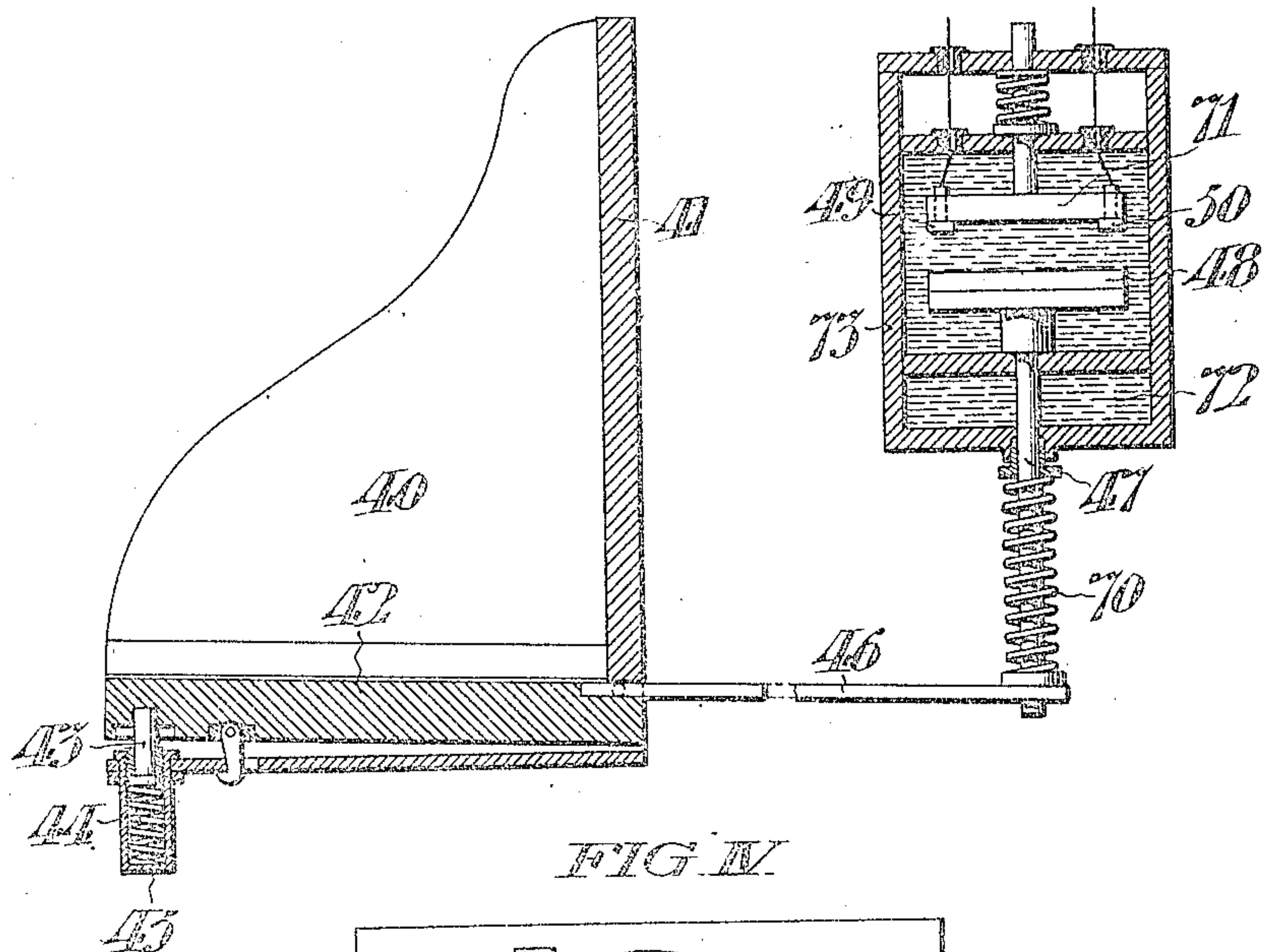


FIG. IV.

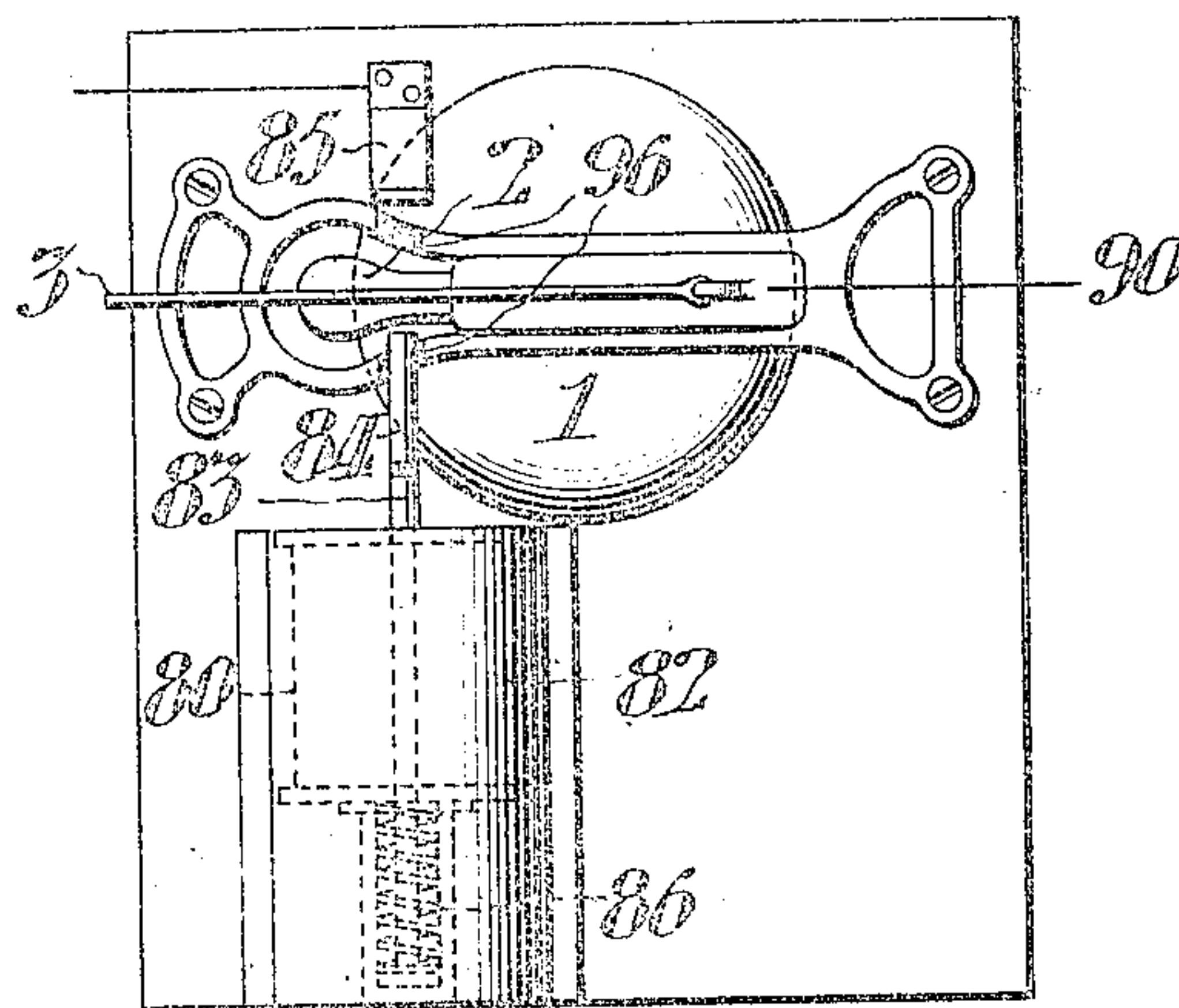
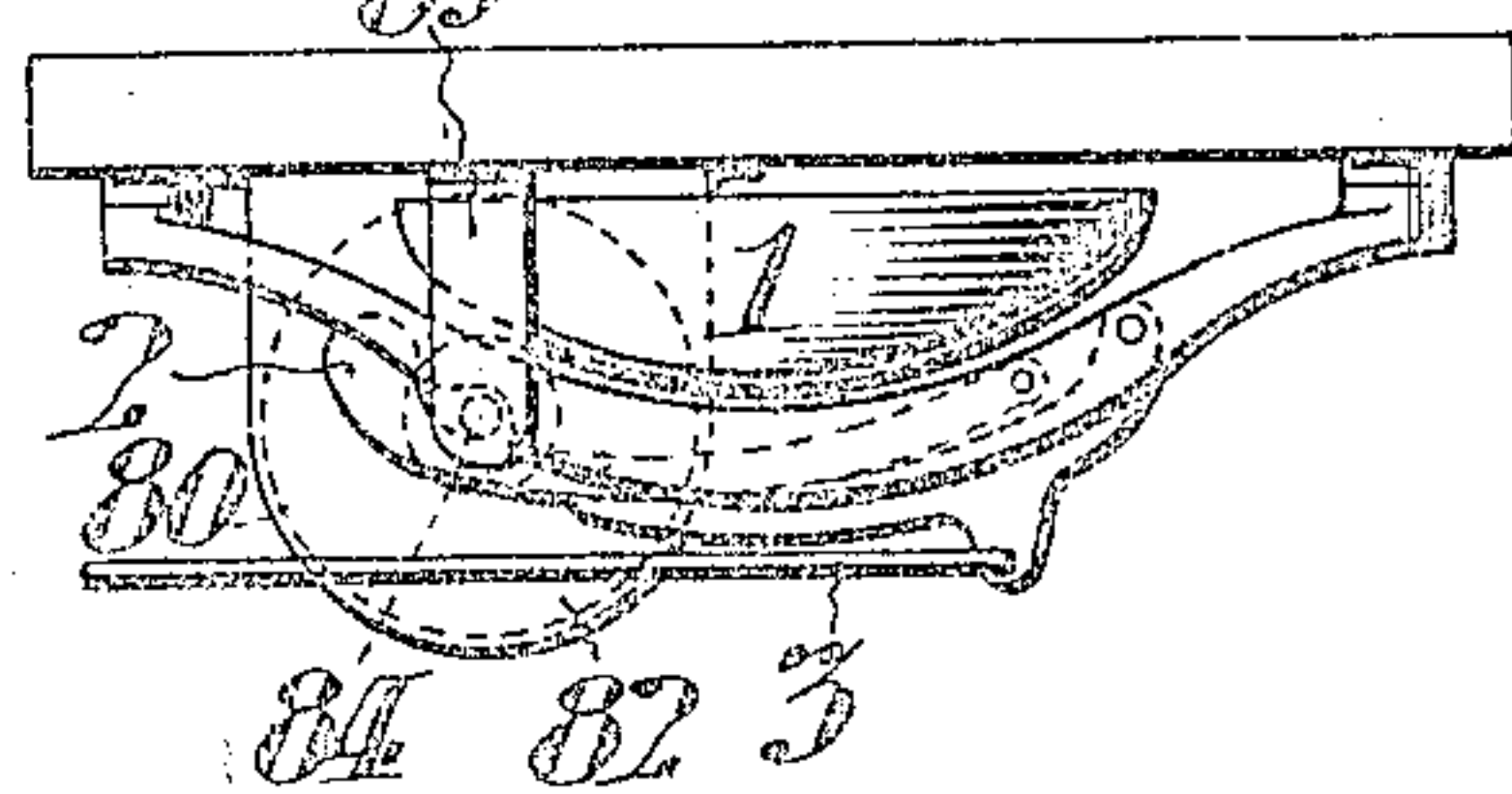


FIG. V.



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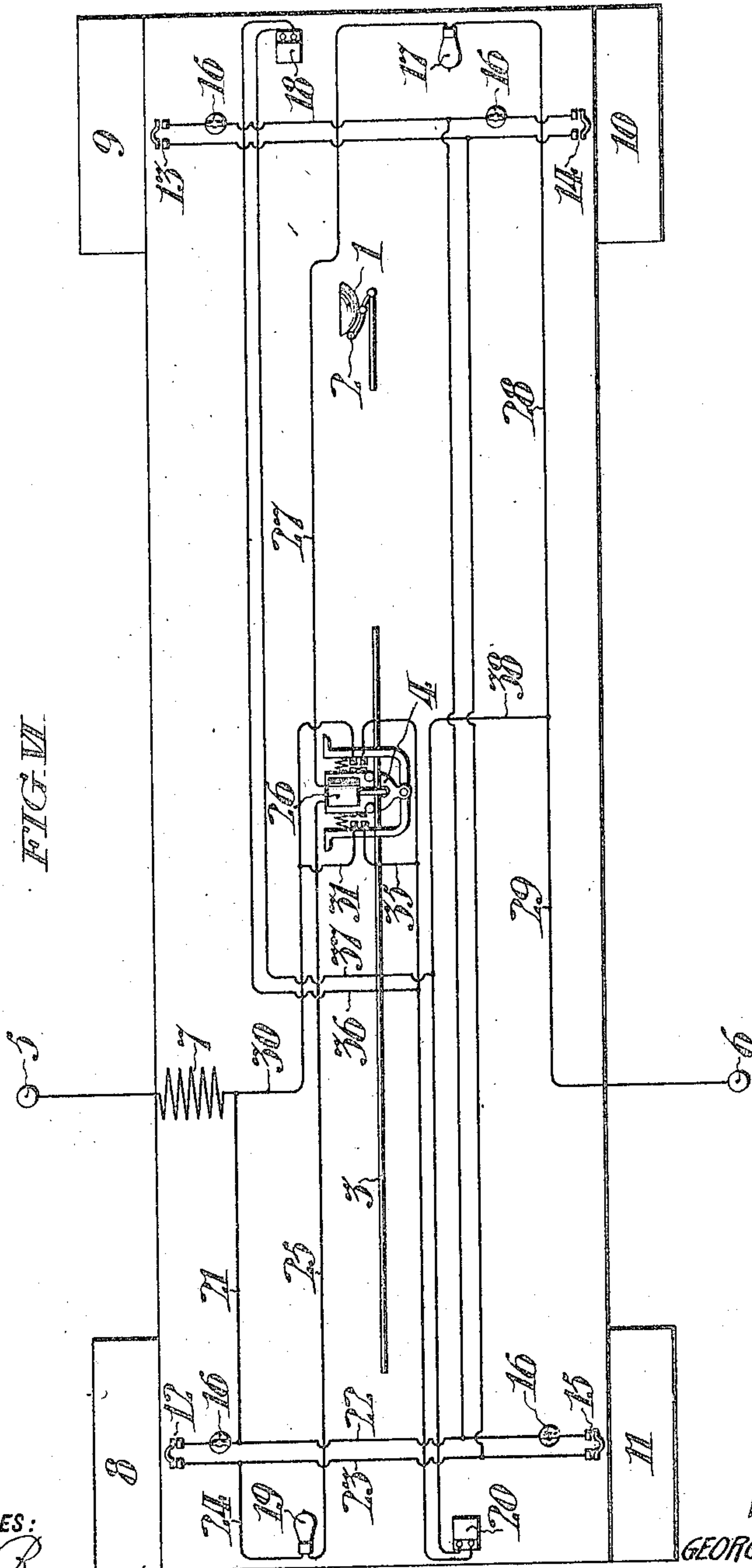
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5 SHEETS—SHEET 4.



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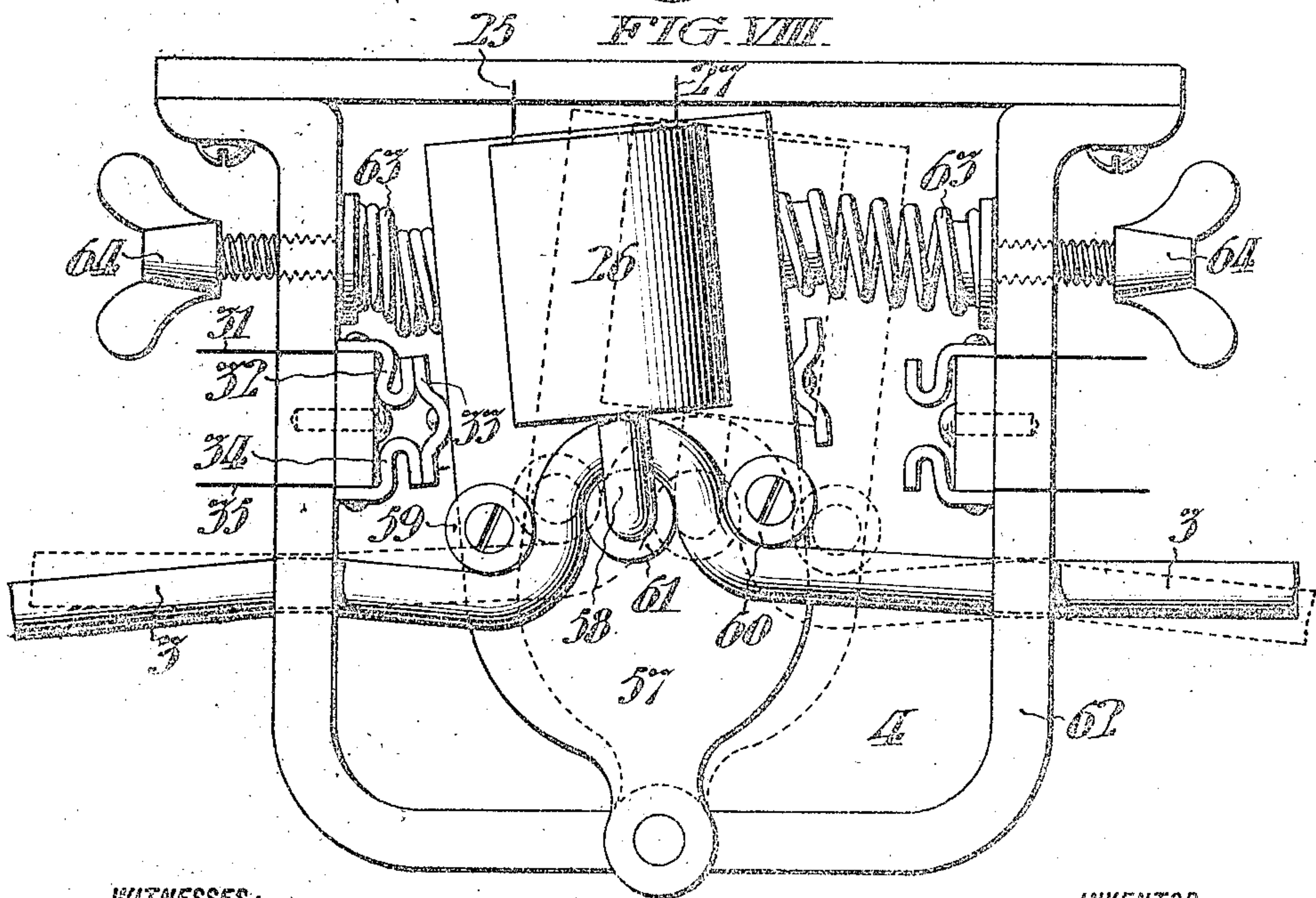
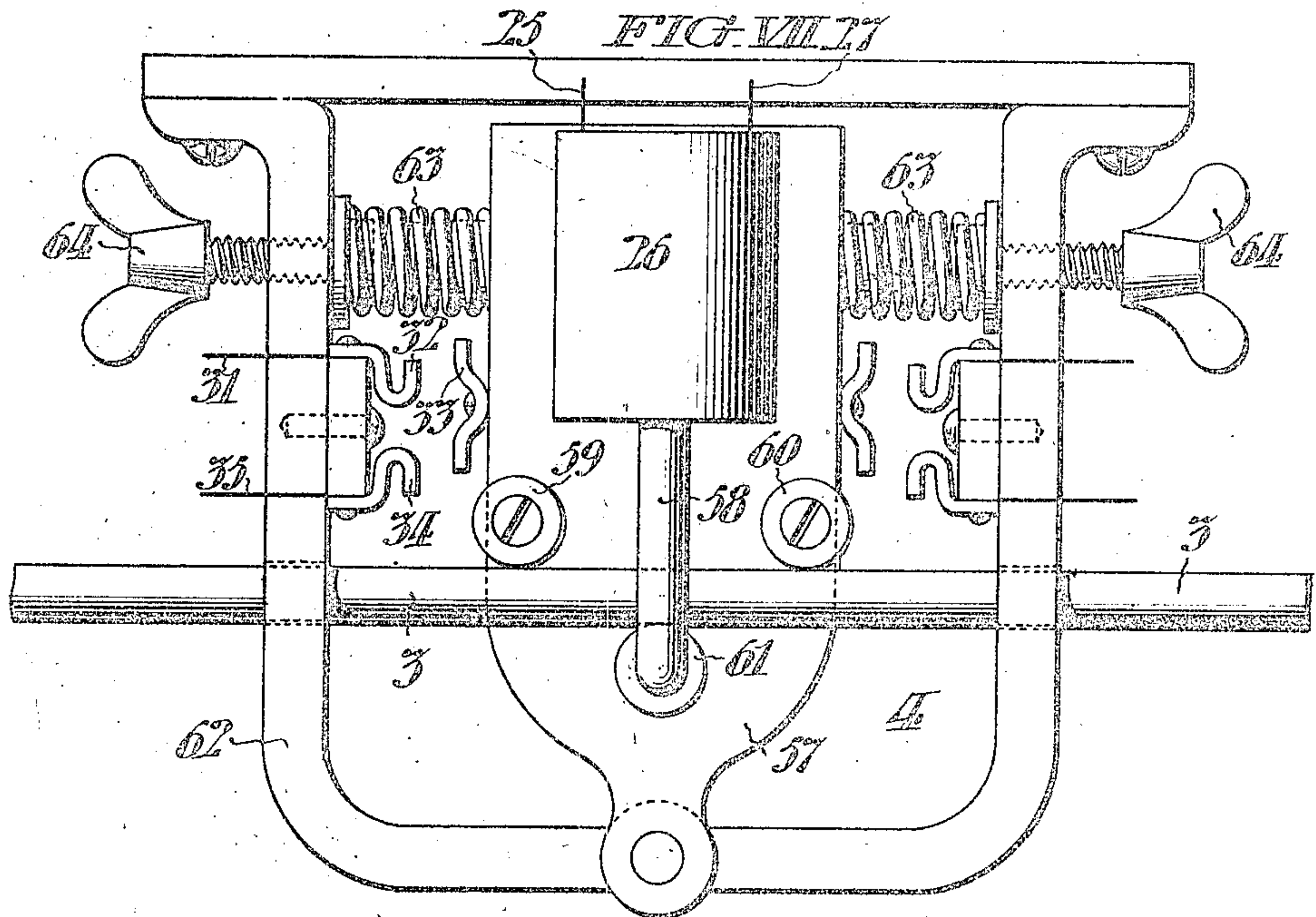
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SAFETY CAR SIGNALING DEVICE.

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5 SHEETS—SHEET 5.



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SAFETY CAR SIGNALING DEVICE.

No. 875,063.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed January 15, 1907. Serial No. 352,450.

To all whom it may concern:

Be it known that I, GEORGE WILLIS GODDARD, residing at No. 1107 Spruce street, in the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Safety Car Signaling Devices, whereof the following is a specification, reference being had to the accompanying drawings.

My invention relates to improvements in signaling devices of that general class employed in connection with cars and other vehicles for safe guarding passengers boarding or alighting from the car or other vehicle.

The principal object of my invention is to provide means for preventing the conductor or other person in charge of the car from ringing the bell in the usual manner whenever there is anybody standing upon the step or when any one is boarding or alighting from the car. In the preferred form of my invention this is accomplished by obstructing the clapper to prevent it from striking the bell; whereas, in a modified form, the bell cord is gripped intermediate the bell and the person attempting to ring it, whereby the cord is rendered inoperative to move the clapper.

A further object of my invention is to furnish signals whenever anybody is upon either or all of the steps, or boarding or alighting from the car.

A still further object of the invention is to indicate to the motorman or person controlling the motive power, that some one is upon the step.

My invention comprises the various novel features of construction and arrangement hereinafter more definitely specified and claimed.

In the accompanying drawings, Figure I, shows the preferred form of my invention applied to the ordinary trolley car. Fig. II, is a diagrammatic view showing the location of the various devices constituting this form of my invention and the circuits for controlling them. Fig. III, is a section through one of the car steps and circuit closers. Fig. IV, is a plan of the bell and device for obstructing the clapper. Fig. V, is an end elevation of the mechanism shown in Fig. IV. Fig. VI, is a diagrammatic view showing the location of the various devices constituting the modified form of my invention and the cir-

cuits for controlling them. Fig. VII, is a detail view of the cord clamping device in normal position. Fig. VIII, shows the clamping device when the cord has been gripped and pulled to one side for transmitting a signal.

In said drawings,—1, is a gong or bell, the clapper 2, of which, is adapted to be operated by the cord 3, in the usual manner. It is to be understood that obviously any other kind of audible signal may be substituted for the one shown, without departing from my invention.

The device for preventing the clapper 2, from striking the gong 1, to be hereinafter more fully described, is adapted to be operated whenever a passenger is standing upon one of the steps or boarding or alighting from the car. The current for operating the obstructing device is obtained from the supply which provides the power for operating the car, said current entering at 5, and leaving at 6, and having a suitable resistance 7, interposed, which may consist of a coil or lamps as desired.

At each step 8, 9, 10, and 11, is located a circuit closer. In Fig. II, only two circuit closers 13, and 15, are shown, but it is obvious that one may be connected from each step. A switch 16, may be interposed for the purpose of cutting out the system if desired. Located at each end of the car, at a point convenient to the motorman, are the lamps 17, 19, and buzzers 18, and 20. The lamps may be colored or otherwise.

Referring to Fig. III, for the construction and operation of the circuit closers;—40, is the side guard of the step, 41, is the riser, and 42, is the tread. The tread is hinged by means of suitable pivots connected with the side guards 40. At the front of the tread and below the same, is a suitable spring for maintaining this end of the tread in its upward position, so that a weight, as of a person, boarding or alighting from the car, will be effective to move the circuit closer. I have shown a plunger 43, pressed by a spring 44, inclosed in a casing 45, although any other suitable mechanism may be readily employed. At the rear of the tread 42, is an arm 46, attached thereto, and having an upward extension 47, provided with a bridging contact 48. Around the upward extension 47, is a coiled spring 70, which normally

tends to keep the bridging contact 48, from the stationary contacts 49, and 50, mounted upon a suitable insulating support 71. These contacts are immersed in a bath of oil 72, contained in a casing 73. Said weight in depressing the tread 42, raises contact 48, to engage contacts 49, and 50. Obviously other forms of circuit closers may be substituted if desired, but I have found this form to be safe and reliable.

Referring to Figs. IV, and V, for the detailed construction of the device for obstructing the bell clapper, 80, is a solenoid housed in a suitable casing 82, adjacent to the gong 1. The plunger 83, of the solenoid is provided on its outer end with a brass or similar tip 84, of sufficient length to bridge from the clapper 2, to the contact 85. The inner end of the plunger 83, is surrounded by a spring 86, which normally tends to keep the plunger in retracted position, as shown in Fig. IV. When the solenoid 80, is energized the plunger tip 84, passes between the clapper and gong thereby striking the contact 85, and also preventing the clapper from striking the gong. The clapper is connected to the conductor 90, and when pulled by the cord 3, contacts with the tip 84, closing the battery circuit. The operation of this form of my invention is as follows, reference being had to Fig. II:—It may be assumed that a passenger is standing upon the step 11, thereby depressing the tread 42, closing the circuit closer 15, in the manner above described. The current then enters at 5, and flows through the switch 16, solenoid 80, conductor 87, solenoid 81, conductors 88, 89, circuit closer 15, conductors 91, 92, lamp 19, conductor 93, lamp 17, conductor 94, resistance 7, and leaves at point 6. Thereupon the lights 17, and 19, are lighted, giving a visual indication that one of the steps is occupied, and both solenoid plungers are drawn out as above described, and their tips obstruct the clappers. When the cord is pulled so as to move the clapper, at the right hand end of Fig. II, said clapper comes in contact with the tip of solenoid 81, closes circuit of battery 100, and buzzer 18, is sounded; but the clapper will not strike the gong, owing to the obstructing plunger tip. The person upon the step must move off before the gong signal can be given.

Referring to Figs. VI to VIII, a modified form of my invention is shown, in which the bell cord is clamped by the clamping device 4, to be hereinafter more fully described. The current for operating the various devices is obtained from the supply which provides the power for operating the car, said current entering at 5, and leaving at 6, and having a suitable resistance 7, interposed between the source of supply and the devices to be operated. At each step 8, 9, 10, and 11, is located a circuit closer 12, 13,

14, and 15, adapted to be operated in the manner already described. A switch 16, may be interposed near each circuit closer for the purpose of allowing that circuit closer to be cut out if desired. Located at points convenient to the motorman are the lamp 17, and buzzer 18. These are shown as duplicated at the other end of the car, but this is merely a matter of convenience. The lamp 17, may be colored or otherwise.

Referring to Figs. VII, and VIII, for the detailed construction of the clamping device,—26, is a solenoid secured to a pivoted plate 57, and having a plunger 58. Upon the plunger 58, is a small roller 61, upon which the bell cord 3, rests. Above the bell cord and mounted upon opposite sides of the plate 57, are two rollers 59, and 60. When the plunger of the solenoid is drawn up the bell cord is tightly clamped between the rollers 58, 59, and 60, as shown in Fig. VIII. The plate 57, is pivoted to the frame 62, which is adapted to be secured to the car in any suitable manner. Attached to the frame 62, but insulated therefrom, are two stationary contacts 32, and 34. Secured to the plate 57, in a position to engage the stationary contacts 32, and 34, is the bridging contact 33. The movable and stationary contacts are shown duplicated on the other side of the frame for the purpose of making the device reversible and easily adapted to different locations in the car. Located on each side of the plate 57, are springs 63, which normally keep the plate in an upright position and tend to return the plate to its normal position whenever it has been pulled to one side, as shown in Fig. VIII. The tension of these springs may be varied by means of the thumb screws 64. The clamping device should be located close to the gong or other signal to be sounded, yet enough slack cord should be left between the two to enable the cord to be gripped and pulled to one side to close the circuit through contacts 32, 33, and 34, without operating the clapper of the gong. The operation of this modification is as follows:—For convenience of description, it may be assumed that a passenger is standing upon the step 11, thereby depressing the tread 42, closing the circuit closer 15, in the manner above described. The current then enters at 5, and flows through the resistance 7, conductors 21, 22, switch 16, circuit closer 15, conductors 23, 24, lamp 19, conductor 25, solenoid 26, conductor 27, lamp 17, conductors 28, and 29, and leaves at the point 6. Thereupon, the solenoid 26, becomes energized drawing up its core 58, and clamping the cord 3, between the rollers 59, 60, and 61. At the same time the motorman is notified by the lighting of lamp 17, that some one is standing upon the step or is boarding or alighting from the car. Should

the conductor or any other person attempt to ring the gong 1, at this time, by pulling the cord 3, the solenoid and its supporting plate would be moved to one side as shown in Fig. III, thereby closing the circuit through the contacts 32, 33, and 34. Current thereupon flows through conductors 30, 31, contacts 32, 33, and 34, conductors 35, 36, buzzer 18, conductors 37, 38, and 29, and out at 6.

From the above description, it will be seen that while a passenger is boarding or alighting from the car, the bell cord is tightly gripped to prevent the gong from being sounded in the usual manner. But each time the cord is pulled a buzzer is sounded giving a signal to the motorman.

I do not desire to limit myself to the precise details of construction and arrangement herein set forth, as it is obvious that various modifications may be made therein without departing from the essential features of my invention.

I claim:—

1. In a car signaling device, the combination with an audible signal; of a mechanical connection for operating said signal; means for preventing the normal operation of said signal; means located upon a selected portion of the car for controlling said preventive means; and connections between said controlling and preventive means.

2. In a car signaling device, the combination with an audible signal; of a signal of a different character; means for preventing the normal operation of said audible signal; controlling mechanism for said means, adapted to be actuated by weight upon a selected portion of the car; and means for substituting for said audible signal said signal of a different character.

3. In a car signaling device, the combination with a gong; of a signal of a different character; means for preventing the normal operation of said gong; controlling mechanism for said means, adapted to be actuated by weight upon a selected portion of the car; and means for substituting for said gong said signal of a different character.

4. In a car signaling device, the combination with an audible signal; of a mechanical connection for operating said signal; electrical means for preventing the normal operation of said signal; means located upon a selected portion of the car for controlling said preventive means; and electrical connections between said controlling and preventive means.

5. In a car signaling device, the combination with an audible signal; of a signal of a different character; means for operating said audible signal; electrical means for preventing the normal operation of said audible signal; controlling mechanism for said electrical means, adapted to be actuated by

weight upon a selected portion of the car; and means for substituting for said audible signal said signal of a different character.

6. In a car signaling device, the combination of an audible signal; a mechanical connection for operating said signal; an electrical device for preventing the normal operation of said signal; a circuit closer upon a car step; and electrical connections between said circuit closer and said electrical device.

7. In a car signaling device, the combination of an audible signal; means for normally operating said signal; means for preventing the operation of said audible signal under predetermined conditions; an audible signal of a different character; means for substituting for said first mentioned audible signal said audible signal of a different character; and means for operating a signal to indicate that the normal operating means of said first mentioned audible signal has been rendered inoperative.

8. In a car signaling device, the combination of an audible signal; means for manually operating said signal; means for preventing the manual operation of said audible signal under predetermined conditions; means for substituting for said audible signal an audible signal of a different character; and means for operating a visual signal to indicate that the normal operating means of said first mentioned audible signal has been rendered inoperative.

9. In a car signaling device, the combination with a gong; of a clapper for sounding said gong; a mechanical connection for operating said clapper; means for preventing said clapper from sounding said gong upon the operation of said mechanical connection; controlling mechanism for said preventive means having a member adapted to be actuated by weight and located upon a selected portion of the car; and operative connections between said controlling mechanism and said preventive means.

10. In a car signaling device, the combination with a gong; of a clapper for sounding said gong; mechanical means for operating said clapper; means for preventing said clapper from sounding said gong upon the operation of said mechanical means; controlling mechanism for said preventive means, having a member adapted to be actuated by weight and located upon a selected portion of the car; connections between said controlling mechanism and said preventive means; and visual means for indicating that said preventive means has been actuated.

11. In a car signaling device, the combination with a gong; of a clapper for sounding said gong; means for operating said clapper; means for preventing said clapper from sounding said gong upon attempted operation of said clapper; controlling mechanism for said

preventive means, adapted to be actuated by weight upon a selected portion of the car; and visual and audible means for indicating that said preventive means has been actuated.

12. In a car signaling device, the combination with a gong; of a clapper for sounding said gong; a solenoid provided with a core and located adjacent said gong whereby when said solenoid is energized said core will pass between said clapper and said gong; controlling mechanism for said solenoid, adapted to be actuated by weight upon a selected portion of the car; and connections between said controlling mechanism and said solenoid, whereby said solenoid may be energized.

13. In a car signaling device, the combination with a gong; of a clapper for sounding said gong; a solenoid located adjacent said gong and provided with a core arranged to pass between said clapper and gong when said solenoid is energized; a circuit closer operatively connected with a car step; elec-

trical connections between said circuit closer and said solenoid; and means for indicating that said solenoid has been actuated.

14. In a car signaling device, the combination of a gong; a clapper for sounding said gong; a solenoid provided with a core adapted to pass between said clapper and said gong; mechanism adapted to be actuated by weight upon a selected portion of the car, for controlling the operation of said solenoid; a conducting tip on said solenoid; a circuit having an audible signal, and provided with contacts adapted to be bridged by said solenoid tip whereby said signal is sounded; and a visual signal for indicating that said solenoid has been actuated.

In testimony whereof, I have hereunto signed my name, at Philadelphia Pennsylvania, this fourteenth day of January, 1907.

GEORGE WILLIS GODDARD.

Witnesses:

JAMES H. BELL,

WILLIAM J. SPERL.