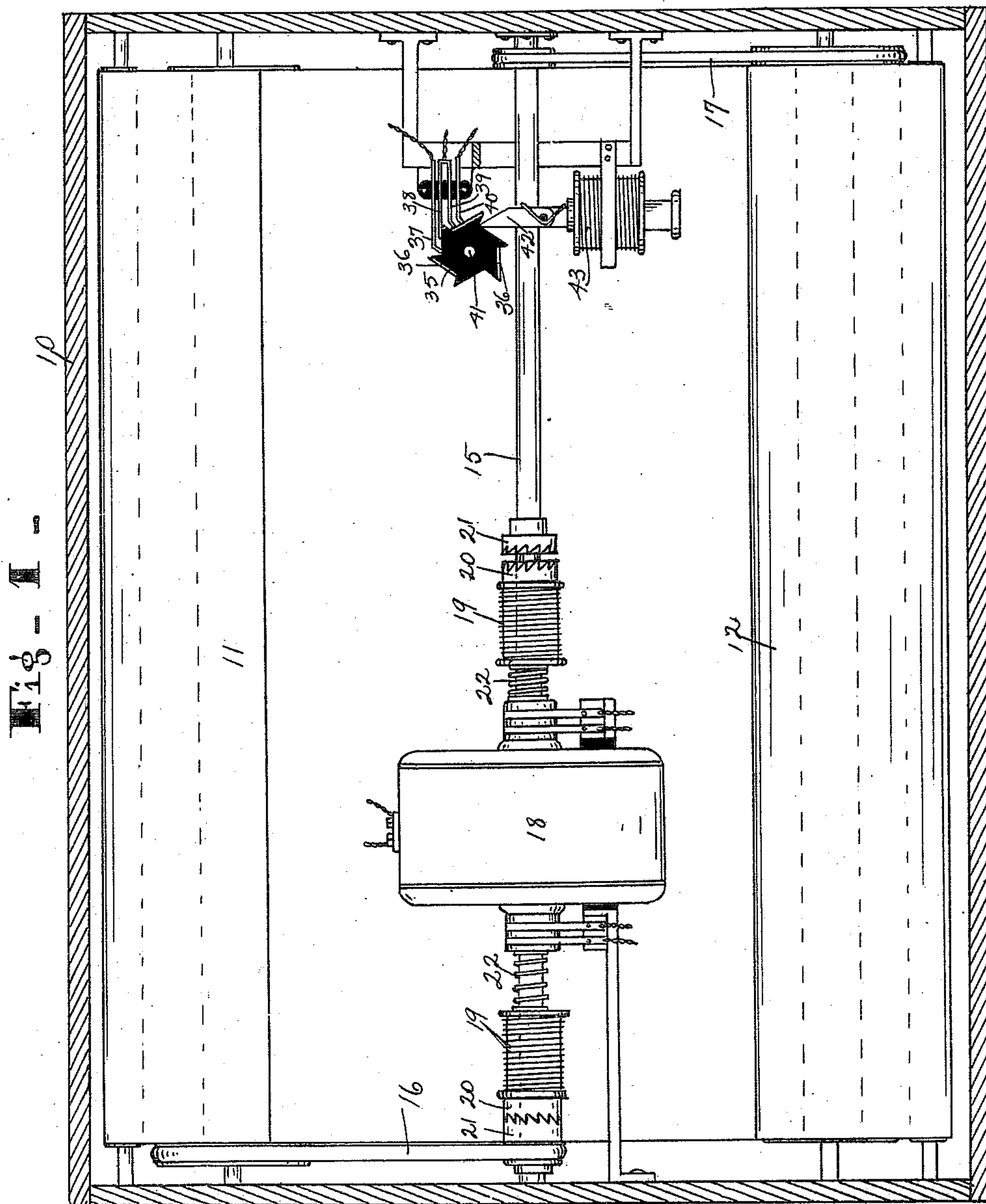


C. W. WHALEY.
ADVERTISING DEVICE.
APPLICATION FILED DEC. 20, 1909.

985,484.

Patented Feb. 28, 1911.

2 SHEETS-SHEET 1.



WITNESSES:

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2 SHEETS-SHEET 2.

Fig. 2 -

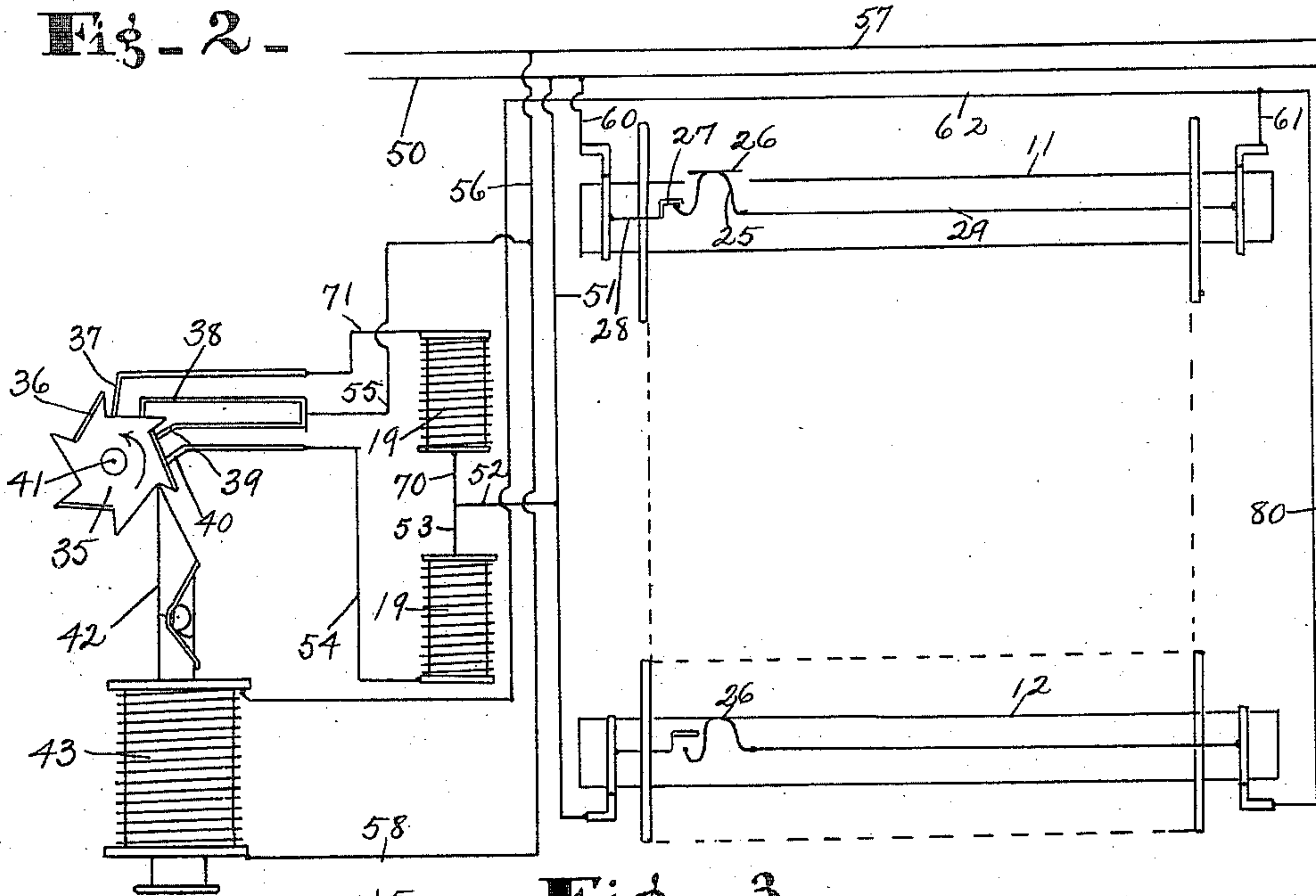


Fig. 3 -

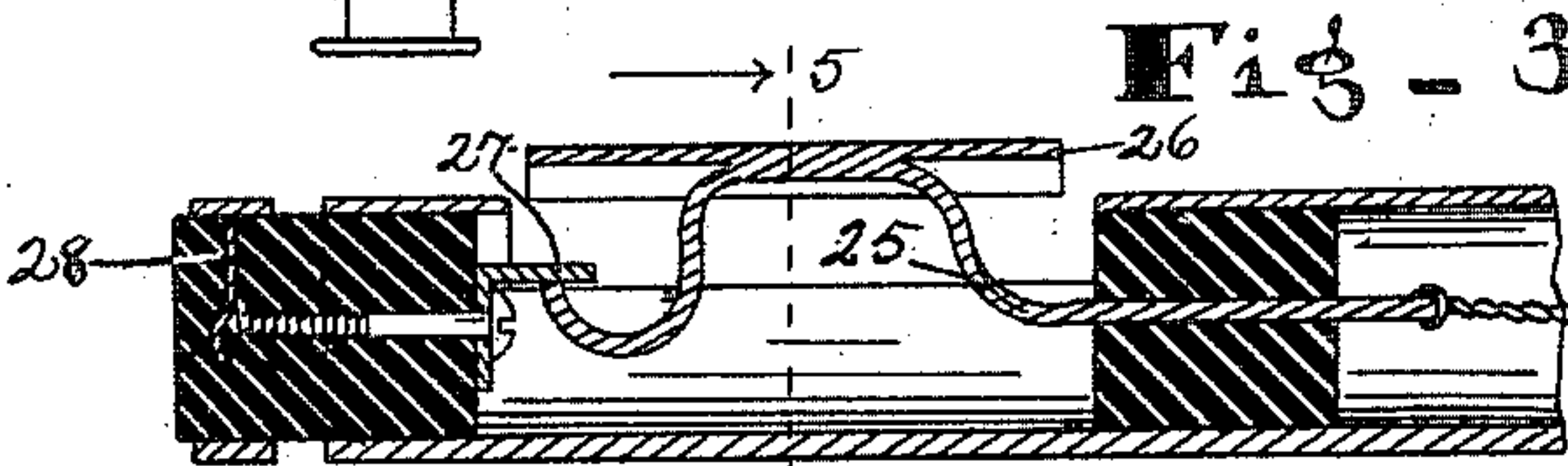


Fig. 4 -

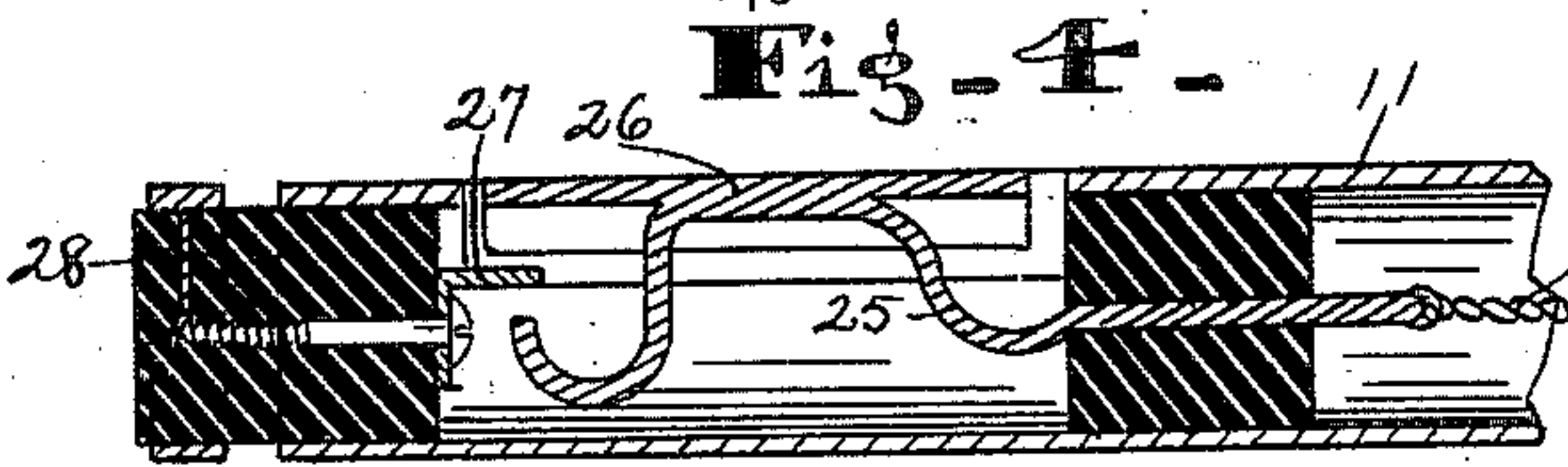


Fig. 5 -

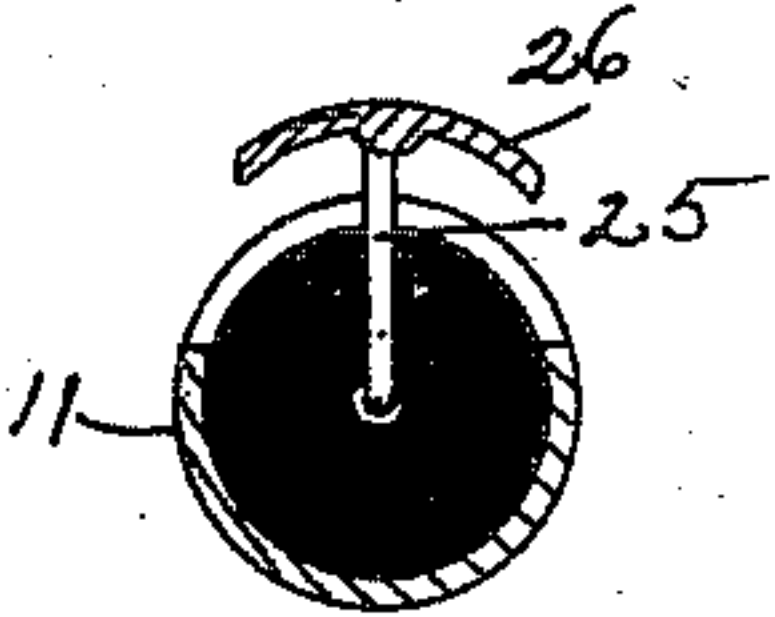


Fig. 6 -

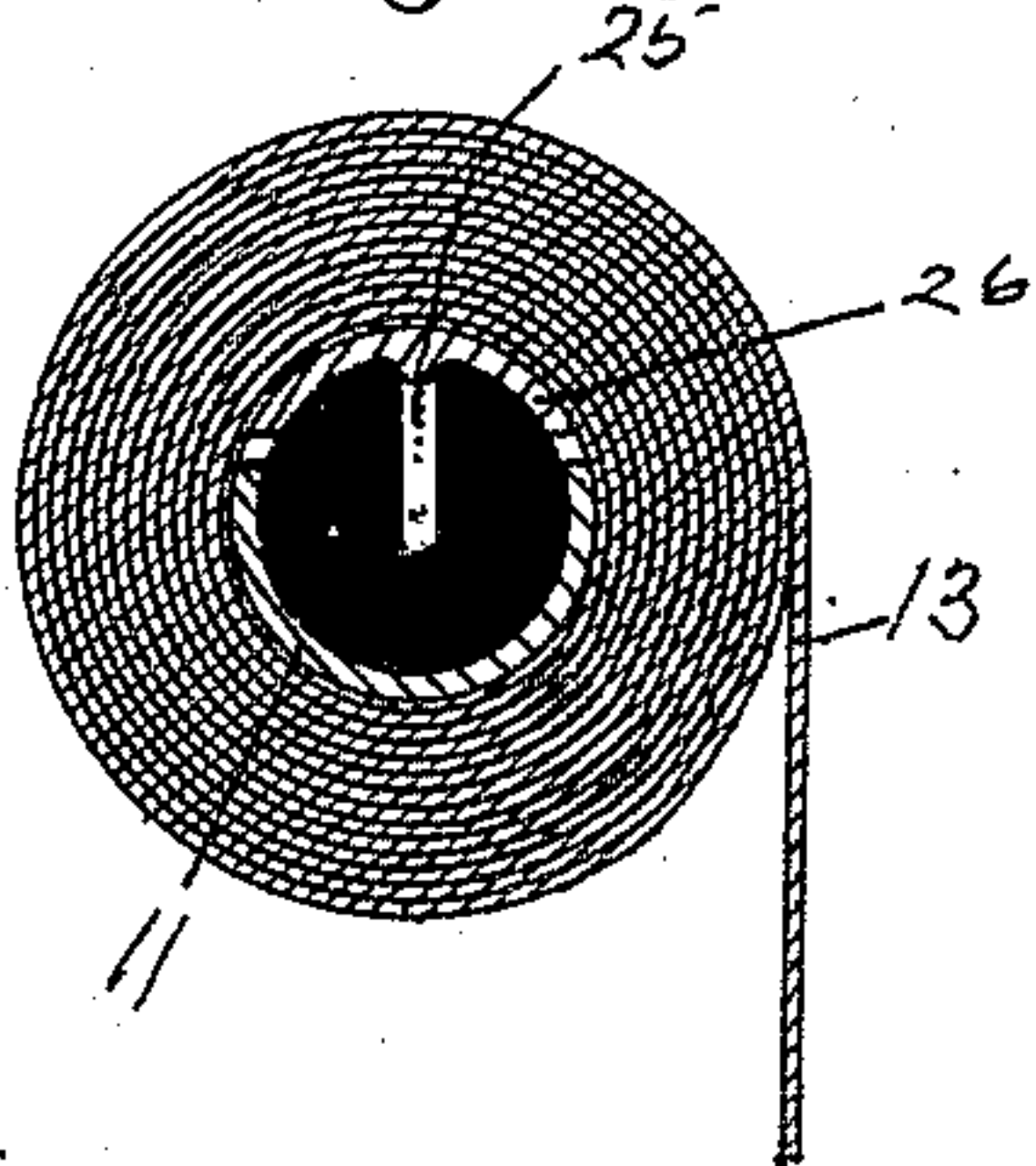
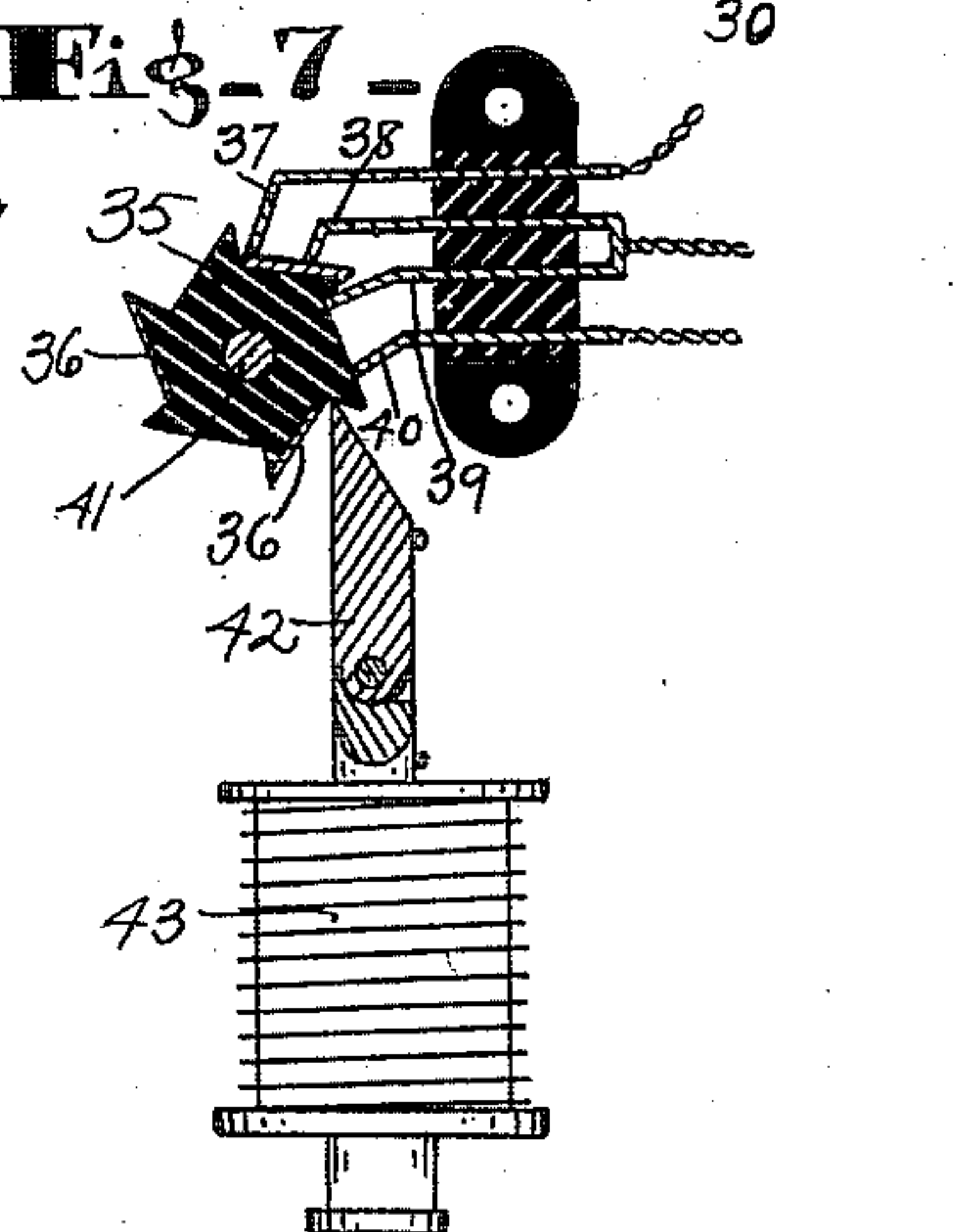


Fig. 7 -



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UNITED STATES PATENT OFFICE.

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ADVERTISING DEVICE.

985,484.

Specification of Letters Patent.

Patented Feb. 28, 1911.

Application filed December 20, 1909. Serial No. 534,098.

To all whom it may concern:

Be it known that I, CHARLES W. WHALEY, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Advertising Device; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

This invention relates to an improvement on the construction set forth in my former application for Letters Patent, Serial No. 512,067, filed Aug. 9, 1909, and consists particularly in automatic means for reversing the driving mechanism at the end of the trip of a car when the device is used for a street indicator for railway cars, or at the end of a complete series of operations thereof for whatever purpose it may be used.

The chief feature of the invention consists in providing an electric switch in each of the rollers on which an advertising sheet containing the signs or advertisements is rolled, so that when the sheet has entirely rolled off one roller, a spring actuated switch will be released and operated and will modify the electric circuit so as to cause a reversal of the means for moving the advertising sheet, and when the other roller is entirely unrolled, the spring actuated switch is similarly operated. Hence the reversing switches are located within the rollers on which the paper is rolled and are actuated by the paper releasing the same. In other words, when the paper winds on a roller it opens the switch, and when it unwinds, it closes the switch. The particular improvement herein described and claimed is not, however, necessarily limited to the construction set out in my former application but may be applied to any indicating or advertising mechanism or other device when a sheet of material is alternately rolled from one roller to another.

The nature of the invention will be understood from the accompanying drawings and the following description and claims:

In the drawings Figure 1 is a central vertical section longitudinally through the device. Fig. 2 is a diagram of some of the electric circuits in the device. Fig. 3 is a central vertical longitudinal section through one of the metal rollers showing the switch closed. Fig. 4 is the same as the left-hand portion of Fig. 3 showing the switch open. Fig. 5 is a section on the line 5—5 of Fig. 4. Fig. 6 is a similar section through Fig. 4

with the paper wound thereon. Fig. 7 is a vertical section through the means for controlling the circuits.

A frame 10 carries two rollers, one, 11, near its upper portion, and the other, 12, in its lower portion, on which a sheet of paper or other material 13 is wound from one to the other and vice versa. The two ends of the sheet are secured respectively to said rollers, and on said sheet any indicating means or advertisement may be placed.

The driving shaft 15 is located between the rollers and the frame, and the upper roller is driven by it through the belt 16, and the lower roller through the belt 17. Said shaft is composed of a plurality of sections, the two ends being made of iron and separated by an intermediate brass section carrying an electric or other motor 18. The motor section has on each end an electro-magnet 19 slidably mounted, having a core on which a clutch member 20 is secured that is adapted to engage a clutch member 21 on the adjacent outer section of the shaft.

The springs 22 tend to push the cores of the magnets and associated clutch members outwardly into clutching position. The magnets, when energized, withdraw the clutch members associated with their cores from engagement with the clutch members 21. When only one magnet is energized, the core and clutch member of the other magnet will drive the device in one direction and when said latter magnet is energized, the core and clutch member of the first magnet will drive the device in the opposite direction.

The motor is driven by current from the trolley wire adapted to run the street car in which the device is mounted, which, however, is not here shown. In fact, the particular means for driving the intermediate section of the shaft 15 is rather immaterial to this invention, as this invention only relates to means for alternating the energization of the electro-magnets 19 to bring about the reversal, and that will be understood from the diagram in Fig. 2. There the two magnets 19 are shown with the electrical connections between them and various other parts. Before describing said diagram, however, the controller and also the rolls will be described.

The rollers 11 and 12 are constructed as indicated in Figs. 4 and 5, being partially tubular with a spring switch 25 secured at

one end at an inner part of the roller, with the free end curved up and carrying the movable plate 26 that forms a section of the wall of the tube. The spring is so arranged normally that it will hold said section 26 so it will project outwardly beyond the external surface of the roller. The free end of the spring 25 is adapted to engage the contact piece 27 that is secured within the roller and is in electrical communication with the wire 28, and the other end of the switch is in communication with the wire 29 that runs through to the binding screw 30, which is connected by the strip 31 to a contact band 32. When the sheet of paper is rolled on the roll 11, it will depress the plate 26 to the position shown in Fig. 5, and thus break the circuit and separate the free end of the spring 25 from the contact piece 27.

The controller consists of the ratchet wheel 35 with six surfaces thereon, the alternate ones being covered by plates 36. There are two pairs of contacts 37 and 38 adapted to engage one section of the ratchet wheel, and 39 and 40 adapted to engage the adjacent section. Therefore, one pair of these contacts is always in electrical communication because of engaging a plate 36. The ratchet on the pin or shaft 41 is loosely mounted and is actuated by a solenoid extension 42 and an electro-magnet 43.

Referring now to the diagram shown in Fig. 2, the current comes off the trolley or live wire 50, over the wires 51, 52 and 53 to the lower magnet 19, thence through wire 54 to the contact 40 and through plate 36 on the ratchet 35 to contact 39, and thence over wires 55 and 56 to the ground wire 57. The current through that circuit will energize the lower magnet 19, which we will assume to be the same as the left-hand magnet in Fig. 1. Therefore, it will cause the motor 18 to operate one of the rollers, say 11. Both rollers 11 and 12 have nearly all the time a portion of the sheet of paper rolled on them tightly, so that both switch actuating plates 26 are held down in the position shown in Fig. 4, or the lower part of Fig. 2, and, therefore, are in circuit breaking condition and do not interfere with the operation of the electromagnet 19 just referred to. But as soon as, say the upper roller 11 has the paper wound off of it, the switch actuating plate 26 immediately assumes the position shown in Fig. 3 and upper part of Fig. 2. That closes the following circuit. The current passes from the main wire 50 over wire 60 to wire 28, and thence through the contact 27 and switch 25, wire 29, screw 30 to the band 32, from which the wire 61 leads to the wire 62 that goes to the magnet 43. Current passes through magnet 43 and out over wire 58 to the ground. That will energize the magnet 43 and the solenoid extension 42 will operate the ratchet 35 and move

it one notch. That will throw out the circuit above described for actuating the lower magnet 19 and throw in a circuit through contact points 37 and 38, which actuates the upper magnet 17 or the right-hand one in Fig. 1, and that will stop operation of the upper roller and start the operation of the lower roller and reverse the movement of the sheet of paper. When the paper starts to wind on the upper roller, the switch 25 therein will be actuated and break the circuit, which actuates the magnet 43. Then the current will pass from the live wire 50 through wires 51, 52 and 70 and upper magnet 19 and wire 71 through contact 37, plate 36, contact 38, and out through wire 55 to the ground. This will continue until the sheet is all wound on the upper roller, and then the circuit in the lower roller is closed by the spring switch 25, and immediately a current passes from the live wire 50 through wire 51 down to and through the lower roller and out over wire 80, through wire 62 down to the magnet 43, and out through wire 58 to the ground. Then the magnet 43 will give the ratchet 35 another step movement.

What I claim as my invention and desire to secure by Letters Patent is:

1. An advertising device including a pair of rollers, an advertising sheet with its ends connected to said rollers so as to be wound off and on the same alternately, electrical means for reversing the direction of movement of the rollers, said rollers having a portion thereof cut away, an electrical spring-closed switch mounted in the cut-away portion of the roller and which is in electrical communication with the means for reversing the movement of the rollers, and a plate curved conformedly to the surface of the roller that is secured upon said switch, the arrangement being such that when the sheet of paper is wound on said roller, it will force said plate and switch down and open the circuit, but when the sheet of paper is unwound from said roller the switch will close.

2. An advertising device including a pair of rollers, an advertising sheet with its ends connected to said rollers so as to be wound off and on the same alternately, an electric motor, means for driving each roller from said motor, an electromagnetically controlled clutch mechanism between the motor and each of said roller driving means, a circuit for energizing each of said magnets, a ratchet wheel in position to alternately open and close said circuits, an electromagnet, a core extension from said magnet for actuating said ratchet wheel, and means controlled by the sheet of paper as it winds on and unwinds from said rollers for energizing said last-mentioned electromagnet.

3. An advertising device including a pair

of rollers, an advertising sheet with its ends
connected to said rollers so as to be wound
off and on the same alternately, an electric
motor, means for driving each roller from
5 said motor, an electromagnetically con-
trolled clutch mechanism between the motor
and each of said roller driving means, a cir-
cuit for energizing each of said magnets, a
ratchet wheel in position to alternately open
10 and close said circuits, an electromagnet, a
core extension from said magnet for actu-
ating said ratchet wheel, a spring-closed

switch in each roller adapted to be opened
by the sheet of paper as it winds thereon
having an electrical connection through said 15
switch with said last-mentioned magnet for
energizing said magnet.

In witness whereof, I have hereunto af-
fixed my signature in the presence of the
witnesses herein named.

CHARLES W. WHALEY.

Witnesses:

G. H. BOINK,

O. M. McLAUGHLIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
