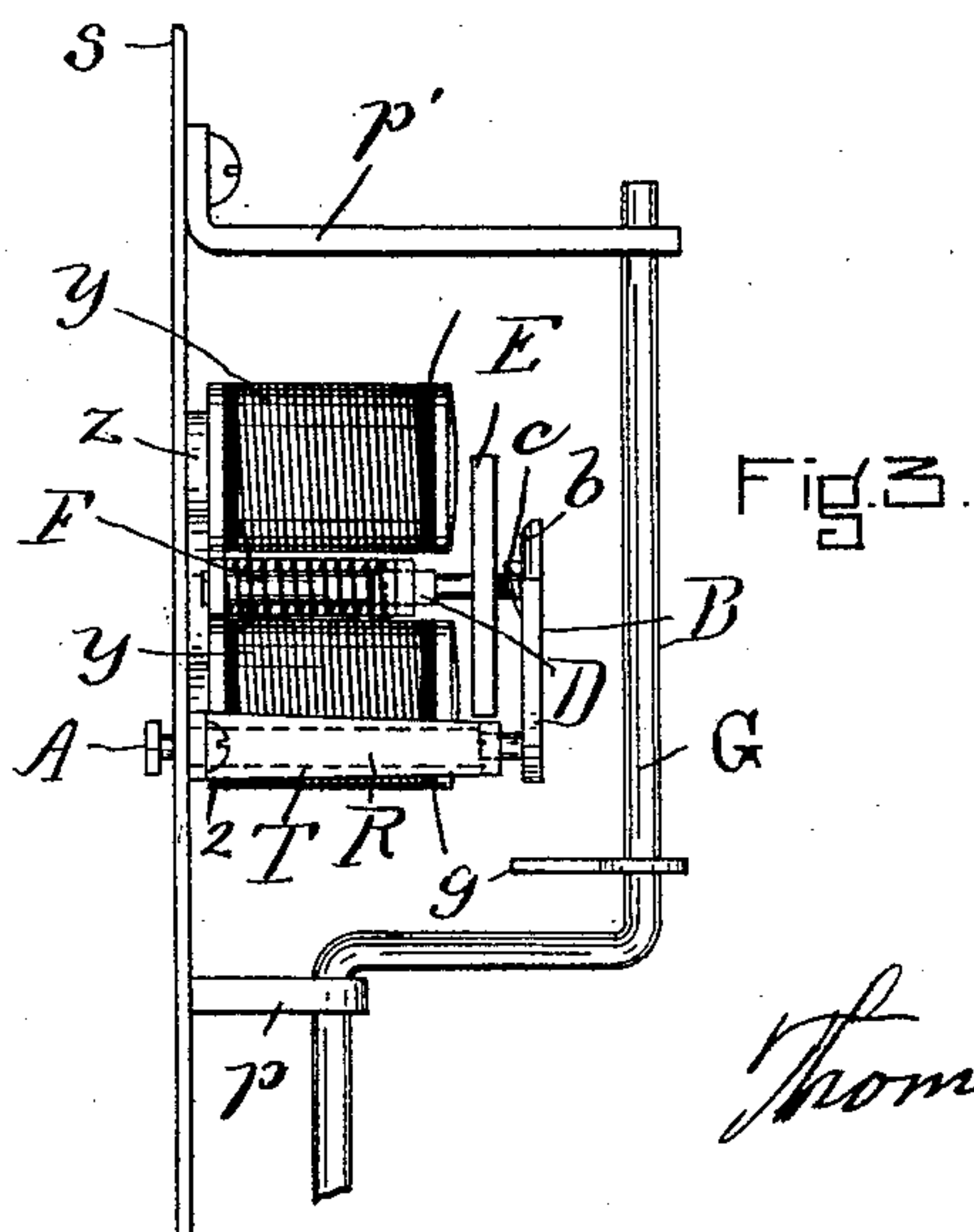
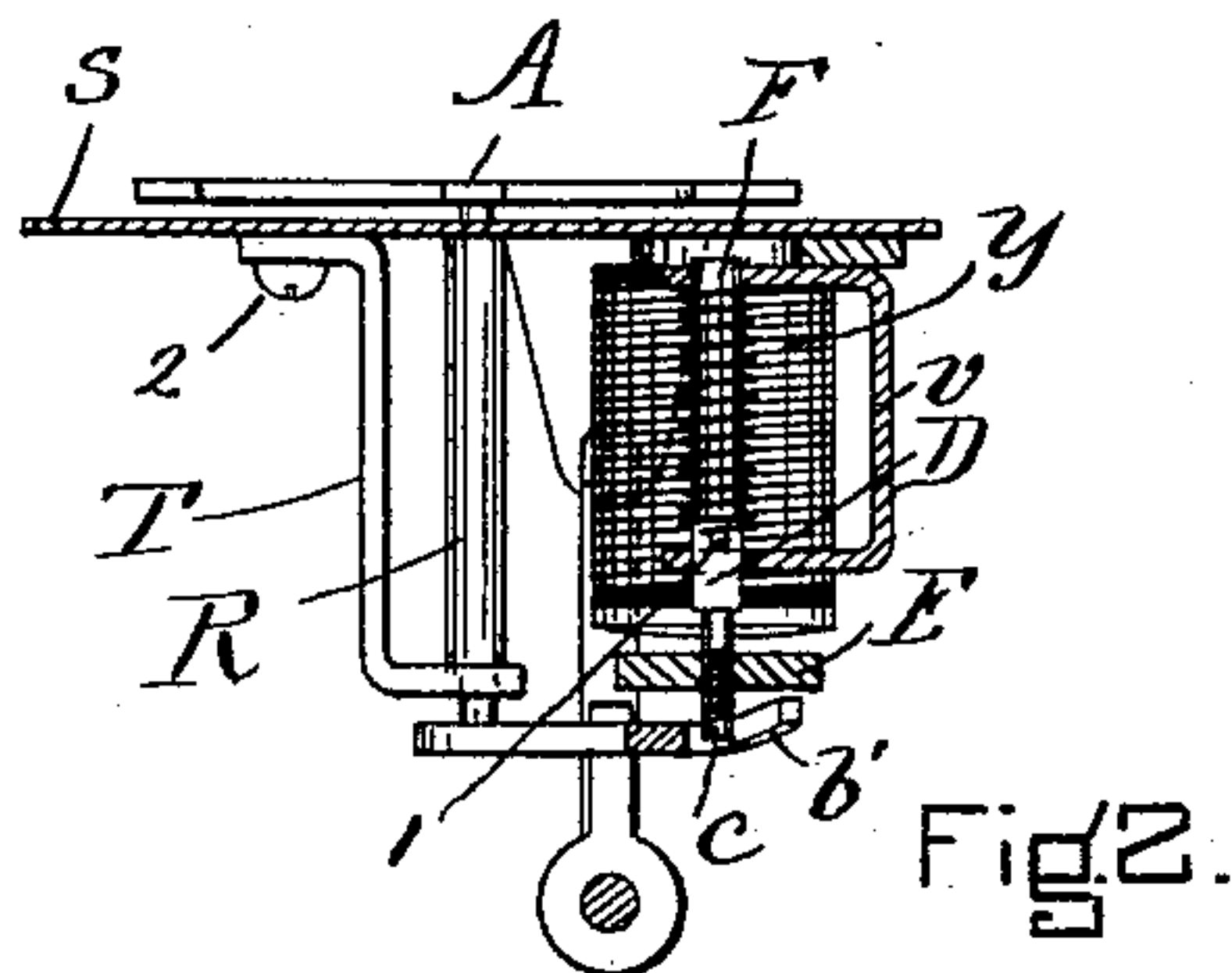
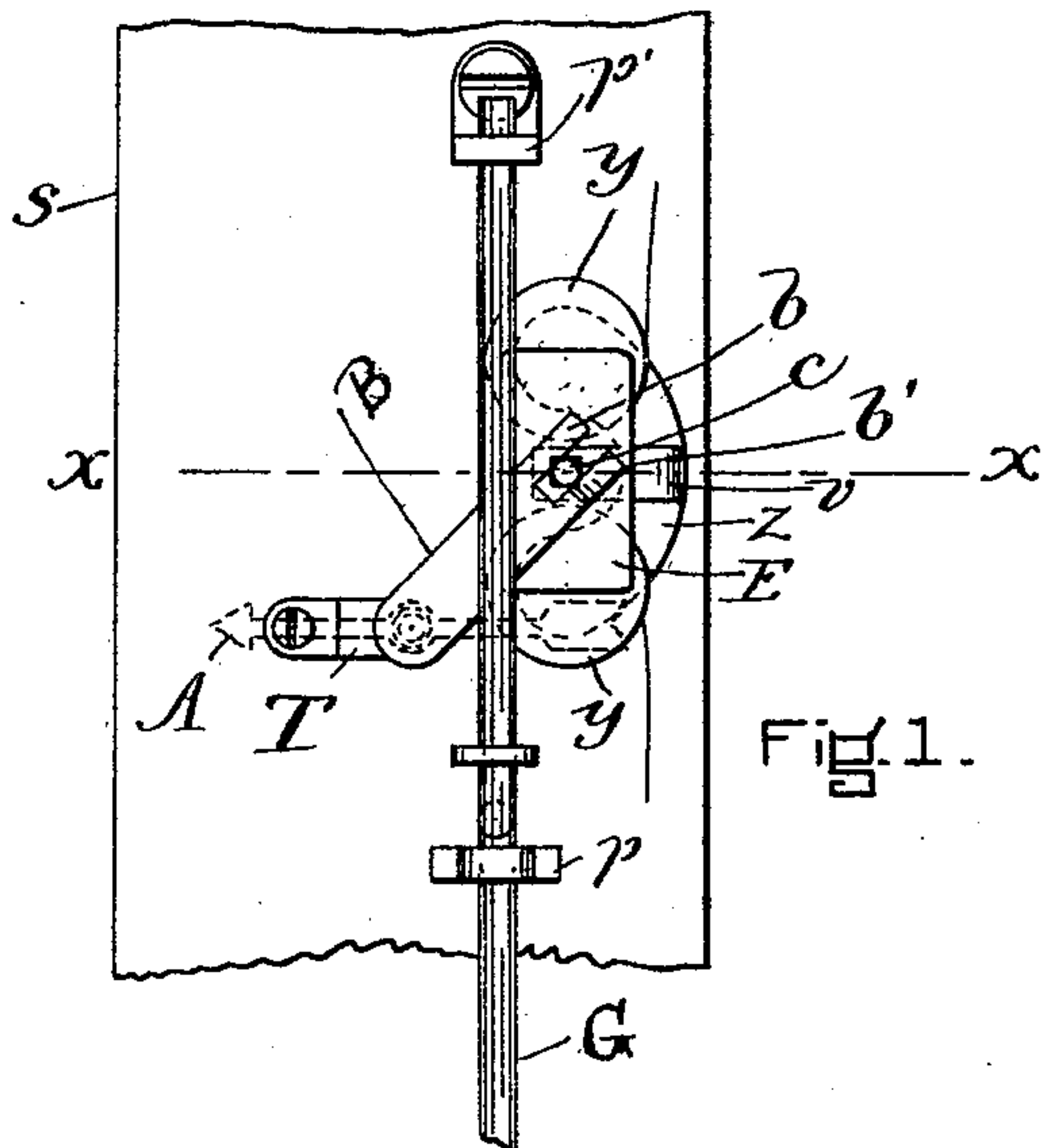


(No Model.)

T. W. LANE.
ELECTRICAL DROP ANNUNCIATOR.

No. 480,729.

Patented Aug. 16, 1892.



WITNESSES.
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GAS LIGHTING COMPANY, OF PORTLAND, MAINE.

ELECTRICAL DROP-ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 480,729, dated August 16, 1892.

Application filed December 19, 1891. Serial No. 415,621. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. LANE, a citizen of the United States, residing at Boston, Suffolk county, Massachusetts, have invented certain new and useful Improvements in Electrical Drop-Annunciators, of which the following is a specification.

My invention relates to improvements particularly in the manner and means of supporting, retaining, and operating the armature of the magnet.

My invention consists in the combination of all the elements of the annunciator properly arranged and constructed and will be readily understood from the drawings, in which—

Figure 1 is an end view of the apparatus. Fig. 2 is a section through the line X of Fig. 1. Fig. 3 is a side view.

I use a double magnet Y Y—that is, a magnet with two helices mounted upon a common base Z, to which base is rigidly fixed a two-armed guide-piece V, each arm being perforated at its extremity. Through these perforations is loosely passed a rod D, which is either squared or feathered, so as to prevent its turning in its rests. About the rod between the two arms a helical spring F is arranged, one end of which bears against the arm of the guide-piece and the other end by means of a pin 1 or otherwise is fastened to the movable rod D, whereby the spring normally tends to hold the rod D in a certain position to allow the lug C on the armature E to support the lever-arm B. Beyond the guide-piece V the rod D projects long enough to be screwed into armature E for the said magnet, and may project as a lug C beyond its outer face. The armature is screwed or fastened upon this end of the rod D. The other devices are a standard T, one bent end of which is to be fixed to the annunciator face-plate S at 2, and the other, bent at right angles with it, is to be perforated. A rod R passes through the armature plate-face S and carries the ordinary index-pointer A, while the other end of the rod is supported by the unattached end of the standard T and carries a lever-arm B, arranged at a proper angle with the plane of the pointer-rod. The remaining device is composed of two supports *p p'*, car-

rying a lift G, which may be constructed and arranged in any way which will enable it to restore the lever-arm B and pointer A to normal position after use of the apparatus. 55

The operation of this apparatus is very simple. When the pointer-hand A is at rest, one prong *b* of the lever-arm B rests upon the lug C, being preferably a prolongation of the rod D. When the button is pushed by the person wishing to signal and the current admitted to the magnet Y Y, the armature E is attracted and overcomes the stress of the helical spring F, thereby retracting the rod D and withdrawing the projection or lug C from the finger *b* of the lever-arm B, which lever immediately falls by its own weight upon the catch *g* and revolves the index-pointer A, which indicates the desired number, name, or other visual signal upon the annunciator-face. Upon the cessation of the current and demagnetization of the magnet the armature E is carried back to position by stress of the helical spring F. It is then necessary to restore the pointer A to its normal position, and in order to do that to raise the lifting-lever G until its catch *g* lifts the lever B, so that its upper prong *b*, being preferably beveled, will slip over the projection C as far as permitted by the lower prong *b'*. Thus the pointer-arm A will be restored to its proper position. In the drawings a form of lifting device is shown which may be variously modified, and the device for carrying the index-pointer may be differently arranged, provided it be so arranged as to co-operate with the armature and helical spring when arranged substantially as described. 85

I am aware that many Letters Patent are issued for similar devices, and I do not claim any single element of the above-described invention, broadly, inasmuch as the magnet, spring, guides, rods, armatures, standard, pointer-rod, lever-arm, and lifting device are all old and well known under different forms, as is also the method of operating an index-pointer by means of electricity and a magnet; but 95

What I do claim as my invention is—

1. In an electro-magnet annunciator, the combination of two magnets mounted upon a common base with a guide-piece, substan- 100

tially as described, and adapted to carry a rod, a rod supported and retained by the guide-piece and extending beyond the same, an armature rigidly attached to the extension
 5 of said rod, a lug or projection beyond the armature, and a helical spring about said rod between the extremities of the guide, adapted to hold the armature in a normal position, all so combined that upon the magnet being en-
 10 ergized the armature will be attracted and repress the rod and upon the magnet being de-energized the armature will be repulsed by the operation of the helical spring, substantially as described.

15 2. In an electro-magnetic annunciator, the combination of a double magnet upon a base affixed to an annunciator face-plate, a guide-piece perforated at its extremities, a rod passing through and adapted not to turn in the
 20 perforations of the guide-piece and extending beyond the same, a helical spring about the rod between the extremities of the guide-piece, an armature rigidly fixed to the extremity of said rod, a projection upon or be-
 25 yond said armature, a standard adapted to be rigidly fixed to an armature-plate face at one end and to offer support for a rod by its other end, a rod supported by this standard, and an
 30 index-pointer at one end and a lever-arm at the other end of said rod, which is adapted to swing loosely in the standard aforesaid, all so combined and arranged that upon the mag-
 35 net being energized the armature will be attracted and withdraw the projection on its face from the support of the lever-arm, allow-
 ing it to fall, and upon the magnet being de-energized the armature will move back by force of the helical spring, all substantially as described.

3. The combination, upon an annunciator- 40
 plate face, of devices, substantially as de-
 scribed, for moving a pointer-hand, each con-
 sisting of a double magnet, support, guide, rod,
 armature, projection, standard, rod, pointer-
 arm, and lever-arm, in combination with a 45
 lifting device adapted to restore the lever arm
 or arms to the lug upon the armature after
 operation of the apparatus, substantially as
 described.

4. In an electrical annunciator having a 50
 finger-index movable upon the face-plate, the
 combination of a magnet with two helices
 mounted upon a common base-plate, a support
 or guide-piece properly located between the
 said helices, adapted to carry a rod, a rod sup- 55
 ported in said support or guide-piece and pro-
 jecting beyond the same, an armature con-
 nected with the projecting end of said rod, a
 spiral spring surrounding said rod and adapt-
 ed to normally hold the same in a given posi- 60
 tion, a standard properly fixed to the annun-
 ciator face-plate, and a two-armed lever, its two
 arms being properly arranged in different
 planes—viz., one arm the index-pointer, the
 other the lever-arm—supported or carried by 65
 said standard and having its lever-arm prop-
 erly forked to allow the armature projection
 or lug to sustain the same, together with a
 lifting device adapted to the purpose of re-
 storing said lever-arm of said rod to its nor- 70
 mal position after each retraction of the ar-
 mature, all substantially as described and
 shown.

December 16, 1891.

THOMAS W. LANE.

Witnesses:

CHARLES H. HANSON,
 CHARLES T. DAVIS.