

(No Model.)

2 Sheets—Sheet 1.

F. C. McDONALD.
STATION INDICATOR.

No. 285,289.

Patented Sept. 18, 1883.

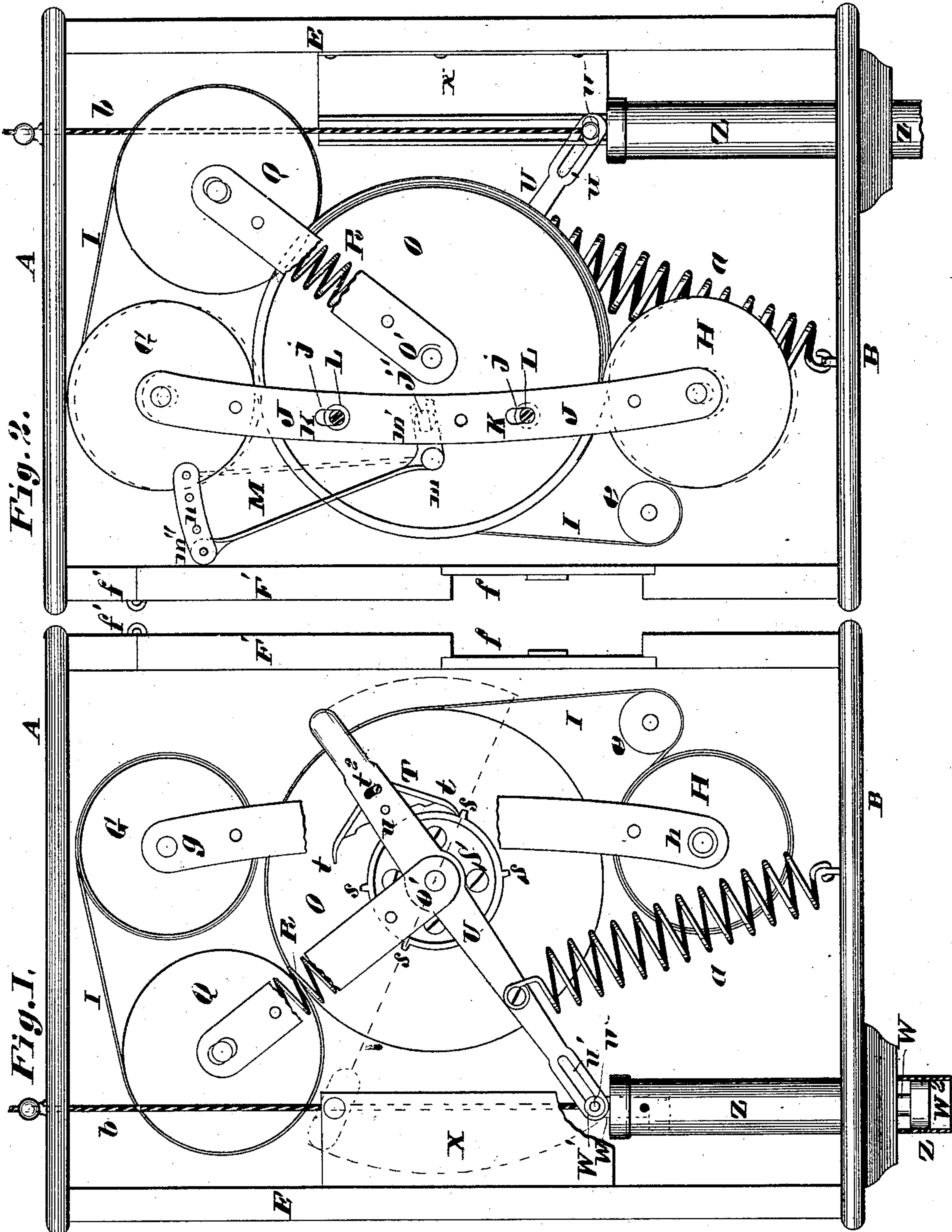


Fig. 1.

Fig. 2.

Attest:
Charles Pickles
Wm. J. Jagers.

Inventor.
Fred C. McDonald
By Knight Bros.
Attys.

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Fig. 3. A

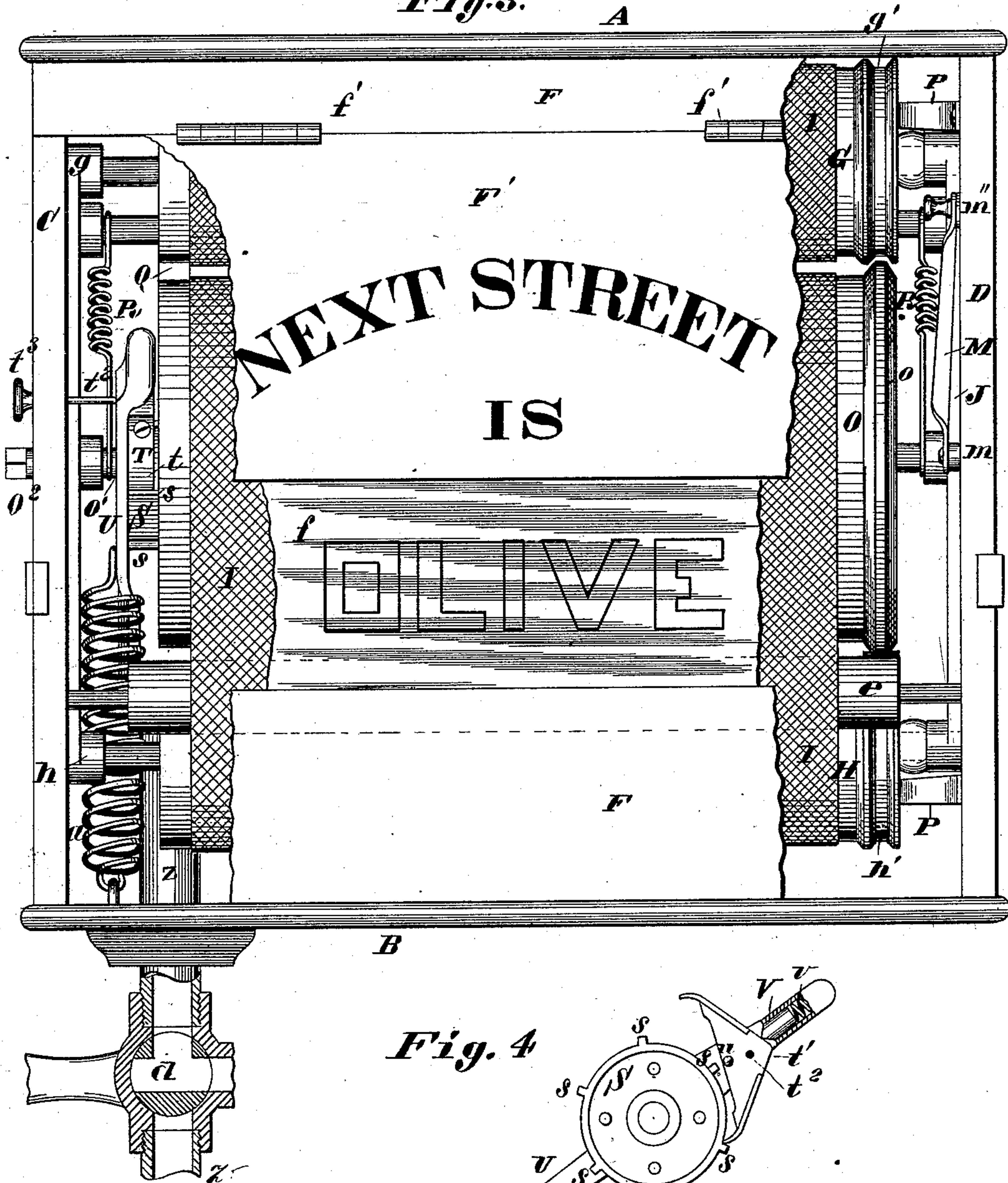
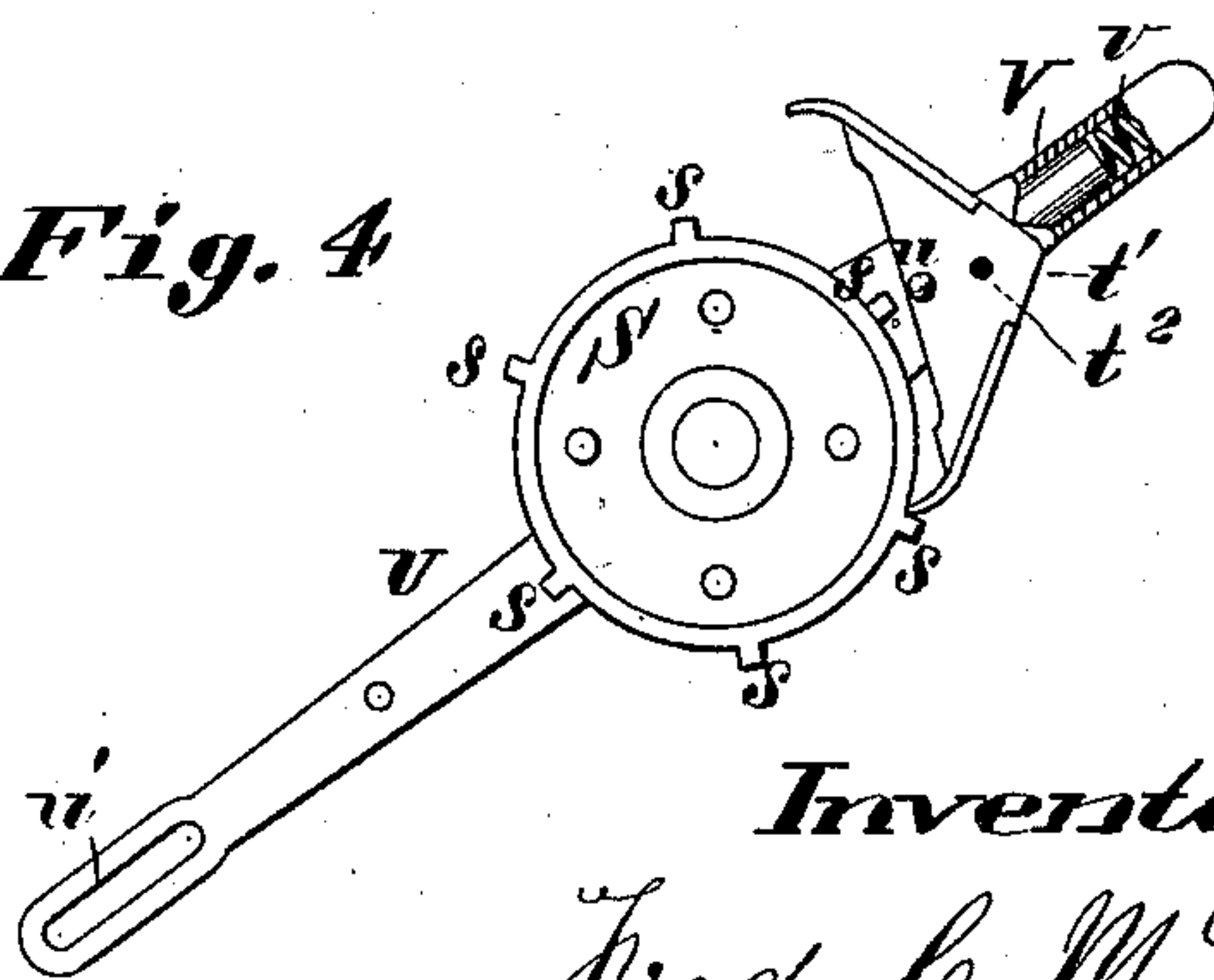


Fig. 4



Attest:
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Inventor:
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UNITED STATES PATENT OFFICE.

FRED C. McDONALD, OF ST. LOUIS, MISSOURI.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 285,289, dated September 18, 1883.

Application filed October 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, FRED C. McDONALD, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Street and Station Indicators for Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

10 This is an apparatus to indicate to passengers the name of the next street or station, as the case may be, the name being marked upon a belt or apron that may be moved by compressed air or by a cord. A reversing-pawl
15 enables the apron to be moved in either direction. The apron is driven by frictional contact with a roller, and its ends are wound upon winding-rolls having movable journal-bearing
20 of frictional connection with the drive-roll. These movable journal-bearings are connected together, so that the moving of one of the rolls into engagement with the drive-roll moves the other out of engagement. The journal-plate
25 is moved by a spring-lever.

Figures 1 and 2 are opposite end views of the apparatus, the ends of the case being removed. Fig. 3 is a front view, parts of the front of the case being broken out. Fig. 4
30 is a detail view of the reversible dog or pawl and its lever.

The case is made of any suitable form, to contain the operating apparatus and to allow a sight to be had of the part of the apron upon
35 which the name of the next street or station is printed, (or otherwise marked.) The top of the case is shown at A, the bottom at B, ends at C and D, back at E, and front at F.

G and H are the rolls upon which the ends
40 of the apron I are wound. These rollers have fixed bearings for their journals at one end, (see *g* and *h*,) but at the other end the journals have bearings in an adjustable plate, J, moved by a spring-lever, M, to bring either
45 one of the rollers G H into frictional contact with the central main drive-roll, O, and to carry the other out of such contact.

The journal-bearing plate J is supported on studs L, which extend through slots *j* in the
50 plate, so as to allow it to be moved upward and downward. This movement is made by

the spring-lever M, working on a fulcrum, *m*, and having one end, *m'*, forked or slotted to embrace a stud, *j'*, upon the bearing-plate. The upper end of the lever M has a knob, *m''*,
55 by which it is moved, and a stud engaging in one of the series of holes *n*, to hold the lever M and plate J in the position in which they may be placed. The rollers G and H have similar friction-grooves, *g'* and *h'*, fitted for the
60 engagement of the friction-rib *o*, surrounding the main drive-roll O. The arrangement of the rolls G, H, and O and bearing-plate J is such that the movement of the plate brings one of the rolls G H into frictional engagement
65 with the roll O, and at the same time carries the other roll out of such engagement. The apron is wound upon whichever of these rolls G or H is brought into engagement with the roll O, and unwound from the other roll. In the
70 drawings the lower winding-roll is shown in engagement with the drive-roll.

The rolls G and H are prevented from accidental turning by spring-brakes P, that bear against their ends. The apron I extends
75 partly around the drive-roll O and between that roll and a regulating pressure-roll, Q, by which the apron is pressed against the roll O, and thus forced to turn therewith, (not faster nor slower.) The journals or gudgeons of the
80 roller Q turn in bearings elongated in a direction in line with the journals of O, so that the roller Q has a limited movement to and from the roller O. The roller Q is drawn toward the roller O by springs R, one at each end,
85 which engage on the gudgeons or shafts of the rollers O and Q.

It will be seen that to insure the regular speed of movement in the apron it is necessary to
90 actuate it by a roll of unchanging circumference, and thus the winding-rolls cannot be used as drivers, because their circumference increases as the apron is wound upon them, so that toward the end of the route traveled by the
95 car the apron would move faster, and it would be impossible to print the names of streets or places in proper position to come in line with the window *f* in the front of the box, because on the return trip the part of the apron that
100 traveled the fastest in the forward trip would travel the slowest on the return. The strength of the spring-lever M is so adjusted that the

frictional bearing of the roller O upon G or H (as the case may be) will be enough to take up all slack of the apron and wind it upon the roller, (G or H,) while at the same time the friction is so light as to allow said rollers to slip if they demand more of the apron than the feed and drive roll O supplies. The relative circumference of the friction-surfaces of the rollers O and G and H is such that the latter rollers will always take up all the slack of the apron.

The shaft O' of the drive-roll O carries a ratchet-wheel, S, with cross ribs or teeth s, against which engages the tooth of the pawl T. The pawl or dog T has two teeth, t t, one of which is used to drive the roll O in one direction and the other in the other. The pawl works on a pin, u, of a pawl-lever, U, and has a tooth, t', (see Fig. 4,) engaged by a spring-toe, V, to hold either of the teeth t in the working position. The toe V is inserted in a socket in the end of the lever U, containing a spiral spring, v, by which the toe is pressed outward against the tooth t' at the back of the pawl. The pawl is adjusted to throw either of the teeth t into the active position by a rod, t², secured to the pawl, and extending through a slot in the lever and a slot in the end C, and having a thumb-knob, t³, by which it is moved. The pawl-lever has a slot, u', to receive a stud, w, which slides in said slot and moves the lever so as to carry the pawl the full distance from one tooth s to another, so that the wheel S will be moved the distance of a tooth with each complete movement of the lever U. The stud w is upon the cross-head W' of a piston-rod, W. The cross-head works in a guide, X. W² is the piston working in an air-cylinder, Z, being lifted by pressure of air beneath it and depressed by the action of the spring a, by which the free end of the pawl-lever is drawn down after it has been lifted. The lower end of the cylinder Z is in communication by means of pipe z with an air-compressor. Where the indicator or register is upon a railway-car, the air-compressor upon the locomotive used in working the air-brakes may be used to operate the registers too by means of suitable connecting-pipes. An ordinary three-way cock may be used, as shown at d, Fig. 3, to put the cylinder Z in communication with the compressed-air supply, and to allow the air to exhaust from the cylinder when the lever has been raised with the piston W².

To move the lever U by hand a cord, b, is attached to the same or to the stud w or cross-head W', and passes upward through a hole in the case.

e is a roll around which the apron is carried to hold it in a vertical position just behind the window f, so that the name thereon may be plainly seen. The end O² of the shaft of the drive-roll O extends through the end of the case, and is formed to receive a hand-crank, by which it may be turned when occasion requires. A part, F', of the front F is supported on hinges f', so that it can be opened to give access to the interior.

The apron may be used as an advertising medium.

I claim—

1. The combination of central drive-roll, O, having shaft O', toothed wheel S, piston W², cross-head W', cylinder Z, lever U, mounted on shaft O', and provided with pawl T, at one end engaging with the toothed wheel and at the other end hinged to the cross-head, rollers G and H, one on each side of the central main drive-roll, and an apron, I, as set forth.

2. The combination of apron I, upper roll, G, lower roll, H, intermediate drive-roll, rib and groove bearing between the drive-roll and upper and lower rolls, and movable journal-plate J for adjusting the upper and lower rolls, as set forth.

3. In a street and station register, the drive-roll O and winding-rolls G and H, with frictional connection, as described, and the movable journal-plate J, held in place by a spring-lever, M, substantially as set forth.

4. In a street and station indicator, the combination of apron I, upper roll, G, lower roll, H, central drive-roll, rib and groove bearing between the drive-roll and the upper and lower rolls, the regulating pressure-roll Q, and carrying-roll e, as set forth.

5. The combination, with the central drive-roll, O, having shaft O' and toothed wheel S, of the lever U, having pawl T pivoted thereto, provided with tooth t', spring-toe V in socket in end of lever, and adjusting-rod t², having handle t³, as set forth.

FRED C. McDONALD.

Witnesses:

SAML. KNIGHT,
HANNIBAL LOEVY.