

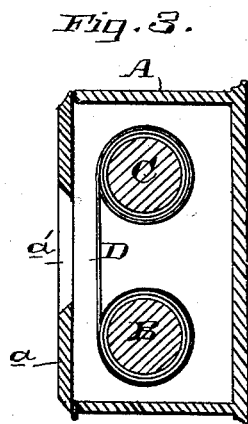
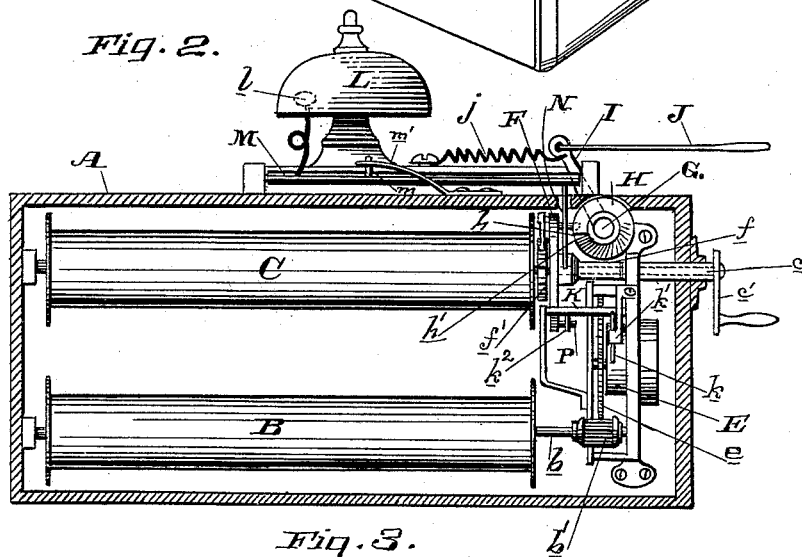
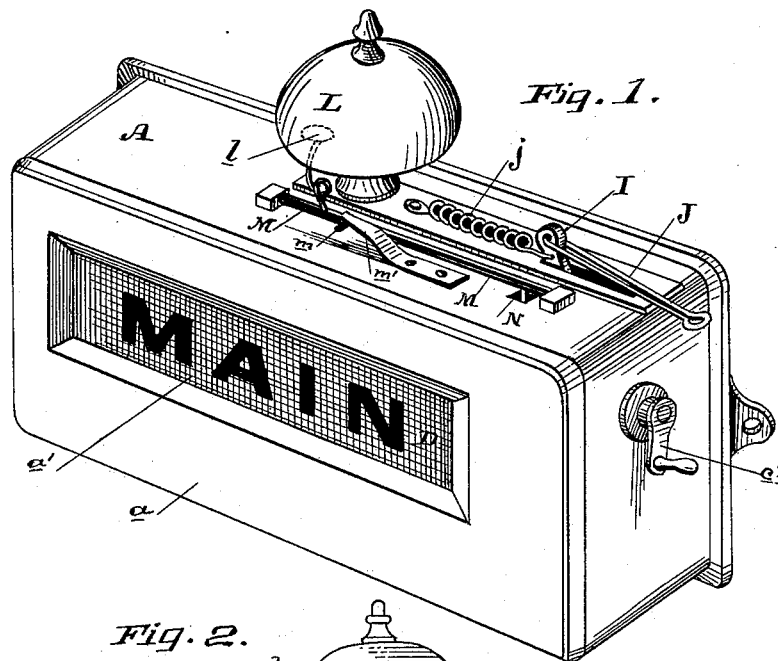
(No Model.)

2 Sheets—Sheet 1.

J. C. LUDWIG.
STATION INDICATOR.

No. 383,230.

Patented May 22, 1888.



Witnesses,
George Strong,
J. H. Strong

Inventor,
J. C. Ludwig,
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attys

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Fig. 4.

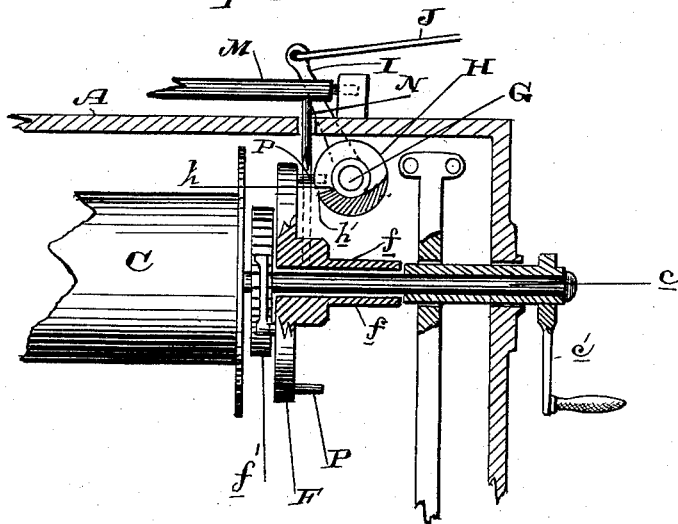
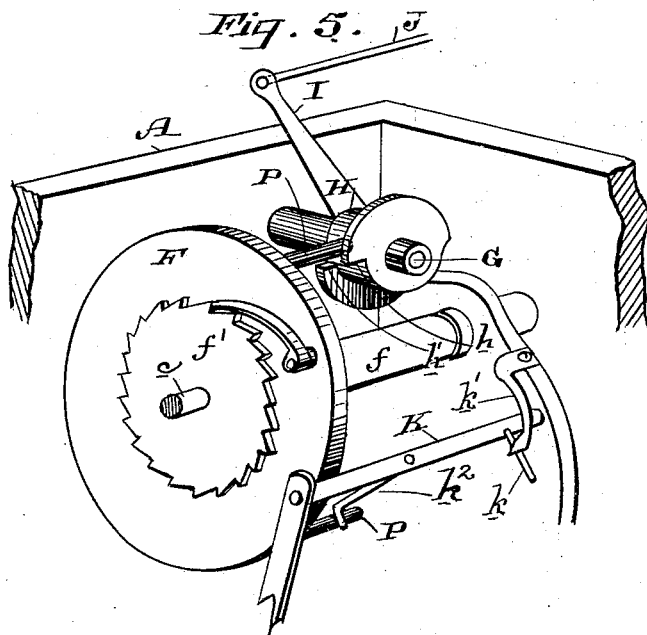


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN C. LUDWIG, OF SAN FRANCISCO, CALIFORNIA.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 383,230, dated May 22, 1888.

Application filed February 21, 1888. Serial No. 265,035. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. LUDWIG, of the city and county of San Francisco, State of California, have invented an Improvement in Station-Indicators; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of station-indicators in which a ribbon bearing the names of the streets or stations is made to travel upon suitably-arranged drums by means of a clock-work mechanism which is periodically set in operation and checked again; and my invention consists in the hereinafter-described escapement and checking mechanism and in the connection of the alarm apparatus therewith.

The object of my invention is to provide a simple and accurate station-indicator.

Referring to the accompanying drawings, Figure 1 is a perspective view. Fig. 2 is a vertical longitudinal section. Fig. 3 is a cross-section. Fig. 4 is a detail section of the stopping and releasing mechanism. Fig. 5 is a perspective detail of the same and of the holding mechanism.

A is a box or casing adapted to be secured in any suitable position in the car, said box having a hinged front, *a*, provided with a window or light, *a'*. Within the casing is mounted the lower or driving drum or roller, B, above which is a second drum or roller, C.

D is the ribbon, which has printed upon it at proper intervals the names of the streets or stations, said ribbon being attached to both drums and adapted as it winds up on one to unwind from the other; and it is so located as to pass directly behind the hinged front of the box, so that the names of the stations or streets may be seen through the window. In one end of the box is located the mainspring E of the power mechanism, said spring carrying the main gear *e*, which meshes with the pinion *b'* on the shaft *b* of the lower drum, B, whereby rotation is imparted to said drum so as to cause it to wind up the ribbon. The shaft *c* of the upper drum is carried outwardly through the end of the casing or box, and has upon it the small crank *c'*, whereby said drum may be rotated to wind the ribbon back again upon the upper drum, and at the same time through said ribbon acting as a belt it will wind up

the mainspring for the beginning of the operation. Upon the shaft *c* of the upper drum is fitted loosely a sleeve, *f*, which carries at one end a disk, F, which is connected with the drum C by a pawl and ratchet, *f'*, in such a way as to enable the drum to be turned in one direction in order to wind up the ribbon without affecting said disk; but when the drum turns in the other direction as the ribbon unwinds it causes the disk and sleeve to accompany it.

Mounted transversely in the top of the box is a fixed shaft or pin, G, on which is pivoted or journaled a disk or hub, H, which forms the trip, said hub having its periphery formed with the offset or shoulder *h*. The hub is provided with an upwardly-extending crank-arm, I, which passes through an elongated slot in the top of the box and has connected with it a pull-rod, J, which serves to pull it in one direction, and a spring, *j*, which serves to return it to position. Upon the disk F are fixed pins or stops P, set in this case at one hundred and eighty degrees apart, said pins being located so as to come in contact with the trip-hub H just above its offset or shoulder, whereby the disk is stopped in its movement.

The operation of the machine as far as described is as follows: In order to set the machine in the first instance, the crank is rotated, so as to wind up the ribbon entirely on the upper drum, which winding, as I have before mentioned, also effects the winding up of the power spring. When the street-crossing or the station is being approached, the person in charge pulls the rod J, thereby, through the crank-arm I, turning the trip-hub H backwardly, so as to bring its shoulder or offset *h* into line with the stop P of the disk F, whereby said stop is relieved and the power of the spring exerted to turn the drums and move the ribbon one space to present the name of the street or station to view. This movement is stopped by the opposite pin or stop P on the disk F coming in contact with the trip hub H, which was immediately relieved after being pulled. Now, in order to render this stoppage as complete and accurate as possible by keeping the disk from rebounding or having a tendency to do so, I have the rock-shaft K, having an arm, *k*, at one end,

on which a spring, k' , bears, and a bent arm, k^2 , which normally lies in the path of the pins P of the disk. As said pin comes around, it acts upon the top of this bent arm, forcing it down out of the way; but as soon as it passes it the arm, under the influence of the spring, moves up behind the pin, thus preventing the disk from having any backward movement at all. The trip and stop mechanism described is, as will be seen, very solid and accurate in its operation, this construction being found necessary to resist the jars due to the power of the spring, and in connection with the back-stop mechanism the whole forms a perfect and accurate escapement and check. In connection with this mechanism I have the following for giving the alarm at each movement of the ribbon: On top of the box is a gong, L, upon which a hammer, l , operates, said hammer being carried by a horizontal rock shaft, M, having an arm, m , on which a spring, m' , bears to return the shaft and give the blow of the hammer. At the other end of the shaft there is an arm, N, extending downwardly through a slot in the top of the box and into the path of the pins P on the rotary disk F, so that as said pins successively come around they come in contact with the arm N, thereby rocking the shaft, which, when relieved, causes the hammer to strike the gong, being influenced thereto by the spring. The trip H has a reversed shoulder, h' , behind, which interposes before one pin P by the movement which releases the other pin from the first shoulder. It thus has not to depend on a quick return.

I am aware that in this class of machines it is not new, broadly, to operate the indicating-ribbon by means of clock-work mechanism which is allowed a periodical movement by an escapement, and I do not, therefore, claim such broadly; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. In a station-indicator, the drums, the indicating-ribbon, and the power mechanism applied to one of the drums by which the travel of the ribbon is effected, in combination with the releasing and stopping mechanism, whereby the operation is rendered intermittent, consisting of the disk connected with one of the drums and having the pins or stops, and the oscillating trip-hub in the path of the pins or stops, and having the offset or shoulder by which they are relieved, substantially as herein described.

2. In a station-indicator, the drums, the indicating-ribbon carried thereby, and the power mechanism applied to one of the drums, whereby the travel of the ribbon is effected, in combination with the releasing and stopping mechanism consisting of the disk connected with

one of the drums and having the pins or stops projecting from its outer face, the oscillating trip-hub located in the path of the pins or stops and having the shoulder or offset for releasing them, the arm projecting from the trip-hub, the pull-rod by which the trip-hub is operated, and the spring by which it is returned to position, substantially as described.

3. In a station-indicator, the drums, the indicating-ribbon carried thereby, and the power mechanism applied to one of the drums, whereby the travel of the ribbon is effected, and the crank-shaft of the upper drum for winding the ribbon back to the initial point, in combination with the releasing and stopping mechanism consisting of the sleeve on the upper drum-shaft, the disk on the sleeve having the projecting pins or stops, the pawl and ratchet mechanism between the disk and the upper drum, and the oscillating trip-hub in the path of the pins or stops and having an offset or shoulder, whereby they are released, substantially as herein described.

4. In a station-indicator, the drums, the indicating-ribbon, and the power mechanism applied to one of the drums, in combination with the releasing and stopping mechanism consisting of the disk connected with the other drum and having the projecting pins or stops, and having a shoulder or offset by which they are released, and the hold-back mechanism consisting of the rock-shaft, the spring by which it is held in position, and the bent arm in the path of the pins or stops, substantially as herein described.

5. In a station-indicator, the drums, the indicating-ribbon, and the power mechanism applied to one of the drums, in combination with the releasing and stopping mechanism consisting of the disk connected with the other drum and having the projecting stops or pins, and the oscillating trip-hub having the shoulder or offset, and the alarm mechanism comprising the gong, the hammer, the spring-actuated rock-shaft, and the downwardly-extending arm on said shaft, located in the path of the pins or stops, substantially as herein described.

6. In a station-indicator, the rotary disk F, connected with the indicating mechanism and having pins P, in combination with the oscillating trip-hub H, having a shoulder, h , in front and a reversed shoulder, h' , behind, whereby the pins are released and caught, substantially as herein described.

In witness whereof I have hereunto set my hand.

JOHN C. LUDWIG.

Witnesses:

C. D. COLE,
J. H. BLOOD,