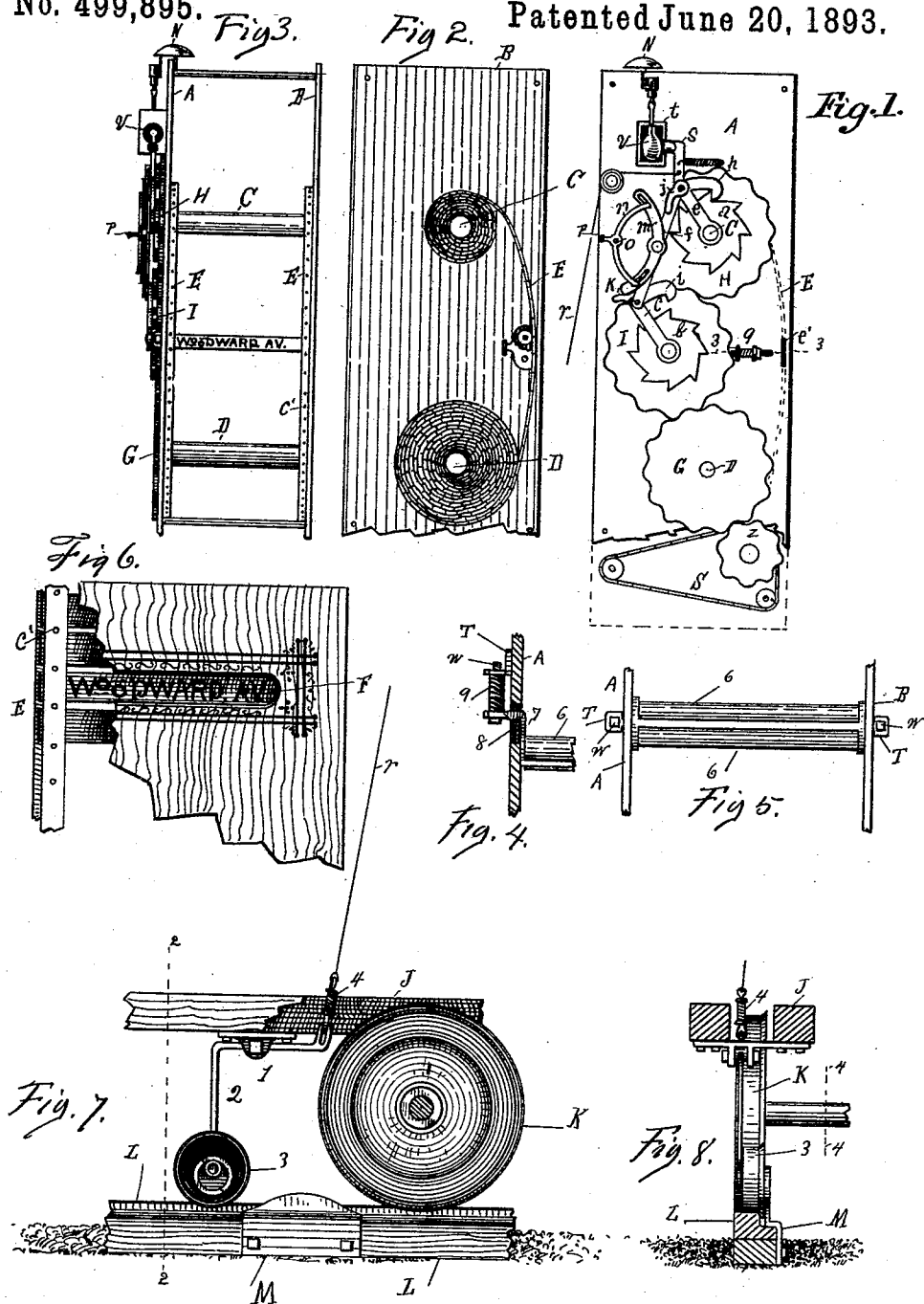


(No Model.)

T. W. STEWART & W. E. JOHNSON.
STATION INDICATOR.

No. 499,895.

Patented June 20, 1893.



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UNITED STATES PATENT OFFICE.

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MICHIGAN, ASSIGNORS OF ONE-HALF TO LEVI H. JOHNSON AND
ALBERT H. JOHNSON, OF SAME PLACE.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 499,895, dated June 20, 1893.

Application filed September 19, 1892. Serial No. 446,349. (No model.)

To all whom it may concern:

Be it known that we, THOMAS W. STEWART and WILLIAM EDWARD JOHNSON, citizens of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a new and useful Station and Street Indicator, of which the following is a specification.

This invention relates to that class of indicators which are employed in railway cars and street cars to indicate the different stations or streets which the car is approaching.

The invention has for its object certain improvements below described and claimed, prominent among which is to automatically operate the signal, by means of a lever coming in contact with an inclined projection at the side of the track.

In the drawings forming a part of this specification, Figure 1 is a side elevation of the indicator mechanism, which in use is fixed in an elevated position upon the wall of the car. Fig. 2 is the same as Fig. 1, with one side of the frame removed, showing the inside construction. Fig. 3 is an elevation looking against Figs. 1 and 2 from a point at the right. Fig. 4 is an enlarged sectional view of lettered details on line 3—3, in Fig. 1, looking from a point above. Fig. 5 is an elevation of said parts, looking from a point at the right of Fig. 1. Fig. 6 is an enlarged broken view of lettered details from Fig. 3. Fig. 7 is a broken sectional elevation on line 4—4, in Fig. 8, looking from a point at the right, illustrating the mode of operation; and Fig. 8 is a section on line 2—2, in Fig. 7, looking from a point at the left.

Referring to the lettered parts of the drawings, A B show the side walls of the frame, in which the shafts, C D, have bearings, as in Figs. 1, 2 and 3.

At E are shown belts, wound upon these shafts C D at each end, which belts bear the names of the stations or streets and in the operation wind on one shaft and unwind from the other, passing during said operation back of an opening, F, stopping at said opening and presenting the name of the station or street, as illustrated in Figs. 3 and 6 by the words "Woodward ave." These belts are made of flexible material, consisting of two

strips separated from each other, and attached to each other by means of posts or bolts, *c'*, leaving a space between said posts for the insertion of cards bearing the names of the stations or streets, as shown in Fig. 6, said cards being passed through the slot in the side of the frame, as shown at *e'*, in Fig. 1.

The shafts D and C are provided at one end, outside of the wall, A, with the gears, G and H. Between these gears G and H is a gear I, meshing therewith, as illustrated in Figs. 1 and 3. The gears H and I are provided with ratchets, *a* and *b*, and with arms, *c* and *e*, radiating from the axes of said gears. These levers, *c* and *e*, are pivotally connected together by a bar, *f*, Fig. 1. Each of the levers *c* *e* is provided with a pivoted dog, *h* *i*, which dogs engage the ratchets *a* *b*. The dogs, *h* *i*, are provided with rearward extensions *j* *k*. Centrally pivoted to the arm, *f*, is a rocking lever, *m*, having elongated slots in each end.

At *n* is a forked lever, pivoted at *o* to the wall of the frame, A, each end of said forked lever being loosely inserted in the elongated slots of the rocking lever, *m*. The forked lever, *n*, is provided with a handle, *p*. The object of this rocking lever and the forked lever connected therewith is to reverse the mechanism at each end of the route. To illustrate, referring to Fig. 1, the rocking lever, *m*, is in such a position that the dog, *h*, is engaged with the ratchet, *a*, and the dog, *j*, is disengaged from the ratchet *b*. When in this condition, (as will clearly appear by the description of the operating means and the operation hereinafter) the belts, E, will wind on the ends of the shaft C, and unwind from the shaft D. When the car starts to run in the opposite direction the operator, by taking hold of the handle, *p*, will trip the dogs, causing the dog *j* to engage the ratchet *b*, and the dog *h* to be disengaged from the ratchet *a*. This is accomplished by bringing the rocking-lever, *n*, in contact with the rearward extensions, *j* and *k*, of the dogs. Motion is first imparted to the shaft C, and from its gear H, through gears I and G to shaft D. The upper end of the arm *f*, in Fig. 1, is provided with an elbowed arm, *s*, which enters the case, *t*, and operates a pneumatic alarm bell, by

compressing the bulb, *v*, as will appear in the description of the operation.

Referring to Figs. 7 and 8, *J* represents a part of the frame-work of the car, *K* one of the wheels of said car and *L* one of the rails of the track. By the side of this rail, *L*, is a block, *M*, the upper surface of which is inclined toward each end.

Pivottally attached to the car, *J*, at 1, is an elbow lever, 2, which lever bears a wheel, 3, on its lower end (forward of the car wheel, *K*) which wheel 3 comes in contact with the inclined block, *M*, at the proper time to indicate the station or street which the car is approaching. This elbow lever, 2, is connected with the lever, *f*, in Fig. 1, by means of a cord, chain or cable, *r*. The end of this cord, chain or cable *r* which is connected with the lever 2, is provided with a spring, 4 and is attached in an elongated slot in the end of said lever, as in Figs. 7 and 8. The object of this spring and elongated slot is to prevent any jar which might be imparted to the indicator mechanism by the contact of the wheel 3 with the rail of the track from operating said mechanism until the proper time, when said wheel will come in contact with the inclined block, *M*, at which time the movement of the lever, 2, is sufficient to overcome the yielding effect of the spring, 4, and operate the indicator.

Just back of the opening, *F*, to which the name of the station or street is presented, is a belt-tensioning device, consisting of two rollers, 6—6, mounted in a frame, 7, which has end projections passing out through slots, 8, in the sides, *A B*, of the frame, to which projections are attached spiral springs, 9, by means of the bolts, *w*, the ends of which bolts, *w*, pass loosely through brackets, *T*, which brackets are attached to the sides, *A B*, of the frame. The object of this tensioning-device is indicated in Figs. 1 and 2, it being so placed that its rollers will come in contact with the inside of the belts, *E E*, and bear against the same with a spring pressure, so as to hold said belts out near the opening, *F*, where the names of the stations or streets are presented.

In Fig. 1 an arrangement is shown for presenting rules and regulations of the company operating the cars, which consists in an endless belt, *S*, carried by a roller, having a gear *Z*, meshing with the gear *G*. The instructions are on the face of this endless belt and are presented at the front side (the right hand side in Fig. 1) at the time the station or street is indicated. This latter device may be employed or not, as desired in connection with the station and street indicator.

In the operation, when the car approaches a station or street, the wheel 3 runs on to the inclined block, *M*, tripping the lever 2 and in turn operating the lever *f*, which operates the radial arms, *c e*, causing the dogs *i h* to turn the shafts *C D* a distance of one space, which distance would be the width of one of the indicator cards bearing the name of the station

or street. When the car made its return trip in the other direction, the operator, by means of the handle, *p*, would trip the lever, *m*, and disengage the dog *h* and engage the dog *i* with their respective ratchets; then the belts would of course travel in the opposite direction, naming the stations or streets in the reverse order during the return trip. This mechanism for carrying the belt and for reversing the direction in which it travels may be used in connection with any suitable operating means other than the wheeled lever and inclined block shown in Fig. 7. This frame shown in Figs. 1, 2 and 3, bearing the indicator mechanism, will in use be placed in some suitable case, of any desired form, having a front closure, with opening, where the name of the station or street is presented, the idea being illustrated in Fig. 6.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a station and street indicator, the combination of two shafts bearing gears at one end, a supplemental gear meshing with the shaft gears, a ratchet at the geared ends of one of the shafts and the supplemental gear, radial levers at said end, bearing pivoted pawls, a bar pivottally attached to the ends of said levers, a belt bearing the names of the stations or streets and adapted to wind and unwind on said shafts, and means for operating said levers to revolve the belt shafts substantially as set forth.

2. In a station and street indicator, the combination of two shafts bearing gears at one end, a supplemental gear meshing with the shaft gears, a ratchet at the geared ends of one of the shafts and the supplemental gear, radial levers at said end, bearing pivoted pawls, a bar pivottally attached to the ends of said levers, a belt bearing the names of the stations or streets and adapted to wind and unwind on said shafts, the pawls being provided with rear extensions, a pivoted lever adapted to be brought in contact with first one and then the other of the pawls to reverse the mechanism, and means for operating said levers to revolve the belt shafts; substantially as set forth.

3. In a station and street indicator, the combination of two shafts bearing gears at one end, a supplemental gear meshing with the shaft gears, a ratchet at the geared ends of one of the shafts and the supplemental gear, radial levers at said end, bearing pivoted pawls, a bar pivottally attached to the ends of said levers, a belt bearing the names of the stations or streets and adapted to wind and unwind on said shafts, an elbowed lever attached to the car in position to traverse one of the rails of the track, a cord or cable connecting said lever with the levers which bear the pawls, and an inclined block by the side of the track rail; substantially as set forth.

4. In a station and street indicator, the com-

5 bination of two shafts bearing gears at one
end, a supplemental gear meshing with the
shaft gears, a ratchet at the geared ends of
one of the shafts and the supplemental gear,
radial levers at said end, bearing pivoted
pawls, a bar pivotally attached to the ends of
said levers, a belt bearing the names of the
stations or streets and adapted to wind and
unwind on said shafts, the pawls being pro-
vided with rear extensions, a pivoted lever
adapted to be brought in contact with first
one and then the other of the pawls to re-
verse the mechanism, an elbowed lever at-
tached to the car in position to traverse one
of the rails of the track, a cord or cable con-
necting said lever with the levers which bear
the pawls, and an inclined block by the side
of the track rail; substantially as set forth.

5. In a station and street indicator, the com-
bination of two shafts bearing gears at one
end, a supplemental gear meshing with the
shaft gears, a ratchet at the geared ends of
one of the shafts and the supplemental gear,
radial levers at said end, bearing pivoted
pawls, a bar pivotally attached to the ends of
said levers, a belt bearing the names of the
stations or streets and adapted to wind and
unwind on said shafts, means for operating
said levers to revolve the belt shafts, a sup-
plemental shaft gear connected with one of
said belt shafts and an endless belt carried

by said supplemental shaft and bearing rules,
instructions, &c.

6. In a station and street indicator, the com-
bination of two shafts bearing gears at one
end, a supplemental gear meshing with the
shaft gears, a ratchet at the geared ends of
one of the shafts and the supplemental gear,
radial levers at said end, bearing pivoted
pawls, a bar pivotally attached to the ends of
said levers, a belt bearing the names of the
stations or streets and adapted to wind and
unwind on said shafts, an elbowed lever at-
tached to the car in position to traverse one
of the rails of the track, a cord or cable con-
necting said lever with the levers which bear
the pawls, an inclined block by the side of the
track rail, a pneumatic alarm bell and a ham-
mer connected with one of the pawl levers, in
position to compress the bulb of said alarm
bell; substantially as set forth.

In testimony to the foregoing we have here-
unto subscribed our names in the presence of
two witnesses.

THOMAS W. STEWART.

WILLIAM EDWARD JOHNSON.

Witnesses as to Thomas A. Stewart:

JOHN RICHMOND,

R. R. BRENNER.

Witnesses as to William Edward Johnson:

L. H. JOHNSON,

CHAS. V. PASTERNAK.