

(No Model.)

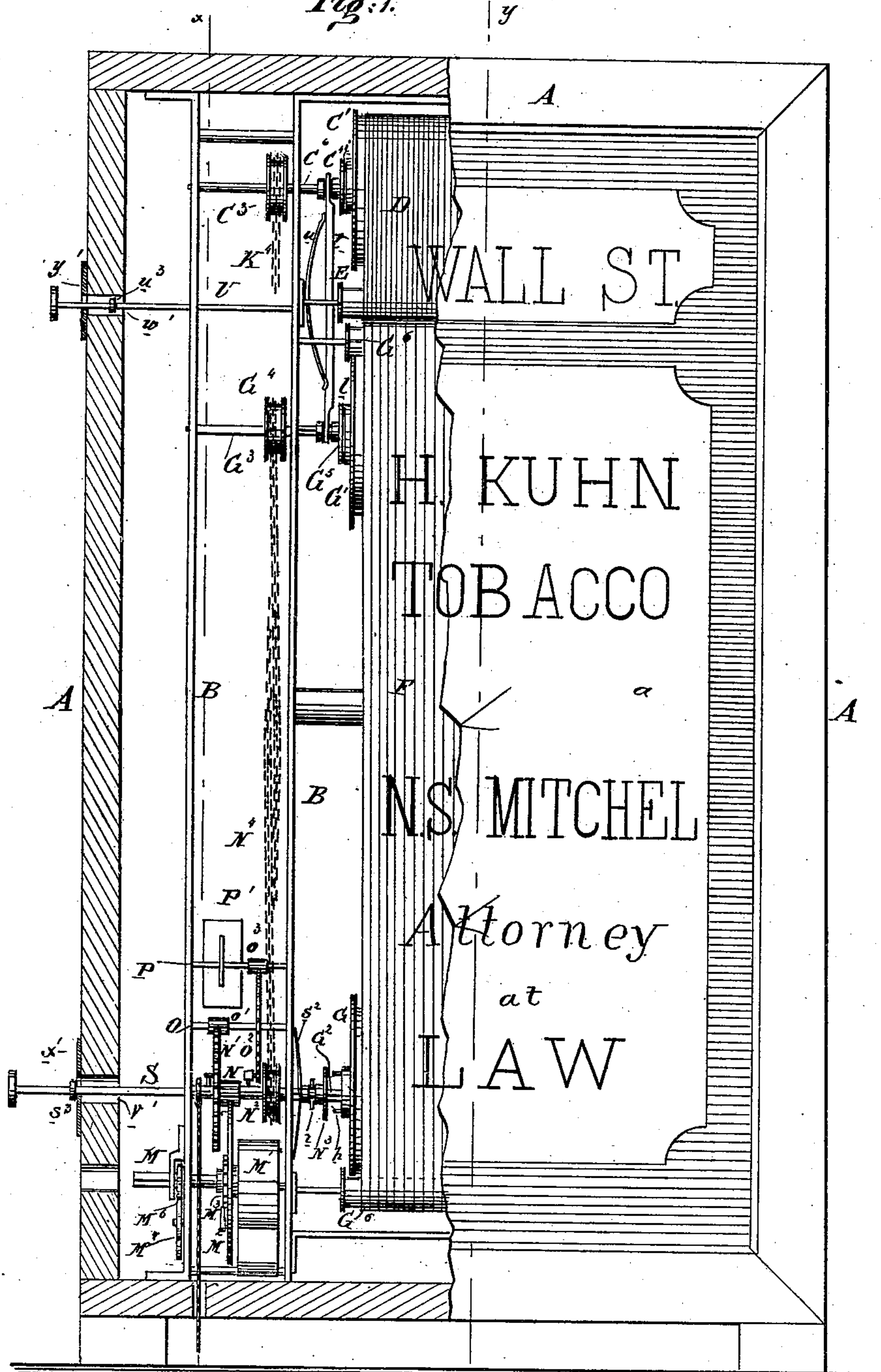
3 Sheets—Sheet 1.

S. B. CRANE.
Station Indicator.

No. 243,516.

Patented June 28, 1881.

Fig. 1.



WITNESSES:

Chas. Nida
C. Sedgwick

INVENTOR:

S. B. Crane
BY *Munn & Co*
ATTORNEYS.

(No Model.)

3 Sheets—Sheet 2.

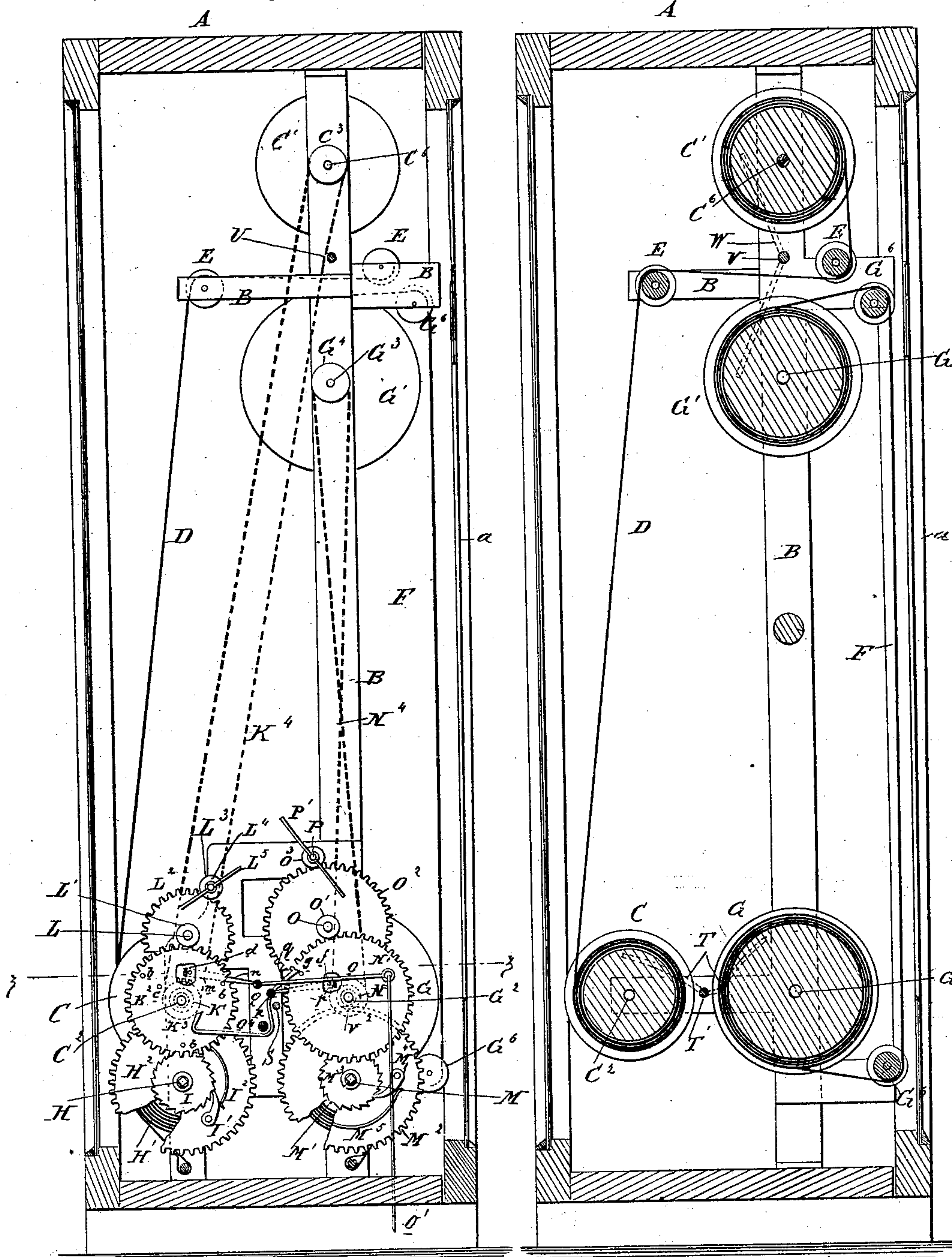
S. B. CRANE.
Station Indicator.

No. 243,516.

Patented June 28, 1881.

Fig: h.

Fig: 3.



WITNESSES:

Chas. Nida.
C. Sedgwick

INVENTOR:

S. P. Crane
BY *Mum & Co*
ATTORNEYS.

(No Model.)

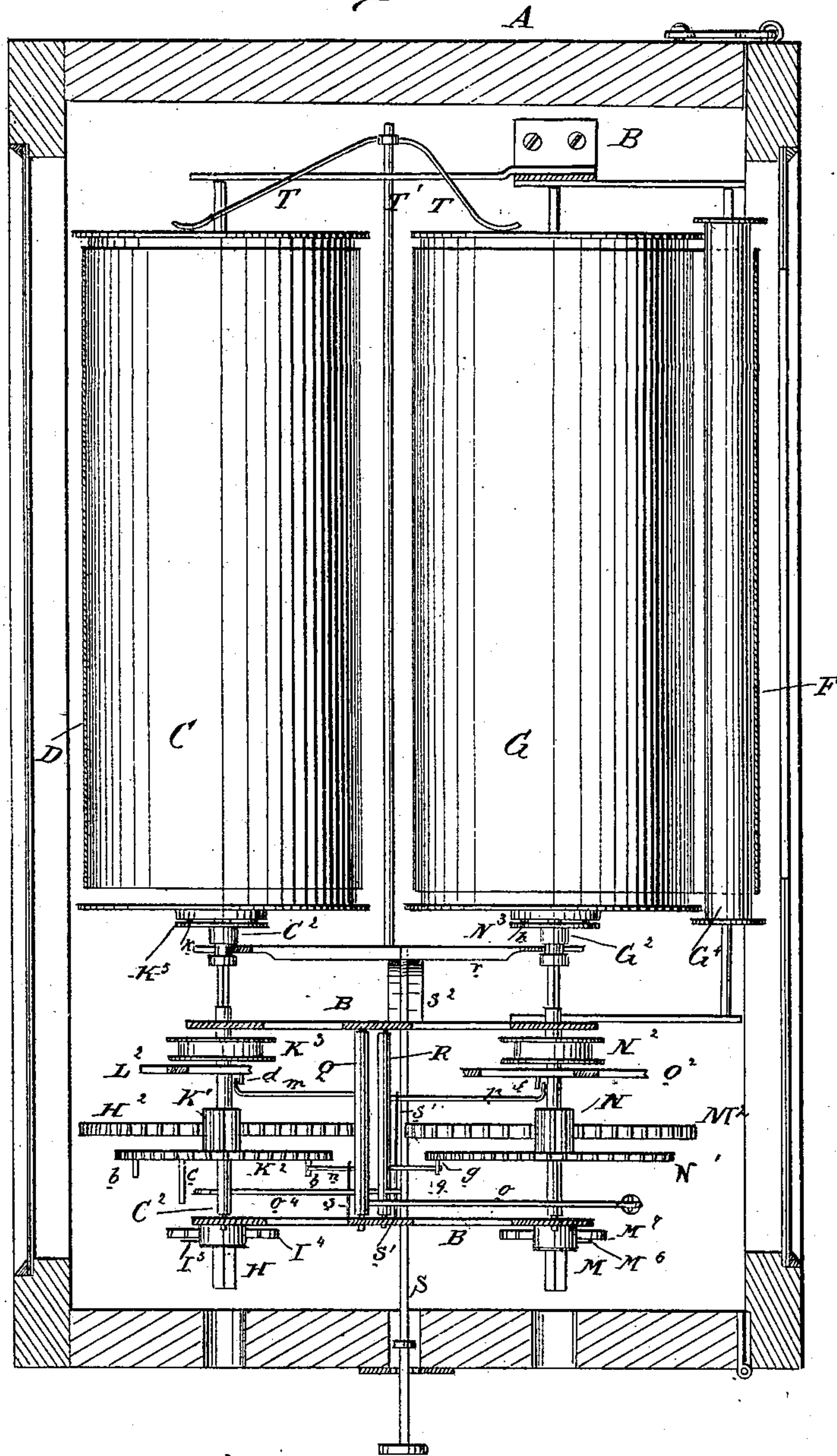
3 Sheets—Sheet 3.

S. B. CRANE.
Station Indicator.

No. 243,516.

Patented June 28, 1881.

Fig. 4.



WITNESSES:

Chas. Nida
C. Sedgwick

INVENTOR:

S. B. Crane

BY

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

SYLVANUS B. CRANE, OF DAVENPORT, IOWA.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 243,516, dated June 28, 1881.

Application filed April 6, 1881. (No model.)

To all whom it may concern:

Be it known that I, SYLVANUS B. CRANE, of Davenport, in the county of Scott and State of Iowa, have invented a new and Improved Station-Indicator, of which the following is a full, clear, and exact specification.

The object of this invention is to provide an improved device for indicating to railroad-car passengers the names and numbers of stations or streets on the line of the road as the car approaches them, and at the same time, if desired, to display advertising-cards.

The invention consists of a box or case containing parallel rollers, over one set of which is rolled an index-strip having the names or numbers of the stations or streets printed on it, while on the other set of rollers is a strip containing advertisements, which names, numbers, and advertisements are exhibited in proper succession through the front of the box as the said rollers are revolved; and it consists, further, of a novel combination of wheels, springs, and other devices, whereby the said rollers are moved and thrown in and out of gear, and of tension devices and devices for reversing the motion of the rollers and index-strips, all of which will be hereinafter described, it being designed that this indicator shall be placed in a prominent position in a car.

Figure 1 is a front elevation of the indicator with a portion of the box or case removed. Fig. 2 is a vertical sectional elevation on line *x x*, Fig. 1. Fig. 3 is a vertical sectional elevation on line *y y*, Fig. 1. Fig. 4 is a cross-section on line *z z*, Fig. 2, with parts removed to exhibit other parts.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents the inclosing box or case, provided with a glass front, *a*.

Supported in the frame B, that is secured inside of the box A, are two rollers, C C', set one above the other loosely on their respective shafts C² C⁶.

D is an index-strip of paper or other flexible material, containing the names of the streets or stations along the line of the road, and said index-strip D has an end secured to each roller C C', so that as said rollers C C' revolve in opposite directions the said index-strip D shall simultaneously wind upon one

roller as it unwinds from the other. Two small rollers, E E, journaled in the frame B, on a lower level than the roller C' and on either side thereof, serve to guide and support the index-strip D, and to cause it to present a perpendicular face to the glass front *a*; to exhibit the station name or number in proper position.

F is the index-strip containing the advertisements, and has an end secured to each roller G G', whose shafts G² G³ are journaled one above the other in the frame B, so that as said rollers G G' revolve in the same directions the said index-strip F shall simultaneously wind upon one roller G as it unwinds from the other roller G.

The small tension-rollers G⁶ G⁶ are journaled in the frame B, one at the front of each roller G, to guide the index-strip F and cause it to exhibit its advertisements in a proper position.

Journaled in the frame B, at one end of the device, is a horizontal shaft, H, on which is fastened and around which is coiled a mainspring, H', that assists in actuating the mechanism of the device. Said mainspring H' is secured to the inner face of the cog-wheel H², that is loose on the shaft H, so that the uncoiling of said spring H' causes the wheel H² to revolve.

On the shaft H is keyed a ratchet-wheel, I; and the shaft H is prevented from turning under the tension of the mainspring H' by the engagement in said ratchet-wheel I of the pawl I', that is pivoted to a spoke of the wheel H², and is held in the teeth of the ratchet I by the spring I².

It is designed to turn the shaft H for winding up the spring H' by means of a key, and to prevent the uncoiling of said spring H' a dog, I³, on the outer end of said shaft H engages in a ratchet, I⁴, which is pivoted on the outside of the frame B.

Above the shaft H is the lower parallel shaft, C², journaled in the frame B, which shaft C² is revolved by the engagement in its pinion K' of the cog-wheel H². Keyed on said shaft C² is a cog-wheel, K², that communicates motion to a shaft above it, as will hereinafter be set forth, and a sprocket-wheel, K³, that transmits by means of a chain, K⁴, the motion of the shaft C² to the upper roller-shaft, C⁶. Sliding on the square of this lower shaft, C², is a

perforated disk-clutch, K^5 , or any other style of clutch, that is designed to throw the lower roller, C , in gear with the lower shaft, C^2 .

On the face of the cog-wheel K^2 , near its periphery, are three equidistant projecting pins or stops, b , and about-half way between the center and periphery of said wheel K^2 is a longer projecting pin or stop, c , the purpose of which will be hereinafter set forth. As many stops b c as may be desired may be inserted in the wheel K^2 .

Above the shaft C^2 , and parallel with it in the frame B , is journaled a shaft, L , that is revolved by the engagement in its pinion L' of the cog-wheel K^2 , and on this shaft L is keyed a cog-wheel, L^2 , which gears in the pinion L^3 of the shaft L^4 , that is journaled in the frame B , and carries balance-vanes L^5 for regulating the motion of the running parts of the device.

At the top of the device the upper roller-shaft, C^6 , is journaled in the frame B and carries loosely upon it the upper roller, C' . On this shaft C^6 is a sprocket-wheel, C^3 , over which passes the chain K^4 , that transmits motion from the shaft C^2 , and on the square portion of said upper shaft, C^6 , is a perforated sliding disk or other clutch, C^4 , that is designed to throw the upper roller, C' , in gear with the upper shaft, C^6 . These moving parts thus far enumerated constitute that part of the mechanism especially designed for the exhibition of the index-strip on which are the names or numbers of the stations and streets, and said parts have their counterparts in the mechanism designed especially for displaying the index-strip of advertisements, which mechanism consists of a shaft, M , journaled in the frame B , and having fastened to it a mainspring, M' , that is secured to the inner face of a cog-wheel, M^2 , that is fitted loosely on the shaft M of a ratchet-wheel, M^3 , pawl M^4 , and spring M^5 , and of a dog, M^6 , and ratchet M^7 , all on the shaft M .

Above the shaft M is a shaft, G^2 , revolved by the engagement in its pinion N of the cog-wheel M^2 , and having keyed on it a cog-wheel, N' , and a sprocket-wheel, N^2 , and having on its square portion a perforated disk-clutch, N^3 .

Above the shaft G^2 is a shaft, O , that is revolved by the engagement in its pinion O' of the cog-wheel N' , and having keyed on it a cog-wheel, O^2 , that gears in the pinion O^3 of the shaft P , which carries balance-vanes P' .

A chain, N^4 , connects the sprocket-wheel N^2 with the sprocket-wheel G^4 of the shaft G^3 of the roller G' , and on the square portion of the shaft G^3 is a perforated sliding disk or other clutch, G^5 , that is designed to throw the upper roller, G' , in gear with the shaft G^3 .

The mechanisms of the station and street indicator strip and of the advertising-strip are capable of operating independently of each other; but in this case they are made to operate together.

A rocking bar, Q , is journaled in the frame B , parallel with and about midway between the

shafts C^2 G^2 , and extending to the left from this bar Q , as shown in Figs. 2 and 4, are two rigid arms, m n , respectively, that serve as stops to prevent the movement of the mechanisms, and from the other side of the said bar Q projects a lever, o , to which is attached a cord, o' , that is designed to be conducted to within easy reach of the conductor of the car, whereby said conductor or operator may at the appropriate time set in motion the mechanisms for displaying both the station name or number and the advertisements. A spring, s , extending from the frame B parallel with the bar Q , rests on the arm n , and thereby serves to hold said bar Q and its projecting arms in position or to restore them to position at suitable times. The free bent end of the arm m holds against a stud, d , that projects from the face of the cog-wheel L^2 , and thereby holds said wheel L^2 and its connected train of gears from moving, while the free end of the arm n is held against a stud or stop, b , of the cog-wheel K^2 , in order to control its movements, as hereinafter set forth.

In the frame B , below and parallel with the bar Q , is journaled a rocking bar, R , having extending from it, to the left, a bent arm or stop, o^4 , against whose upward-turned and inclined extremity the stud or stop c of the cog-wheel K^2 comes in contact when the mechanism is in operation, with the effect of liberating the advertising-strip mechanism, so that the latter can operate. From the right of this bar R are extended two rigid arms or stops, p q , the lower of which is designed for the contact of a stud, f , projecting from the face of the cog-wheel O^2 , while the end of the arm q serves as a stop for the stud g , projecting from the face of the cog-wheel N' . A spring, s' , extending from the frame B , parallel with the bar R , has an end resting on the arms p q , and thereby retains the said bar R and its projecting arms in their normal position or restores them to position at proper times.

A rod, S , entered through an end of the box or case A , serves to operate the clutch mechanism of the lower rollers, C G , and also the tension-springs, that are set at the opposite ends of said rollers C G . The clutch mechanism consists of a horizontal cross-bar, r , secured on the end of the rod S , and having its slotted ends embracing the collars of the clutches N^3 K^5 . On pulling out the said rod S the said clutches N^3 K^5 are disengaged from the pins h k , that respectively project from the ends of the rollers C G , and thereby the said rollers C G are unclutched or thrown out of gear, while on pushing in said rod S the pins h k become engaged in the perforations of said clutches N^3 K^5 , and the rollers C G are thereby thrown in gear.

When by the outward pull of the rod S the rollers C G are thrown out of gear, the tension-springs T , which are secured on the end of a rod, T' , that extends between the rollers C G from the cross-bar r , are pulled in contact with the rear ends of said rollers C G , and thereby

prevent said rollers C G from revolving too easily, as the index-strips D F are rolled up on the rollers C' G', and maintain a proper tension on said strips D F. A vertical spring, s^2 , secured on said rod S and pressing from the frame B against the cross-bar r , serves to hold the clutches N³ K⁵ engaged with the pins h k of the rollers C G.

A similar clutch mechanism is applied to the upper rollers, C' G', consisting of rod U, perpendicular bar t , spring u , rod V, and tension-springs W. Said rollers C' G' have clutch-pins i l , respectively, for engagement in the clutches C⁴ G⁵ when said rollers C' G' are to be thrown in gear.

The clutch-rods S U are respectively provided with collars s^3 u^3 near their outer ends, which ends are extended through corresponding apertures, v' w' , in the box or case A, so that when either of said rods S U are drawn outward to ungear their corresponding rollers, C G or C' G', the said rods may be pressed down so that their collars s^3 u^3 will engage and hold firmly in or upon the edges of the metal plates x' y' , that are set over the apertures v' w' , thereby holding the respective clutches ungearred from their respective rollers. When the springs H' M' are wound up and the index-strips D F are wound about the lower rollers, C G, the rod S is pulled outward, and thereby the rollers C G are put out of gear with the mechanism of the indicator, and at the same time, and by the same movement of the rod S, the pressure of the tension-springs T upon the said rollers C G is applied, in order that said rollers C G may not move too freely. The rod U is then pushed inward with the effect of gearing the rollers C' G' and of removing from them the tension-springs W, so that said rollers C' G' and their operating mechanisms may move with a minimum of friction.

When the operator, on approaching a station, pulls the cord o' , (releasing it instantly, however,) with the effect of turning the bar Q, so that the end of the arm m is released from the stud or stop d of the wheel L², and the arm n from a stud or stop, b , of the wheel K², the cog-wheel L² then immediately makes a full revolution, thereby causing the cog-wheel K² to make one-third of a revolution, and thereby motion is communicated to the roller C', so that the station index-strip D is rolled from the roller C on to the roller C' sufficiently to display the name of one station. Then the stud or stop d has come round again against the end of the arm m , and a stud, b , (of which, in this instance, there are three,) has come in contact with the end of the arm n , and thereby the motion of all the parts is stopped. At the next succeeding station the operator pulls the cord o' with like results. At the third station a pull of the cord o' produces the same results, and in addition thereto the stud or stop c of the cog-wheel K² comes in contact with the bent end of the arm o , with the effect of turning the bar R so as to liberate the end of the

arm p from the stop f of the cog-wheel O², and the arm q from the stud g of the wheel N', and thereby permit said wheels O² N', and their connected cog-wheels and gearings, to be moved one revolution by the spring M', and thereby to cause the roller G' to revolve and unwind the advertising index-strip F from the roller G, so as to display one advertisement. The movements of the station-index and the advertising-index mechanisms continue until by the revolution of the cog-wheel N' the stud or stop g is brought in contact with the end of the arm q , whereby the bar R is turned so as to throw up the bent end of the arm o in front of the stud or stop c , the arm n is brought against a stop, b , and the end of the arm m is presented to the stop d , and at the same time the arm p is presented to the stop f , whereby all the mechanism is checked, to be moved again only on pulling the cord o' .

It will be seen that with this mechanism the indicator displays a new advertisement only at each third station; but it is obvious that without departing from my invention the mechanism can be arranged to display an advertisement at every station or every second station, or as often as may be desired.

When the index-strips D F have been unwound from the lower rollers, C G, the rod S is pushed inward to gear said rollers with the actuating mechanism, and the rod U is pulled outward to ungear the rollers C' G' from said mechanism, and then, on the pulling of the cord o' , the movement of said index-strips D F will be reversed.

I do not confine myself to the precise construction of parts as herein shown and described, as it is evident that one mainspring instead of two, as now used, may be made to move the mechanism of the indicator, and that other modifications may be made without departing from my invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a station-indicator, the combination, with the shafts C² G² C⁶ G³ and rollers C G C' G', of the clutches K⁵ N³ C⁴ G⁵ and their operating mechanisms, substantially as herein shown and described, whereby said rollers are geared with the operating mechanisms of the indicator, as set forth.

2. In a station-indicator, the combination, with the clutch-rods S U, bars r t , springs s u , and rods T' V, of the tension-springs T W, substantially as herein shown and described, whereby the tension of the index-strips is maintained, as set forth.

3. As a means for connecting the actuating mechanism of the index-strips D F, the rocking bar Q, provided with arms m n , and lever o , and rocking bar R, provided with arms o^2 p q , substantially as herein shown and described.

SYLVANUS B. CRANE.

Witnesses:

I. I. STORER,
C. SEDGWICK.