

No. 741,651.

PATENTED OCT. 20, 1903.

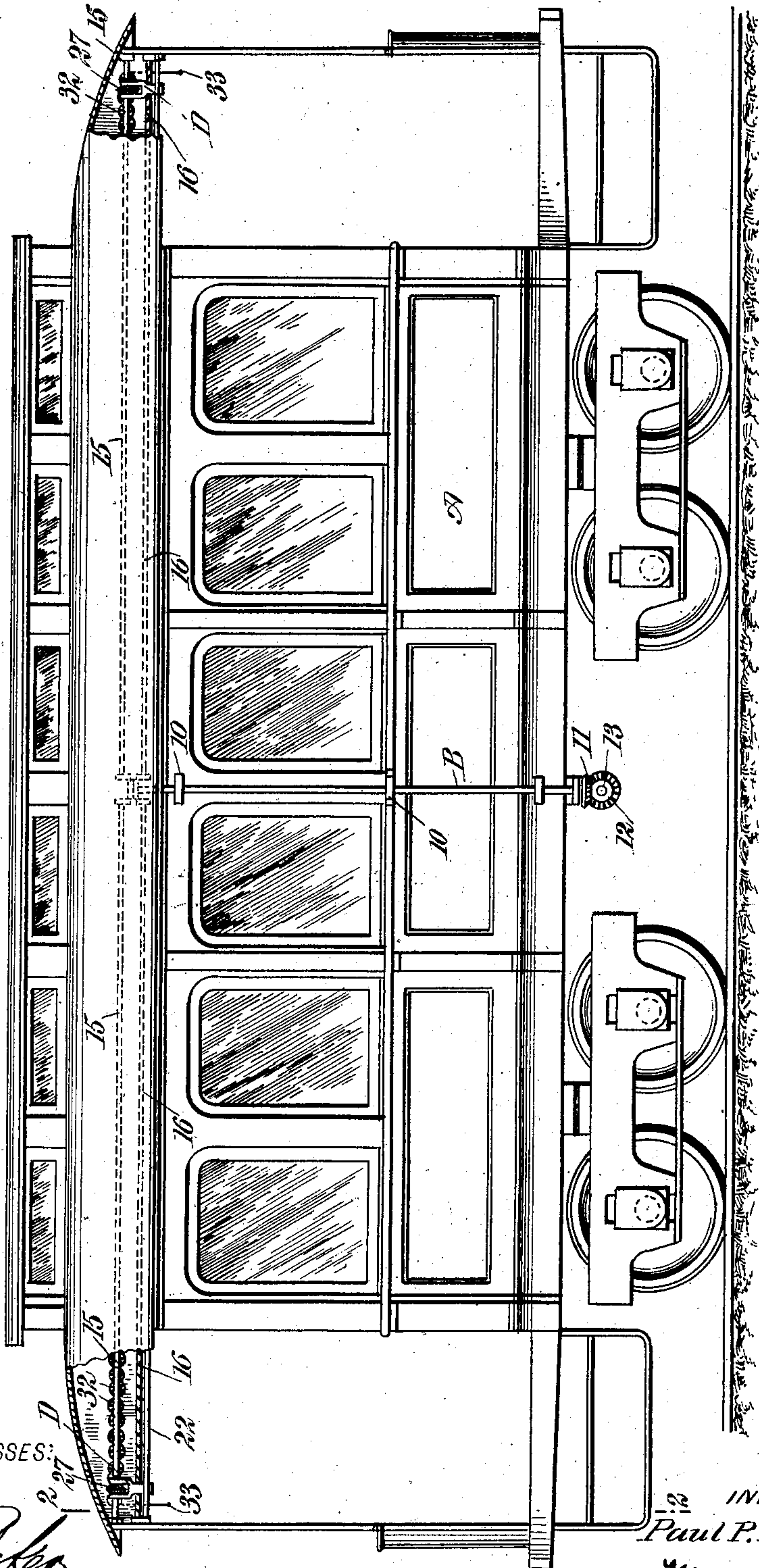
P. P. I. FYFE.
STATION INDICATOR.

APPLICATION FILED JAN. 30, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1



WITNESSES:

H. Walker
H. Walker

INVENTOR
Paul P. I. Fyfe
Mumma
ATTORNEYS.

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3 SHEETS—SHEET 2.

Fig 2

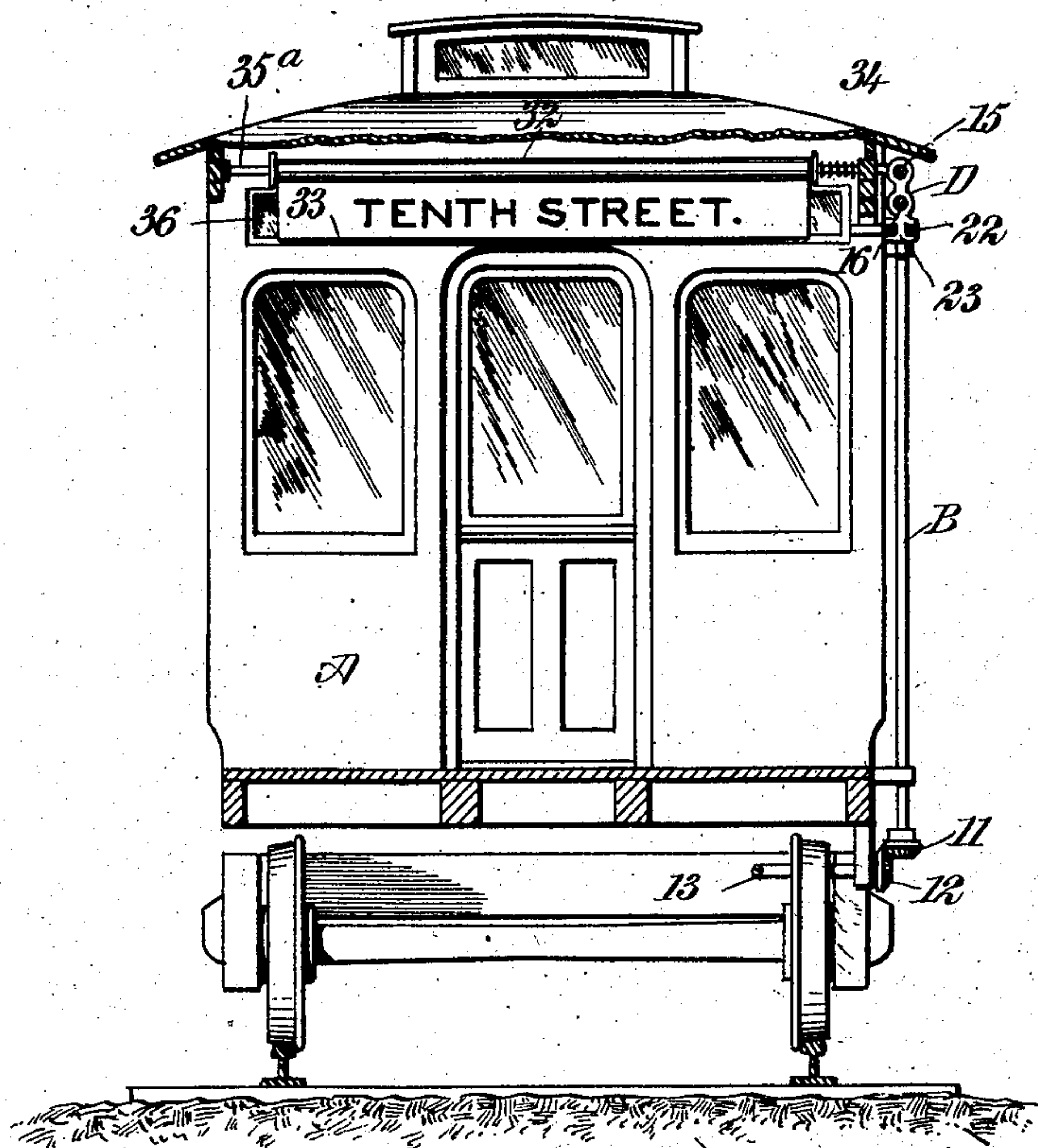
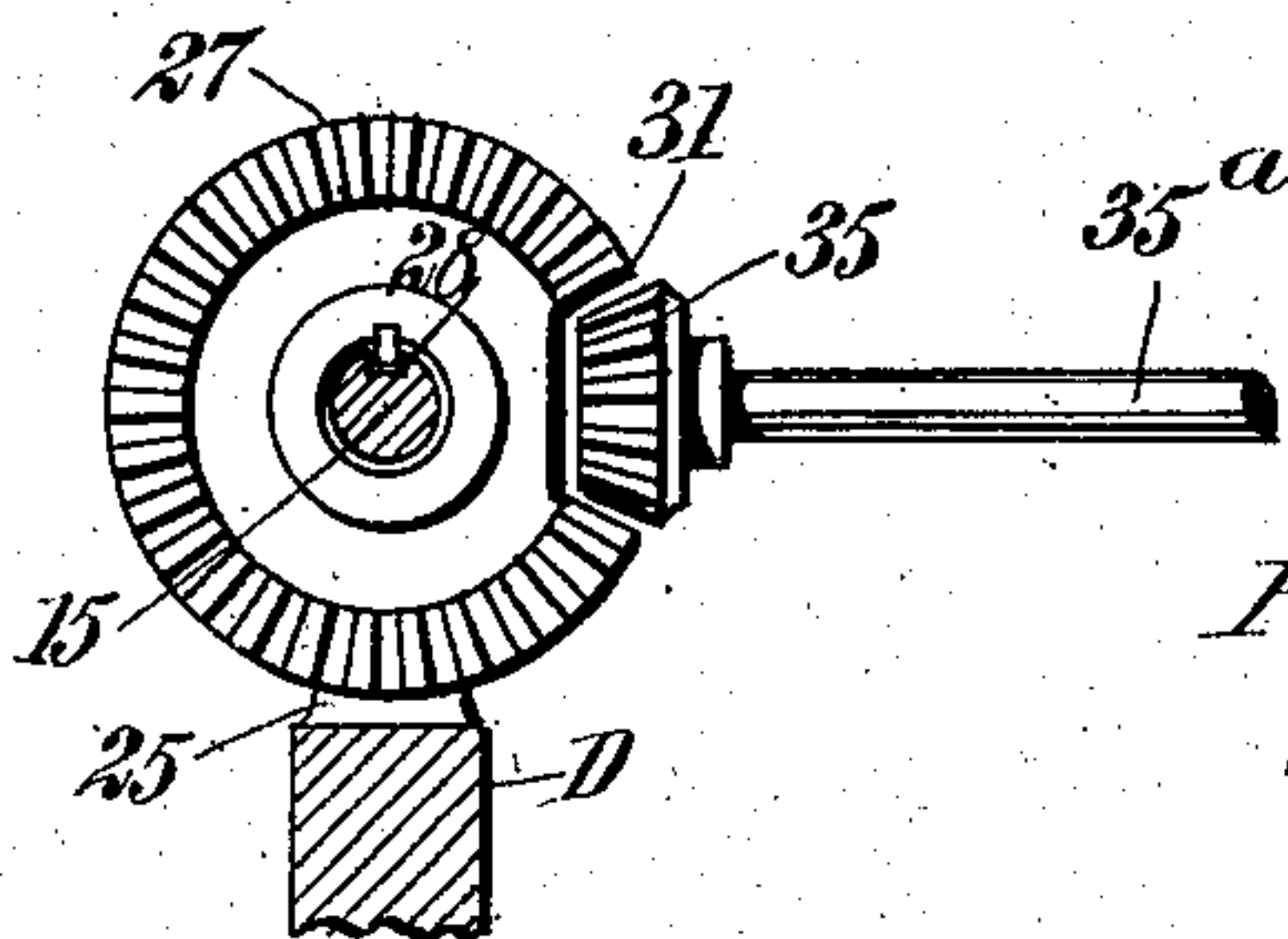


Fig 3



WITNESSES:

H. Walker
Stedman

INVENTOR

Paul P. I. Fyfe

BY *Munn*

ATTORNEYS.

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3 SHEETS—SHEET 3.

Fig 4

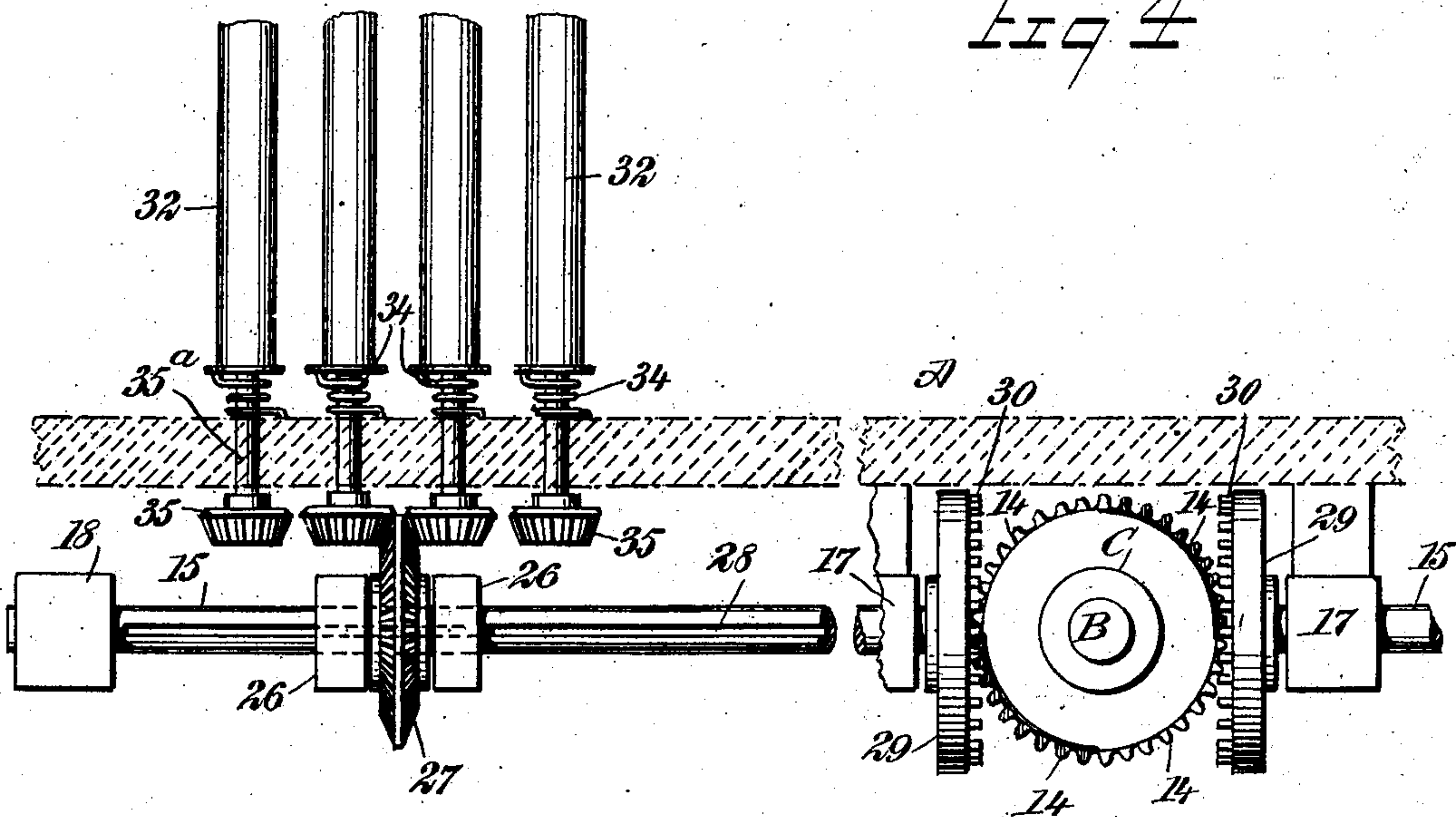
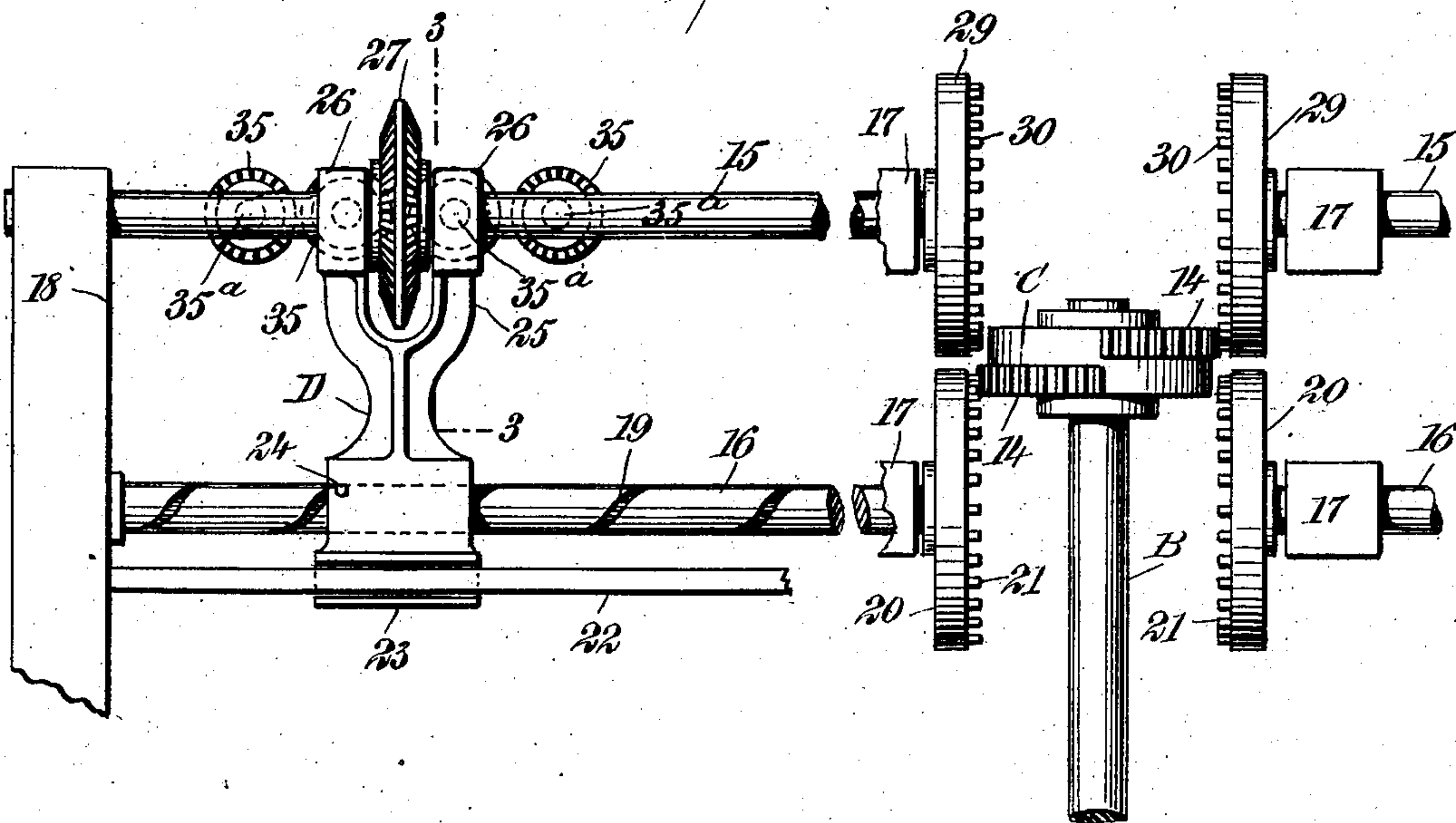


Fig 5



WITNESSES:

W. Walker
Ed. A. Jones

INVENTOR

Paul P. I. Fyfe

BY *Munn*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

PAUL PHILIA ICAVILLE FYFE, OF CONCORD, NORTH CAROLINA, ASSIGNOR
OF ONE-THIRD TO STANDARD RIGHT COMPANY, OF CHARLOTTE, NORTH
CAROLINA.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 741,651, dated October 20, 1903.

Application filed January 30, 1903. Serial No. 141,141. (No model.)

To all whom it may concern:

Be it known that I, PAUL PHILIA ICAVILLE FYFE, a citizen of the United States, and a resident of Concord, in the county of Cabarrus and State of North Carolina, have invented a new and Improved Station-Indicator, of which the following is a full, clear, and exact description.

My invention relates to station-indicators, and particularly to an improvement upon the construction shown in the patents granted to me August 27, 1901, and numbered, respectively, 681,539 and 681,540.

The purpose of the invention is to provide a simple, durable, and economic construction whereby the names of the stations or streets, with or without advertising matter, will be displayed at each end of the car—from the center, for example, in direction of each end—when the proper time arrives for such display and to provide such mechanism that a series of rollers having curtains attached bearing the names of the stations will be automatically operated in such a way that one roller will be turned to wind up the material carried by it while the next roller will be turned in direction to drop its attached curtain and whereby automatically the operating means will travel from one pair of rollers to the other until all the rollers in a given series have been operated upon.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a car having the improvement applied. Fig. 2 is a sectional end view of a car and a front sectional view of the improvement, the section being taken practically on the line 2 2 of Fig. 1. Fig. 3 is a detail sectional view illustrating the construction of the master-gear and its relation to a spindle of one of the rollers, the section being taken substantially on the line 3 3 of Fig. 5. Fig. 4 is a plan view of the mechanism for actuating the rollers, and Fig.

5 is a sectional side elevation of the actuating mechanism.

A represents a street-car of any approved type, and at the central portion of one side of the car an exteriorly-located perpendicular shaft B is provided, mounted to turn in suitable bearings 10, the upper end of which shaft extends beneath the side extension of the roof of the car. This shaft B at its lower end is provided with a bevel-gear 11, which is shown meshing with a second bevel-gear 12, secured upon a transverse shaft 13, located beneath the car, and this shaft 13 is driven in any suitable or approved manner from the wheels or axles of the car-trucks.

At the upper end of the shaft B, which may be termed a "driving-shaft," a wheel C is secured. (Shown best in Figs. 4 and 5.) This wheel C is provided with quadrantal teeth 14, or teeth which are arranged on the said wheel C in a quarter of its circle. The teeth 14 are in two series and each series includes an upper and a lower set of teeth, the upper teeth approaching the end sections of the lower set of teeth, so that in each set of teeth one is above the plane of the other.

At one side of the car, beneath the side projecting portion of the roof, two sets of shafts 15 and 16 are located, one above the other, and these shafts extend from the wheel C in direction of each end of the car. The shaft 15 is above the shaft 16, and the said shafts are journaled at their outer ends in suitable bearings, which may be attached to or constitute portions of the vertical rails at the ends of the platform of the car, as is also shown in Fig. 1, and at their inner ends the shafts 15 and 16 are journaled in suitable bearings 17 18, which are properly attached to the outer side of the car-body adjacent to the roof. The lower shafts 16 are provided with spiral grooves 19, exteriorly produced, as is shown in Fig. 5, and at the inner end of each lower grooved shaft 16 a wheel 20 is secured, provided with teeth 21, adapted to be engaged by the lower set of teeth 14 on the wheel C.

Guide rails or tracks 22 are properly supported beneath the lower grooved shafts 16, and the lower T-shaped shanks 23 of car-

riages D extend through longitudinal slots in the said rails 22, as is shown in Fig. 2. The upper portion 25 of said carriages D is bifurcated; as is best shown in Fig. 5, and each member of a carriage terminates in a head 26, which heads are apertured in order that the upper portion of each carriage may freely slide upon the upper shaft 15, as is also shown in Fig. 4. The base portion of each carriage is likewise apertured, so that the lower shafts 16 may pass through said portions, and pins or projections 24 are located at the apertured base portion of each carriage to enter the spiral grooves 19 of the shafts 16.

A master-wheel 27 is held to turn between the upper members of each carriage D. This master-wheel is provided with a feather which enters a longitudinal slot 28 in the upper shafts 15, upon which the said master-wheels are mounted. Each master-wheel 27 is a double-faced bevel-wheel or each master-wheel may be termed a "double-faced bevel-gear." Thus it will be observed that each carriage is operated by the movement of the lower shafts 16, which movements are brought about by the engagement of the toothed wheels 20 with the quadrantal teeth 14 of the wheel C on the drive-shaft B and that the said carriages D have sliding movement on both of the shafts 15 and 16, which pass through them.

At the inner end of each shaft 15 a wheel 29 is secured, and these wheels have teeth 30 extending out therefrom. The teeth 30 of the said wheels 29 are adapted to mesh with the upper quadrantly-arranged teeth 14 of the upper wheel C on the drive-shaft B, so that in the operation of the shaft B the lower shafts 16 are turned first, for example, and then the upper shafts 15 shortly afterward.

Each master-wheel 27 is provided with a recess 31, as is shown in Fig. 3, and these recesses 31 in the said master-wheels 27 are made in order that as the master-wheels slide upon their sustaining shafts and tracks the said master-wheels may pass by bevel-gears 35, which are secured upon the outer ends of spindles 35^a, and said spindles are attached to rollers 32, upon which rollers drop-curtains 33 are secured, adapted to have produced thereon the names of stations or streets and advertising matter, if found desirable. These rollers are prevented from being shaken from desired position while the car is in motion, through the medium of springs 34, (shown in Fig. 4,) which springs are so wound upon the spindles 35^a and have such bearing against a near-by support and flanges at the pinion-carrying end of the rollers as to hold said rollers in fixed position until said rollers are purposely turned by means of the double-faced gear-wheels 27 engaging with the pinions 35.

The rollers 32 are arranged in two series, one series extending from a point near the center of the car to and beneath the hood at one end, the other series of rollers 32 being

correspondingly placed with relation to the opposite end of the car. The rollers 32 are so placed that the pinions 35, carried by their spindles 35^a, will bear such close relation to each other that when a master-gear engages with a pinion 35 of one roller 32 it will likewise engage with the pinion 35 of the adjacent roller, one roller turning in one direction and the other roller in the opposite direction. Thus it will be observed that at each operation of a master-wheel 27 the curtain on one roller is wound up, while the curtain upon the next roller will be unwound or dropped, so that it will be visible to the occupants of the car.

If desired, the rollers 32 may be arranged only over the platforms of the car, and in order that the matter printed upon a curtain dropped from beneath the hood of a car may be clearly visible to the occupant of a car I preferably provide transparent panels 36 at the upper portion of the ends of the car, as is illustrated in Fig. 2, and when such panels are used persons standing on the platform of a car will be able to read the matter upon the curtains dropped in the interior of the car.

It will be understood that the spindles 35^a of the rollers 32 are suitably journaled at each of their ends.

In the operation of the device the outer or first curtain is dropped, all the other curtains being wound up upon the rollers 32, as is shown in Fig. 1. At proper times the carriages D will be moved in direction of the center of the car by the revolution of the grooved shafts 16, and when the carriages are so moved the recesses 31 in the master-wheels will be opposite the pinions 35 of the rollers 32, so that the master-wheels may pass said pinions. The extent of the movement of a master-wheel at each operation of the shafts 16 is the extent of the distance between adjoining pinions 35, so that in the first movement of the master-wheels the said wheels will be brought into the space between the pinions 35 of the outer rollers 32 and the rollers next to them. Shortly after the master-wheels are thus moved the shafts 15 are actuated and the master-wheels are turned sufficiently to impart rotary motion to the pinions 35, with which they engage, turning the outer roller in a direction to wind up the curtain thereon and the next roller in a direction to cause its curtain to drop down therefrom. After another period of time the master-wheels are moved farther in direction of the center of the car, engaging with the pinions of the second outer rollers and the third outer rollers, causing the master-wheels when the shafts 15 are again revolved to wind up the curtains on the second outer rollers and cause the curtains on the third outer rollers to drop downward. This operation is repeated until all of the rollers 32 have been operated upon. At such time the movement of the drive-shaft B is reversed and the rollers 32 are operated upon from the center of

the car or from the innermost roller of each set in direction of the outermost roller.

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

1. In a station-indicator, a series of rollers, curtains carried thereby and adapted to drop therefrom, and a mechanism for simultaneously winding up the curtain on one roller and unwinding the curtain of the adjacent roller.

2. In a station-indicator, a series of rollers, curtains carried by the said rollers and adapted to drop therefrom, pinions carried by the rollers, a master-gear having a double face and adapted to engage simultaneously with said adjacent pinions, the said roller being provided with means for clearing the pinions in its passage from one to the other, and means substantially as described, for imparting periodical lateral and rotary movement to the said master-wheel, as set forth.

3. In a station-indicator, a series of rollers, pinions attached to the said rollers, curtains secured to the rollers and adapted to drop downward therefrom, a drive-shaft, an upper and a lower line-shaft, the lower line-shaft having a spiral groove and the upper line-shaft a longitudinal groove therein, means for periodically rotating the line-shafts from the drive-shaft, a carriage in operative engagement with the grooved shaft, whereby the said carriage is slid along the said shaft as the shaft revolves, and a master-wheel guided by the carriage and having an extension into the groove of the upper line-shaft, which master-wheel is adapted to engage simultaneously with the pinions of two adjacent rollers, as described.

4. In a station-indicator, a series of rollers, pinions attached to the said rollers, curtains secured to the rollers and adapted to drop downward therefrom, a drive-shaft, an upper and a lower line-shaft, the lower line-shaft having a spiral groove and the upper line-shaft a longitudinal groove therein, means for rotating the line-shafts from the drive-shaft, a carriage in operative engagement with the grooved shaft, whereby the said carriage is slid along the said shaft as the shaft revolves, and a master-wheel guided by the carriage into the groove of the upper line-shaft, which master-wheel is adapted to engage simultaneously with the pinions of two adjacent rollers, the said master-wheel being provided with a recess in its peripheral portion, sufficiently large to pass the pinions of

the said rollers, and tension devices for the rollers, as and for the purpose set forth.

5. In a station-indicator, the combination with a series of rollers, curtains adapted to drop from the said rollers, a pinion at one end of each roller, a drive-shaft, and a wheel carried by the said drive-shaft, provided with quadrantal teeth arranged in pairs, one set of teeth being above the plane of the other, of an upper and a lower line-shaft, the upper line-shaft being provided with a longitudinal groove and the lower line-shaft with a spiral groove, a carriage mounted to slide upon both line-shafts and provided with a projection adapted to enter the spiral groove of the lower line-shaft, a master-wheel guided by the said carriage and mounted on the upper line-shaft, having a feather entering the longitudinal groove of the said upper line-shaft, the said pinion having a double-beveled toothed surface, adapted to simultaneously engage with two opposing pinions on the said rollers, for the purpose set forth.

6. In a station-indicator, the combination with a series of rollers, curtains adapted to drop from the said rollers, a pinion at one end of each roller, a drive-shaft, and a wheel carried by the said drive-shaft, provided with quadrantal teeth arranged in pairs, one set of teeth being above the plane of the other, of an upper and a lower line-shaft, the upper line-shaft being provided with a longitudinal groove and the lower line-shaft with a spiral groove, a carriage mounted to slide upon both line-shafts and provided with a projection adapted to enter the spiral groove of the lower line-shaft, a master-wheel guided by the said carriage and mounted on the upper line-shaft, having a feather entering the longitudinal groove of the said upper line-shaft, the said pinion having a double-beveled toothed surface adapted to simultaneously engage with two opposing pinions on the said rollers, the said master-wheel being also provided with a peripheral recess of sufficient size to freely receive a pinion of a roller, a guide for the lower end of the said carriage, and tension devices for the said rollers, all arranged for operation substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PAUL PHILIA ICAVILLE FYFE.

Witnesses:

THOMAS S. SHIRM,
D. C. DAYWALT.