

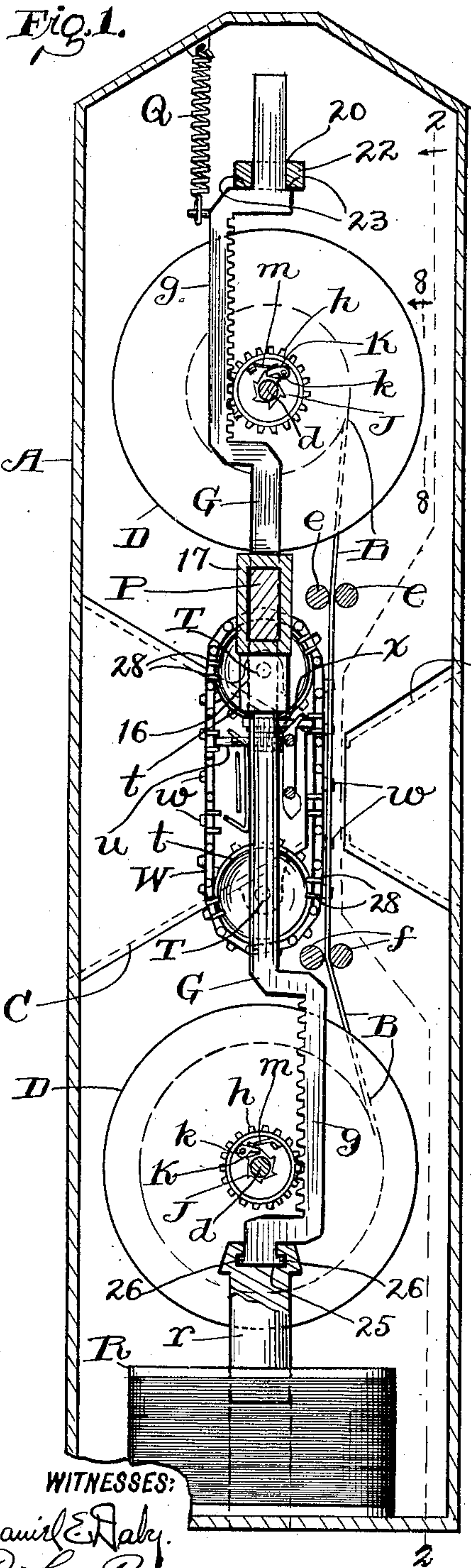
No. 832,438.

PATENTED OCT. 2, 1906.

D. F. WHITCOMB.
STATION INDICATOR FOR RAILWAYS.

APPLICATION FILED MAR. 31, 1905.

3 SHEETS—SHEET 1.



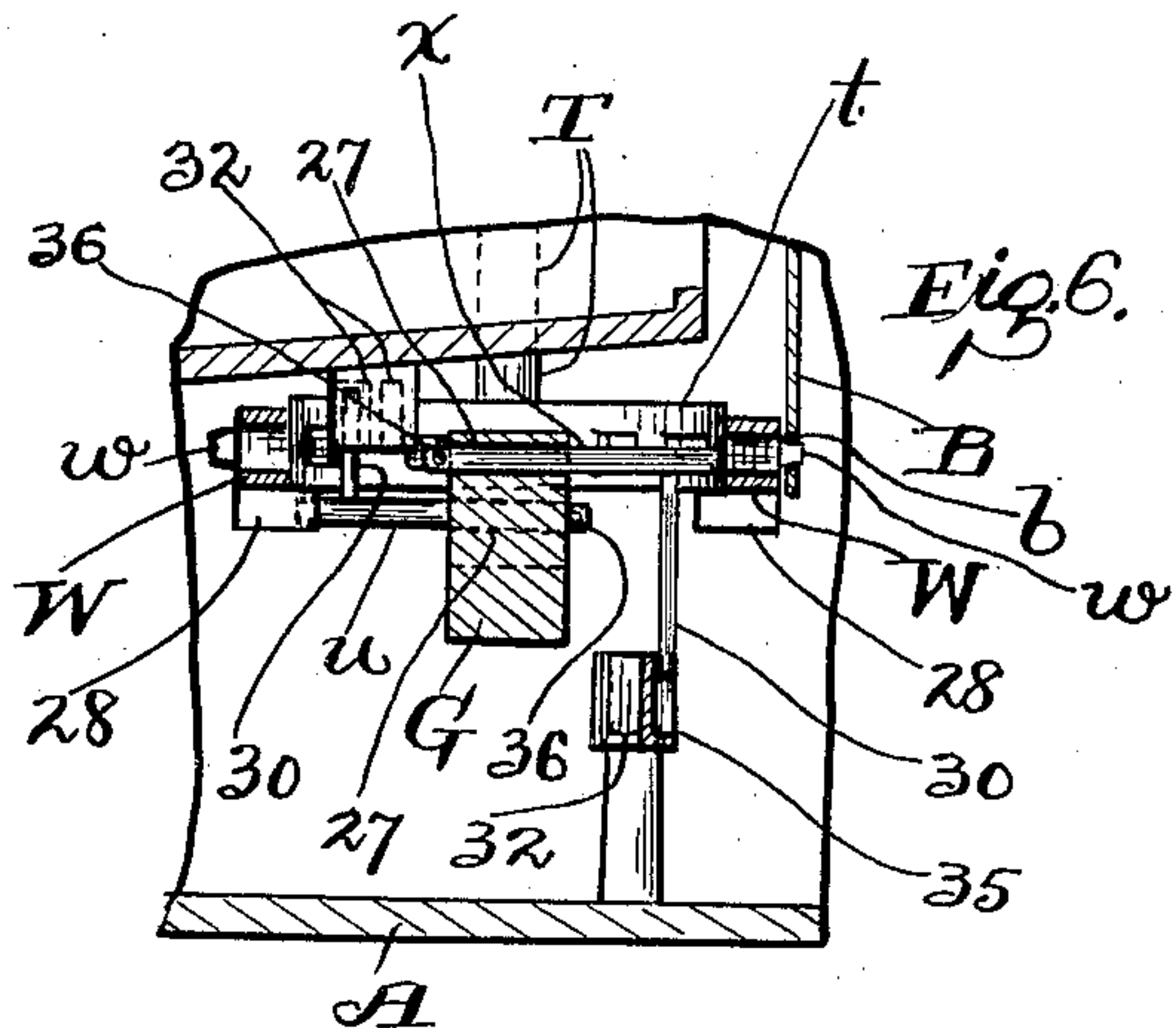
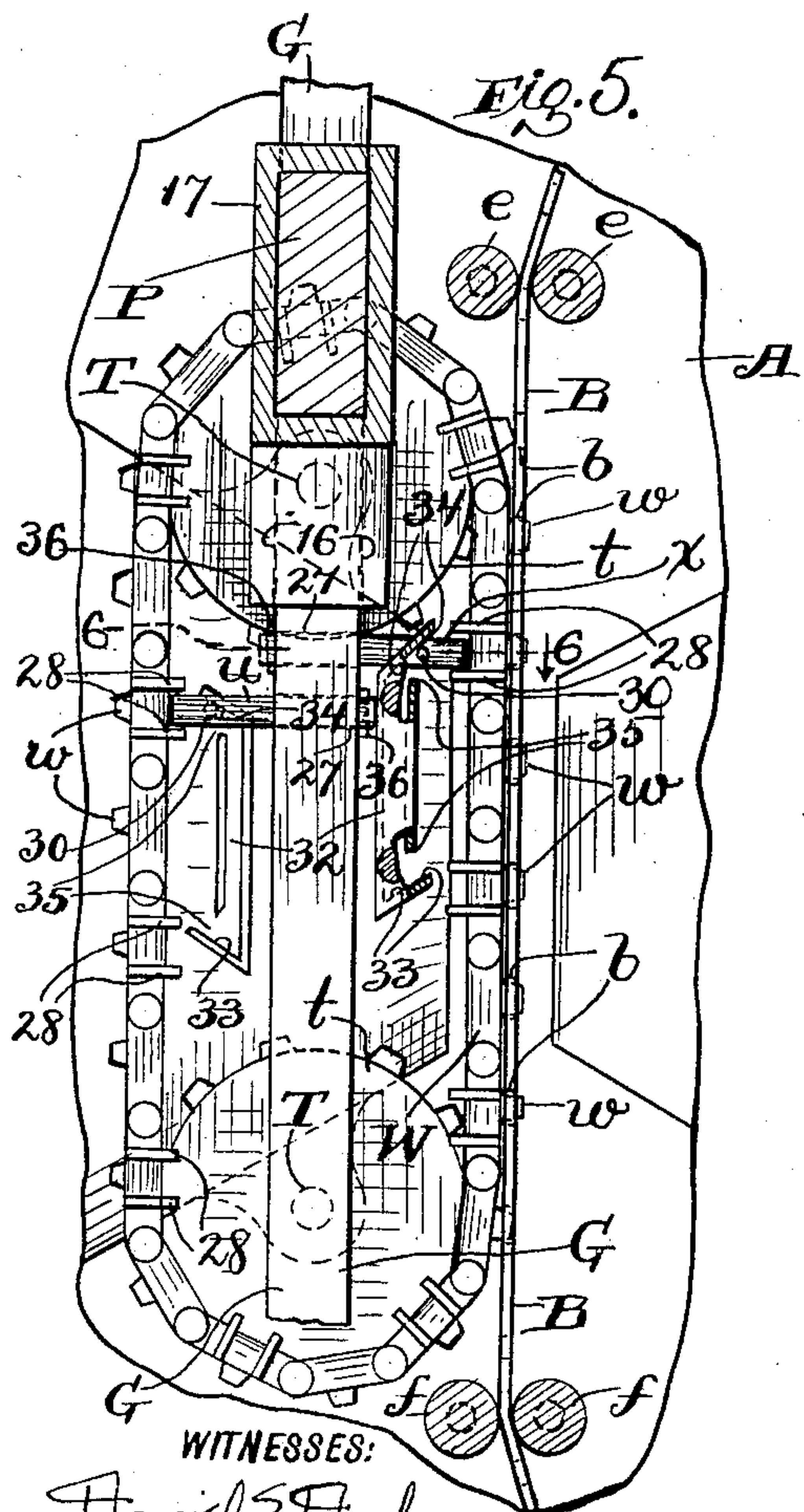
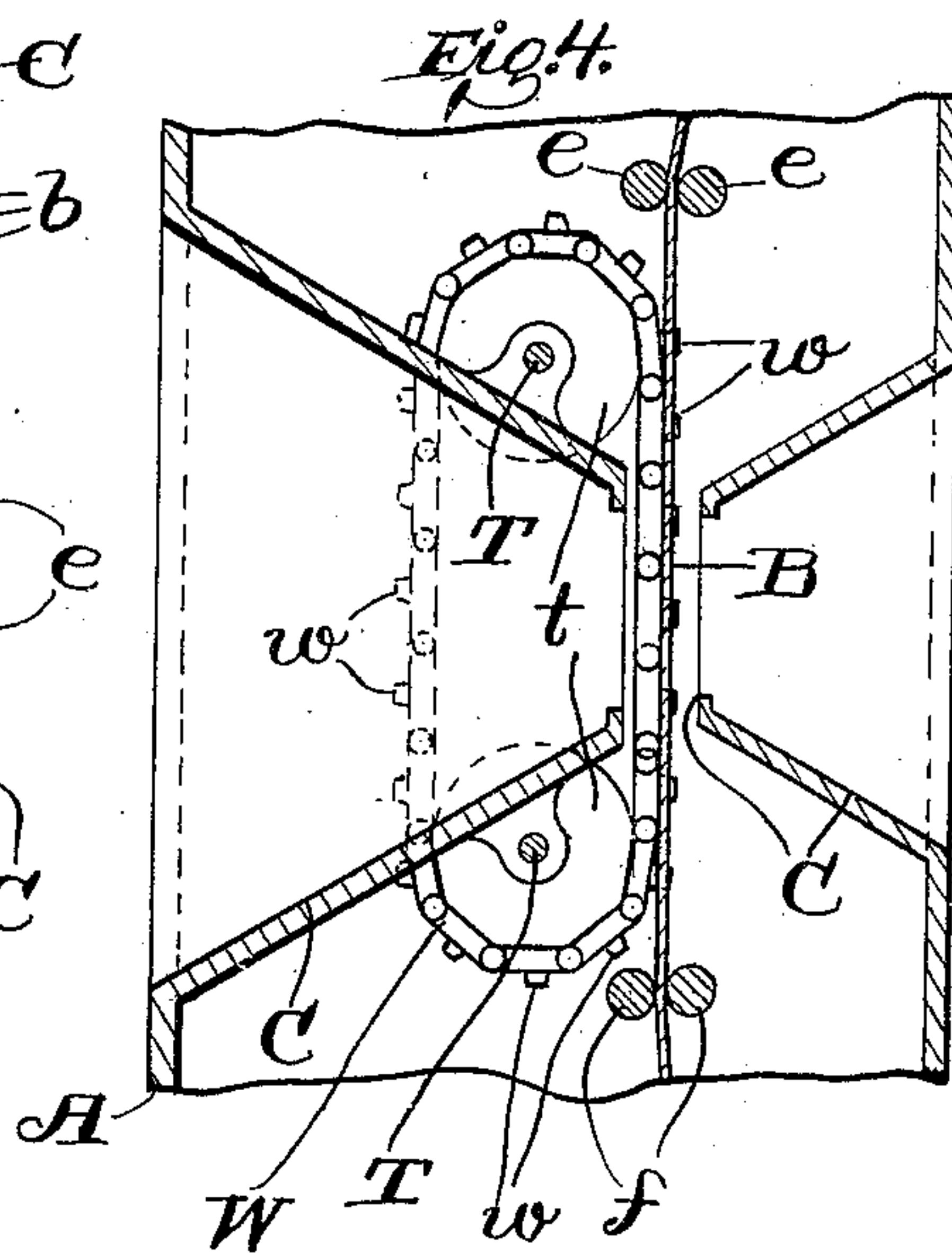
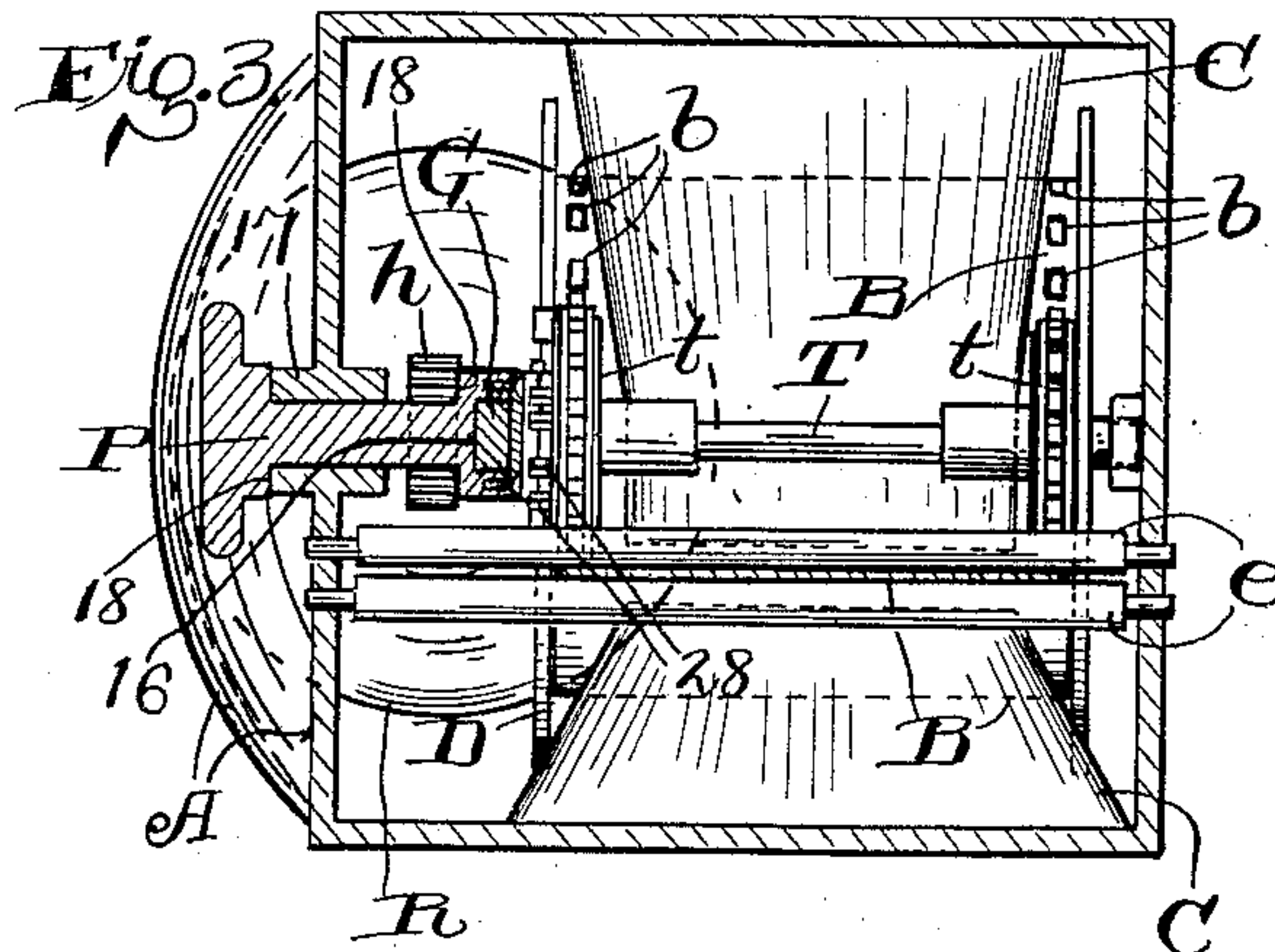
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3 SHEETS—SHEET 2.



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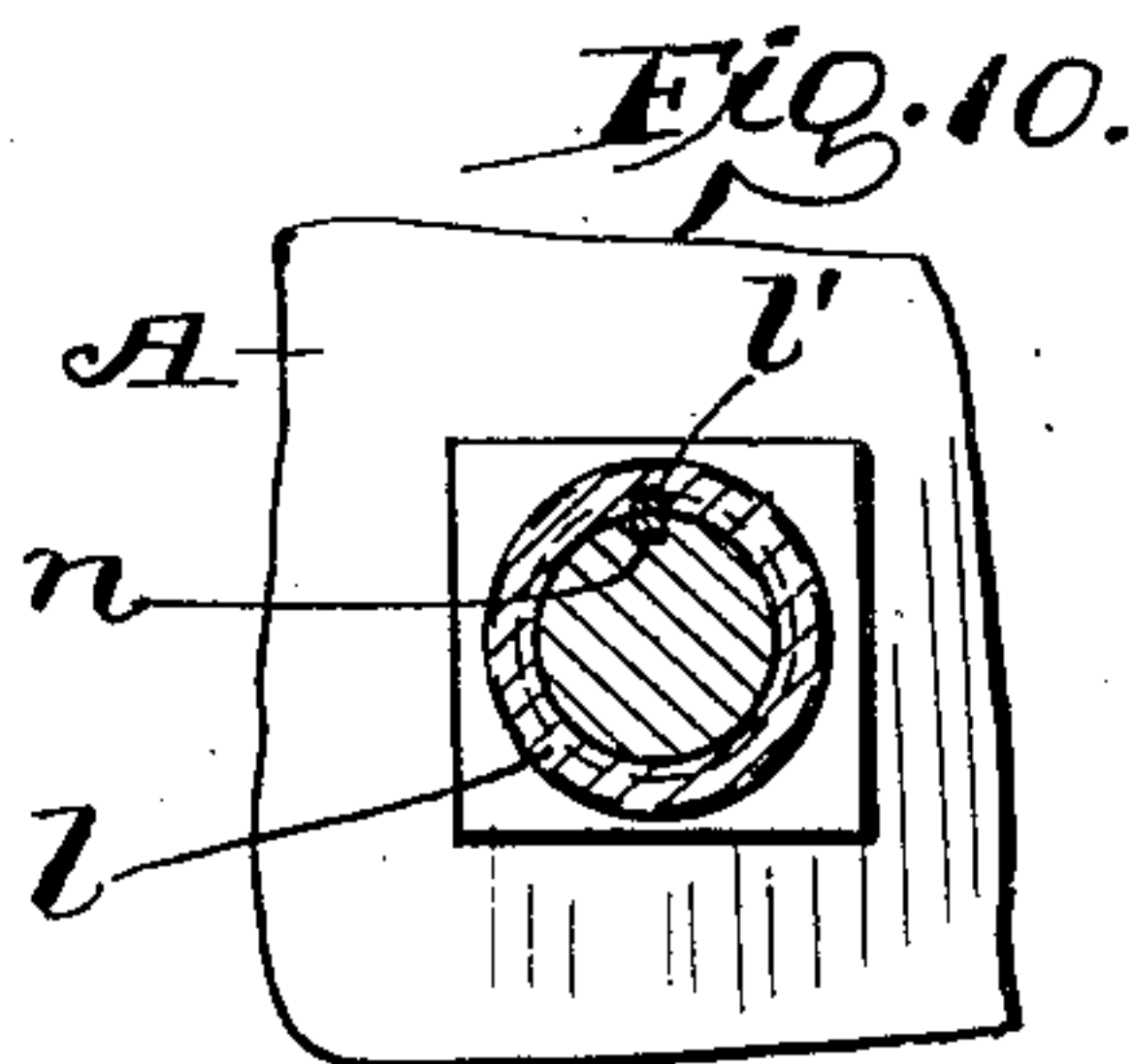
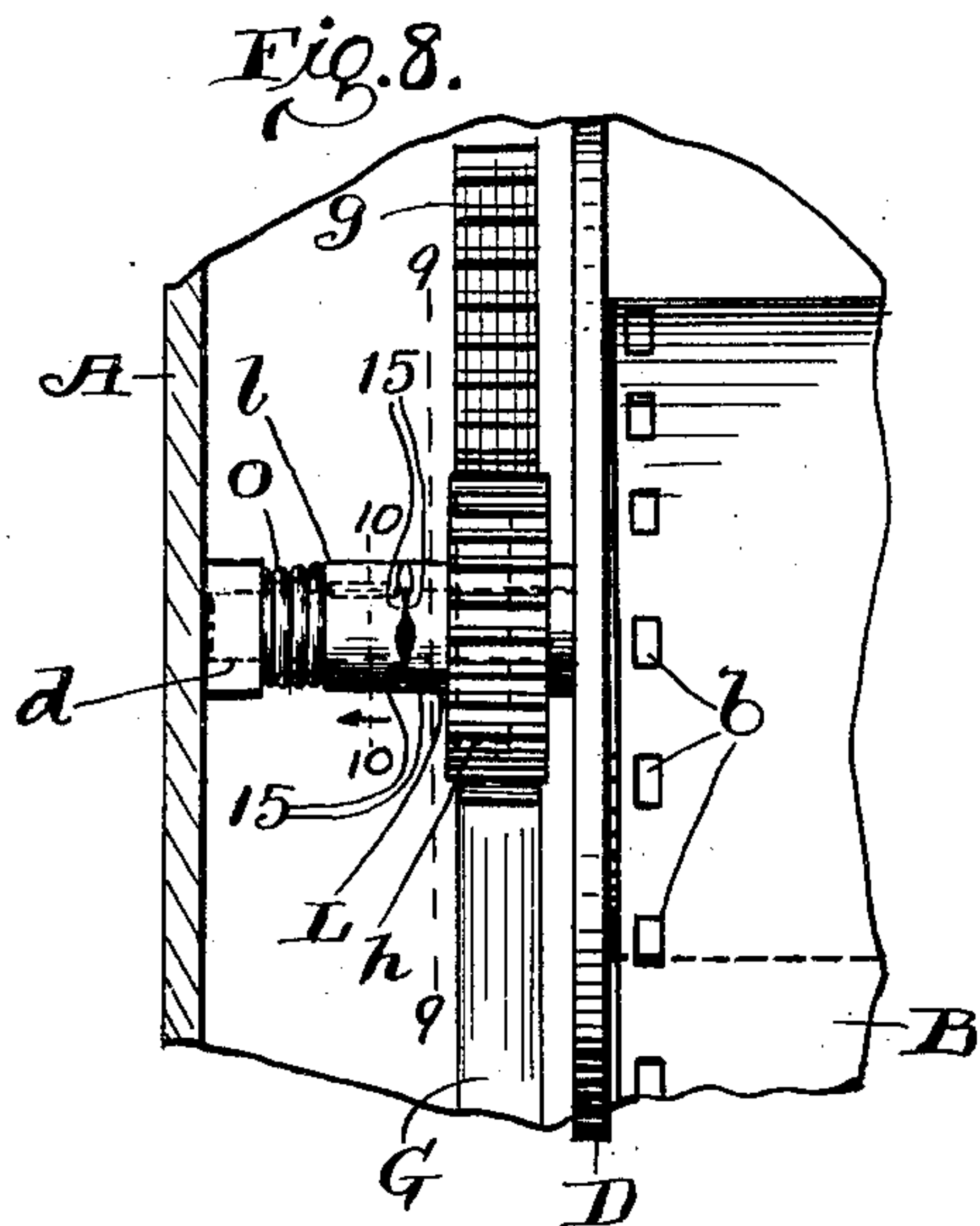
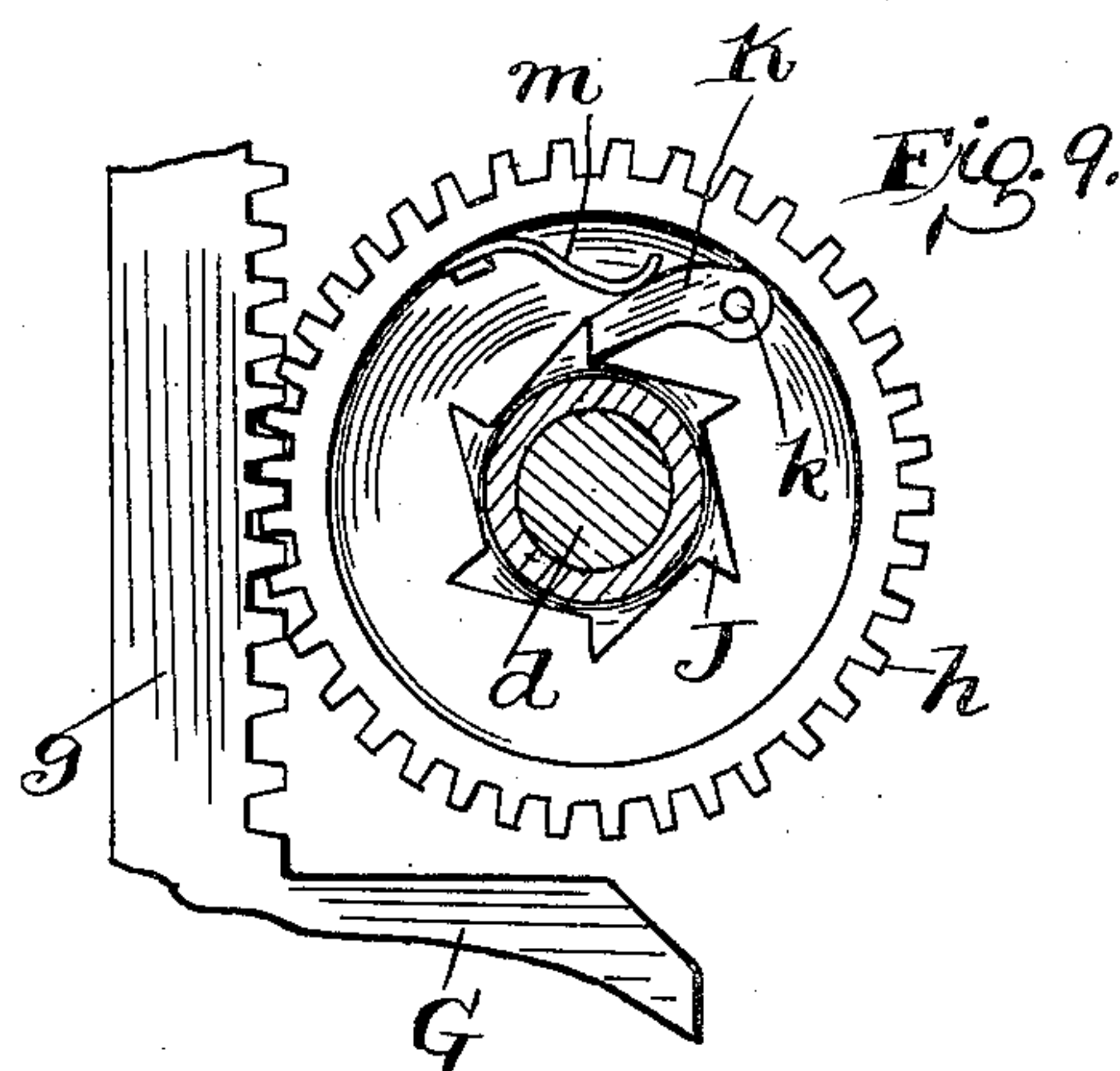
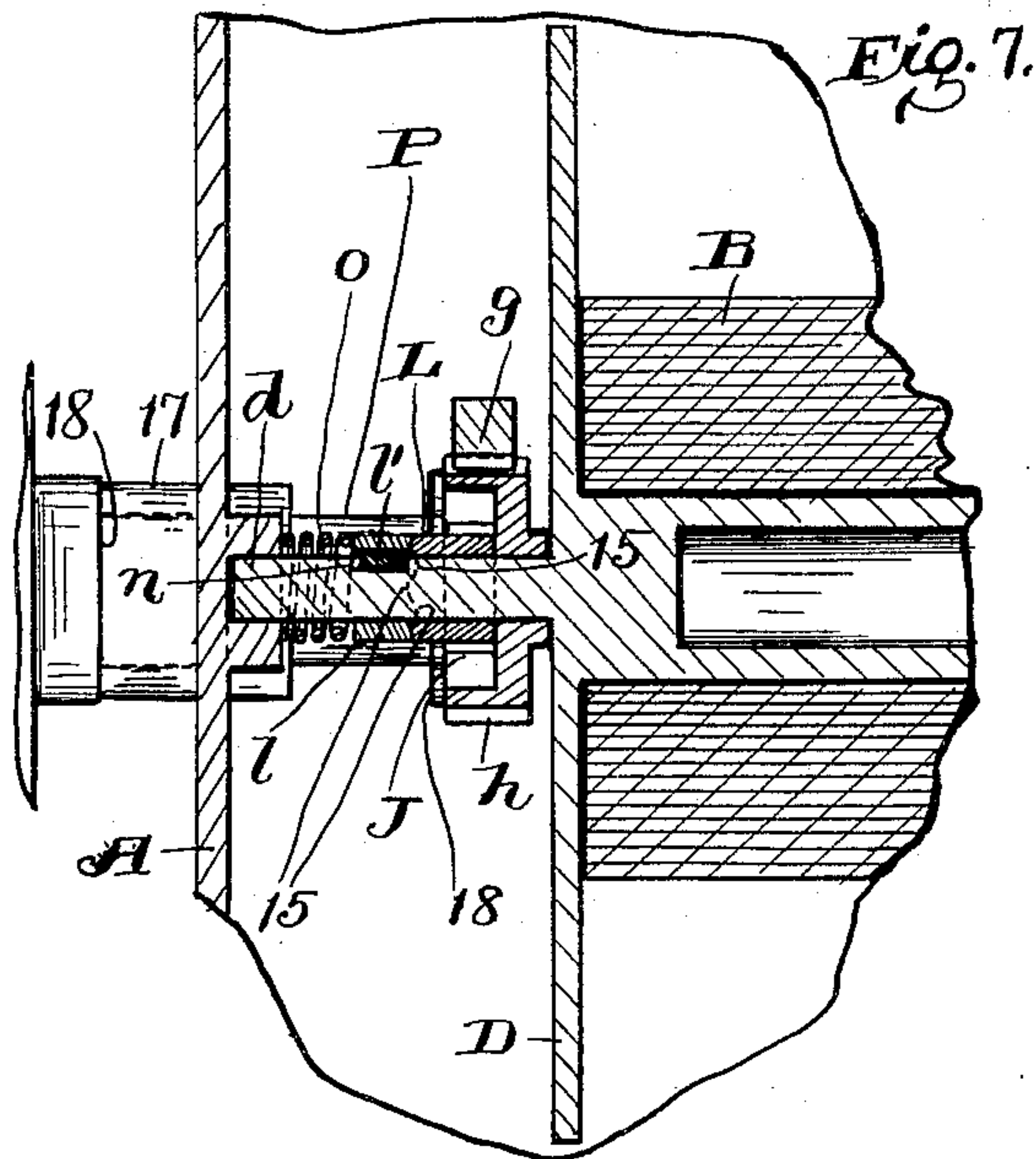
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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STATION-INDICATOR FOR RAILWAYS.

No. 832,438.

Specification of Letters Patent.

Patented Oct. 2, 1906.

Application filed March 31, 1905. Serial No. 253,167.

To all whom it may concern:

Be it known that I, DANIEL F. WHITCOMB, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Station-Indicators for Railways; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to improvements in station-indicators for railway-cars, and more especially to indicators for use on street or tram cars or vehicles having designated stopping-places or stations along the line of travel.

One object of this invention is to provide a station-indicator which may be readily operated from any suitable point on the car to indicate or display to the passengers the successive stopping places or stations on the line.

Another object is to provide a station-indicator comprising two winding-drums arranged a suitable distance apart vertically, a band adapted to carry the names of the stations or stopping-places and leading between and operatively engaging both drums, and means whereby the said band is uniformly actuated between the drums during the application of power to the one or the other drum regardless of the varying diameter of the laden drum onto which the band is being wound.

Another object is to provide simple, convenient, and meritorious means whereby the actuating mechanism can be readily adjusted to cause the band to travel in either direction, so as to accommodate the convenient use of the same band to indicate stations on the going and returning trips.

With these objects in view and to the end of realizing other advantages hereinafter appearing this invention consists in certain features of construction and combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation, largely in section, of a station-indicator embodying my invention. Fig. 2 is a vertical section on line 2 2, Fig. 1, looking in the direction indicated by the arrow. Fig. 3 is a top plan in horizontal sec-

tion on line 3 3, Fig. 2. Fig. 4 is a vertical section on line 4 4, Fig. 2, looking in the direction indicated by the arrow. Fig. 5 is a vertical section on line 5 5, Fig. 2, looking in the direction indicated by the arrow. Fig. 6 is a top plan, largely in horizontal section, on line 6 6, Fig. 5. Fig. 7 is a top plan in section on line 7 7, Fig. 2. Fig. 8 is an elevation in vertical section on line 8 8, Fig. 1. Fig. 9 is a section on line 9 9, Fig. 8, looking inwardly. Fig. 10 is a section on line 10 10, Fig. 8, looking in the direction indicated by the arrow. Figs. 5, 6, and 7 are drawn on a larger scale than Figs. 1, 2, 3, and 4, and Figs. 8, 9, and 10 are drawn on a larger scale than Figs. 5, 6, and 7.

Referring to the drawings, A indicates the inclosing case of the station-indicator. The case A is adapted to be placed in a conspicuous place within the car where the names of stations displayed by the station-name-carrying band B will be in full view of the passengers on the car. The case A is provided (see Figs. 1 and 4) with two oppositely-located windows C, at which the names to be carried by the band B are displayed—that is, the band B is adapted to carry the names (not shown) of the stopping-places or stations at opposite sides thereof, and the corresponding names at opposite sides of the band are simultaneously displayed at the different windows, respectively. Within the case A are contained two horizontally-arranged parallel winding-drums D, which are located above and below the windows C, respectively. The band B extends vertically between the two windows and is operatively connected with the two winding-drums D, which are arranged within and supported from the case A. Preferably the band B leads between the guide-rollers e, arranged between the upper drum and the windows, and between guide-rollers f, arranged between the lower drum and the windows. The rollers are parallel with the drums and supported from the case A. A bar G is arranged vertically in suitable proximity to adjacent ends of the two drums and within one side of the case A. The bar G is adjustable laterally. The bar G is also movable vertically or endwise.

Each drum D (see Figs. 1, 2, 7, 8, and 9) is provided axially and adjacent the bar G with a trunnion d, which bears a pinion h, loosely mounted on the said trunnion, and means for

transmitting motion from the said pinion to the said drum is provided and comprises, preferably, a ratchet-wheel J, loosely mounted on the aforesaid trunnion and engaged by a pawl K, which is pivoted, as at *k*, to the pinion, and a suitably-applied spring *m*, which is supported from the pinion, acts to retain the pawl in engagement with the ratchet-wheel. A slip-clutch is provided to operatively connect the said ratchet-wheel with the aforesaid trunnion. The said clutch (see Figs. 2, 7, 8, and 10) consists of two companion members L and *l*, with the clutch member L integral or rigid with the ratchet-wheel and with the clutch member *l* operatively mounted on and slidable endwise of the trunnion. The operative connection between the slidable clutch member *l* and the trunnion (see Figs. 7 and 10) consists, preferably, of a key *n*, which extends from within a keyway *l'*, with which the clutch member is internally provided, into the trunnion, which keyway extends from end to end of the said clutch member. A suitably-applied spiral spring *o* acts to retain the slidable clutch member *l* in operative engagement with the companion and relatively stationary clutch member L. The opposing ends of the two companion clutch members are provided, as at 15, Fig. 2, with interlocking projections which are rounded circumferentially of the clutch to enable the clutch member to slip relative to the clutch member *l* during the rotation of the pinion *h* in the direction required to wind the band B upon the drum provided with the said clutch when a pull is exerted upon the band by the chain-and-sprocket mechanism hereinafter described in the direction required to arrest the winding of the band upon the drum.

The band B is arranged to wind upon and unwind from the different drums, respectively, at the same side of the axes of the drums, and the pawl K of each pinion *h* and the engaging ratchet-wheel are arranged reversely relative to the other pinion and cooperating ratchet-wheel.

The bar G (see Figs. 1 and 2) is provided with two reversely-arranged rack-forming portions *g* and *g*, which are arranged a suitable distance apart vertically at opposite sides, respectively, of the axes of the drums and mesh with the different pinions *h* and *h*, respectively—that is, the relative arrangement of the two racks is such that when one of the racks meshes with one of the pinions the other rack is out of mesh with the other pinion, as shown in Fig. 2, and the one or the other rack is in mesh with the adjacent and cooperating pinion, according as the bar G is in the one or the other of its positions laterally or horizontally. The bar G (see Figs. 2, 3, and 5) engages a correspondingly-arranged slideway 16, located between the two rack-forming portions of the bar and formed in the

inner end of a slide P, which is arranged horizontally and extends outside of the case A, which slide engages a correspondingly-arranged slideway-forming member 17, integral with or rigid with the said case. The slide P (see Figs. 2 and 3) is provided with two shoulders 18, spaced apart longitudinally of the slide and arranged at opposite ends, respectively, of the slideway-forming member 17. The shoulders 18 are located enough farther apart than the ends of the slideway-forming member 17 to accommodate the lateral or horizontal adjustment of the bar G and in conjunction with the said slideway-forming member form stops for limiting the movement of the slide in opposite directions, respectively. It will be observed, therefore, that the bar G is operatively connected with and movable vertically independently of the means employed to adjust it laterally or horizontally.

The bar G above its upper rack-forming portion (see Figs. 1 and 2) extends through a slot 20, formed in an arm 22, which projects inwardly from and is rigid with the case A. The slot 20 is parallel with the lateral or horizontal movement of the bar G and is long enough to accommodate the lateral or horizontal adjustment of the said bar. The bar G is provided with an upwardly-facing shoulder or shoulders 23 at the under side of the arm 22, which coöperates with the said shoulder or shoulders in limiting the upward movement of the bar, and a suitably-applied spiral spring Q, attached at one end to the bar and at its opposite end to the case A, acts to retain the bar in its upper position.

The bar G at its lower end (see Figs. 1 and 2) engages a recess 25, formed in the upper end of the core *r* of a vertically-arranged solenoid R, contained within the lower end of the case A, and the bar extends, as at 26, into the undercut portion of the said recess. The recess 25 is long enough and arranged as required to accommodate the lateral or horizontal adjustment of the bar G and to prevent a disengagement of the bar from the core of the solenoid during such lateral or horizontal adjustment of the bar. Normally the core *r* is in its outer position and the bar G in its upper position, as shown in Figs. 1 and 2, and an energizing of the solenoid results in the inward movement of the core, and consequently in the downward movement of the bar G against the action of the spring Q. However, the downward movement of the bar G may be effected mechanically instead of electrically.

In the station-indicator illustrated the upper rack-forming portion of the bar G meshes with the pinion connected with the upper drum, and the lower rack-forming portion of the bar is out of mesh with the pinion instrumental in transmitting motion to the lower drum, so that a downward

movement of the said bar against the actuation of the spring Q will result in the actuation of the upper drum in the direction required to wind up the engaging band B, and the lower drum is free to pay out the said band, and the outer shoulder 18 of the slide P abuts against the slideway-forming member 17. By actuating the slide P outwardly until its inner shoulder 18 abuts against the slideway-forming member 17 the upper rack-forming portion of the bar G is shifted out of mesh with the engaging pinion and the lower rack-forming portion of the bar is brought into mesh with the pinion instrumental in transmitting motion to the lower drum, whereupon a downward movement of the bar will result in the winding of the band B from the upper drum onto the lower drum. The arrangement of the ratchet-wheels J and the pawls K is such that no motion is transmitted to the drums D during the upward movement of the bar G.

It is obvious that the drum upon which the band B is being wound during the rotation of the said drum would wind up more band during the coiling of each successive layer of band onto the drum if some means were not provided for holding back upon the band during the aforesaid rotation of the drum, so as to cause the clutch member formed upon the ratchet wheel engaged by the pawl of the pinion instrumental in transmitting motion to the said drum to slip relative to the companion clutch member during the winding up of band by the drum.

Means employed for insuring uniformity in the length of the intermittent movements of the band B between the two drums comprises two rows of perforations *b*, formed in the band B, which rows (see Fig. 2) are arranged near opposite longitudinal edges, respectively, of the said band, with the perforations of each row of perforations spaced equidistantly longitudinally of the band. (See Figs. 2, 3, 5, 6, and 8.)

Two axles T (see Figs. 1, 2, 4, and 5) are arranged between and parallel with the two drums D. The axles T are suitably spaced vertically and supported in any approved manner from the case A. Each axle T (see Figs. 2 and 3) is operatively provided with two sprocket-wheels *t*, arranged at one side of and in suitable proximity to the band B and between and in suitable proximity to opposite longitudinal edges, respectively, of the band. Two endless chains W operatively engage the different sprocket-wheels, respectively, of each axle and are provided at their outer sides with projections *w*, which are spaced equidistantly longitudinally of the chains. The spacing of the projections *w* of the chains W exactly corresponds with the spacing of the perforations *b* of the band B. The chains W are actuated simultaneously with the actuation of the bar G, and

the arrangement of the parts is such that the projections *w* of the chains engage with perforation *b* in the band B during the actuation of the chains. It will be observed, therefore, that by actuating the chains equidistantly during the successive movements of the chains the band B moves equidistantly during the intermittent movements of the band in winding the band from one of the drums onto the other drum. I would here remark that the band B is preferably made of strong textile fabric or other suitable material—such, for instance, as tough paper.

The means employed for actuating the chains W comprises two parallel bolts *u* and *x*, which (see Figs. 1, 5, and 6) are arranged horizontally and at a right angle to the drums D. The bolts *u* and *x* are movable endwise and extend through different slideway-forming holes 27, respectively, in the bar G centrally between the ends of the said bar. The said bolts are shown arranged a short distance apart vertically, and one of the chains W is provided with pairs of inwardly-projecting lugs 28, with the pairs of lugs 28 spaced equidistantly longitudinally of the chain and with the lugs of each pair of lugs arranged far enough apart longitudinally of the chain to easily accommodate the passage between the said lugs of a bolt. The space between the lugs of each pair of lugs 28 is open at the sides of the chain to accommodate the movement of the bolts into position and from between the lugs of pairs of lugs 28. The bolts are arranged to operate at opposite sides, respectively, of the bar G, and the arrangement of the parts is, furthermore, such that when one of the bolts is in its operative position between the two lugs of a pair of lugs 28 the other bolt is inoperative, being outside of the adjacent space between two lugs of a pair of lugs 28. In the arrangement of the parts illustrated the bolt *u* is in an operative position between the two lugs of a pair of lugs 28, as shown in Figs. 5 and 6, and the bolt *x* is inoperative, as required when the band B is wound from the lower drum onto the upper drum; but when the bar G is shifted horizontally and laterally, as required preparatory to winding the band from the upper drum onto the lower drum, the bolt *u* is rendered inoperative and the bolt *x* brought into an operative position between the two lugs of a pair of lugs 28.

Each bolt is provided (see Figs. 5 and 6) with a laterally-projecting member 30. Any suitable member rigid with the casing A is provided with a vertically-arranged guideway 32 for the said member 30, and two parallel inclines 33 and 34 are arranged at the lower end and upper end, respectively, of the said guideway. The said guideway is open at one side at its upper and lower end, as at 35, (see Fig. 5,) to accommodate the passage of the aforesaid member 30 into the guideway

at the lower end of the guideway and out of the guideway at the upper end of the guideway.

The arrangement of the parts is such that both bolts *u* and *x* are simultaneously shifted endwise, but in opposite directions, respectively; that the members 30 of the bolts are arranged to descend externally of the guideways 32 during the descent of the bar G; that during the descent of the said bar the bolt members 30 come into engagement with the lower inclines 33 and thereupon are actuated by the latter through the lower openings 35 of the guideways into the lower ends of the said guideways, so as to bring the bolts into their inner or rearward positions and remove the bolt which engages the space between the lugs of a pair of lugs 28 from the said space; that the bolt members 30 ascend within the guideways during the upward movement of the bar G and come into engagement with the upper inclines 34 by which the said bolt members are discharged from the said guideways through the upper openings 35 of the guideways. The arrangement of the parts is, furthermore, such that by the discharge of the members 30 of the bolts from the upper ends of the guideways 32 the bolts are actuated into their outer or forward position. Pins 36, which are driven into the rear ends of the bolts, abut against the bar G in the forward or outer position of the bolts and limit the movement of the bolts upon the actuation of the bolts by the upper inclines 34. It will be observed, therefore, that both bolts are actuated during the endwise movement of the bar G, but only one of the said bolts operates at a time in transmitting motion to the chains W, because, as already indicated, when one of the said bolts is in position to operate between the two lugs of a pair of lugs 28 the other bolt is in an inoperative position relative to the adjacent chain.

By the construction hereinbefore described it will be observed that the movement of the band B is gaged or controlled by the operation of the chain-and-sprocket mechanism; that the bolt *u* or the bolt *x* is performing its function according as the band B is wound onto the upper or onto the lower drum; that, for instance, if, as shown, the band is to be wound onto the upper drum the bolt *u* is in an operative position between two chain-lugs 28 during the actuation of the bar G downwardly to wind the band B onto the said drum; that the perforations *b* in the band B are continuously engaged by projections *w* of the chains W; that obviously, therefore, the band cannot be pulled away from the chains during the actuation of the band; that because of the increase in the number of layers of band wound upon the said drum during the winding of the band on the said drum the slip-clutch instrumental in

transmitting motion to the said drum will in winding band on the drum slip the least, if at all, during the operations of the bar G, which effect the winding of the first layer of band upon the drum, but will of course slip during the winding of each succeeding layer of band on the drum and will slip continuously as soon as the size of the roll is sufficient to take up the band at a faster rate than the chain can feed it, and that the bolt *u* becomes disengaged from the engaging chain by the respective incline 23 after the desired amount of band has been wound on the drum, but only upon or simultaneously with the termination of the downward stroke of the bar, and obviously the clutch during the said stroke of the bar will slip continuously as soon as the size of the roll is sufficient to take up the band at a faster rate than the chain can feed it, and hence the same amount of band is wound upon the band-winding-up drum during the successive operations of the said drum regardless of the gradual increase in the number of layers of band upon the said drum.

What I claim is—

1. In a station-indicator for railways, the combination, with a case, two horizontally-arranged vertically-spaced parallel winding-drums arranged within and supported from the case, and a band leading between and operatively connected with the drums, of a vertically-arranged bar having two reversely-arranged rack-forming portions arranged in suitable proximity to the different drums respectively at the adjacent ends of the drums and at opposite sides respectively of the axes of the drums, which bar is movable vertically and also laterally at a right angle to the vertical movement of the bar; means for actuating the bar vertically; two pinions adapted to be rotated by the different rack-forming portions respectively of the bar; means for transmitting motion from one of the pinions to one of the drums, and means for transmitting motion from the other pinion to the other drum, and the arrangement of the parts being such that only the one or the other pinion is engaged by the adjacent rack-forming portion of the bar according as the bar is in the one or the other of its positions laterally, that during the vertical movement of the bar in the one direction the one or the other drum shall be rotated in the direction required to wind up the engaging band according as operative connection between the bar and the one or the other drum has been established, and that the driven pinion shall operate idly during the vertical movement of the bar in the opposite direction.

2. In a station-indicator for railways, the combination, with a case, two suitably-spaced parallel winding-drums arranged within the case, and a band leading between and operatively connected with the drums,

of a bar having two rack-forming portions arranged in suitable proximity to the different drums respectively at the adjacent ends of the drums, which bar is movable endwise and also laterally; means for actuating the bar endwise; two pinions adapted to be rotated by the different rack-forming portions respectively of the bar; means for transmitting motion from one of the pinions to one of the drums, and means for transmitting motion from the other pinion to the other drum, and the arrangement of the parts being such that only the one or the other pinion is engaged by the adjacent rack-forming portion of the bar according as the bar is in the one or the other of its positions laterally, and that during the endwise movement of the bar in one direction the one or the other drum shall be rotated in the direction required to wind up the engaging band according as operative connection between the bar and the one or the other drum has been established, and that the driven pinion shall operate idly during the endwise movement of the bar in the opposite direction.

3. In a station-indicator for railways, the combination, with a case, two horizontally-arranged vertically-spaced parallel winding-drums arranged within and supported from the case, and a band leading between and operatively connected with the drums, of a vertically-arranged bar having two rack-forming portions arranged in suitable proximity to the different drums respectively at the adjacent ends of the drums, which bar is movable vertically; a slide movable horizontally and at a right angle to the vertical movement of the bar; such an operative connection between the slide and bar as will accommodate a vertical movement of the bar independently of the slide; means for actuating the bar vertically; two pinions adapted to be rotated by the different rack-forming portions respectively of the bar; means for transmitting motion from one of the pinions to one of the drums, and means for transmitting motion from the other pinion to the other drum, all arranged and operating substantially as shown, for the purpose specified.

4. In a station-indicator for railways, the combination, with a case, two suitably-spaced parallel winding-drums arranged within the case, and a band leading between and operatively connected with the drums, of an endwise-shiftable bar having two rack-forming portions arranged in suitable proximity to the different drums respectively at the adjacent ends of the drums; a slide arranged at a right angle to the bar, which slide is operatively connected with the bar without interfering with an endwise movement of the bar independently of the slide; two pinions adapted to be rotated by the different rack-forming portions respectively of the bar; means for transmitting motion from one

of the pinions to one of the drums, and means for transmitting motion from the other pinion to the other drum, all relatively arranged and operating substantially as shown, for the purpose specified.

5. In a station-indicator for railways, the combination, with a case, two suitably-spaced parallel winding-drums arranged within and supported from the case, and a band leading between and operatively connected with the drums, of an endwise-shiftable bar having two rack-forming portions arranged in suitable proximity to the different drums respectively at the adjacent ends of the drums, which bar is also movable laterally; a spring acting to retain the bar in its normal position so far as endwise movement of the bar is concerned; means for actuating the bar endwise against the action of the spring; two pinions adapted to be rotated by the different rack-forming portions respectively of the bar; means for transmitting motion from one of the pinions to one of the drums, and means for transmitting motion from the other pinion to the other drum, and the arrangement of the parts being such that only the one or the other pinion is engaged by the adjacent rack-forming portion of the bar according as the bar is in the one or the other of its positions laterally, that during the endwise movement of the bar by the said means the one or the other drum shall be rotated in the direction required to wind up the engaging band according as operative connection between the bar and the one or the other drum has been established, and that the driven pinion shall operate idly during the actuation of the bar by the spring.

6. In a station-indicator for railways, the combination, with a case, two suitably-spaced parallel winding-drums arranged within and supported from the case, and a band leading between and operatively connected with the drums, of an endwise-shiftable bar having two rack-forming portions arranged in suitable proximity to the different drums respectively at the adjacent ends of the drums, which bar is also movable laterally; a solenoid having its core arranged parallel with the endwise travel of the bar and normally in its outer position; a spring acting to retain the said core in its outer position; such an operative connection between the bar and the core of the solenoid as will accommodate the lateral movement of the bar independently of the core; two pinions adapted to be rotated by the different rack-forming portions respectively of the bar; means for transmitting motion from one of the pinions to one of the drums, and means for transmitting motion from the other pinion to the other drum, all relatively arranged and operating substantially as shown, for the purpose specified.

7. In a station-indicator for railways, the

combination, with two suitably-spaced winding-drums; a band extending between and operatively engaging the drums; drum-actuating means comprising two pinions instrumental in transmitting motion to the different drums respectively, and an endwise-shiftable laterally-adjustable bar having two reversely - arranged rack - forming portions adapted to mesh with the different pinions respectively at opposite sides respectively of the axes of the drums, of a slide movable in a plane at a right angle to the travel of the bar and provided with two shoulders arranged a suitable distance apart longitudinally of the travel of the slide, said slide being provided with a slideway parallel with and engaged by the bar, and a stationary slideway-forming member engaged by the slide and arranged between the aforesaid shoulders with the one end or the other end of the said slideway-forming member engaged by the opposing shoulder according as the slide is in the one or the other of its lateral positions, and the one or the other rack-forming portion of the bar being in mesh with the cooperating pinion according as the slide is in the one or the other of its lateral positions.

8. In a station-indicator for railways, the combination, with two suitably-spaced winding-drums; a band extending between and operatively engaging the drums, drum-actuating means comprising two pinions instrumental in transmitting motion to the different drums respectively, and an endwise-shiftable laterally-adjustable bar having two reversely - arranged rack - forming portions adapted to mesh with the different pinions respectively at opposite sides respectively of the axes of the drums, of a slide movable in a plane at a right angle to the travel of the bar and provided with a slideway parallel with and engaged by the bar; a stationary slideway-forming member engaged by the slide, and stops for limiting the endwise movement of the slide, and the one or the other rack-forming portion of the bar being in mesh with the cooperating pinion according as the slide is in the one or the other of its lateral positions.

9. In a station-indicator for railways, the combination, with two vertically - spaced horizontally - arranged parallel winding-drums; a band extending between and operatively connected with the drums, drum-actuating means comprising two pinions instrumental in transmitting motion to the different drums respectively, and an endwise-shiftable vertically-arranged laterally-adjustable bar having two rack-forming portions adapted to mesh and cooperate with the different pinions respectively, of a slide movable in a horizontal plane and at a right angle to the travel of the bar and provided with a vertically-arranged slideway engaged

by the bar, and a slideway for the horizontally-movable slide, and the one or the other rack-forming portion of the bar being in mesh with the cooperating pinion according as the slide is in the one or the other of its lateral positions.

10. In a station-indicator for railways, two vertically-spaced horizontally-arranged parallel winding-drums; a band extending between and operatively connected with the drums; drum-actuating means comprising two pinions instrumental in transmitting motion to the different drums respectively, and an endwise-shiftable upright bar movable laterally and having two reversely-arranged rack-forming portions adapted to mesh with the different pinions respectively at opposite sides respectively of the axes of the drums, with the one or the other rack-forming portion in mesh with the cooperating pinion according as the bar is in the one or the other of its positions laterally.

11. In a station-indicator for railways, the combination, with a case; two suitably-spaced parallel winding - drums arranged within and supported from the case; a band leading between and operatively connected with the drums, which band is provided with perforations suitably spaced longitudinally of the band; an endwise-shiftable and laterally-movable bar having two reversely-arranged rack-forming portions arranged in suitable proximity to the different drums respectively at adjacent ends of the drums and at opposite sides respectively of the axes of the drums; means for actuating the bar endwise; two pinions adapted to be rotated by the different rack-forming portions respectively of the bar; means for transmitting motion from one of the pinions to one of the drums and comprising a slip-clutch which has one of its companion members operatively connected with the pinion and its other member shiftable endwise and operatively connected with the drum; means acting to retain the shiftable clutch member of the said slip-clutch in operative engagement with the relatively stationary clutch member; means for transmitting motion from the other pinion to the other drum and comprising a slip-clutch which has one of its companion members operatively connected with the pinion and its other member shiftable endwise and operatively connected with the drum; means acting to retain the shiftable clutch member of the last-mentioned slip-clutch in operative engagement with the other member of the said clutch, of two axes spaced between and arranged parallel with the drums; two sprocket-wheels on each axle a suitable distance apart longitudinally of the axle; endless chains operatively connecting the sprocket-wheels respectively on one axle with the sprocket-wheels respectively on the other axle and being provided with pro-

jecting members spaced equidistantly longitudinally of the chains and arranged to engage the perforations in the band, and means for transmitting motion from the aforesaid bar to one of the chains, all relatively arranged and operating substantially as shown, for the purpose specified.

12. In a station-indicator for railways, the combination, with a case; two suitably-spaced parallel winding-drums arranged within and supported from the case; the band leading between and operatively connected with the drums, which band is provided with two rows of perforations, with the perforations of each row spaced equidistantly longitudinally of the band and with the two rows arranged near opposite longitudinal edges respectively of the band, and drum-actuating mechanism comprising a slip-clutch, of two axles spaced between and arranged parallel with the drums; two sprocket-wheels on each axle a suitable distance apart longitudinally of the axle; endless chains operatively connecting the sprocket-wheels respectively on one axle with the sprocket-wheels respectively on the other axle and being provided with projecting members spaced equidistantly longitudinally of the chains and arranged to engage the perforations in the band, and means whereby motion is transmitted to one of the chains during the operation of the drum-actuating mechanism.

13. In a station-indicator for railways, the combination, with a case; two suitably-spaced parallel winding-drums arranged within and supported from the case; a band leading between and operatively connected with the drums, which band is provided with perforations suitably spaced longitudinally of the band, and drum-actuating mechanism comprising a slip-clutch, of a suitably-applied endless chain provided with projecting members arranged to engage the perforations in the band, and means whereby motion is transmitted to the chain during the operation of the drum-operating mechanism.

14. In a station-indicator for railways, the combination, with two suitably-spaced parallel winding-drums; a band extending between and operatively engaging both drums and provided with two rows of perforations, with the perforations of each row suitably spaced longitudinally of the band and with the two rows arranged near opposite longitudinal edges respectively of the band, and drum-actuating means comprising two pinions instrumental in transmitting motion to the different drums respectively, an endwise-shiftable bar movable laterally and having two reversely-arranged rack-forming portions adapted to mesh with the different pinions respectively at opposite sides respectively of the axes of the drums, with the one or the other rack-forming portion in mesh with the cooperating pinion according as the bar is

in the one or the other of its positions laterally, and slip-clutches instrumental in establishing operative connection between the pinions and the drums, of two parallel endless chains having projections suitably spaced longitudinally of the chains, with the projecting members of the one chain arranged to engage the perforations of one of the aforesaid rows of perforations, with the projecting members of the other chain arranged to engage the perforations of the other row of perforations, and with one of the said chains provided also with pairs of lugs, with the lugs of each pair of lugs spaced longitudinally of the chains, and with the pairs of lugs spaced equidistantly longitudinally of the chains; means for transmitting motion from the one chain to the other chain; two bolts extending slidably through the aforesaid bar, which bolts are adapted to enter the spaces between the lugs of the pairs of lugs, and means for actuating the bolts endwise, and the arrangement of the parts being such that the different bolts are in an operative position and an inoperative position respectively relative to the aforesaid lugs, and the one or the other bolt is in an operative position relative to the said lugs according as the bar is in the one or the other of its positions laterally.

15. In a station-indicator for railways, the combination, with two suitably-spaced winding-drums; a band extending between and operatively engaging both drums and provided with perforations suitably spaced longitudinally of the band, and drum-actuating means comprising two pinions instrumental in transmitting motion to the different drums respectively; an endwise-shiftable bar movable laterally and having two reversely-arranged rack-forming portions adapted to mesh with the different pinions respectively at opposite sides respectively of the axes of the drums, with the one or the other rack-forming portion in mesh with the cooperating pinion according as the bar is in the one or the other of its positions laterally, and slip-clutches instrumental in establishing operative connection between the pinions and the drums, of two parallel endless chains having projections suitably spaced longitudinally of the chains and arranged to engage the aforesaid perforations, with one of the chains provided also with pairs of lugs, with the lugs of each pair of lugs spaced longitudinally of the chains, and with the pairs of lugs suitably spaced longitudinally of the chains; means for transmitting motion from the one chain to the other chain; two bolts extending slidably through the aforesaid bar, which bolts are adapted to enter the spaces between the lugs of the pairs of lugs, and means for actuating the bolts endwise, and the arrangement of the parts being such that the different bolts are in an operative position and an inoperative position respectively

relative to the aforesaid lugs, and the one or the other bolt is in an operative position relative to the said lugs according as the bar is in the one or the other of its positions laterally.

- 5 16. In a station-indicator for railways, the combination, with two suitably-spaced parallel winding-drums; a band extending between and operatively engaging both drums and provided with perforations suitably
10 spaced longitudinally of the band, and drum-actuating means comprising a slip-clutch, of

an endless chain having projections suitably spaced longitudinally of the chains and arranged to engage the aforesaid perforations, and means for actuating the chain during the
15 operation of the drum-actuating means.

In testimony whereof I sign the foregoing specification in the presence of two witnesses.

DANIEL F. WHITCOMB.

Witnesses:

C. H. DORER,
B. C. BROWN.