

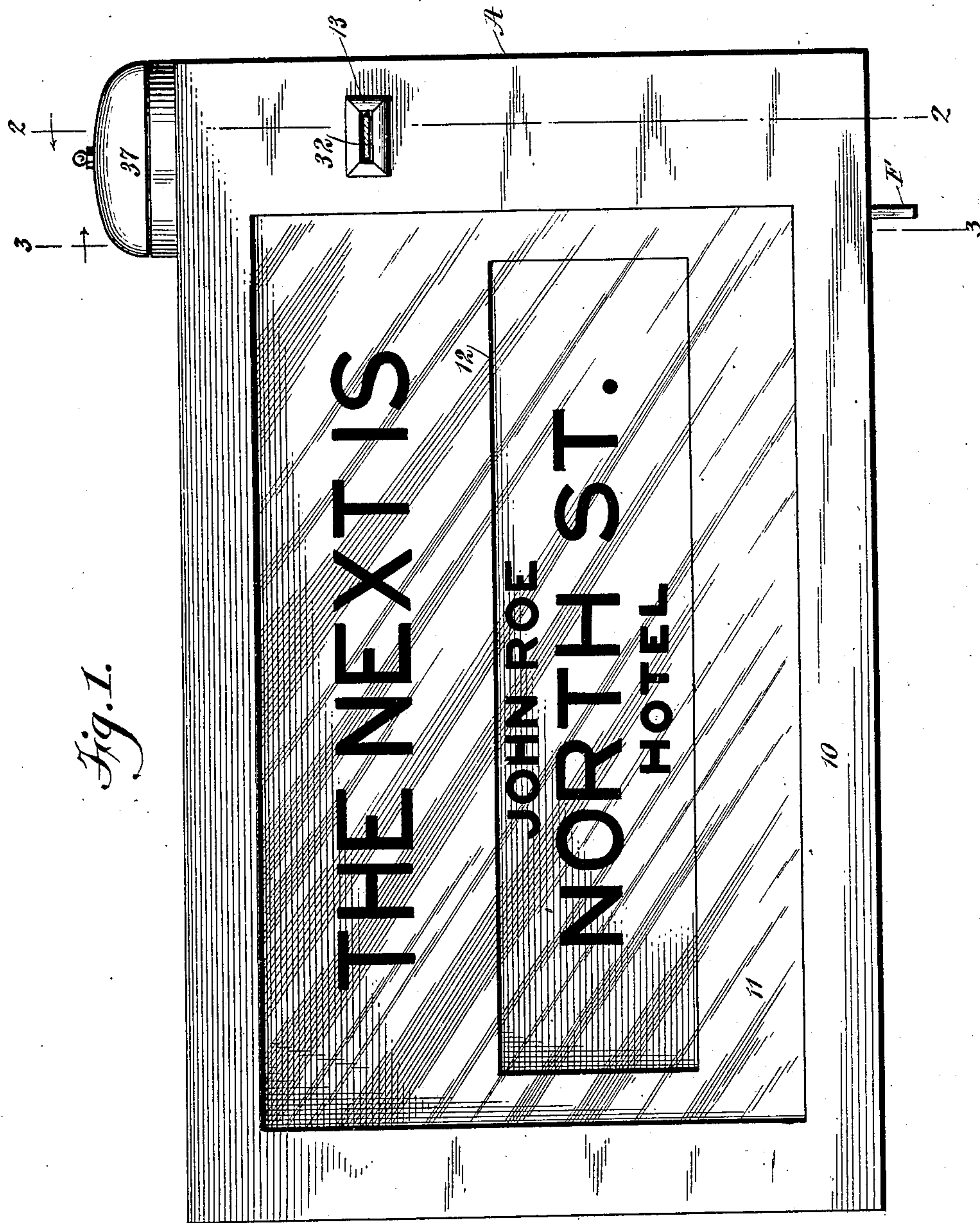
No. 730,648.

PATENTED JUNE 9, 1903.

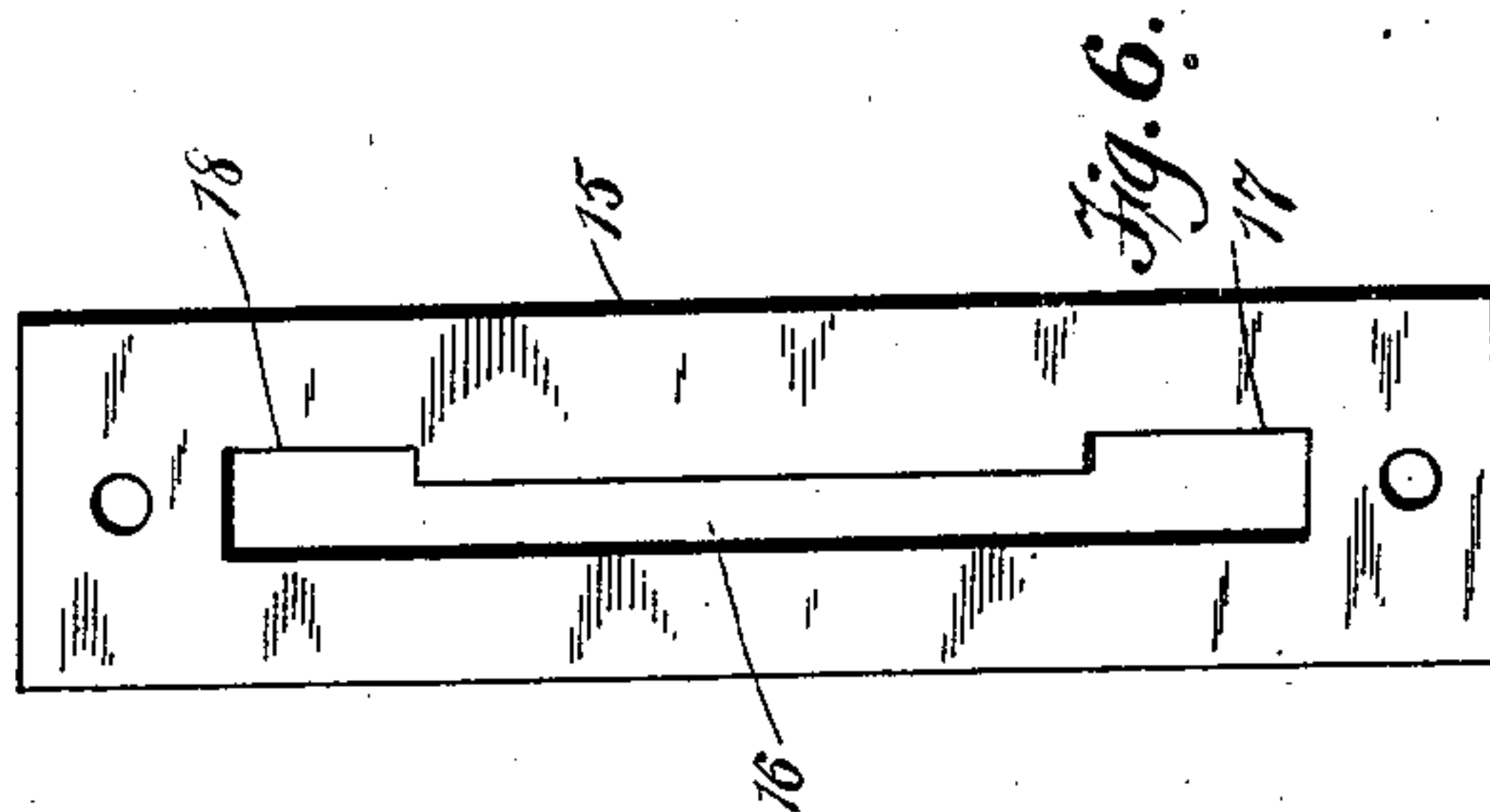
J. J. HEBERLE.
STATION INDICATOR.
APPLICATION FILED MAR. 20, 1902.

NO MODEL.

5 SHEETS—SHEET 1.



WITNESSES:
A. R. Appleman
J. H. H. H. H.



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5 SHEETS—SHEET 2.

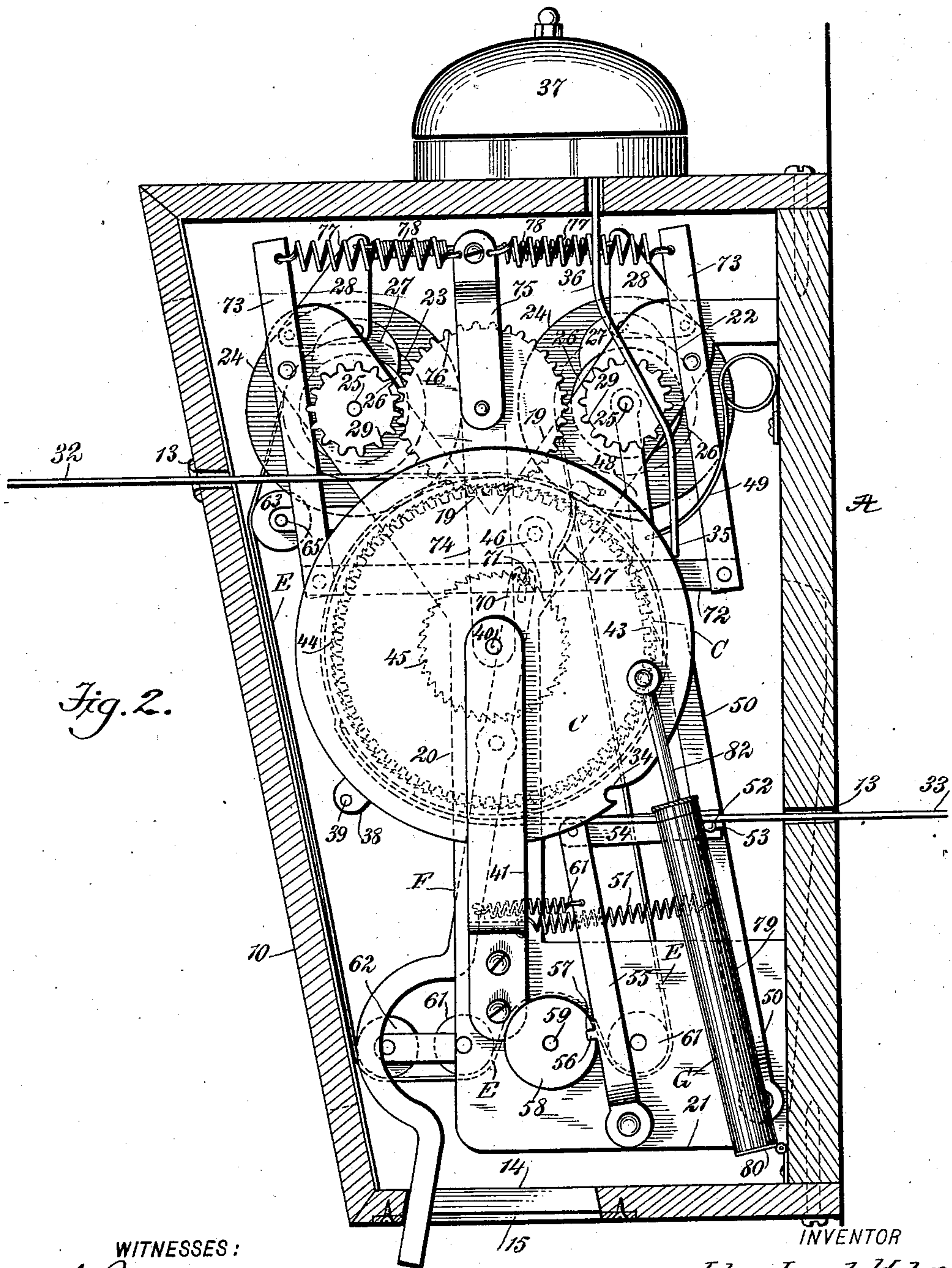


Fig. 2.

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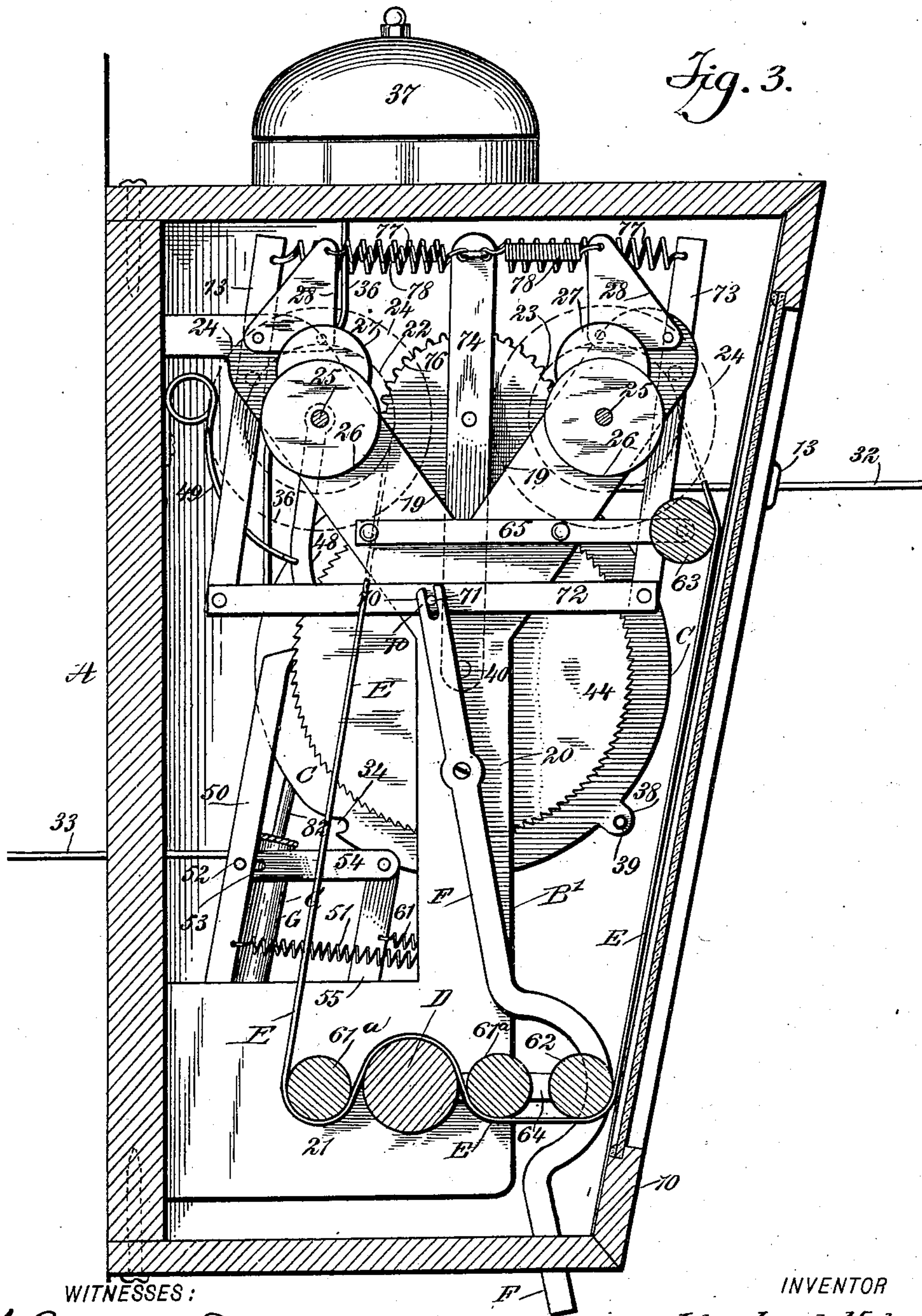
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6 SHEETS—SHEET 3



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No. 730,648.

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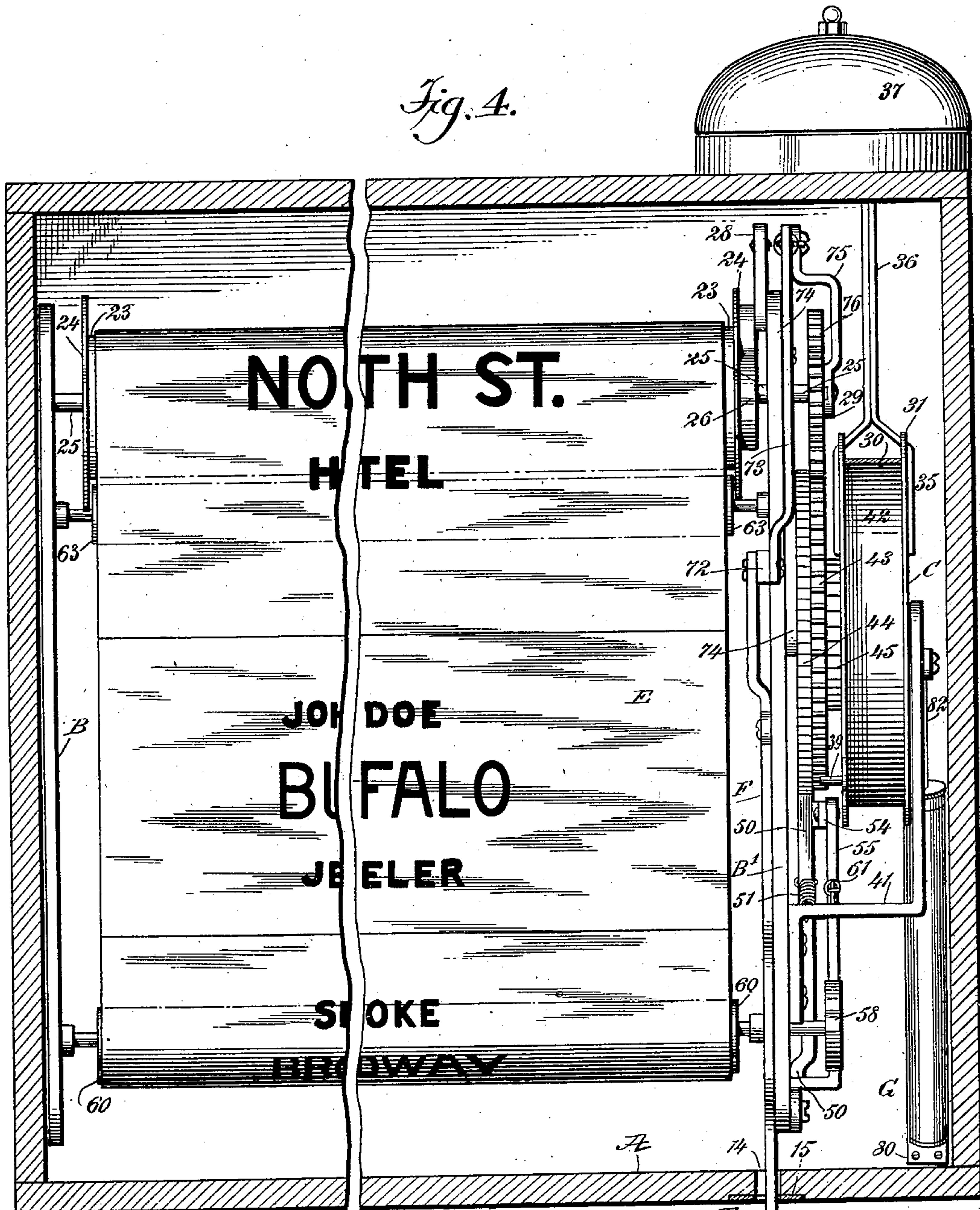
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NO MODEL.

5 SHEETS—SHEET 4.

Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN JOSEPH HEBERLE, OF OLEAN, NEW YORK.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 730,648, dated June 9, 1903.

Application filed March 20, 1902. Serial No. 99,090. (No model.)

To all whom it may concern:

Be it known that I, JOHN JOSEPH HEBERLE, a citizen of the United States, and a resident of Olean, in the county of Cattaraugus and State of New York, have invented a new and Improved Station-Indicator, of which the following is a full, clear, and exact description.

My invention relates to a station or street indicator or station-register, whereby to display in a conveyance in plain view of all passengers the name of the next street or station, as the case may be, and which may be used in railway-stations to announce the leaving times of trains for stations of a fixed route.

The purpose of the invention is to provide a simple, durable, and economic device, which is automatic in its action, except in the initial application of power, which is usually manually performed, and if the device is upon a street or other car such power may be communicated from either end of said car.

A further purpose of the invention is to provide a combined measuring and controlling roller for the curtain so arranged that said roller will determine the area of the curtain to be displayed and will insure a corresponding area of previously-unexposed curtain being carried forward or otherwise as desired at each operation of the device, which roller also automatically stops the working of the device when the curtain has been shifted sufficiently to display as desired and arranged for.

Another purpose of the invention is to provide a simple reversing device whereby the mechanism is enabled to carry the curtain from or to either of the supply reels or rollers, and thereby the register or indicator is made accurate and equally serviceable traveling in either direction from any desired point on a fixed route, accordingly displaying in regular or reverse order at each operation of the device the name of the next street or station or other information as may be desired, or in case of a loop, where repetition only is necessary, it is equally serviceable in connection with a novel arrangement of the information on the curtain, and further to provide cushions for the reversing device, enabling the device to be shifted and locked in its shifted position, whether the teeth of the gearing included in said device register

or not, without danger to the teeth, and so that with the first application of power regularly applied to the mechanism the teeth will automatically and properly mesh.

Another purpose of the invention is to provide an air-cushion for the power mechanism, which will act to prevent undue jar to the mechanism when the said power mechanism is suddenly and automatically checked, which happens at the completion of each shifting movement of the curtain.

A further purpose of the invention consists in providing a practically automatic machine and one that is substantially indestructible and which is necessarily accurate under all conditions; one that is practically unlimited as to capacity, requiring but a single original unit of power to operate it, which is economic as to the space it occupies, and in which the space occupied by the mechanical parts is inconsiderable and the remainder of the space is entirely dependent on the results sought to be obtained.

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 front elevation of the device. Fig. 2 is a vertical section taken practically on the line 2 2 of Fig. 1. Fig. 3 is a similar section taken substantially on the line 3 3 of Fig. 1. Fig. 4 is a vertical longitudinal section through the front portion of the case, showing the mechanism in front elevation. Fig. 5 is a sectional side elevation of the spring-drum and the governor therefor. Fig. 6 is a plan view of the locking-plate for the reversing-lever. Fig. 7 is a transverse section through the lower portion of the casing and the combined measuring and controlling roller and adjacent guide-rollers. Fig. 8 is a detail view of one end of the measuring and controlling roller and the adjacent guide-rollers.

The case A may be of any size and of any desired material, and its front 10, as is shown in Figs. 2 and 7, is preferably inclined from the bottom upward and outward, and is pro-

vided with a panel 11, plain or decorative, in which the display-opening 12 is produced of desired dimensions. The case is usually of greater length than height, and the display-opening 12 is longitudinally produced. The case is given its front inclination in order that the display-matter shall be at right angles to the line of vision when the device is hung above an observer.

Front and back openings 13 are produced in the casing and a slot 14 is made in the bottom near the front. At the outer face of the bottom of the casing the slot 14 is partially covered by a keeper or guide-plate 15 for a reversing-lever, to be hereinafter described. This plate has a longitudinal slot 16 therein and recesses 17 and 18 in the same side edge of the slot, one at each end of the plate, as is shown in Fig. 6.

Brackets B and B', made as light as possible consistent with strength, are vertically secured to the back of the case near its ends, and these brackets are usually given the shape shown in Figs. 2 and 3, wherein the upper portions of the brackets consist of two members 19 at angles to each other, which members connect in the form of a V with a straight body 20, and said body connects with a foot-section 21.

Two winding-rollers 22 and 23 are located in parallelism at the upper portion of the device, provided with a flanged head 24 at each end, and the trunnions 25 of the winding-rollers are mounted to turn freely in the upper ends of the bracket members 19. The right-hand trunnion of the winding-rollers extends through and beyond the right-hand bracket B', and between this bracket and the opposing flanged heads 24 of the winding-rollers 22 and 23 a disk or hub 26 is either secured to the trunnions of the rollers or to their flange-heads, the said hubs or disks being adapted to receive brake-shoes 27, engaging with them from above, which brake-shoes are shown pivotally supported by bell-crank levers 28, fulcrumed at their outer lower corners to the members 19 of the bracket B', as is shown in Fig. 3. At the outer end of each right-hand trunnion 25 a pinion 29 is firmly secured, as shown in Fig. 2.

Motion is communicated to the pinion 29 from a spring-drum C through the medium of a reversing-lever and gearing to be hereinafter described. The drum, which is shown in detail in Fig. 5, consists of a peripheral member 30 and side members 31, which latter extend beyond the peripheral member to form guides for two operating-straps, ropes, or chains 32 and 33, which are secured at their inner ends to the periphery of the drum and are wound thereon in opposite directions and are passed out through the openings 13 in the front and back of the case to any desired point, enabling the drum to be operated from either the front or rear of the device; but if desired a single operating-strap or its equivalent only need be employed.

The flange portions of the drum are shown provided with transversely-aligning pocket-recesses 34, which when the drum is being wound up by drawing on the strap 32 or 33 are carried upward and receive the lower ends 35 of a trip-rod 36, connected with the mechanism of a gong 37 or like alarm device, to call attention to the matter about to be displayed; but I desire it to be understood that any desired means may be employed to produce such a result.

At the edge of the inner side member of the drum C a projection 38 is formed, from which a pin 39 extends in direction of the bracket B', as is shown in Fig. 4, and this pin when the drum turns to communicate power releases the main driving-gear, to be hereinafter particularly mentioned, permitting the same to turn to communicate power. The drum C is loosely mounted upon a fixed shaft 40, secured to the bracket B' and to the outside auxiliary bracket 41. (Shown in Figs. 2 and 4.) The spring 42 for the drum C is coiled around the shaft 40 and is secured at one end to the shaft, while the other end is attached to the peripheral section of the drum, as shown in Fig. 5, and the spring is charged sufficiently to meet all requirements as to power.

A large gear-wheel 43 is loosely mounted upon the shaft 40 adjacent to the inner side of the drum, as is shown in Fig. 4, and a slightly-larger wheel 44, provided with ratchet-teeth more or less closely placed, is attached to or made integral with the inner face of the gear 43, and a similar ratchet-wheel 45 is attached to or made integral with the outer face of the gear 43 or the face next to the drum. These three wheels 43, 44, and 45 turn together. The teeth of the ratchet-wheel 45 are engaged by a dog 46, pivoted upon the drum, as is shown in dotted lines in Fig. 2, being held in such engagement by a spring 47. As the operating cord or strap 32 33 is removed by the operator or other means from the periphery of the drum C by being drawn through either of the openings 13 the allowable distance, thereby forcing the drum to revolve, and thus further intensifying to a fixed point of sufficiency the spring 42 contained therein, the power-controlling levers and dogs are temporarily carried out of office, as hereinafter described, by coming in contact with the pin 39 during the primary movement of drum, so that when the operating cord or strap 32 33 is again released by the operator or other means above referred to the spring 42 within the drum is given control and is at liberty to transmit power through the dog 46 and ratchet-wheel 45 to the large driving-gear wheel 43, and thence through the agency of a second or communicating gear-wheel 76, controlled by a reversing-lever F, to either of the supply-reels 22 or 23 accordingly as desired.

While the spring in the drum is being further intensified by means of the operating strap or cord, as above explained, the com-

5 bined wheels 43, 44, and 45 should remain stationary, and to accomplish this result a detent 48, controlled by a spring 49, is pivoted upon a suitable support—the trunnions of the winding-roller 22, for example—and this detent engages with one of the rear teeth of the driving-gear 43, as is shown in Figs. 2 and 3. When, however, the driving-gear is driven by the drum C, the detent 48 slips idly over the teeth of the gear.

10 After each operation of the device, as has been or will be fully set forth, the remaining unexhausted tension on the spring within the drum will be overcome and held in store until the next operation of the device by a long pawl 50 engaging with the teeth of the ratchet-wheel 44, as is shown in Figs. 2 and 3, the lower end of which pawl is shown pivoted to the outer surface of the foot-plate 21 of the bracket B'. A spring 51 is attached to the pawl 50 midway of its length, and the said spring is also attached to the auxiliary bracket 41.

25 Above the spring 51 the pawl 50 is provided with a pin 52 upon its outer surface, and this pin is received in a slot 53, made in the end of a link 54, which link is pivotally attached to a lever-arm 55, fulcrumed at its lower end on the foot-section 21 of the bracket B', and said lever-arm 55 at its forward edge is provided with a lug 56, adapted to enter a recess 57 in the peripheral portion of a disk 58, which disk is secured to the outer end of a trunnion 59 of what I term a "combined controlling and measuring roller" D. The trunnions of the said roller are journaled in the foot-sections 21 of both the brackets, and flange-heads 60 are provided for the said roller D between the aforesaid brackets, as is shown in Fig. 4.

40 A spring 61 is attached to the upper end of the lever-arm 55 and to the auxiliary bracket 41, and the spring 61 tends to normally hold the lug 56 against the peripheral portion of the disk 58, connected with the measuring and controlling roller D, while the spring 51 serves to normally hold the detent 50 in retaining engagement with the ratchet-wheel 44, attached to the main driving-gear 43.

50 When the spring in the drum C has been wound sufficiently, the pin 39, carried by the drum, will strike the lever-arm 55 and carry the detent or pawl 50 out of engagement with the aforesaid ratchet-wheel 44, and the drum will then be free to turn, since when the detent 50 is disengaged from the ratchet-wheel 44 the spur 56 will also be carried out from the recess 57 in the disk 58 of the measuring-roller, and the said lug will then travel on the plain peripheral surface of the disk 58 until the measuring-roller has made one revolution, during all of which period the lug 56 will hold the detent 50 out of possible checking engagement with the ratchet-wheel 44; but when the measuring-roller D has made one complete revolution the lug 56 will again enter the recess 57 in the disk 58, and the detent 50 will

be drawn by its spring 51 immediately into locking engagement with the ratchet-wheel 44, thus checking the further revolution of the drum C, and consequently stopping the operation of the entire device.

70 When the measuring-roller D has made one complete revolution, the name of a station, street, or other matter of information or advertisement next in order as arranged for on the curtain will have been accurately presented at the display-opening 12, and as the measuring-roller makes but one revolution each time the drum C is operated the curtain E, which passes in contact with and thereby operates the measuring-roller D and is attached at its ends to the winding-rollers 22 and 23, will move the same distance backward or forward, as the case may be, according to the position of the reversing-lever F, each time that the device is operated. It will be understood that the matter to be displayed is produced in any suitable manner on the outer face of the curtain at proper intervals apart.

90 The curtain E after leaving the winding-rollers 22 and 23 is preferably passed over the top portion of the combined measuring and controlling roller D, as is shown in Fig. 3, and is held in such position by guide-rollers 61^a at each side of the measuring-roller, around the bottom portion of which the curtain is passed, and these guide-rollers 61^a are journaled in the bottom portions of the brackets B and B'. Also, preferably, a third lower guide-roller 62 is employed to properly direct the curtain E at the front of the case, assisted by an upper guide-roller 63. These guide-rollers 62 and 63 are shown journaled in horizontal extensions 64 and 65 from the upper and lower portions of the brackets B and B'; but, if desired, as shown in Fig. 7, the curtain E may be passed beneath the measuring and controlling roller and then forwardly under the guide-roller 66, journaled in extensions 67 from the brackets, and in this event another guide-roller 68 engages with the curtain beneath the measuring-roller, the bearings for which guide-roller 68 are pivoted to the brackets B and B' and are held up by springs 69.

115 The roller D is in every sense a measuring and controlling roller, since it stops the mechanism at the same and proper time at each operation, and the diameter of the roller determines the area of the curtain to be displayed at each operation. In fact, the roller D controls the extent to which the curtain shall move at each operation of the device, and consequently regulates the height of the display at the case-opening 12 and insures a perfect regularity of display at said opening.

125 For example, if the measuring-roller is two inches in diameter at each operation the curtain would be moved about six inches, thus providing a display-space at each operation of about six inches in height and of a length equal to the length of the display-opening 12. Thus it will be seen by simply adjusting the diameter of the roller D so that its circumfer-

ence is equal to the desired height of display-surface any fixed area of curtain-surface desirable can be displayed without in any manner interfering with the working parts of the device.

The reversing-lever F, heretofore referred to, is fulcrumed upon the inner face of the vertical section 20 of the right-hand bracket B', as is shown in Fig. 3, and the lower end of the lever F extends free of the lower guide-rollers for the curtain E down through the slot 14 in the case and the locking-plate at said slot and is held in its two positions by entering the recesses 17 and 18 of said plate. The upper end of the reversing-lever F is provided with a fork 70, which receives a pin 71 on a loose cross-bar 72, capable of end movement, and lever-arms 73 are pivoted to the end portions of the cross-bar 72 and to the members 19 of the right-hand bracket B'. A vertical rocking arm 74 is pivoted at its lower end in front of the bracket B' upon the drum-shaft 40 and extends upward between the branches or upper members 19 of the said bracket B', and this rocking arm at the front surface of its upper end is provided with a hanger 75.

Between the rocking arm 74 and its hanger 75 a gear 76 is mounted to turn, being driven from the main driving-gear 43, with which it is in constant engagement. As the reversing-lever is shifted from one end of the slot 16 of the locking-plate 15 to the other the gear 76 is carried into mesh with one or the other of the pinions 29 on the curtain-carrying rollers or reels 22 and 23 to make one or the other of the rollers 22 or 23 a winding-roller, and such result is accomplished by connecting the rocking arm 74 with the lever-arms 73 through the medium of springs 77, which spring connection between the rocking gear-carrying arm 74 and the side members or lever-arms 73 of the frame actuated by the reversing-lever F enables the teeth of the gear 76 to be locked in engagement with the teeth of either pinion 29, even though the teeth should not mesh, without danger of breaking or unduly wearing the teeth; but should the crowns of opposing teeth be locked in engagement during the reversing action they will immediately and automatically mesh as soon as the secondary or transmitting gear 76 is set in motion.

With reference to the brake-shoes 27 they are operated by the reversing-lever F, and at each full movement of the reversing-lever one brake-shoe is automatically tightened on the disk or hub 26, connected with the reel or carrying-roller from which the curtain is to be removed, and the other brake-shoe is simultaneously relieved from braking action upon the reel or curtain-roller in control of the power. This action is accomplished by connecting the upper portions of the bell-crank levers 28 with the upper portion of the rocking and gear-carrying arm 74 through the medium of springs 78 of equal length and strength, one spring being placed under ten-

sion at each operation of the reversing-lever F, while the other spring is relieved from tension. The brake arrangement is intended to prevent the weight of the curtain from turning the reel or carrying-roller not controlled by power.

A governor G is provided for the drum C (best shown in Figs. 2 and 5) and adapted to prevent the spring-power from running the mechanism of the device above a certain speed, as it is possible in the absence of such a governor that when the spring is in control of the curtain it will be liable to gain velocity during its expansion, and when the stopping-point is reached the sudden jar thus occasioned would in time impair accuracy. The governor G is in the form of an air-cushion device and consists of a cylinder 79, having a hinged connection 80 with a suitable portion of the case. The cylinder is provided with apertures 81 at one or more, preferably four, different points in its length, so that it does not use any of the spring energy to exhaust so long as the speed is not great enough to overtax the capacity of the four vent-holes. A piston-rod 82 slides in said cylinder, having a head 83 at its inner end, and the outer end of the piston-rod is preferably connected with a side member of the drum C. It will be observed that when the piston is forced into the cylinder its head 83 closes the vents or apertures 81 one at a time, and thereby has the speed of the mechanism well under control when the device is suddenly halted by the automatic action of the measuring-roller. As the velocity of the drum increases the vents 81 in the cylinder 79 are successively passed by the friction-head 83, thus reducing the exhaust to a minimum, and consequently reducing the speed of the mechanism.

In the operation of the device when a change of display is to be made one of the straps connected with the drum C is drawn upon to further intensify the spring in the drum. The pawl 48 meanwhile holds the main driving-gear 43 stationary, and the pawl 50 acts to prevent the drum from turning in a reverse or unwinding direction. Preferably just before the spring of the drum is sufficiently wound said drum acts to sound an alarm, and almost immediately afterward the pin 39 of the drum strikes the lever 55 and releases the pawl 50, disengaging it from the large ratchet-wheel 44, and the lug 56 on the controlling lever-arm 55 is carried out from the recess 57 in the disk 58, connected with the measuring-roller D. The spring of the drum is now permitted to act and communicates power to one of the curtain-carrying reels or rollers by the mechanism heretofore described, causing the curtain to travel past the display-opening 12 in the case and to be unwound from one carrying-reel and wound upon the other until the measuring-roller D has made one complete revolution, whereupon the lug 56 of the controlling lever-arm

55 will again enter the recess 57 in the disk of the measuring-roller, instantly stopping the mechanism by permitting the pawl 50 to be again in check connection with the drum, while any shock which might otherwise occur is taken up by the governor G, and the mechanism is in position for another operation.

If the display matter be properly laid out upon the curtain, the matter to be displayed at each operation will present itself at the case-opening 12 in proper registry with said opening, and the same amount of curtain-space will be disclosed at each presentation.

It will be observed that the roller D tends to measure and control the extent of movement of the curtain during each operation of the device.

The guide or contact rollers about the measuring-roller D are simply intended to create additional friction between the curtain and the measuring-roller as a precaution against any undue slipping of the curtain past the measuring-roller D without turning the same. As a further precaution the ends of the measuring-roller D, as shown in Fig. 8, are provided with metallic ferrules or thimbles D', having serrated peripheral surfaces, and the opposing ends of the guide or contact rollers 61^a are provided in like manner with rubber ferrules or thimbles 6^b, and owing to the spring-pressure exerted on them to keep the curtain in frictional contact with the measuring-roller, as heretofore set forth, it will be seen that the margins of the curtain will be firmly held secure from any otherwise possible chance of slipping between the serrated surface of the thimbles on the roller D and the opposing rubber thimbles on the guide or contact rollers.

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

1. In a station-indicator, a curtain, roller-supports for the curtain, a driving mechanism having a movable member for application to either roller-support to drive the same, a measuring and controlling roller for the curtain located between the supports, the circumference of said roller governing the extent of the movement of the curtain at each operation of the device, a check for the driving mechanism, automatically brought into action at the end of each revolution of the measuring and controlling roller, and means for automatically releasing said check.

2. In a station-indicator, a curtain, roller-supports for the ends of the curtain, a driving mechanism having a member mounted on a rocking support for application to either roller-support to drive the same, a measuring and controlling roller, the circumference of which governs the extent of movement of the curtain at each operation, a check for the driving mechanism, means for bringing the check into action and automatically controlled by the measuring and controlling

roller, and means carried by the driving mechanism, for automatically releasing said check.

3. In a station-indicator, a curtain, roller-supports for the ends of the curtain, a driving mechanism for one of the curtain-rollers, a measuring and controlling roller the circumference of which governs the extent of movement of the curtain at each operation of the device, a check for the driving mechanism preventing its movement in a driving direction during its operation to store power, means carried by the driving mechanism for automatically releasing the said check when sufficient power has been stored in the driving mechanism, and a locking connection between the feed-roller and said check, asserted when the check is released and automatically resumed when said feed-roller has made a revolution.

4. In a station-indicator, a curtain, supporting-rollers for the ends of the curtain, a measuring and controlling roller between the ends of the curtain, provided with a peripheral recess at one end, a spring-drum, a driving connection between said drum and one of the supporting-rollers, a toothed wheel connected with the drum, a spring-controlled pawl engaging the teeth of said wheel, which pawl remains in checking engagement with said wheel during the winding operation of the drum, a lever-arm connected with the pawl, operating the same against the tension of its spring and provided with a lug adapted to enter the peripheral recess in the measuring and controlling roller, and means carried by the drum for taking the lug of the lever-arm from the recess in the measuring and controlling roller and effecting a release of the pawl, which means act during the winding operation of the drum.

5. In a station-indicator, the combination with a curtain, roller-supports for the ends of the curtain, and a spring-drum having means for winding and in gear connection with one of the curtain-rollers, of a measuring and controlling roller engaging the curtain between its ends, a disk carried by the measuring and controlling roller, provided with a recess in its periphery, a spring-controlled lever-arm provided with a lug which is normally within the recess of the disk, a spring-controlled pawl in check engagement with the spring-drum during its winding operation, a connection between the lever-arm and pawl, and means carried by the drum, arranged to disengage the lug of the lever-arm from the recess in the disk of the measuring and controlling roller at a period during the winding operation of the drum.

6. In a station-indicator, the combination with a curtain, roller-supports for the ends of the curtain provided with pinions, and a driving mechanism including a spring-drum, gearing connected with the drum, and a gear in constant engagement with the gear of the drum and adapted for engagement with the pinion

of either curtain-roller, of a measuring and controlling roller located between the ends of the curtain, the circumference of which governs the extent of the movement of the curtain at each operation of the device, means for automatically controlling the movement of the driving mechanism in one direction from the measuring and controlling roller, and means for preventing jar when the movement of the drum is suddenly checked.

7. In a station-indicator, a curtain, supporting-rollers for the ends of the curtain, a driving mechanism for the curtain-rollers including a spring-drum, and an air-cushion device connected with and operated by the drum, to prevent jar when the movement of the drum is suddenly checked.

8. In a station-indicator, a curtain, supporting-rollers for the ends of the curtain, a driving mechanism for the curtain-rollers, including a spring-drum, and an air-cushion device connected with and operated by the drum, to prevent jar when the movement of the drum is suddenly checked, said cushioning device consisting of a pivotally-supported cylinder having a series of air-vents therein, and a piston for the cylinder, the outer end whereof is pivotally connected directly with the drum.

9. In a station-indicator, a curtain, supporting-rollers for the curtain, a driving mechanism for the rollers including a spring-drum, a reversing device arranged to transmit power from the driving mechanism to either of the curtain-rollers, and a cushioning device connected with the spring-drum, to prevent jar when the movement of the drum is suddenly checked.

10. In a station-indicator, the combination with a curtain, roller-supports for the ends of the curtain, a driving mechanism including a driving-gear, and pinions carried at an end of the curtain-rollers, of a rocking arm, a gear carried by the rocking arm, which gear is in constant engagement with the driving-gear and is adapted for engagement with the pinion of either curtain-roller, and mechanism for operating the rocking arm and having a spring connection therewith, as described.

11. In a station-indicator, the combination with a curtain, roller-supports for the ends of the curtain, and driving mechanism including a spring-controlled drum and gearing connected with the drum, of a reversing-lever, a cross-bar operated by the said reversing-lever, lever-arms pivoted to the ends of the cross-bar, a power-transmitting arm fulcrumed at the support of the drum, a gear carried by the power-transmitting arm, adapted to mesh with the pinion of either of the curtain-rollers, and springs connecting the lever-arms of the reversing mechanism with the power-transmitting arm, substantially as described.

12. In a station-indicator, a curtain, roller-supports for the curtain, a driving mechanism, a spring-controlled check for the driving

mechanism, means for automatically releasing the check, a measuring and controlling roller for the curtain, a locking connection between the said roller and the check, a reversing device arranged to transmit power from the driving mechanism, brakes for the curtain-rollers, which brakes are alternately applied to and freed from the said curtain-rollers, and an operative connection between the reversing device and the said brakes.

13. In a station-indicator, the combination with a curtain, roller-supports for the ends of the curtain, a driving mechanism, and a reversing device having a rocking arm provided with means for transmitting power from the driving mechanism to either of the curtain-rollers, and lever-arms connected by springs with the said rocking arm, of brake-shoes arranged for engagement with the curtain-rollers, levers carrying the said brake-shoes, and spring connections between the said levers and the rocking arm of the reversing device, whereby when one brake is applied the other brake is automatically released, and whereby the brake applied is at the curtain-roller from which the curtain is unwound, as specified.

14. In a station-indicator, the combination with a curtain, roller-supports for the ends of the curtain, a driving mechanism including a spring-drum and gearing, pinions at the ends of the curtain-rollers, and a reversing device arranged to transmit power from the driving mechanism to either of the curtain-rollers, which reversing device includes a lever, a cross-arm operated by the lever, lever-arms connected with the cross-arm, a power-transmitting arm pivoted centrally with respect to the spring-drum, a gear carried by said power-transmitting arm, adapted to mesh with the pinion of either curtain-roller, and springs connecting the upper portions of the lever-arms with the upper portion of the power-transmitting arm, of brake-shoes adapted for engagement with the curtain-rollers, bell-crank levers pivotally supported on said brake-shoes, and springs connecting the bell-crank levers with the power-transmitting arm of the reversing device, for the purpose set forth.

15. In a station-indicator, a curtain, roller-supports for the same, a driving mechanism, a spring-controlled pawl forming a check for the driving mechanism, means for automatically releasing the check, a measuring and controlling roller for the curtain, and a locking connection between the said roller and the check.

16. In a station-indicator, an inclosing case, a curtain, supporting-rollers for the curtain, a driving mechanism for the curtain-rollers including a spring-drum, a cylinder hinged at its lower end and provided with apertures at different points in its length, and a piston-rod having a head arranged to slide in the said cylinder, the outer end of the piston-rod being pivoted directly to the side of the drum, for the purpose set forth.

17. In a station-indicator, a curtain, roller-supports for the same, a driving mechanism including a spring-drum and a toothed wheel connected therewith, a reversing device arranged to transmit power from the driving mechanism, brakes for the curtain-rollers, an operative connection between the reversing device and the brakes, a measuring and controlling roller for the curtain provided with a peripheral recess at one end, a spring-controlled pawl engaging the toothed wheel of the driving mechanism, a spring-controlled lever-arm provided with a lug adapted to enter the peripheral recess in the measuring and controlling roller, a link connecting the said pawl and the lever-arm, means on the drum for disengaging the pawl from the toothed wheel and thereby removing the lug from the recess in the feed-roller, a gong, and means for operating the gong from the drum.

18. In a station-indicator, a curtain, roller-supports for the curtain, a driving mechanism including a spring-drum and gearing connected therewith, pinions carried by the curtain-rollers, a rocking arm, a gear carried by the rocking arm, the said gear being in constant engagement with the gear of the drum, and adapted for engagement with the pinion of either curtain-roller, a reversing-lever, and springs connected with the reversing-lever and with the rocking arm and serving to hold the gear on the rocking arm in yielding engagement with either of the said pinions.

19. In a station-indicator, the combination with a curtain, roller-supports for the curtain, a driving mechanism including a spring-drum and gearing connected with the drum, and pinions carried by the curtain-rollers, of

a reversing-lever provided at its upper end with a fork, a cross-bar provided with a pin engaging the said fork, lever-arms pivoted at their lower ends to the ends of the cross-bar, a rocking power-transmitting arm fulcrumed at its lower end on the support for the drum, a gear carried by the said power-transmitting arm and located between the pinions of the curtain-rollers, the said gear being adapted to mesh with either of said pinions, and springs connecting the upper ends of the lever-arms with the upper end of the power-transmitting arm, as set forth.

20. In a station-indicator, a curtain, roller-supports for the curtain, a driving mechanism including a spring-drum, a check for the drum, and means carried by the drum for releasing the said check, as set forth.

21. In a station-indicator, a curtain, roller-supports for the same, a driving mechanism for the rollers, a measuring and controlling roller for the curtain provided at one end with a peripheral recess, a spring-controlled lever-arm provided with a lug adapted to enter the said recess, a spring-controlled pawl for engagement with the driving mechanism to check the same, and a connection between the lever-arm and the said pawl, the said pawl being carried to checking engagement with the driving mechanism, when the lug on the lever-arm enters the said recess.

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

JOHN JOSEPH HEBERLE.

Witnesses:

JOHN J. HAMEL,

ELROY D. WESTBROOK.