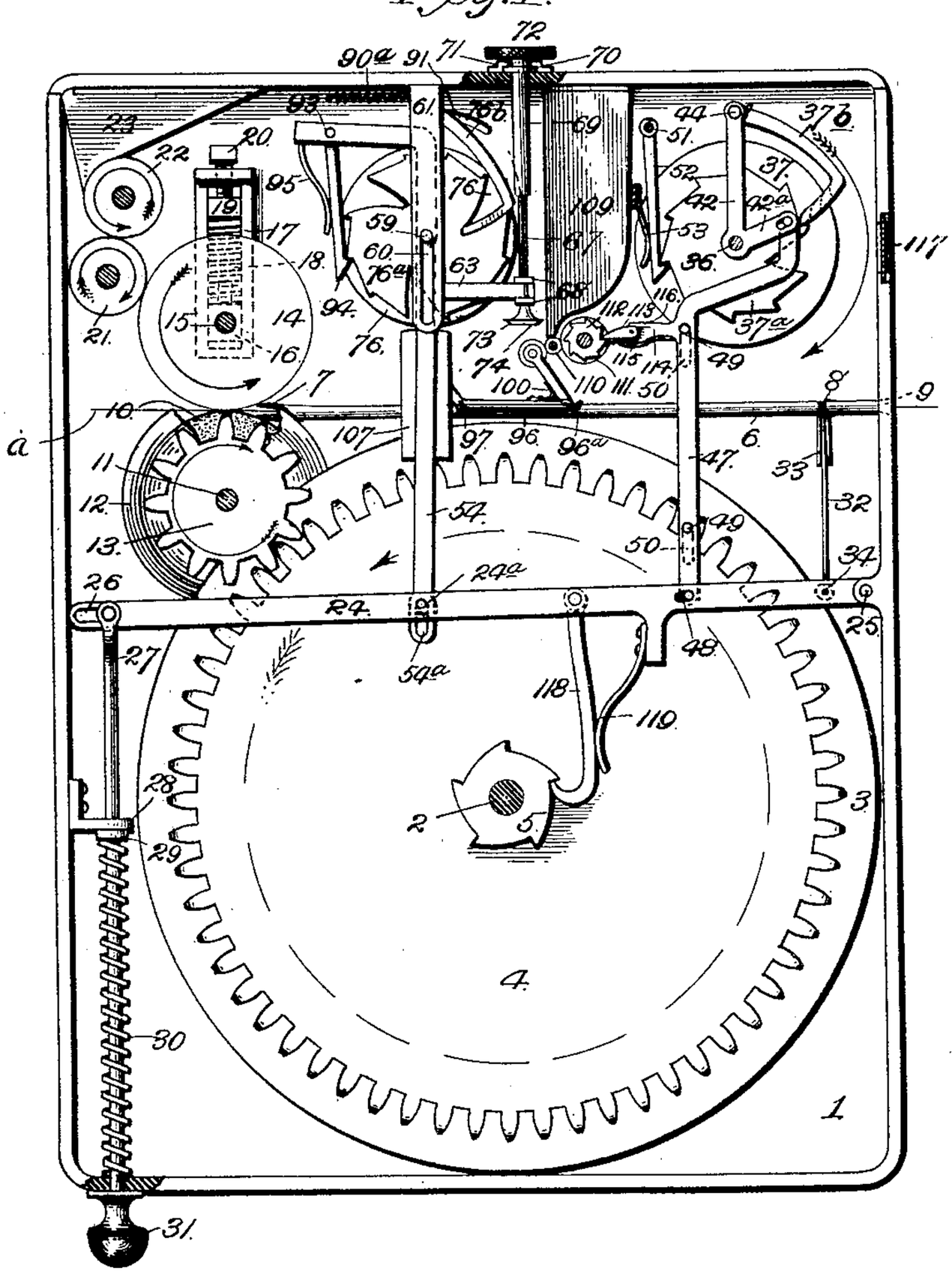
(No Model.) 4 Sheets—Sheet 1.

P. M. KNOPP.

STREET CAR TRANSFER PRINTING, DELIVERING, AND RECORDING DEVICE.

No. 571,485. Patented Nov. 17, 1896.

Fig. 1.



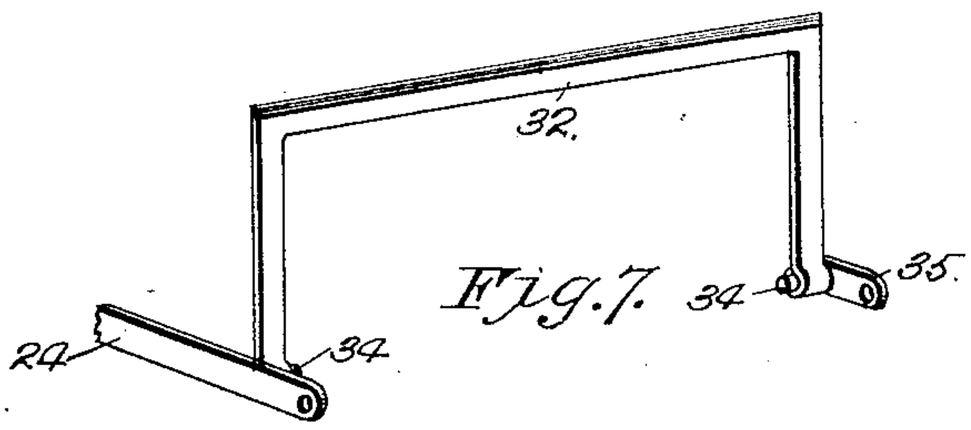


Fig. 7.

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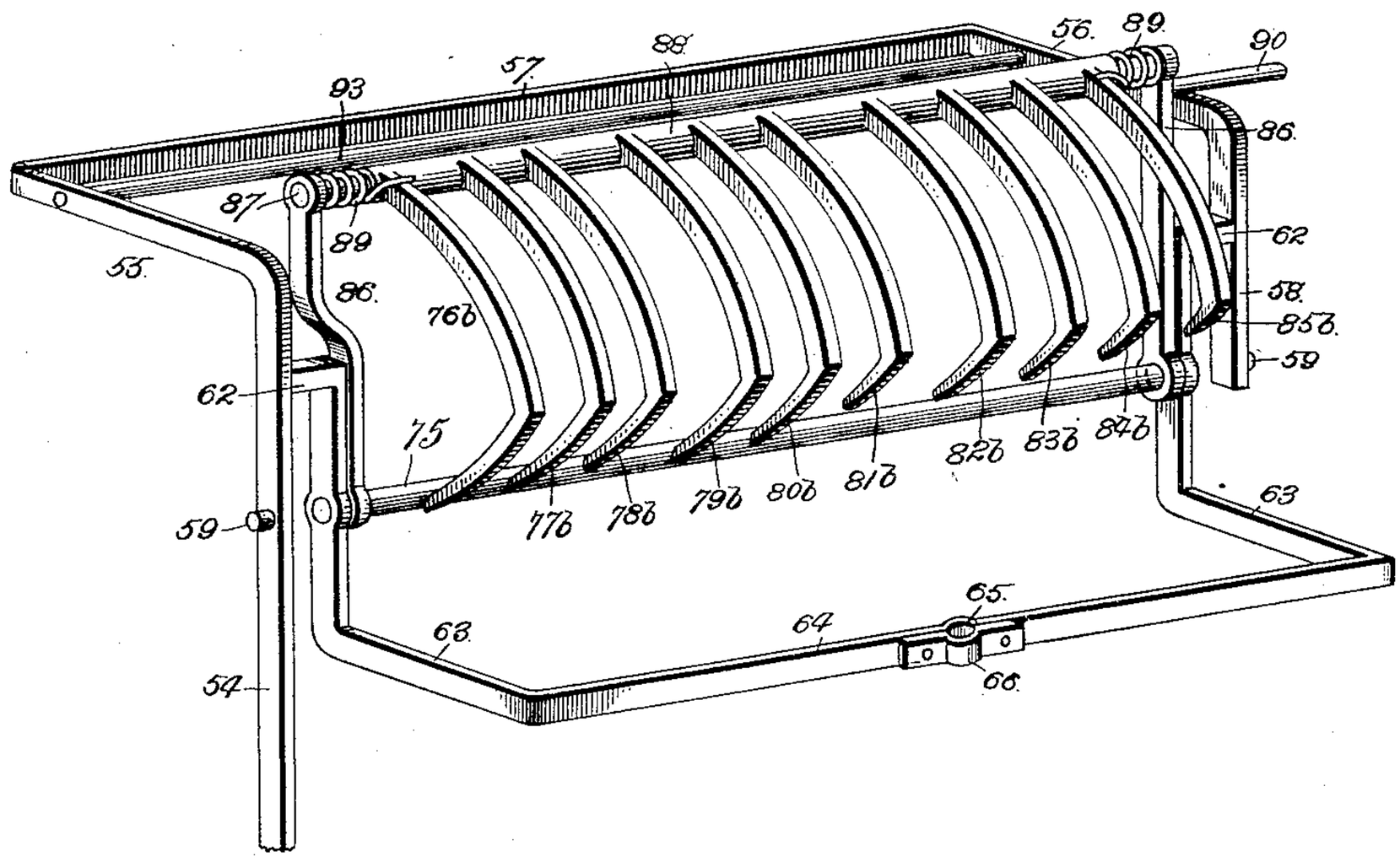
Fig. 4.



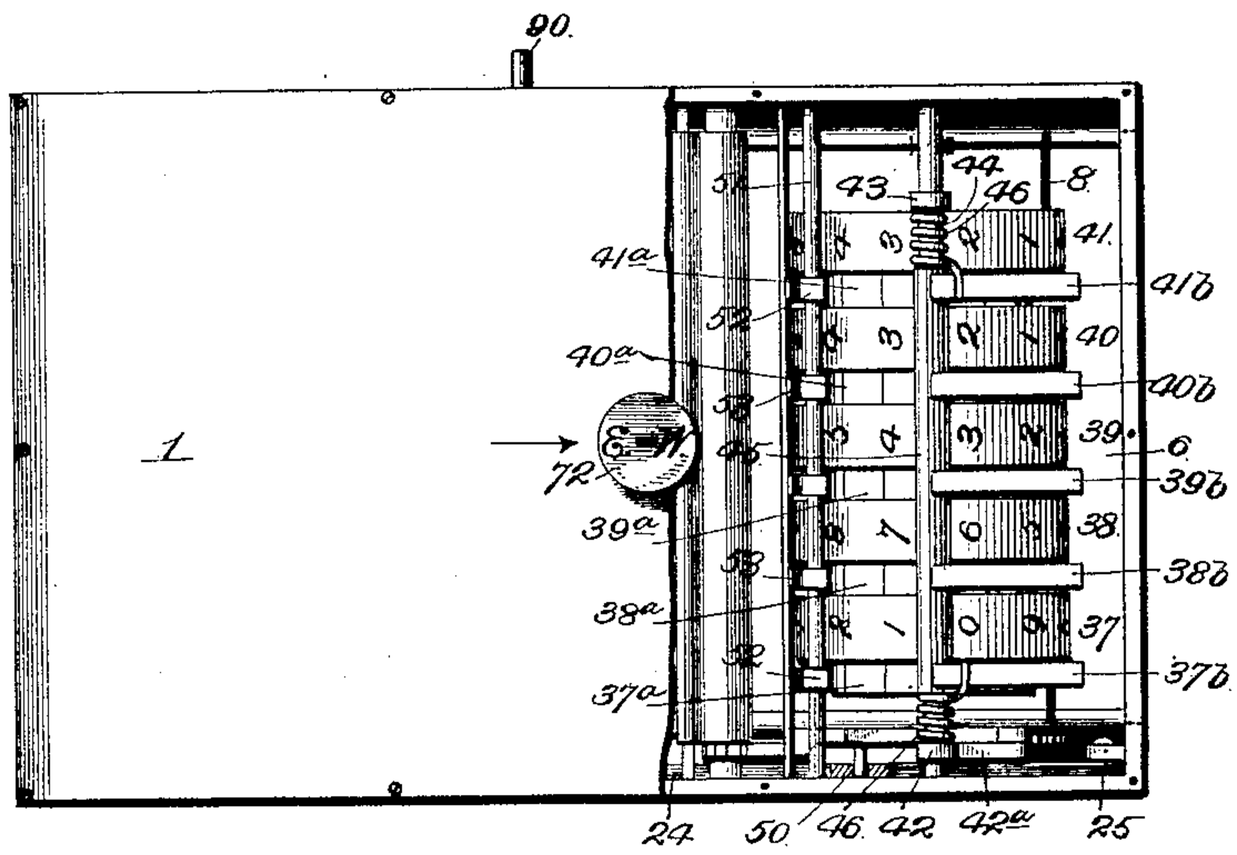


Fig. 2.

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(No Model.) 4 Sheets—Sheet 3.

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STREET CAR TRANSFER PRINTING, DELIVERING, AND RECORDING DEVICE.

No. 571,485. Patented Nov. 17, 1896.

Fig. 3.

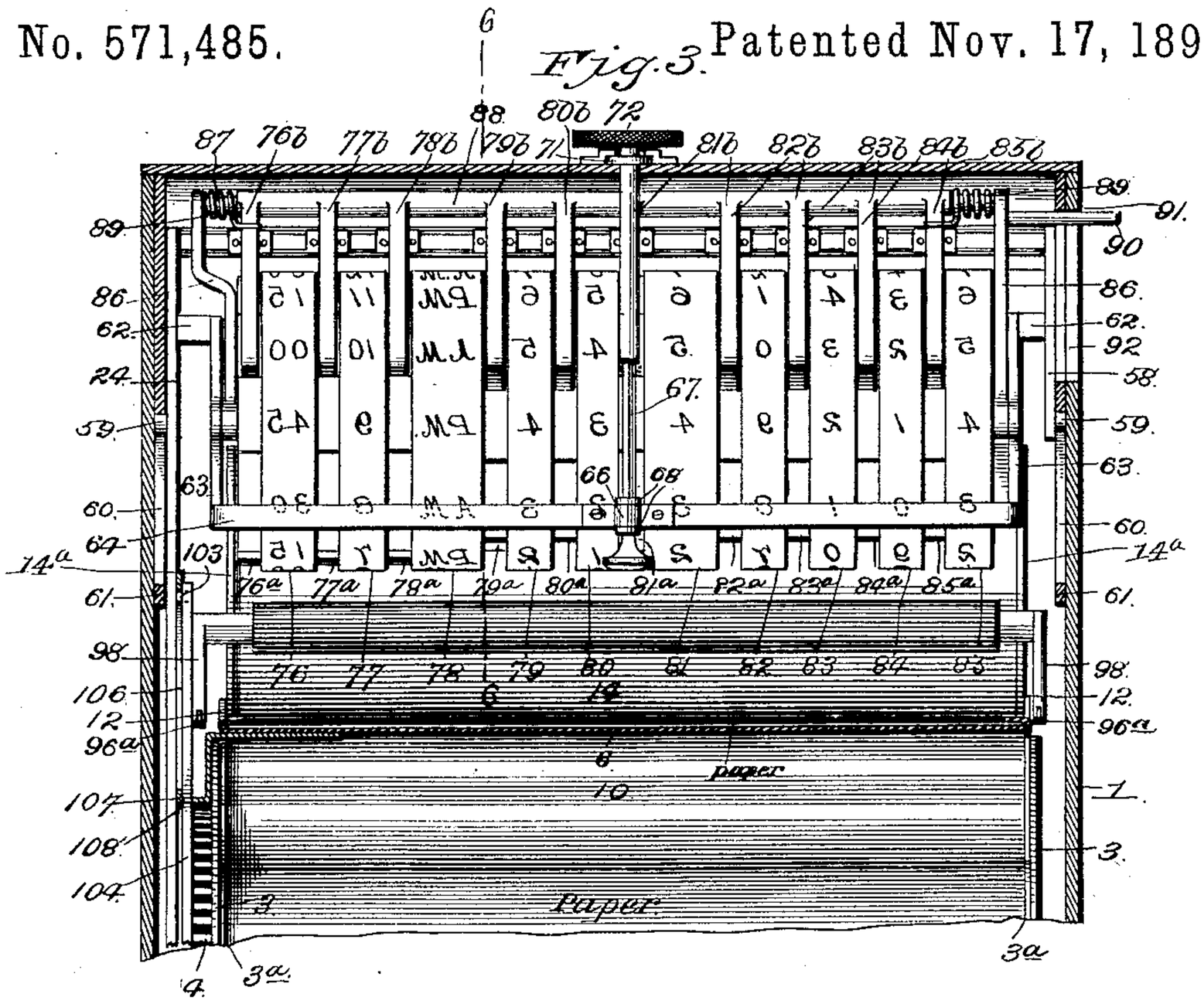


Fig. 5

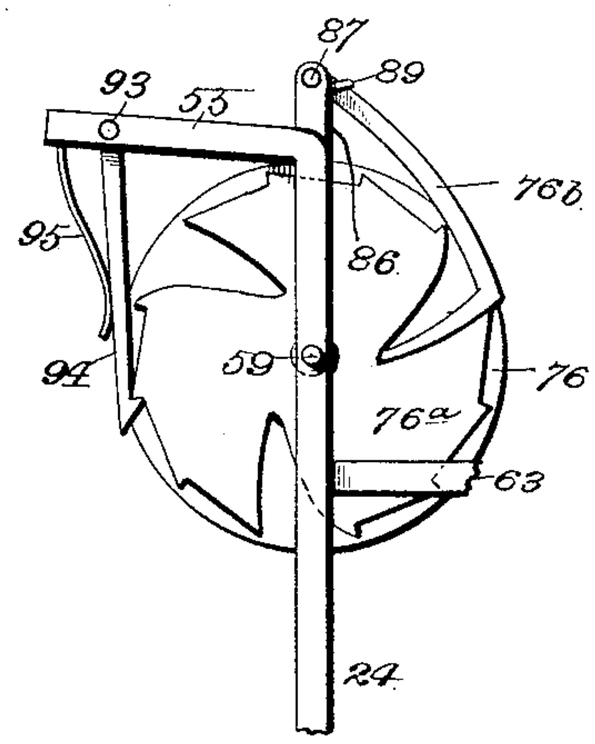
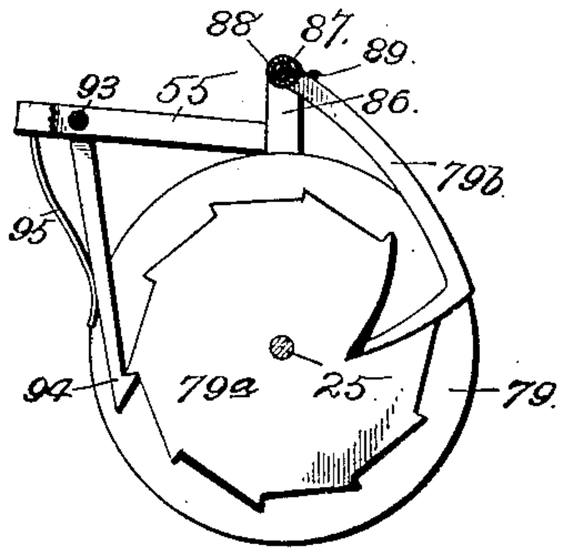


Fig. 6



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STREET CAR TRANSFER PRINTING, DELIVERING, AND RECORDING DEVICE.

No. 571,485. Patented Nov. 17, 1896.

Fig. 8.

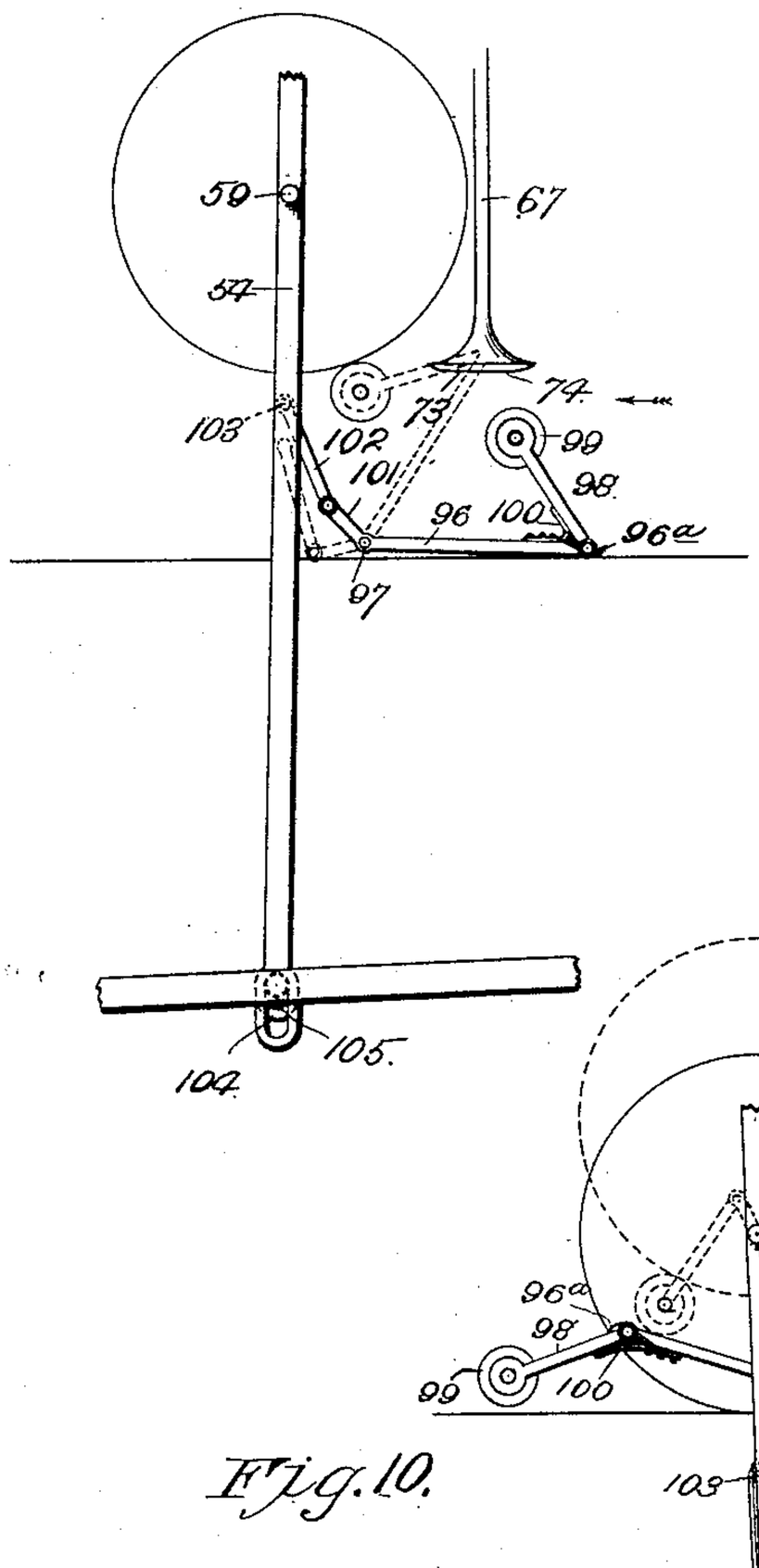


Fig. 9.

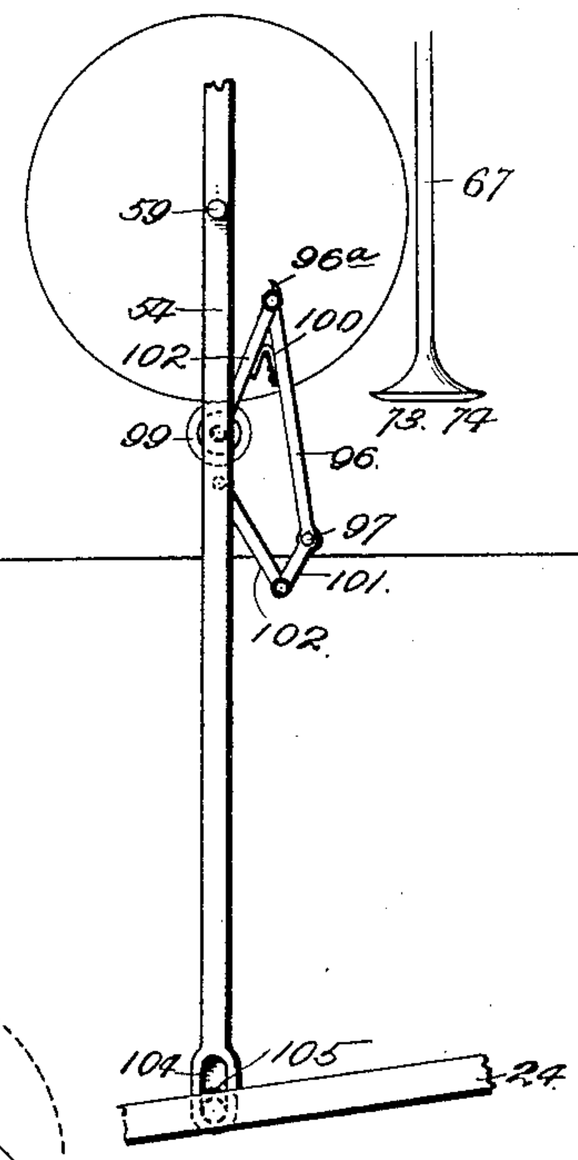
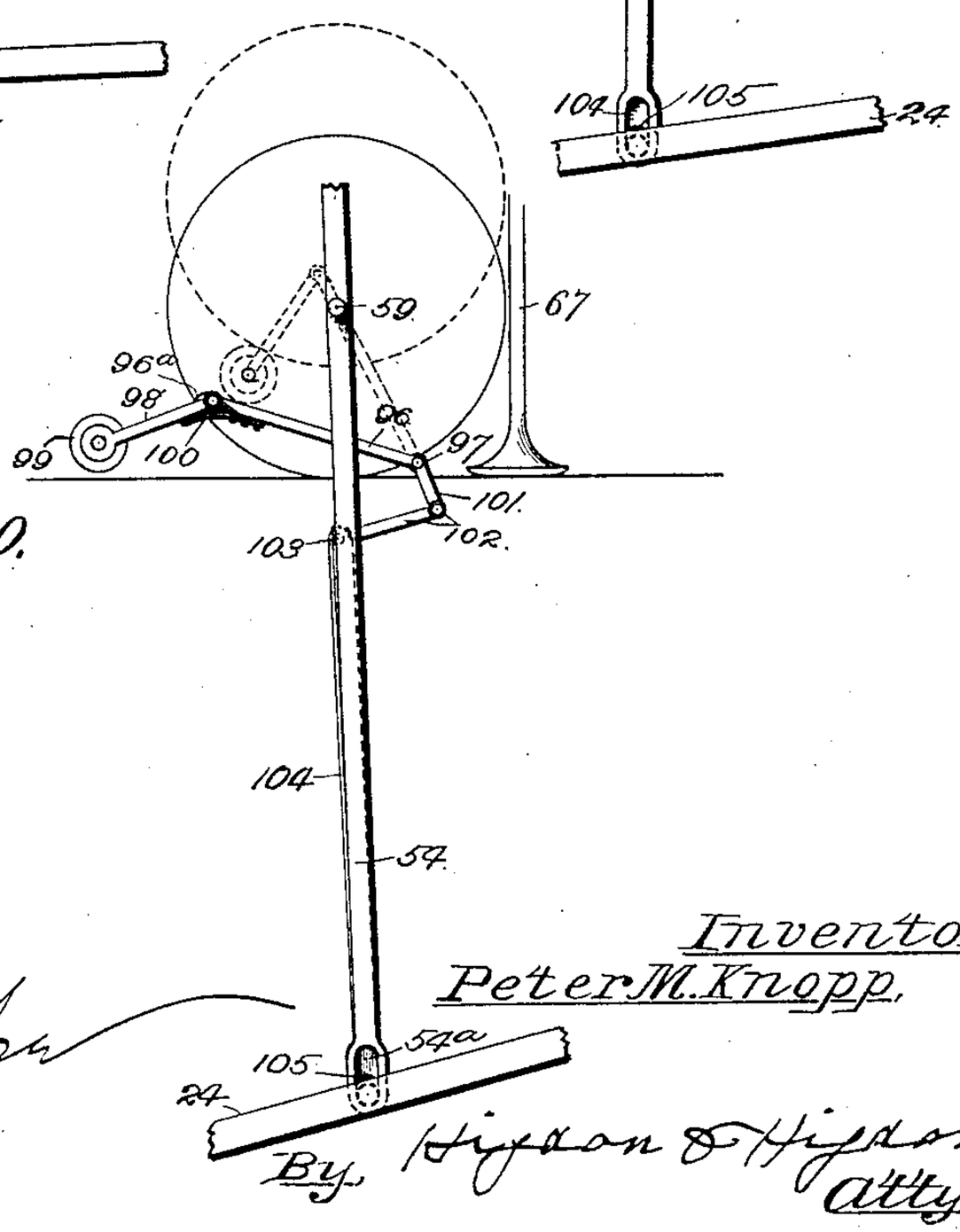


Fig. 10.



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UNITED STATES PATENT OFFICE.

PETER M. KNOPP, OF KANSAS CITY, MISSOURI.

STREET-CAR-TRANSFER PRINTING, DELIVERING, AND RECORDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 571,485, dated November 17, 1896.

Application filed August 31, 1895. Serial No. 561,169. (No model.)

To all whom it may concern:

Be it known that I, PETER M. KNOPP, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Street-Car-Transfer Printing, Delivering, and Recording Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to street-car-transfer printing, delivering, and recording devices which are portable and are designed to be carried by the conductors of the cars.

The object of the invention is to provide a device of this character which is positive and reliable in operation, which indicates at all times the number of transfers given out up to any given number within the capacity of the machine, and which is comparatively simple, strong, durable, and inexpensive of construction.

With these objects in view the invention consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed.

In order that the invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 represents a view of the device with one of the side plates removed. Fig. 2 represents a view on the same scale, with the top broken away to illustrate more clearly the recording mechanism. Fig. 3 represents on an enlarged scale a cross-sectional view taken on an irregular line in order to show the mechanism for stamping the date of issue of the ticket, the mechanism for stamping the direction in which the ticket entitles the holder to travel upon an intersecting line of cars, and the mechanism for guiding the stamping mechanism in a direct vertical line when operated. Fig. 4 represents a framework which carries the stamping mechanism and the mechanism for adjusting the date-stamping mechanism. Fig. 5 is an end view on the scale of Fig. 3 of the date-stamping mechanism. Fig. 6 is a vertical section of the date-stamping mechanism, taken on the line 6 6 of Fig. 3. Fig. 7 is a detail perspective view of the knife for completing the ticket. Fig. 8 is a view which represents the date and direction stamping mechanisms in their normal or elevated positions, and also shows the inking-roller in its normal or inoperative position. It also shows the inking-roller in dotted lines in the position it has assumed as the stamping mechanism begins its descent. Fig. 9 represents the date and direction stamping mechanisms on their downward movement, and also shows the inking-roller after it has applied ink to the direction-stamping mechanism and in the act of inking the date-stamping mechanism. Fig. 10 represents the date and direction stamping mechanism in the act of making the required impression upon the ticket, and also shows the inking-roller in the position it occupies while the stamping mechanism is down. It also shows in dotted lines the date-stamping mechanism and the inking-roller just before the latter moves out of the path of the former.

Referring now to the drawings, wherein like numerals and letters designate corresponding parts, 1 designates a casing, preferably of rectangular form. 2 designates a stationary shaft therein, and 3 a drum upon which a roll of paper is loosely mounted. At one end said drum is formed with a cog-wheel 4 and with a ratchet-wheel 5. In this instance the cog-wheel is provided with sixty teeth and the ratchet-wheel with one-twelfth of that number, equaling five. Superposed relative to said drum and about equaling the same in width is the horizontal paper or ticket guide 6, preferably of sheet metal, which is bent upwardly and inwardly to form a guideway. At its receiving end the bottom and the inwardly-turned flanges of said plate are preferably flared, as shown at 7, that the entrance of the paper to form the ticket will be made positive and reliable. Near its opposite end it is formed with a transverse slot 8 and at its delivering end communicates with a slot 9 in the wall of the casing. A paper-feed roller 10 is arranged with its upper side in the plane of the guideway 6 and is mounted rigidly upon the transverse shaft 11, journaled in any suitable manner in the casing. At the end of the roller are formed the guide-flanges 12, which play in the annular grooves 3^a in the inner side of the flanges of the drum 3. (See Fig. 3 for said grooves.) This is done that the inner sides of said flanges shall be flush to afford no obstruction to the paper. 13 designates a cog-pinion, also mounted upon said shaft

11. It engages continually the drive-gear 4 and is provided with twelve teeth in order that one-fifth of a revolution of the drive-gear may rotate the feed-roller exactly one complete revolution. It is to be understood, of course, that these proportions need not be adhered to, as the relative sizes of the wheels may vary. It is essential, however, that a given motion of the drive-gear shall cause with each operation one complete revolution of the feed-roller. Vertically above the feed-roller 10 is the printing-roller 14, of equal diameter and length. At its ends said printing-roller is slightly flanged, as at 14ª, said flanges in depth equaling the type projecting from the face of the roller, in order that the roller may have at all times a firm bearing upon the margins of the web of paper *a*, which extends from the roll around the outer half of the feed-roller 10 and enters the flaring receiving end of the guideway, as indicated at *a*, Fig. 1. The roller 14 will be provided to print the required matter for the information of the public and of the railway officials upon the paper as it passes between said rollers. It is mounted upon a shaft 15, journaled in boxes 16, which slide in the ways 17, (only one of which is shown,) secured to the side walls of the casing. The roller is held down with a yielding pressure by springs 18, and the pressure is regulated by means of the sliding blocks 19 and adjusting-bolts 20.

In contact with the printing-roller 14 is the roller 21, which transfers ink from the supply-roller 22, arranged to receive a constant supply of ink from the fount 23, secured within the casing. At one side of the drive-gear 4 and a suitable distance above its axis a lever 24 is pivotally connected at one end, as at 25, and is longitudinally slotted at its opposite end, as at 26. A vertical plunger-rod 27 is provided with a pin at its upper end engaging said slot and is guided to reciprocate in a direct vertical line by the bracket 28, secured internally of the casing, and by the opening in the base of the casing. A collar or enlargement 29 is adjustably fixed upon said rod below said block, and a spring 30, spirally encircling said plunger-rod, bears at its opposite ends against the bottom of the casing and the opposing face of the collar 29, so as to hold the latter with a yielding pressure against the bracket 28, which thus limits the upward movement of the lever 24. At its lower end the plunger-rod is provided with a head or handle 31, which the conductor grasps when operating the device.

32 designates a knife which in action reciprocates through the slot 8 of the guideway. Its upper end is held in the downwardly-flaring groove 33, which registers with the slot 8, and it is pivotally mounted at its lower end upon the pins 34, one of which projects from the lever 24 near its pivotal point and the other from a short link 35, also pivotally mounted upon the pivot-rod 25. Superposed relative to the guideway 6 is a shaft 36, which may be rigidly mounted in the casing in any suitable manner, and loosely mounted upon said shaft are a number of disks. In this instance five disks are shown, and they are numbered 37, 38, 39, 40, and 41. Each disk is peripherally numbered from "0" to "9," inclusive, at equal distances apart, so as to form substantially ten peripheral divisions. Cast integral with said disks are the ratchet-wheels 37ª, 38ª, 39ª, 40ª, and 41ª. These ratchets are provided each with ten notches. The ratchet 41ª has ten notches of equal depth, say, one thirty-second of an inch in depth. The ratchet 40ª has nine notches, each one thirty-second of an inch in depth, and one two thirty-seconds of an inch in depth. The ratchet 39ª has nine notches, each one thirty-second of an inch in depth, and one notch three thirty-seconds of an inch in depth. The ratchet 38ª has nine notches, each one thirty-second of an inch in depth, and one notch four thirty-seconds of an inch in depth, and the ratchet 37ª has nine notches, each one thirty-second of an inch in depth, and one notch five thirty-seconds of an inch in depth. A frame is pivotally mounted upon the shaft 36, and consists of the parallel arms 42 and 43 and the horizontal cylindrical rod 44, connecting their upper ends. A sleeve 45 is pivotally mounted upon the rod 44 and is provided with dogs equal in number to the ratchet-wheels. The dog 37ᵇ operates in conjunction with the ratchet-wheel 37ª and is provided with a tooth five thirty-seconds of an inch in depth. The dog 38ᵇ operates in conjunction with the ratchet 38ª and has a tooth four thirty-seconds of an inch in length. The dog 39ᵇ operates with the ratchet 39ª and has a tooth three thirty-seconds of an inch in length. The dog 40ᵇ operates with the ratchet 40ª and has a tooth two-thirty-seconds of an inch in length. The dog 41ᵇ operates with the ratchet 41ª and has a tooth one thirty-second of an inch in length. All of said dogs are held downward with a yielding pressure by the springs 46, spirally encircling the rod 44 and bearing at their opposite ends upon the arms of the pivoted frame and upon the adjacent dog. (See Fig. 2.)

The arm 42 of the pivoted frame is provided with a second arm 42ª, formed with a longitudinal slot which is engaged by a pin projecting laterally from the upper end of the link-bar 47, and said link-bar at its lower end is provided with a pin which pivotally engages, as at 48, a longitudinal slot in the lever 24. The link-bar 47 is guided to reciprocate vertically by the pins 49, which occupy slots 50 (see dotted lines, Fig. 1) in a plate secured to the adjacent side wall of the casing. Pivotally mounted upon a cross-rod 51 in the upper end of the casing are the pendent dogs 52, and each of said dogs is caused by its respective spring 53 to engage with a yielding pressure one of the ratchet-wheels hereinbefore described, so as to prevent back motion thereof.

54 designates one pendent arm of an approximately U-shaped frame, which consists of parallel and approximately horizontal arms 55 and 56 and the connecting-bar 57. Said arm 56 is also provided with a pendent arm 58, which is only about one-fourth the length of the arm 54 and extends parallel thereto. The arms 54 and 58 are provided with the longitudinally-alined pins 59, which engage vertical guide-slots 60 in the bars or plate 61, secured vertically to the side walls of the casing. At the lower end of the arm 54 is formed a longitudinal slot 54^a, which embraces the pivot-pin 24^a, projecting laterally from the lever 24. Carried by and preferably formed as a single casting with said frame is a second frame comprising the top arms 62, the L-shaped arms 63, which are vertically pendent from the arms 62 and parallel with and a suitable distance inward of the arms 54 and 58, and the cross-bar 64, connecting the horizontal portions of the L-shaped arms 63. Said cross-bar 64, about midway its length, is provided with a depression 65, which, in conjunction with the bearing-cap 66, forms the bearing in which the vertical rod 67 is rotatably mounted. Said rod, at the upper and lower sides of said bearing, is prevented from sliding in said bearing by the collars or enlargements 68, and above said collars it is formed angular in cross-section.

69 designates a tube which is cylindrical externally and angular internally and fits telescopically and non-rotatably upon the angular rod 67. The rod 69 is journaled at its upper end in the top of the casing and is prevented from moving upward or downward independent of the casing by means of a shoulder 70, which bears upon the top plate of the casing and beneath the flange 71, secured to the casing. At its upper end the tube is provided with a head or handle 72, upon which is inscribed at opposite points the letters "E" and "W" or "N" and "S," as the case may be, and to the side of said rod occupied by the frames hereinbefore described is inscribed upon the top plate an arrow or other symbol. At its lower end the rod is enlarged and is provided on its under face with the letters "E" and "W" or "N" and "S," (represented, respectively, by 73 and 74.) When the car is traveling in one direction and the car to which transfer is made is traveling eastward, the head will be turned to place the letter "E" adjacent to the arrow, and the letter "E" at the lower end of the rod will of course be turned in the same direction, and this will indicate that the transfers printed are good only to carry the passenger eastward on an intersecting line. Arranged in longitudinal alinement with the guide-pins 59 and journaled rigidly at its opposite ends in the vertical portions of the arms 63 is the horizontal shaft 75, and mounted loosely upon said shaft are a series of disks 76, 77, 78, 79, 80, 81, 82, 83, 84, and 85, and cast integrally with said disks are a corresponding series of ratchet-wheels 76^a, 77^a, 78^a, 79^a, 80^a, 81^a, 82^a, 83^a, 84^a, and 85^a. The disks 76, 77, 78, and 81 are peripherally divisioned into twelve parts at equal distances from each other, and the ratchet-wheels 76^a, 77^a, 78^a, and 81^a are provided with an equal number of notches. The disks 79, 80, 82, 83, 84, and 85 are peripherally divisioned into ten equal parts, and the ratchet-wheels 79^a, 80^a, 82^a, 83^a, 84^a, and 85^a are provided with a corresponding number of notches. The notches of the ratchets divisioned by tenths are equal in length to those divisioned by twelfths, and this is accomplished by making the radius of the ratchets divisioned by tenths, say two thirty-seconds of an inch less than the radius of those divided by twelfths. Every fourth notch in the ratchet 76^a or the "minute-ratchet" is ten thirty-seconds of an inch in depth, and opposite said notches the companion disk 76 is marked "45." Opposite the next notch to the rear of the deep notches the said disk is marked "0." Opposite the next notch the disk is marked "15," and opposite the fourth and last notch the disk is marked "30," which represent, respectively, "forty-five minutes," "no minutes," "fifteen minutes," and "thirty minutes." The "0" or "no-minutes" mark represents the beginning of an hour. The next disk 77, or "hour-disk," is peripherally marked "1," "2," "3," "4," "5," "6," "7," "8," "9," "10," "11," and "12." The deep notch of the ratchet 77^a of said disk is one thirty-second of an inch less in depth than the deep notch of the preceding ratchet. The next disk 78, or twelve-hour disk, is peripherally marked alternately "A. M." and "P. M.," each symbol being opposite one of the notches of its companion ratchet. Its ratchet is provided with six deep notches, and said notches are one thirty-second of an inch less in depth than the deep notch of the preceding ratchet and are arranged alternately with the shallow notches. The fourth disk 79, or "day's disk," is peripherally numbered from "0" up to "9," inclusive. The single deep notch of its companion ratchet is one thirty-second of an inch shallower than the deep notches of the preceding disk. The fifth disk 80, or "ten-day's" disk, is provided with a double series of numbers from "0" up to "5," inclusive, though the numbers "4" and "5" need not be so inscribed, as they are superfluous, as hereinafter more particularly explained. The companion ratchet 80^a is provided with deep notches arranged at diametrically opposite points and opposite the numbers "5" of said disk. Said notches are one thirty-second of an inch shallower than the deep notch of the preceding ratchet. The sixth disk 81, or "month-disk," is peripherally numbered from "1" up to "12," inclusive, and the deep notch of its companion ratchet is one thirty-second of an inch shallower than the deep notch of the preceding ratchet. The remaining disks, 82, 83, 84, and 85, constitute the "year-disks," representing, respectively, the "units," "tens,"

"hundreds," and "thousands" columns of the year. They are each numbered from "0" up to "9," inclusive, and the deep notch of the ratchet 82^a is one thirty-second of an inch shallower than the deep notch of the preceding ratchet, and one thirty-second of an inch deeper than the deep notch of the succeeding ratchet 83^a. The deep notch of the ratchet 84^a is one thirty-second of an inch shallower than the deep notch of the ratchet 83^a and one thirty-second of an inch deeper than any of the notches of the ratchet 85^a. All of the notches of said ratchet are of a uniform depth. At the opposite ends of the series of disks and ratchets a frame is pivotally mounted upon the shaft 75. Said frame consists of the arms 86 and the cylindrical connecting-bar 87. Mounted rotatably upon the latter is the sleeve 88, and projecting rigidly from the latter are a series of dogs, one for each ratchet, and numbered, respectively, 76^b, 77^b, 78^b, 79^b, 80^b, 81^b, 82^b, 83^b, 84^b, and 85^b. In operation, when all of the dogs are in engagement with their respective disks, each projects one thirty-second of an inch deeper into its ratchet than the adjacent dog to the right and one thirty-second of an inch less than the dog to the left, so that should the frame be operated each dog would move its respective ratchet and disk one step. The simultaneous engagement of all the dogs with their disks, however, can only take place once in a thousand years. Disk 76 is moved one step every fifteen minutes, disk 77 one step every hour, disk 78 one step every twelve hours, disk 79 one step every day, or twenty-four hours, disk 80 one step every tenth day, or three steps a month, (disk 80 really moves five steps, but two of them, or those exceeding three steps, have no effect upon the months disk 81, owing to the fact that they are either set individually or collectively with all the preceding disks, 76, 77, and 78, by hand manipulation at the end of each month, in a manner hereinafter explained,) disk 81 one step a month, disk 82 one step a year, disk 83 one step in ten years, disk 84 one step in one hundred years, and disk 85 one step in one thousand years. After one such complete operation, as the frame returned to its elevated or normal position, all of the dogs would be disengaged from their ratchets except the first one, or 76^b, because its tooth, being the longest, would engage the succeeding shallow notch of ratchet 76^a, and therefore would hold the others out of engagement with their ratchets. Said dogs are held at all times with a yielding pressure toward said disks by means of springs 89, which are coiled around the rod 87 and bear at their opposite ends against said frame and against the adjacent dogs. In order to adjust the mechanism comprising said ratchets and said disks, and hereinafter termed the "stamping-roller mechanism," the pivoted frame is provided with a pin or handle 90, projecting through one side wall and occupying normally the junction or intersecting point of a curved slot 91 and a vertical slot 92. The vertical slot equals in length the guide-slots 60, while the curved slot is of length sufficient to rotate said stamping-roller one step, one step equaling the length of one of the notches of the ratchet.

From the foregoing it will be apparent that the minute-disk moves four points to move the hour-disk one point. The hour-disk moves twelve points or one revolution to move "A. M." or "P. M." one point. "A. M." or "P. M." moves two points to move the day-disk one point, and the day-disk moves ten points or one revolution to move the ten-days disk one point. Ten-days disk moves five points or half a revolution to move the month-disk one point. The month-disk moves one revolution or twelve points to move the units of year-disk one point. The remaining disks move in multiples of ten—that is, the units-disk of year moves ten points to move the tens-disk once, the tens-disk moves ten points to move the hundreds-disk once, and the hundreds-disk moves ten points to move the thousands-disk once. As illustrated, the stamping-roller is adapted to print upon the paper in a line vertically below its axis, and the deep notches of the various ratchets are disposed with this object in view.

Supposing it be desired to stamp the ticket (year,) "1896;" (month,) "12," (December;) (day,) "31;" "P. M.;" (hour,) "11;" (minutes,) "45," then the various symbols above indicated will be vertically below the axis of said disks and the dogs 76^b, 77^b, 78^b, 79^b, 80^b, and 81^b will be engaged with the deep notches of the ratchets 76^a, 77^a, 78^a, 79^a, 80^a, and 81^a. At the same time the dog 82^b will be engaged with one of the shallow notches of the ratchet 82^a, so that with the next adjustment of the pivoted frame said ratchets and their disks will be turned to place the number "7" of units year-disk vertically below the axis. At the same time all the preceding disks will be turned one notch and the printing-surface will read "1897, 1, 01, A. M., 12:00." To now cause the printing-surface to read "1897, 1, 01, A. M., 12, 15," or "1897, first month, first day, (no tenths,) A. M., 12:15," the frame is again operated and the first disk only turned. The next time the frame is operated the "30" of minute-disk is brought in line with the "12" of the hour-disk, the next time the "45" of minute-disk is brought in line with the "12," and as the frame returns from this last movement the first dog enters two thirty-seconds of an inch into the presented deep notch and the second dog engages one of the notches of the hour-disk ratchet, so that with the next movement the minute and hour disks will both be turned one step and the printing-surface will read "1897, 1, 01, A. M., 1:00." The succeeding operations are repetitions of the ones described, it being understood that as each disk is moved one step all the preceding disks move one step

simultaneously. After each adjustment the dog-carrying frame is returned to its normal position by hand, or preferably by the action of the retraction-spring 90ª. Connecting the side arms 55 and 56 of the frame is the horizontal rod 93, and supported pivotally and pendently upon said rod are the dogs 94, which each engage one of the ratchet-wheels hereinbefore described to prevent back rotation thereof and are held into engagement with such ratchets by the springs 95, also carried by said frame.

It is to be understood, of course, at the end of each month, whether it have twenty-eight, twenty-nine, thirty, or thirty-one days, that the disks 79 and 80 must be adjusted to position to begin a new month. This may be done, as hereinbefore mentioned, either by the individual adjustment of the said disks by opening the case and rotating them in an instant around to the proper positions, or it may be done by grasping the handle 90 and operating the frame forward and backward. This movement, like the regular manipulation of the lever by the conductor, simply causes all the preceding disks individually and collectively to operate until the ten-days disk 80 is moved two steps. At this time one of the members 5 appears at the printing-surface of disk 80 and the zero "0" at the printing-surface of disk 79, and the dogs 76ᵇ, 77ᵇ, 78ᵇ, 79ᵇ, and 80ᵇ are in engagement with the deep notches of the corresponding ratchets, and at the same time the dog 81ᵇ engages one of the notches of its corresponding ratchet 81ª, so that one more movement of the handle causes them all to rotate, with the result that the next month appears at the printing-surface of the month-disk, the zero "0" at the printing-surface of the ten-days disk, and the one "1" at the printing-surface of the days-disk. This preparation of each machine employed will preferably be done by office help at the end of each month, so that the conductor's only duty is to manipulate the machine in the course of the day's business. The object in using duplicate numbers and two deep notches in the ten-days disk is to obviate or diminish dead space on the periphery of the disk, *i. e.*, that space between the number "3" and the next zero "0" occupied by the numbers "4" and "5," and also to lessen by a considerable number of times the necessary manipulations of the handle 90 by the office help at the end of each month. It is apparent, of course, that the disk 80 may only have one deep notch and one set of numbers "0" to "3," inclusive; but in this case all the space between the "3" and the "0" (six steps in all) will be dead, and will require, therefore, more hand manipulation at the end of the month.

In order that the direction and date stamping mechanism may be properly inked, I provide the following mechanism.

96 designates a pair of levers which are pivotally mounted, as at 97, upon pins projecting inwardly from the side walls of the casing. At their free ends they pivotally carry or are hinged to the arms 98, and journaled in the free ends of said arms is a shaft upon which is rigidly mounted the ink-distributing roller 99. The springs 100, interposed between and carried by the levers 96 and the arms 98, tend to force them continually apart, and lugs 96ª project from the free ends of the levers 96 in the path of the arms 98 and limit their outward movement, *i. e.*, their movement away from said levers. Projecting from the pivotal point or end of one of the levers 96 is a short arm 101, and said arm is pivotally connected by the link 102 to a pin 103, projecting laterally from the upper end of a pitman 104, said pitman being provided at its lower end with a longitudinal slot 105, which embraces the pin 24ª, projecting from the lever 24. Said slot 105 is considerable shorter than the slot 54ª of the arm or bar 54, that the ink-distributing roller may be actuated before the stamping mechanism begins its descent, as will be hereinafter explained.

In order that the roller 99 shall effectively perform its function, it is necessary that the pivotal point or connection between the link 102 and the pitman 104 shall move or reciprocate in a direct vertical line. To this end, therefore, said pin projects through a vertical slot 106 in the plate 107, and said plate is carried rigidly by the guide 6, as shown clearly in Fig. 3, or may be secured to the adjacent side wall of the casing. This plate, however, must be formed with a depression, as also shown in said figure, in order that it may not interfere with the arm 101 and the link 102 when they assume a position below the plane of said guide, as illustrated in Figs. 9 and 10. It must also be provided with a slot 108, through which the pitman 104 may reciprocate.

In order that the roller 99 may be supplied with ink properly, I locate a fountain 109 within the casing and between the stamping and recording mechanism, and mounted at the lower end of said fountain is a small ductor-roll 110. When the stamping mechanism is elevated, as illustrated in Figs. 1 and 8, the springs 100 hold the roller 99 into frictional contact with said ductor-roll. Frictionally engaging the opposite side of the ductor is a much larger roller 111, and mounted rigidly upon the shaft of said roller is a ratchet-wheel 112. The pawl 113 is pivotally mounted upon the arm 114 of the bar 47 and is held normally in operative position by the spring 115 at one side and the shoulder 116 of said arm at the opposite side. The arrangement is such that each time the bar 47 moves downwardly in response to the depression of the lever 24 the pawl rotates the ratchet and roller 111 one step. This rotatable movement, due to frictional contact, causes the ductor-roll to rotate and supply ink to the distributing-roller 99. As the lever rises the pawl engages the beveled surface of

the opposing tooth of the ratchet-wheel and is pivotally operated against the resistance of the spring 115. After the upward movement of the bar 47 is ended and the tooth of said ratchet-wheel cleared the spring forces the pawl again to its horizontal or operative position, as clearly shown in Fig. 1.

Before proceeding with the description of the general operation it may be well to state that the recording mechanism operates precisely like the date-stamping mechanism, except that the adjustment of the disk is entirely automatic, so that the number of tickets issued may at any time be ascertained by simply glancing through the window or plate of transparent matter 117, the recording-mechanism disks being divided all into tenths, so that it will be noticed clearly that one complete revolution of the first disk will operate the second disk one step, one complete operation of the second disk will operate the third disk one step, and so on. The number of disks illustrated makes the machine capable of recording transfers up to ten thousand.

When the conductor desires to issue a transfer, he first adjusts properly the date and direction stamping mechanism, as hereinbefore explained. This may be done at any convenient time before it is necessary to begin the issue of transfers. When the transfers are to be given out, he simply grasps the handle 31 and pulls downward the lever 24, and thereby first makes record of the transfer to be issued by rotating the first disk 37 one step and synchronously causes the ductor-roll to supply a quantity of ink to the transfer-roller 99. Immediately this operation takes place the pin 24^a of the lever 24 reaches the lower end of the slot 105 of the pitman 104 and causes transfer-roller 99 to move from the position shown in full lines, Fig. 8, to the position shown in dotted lines same figure. During this passage said roller applies ink to the face 73 of the direction-stamping mechanism and passes inoperatively by the face 74, as will be obvious by reference particularly to Fig. 1. By the time the roller comes in contact with the date-stamping roller mechanism the pin 24^a has reached the lower end of the slot 54^a, and the continued downward movement of said lever then causes said date-stamping mechanism, together with the direction-stamping mechanism, to move vertically downward and at the same time transfer-roller 99 is continuing its movement in the direction indicated by the arrow, Fig. 8, along the under face or printed surface of the date-stamping mechanism, as clearly illustrated in Fig. 9. When the lever 24 has reached its lowest point of depression, the date and direction stamping mechanism are pressed firmly down upon the ticket in the guideway 6, and a pivotally-pendent pawl 118 of said lever is forced by the spring 119 into engagement with a lower tooth of the ratchet-wheel 5 and the roller 99 has been forced by the spring 100 to the position shown in Fig. 10, where it is entirely out of the way and is held as long as the stamping mechanism is depressed by said spring and the opposing lug 96^a. The pressure of the date and direction stamping mechanism upon the ticket of course makes the desired impression as the ink has been freshly applied. Immediately the handle 31 is released it is forced back to its normal position by spring 30. As it rises it pivotally operates the frame upon the shaft 36 and causes the dogs thereof to engage the next succeeding tooth of the ratchets, the pawl 113 to reëngage the ratchet 112, the roller 99 to assume its normal position, and the date and direction stamping mechanism to be again elevated to the position shown in Figs. 1 and 8. While the lever 24 is rising the spring-actuated pawl 118 rotates the drum upon which the roll of paper is wound in the direction indicated by arrow. (See Fig. 1.) The rotation of said drum one-twelfth of a revolution causes one complete revolution of the paper-feed roller 10, and said roller being opposed by the spring-pressed printing-roller 14, supplied with ink from the fount 23, feeds the interposed web of paper forwardly, and it receives the impression of the type-faced printing-roller 14 at the same time.

The length of the ticket of course is determined by the circumference of the feed-roller, so that at the completion of the movement of said roller the stamped ticket is projected through the slot 9 for nearly its entire length, and the portion of the web of paper which occupies the guideway is printed and ready to receive the date and direction stamping impression when the lever is again moved downward. At the instant the upward movement of the lever has been completed the rear end of that portion of the web which protrudes from the casing and bears the impression of the date and direction stamping mechanism registers with the slot 8 of the guideway and is severed by the knife 34. The ticket may be grasped by the conductor just as the cutting operation takes place and the completed ticket withdrawn from the device. The entire operation of printing and delivering a ticket will take up only an instant of time. Therefore the ink employed upon the printing-roller and also upon the date and direction stamping mechanism must be quick-drying ink, so that the hands and apparel of the passenger may not be soiled or injured by contact with the ticket.

From the foregoing it will be apparent that as the lever 24 moves downwardly the paper-roll is inoperative and the date, direction, and recording mechanism perform their proper functions, the date and direction stamping mechanism making the required impression upon that portion of the paper which occupies the guideway and which has been previously printed by the roller 14. As the lever moves upwardly the date and direction stamping mechanism and the recording mechanism are inoperative, the stamped and

printed portion of the ticket is fed through the slot 9 of the casing and is severed, and at the same time a new portion of the paper is being printed as it passes between the rollers 10 and 14. Thus it will be seen that I have produced a device for printing and delivering transfer-tickets which is portable, positive, and reliable in operation, and comparatively simple, strong, durable, and inexpensive of construction. It is to be understood, of course, that slight changes in the form, proportion, or arrangement of the parts or the substitution of equivalents will not be a departure from the spirit and scope or sacrifice any of the advantages of my invention.

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

1. A street-car-transfer stamping device comprising a suitable casing, a lever therein, a frame pivotally connected to said lever, a shaft carried by said frame, a date-stamping mechanism upon said shaft, a direction-stamping mechanism carried by said frame, an ink-transfer roller, and operative connections between the same and the lever, whereby the depression of the latter causes said roller to successively contact with and apply ink to the direction and date stamping mechanism, and then causes said roller to move out of the path of descent of said mechanism, substantially as shown and described.

2. A street-car-transfer stamping device, comprising a suitable casing, a lever therein, a frame pivotally connected to said lever, a date-stamping mechanism in the form of disks carried by said frame, a reversible direction-stamping mechanism carried by said frame, an ink-fountain provided with a ductor-roll, a transfer-roller held yieldingly in contact with said roll, and means substantially as shown and described, as said lever is depressed to first rotate the ductor-roll then move the transfer-roller and in its passage apply ink to the direction-stamping mechanism, and then to cause simultaneously the depression of the stamping mechanism and the application of ink by said roller to the date-stamping mechanism, substantially as set forth.

3. A street-car-transfer stamping device, comprising a suitable casing, a lever therein, a frame pivotally connected to said lever, a shaft carried by said frame, a date-stamping mechanism in the form of a series of disks mounted upon said shaft, vertically-slotted guide-plates, pins projecting from said frame in axial alinement with said shaft and engaging said slots, a direction-stamping mechanism having a fixed relation to said frame, an ink-fount, a ductor-roll therefor, a pair of levers, arms pivotally connected thereto and carrying a transfer-roller, springs holding said transfer-roller normally in engagement with the ductor-roll, a pitman pivotally connecting the first-named lever with an arm of one of the other levers, and vertically-slotted guide-plates in which the pivot-pin between said pitman and said arm is adapted to reciprocate, substantially as set forth.

4. A street-car-transfer stamping device, comprising a suitable casing, a lever therein, a frame pivotally connected to said lever, a date-stamping mechanism supported by said frame and consisting of a series of disks, a direction-stamping mechanism also carried by said frame, an ink-fount, a ductor-roll therefor, a pair of levers provided with lugs or shoulders at their outer ends, a pair of arms pivoted inward of said lugs or shoulders, a transfer-roller carried by said arms, springs forcing said arms toward said lugs or shoulders, a pitman pivotally connecting the first-named lever and an arm of one of the last-named levers, all arranged substantially as and for the purpose set forth.

5. A street-car-transfer printing, stamping and delivering device, comprising a suitable casing, a shaft therein, a drum loosely mounted upon said shaft and carrying loosely a roll of paper, a paper-feed roller geared to said drum, a spring-depressed printing-roller cooperating with said paper-feed roller, a guideway arranged to receive the paper from between said rollers and having its delivery end communicating with a slot in the casing, a lever within the casing, a knife pivotally connected to said lever adapted to work through a slot in the guideway, a frame pivotally connected to said lever, a date and direction stamping mechanism carried by said frame, a movable transfer-roller also operatively connected to said lever, and means whereby the depression of said lever will first supply ink to the transfer-roller, next cause said roller to apply ink to the stamping mechanism, and then cause said stamping mechanism to descend and make the required impression upon the printed portion of the paper in the guideway, and means, substantially as shown and described, as said lever and said ink-transfer roller and said stamping mechanism resumes its original position, to cause the drum to rotate and the printing-roller to make the required impression upon the portion of paper moving into the guideway, and to sever that portion of the ticket already stamped from the body or unstamped portion.

6. A street-car-transfer stamping device, comprising a suitable casing, a lever therein, a frame pivotally connected to said lever, a direction-stamping device rotatably carried by said frame and consisting of an angular rod, a sleeve telescopically engaging same and projecting through the top of the casing, and a disk or head at the upper end of said sleeve whereby it may be rotated, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

PETER M. KNOPP.

Witnesses:
M. PEARL LOWE,
G. Y. THORPE.