

(No Model.)

2 Sheets—Sheet 1.

H. C. TURNER.
STATION INDICATOR.

No. 605,938.

Patented June 21, 1898.

Fig. 1.

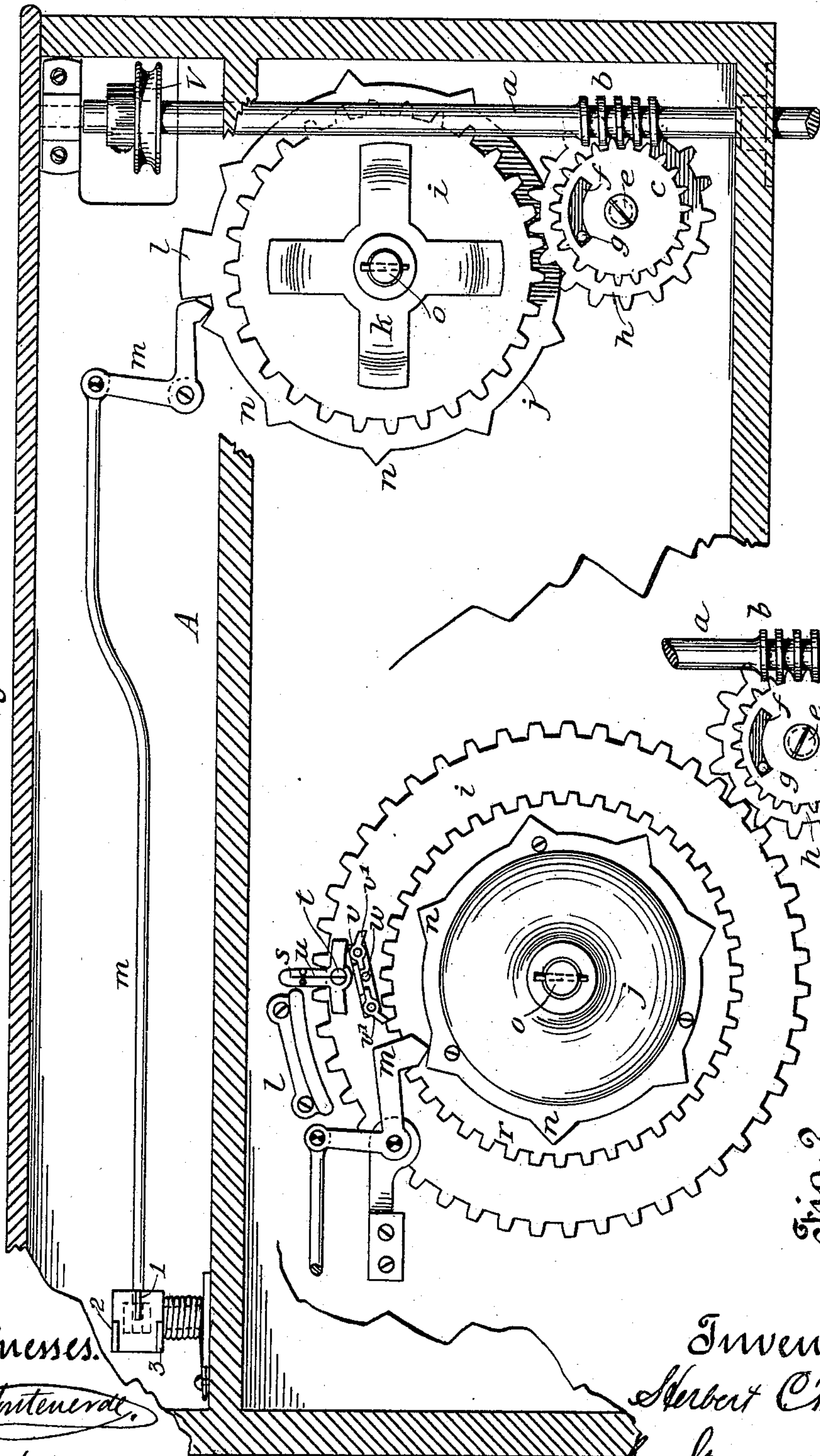
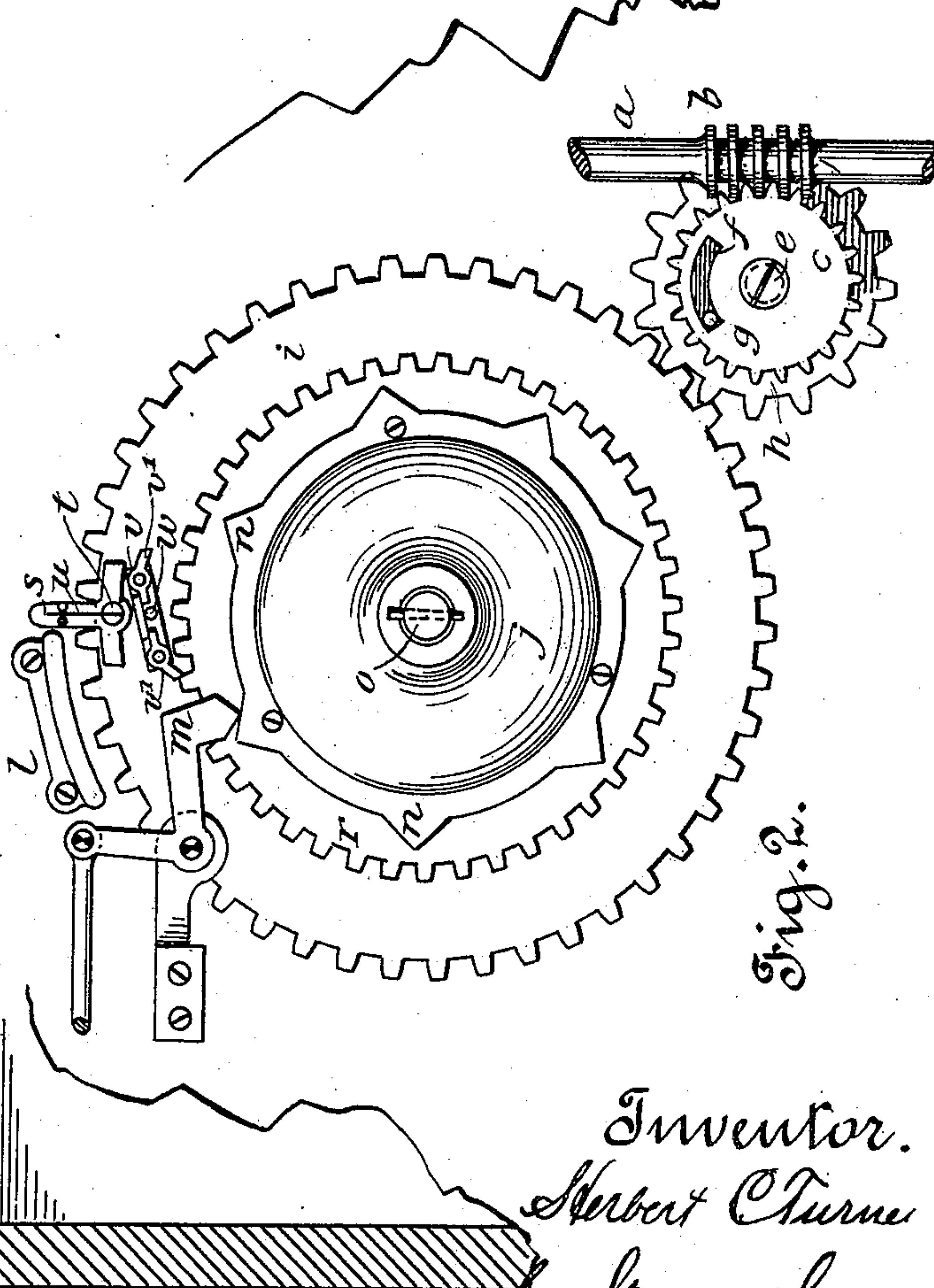


Fig. 2.



Witnesses.

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M. R. Bryan

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(No Model.)

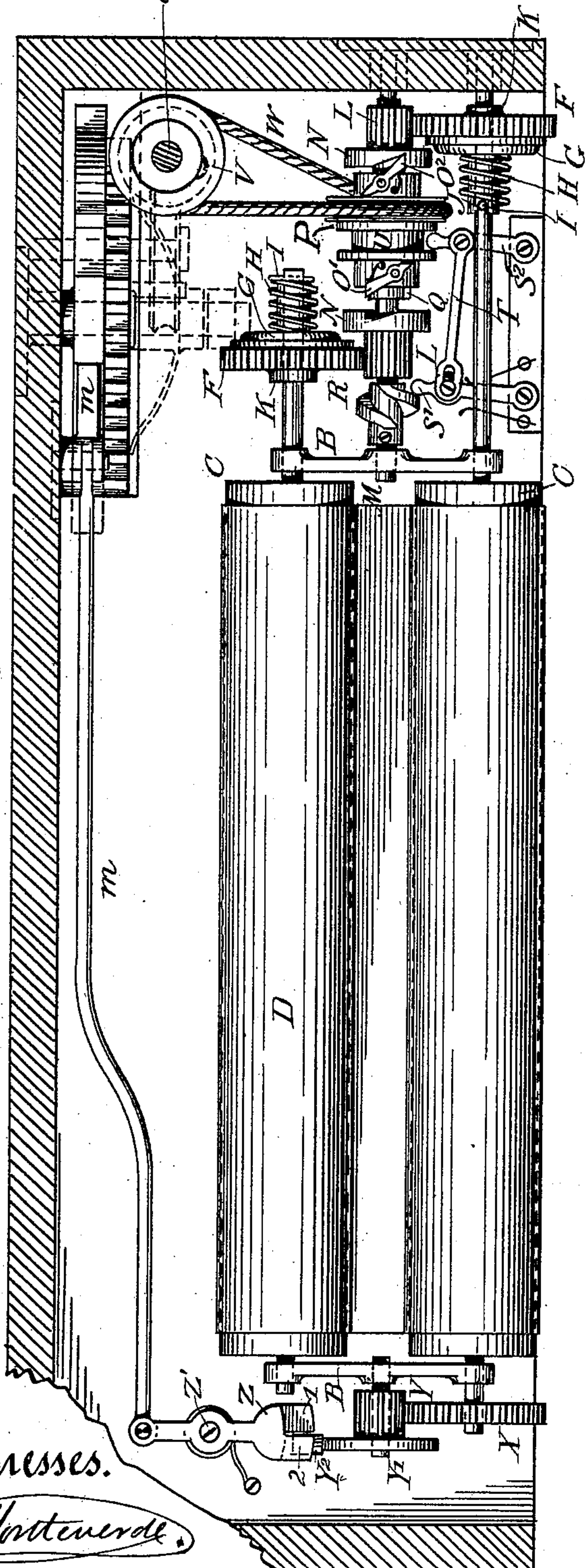
2 Sheets—Sheet 2.

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Fig. 3. A



Witnesses.

H. H. Hordnerde

M. R. Bryan

Fig. 4.

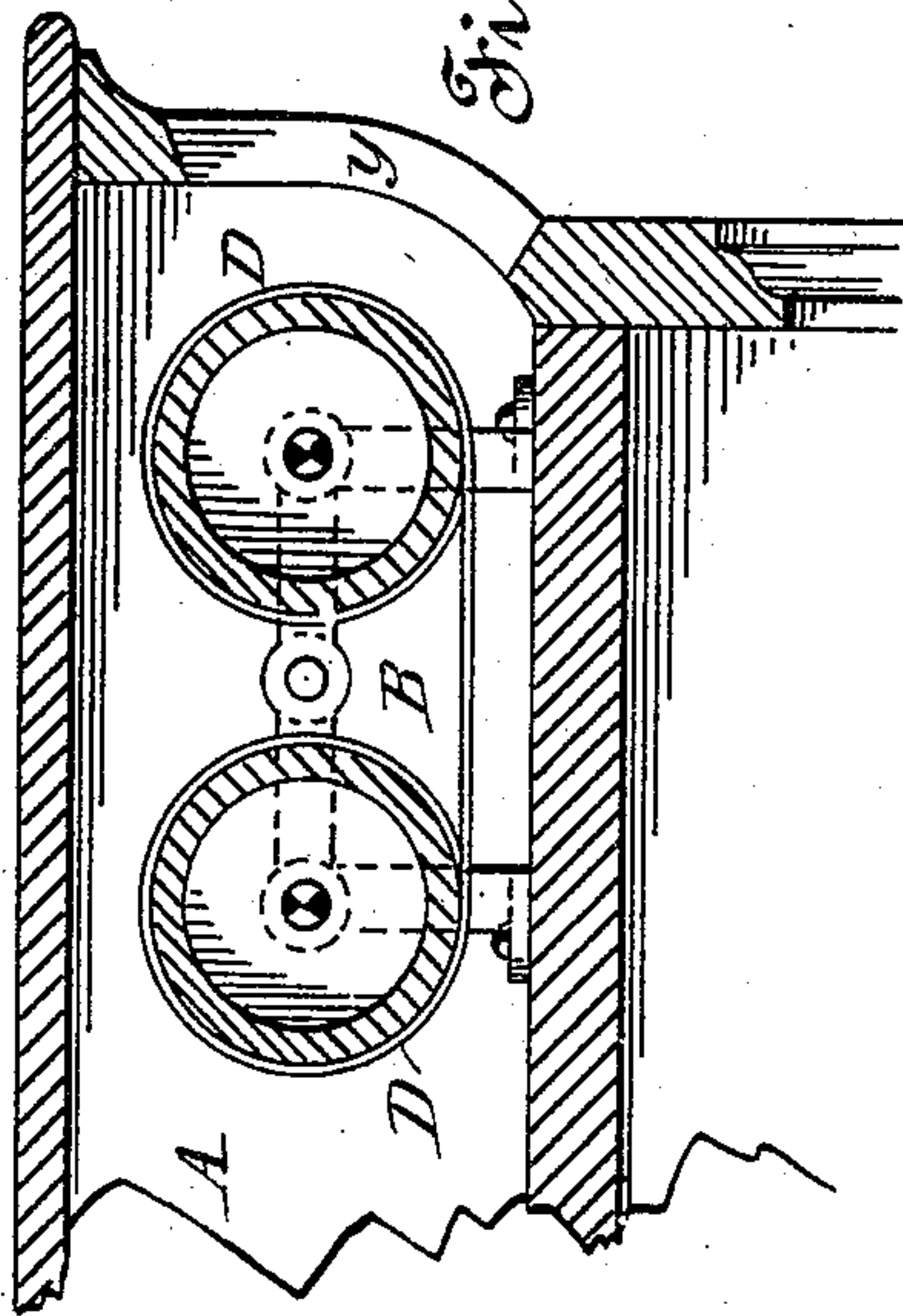
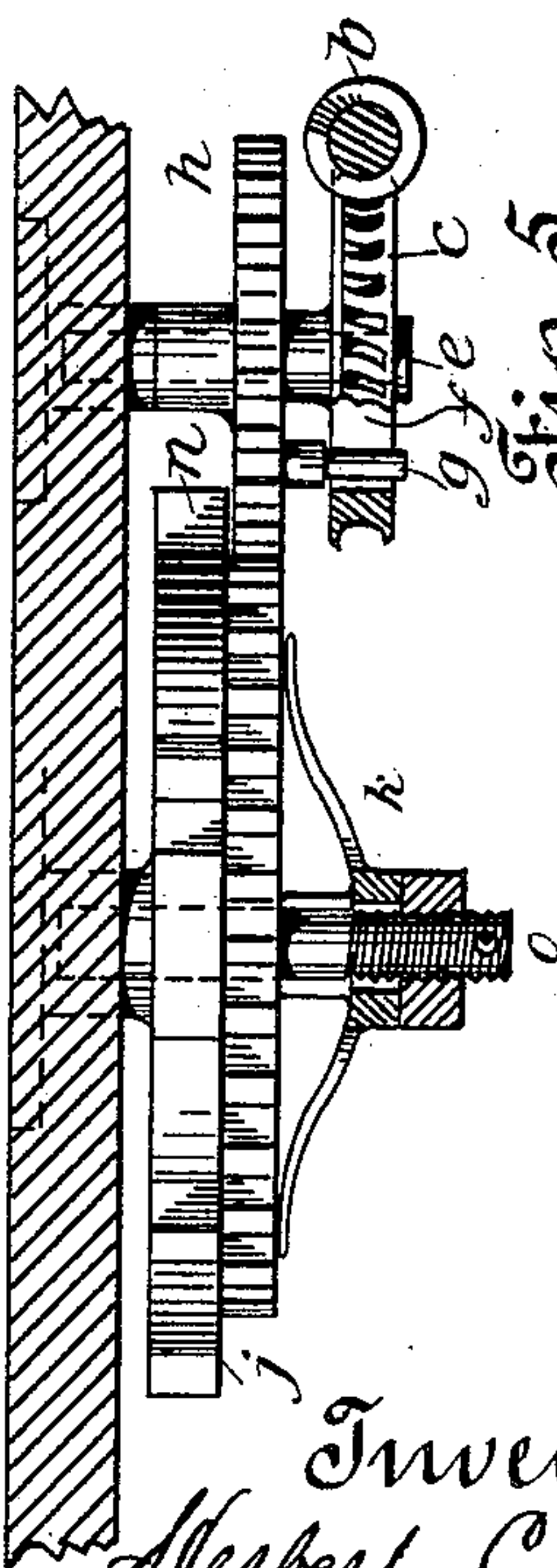


Fig. 5.



Inventor
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Attorneys

UNITED STATES PATENT OFFICE.

HERBERT C. TURNER, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE
AMERICAN INDICATOR COMPANY, OF SAME PLACE.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 605,938, dated June 21, 1898.

Application filed January 2, 1894. Renewed November 12, 1897. Serial No. 658,339. (No model.)

To all whom it may concern:

Be it known that I, HERBERT C. TURNER, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Station-Indicators; and I do hereby declare that the following is a full, clear, and exact description thereof.

10 This invention relates to the type of indicators actuated by the revolution of a car-axle, but differs from preceding indicators of this type in that it does not require all the revolutions of the car-axle made in traveling from one end of the route to the opposite end of route to revolve the street-actuating device to the correct position for the return trip. It is so geared that, provided the car-wheels do not lose revolutions, the indicator-controller will have made its full movement in one direction by the time the car has traveled from the starting-point to within one block of the end of the route, at which point the movement of the controller is stopped by a positive construction forming part of the connected mechanism and remains stationary at the correct position for the return trip until the end of the route is reached. On the starting of the car in the reverse direction the controller also revolves in the reverse direction and works back till within one block of the first starting-point, where the same results occur as at the other terminus. This result is obtained when the car-wheels make their full number of revolutions on the trip; but if the car-wheels lose motion from applied brakes, wet track, or other cause there still remains one block of revolutions at each end of the route by which the controller is brought up to the correct position for the return trip, thus automatically correcting itself of any lost motion of the car-axle. It is also true that if there be gained motion, as in the case of electric or other cars where the motive power is applied to the car-axle or wheels, the controller will revolve to the correct position for the return trip and remain in said position till the return trip is commenced, thus automatically correcting itself of any gained motion.

Reference is to be had to the accompanying

drawings, forming a part of this specification, in which similar letters and numerals of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal vertical section of the inclosing box or case with the indicating belt and rollers removed. Fig. 2 is a detail view of a modified structure of the controlling-disk and connections shown in Fig. 1. Fig. 3 is a longitudinal horizontal section of the box, showing all the parts inclosed thereby in plan view. Fig. 4 is a broken transverse section through the upper part of the box. Fig. 5 is a detail view of the controlling-disk and its driving-gear.

The letter A indicates a box or casing of wood, or other suitable material, placed within a car, in which are secured standards B, Fig. 3, forming bearings for the shafts of the two rollers C, which carry the curtain D, mounted upon rollers.

The face of the curtain is marked with the names of the streets, stations, or other places to be indicated, and the case A is provided with a sight-opening *y*, Fig. 4, through which said names are exposed in succession as the curtain is wound on or off either of the rollers.

For the purpose of producing the required motions of the curtain-rollers C each of the roller-shafts is provided with a loose cog-wheel F, Fig. 3, and a sliding friction-disk G, which is pressed against wheel F by the spring H, and is prevented from revolving on the roller-shaft by the pin I, which passes through the roller-shaft and engages with a slot J in the end of the hub of the friction-disk G. The loose cog-wheels F are prevented from moving away from the friction-disks G by the fixed collar K.

The cog-wheels F gear with and receive motion from the small loose pinions L L, which are loosely journaled on the shaft M, and carry on their inside faces disks N, which are provided with notches to engage with corresponding pawls O' O'', fulcrumed on a shifting pulley P. The pulley P is loose on the shaft M, so that it may be moved to and fro to allow of the engagement with the small pinions L of either of the pawls O' O'', but is prevented from revolving on the shaft M

by a keyway on its inner surface which engages with the key Q on the enlarged portion of the shaft M.

Fixed at the left-hand end of the shaft M is a worm R, which engages with the pivoted shifting lever S', which, through the connection of the arm T with the shifting lever S², engaging with the slot U in the pulley P, shifts the pawls O' O² into and out of connection with the notches on the loose disks N as the car reverses the motion of the actuating-rod a, Fig. 1, on leaving either end of the route.

V is a pulley fixed on the actuating-rod a, which gives motion to the shaft M through the pulley P and the cross-belt W.

On the left end of the front roller-shaft is secured a cog-wheel X, which gears with the loose pinion Y, journaled on a stud Y' of the supporting-frame B. Fastened to the outer end of the pinion Y is a disk bearing on its periphery a point Y², which engages with the pivoted latch Z, which is provided with projecting lips 1 and 2, against which the point Y² bears alternately.

The latch Z is fulcrumed at Z', and through the movement of the bell-crank lever m, to which it is connected, releases the pinion Y, which is then revolved one revolution by the action of one of the friction-disks G against its loose cog-wheel F. The point Y² then comes up against the under side of the latch-lip 1, Fig. 1, and further movement of the roller is prevented till the bell-crank lever is again raised and depressed by the street-actuating disk.

The relation of the gears X and Y is as one to three, so that one revolution of the pinion Y allows the curtain-roller C to be revolved one-third of its circumference, which is the necessary distance to bring into view the name of the next street on the curtain D.

We will now take up the description of the device that allows the street-indicating curtain to be actuated at the proper time, so that the curtain may show the street-name at the proper places as the car runs over the route.

The actuating-rod a receives rotary motion from the car-axle through suitable mechanism driven by the axle under the car-body. A worm b on the rod engages with the gear c, which is loosely journaled on the stud e, projecting from the back of the box, and is provided with a slot f, which engages with the pin g, secured to the loose cog-wheel h and communicating motion to the latter when the said pin is moved by the rotation of the pinion c. A loose cog-wheel i, mounted upon a stud o, gears with wheel h and is pressed against a loose disk j by the spring k. The disk is thus rotated until the obstruction l on disk j bears against either face of the bell-crank m, at which time the cog-wheel i may continue its motion; but the disk j remains stationary in the correct position for the beginning of the return trip of the car. The disk j has arranged upon its periphery pro-

jections n, which engage with the bell-crank lever m and are spaced according to the distances between the streets. On the beginning of the return trip the gear c revolves in the reverse direction till the other end of the slot f engages with the pin g, when it revolves the disk j in the reverse direction to indicate the streets on the return trip of the car. The length of the slot f corresponds with the distance the car travels from the end of the route to the first street from the end, thus bringing the first street-indicating projection n to act on the lever m at the proper place on the return trip.

The latch Z has three lips, as shown in the drawing, Fig. 1, and designated by the numerals 1, 2, and 3. When the bell-crank lever m is in the position shown in Fig. 1, the point Y² is pressing on the lower side of the latch-lip 1. On the reversal of the motion of the car the point Y² can revolve far enough in the reverse direction to indicate the first street on the return trip without any movement of the latch Z or lever m, thus setting the street-curtain in the right position for the return trip.

The use of the latch-lips 2 and 3 is shown from the movement of the lever m, as it will be seen that as the lever rises on the projections n the latch-lip 1 is swung from over the point Y² and said point presses up against the under side of lip 2, which then swings from over the point Y² as the lever m goes down the other side of the projection n and allows the curtain to move one street. Lip 3 takes the place of lip 2 on the return trip of the car.

Fig. 2 is a modification of the street-actuating device shown in Fig. 1 and is the same in its action and general arrangement, the only material difference being that the street-disk j is fastened to and moved by a ratchet r, both being loose on the stud o. The loose cog-wheel i is provided with an inverted-T lever s, fulcrumed at t and provided with a spring u, which holds the lever upright. Below this lever s is another lever v, fulcrumed at w and bearing on either end a pawl v', which engages with the ratchet r. The loose cog-wheel i, being acted upon by the cog-wheel h, carries the lever s against the obstruction l, fastened to the box A. The obstruction l then depresses s, and consequently v, and thus throws one pawl on v out of the ratchet and the other pawl into the ratchet r in the correct position to rotate the street-disk in the reverse direction on the return trip of the car.

It will be seen that my device is especially built for cars that do not turn around at each end of the trip, but in which the motion of the axle is reversed. It can, however, be used on cars that do not reverse the axle motion, but turn round at each end of the trip, by various other means, such as a lever under the car and a tripping device on the roadway at either end of the road, which will reverse

the motion of the actuating-rod *a* through suitable mechanism under the car-body.

I do not limit myself to the exact construction or kind of mechanisms herein described, as it is evident that they can be considerably modified by those skilled in the art without departing from the spirit of my invention as expressed by the claims which I have made.

Having described my invention, I claim—

10 1. Station-indicating mechanism driven from a car-axle so arranged as to be operated periodically during the trip of a conveyance, and provided with automatic means for positively stopping it at or within a limited distance from the end of the route without affecting the movement of the means for driving it, substantially as set forth.

20 2. Station-indicating mechanism arranged so as to indicate a prescribed number of streets or stations upon a route with approximate accuracy to a point near the terminus, and having a positive stop automatically operated for holding it stationary at the said point, whereby it is placed in correct position for commencing the indication upon the return trip, substantially as set forth.

30 3. In a street or station indicator the combination with a shaft geared to the axle of a car of a rotary controlling-disk driven from said shaft by frictional gearing, a traveling indicator-belt deriving its motion from said shaft, a latch for holding the belt stationary, and a connection from the controller to said latch for releasing the belt and permitting it to derive motion at intervals from the main shaft, substantially as set forth.

40 4. In a street or station indicator a controller geared frictionally to a continuously-moving shaft, an indicator-belt geared frictionally to said shaft, a latch for holding the indicator-belt stationary, a connection from the latch to the controller for periodically releasing the belt and permitting it to move, and a stop for limiting the movement of the controller and belt without affecting the rotation of the shaft, substantially as set forth.

50 5. In a street or station indicator a movable indicating-belt geared to a driving-shaft, a controlling-disk having its periphery provided with devices spaced according to the points in a route to be indicated, and frictionally geared to said driving-shaft, a latch for alternately holding and releasing the belt and operated by the controller, and a stop whereby the controller and belt are stopped at or near the end of a route without affecting the rotation of the driving-shaft substantially as set forth.

60 6. The combination with the rollers carrying the indicating-belt of a driving-shaft *a*, a shaft *M*, a shaft for each roller geared frictionally to said shaft *M*, and a sliding clutch

upon the shaft *M* connected to the driving-shaft and communicating motion to either roller according to the direction of rotation of the driving-shaft *a*, substantially as set forth. 65

7. In combination with the reversibly-movable driving-shaft and the rollers carrying an indicating-belt, the shaft *M*, having gearing for driving the rollers independently, a sliding clutch upon the shaft *M*, connected to the driving-shaft, a worm upon the shaft *M* and connected levers *S'* *S*², engaging respectively with said worm and said clutch, substantially as and for the purposes set forth. 75

8. A street or station indicator comprising a reversibly-rotatable driving-shaft geared to a car-axle; reversibly-movable rollers carrying an indicating-belt and driven by gearing from the driving-shaft which includes a frictional connection; a movable latch for temporarily stopping the rollers, a reversibly-movable toothed controlling-disk driven by gearing, part of which is frictional, from the driving-shaft, and a lever operated by the controlling-disk and connected to said latch, substantially as set forth. 85

9. In a street and station indicator the combination with driven rollers carrying an indicating-belt of a latch for periodically stopping said rollers, a driving-shaft, a train of gearing driven by said shaft, a loose controlling-disk in frictional contact with one member of said train, a spring for increasing the frictional contact and a lever connected to said latch and operated by said disk, substantially as set forth. 95

10. In a street or station indicator rollers carrying a belt and geared partly by friction-gearing to driving-shaft, a latch for alternately holding and releasing the rollers, and a controller operated independently of the rollers by the common driving-shaft and having means for periodically moving said latch to release said rollers, substantially as set forth. 105

11. In a street or station indicator of the continuous type and in combination with a box or case adapted to be mounted within a car and with an actuating rod or shaft geared to an axle of the car, an indicating-belt carried by rollers and driven by said actuating-rod, a latch for alternately holding and releasing said rollers, and a controller connected to said latch, all contained within said case or box, substantially as set forth. 115

In testimony whereof I have affixed my signature, in presence of two witnesses, this 9th day of December, 1893.

HERBERT C. TURNER.

Witnesses:

L. W. SEELY,
EDW. COOPER.