

O. GASSETT.
Gates for Railway-Crossings.

No. 157,123.

Patented Nov. 24, 1874.

Fig. 1.

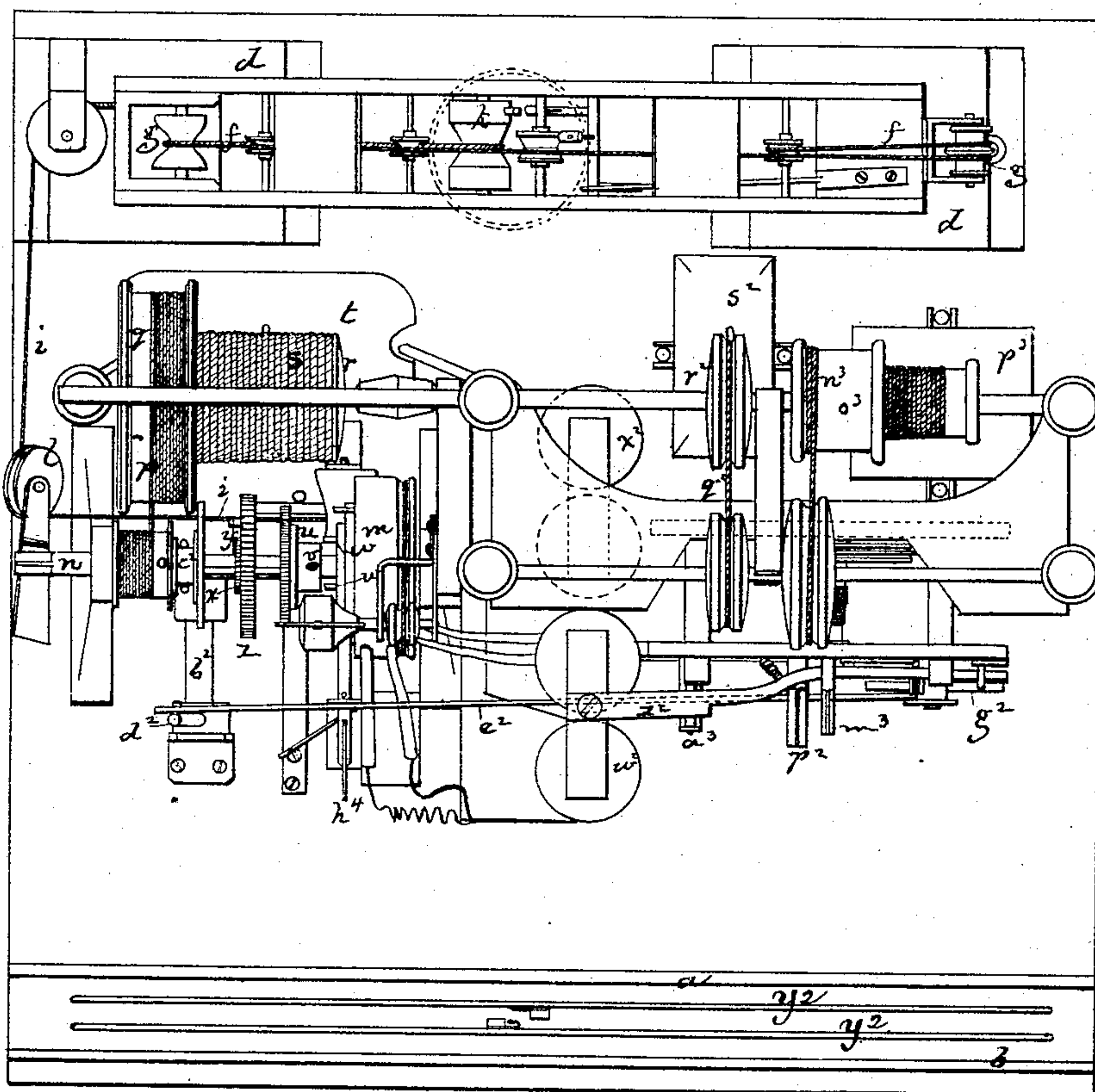
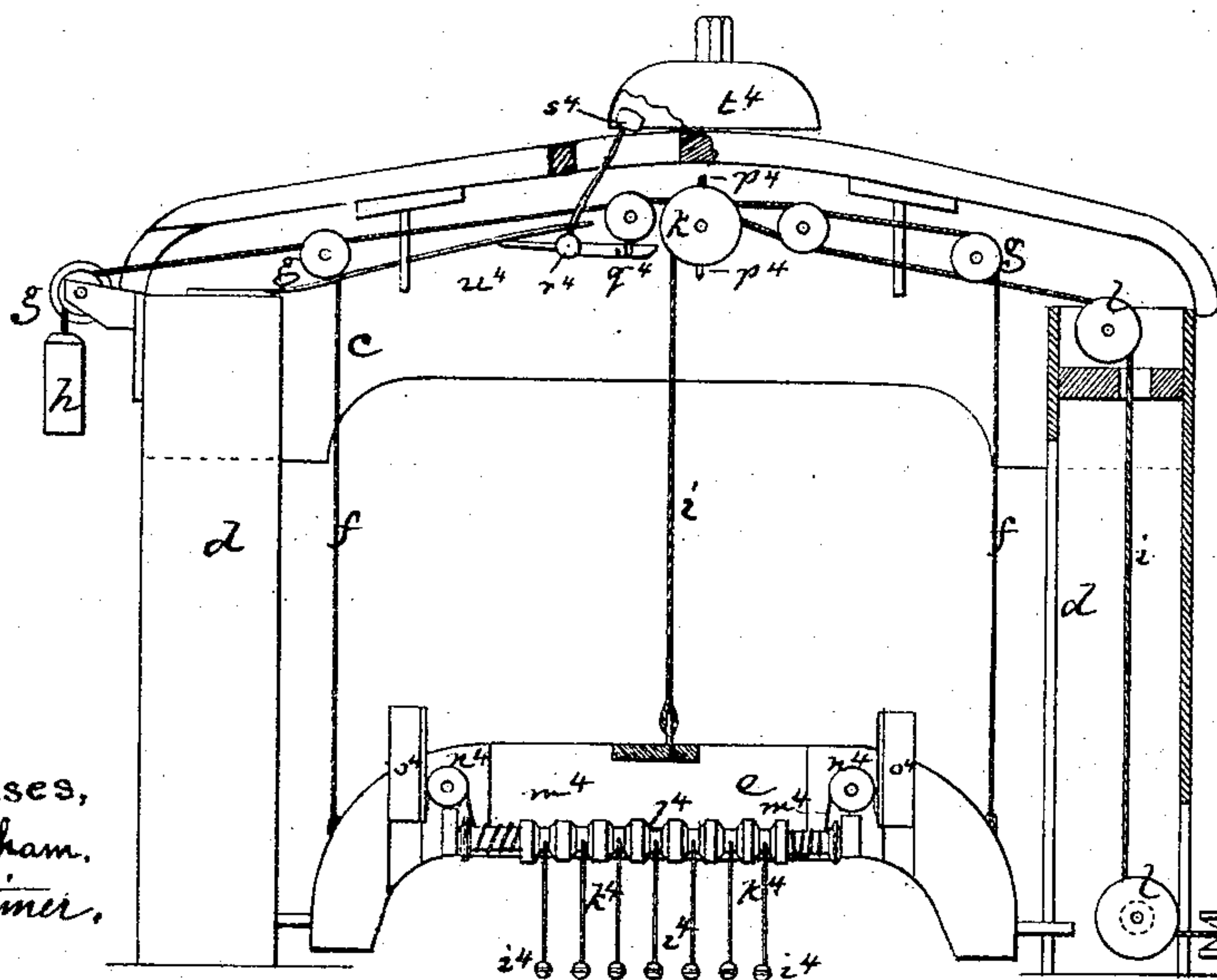


Fig. 4.



Witnesses,
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L. H. Patimer.

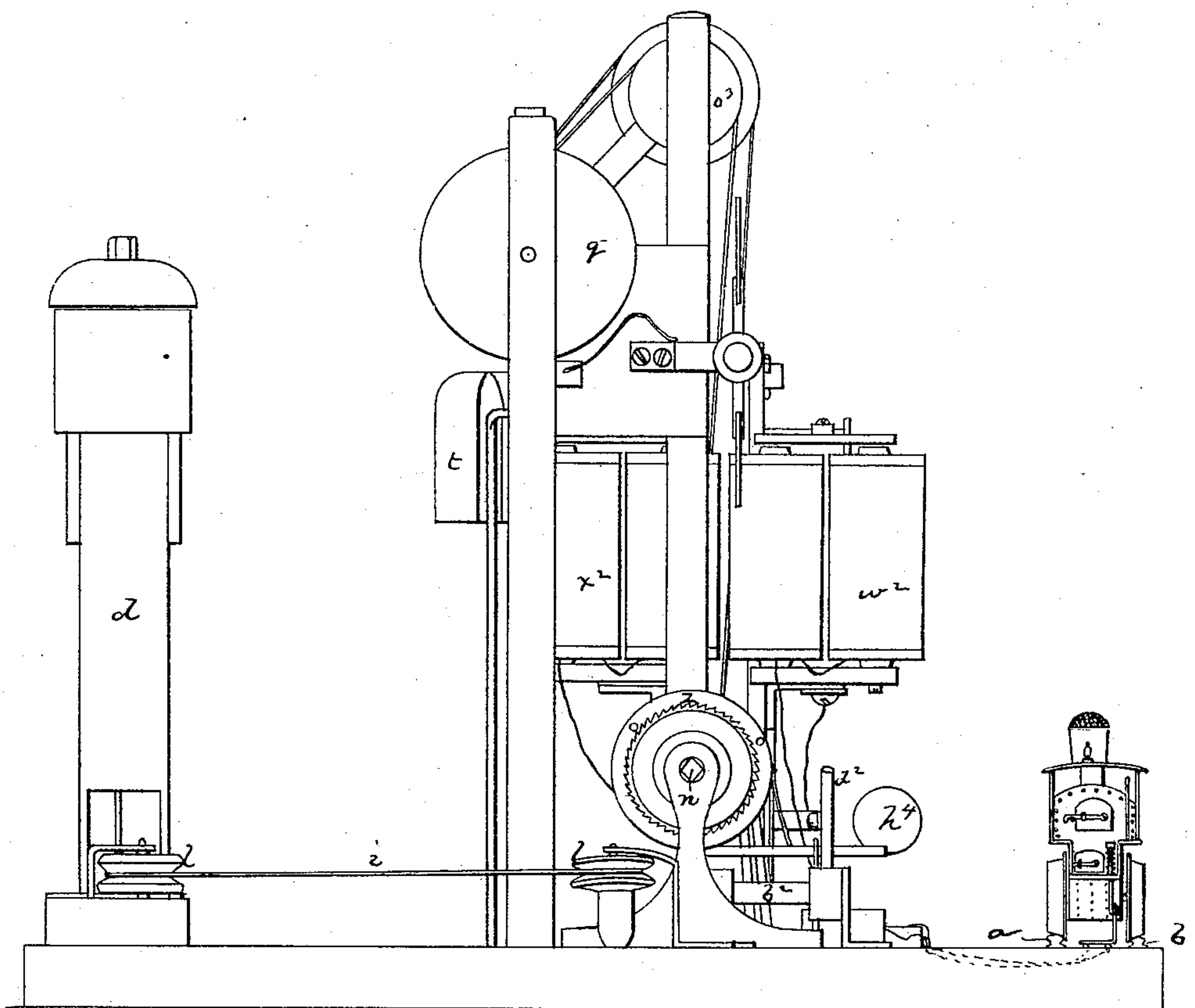
Inventor,
Oscar Gassett
By his Atty.
Crosby & Gould

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Fig. 2.

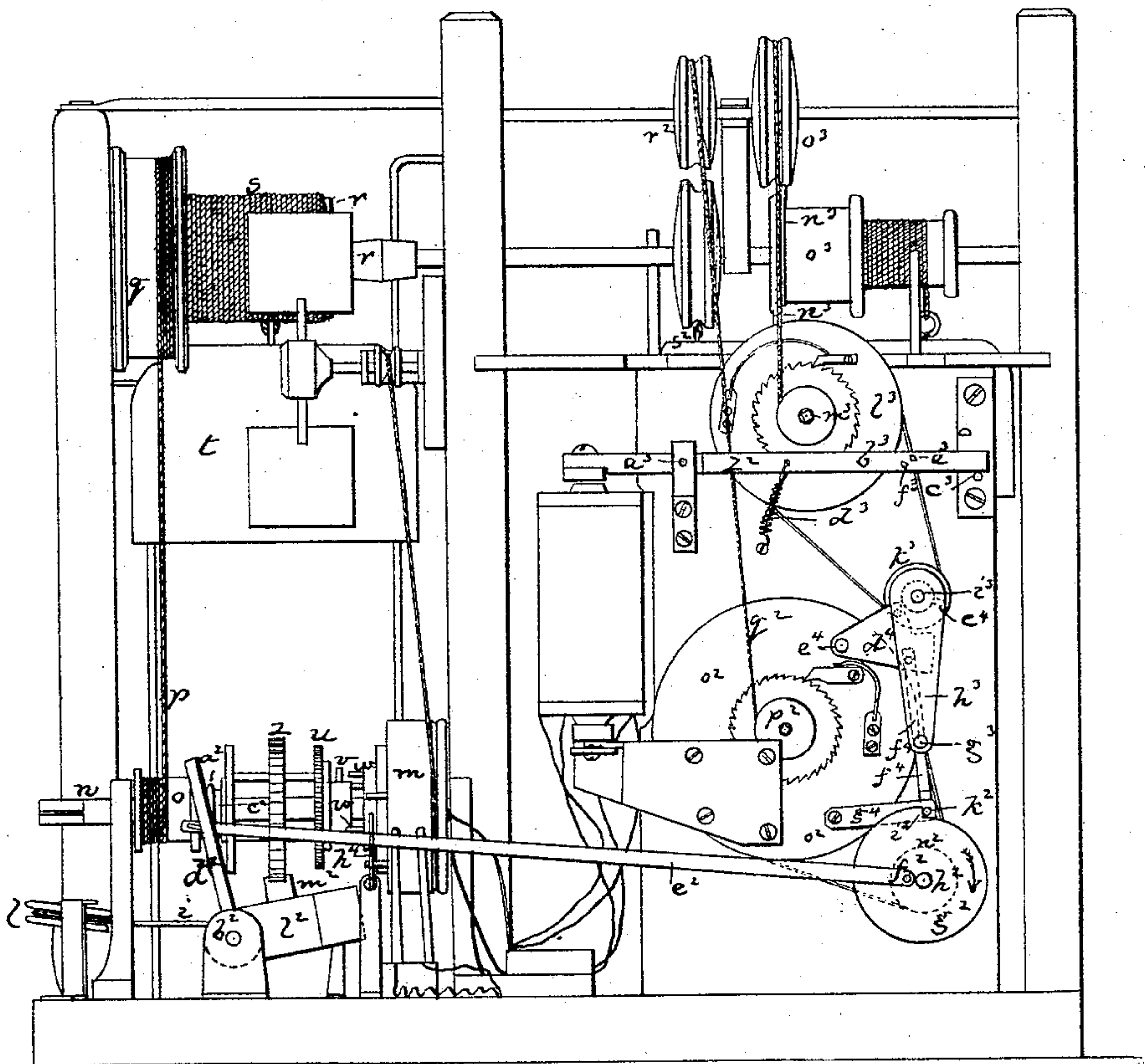


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Fig. 3.



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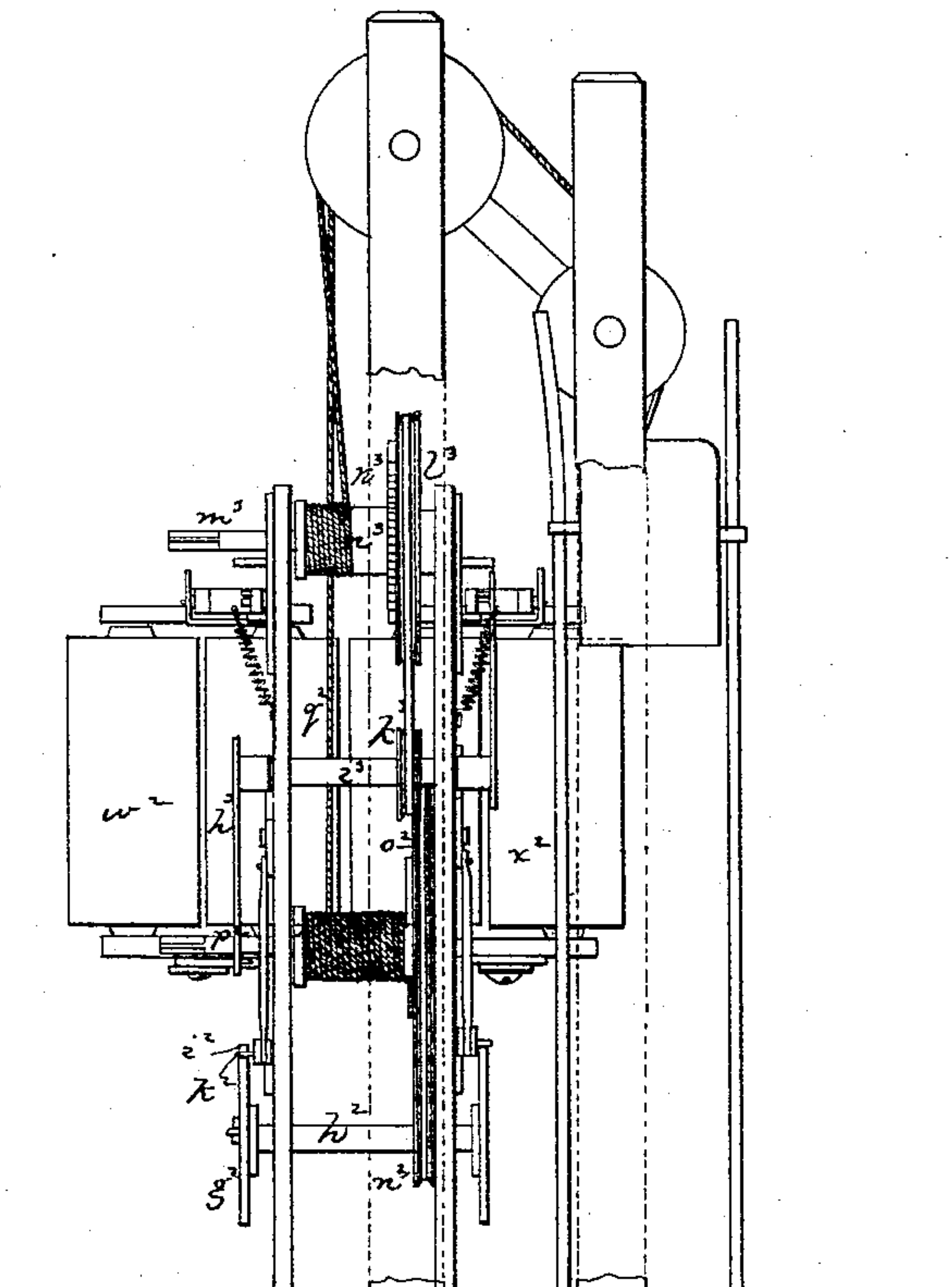
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Fig. 5.



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UNITED STATES PATENT OFFICE

OSCAR GASSETT, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN GATES FOR RAILWAY-CROSSINGS.

Specification forming part of Letters Patent No. **157,123**, dated November 24, 1874; application filed December 1, 1873.

To all whom it may concern:

Be it known that I, OSCAR GASSETT, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Mechanism for Operating Gates at Railway-Crossings; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention has particular reference to a peculiar combination and arrangement of mechanism, by which, through the action of a system of weights and clutch mechanism, a railway-gate may be, automatically, either raised or lowered from an approaching or passing train.

In my invention I suspend the gate from a cord or cords, connected by suitable sheaves and pulleys with a winding pulley or wheel, by turning which in one direction the cord is wound upon it sufficiently to raise the gate, its movement in the opposite direction permitting the gate to drop. This wheel, which I term the gate-wheel, turns loosely upon a key-shaft, which carries a fast pulley, upon which winds one end of a cord, the other end of which winds in the opposite direction upon a drum fixed upon a windlass-shaft that carries a barrel, having suspended from a rope, winding in the opposite direction upon it, a weight. The key-shaft carries a sliding clutch-wheel mechanism, splined to the shaft, and, when thrown into connection with clutching devices on the gate-wheel, the shaft and pulley turn together, and, the shaft being turned by the stress of the weight, the gate is thereby raised, while by sliding the clutch from contact with the gate-wheel the gate is free to fall by gravity, its descent being properly governed. The clutch-wheel is connected by a link-and-lever mechanism with a gear and escapement train, operated by suitable weights, and set in operation to throw the clutch into or out of connection with the loose pulley (as the gate may need to be raised or lowered) by any suitable means.

My invention consists, primarily, in the organization thus generally described.

The drawing represents a mechanism em-

bodiment of my invention, the parts being compacted to enable them to be shown, and, of course, not having wholly the same relative position as when built for practical use.

Figure 1 shows the parts in plan. Fig. 2 is an end view of them. Fig. 3 is a side elevation. Fig. 4 shows the gate in elevation. Fig. 5 shows the gear-train in end elevation.

a b denote the tracks of a railway. *c* is an arch or frame between the posts *d*, of which a gate, *e*, is arranged to rise and fall, it being suspended, in part, from two cords, *f*, running from opposite ends of the gate up and over sheaves *g*, the cords extending to the same end of the frame, and having a common counterbalance weight, *h*, by the weight of which the gate as it rises or falls hangs in horizontal position, and is thereby kept from binding. From the center of the gate extends a suspending-cord, *i*, that passes up and over a guide-sheave, *k*, and thence to and around guide-sheaves *l* to the loose gate-wheel *m* on the horizontal key-shaft *n*. This shaft turns in stationary bearings, and has fixed upon it a pulley, *o*, around which winds a cord, *p*, that extends to a winding-drum, *q*, on the end of a windlass-barrel, *r*, a cord, *s*, winding upon said barrel, and having suspended to it a weight, *t*.

When the wheel *m* is fast to the shaft *n* the stress of this weight, if the gate be down, turns the windlass, winds the cord *p* upon the pulley *o*, turns the shaft *n* and the wheel *m*, and winds the cord *i* upon the wheel *m*, thereby raising the gate. When the gate-wheel *m* is loose upon the key-shaft, the weight of the gate causes it to descend, its descent unwinding the cord from the loose wheel, the regular descent of the gate being governed by any suitable means.

To connect the gate-wheel *m* with the key-shaft, or disconnect it therefrom, for raising the gate or permitting it to descend, a sliding clutch-wheel mechanism is placed on the key-shaft *n*, such clutch mechanism being splined to, and rotating, with the shaft, and, when in engagement with the gate-wheel *m*, causing the said wheel to rotate with it.

u denotes this clutch-wheel, having a clutch-pin, *v*, which, when the clutch-wheel is moved up to the gate-wheel *m*, engages with some one of the clutch-pins *w* thereof to lock the two

wheels together for their common rotative movement.

When locked together the gate-wheel is subjected to the stress of the weight t to raise the gate, and when unlocked said wheel is freed from the stress of such weight and permits the gate to fall.

The key-shaft n has fixed upon it a ratchet-wheel, x , which, by a spring-pawl, y , is connected to a gear-wheel, z , which is loose upon said shaft, and is keyed or connected to the clutch-wheel u , the ratchet-and-pawl mechanism enabling the key-shaft to be turned to wind up the cord s , and raise the weight when the weight is run down. The clutch-wheel is slid upon the shaft to disconnect it from the gate-wheel m , as follows: a^2 denotes a fork extending from a rocker-shaft, b^2 , and straddling a hub, c^2 , on the clutch-wheel, said shaft having an arm, d^2 , connected by a link, e^2 , with a crank-pin, f^2 , on a stop-wheel, g^2 . This stop-wheel is on a shaft, h^2 , and has a shoulder, i^2 , held against a pin, k^2 , by the stress of a weight or suitable spring, which tends to turn the stop-wheel in the direction denoted by the arrow thereon. When the shoulder i^2 is against the pin k^2 the link is in position to hold the clutch out of engagement with the gate wheel, but when the pin k^2 is raised above the shoulder, the stop-wheel, by the stress of the weight or spring, makes a half-rotation, thereby drawing the link back, and throwing the clutch into engagement with the gate wheel. The rocker-shaft b^2 has an arm l^2 , carrying a tooth, m^2 , which tooth, when the rocker-shaft is turned to disengage the clutch and gate-wheels, is raised and thrown into engagement with the teeth of the gear-wheel z to arrest the rotative movement of the key-shaft n by the stress of the weight t . When the rocker-shaft is turned to engage the clutch and gate wheels, the tooth is thrown out of engagement with the gear, and permits the key-shaft to be turned by the weight t to raise the gate. The shaft h^2 of the stop-wheel g^2 is shown as carrying a pulley, n^2 , belted to a pulley, o^2 , on a winding-arbor, p^2 , a drum upon said arbor having winding upon it a cord, q^2 , which, passing over suitable sheaves, r^2 , has suspended from it a weight, s^2 . The stress of this weight tends at all times to turn the stop-wheel in the direction of the arrow thereon, and the arbor p^2 has a ratchet-and-pawl mechanism, by means of which the arbor is permitted to be turned to raise the weight, and the arbor and pulley o^2 are locked together to bring the stress of the weight upon the stop-wheel g^2 . When the stop-wheel makes its semi-rotative movement after its shoulder is disengaged from the pin k^2 , it is stopped at the completion of such movement by a pin, t^2 , against which strikes a shoulder, u^2 , on another stop-wheel, v^2 , on the

stop-wheel shaft h^2 . When the pin t^2 is raised from the shoulder u^2 , the stress of the weight s^2 again turns the stop-wheel g^2 until its shoulder again strikes the pin k^2 . Thus, by the alternate positions which the stop-wheel is made to assume, the clutch-wheel and gate-wheel are engaged or disengaged, as the gate is to be raised or lowered. Suspended from the gate e are shown weights i^4 fixed to the cords k^4 , which cords hang from a shaft, l^4 , connected by cords m^4 , running over sheaves n^4 with sliding blocks o^4 , the stress of the weights causing them to hang down from the gate when the gate is lowered, and the contact of the blocks with the top of the frame c causing the cords to wind upon the shaft and raise the weights into or under the gate when the gate is raised. These weights and cords enable an arched gate to be used as the weights descend from the gate, and serve to fill the gateway when the gate descends. The pulley k , over which the gate raising and lowering rope i runs, has extending from it a pin, p^4 , that, as the pulley turns in the descent of the gate, strikes an arm, q^4 , extending from a shaft, r^4 , that carries a hammer, s^4 , the pin throwing back the hammer, and the hammer, when released, striking a bell, t^4 , by the action of a spring, u^4 , thereby giving notice of the shutting of the gate.

Although I have thus described a specific mechanism, it will be obvious that my invention is not limited to the employment of such mechanism, the essentials of the invention being the gate raised by the weight, and falling by gravity, and having its rise and descent controlled by a clutch mechanism.

I claim—

1. The combination of the weight, and the system of cords and pulleys connecting it, with the key-shaft n , for raising the gate, with the clutch-wheel u and loose gate-wheel m , by which the weight is brought into connection or thrown out of connection with the gate.

2. The gate and the weight for raising it, the clutch-wheel u and gate-wheel m , for bringing the weight into or out of connection with the gate, and the stop-wheel g^2 , link e^2 , arm d^2 , rocker-shaft b^2 , and fork a^2 , by which the engagement and disengagement of the clutch-wheel are controlled and operated, substantially as described.

3. In combination with the gate e , the weights i^4 hung and operating substantially as shown and described.

4. The gate-wheel m , clutch-wheel u , clutch-lever a^2 , link e^2 , connected and operated substantially as described.

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Witnesses:

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