

(No Model.)

2 Sheets—Sheet 1.

J. GOODALE.
STORE SERVICE APPARATUS.

No. 327,788.

Patented Oct. 6, 1885.

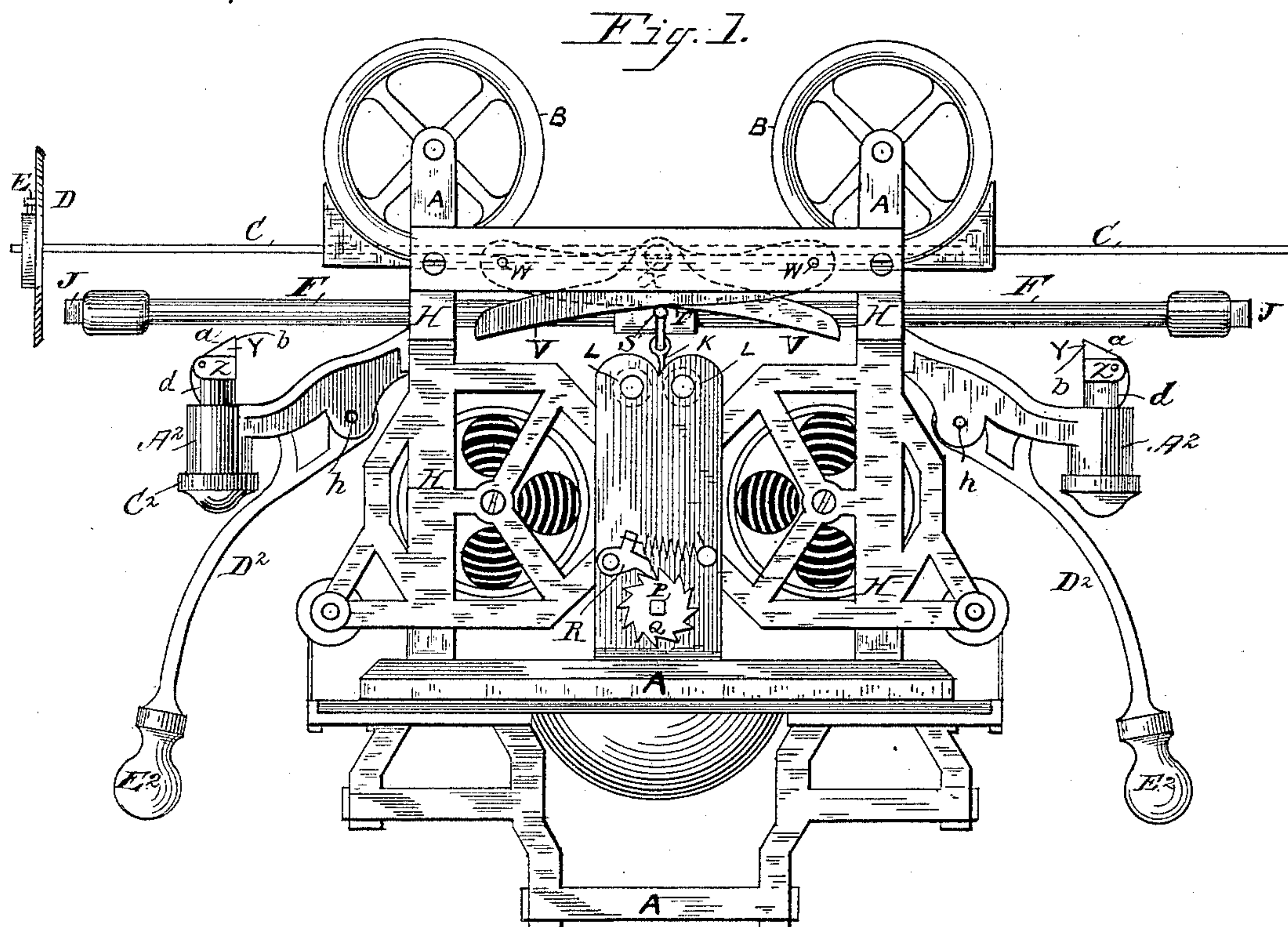
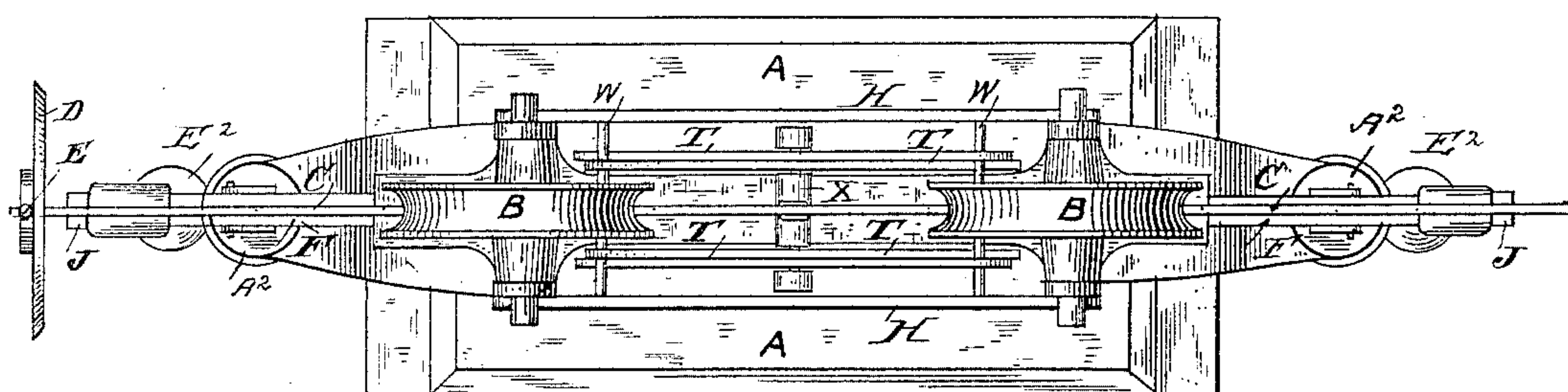


Fig. 2.



Witnesses
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2 Sheets—Sheet 2.

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Fig. 3.

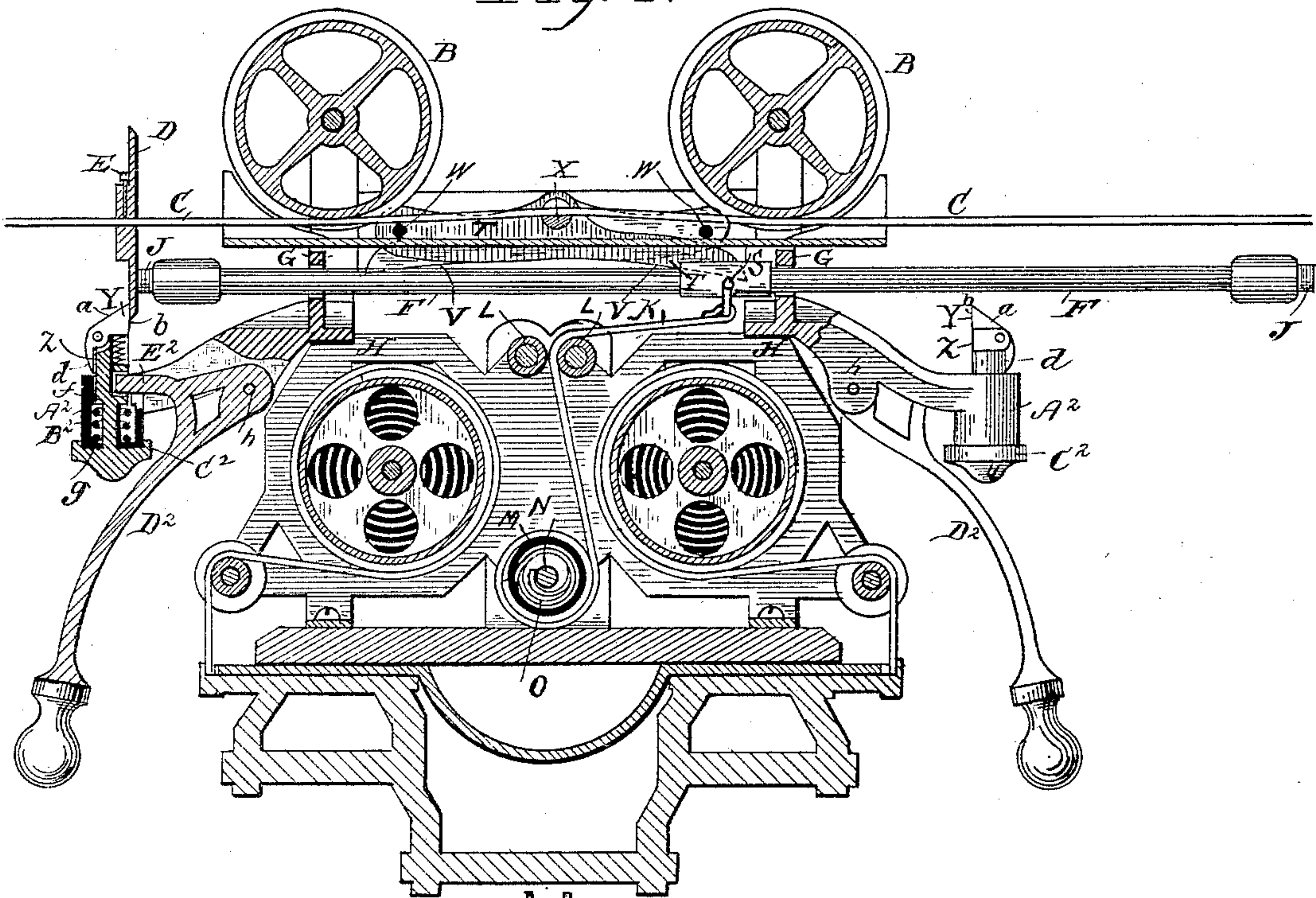


Fig. 8.

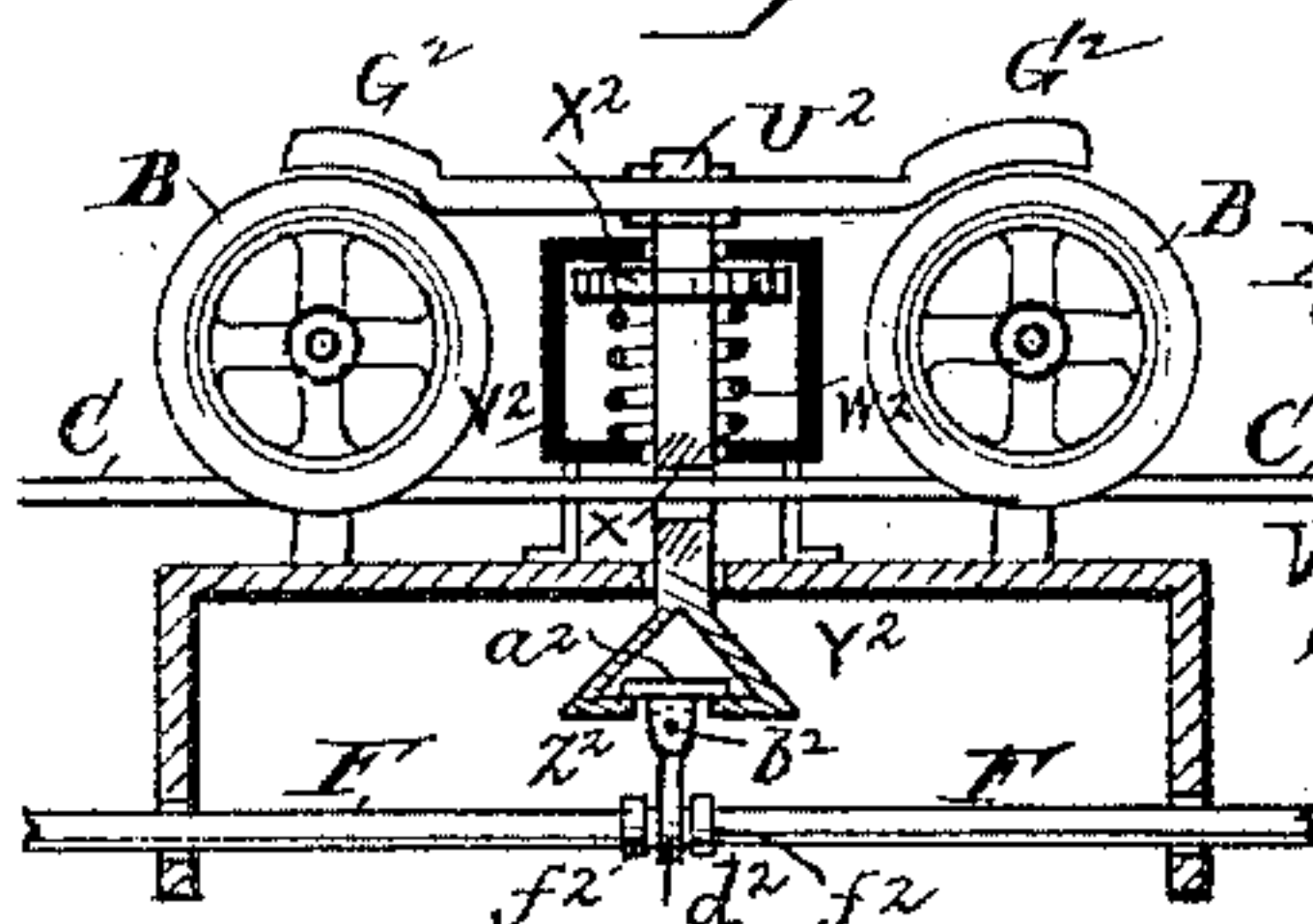
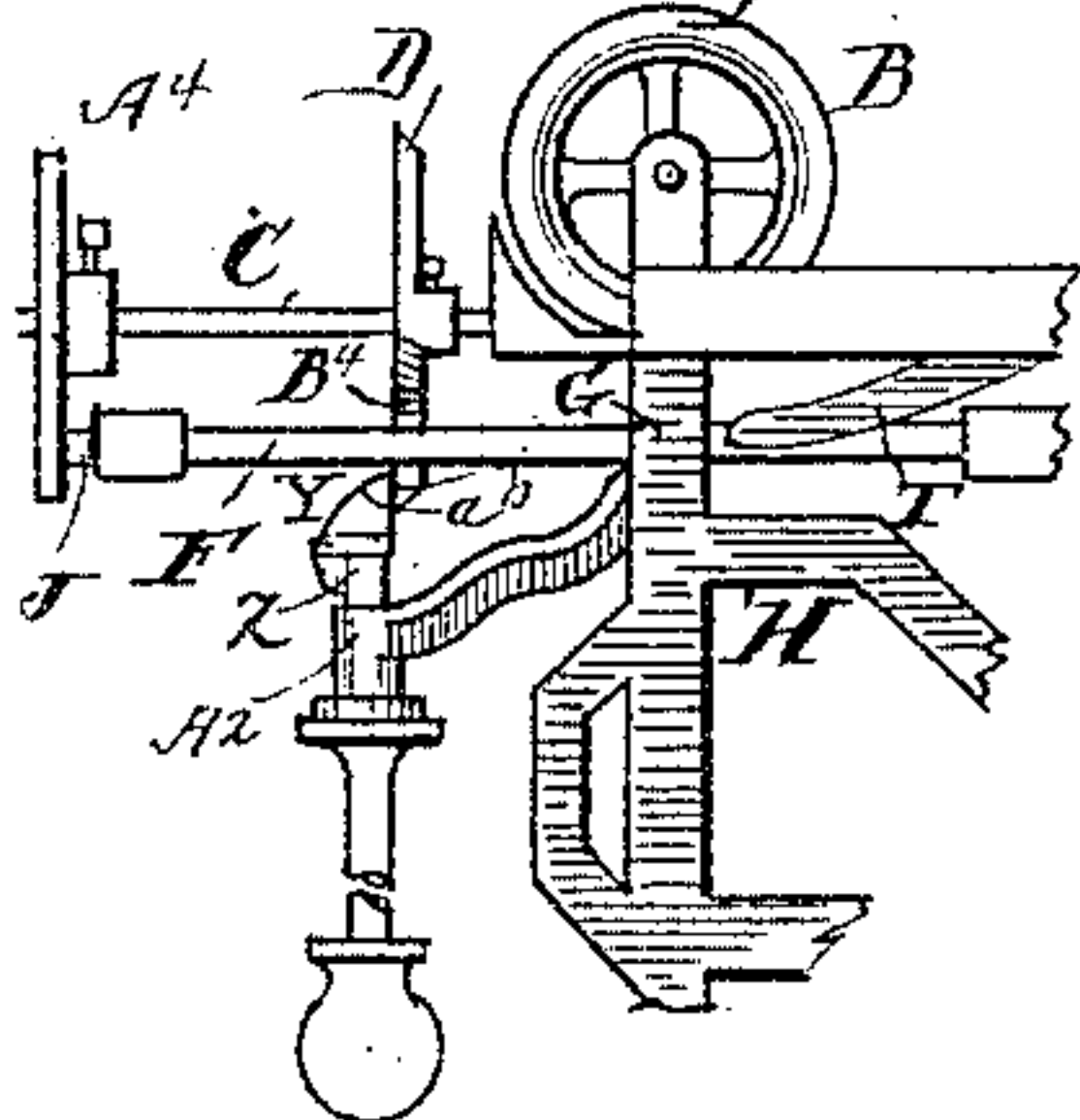


Fig. 9.



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Fig. 5.

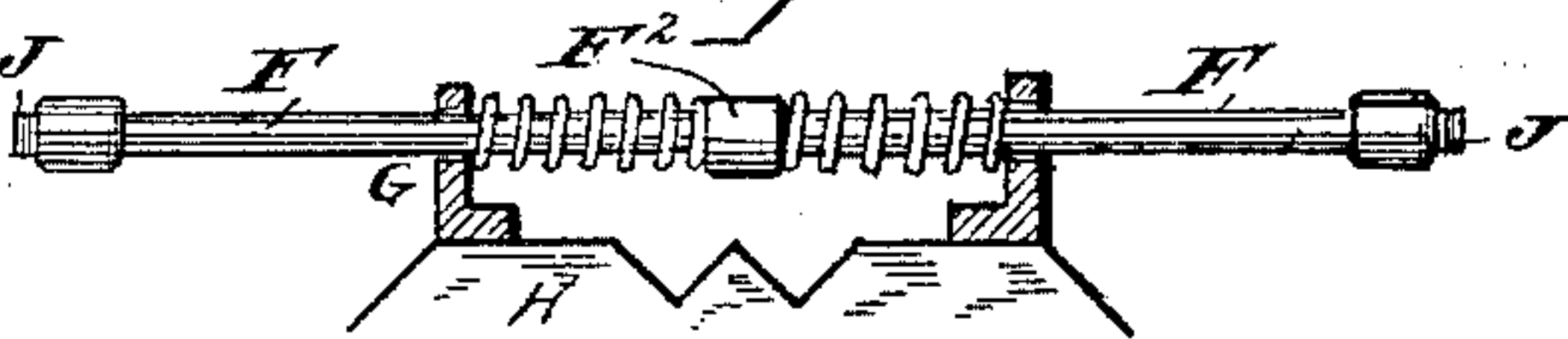


Fig. 4.

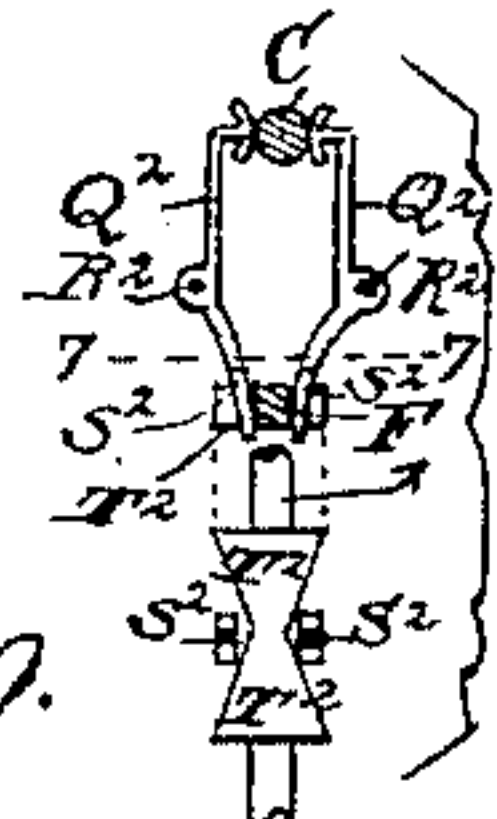
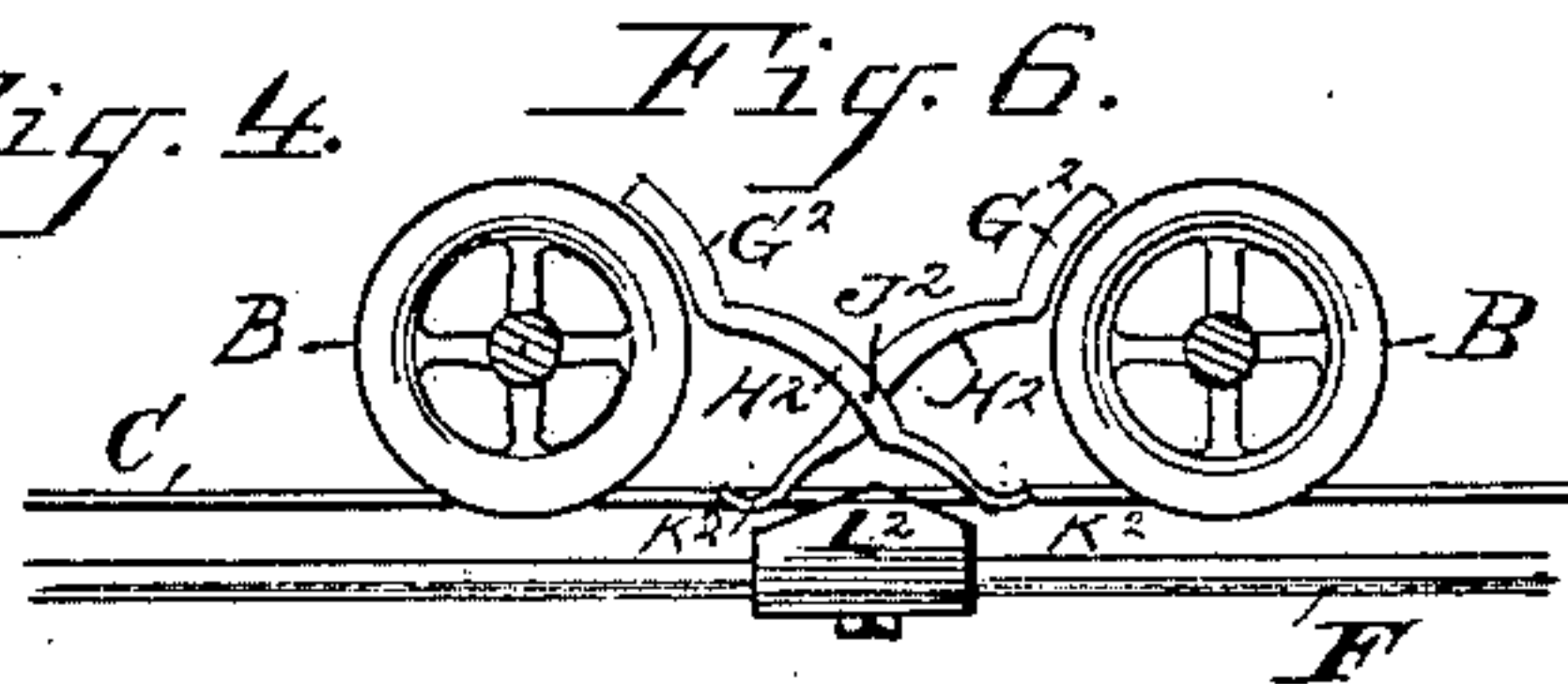
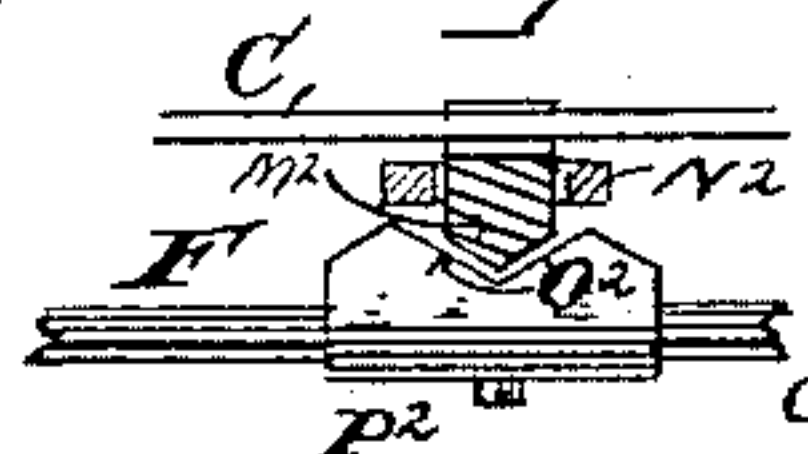


Fig 10.



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UNITED STATES PATENT OFFICE.

JOHN GOODALE, OF CAMBRIDGE, MASSACHUSETTS.

STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 327,788, dated October 6, 1885.

Application filed September 4, 1885. Serial No. 176,193. (No model.)

To all whom it may concern:

Be it known that I, JOHN GOODALE, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Cash or Parcel Apparatus for Stores, &c., of which the following is a full, clear, and exact description.

This invention relates to apparatus for carrying cash, parcels, &c., in stores and other places wherein is employed a car suspended and running, preferably by wheels, upon a wire or other suitable way therefor, and it has especial reference to mechanism for impeding and stopping the car in its travel on its way and for holding it stationary and against returning until it is properly released therefor.

This invention, as to the mechanism aforesaid, consists, in substance, of a disk or other flange of suitable shape, (a disk being preferable,) preferably attached to and so as to be adjustable along the length of the wire or other way for the car, in combination with a yielding buffer and a catch, both carried by the car and constructed and arranged so that in the movement of the car along its way the yielding buffer will impinge against said flange or other suitable abutment therefor, and thus secure the stopping of the car in its travel, and the catch will then automatically engage with said flange, and thereby hold the car stationary and against return, said catch being suitably adapted to be released for the car to be returned when so desired.

Again, this invention, as to the mechanism to which it relates, as aforesaid, consists, in substance, of an abutment preferably attached to and so as to be adjustable the length of the wire or other way for the car, a buffer carried by the car and arranged thereon so as, in the travel of the car along its way, to impinge against said abutment, and thereby to be moved in a direction opposite to that in which the car is traveling, and mechanism carried by the car, and connected to said buffer, and constructed and arranged so as, from said movement of said buffer, to secure increased frictional resistance to the movement of the car over its way, and in combination or not with retaining mechanism in part attached to the car and in part to a suitable stationary support, and constructed and arranged to hold

the car stationary and against return after the impingement and movement of its buffer, as aforesaid, and to be released for the car to be returned when so desired.

Again, this invention, in substance, consists in the combination, with a car adapted to travel upon a wire or other suitable way, of a retaining device for holding the car stationary and against return, which is composed in one part of a yielding toe or catch piece attached to a carrier-block arranged to be moved forward and backward in a suitable guideway therefor in one direction against and in the other with the reaction of a spring suitably applied therefor, (said block being preferably provided with a handle for convenience in operating it against its spring to release the catch,) and in the other part of a flange, preferably of a disk shape and attached to the carway, to be adjustable along the length thereof, and otherwise constructed and arranged for the engagement of said catch therewith in the movement of the carriage in one direction, and thus secure the hold of the car against return until the catch is released by properly operating the carrier-block thereof.

In the accompanying drawings an apparatus of the character above described is illustrated.

Figure 1 is a side elevation of the car and its rail or way, and the whole in its normal position. Fig. 2 is a plan view of Fig. 1. Fig. 3 is a longitudinal vertical section on line 3 3, Fig. 2, but showing the car caught and held against return, the buffer and connecting mechanism in position securing increased frictional resistance to the movement of the car on its way. Fig. 4 is a transverse vertical section on line 4 4, Fig. 3. Figs. 5, 6, 7, 8, 9, and 10 are views in detail, illustrating modifications, to be hereinafter described.

In the drawings, A represents a car having two grooved wheels, B B, running on a wire, C, leading from the points between which the car is to run, and secured in any suitable manner at its opposite ends and so as to be taut.

The car A and its wheels B and wire C (shown except as to the features of this invention) are severally constructed and operated in every respect substantially the same as are the same parts shown and described in Let-

ters Patent of the United States dated December 1, 1883, and March 18, 1884, Nos. 290,190 and 295,172, to which reference is hereby had for a description thereof, the same forming no part of this invention.

D is a flange of disk shape, secured by a set-screw, E, to the wire C. A flange, D, is to be located at each end of the wire C, and each flange D is attached by a set-screw, E, so as thereby to be capable of adjustment as may be desired, along the length of the wire C. Each disk-flange D acts as an abutment to the travel of the car along the wire, and also as one part of a catch device for holding the car stationary and against return, the other part being carried by the car, as will hereinafter appear.

F is a rod extending horizontally along the upper portion of the car under its wheels B and wireway C, and through stationary ear and guide pieces G of the car-frame H. This rod F projects from each end of the car, and each of its projecting ends has an india-rubber or other elastic or yielding cushion, J, suitably secured in place, and it acts as a buffer, impinging, in the travel of the car along its wire C, by either end, as the case may be, against the disk D, secured at the ends of the wire, and thus acting to stop the movement of the car. This rod F is free to play forward and backward through the ear or guide pieces G therefor, and midway of its ends the upper end of a strap, K, is fastened to it. This strap K passes from the buffer-rod F down and between two transverse parallel horizontal guide-rolls, L L, of the car-frame H, and its lower end is attached to the outside of a transverse horizontal shaft, N, suspended in suitable bearings of the car-frame H, and interiorly provided with a spiral spring, O, surrounding and at one end fastened to said shaft and at the other end attached to the inside of said barrel. This shaft at one, P, of its outer ends, is adapted to receive a key for convenience in turning it to wind up the spring O, which is attached to it and to the barrel, and its said end P is also provided with a ratchet-wheel, Q, with which engages a spring-pawl, R, hung upon the car-frame H, all so that the spring can be wound up to the desired tension, the strap wound upon the barrel, and the spring secured against unwinding, all as is obvious without further description.

The movement of the buffer-rod F in either direction through its guide or ear pieces G, works, through its strap K, against the wound spiral spring O of the barrel M, the recoil of which acts to return the rod, to its normal position, and in either movement of the rod the strap runs over one of the guide-rolls L, according as the buffer-rod, by the impingement of either of its ends against the abutment-disks D of the wire C therefor, is moving in either one or the other direction.

In the use of the car the operation above described of the buffer-rod F, strap K, and spring O is occasioned by the impingement of

an end of the buffer-rod against a stationary abutment, D, at each end of the wire.

S S are horizontal pins or arms projecting from opposite sides of the buffer-rod; T T, two similar pairs of levers. Each lever T, by its lower and similar cam-shaped edge V, rests and bears upon the upper side of an arm or pin, S. The separate levers of each pair of levers T T cross each other, and each lever at one end is free, and at the other end each is suspended upon a transverse fulcrum-rod, W, fixed to the car-frame H. The free and suspended ends of the levers of each pair are respectively on opposite sides of the rest pins or arms S for the levers, and a lever of each pair is suspended upon a common fulcrum-rod, W.

The levers of both pairs of levers T T, and intermediate of their length, are hung upon a common transverse rod or brake-shoe, X. This brake-shoe X extends across and under the wire C for the travel of the car, and it is free to rise and fall with the levers, as they are made to rise or fall from the forward and backward movement of the buffer-rod, acting through its rest pins or arms S against the lower and cam-shaped edges V of the levers, and this arrangement of levers, brake-shoe carried in common by them, and the forward and backward moving buffer rod, is all so as to secure frictional resistance between the car and its wire, as the car is traveling, from the then impingement of the buffer-rod against the abutment therefor at either end of the wire, and its movement in a direction opposite to that in which the car is traveling, by all of which said brake-shoe, common to the pairs of levers, is lifted into frictional contact with the wire. In the return movement of the buffer-rod the brake-shoe lowers, thus breaking the frictional contact between it and the wire, and, obviously, the frictional contact between the brake-shoe and wire, under an arrangement and operation of levers and other parts such as described, can be made more or less by increasing or decreasing the extent of lift of the brake-shoe, and this lift of the brake-shoe may be such as to produce an increased friction between the wire and the wheels of the car in addition to that produced, as described, between the brake-shoe and the wire.

The car A, having attachments, such as have been described, to increase the frictional resistance of its travel over the wire and to otherwise act to stop the car, is provided at each end with a spring-catch or toe-piece, Y, to engage with the stationary disks or flanges D of the wire, and thus hold the car stationary and against return until the same is released. Each catch or toe-piece Y swings upon the upper end of a vertically-arranged carrier-block, Z, and is constructed with a vertical inclining edge, a, arranged to trip or upset on its impingement against the edge of a flange, D, from the travel of the car in a direction toward said flange, and thus to pass by the flange, and

then to automatically return and into position to make a bearing by its upright edge *b* against face of the flange the farther from the car, Fig. 3, and by its shoulder *d* to abut against its carrier-block, and thus hold the car stationary and against return.

Each carrier-block *Z* is arranged in a vertical guideway or socket, *A*², of the car-frame *H*, and inside of said guideway it has a shoulder, *f*, between which and a shoulder, *g*, at the lower end of the guideway, a coiled spring, *B*², is confined. Said spring surrounds the carrier-block, and the carrier-block projects below the socket *A*², and is there provided with a collar or shoulder-piece, *C*², to limit the upward movement of the carrier-block in its guideway or socket *A*² under the action of its spring *B*².

*D*² is a vertical lever, which projects downward from its fulcrum-pin *h* of the car-frame *H*, and is connected by a horizontal arm, *E*², to a carrier-block, *Z*. Each lever *D*² at its lower end has a handle, *E*², and its arrangement and connection with its respective carrier-block *Z* for a spring-catch, *Y*, is such that by swinging it toward the end of the car at which it is located, the carrier-block will be depressed against its spring, carrying the spring-catch with it, and thus secure the release of said catch from the flange of the wire for the car to be returned over the wire, should it be then so desired.

A car of the character shown, a buffer-rod, *F*, mechanism such as described connected with said buffer-rod, and constructed and arranged to bring a brake-shoe, *X*, to bear against the wire *C* for the car or to remove it from said bearing, and spring trips or catches *Y*, in combination with flanges *D*, secured to said rail or wire *C*, all substantially as has been described, in use secure the arrest of the travel of the car by the impingement of its buffer-rod against the abutment, making the flanges *D* of the wire or rail *C*, and by the then and consequent movement of said buffer-rod in the opposite direction to that of the car increased frictional resistance between the car and the wire, followed by a final and complete stopping of the car and its hold in a stationary position and against return, by the then engagement of the spring-catch *Y* of the car with a flange, *D*, of the wire. The several operating mechanisms for the results above specified are relatively arranged so as to act the one after the other, and to co-operate to stop and hold the car stationary and against return, all substantially as fully appears from the description which has been given and from an inspection of the drawings.

While the car is at rest and held by the engagement of one of its retaining-catches with a flange, *D*, of the wire *C*, frictional contact and resistance is maintained by the brake-shoe *X* upon the wire *C*, (see Fig. 3;) but on release of said catch, by the then reaction of the spring *O*, against the pressure of which the buffer-rod worked from the force of its

impingement against the abutment or flange *D* of the wire, the buffer-rod is returned to its normal position, releasing the frictional contact of the brake-shoe upon the wire *C*, and thus leaving the car free to be returned over the wire to the other end thereof, at which the buffer-rod, mechanism connecting it with the brake-shoe, and a spring-catch, *Y*, all operate, as before, to stop and hold the car stationary and against return.

Each pin or arm *S*, making a bearing or rest for a pair of the crossing-levers *T T*, may be provided with a frictional roll to reduce the friction between it and the cam-edges of the pair of levers bearing on it. Again, a link may be used to connect the strap *K* to the buffer-rod *F*. The strap and its connecting spring-acting mechanism may be dispensed with, and in lieu thereof springs applied to the buffer-rod at each side of a central collar, *F*², on said rod and confined between that and the ear or guide pieces *G* toward the opposite ends of the rod. (See Fig. 5.)

Frictional resistance to the travel of the car over the wire may be applied directly to the wheels of the car in lieu of the wire, as has been described, on which the car travels, and an arrangement of mechanism for such purpose is shown in Fig. 6, in which *G*² *G*² are brake-shoes, a shoe for each wheel, and *H*² *H*² are levers, each carrying a brake-shoe, *G*². These levers *H*² are both hung upon a common fulcrum-pin, *J*², of the car-frame *H*, and, crossing each other, they pass beyond said common fulcrum-pin, and are adapted at their arms or extensions *K*² to be acted upon by a wedge-shaped piece, *L*², carried by the crossing levers *T T*, directly acted upon by the forward and backward movement of the buffer-rod *F*. With such an arrangement of mechanism a brake-shoe, *G*², is applied to a wheel, *B*, on the movement of the buffer-rod *F* in an opposite direction to that in which the car is traveling over its wire, caused by the impingement of said rod against an abutment, *D*, of the wire.

Brake-shoes for operation upon the wheels of the car and for either one or both of the same may be used alone or in combination with a brake-shoe applied, as has been described, for direct operation upon the wire, and the several brake-shoes may be operated from one and the same sliding buffer-rod *F*.

Again, only one pair of crossing and swinging levers, *T T*, may be used, and in lieu of swinging levers the same putting on and taking off of the brake-shoe from the wire may be secured, Fig. 10, with a vertically-sliding wedge block or piece, *M*², moving in a guideway, *N*², of the car-frame *H*, and arranged to be acted upon by the walls of a similar wedge-notch, *O*², in a block, *P*², attached to the buffer-rod *F*. The brake-shoe for the wire is carried by said vertically-sliding block *M*², and if brake-shoes are to be used for the wheels the said block is to be adapted in a similar manner, and said brake-shoes otherwise arranged,

as described, to secure the placing of the brake-shoes into and out of contact with the wheels by the rise and fall of said block, due to the forward and backward movement of the buffer-rod F on the car-frame H.

Again, the brake-shoe used for the wire may be constructed and arranged, Fig. 7, to have a bearing on the opposite sides of the wire—as, for instance, the brake-shoe may be in the form of two lever-arms, Q^2 , located one each side of the wire, and each turning on a separate fulcrum, R^2 , and both projecting by their arms S^2 into the plane of movement of a wedge-piece, T^2 , attached to the buffer-rod and moving with it, and of a shape, in the movement of the buffer-rod in either direction by the impingement of said rod against the abutment therefor of the wire, to spread the lower ends of the brake-levers, and thus close their upper ends upon the wire.

Again, the brake-shoe for the wire may be arranged to be lowered to a frictional bearing upon the upper side of the wire. Such an arrangement is shown in Fig. 8, in which the brake-shoe is a part of a vertical stem or rod, U^2 , playing through the closed ends of a stationary vertical tube, V^2 , containing a spring, W^2 , coiled about said rod and confined between a shoulder or collar, X^2 , of said rod and the lower closed end of said tube. The rod

U^2 projects below the lower end of the closed

in which A^4 is the abutment for the buffer-rod F, attached to the wire C, and the disk D is located between it and the car, and B^4 is a passage through said disk for the buffer-rod to pass through, to impinge against the abutment A^4 provided for it.

Although the disk D and separate abutment A^4 for the buffer-rod F have been shown and described as attached to the wire C, which attachment is most preferable, either or both of them may be attached to any other suitable support—as, for instance, the post or bracket to which the wire is secured.

As the buffer-rod F is herein described and shown in the drawings, it is capable of operating the brake-shoe-actuating mechanism from either end of the car; but obviously this rod may be divided into two separate parts, one for each end of the car, and each part capable of a separate action, such as has been herein described for the common rod upon the brake-actuating mechanism, and in either case without the operation of the one affecting the other of the parts. A continuous buffer-rod, F, however, is most preferable and most simple for obvious reasons, while, at the same time, it is most efficient.

Disk-shaped flanges D, for the engagement of the spring-catches Y, are most preferable, for the reason that they insure a catch of the

spring-catches with any position of the car

combination with a lever mechanism connected to said buffer and carrying a brake shoe or shoes, and all arranged, from the movements of the buffer, to secure frictional resistance to the travel of the car and a release thereof, substantially as described, for the purpose specified.

6. A moving buffer for a cash and parcel carrying apparatus, arranged upon the car, in combination with a lever mechanism connected to said buffer and carrying a brake shoe or shoes arranged, from the movements of the buffer, to secure frictional resistance to the travel of the car upon the wire or other way for the car and a release thereof, substantially as described, for the purposes specified.

7. In a car of a cash and parcel carrying apparatus, the combination of a moving buffer, F, a lever mechanism connected thereto, brake-shoe carried by said lever mechanism, a strap, K, and a spring-barrel, M, for winding and unwinding said strap, the strap being connected to said buffer and barrel, substantially as described, for the purpose specified.

8. In a car of a cash and parcel carrying apparatus, the combination of a moving buffer, F, a lever mechanism connected thereto, a brake-shoe carried by said lever mechanism, a strap, K, a spring-barrel, M, for winding and unwinding said strap, the strap being connected to said buffer and barrel, and a guide roll or rolls, L, for the travel of said strap, substantially as described, for the purposes specified.

9. In a cash and parcel carrying apparatus, a retaining device consisting in part of a stationary flange, D, and a spring-catch or toe-piece, Y, hinged to a carrier-block, Z, backed by a spring and arranged to move in a suitable guideway of the car, substantially as described, for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN GOODALE.

Witnesses:

ALBERT W. BROWN,
WM. S. BELLOWS.