N° 1874 A.D. 1898

Date of Application, 24th Jan., 1898

Complete Specification Left, 24th Oct., 1898—Accepted, 21st Jan., 1899

PROVISIONAL SPECIFICATION.

An Improved Method of Delivering and Receiving Parcels by Railway Trains in Motion.

I, WILLIAM BRITAIN, Junior, of "Rocklea," Colney Hatch Lane, Muswell Hill, Manufacturer, do hereby declare the nature of this invention to be as follows:—

My invention is to enable parcels of the most fragile description to be safely deposited at any pre-arranged spot by a railway train travelling at any speed; and likewise to enable a railway train travelling at any speed to receive parcels from a fixed structure with equal safety.

I will first describe the mechanism necessary for delivering parcels from a train in motion on to a fixed platform or into a net. The other mechanism is then practically the same thing reversed.

Along one side of a railway carriage, by preference next the floor I make a recess of a size suitable to take the parcels to be dealt with deep enough to entirely conceal the parcel at the front end of the carriage and diminishing to nothing at or near the back end of the carriage, with rails or runners of any suitable description, or any other attachment to guide the parcel and keep it from leaving the carriage until it arrives at the required position.

Near the back end of the carriage, and geared in any suitable manner to the wheels of the carriage I make a "fuzee" consisting of a spiral groove round a cone; the spiral starting exactly at the apex, and increasing in radius equal amounts through equal angles until it reaches the base; the number of revolutions being arranged so that the length of cord necessary to fill the spiral will just measure from the apex of the cone to the forward end of the recess. And I gear the "fuzee" to the carriage wheels in such proportion that when they are in motion together the maximum radius of the spiral has the same linear velocity as the tyres of the wheels.

Then I make a suitable connection between the parcel to be delivered and one end of a cord, strap, chain or other flexible band; and place the parcel in the recess at the front end of the carriage; then at, or by a fixed point on the line above, below or at one side of the carriage I (by preference automatically) connect the other end of the cord to the apex of the spiral, which immediately begins winding up the cord and drawing the parcel with increasing speed toward the rear of the carriage until the spiral is full. The parcel has then reached the end of the recess and is moving at the same speed compared to the carriage as the carriage is compared to the earth but in the opposite direction so that compared to any fixed structure the parcel is stationary. The cord then detaches itself from the parcel

[*Price* 8*d*.]

and attaches itself to the "fuzee" and the parcel being now projected beyond the side of the carriage drops on to a platform or net placed to receive it.

The "fuzee" is then ungeared from the carriage wheels, the cord unwound, and set ready for the next delivery.

I will now describe the necessary apparatus for collecting when the parcel is to be received through the roof of the carriage; which I consider the best place to receive it; although it must be understood that similar mechanism may be worked on either side of the carriage, or even if necessary below.

I make a "fuzee" as before, not geared to the carriage wheels but so arranged that it can be automatically so geared by a ratchet or clutch. This I place at the front end of the carriage near the roof and wind the necessary length of cord round to fill it, and make the end of the cord (from the large part of the "fuzee") terminating in a ring or other suitable attachment stand above the carriage roof supported in a suitable collapsable structure so that when the ring is pulled backwards it is released and the support lays down. At the position where the parcel is to be taken I erect a structure over the line carrying a longitudinal trammel to hold the parcel, in such a way that a hook or other projection attached under the parcel may project below through the entire length of the trammel. And I place the parcel in the back end of the trammel (as the train goes) with the hook below; the point of the hook pointing backwards.

Then when the train passes, the ring projecting above the front end of the carriage catches on the hook on the parcel and gears the "fuzee" to the carriage wheels; which causes the "fuzee" to start paying out the cord at the same speed as the carriage is travelling, and continues to pay out the cord, or rather allow it to be drawn out with diminishing velocity until the "fuzee" is empty; the parcel has then attained the same speed as the train. It then slides out of the trammel and drops through a trap door in the roof of the carriage at the rear end; where it may be received in a net, or hang on the cord as desired.

The operater then ungears the "fuzee," takes the parcel off and winds the cord round the "fuzee" ready for the next collection.

In the foregoing description it is assumed that to each parcel delivered one will be collected, or thereabouts; otherwise the carriage might have to start loaded with the necessary fittings to attach to the parcels to be delivered; or might become crouded with them if all the work were collecting.

But where such work as the morning distribution of newspapers, or the collection of small parcels of farm produce has to be performed I make a shoot to run in the trammels with buffers on the end to come into operation after the cord is detached, so that the shoot is detained with the trammel, whether the trammel is on the carriage or on the fixed structure, and the parcel is free to continue its journey either into or out of the carriage.

I have described the "fuzee" constructed in what I consider the best manner for the purpose; but circumstances may arise where a modification is desirable; such for instance as the employment of a thick strap to take the place of the cord, and to be wound round a small spindle, and held between suitable guides so that the strap itself as it is wound forms a continuously increasing disc and so make the necessary spiral as it is required. Or, again a chain may be used in the same way and if the thickness of the chain is not enough to produce a sufficiently rapid increase in radius it may be fitted with projections along one or both sides to produce the necessary increase. In fact any chain, strap or cord may be provided with projections to produce the effect of thickening, providing the spindle is properly designed to receive it.

In the event of using a modification of this description I should make the spindle to stand still until the time arrived to start the parcel, and then gear it to the wheels as quickly as the weight of the parts permitted.

Dated this 24th day of January 1898.

W. BRITAIN Jr.

COMPLETE SPECIFICATION.

An Improved Method of Delivering and Receiving Parcels by Railway Trains in Motion.

I, WILLIAM BRITAIN, Junior, "Rocklea," Colney Hatch Lane, Muswell Hill, London, Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

This invention is to enable parcels of the most fragile description to be safely deposited at any pre-arranged spot by a railway train travelling at any speed, and likewise to enable a railway train travelling at any speed to receive parcels from a fixed structure with equal safety.

In the annexed drawing Fig. 1 is a longitudinal sectional elevation of a railroad car fitted with this mechanism. Fig. 2 is a sectional plan view thereof and Figs. 3 to 7 are detail views of parts.

I will first describe the mechanism necessary for delivering parcels from a train in motion on to a fixed platform or into a net. The other mechanism is then practically the same thing reversed.

Along one side of a railway carriage, by preference next the floor I make a recess A of a size suitable to take the parcels to be dealt with wide enough in plan to entirely conceal the parcel at the front end B of the carriage and diminishing to nothing at or near the back end C of the carriage with rails or runners D of any suitable description, or any other attachment to guide the parcel along the recess and keep it from leaving the carriage until it arrives at the required position.

Near the back end C of the carriage and geared in any suitable manner to the wheels or wheel axle E of the carriage I make a fuzee F consisting of a spiral groove round a cone; the spiral starting exactly at the apex, and increasing in radius by equal amounts through equal angles until it reaches the base, the number of revolutions being arranged so that the length of cord or the like G necessary to fill the spiral will just measure from the apex to the cone to the forward end of the recess A, and I gear the fuzee F to the carriage wheels in such proportion that then they are in motion together the maximum radius of the spiral has the same linear velocity as the tyres of the wheels.

Then I make a suitable connection between the parcel H to be delivered and one end of a cord, strap, chain or other flexible band G, and place the parcel H in the recess A at the front end B of the carriage, then at or by a fixed point J on the line above, below or at one side of the carriage I (by preference automatically) connect the other end of the cord G to the apex of the spiral of the fuzee F which immediately begins winding up the cord drawing the parcel with increasing speed towards the rear end C of the carriage until the spiral is full. The parcel has then reached the end of the recess A and is moving at the same speed compared to the carriage as the carriage is compared to the earth but in the opposite direction so that compared to any fixed structure the parcel is stationary. The cord then detaches itself from the parcel and the parcel being now projected beyond the side of the carriage drops on to a platform or net placed to receive it.

The fuzee F is then ungeared from the carriage wheels, the cord G unwound and set ready for the next delivery.

I do not confine myself to any particular mechanism for gearing the cord to the fuzee and for attaching it to and detaching it from the parcel, but the following is suitable.

One end of cord G carries a ring or loop g and on the back of the parcel H is a hook or dog h to receive said loop. The other end of the cord G is passed loosely up a hollow spindle or tube g^1 and is knotted over or otherwise fastened to or above

a washer g^2 capable of revolving on the upper end of tube g^1. Thus permitting this end of the cord to revolve when the fuzee engages the cord. The tube g^1 is held suspended by a lever gear g^3 and catch g^4, the latter hooked upon a hook g^5 which lies in the path of the projection J so as to be struck thereby and moved to release the catch g^4 and lever gear g^3 and so permit the tube g^1 to fall and bring the cord within the path of the hook like end g^6 of the spiral on the fuzee.

At the base of the fuzee is a part disk f; the rod f^1 carries a finger f^2 which is upheld by the disk f and only permits the lever gear g^3 to fall when the disk f is in such position that it no longer upholds the finger f^2, the fuzee being then in proper rotary position to grasp the cord G.

As the cord G is wound up it draws the parcel H along the recess A until it is at or near the rear end of the recess, when the cord will be brought into such a position that it makes an increasing angle with the parcel until it slips off the hook or dog h leaving the parcel H free to leave the recess A.

K is a clutch and K^1 lever ending in a handle k^2 for engaging the fuzee to and disengaging it from the wheel axle.

I will now describe the necessary apparatus for collecting when the parcel is to be received through the roof of the carriage which I consider the best place to receive it; although it must be understood that similar mechanism may be worked on either side of the carriage, or even if necessary below.

I make a fuzee L as before not geared to the carriage wheels but so arranged that it can be automatically so geared for instance by a clutch M. This I place at the front end of the carriage near the roof and wind the necessary length of cord N round to fill it and make the end of the cord (from the large part of the fuzee L) to terminate in a ring or other suitable attachment n to stand above the carriage roof supported in a suitable collapsible structure O so that when the ring is pulled backwards it collapses the support O and is released. At the position where the parcel H is to be taken I erect a structure over the line carrying a longitudinal trammel P to hold the parcel H in such a way that a hook or other projection h^1 attached under the parcel may project below through the entire length of the trammel P. And I place the parcel H in the back end of the trammel (as the train goes) with the hook below h^1; the point of the hook pointing backwards.

When the train passes the ring n projecting above the front end of the carriage catches on the hook h^1 on the parcel H and is detached from its support which in falling gears the fuzee to the carriage wheels, which causes the fuzee to start paying out the cord N at the same speed as the carriage is travelling and continues to pay out the cord N or rather allow it to be drawn out with diminishing velocity until the fuzee is empty; the parcel has then attained the same speed as the train and slides out of the trammel P and drops through an orifice Q in the roof of the carriage at the rear end; where it may be received in a net R or hang on the cord as desired.

The operator then ungears the fuzee L takes the parcel off and winds the cord round the fuzee ready for the next collection.

In the foregoing description it is assumed that to each parcel delivered one will be collected or thereabouts; otherwise the carriage might have to start loaded with the necessary fittings to attach to the parcels to be delivered; or might become crowded with them if all the work were collecting.

But where such work as the morning distribution of newspapers, or the collection of small parcels of farm produce has to be performed I make a shoot to run in the trammels with buffers on the end to come into operation after the cord is detached, so that the shoot is detained with the trammel, whether the trammel is on the carriage or on the fixed structure, and the parcel is free to continue its journey either into or out of the carriage.

I have described the fuzee constructed in what I consider the best manner for the purpose; but circumstances may arise where a modification is desirable; such for instance as the employment of a thick strap to take the place of the cord, and to be wound round a small spindle, and held between suitable guides so that the strap

itself as it is wound forms a continuously increasing disc and so makes the necessary spiral as it is required; or again a chain may be used in the same way and if the thickness of the chain is not enough to produce a sufficiently rapid increase in radius it may be fitted with projections along one or both sides to produce the necessary increase. In fact any chain, strap or cord may be provided with projections to produce the effect of thickening providing the spindle is properly designed to receive it.

In the event of using a modification of this description I should make the spindle to stand still until the time arrived to start the parcel and then gear it to the wheels as quickly as the weight of the parts permitted.

Having now particularly described and ascertained the nature of this invention and in what manner the same is to be performed I declare that what I claim is:—

1. The combination with a railroad car of means for moving a parcel from rest and uniformly accelerating said motion until it approximates to the speed of the car.

2. The combination with a railroad car of means for moving a parcel from rest and accelerating said motion until it approximates to the speed of the car, the direction of movement of said parcel being rectilinear and at an acute angle to the direction of movement of the car.

3. The combination with a railroad car of means for moving a parcel from rest in said car and for accelerating said motion at a rate automatically determined by the speed of the car so that it approximates within a given distance to the speed of the car but in a direction contrary to the direction of movement of the car and then delivering said parcel from the car.

4. The combination with a railroad car of a trammel adapted to guide a parcel in a direction substantially longitudinal to the car and means for engaging a parcel in the trammel, moving it from rest with a rectilinear motion uniformly accelerated at a rate automatically determined by the speed of the car so that it is finally discharged from the trammel at a speed equal to the speed of movement of the car.

5. The combination with a railroad car of a trammel adapted to guide a parcel in a direction substantially longitudinal to the car, a rotary fuzee having a spiral groove commencing at its apex, means for connecting the fuzee with the car wheels to be revolved therewith, a cord, means for engaging the cord to the fuzee at the apex thereof and an attachment for connecting the cord to the parcel.

6. The combination with a railroad car of a trammel extending from the front end of the car towards the rear end thereof forming a recess tapering rearward in the car, a rotary fuzee having a spiral groove, a cord, means for engaging the cord to the fuzee at the apex thereof and an attachment for connecting the cord to the parcel.

7. The means substantially as herein described for delivering parcels to or from railroad trains in movement by which the parcel is moved from rest with a movement uniformly and automatically accelerated until it is equal to the movement of the car, or by which the parcel in the car and moving at the same speed as the car is moved from its position of relative rest therein with a uniformly and automatically accelerated negative movement so that it is delivered at the desired place with a rearward rate of movement equal to the forward rate of movement of the car at the time, that is to say in a state of rest relative to the place in which it is delivered.

Dated this 24th day of October 1898.

HERBERT HADDAN & Co.,
Agents to Applicant, 18, Buckingham Street.

Redhill: Printed for Her Majesty's Stationery Office, by Malcomson & Co., Ltd.—1899.

[This Drawing is a reproduction of the Original on a reduced scale.]

A.D. 1868. Jan. 24. N° 187.
BRITAIN'S Complete Specification.

Fig 1

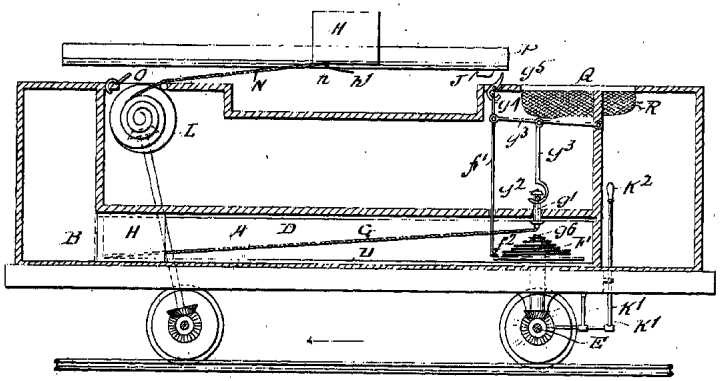


Fig 2.

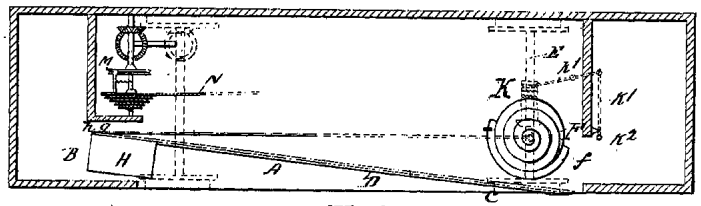
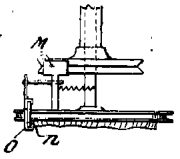


Fig 3.

Fig 7



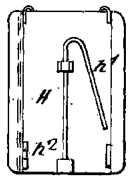


Fig 6

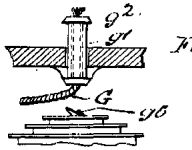


Fig 5

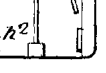
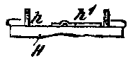
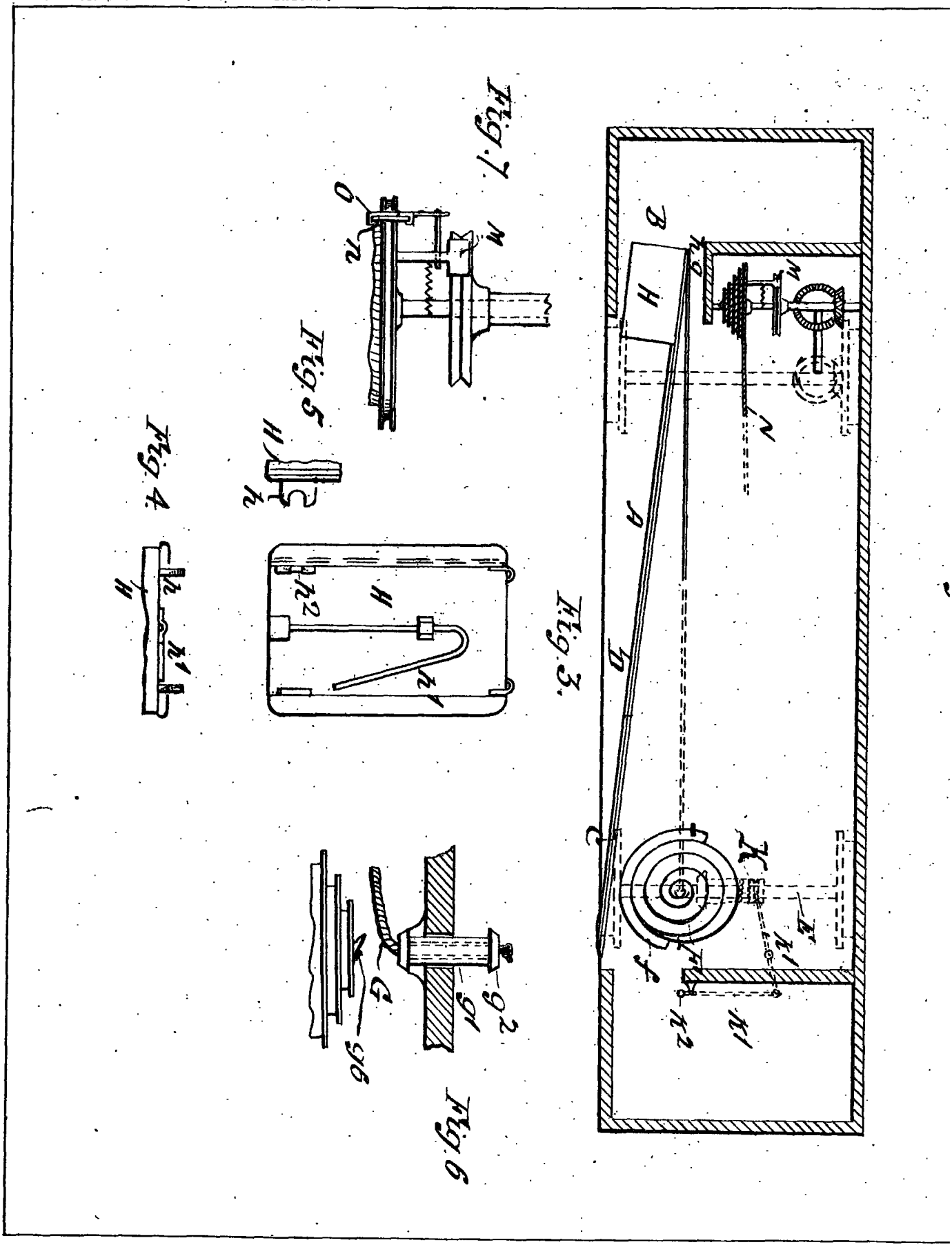


Fig 4.



A.D. 1898. JAN. 24. N° 1874.

BRITAIN'S COMPLETE SPECIFICATION.



[This Drawing is a reproduction of the Original on a reduced scale.]

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Malby & Sons, Photo-Litho

Fig 1

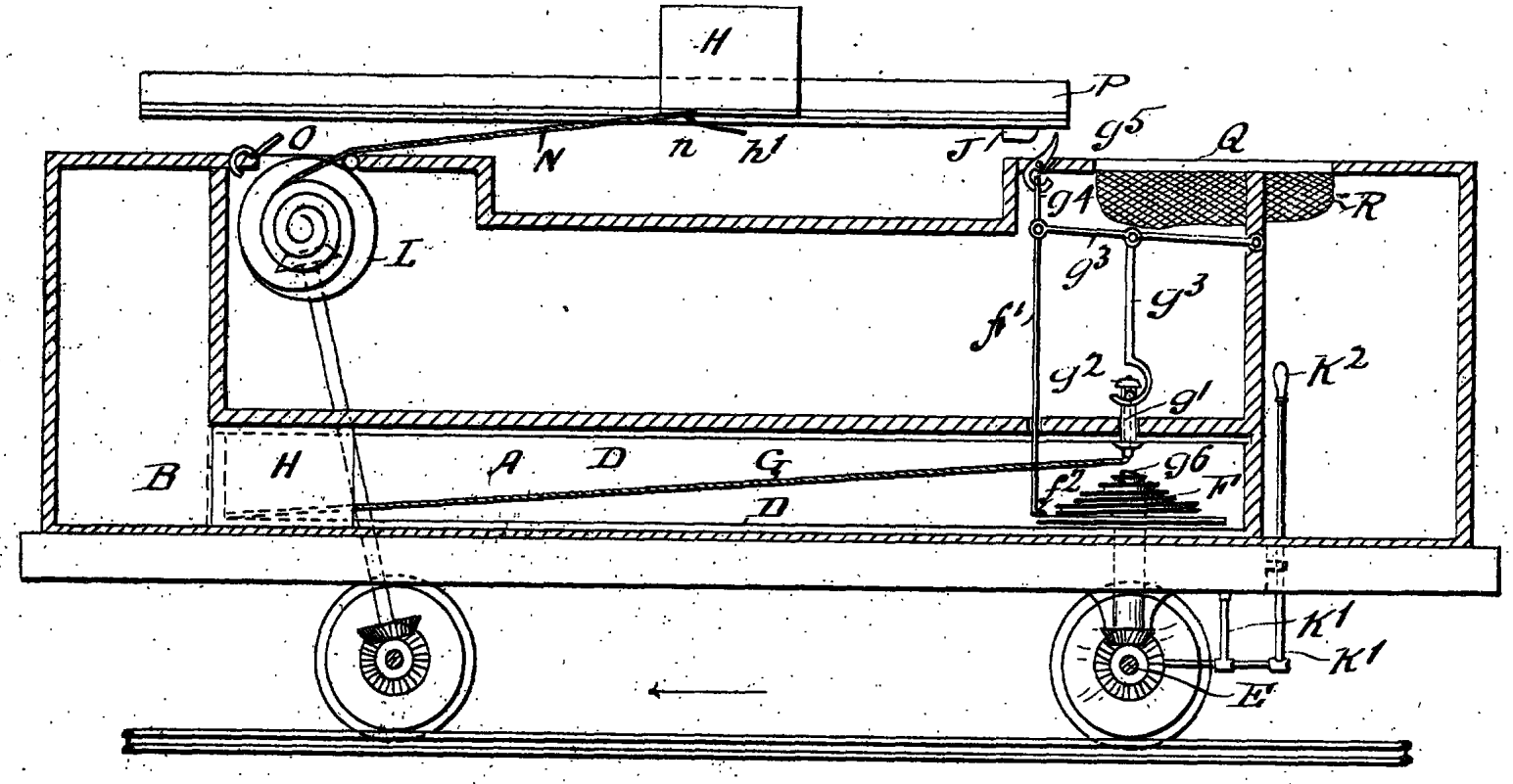

Fig 2.