

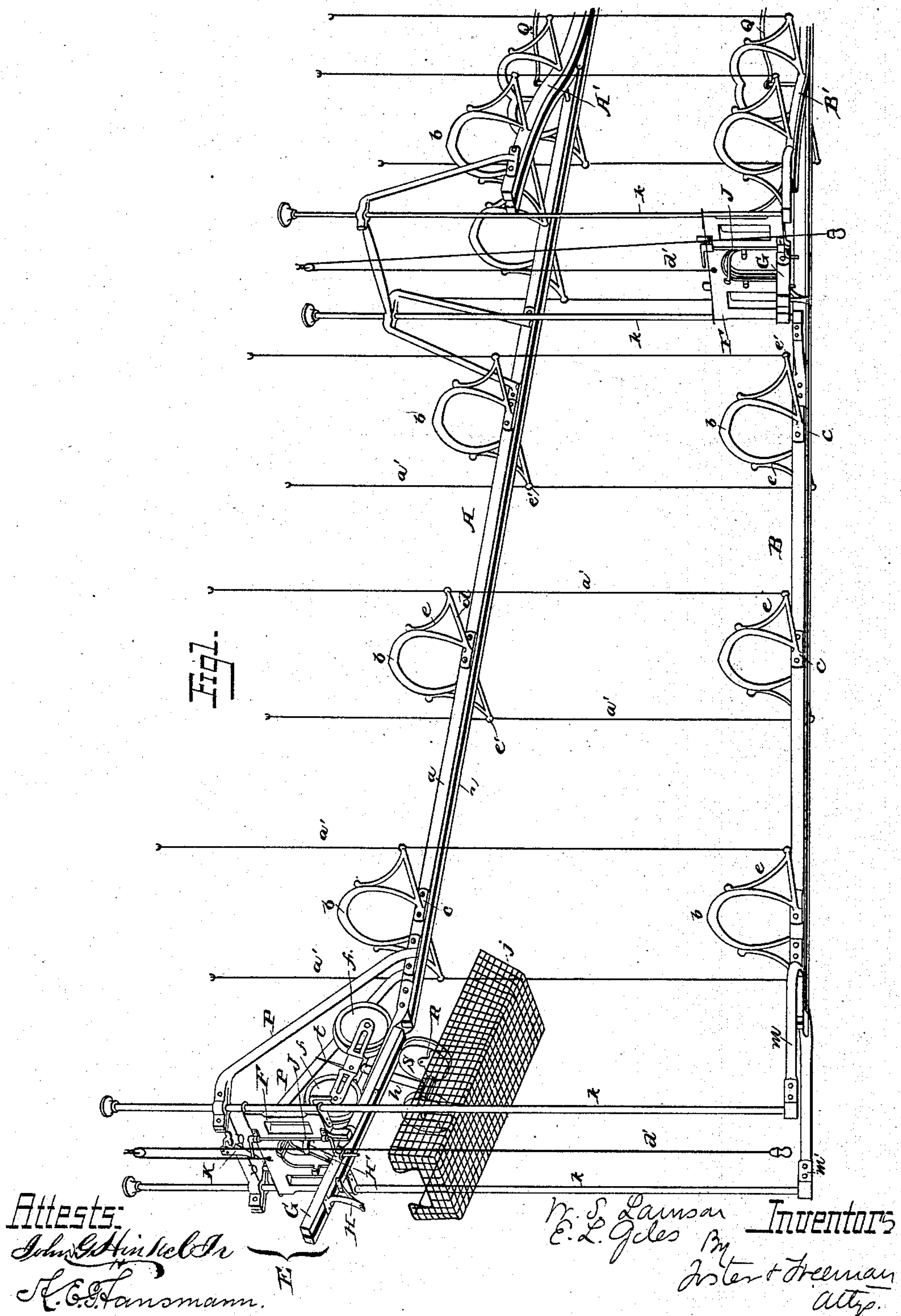
(No Model.)

6 Sheets—Sheet 1.

W. S. LAMSON & E. L. GILES.
CASH AND PARCEL CARRIER.

No. 326,128.

Patented Sept. 15, 1885.



Attests:

John G. Hinckley Jr.
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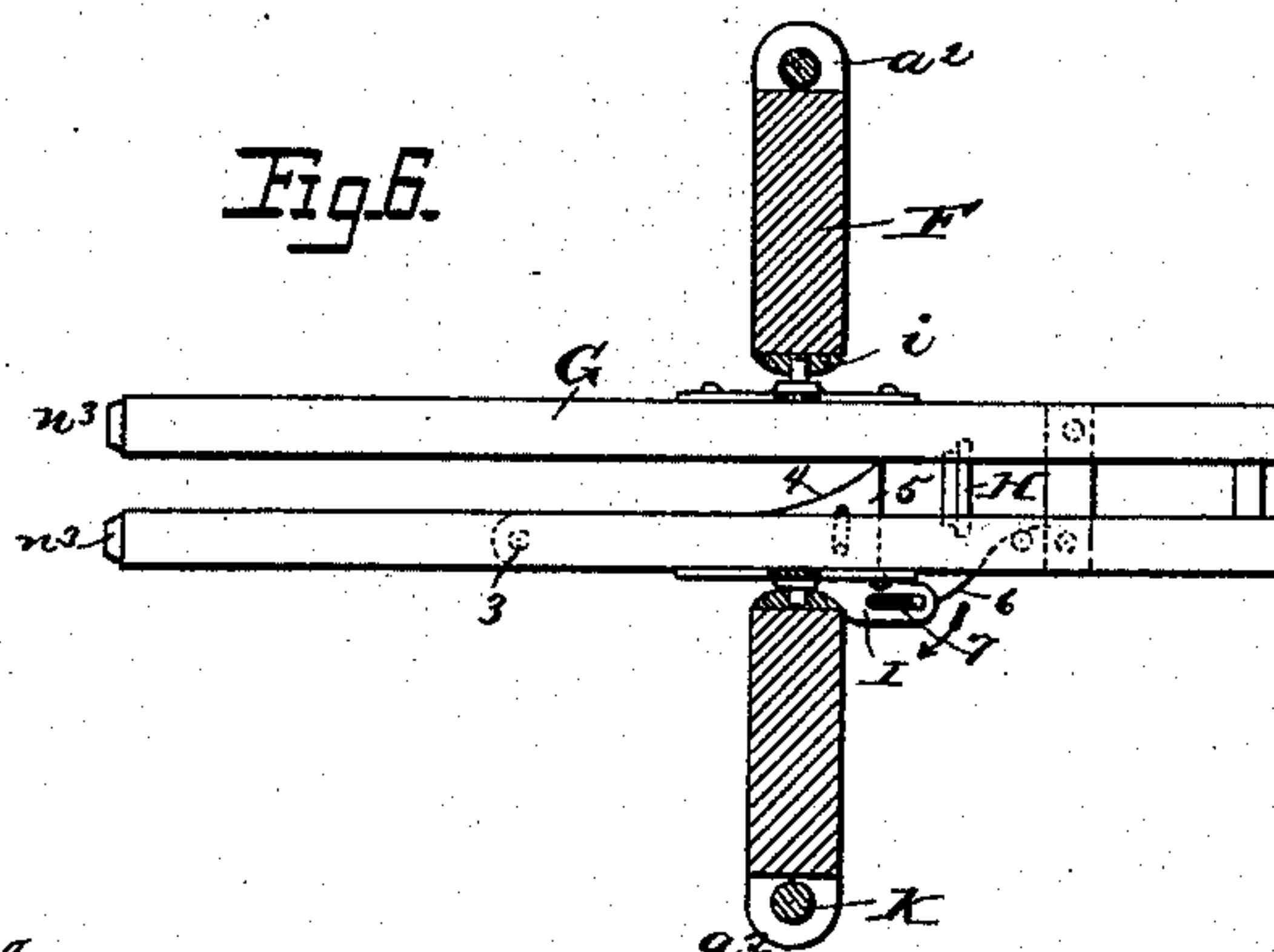
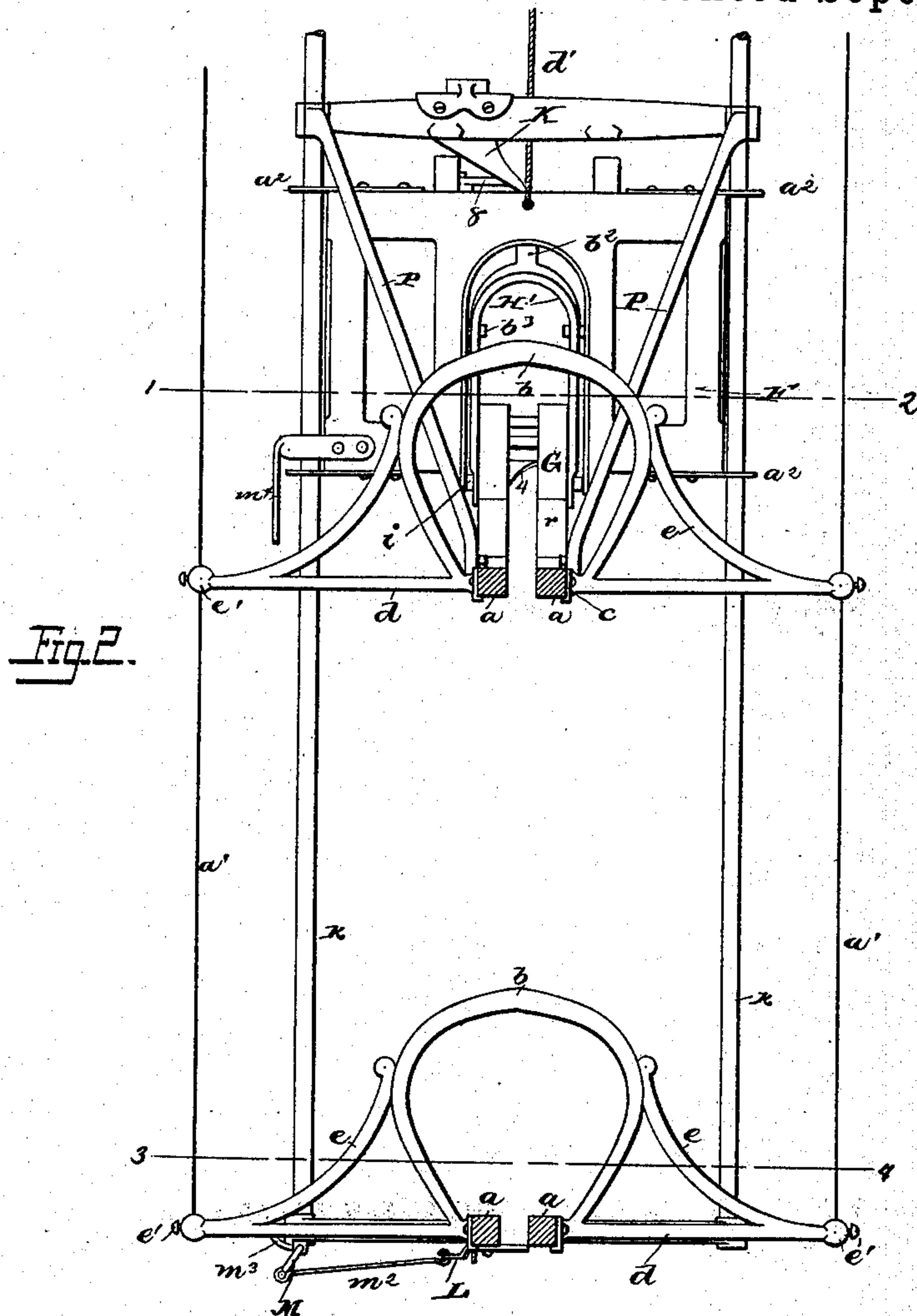
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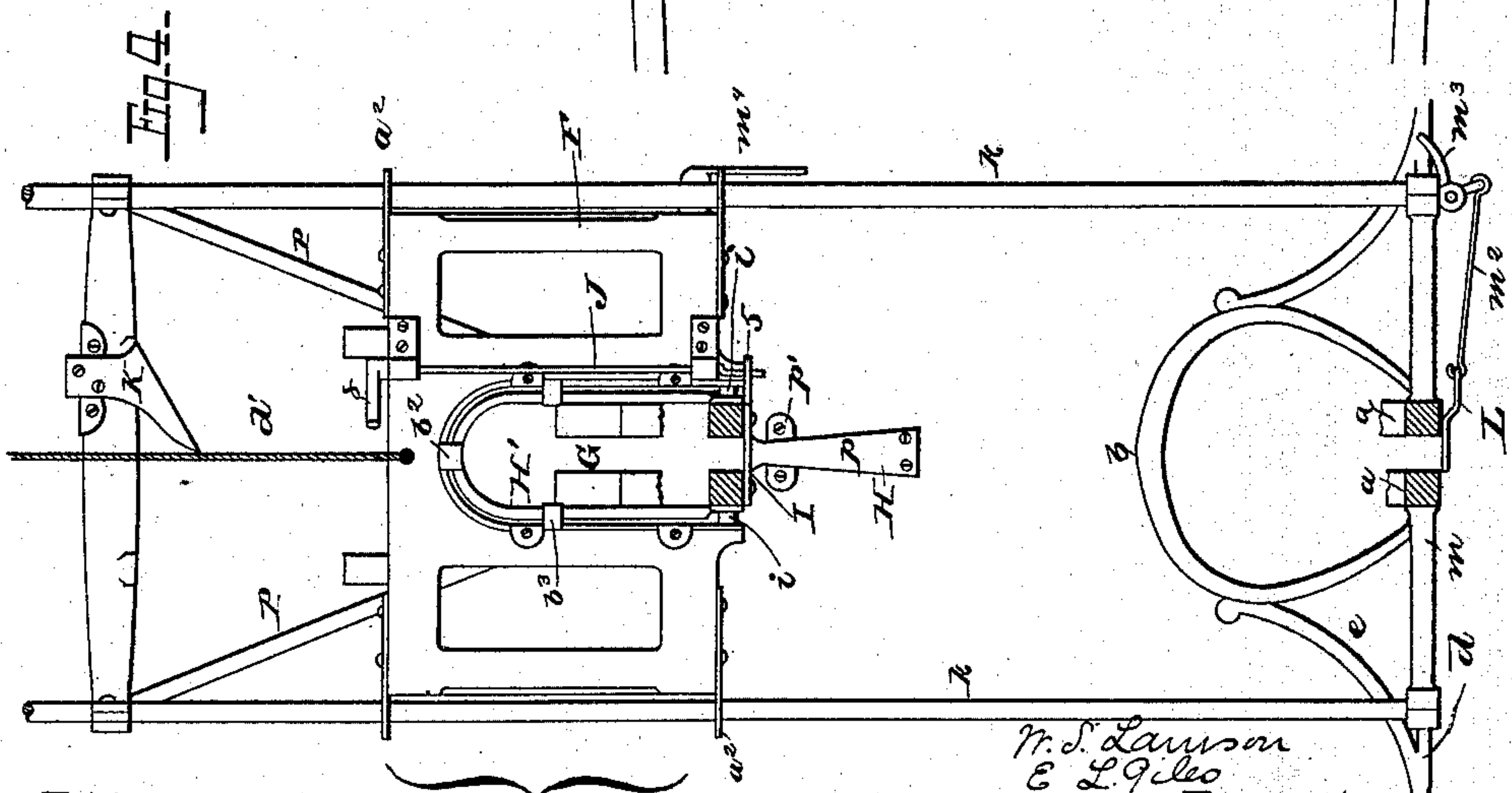
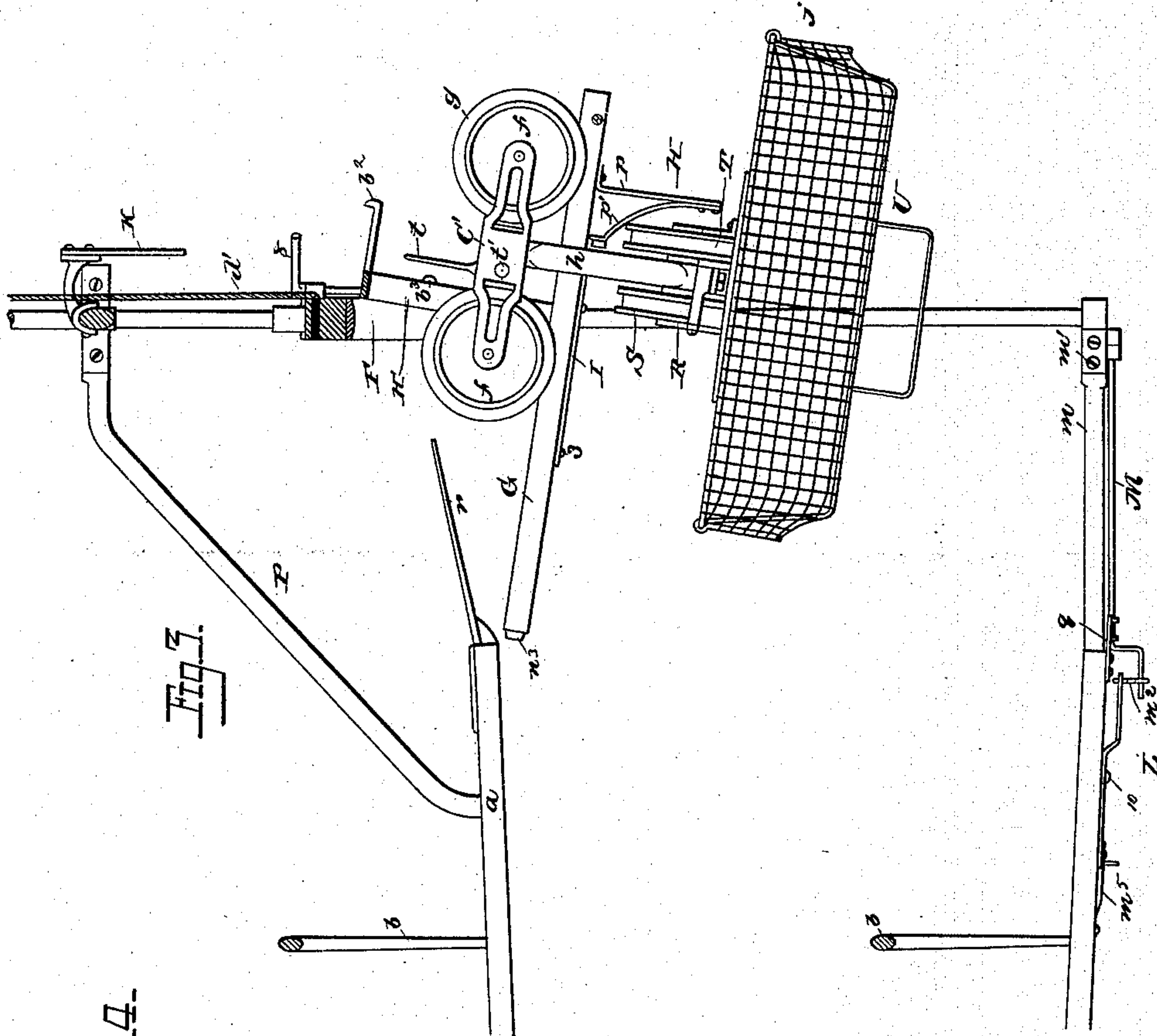
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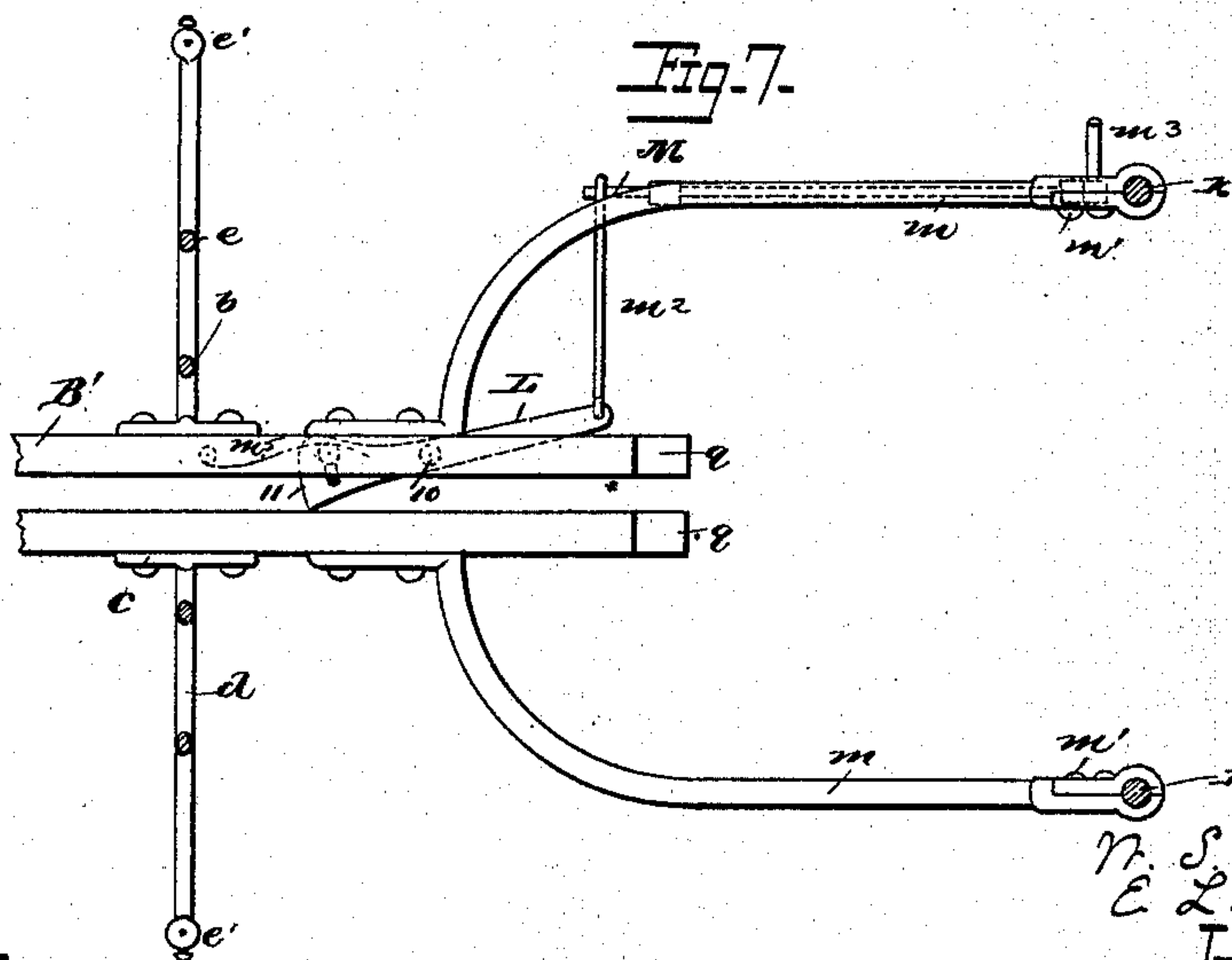
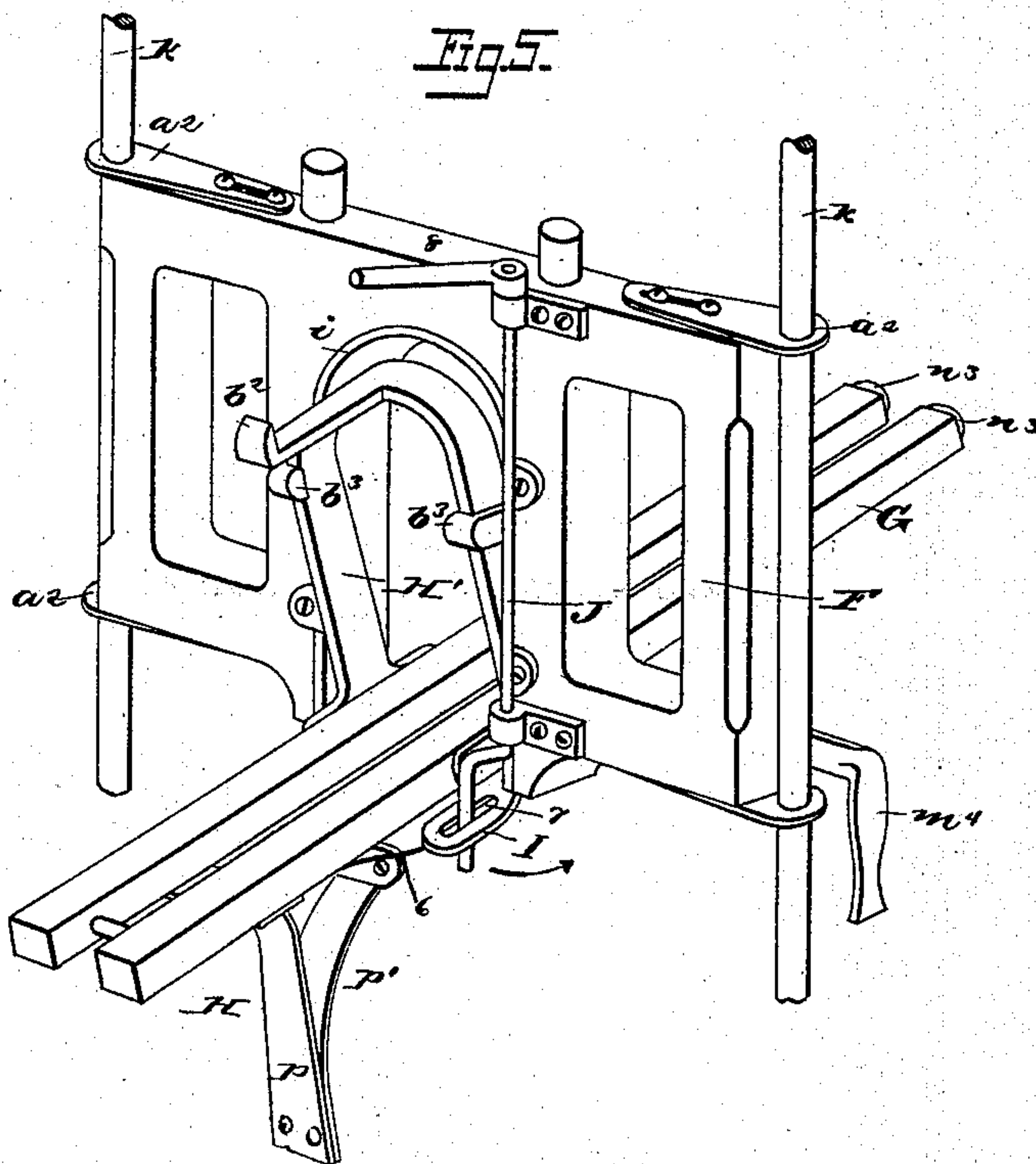
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6 Sheets—Sheet 5.

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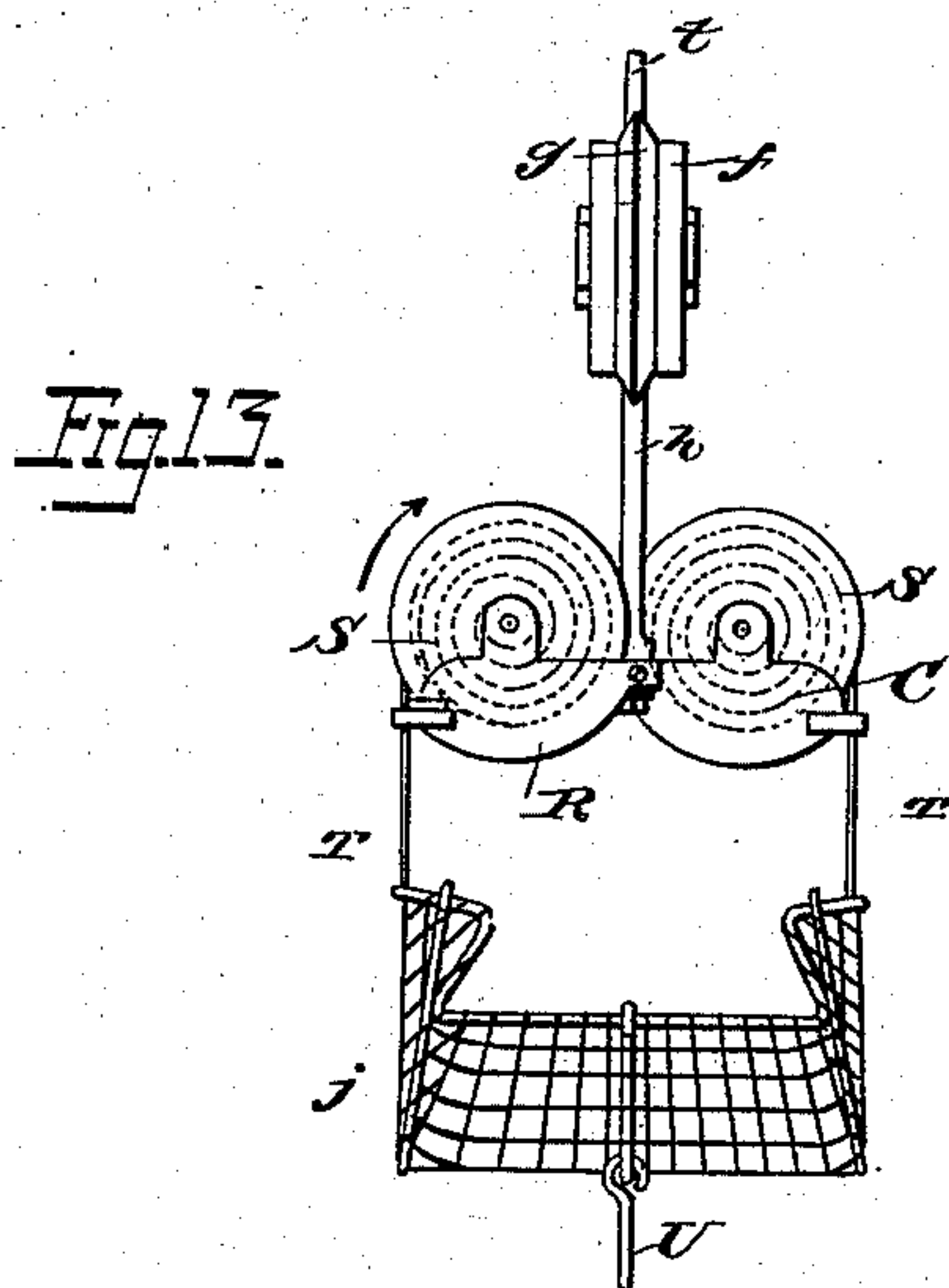
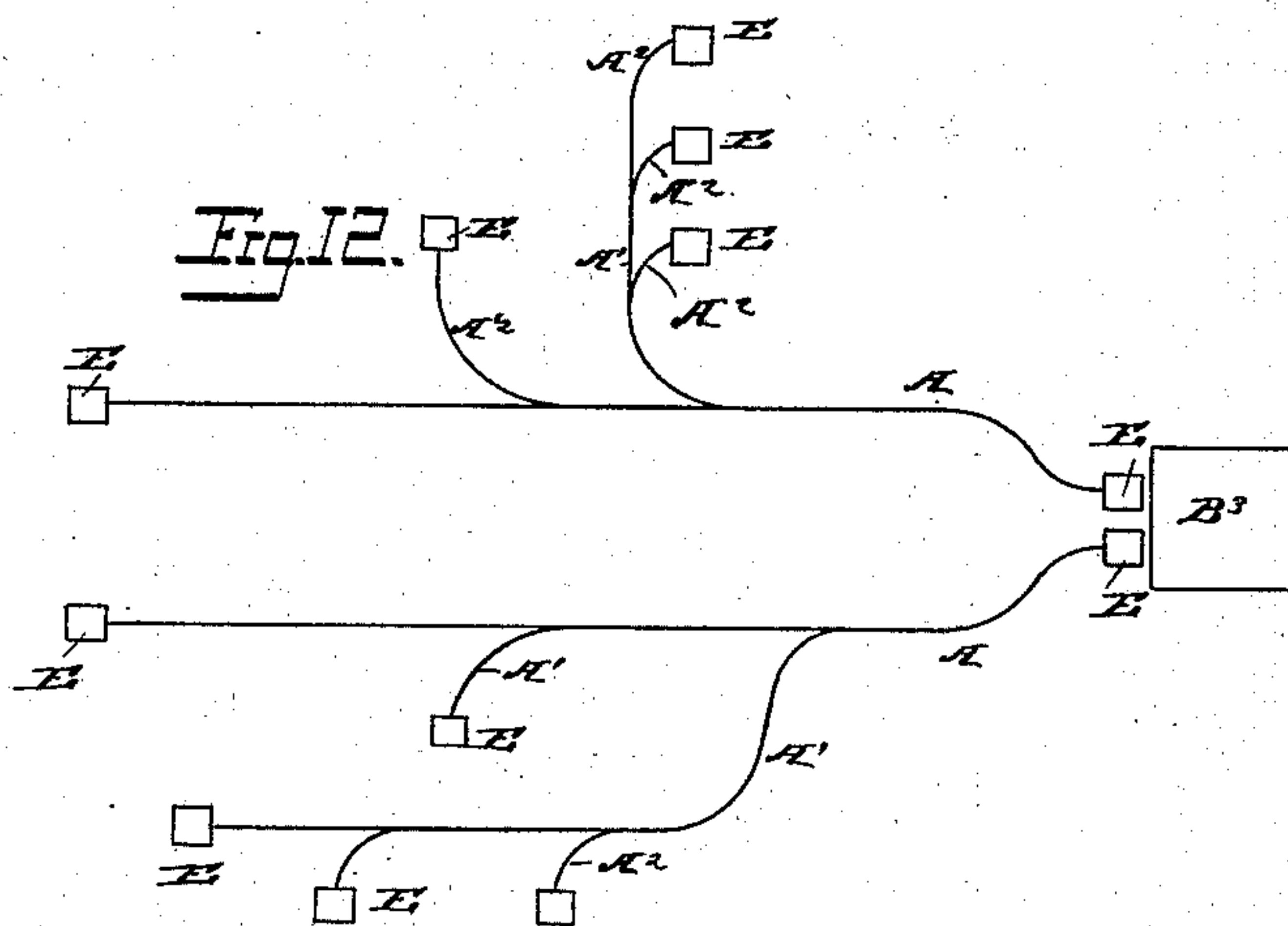
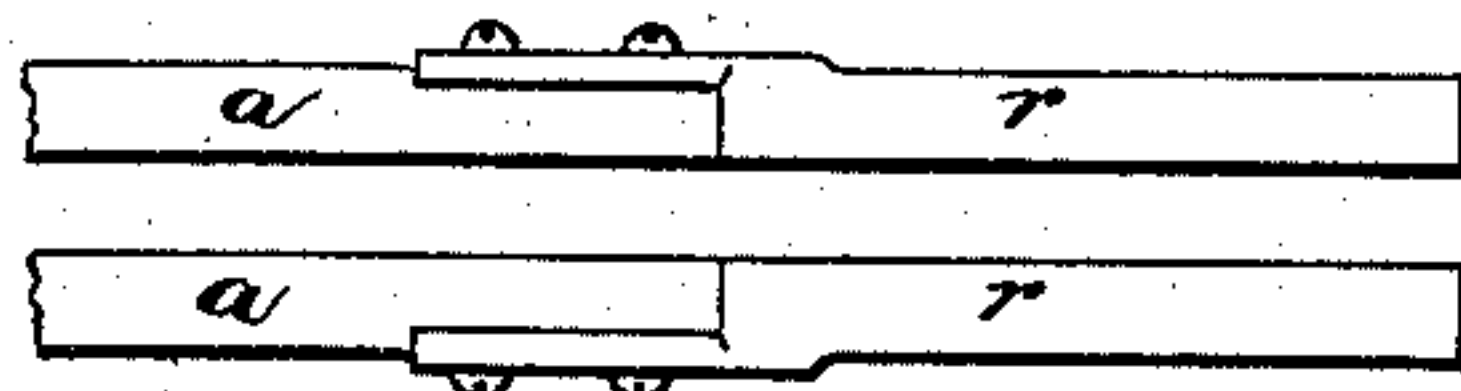


Fig. 8.



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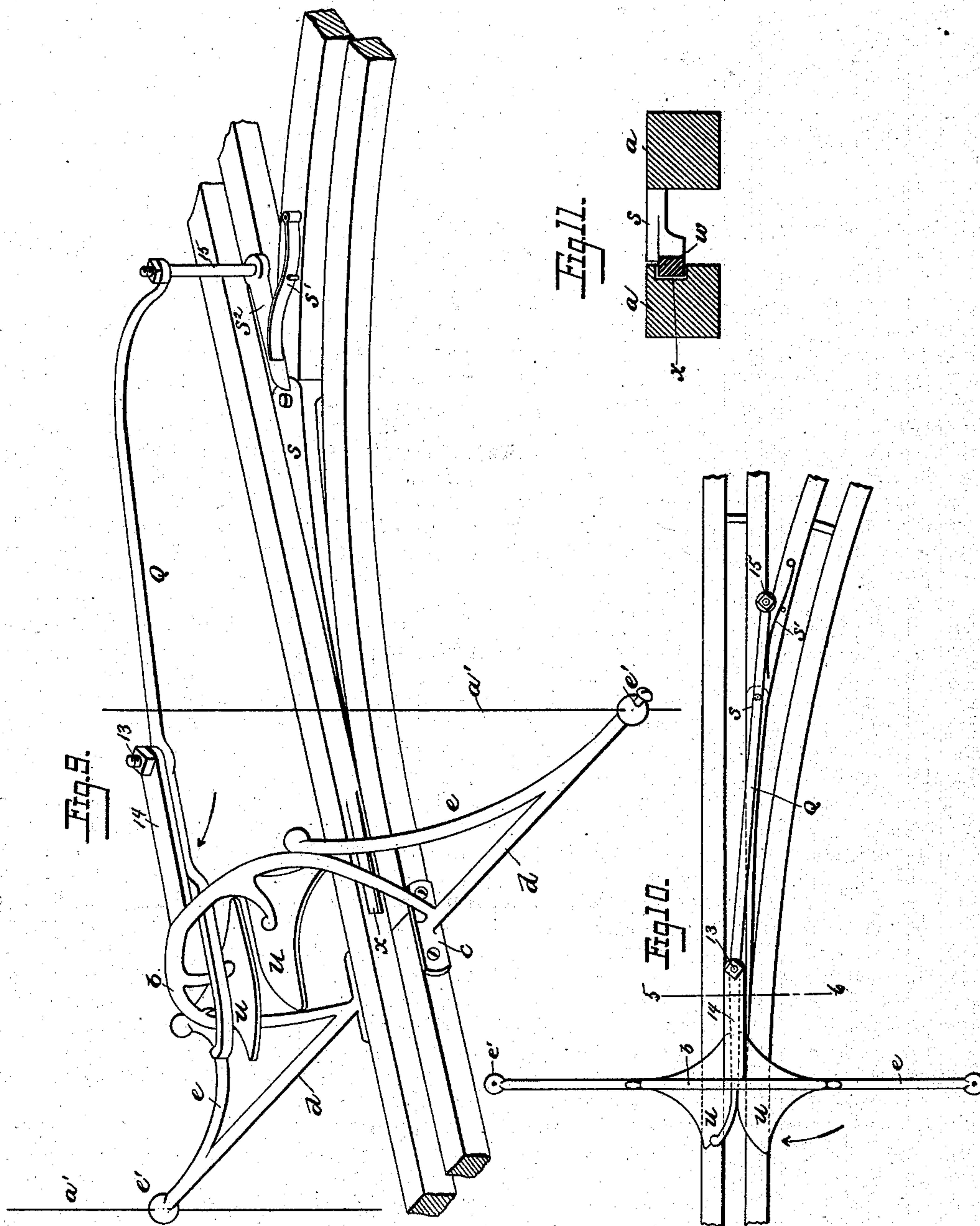
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UNITED STATES PATENT OFFICE.

WILLIAM S. LAMSON AND EDWIN L. GILES, OF LOWELL, MASSACHUSETTS.

CASH AND PARCEL CARRIER.

SPECIFICATION forming part of Letters Patent No. 326,128, dated September 15, 1885.

Application filed June 9, 1885. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM S. LAMSON and EDWIN L. GILES, citizens of the United States, and residents of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Carrying Cash and Parcels in Stores, of which the following is a specification.

Our invention relates to that class of store-service apparatus in which the carriers travel upon two ways between the counters and main desk; and our invention consists in certain improvements, fully set forth hereinafter, whereby carriers adapted to hold parcels of large size may be placed upon the ways as desired by the salesman, and may travel continuously thereon without being detached, while permitting the ready reception and removal of the articles transported.

Our invention further consists in certain details of construction of the apparatus, having for their object to increase its efficiency and facilitate erection, adjustment, and manipulation.

In the drawings, Figure 1 is a perspective view of sufficient of a store-service apparatus to illustrate our invention. Fig. 2 is a sectional elevation illustrating the elevator. Fig. 3 is a side view of Fig. 2; Fig. 4, a rear view of the parts shown in Fig. 2; Fig. 5, a perspective view of an elevator; Fig. 6, a section on the line 1 2, Fig. 2; Fig. 7, a section on the line 3 4, Fig. 2; Fig. 8, a detached view showing the terminus of the upper way; Fig. 9, a perspective view illustrating the construction of an automatic switch device at the junction of the main and branch ways; Fig. 10, a plan of Fig. 9; Fig. 11, an enlarged section on the line 5 6, Fig. 10; Fig. 12, a diagrammatic view illustrating the general arrangement of the apparatus; Fig. 13, an end view of one of the carriers.

The tracks of the system extend between the central desk and the counters of the salesmen; but instead of having a series of stations adjacent to the main lines or tracks, with appliances at the sides of the latter for carrying the cars or carriers from one line and putting them upon another, we extend a branch track from each of the upper and lower main tracks to each station, and provide means, except at

the terminus of the main tracks, for transferring the carriers from one track to the other; and in order to avoid the necessity of detaching the carriers from the tracks we use carriers having detachable receptacles, or receptacles capable of being pulled down from the frames of the carriers while the latter remain upon the tracks. We are thus enabled to move the carriers in a continuous circuit to and from the main desk without detaching them at any point, except, in some instances, at the main desk, and without the necessity of detaching them at the latter point. There are of course switches and graduated appliances for directing each carrier to its proper branch.

While different kinds of ways, and different modes of supporting them, and different styles of carriers and switches and elevators may be employed in connection with our improved system, we will now describe the construction of apparatus which we have found to be effective.

The ways or tracks consist each of two wooden rails, *a a*, arranged parallel to each other a short distance apart, and are retained in proper juxtaposition and properly supported by means of overarching metallic yokes *b*, terminating in side plates, *c*, adapted for application to the sides of the rails, and with these yokes we combine laterally-extended arms *d d* and braces *e*, the ends of the arms terminating in knobs perforated for the passage of flexible suspending-wires *a'*, set-screws *e'* serving to secure the arms in position upon the wire after adjustment.

The upper way or track, *A*, is arranged directly above the lower track, *B*, the upper track extending from the terminal station downward to the cashier's desk, and the lower track extending from the latter downward to the terminal station, and the armed yokes *b* of the upper track being arranged directly above the similar yokes of the lower track, so that the same flexible suspensories *a'* may extend through the arms of the yokes upon the same vertical plane, thereby supporting the lower track directly beneath the upper one, as shown in Fig. 1.

From the main ways extend branches *A' B'*, each of the branches of the lower way being exactly below the corresponding branch of the

upper way, and the said branches extending each to one of the stations, where there is an elevating apparatus constructed to receive each carrier as it passes from the end of a lower branch, B', and elevate it, at the will of the attendant, to and place it upon the end of the corresponding upper branch, A'.

The branch ways consist of parallel tracks, the same as those of the main rails, and supported by yokes and flexible suspensories in the same manner as the main ways.

The particular construction of the carriers will be fully set forth hereinafter, the principal features being a frame, C, supported by two wheels, *f f*, each having a central rib, *g*, a pendent bar, *h*, extending from the frame downward between the rails of the track, a basket or receptacle, *j*, and extensible connections between the latter and the part of the frame below the track. The extensible connections serve to normally maintain the receptacle *j* in contact with the frame, but permit the receptacle to be pulled downward, so as to allow the salesman or cashier to have ready access to the receptacle, and when the receptacle is released elevate it automatically to its normal position.

The elevator carries a track-section, G, consisting of two parallel rails corresponding to those of the way, and adapted to be brought into line both with the lower and the upper way, so as to receive the carriers from the lower way or its branch, and after elevating them deliver them to the upper way or its branch; and when there is an elevator of this character at each station and at the central desk (where, however, the carriers are moved downward from the upper to the lower way) each carrier travels in a continuous circuit without leaving the way, while each attendant has ready access to the receptacle of the carrier pertaining to his station, inasmuch as the said receptacle, while moving with the frame of the carrier in its elevated circuit, can be drawn down within convenient reach of the attendant and cashier.

The apparatus illustrated is intended especially for the carrying of parcels, in which it is necessary to employ receptacles extending each to a considerable extent laterally beyond the ways, necessitating a considerable distance between the side supports of the ways. This support is secured by extending the arms *b* laterally from the ways, and by connecting the vertical supports *a'* to the ends of these arms. This means of support is light, strong, permits an easy adjustment of each way and its branches, insures the proper relation of one way to the other, and is so simple in its character that the ways may be readily suspended in any desired position without other attachments to floor, counters, or shelving, and without defacing the ceiling of the store.

The terminal support of the main ways and each branch consists of two parallel vertical rods, *k k*, extending to the ceiling and through the ends of metallic arms *m*, fastened to the

sides of the ends of the ways or branches, bent outward and secured by clamps and adjusting-screws *m'* to the said rods. The terminal rod-supports *k* not only serve to support and brace the structure, but also as guides for the elevator E. As shown, the elevator consists of a frame, F, provided with ears *a'*, sliding upon the rods *k*, and with a central gate or opening, within which is pivoted the track-section G, the two rails of the latter being centrally connected by a yoke, H', having lateral trunnions *i*, extending into bearings at the sides of the said opening, the yoke and frame being provided with stops *b'* *b'*, so arranged as to permit a limited swinging movement of the track-section, and hold it in the different positions shown in the drawings.

The rope or cord *d'* is connected at one end to each elevator, passes over a guide-pulley supported by the ceiling or the rods *k*, and downward, its lower end being in convenient proximity to the salesman or cashier, so that by drawing upon the said cord the elevator may be raised, and by releasing it the elevator may be lowered.

The pivoted track-section G is provided with a buffer-stop, H, consisting of a spring-plate, *p*, Figs. 3 and 5, connected at its upper end to the rails, and pendent therefrom, and a curved plate, *p'*, connected at its lower end to the lower end of the plate *p*, and bent forward, with its upper end in position to be struck by the stem or frame of the carrier. The buffer is so arranged as to permit the center of the carrier to pass beyond the trunnions *i*, which causes the weight of the carrier to tilt downward the end of the track-section G which is farthest from the end of the way, which tilting occurs after the carrier has passed by gravity from the end of the lower way or branch onto the track-section G, lips *q* at the ends of the said lower ways maintaining the track-section in line therewith as the carrier passes from the stationary to the tilting track.

At the end of each of the stationary rails of the upper track is a plate or extension, *r*, which is inclined upward and tapers or gradually decreases in thickness toward the end, and is so arranged that the upper side of each rail of the tilting track will be brought against the under side of one of the said plates as the elevator reaches its upper position, so that the plates will cover the said track, and so that the contact of the latter with the plates will tilt downward the inner end of the tilting section, and cause the carrier to run toward the stationary track, passing onto and over the said inclined plates.

In order to retain the carrier upon the tilting section until the elevator is in proper position for the carrier to pass to the upper track, the said tilting section is provided with a detent of suitable construction to permit the carrier to pass to a position against the stop or buffer, and to then hold it in place; and in connection with this detent appliances are used for carrying the detent out of its locking

position when the elevator reaches its elevated position. Different kinds of detents will suggest themselves to those skilled in the art, that shown, consisting of a locking-plate, I, 5 Figs. 3, 5, 6, pivoted at one end at 3 to the under side of one of the tracks of the tilting section provided with an inclined edge, 4, an abrupt shoulder, 5, and a spring, 6, tends to maintain the detent in the position shown in 10 Fig. 6, so that the detent can swing outward as the stem of the carrier slides over the inclined edge 4, and will be thrown inward as it passes the shoulder 5. A crank-rod, J, rocks in bearings upon the frame of the elevator, 15 and a crank at its lower end extends through a slot, 7, in the projecting end of the detent I, and at the upper end of the rod J is an arm, 8, so arranged as to strike the inclined edge of a stop-plate, K, just before the elevator 20 reaches the limit of its upward movement. As the arm 8 strikes the edge of the stop-plate K the rod J will be turned to carry the crank outward in the direction of the arrow, Figs. 5 and 6, and move the shoulder 5 from its po- 25 sition in front of the carrier, which movement occurs just as the tilting track has been brought against the under sides of the plates *r*, and the track has been tilted to cause the carrier to run onto said plates, when the transfer will 30 take place, after which the attendant or the salesman, by releasing the cord *d'*, permits the elevator to descend to its lowest position.

To prevent the carriers which pass to the lower track from running off the ends of the 35 latter when the elevator is not in position to receive them, each lower track or branch is provided near its end with a detent, which may be of any suitable construction—for instance, like the stop-plate I or like the lock- 40 plate L, Fig. 7, which is a straight plate enlarged at one end, pivoted at 10 below one of the rails, and with an edge, 11, which, when the plate is in the position shown in Fig. 7, obstructs the passage between the rails and 45 prevents the forward movement of the carrier.

The detent L is operated by means of the elevator through the medium of any suitable appliances. For instance, a crank-shaft, M, 50 Fig. 3, supported in bearings on one of the arms *m*, has its crank connected by a rod, *m*², with the end of the plate L, and an arm, *m*³, Figs. 4 and 7, at the opposite end, projects outward in a position to be struck by a 55 bracket, *m*⁴, upon the elevator as the latter approaches its lowest position, whereby the detent-plate is then withdrawn to permit the carrier to pass onto the track-section G. As soon as the carrier is raised with the elevator 60 the bracket *m*⁴ is removed from contact with the arm *m*³, when a spring, *m*⁵, bearing upon the side of the detent-plate L, will throw the latter to the position shown in Fig. 7.

To prevent noise, and also to prevent the 65 movable section of the track from being too readily carried out of line with the stationary tracks, elastic blocks *n*³ are secured to the

ends of the stationary or movable tracks, so as to be slightly compressed as the movable track is brought to its position, thereby se- 70 curing the desired result.

We have shown the elevator as adapted to the particular construction of carrier shown; but it will be evident that when the carriers are of a different character the character of 75 the elevating device must be correspondingly varied.

To insure the retention of the ends of the upper rails in their position to coact properly with the elevator, braces P are extended from 80 the said rails to the rods *k*. The braces P have perforated extensions at their lower ends, adapted to fit against the sides of the rails, to which they are connected by screws, and are clamped at the upper ends to the rods in any 85 suitable manner.

The carriers might be run from the movable rail-section G directly onto the upper way; but as any slight displacement of the movable rail-section might result in derailing 90 the carriers we use the bridge rails or plates *r*, which, as they overlie the movable track-section, receive and guide the carriers, so as to properly direct the same, even if the extreme ends of the movable track-section do 95 not coincide with those of the stationary track.

Whenever it is desirable to put an additional carrier upon the track and into circulation, this may be done by each salesman by 100 lifting the elevator slightly to expose the end of the lower track, placing the additional carrier upon the latter, and then lowering the elevator and permitting the carrier to pass from the stationary track onto the movable 105 track-section.

We have described the yokes *b* as overarch- ing the tracks. It will be evident, however, that the yokes may be inverted and extend 110 beneath the tracks; but as this would necessitate enlarging the yokes sufficiently to permit the passage of the basket or receptacle of the carrier, it is preferable to place the yokes above the tracks, as shown, the extended arms 115 *d* affording wide-spread supports for the suspensories, readily permitting the passage of receptacles loaded with bundles of the largest size that it would be practicable to carry upon an elevated track. The spreading apart of 120 the suspensory supports has the further advantage of securing great stability and preventing the tracks from tilting under the movements of the carriers.

It is of course necessary that the carriers shall each be directed to the branch leading 125 to the station from which it was sent. To effect this a switch device is placed at the intersection of each branch and the main track, and the said device so set that a carrier belonging to a station on the branch track shall 130 be properly directed. Any of the various graduated switch devices heretofore employed may be used for this purpose. We prefer, however, to use that which is illustrated in

Figs. 9, 10, and 11 of the drawings. In these figures *s* represents the usual switch-tongue, which may be set so as to be normally in alignment with either the main or branch rails. Preferably the tongue is held in line with the main rails by the action of a spring, *s'*.

The graduated-switch-operating devices are supported preferably by the yoke *b*, adjacent to the track junction, and in the construction shown said devices consist of a horizontal lever, *Q*, with a curved end extending beneath the yoke, pivoted at 13 to an arm, 14, extending from the yoke, and having an opening at the opposite end to receive a rod, 15, extending upward from an arm, *s'*, projecting to the rear from the heel of the switch point or tongue.

Each carrier is provided with a standard, *t*, the lower end of which fits a socket in the frame of the carrier, so that the standard is adjustable vertically, and a set-screw, *t'*, serves to secure the standard after adjustment, and each standard is set at such a height as to make contact only with the lever *Q* at the branch to which the carrier belongs, so that as the carrier approaches the branch the standard will be brought in contact with the curved edge of the lever *Q*, and will swing the latter in the direction of its arrow, Fig. 9, moving the tongue *s* to the opposite position from that shown in said figure, so as to carry the carrier to the branch track, the spring *s'* restoring the parts to their normal position as soon as the wheels of the carrier pass from the switch-tongue.

To insure the proper action of the carrier upon the lever *Q* and prevent the standard *t* from swinging to one side, we employ guide-plates *u u*, arranged above the track on opposite sides of the path of the standard *t*, the edges of the guides diverging, so that should the carrier be swinging or tilted as it approaches the guides the standard will strike one or the other and be finally diverted to the narrow passage between the guides in proper position to operate upon the lever *Q*.

In the construction shown the guides are secured to or cast with the yoke; but they may be supported in any suitable manner, so as to direct the standard in its proper course.

The curved end of the lever *Q* is bent downward to an extent dependent upon the position of the branch in connection with which the lever is used, the ends of the levers being set lower in proportion as they are farther from the main desk, thereby graduating the switch-operating appliances so as to be moved only by the carriers to be deflected.

To bring the tapering end of the switch-tongue in close contact with the side of the rail and support it properly in position under the weight of the carrier, we provide the tongue with a portion, *w*, projecting beyond the side of the tapering point, and make a recess, *x*, in the side of the rail to receive this projecting portion, which, having its bearing upon the face of said recess, holds the tongue

in position as the carrier passes onto and over it.

The general arrangement of the system embodying our invention is illustrated in the diagram, Fig. 12, in which *A A* represent the upper main ways leading to the cashier's desk *B*; *A'*, the upper branch rails; *A''*, the secondary branch rails extending from the main branches *A'*, and *E* the elevators at the ends of the ways and branches.

Inasmuch as each carrier travels in a circuit from the main desk to the station and back, the loss of time and difficulties of manipulation, resulting from the moving of the carriers at the stations, are avoided, while as each carrier is provided with a receptacle which can be drawn down and will automatically rise when released, packages of various sizes will be effectively carried, while the ways will be arranged at a considerable elevation, so as to be wholly out of the way of attendants or customers. It will also be seen that notwithstanding the fact that the carriers travel upon the ways back and forth between the desk and stations, and that they are not detached from the ways at the stations to remove the goods, they can nevertheless be placed upon the ways by the salesman, so that each salesman can forward as many carriers in rapid succession to the desk as may be necessary, thereby avoiding the delays which are inevitable when each station is provided with but one carrier traveling back and forth upon one line between the station and the desk.

We have referred to the circulation of the carriers. It will be evident from the preceding description, and inspection of Fig. 12, that this circulation is not only between upper and lower tracks of the main line, but from the desk along the main lines and between the ends of the branches, and that it is an automatic circulation, through the medium of the switches and their graduated operating devices, of all the carriers between the main desk and each of the branches, so that each carrier moves from the main desk automatically to its proper station, and returns to the main desk without being detached from the circulating-track.

The particular extensible connection employed in the carrier before referred to is illustrated in Fig. 13, which shows the carrier as having a frame, *R*, connected to the stem *h*, which frame supports two drums, *S S*, each containing a coiled spring connected to turn the drum in the direction of the arrow, said spring being shown in dotted lines. Round each drum is wrapped a band or strap, *T*, which is fastened at the lower end to one side of the carrier-receptacle, and a pendent handle, *U*, permits the latter to be seized and drawn down, as shown in Fig. 13, the springs turning the drums, winding up the straps, and elevating the receptacle as soon as the latter is released.

While we have shown and described the tracks or ways as being inclined, it will be evident that they may be horizontal, the car-

riers being propelled thereon in any suitable manner, and being transferred from one to the other of the ways, so as to circulate without being detached, in the same manner as above described.

It will be evident that some of the features of our invention may be used separately from the others.

We do not here claim the construction of the carriage or car, as the same may form the subject of a separate application for Letters Patent.

Without limiting ourselves to the precise construction and arrangement of parts shown and described, we claim—

1. The combination, in a store-service apparatus, of main forwarding and return tracks, corresponding branch tracks extending from the said main tracks, and graduated switching appliances, substantially as described, elevators at the ends of the main and branch tracks, constructed to receive and convey the carriers from one track to the other, and carriers adapted to said tracks and elevators and to automatically operate the said switches, substantially as set forth.

2. The combination, in a store-service apparatus, of the corresponding main and branch tracks, elevators at the ends of the main tracks and branches, and carriers adapted to travel continuously upon said tracks, provided with receptacles, and extensible connections whereby the receptacles are maintained normally in contact with the frames of the carriers, but so as to be capable of being drawn down independently of the frames, substantially as described.

3. A store-service apparatus provided with main tracks having branches and automatic graduated switching appliances, and with elevators at the ends of the main tracks and branches, and carriers adapted to travel upon the tracks without being detached therefrom, and provided with movable receptacles, substantially as described.

4. The combination, in a store-service apparatus, of main and branch tracks provided with automatic graduated switching appliances, and with elevators arranged to convey the carriers between the contiguous ends of the tracks, and carriers provided with movable receptacles and constructed each to operate one of the switches, substantially as and for the purpose described.

5. The combination, with the corresponding upper and lower tracks of a store-service apparatus, and with an elevator constructed to convey the carriers from one track to the other, of a detent arranged to arrest the movement of the carriers toward the elevator, and connections, substantially as described, between the detent and the elevator, for the purpose set forth.

6. The combination, with the vertically-moving carrier-elevator and corresponding tracks leading thereto and therefrom, of a detent, and connections, substantially as de-

scribed, between the elevator and the detent, whereby the latter is held in position to obstruct the track, except when the elevator is in position to receive the carrier, substantially as set forth.

7. The combination, with the elevator, corresponding tracks leading thereto and therefrom, of a detent arranged to obstruct the track leading to the elevator, an arm or bracket upon the elevator, and connections between the detent and the said arm, substantially as described.

8. The combination, with the receiving and return tracks of a store-service apparatus, of an elevator guided to travel between the said tracks and having an opening, and a tilting track-section extending through said opening and arranged to be brought to coincide with both the tracks, substantially as described.

9. The combination, with the elevator and the return and delivery tracks, of a catch upon the elevator adapted to hold the carriers, and a stop arranged to make contact with and withdraw said catch when the elevator is brought in position to deliver the carrier to the forwarding-track, substantially as described.

10. The combination, with the elevator-frame F, having an opening therein, of a track-section consisting of two connected rails extending through and swinging in said opening and adapted to receive and deliver the carriers, and a detent whereby the carriers are retained, and devices, substantially as described, for withdrawing said detent as the track-section is brought to coincide with the delivery-track, substantially as described.

11. The combination, with the track-section forming part of the elevator, of an elastic buffer, substantially as set forth.

12. The combination of the elevator-frame, tilting track-section and stops arranged to limit the movement of the tilting section, substantially as described.

13. The combination of the elevator-frame, track-section and yoke connected to the track-section, and trunnions supporting the latter, substantially as set forth.

14. The combination, with the forwarding and delivery tracks, of an elevator carrying a tilting track-section, and lips at the ends of the delivery-track, substantially as set forth.

15. The combination of the forwarding and delivery tracks and elevator carrying the tilting track-section, and plates *r*, extending from the ends of the forwarding track-rails, substantially as and for the purpose described.

16. The combination of the forwarding and delivery track and elevator provided with a tilting track-section, and elastic blocks *n*, substantially as and for the purpose set forth.

17. A store-service apparatus provided with main and branch tracks extending in unbroken courses between the desk and stations, and elevators arranged to receive the carriers from and deliver them to the open ends of the tracks, substantially as described.

18. The combination, with the upper and lower tracks of a store-service apparatus, of yokes connected to the tracks and provided with laterally-extended arms, and flexible suspensories connected to the said arms, substantially as described.

19. The combination, with the upper and lower tracks of a store-service apparatus, arranged one directly above the other, of yokes having lateral arms arranged upon the upper track directly above similar yokes upon the lower track, and flexible suspensories, each connected to yokes in the same vertical plane, substantially as described.

20. The combination, with the tracks, of yokes having laterally-extended perforated arms, flexible suspensories extending through the perforations in said arms, and set-screws for securing the yokes to the suspensories, substantially as described.

21. The combination of the parallel rails, yokes connected thereto, and laterally-extended arms and braces, substantially as set forth.

22. The combination, with the parallel rails of a store-service track, and with guide-rods supporting an elevator, of arms *m*, connected to the sides of the rails and bent outward and attached to the rods, substantially as set forth.

23. The combination, with the vertical rods *k* and parallel rails, of connecting-arms *P*, substantially as described.

24. The combination, with the main and branch rails, and with a switch-tongue, of a tongue-operating lever arranged to be struck by standards upon the carriers, substantially as set forth.

25. The combination, with the main and branch tracks, tongue, and operating-lever, of guides arranged adjacent to the said lever to

direct the course of standards upon the carriers, substantially as set forth.

26. The combination of the main and branch tracks, tongue, lever *Q*, connected to said tongue and extending over the track, and guide-plates *u u*, substantially as and for the purpose described.

27. The combination, with the main and branch tracks and switch, of an overarching yoke, switch-operating lever pivoted to an arm of the yoke, and guide-plates *u*, supported by the yoke, substantially as set forth.

28. The combination of the switch-tongue, provided with an arm and rod extending upward therefrom, and an operating-lever overhanging the track, connected to the said rod, substantially as set forth.

29. The switch-tongue provided with an extension or projection, *w*, in combination with the track-rail, having a recess, *x*, substantially as and for the purpose described.

30. The combination, with the ways of a store-service apparatus, of vertical rods at the terminus of the ways, or the branches thereof, and elevators moving upon said rods, substantially as set forth.

31. The combination of the ways and vertical rods connected by brackets with the ends of the ways, and elevators supported by said rods, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM S. LAMSON.
EDWIN L. GILES.

Witnesses:

E. F. ENDICOTT,
C. W. LOCKE.