

No. 657,079.

Patented Sept. 4, 1900.

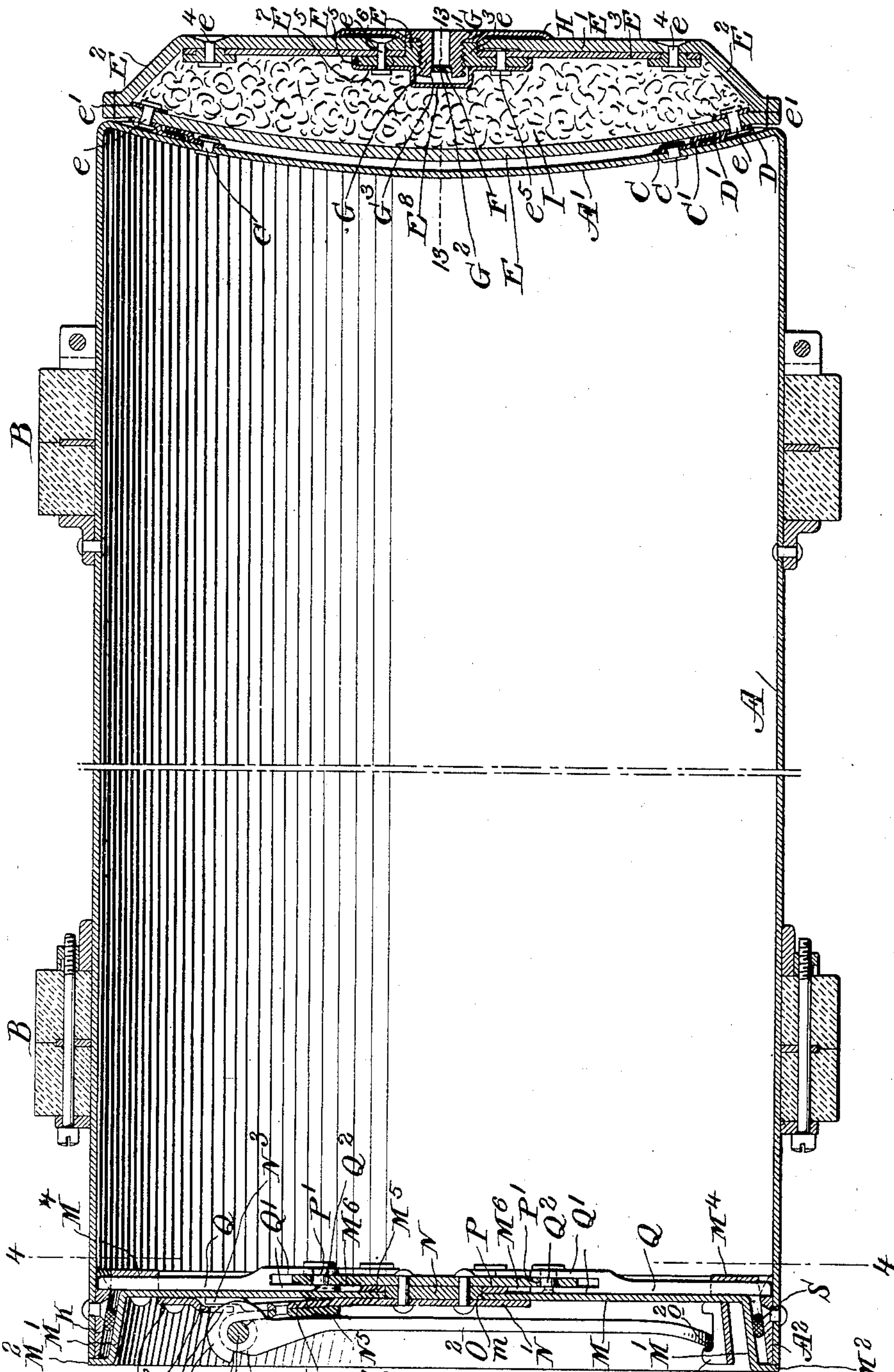
B. C. BATCHELLER.
CARRIER FOR PNEUMATIC TRANSIT TUBES.

(Application filed Nov. 8, 1898.)

(No Model.)

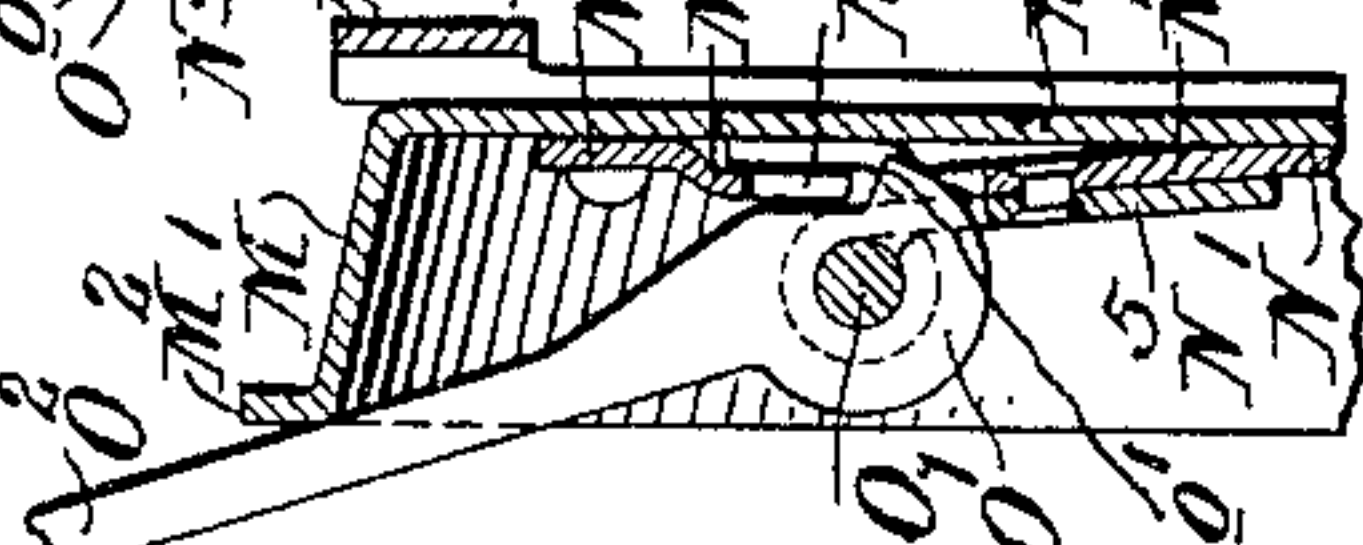
4 Sheets—Sheet 1.

FIG. 1.



Witnesses:
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FIG. 2.



Inventor:
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by his atty.
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No. 657,079.

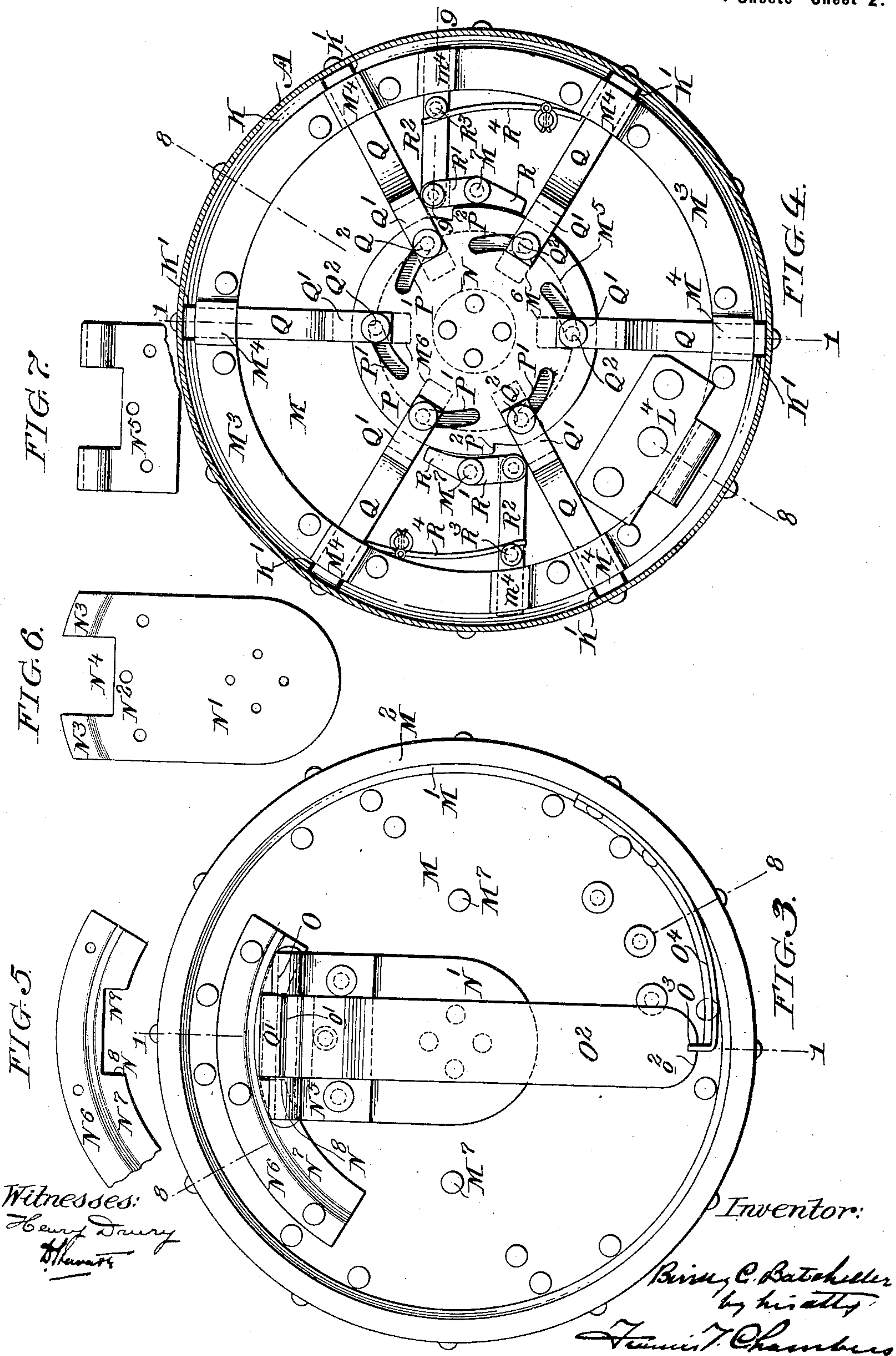
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4 Sheets—Sheet 3.

FIG. 11.

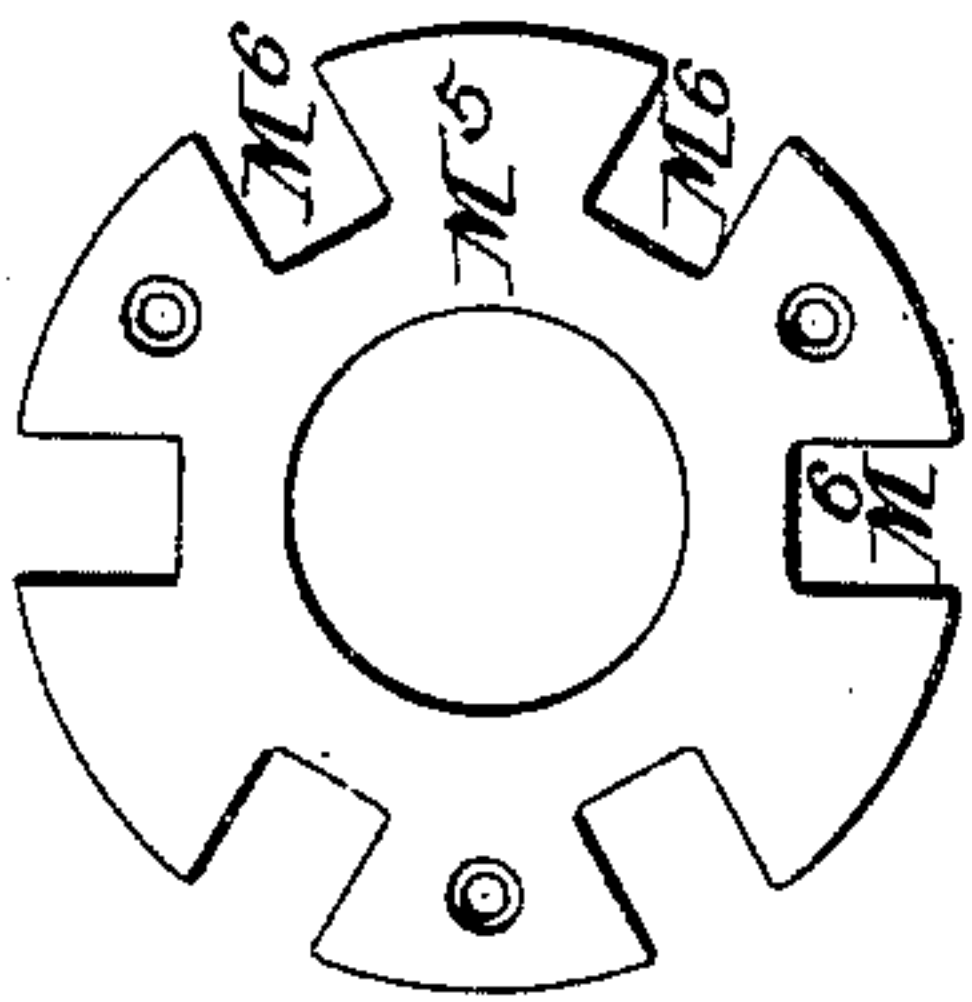


FIG. 9.

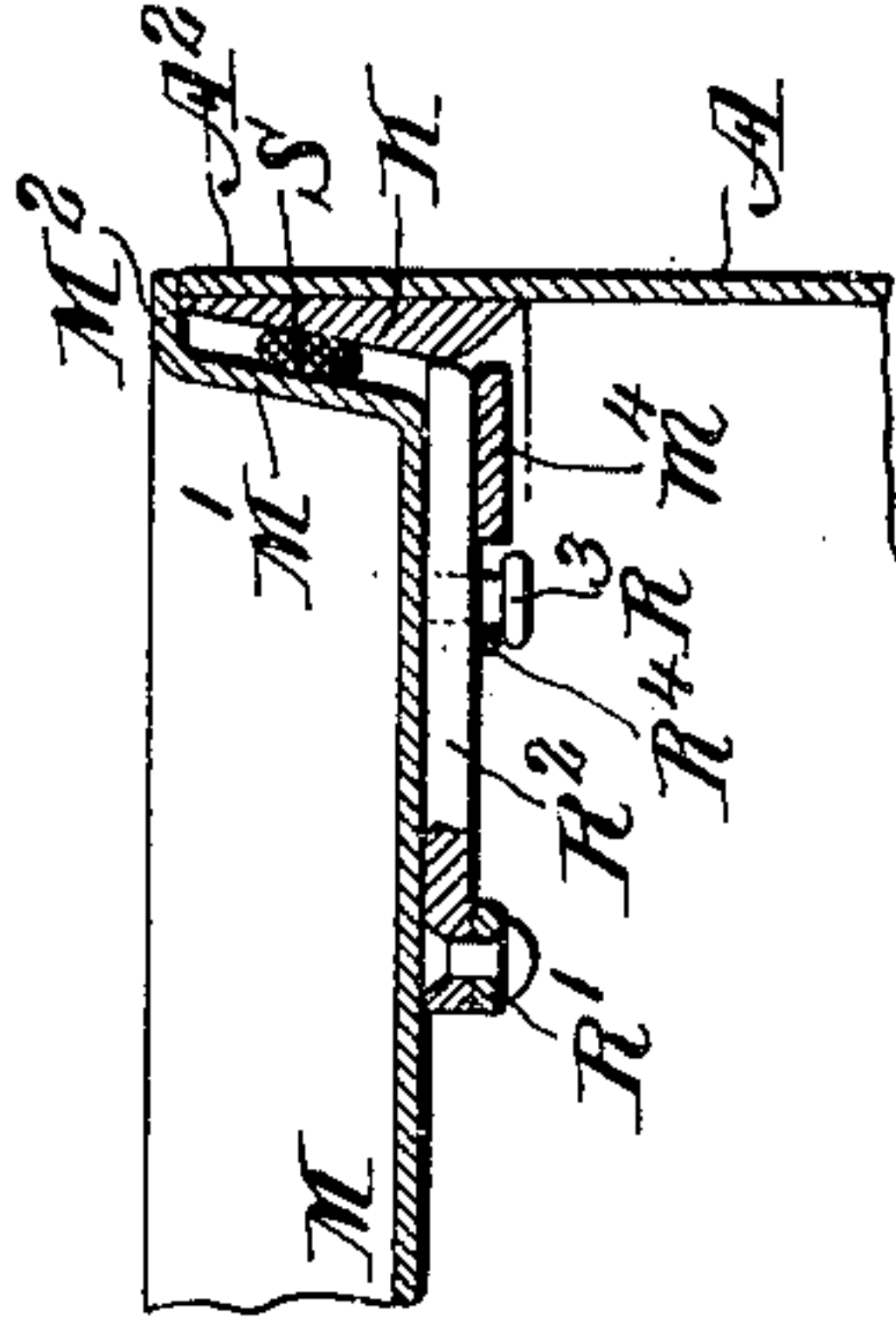


FIG. 12.

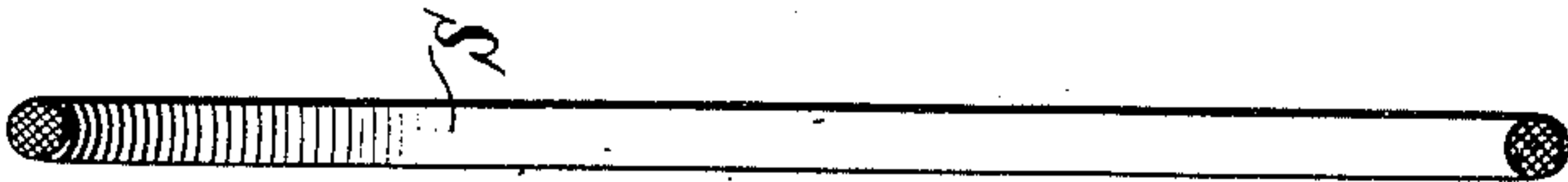


FIG. 10.

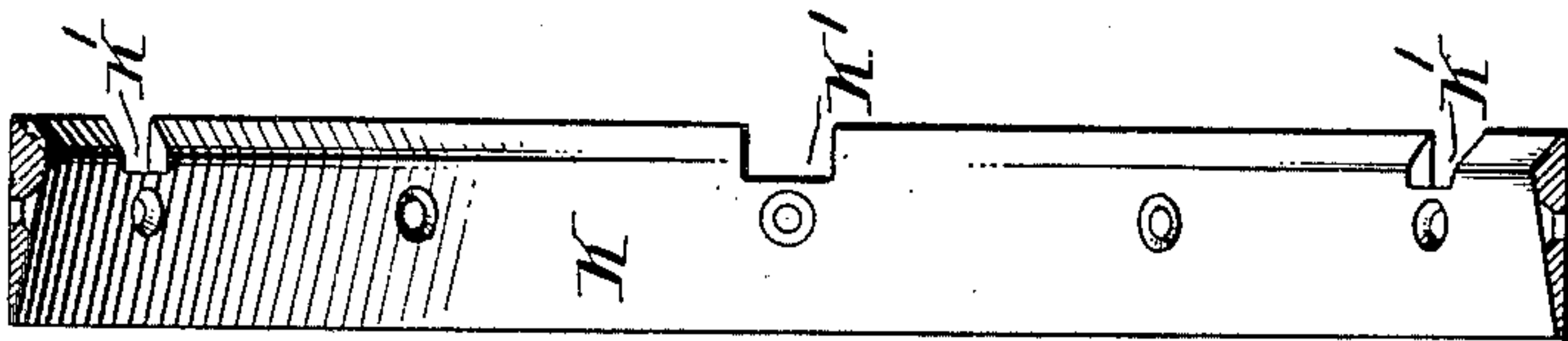
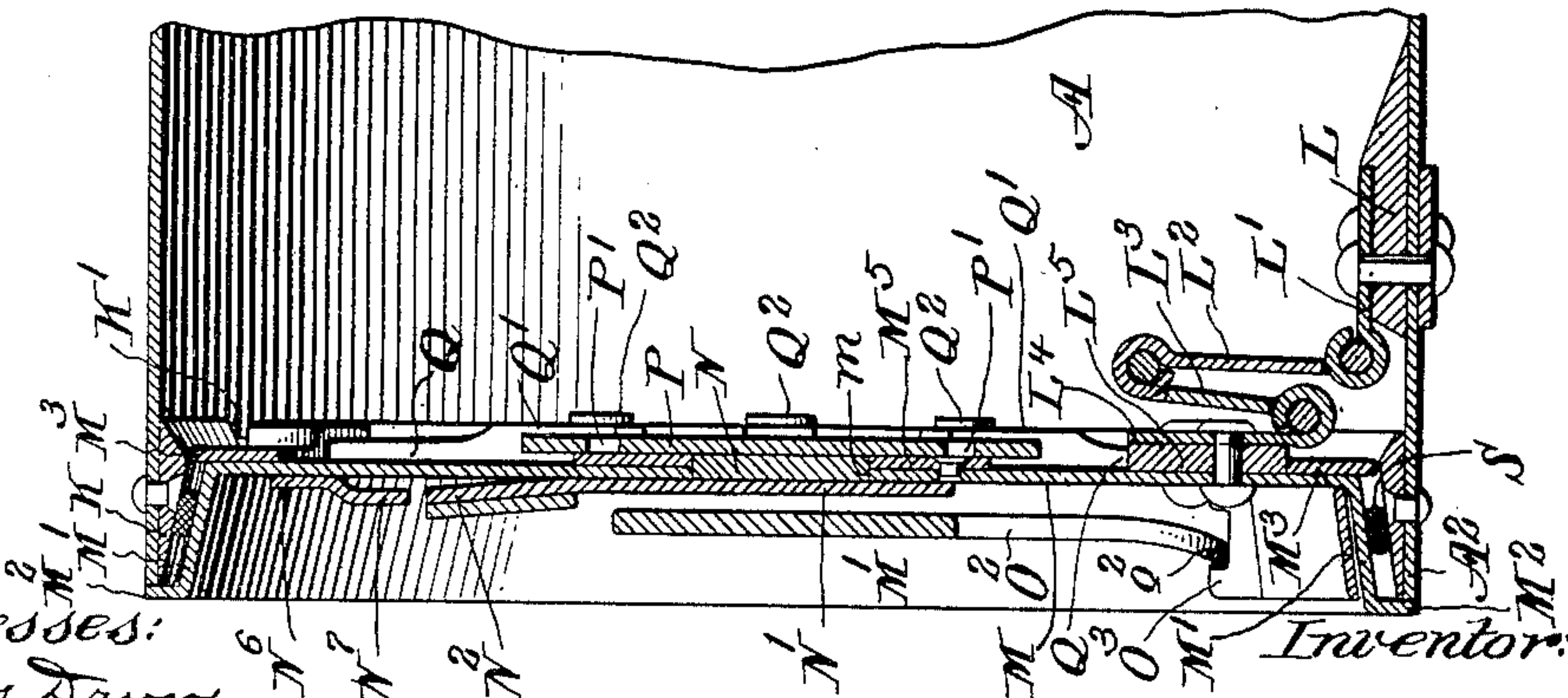


FIG. 8.



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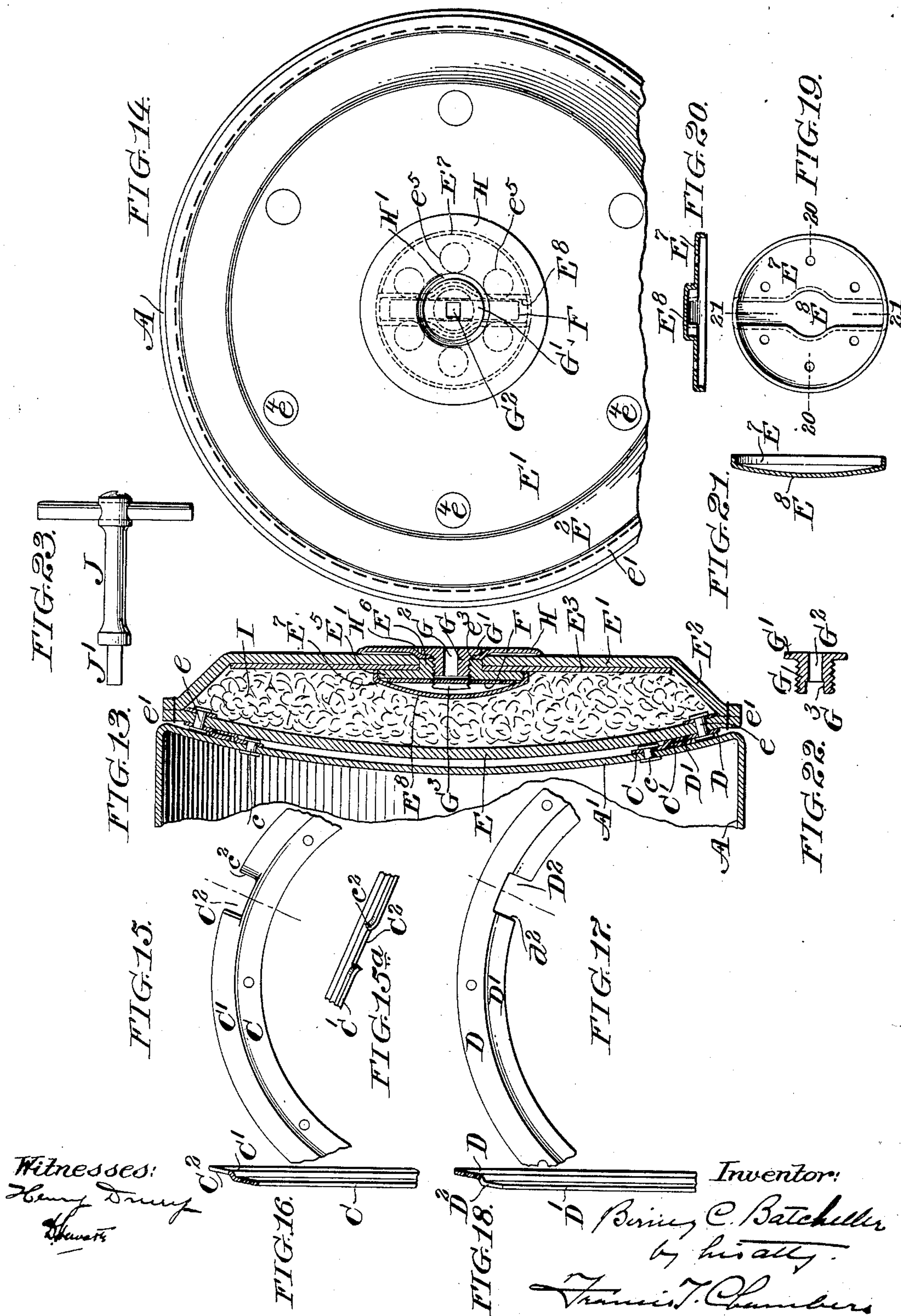
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(No Model.)

4 Sheets—Sheet 4.



UNITED STATES PATENT OFFICE.

BIRNEY C. BATCHELLER, OF PHILADELPHIA, PENNSYLVANIA.

CARRIER FOR PNEUMATIC TRANSIT-TUBES.

SPECIFICATION forming part of Letters Patent No. 657,079, dated September 4, 1900.

Application filed November 8, 1898. Serial No. 695,832. (No model.)

To all whom it may concern:

Be it known that I, BIRNEY C. BATCHELLER, a citizen of the United States of America, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Carriers for Pneumatic Transit-Tubes, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to carriers for pneumatic transit-tubes, and has for one object to provide a carrier which when closed will be impervious to moisture.

A further object, though primarily incidental to that first mentioned, is to provide means for securing a cushion on the front end of the carrier which will not involve the use of bolts or other detachable securing devices passing through the carrier and which preferably will permit both the ready attachment and detachment of the cushion.

A further object is to provide for the convenient and secure attachment and ready detachment of selecting-disks to the front of the cushion.

A further object is to so hinge the lid to the carrier-cylinder as to permit of its seating itself on the end of the cylinder by a substantially-straight inward movement, an object secured by connecting the lid and cylinder by what may be aptly termed a "chain hinge," having two or more links intervening between the connected parts and preferably of such a character as will permit of the lid being moved freely away from the open end of the cylinder when desired. In connection with the chain-hinge connection I prefer to employ a substantially-round gasket seated on a conical flange of the lid and acting when the lid is closed against a conical seat.

A further object is to provide means which will lock the bolts in their inward or non-operative position at all times except when the lid is properly seated on the carrier-cylinder.

A further object is to provide a bolt-actuating device movable from an operative to a non-operative position and in connection therewith a locking device which will prevent a movement of the bolts to unlock them except when the said actuating device is moved to operative position.

A further object is to construct the said lock-actuating device, preferably a lever, in such a way that when in operative position it will project beyond the sides of the cylinder to such an extent that it cannot be brought to operative position and at the same time inserted with the carrier into the pneumatic tube.

A further object is to provide a locking device which will prevent the movement of the lock-actuating device or lever from operative to non-operative position at any other time or position than that corresponding to the locking position of the bolts.

The nature of my improvements will be best understood as described in connection with the drawings, in which they are illustrated as embodied in what I believe to be their best and most practicable forms and in which—

Figure 1 is a longitudinal central section of a carrier having my improved features of construction, Fig. 2 being a fragmentary view of a portion of the lid and the lock-actuated lever, showing the said lever in operative position. Fig. 3 is an elevation of the outer face of the lid. Fig. 4 is an elevation of the inner face of the lid, the view being taken on the section-line 4 4 of Fig. 1. Fig. 5 is a separate view showing a portion of the locking devices used in connection with the lock-actuating lever. Figs. 6 and 7 are plan views of the plates through which the lock-actuating lever is actuated, with the lock-actuating mechanism on the inside of the lid. Fig. 8 is a cross-section through the lid and lid end of the carrier-cylinder, taken on the section-line 8 8 of Figs. 3 and 4. Fig. 9 is a section taken on the line 9 9 of Fig. 4. Fig. 10 is a detached view of the conical lid-seat, the section being the same as that of Fig. 8. Fig. 11 in a plan view of a bolt-guiding plate used on the inside of the lid. Fig. 12 is a detached view of the gasket used in connection with the lid and lid-seat, the gasket being shown in section. Fig. 13 is a sectional view of the head of the carrier and its attachments, taken at right angles to the section of Fig. 1 or on the section-line 13 13 of Fig. 1. Fig. 14 is a front view of the head of the carrier and the mechanism attached thereto. Fig. 15 is a fragmentary plan view of a locking-flange

secured on the head of the carrier, Fig. 16 being a similar edge view of the same device and Fig. 15^a a view illustrating a detail of its construction. Fig. 17 is a fragmentary plan view of a corresponding locking-flange secured on the cushion, Fig. 18 being an edge view of the same device. Fig. 19 is a plan view of the spring-holding plate E⁷, used in connection with the selecting-plate-holding mechanism, Fig. 20 being a cross-section on section-line 20 20 of Fig. 19 and Fig. 21 a cross-section on the section-line 21 21 of Fig. 19. Fig. 22 is a detached sectional view of the selecting-plate-locking stud, and Fig. 23 is a side view of a key adapted for operating the locking-stud.

A indicates the cylindrical body of the carrier, and A' its front end or head, this head and the body of the carrier being preferably made integral, as shown, as the best way of providing against any leakage through the front end of the carrier.

A² indicates the open or rear end of the carrier.

B B are the bearing-rings, secured around the body of the carrier.

C, Figs. 1, 13, 15, 15^a, and 16, is a ring secured, as by rivets c, to the front end or head A' of the carrier, the said ring being provided with an upwardly and preferably, as shown, an outwardly-extending flange C', cut away at one point, as indicated at C². D is a similar ring adapted to be secured to the rear face of the cushion and provided with an upwardly and preferably, as shown, inwardly-extending flange D', which, like the flange C', is cut away at one point, (indicated at D².) The ring D is secured to the inner face of the cushion by means of rivets, as indicated at e, and by pressing one edge, as d², of the flange D' under the edge c² of the flange C' and then turning the cushion the entire flange D' can be turned under the flange C', and the cushion thus securely locked in place on the head of the cylinder. To facilitate the interlocking of the two flanges, it is convenient that the edge c² be turned up slightly, as indicated in Fig. 15^a, or of course the corresponding edge d² of the other ring might be turned down to the same extent, and to facilitate the disengagement of the two rings it is convenient that the edge of the flange C' opposite to the edge c² should be turned down, as indicated also in Fig. 15^a. The cushion is formed by sewing two pieces of strong material, preferably leather, together, the parts being indicated at E and E' and the sewed peripheral edges at e'. The filling of the cushion (indicated at I) should be of hair or some other elastic and compressible material, and it is desirable that the front of the cushion should be for a certain extent, at least, flat. I reinforce the central part of the leather disk E' with a metal plate E³, secured to it by rivets e⁴. The center of the plate E³ is formed with a circular perforation, as indicated at e³, a similar perforation being formed through the

leather disk E', and to the center of the plate E³ is secured, as by means of rivets e⁵, a plate E⁵, having an outwardly-projecting boss E⁶, which extends through the central perforation in the plate and leather disk. The boss E⁶ is internally threaded, as shown, and to the rear face of the plate E⁵ is secured a plate E⁷, having a transverse dish-shaped groove E⁸ formed in it, as best shown in Figs. 19, 20, and 21. Lying in and supported on the shallow outer face of this groove is a flat spring, indicated at F, (see Figs. 13 and 14,) the spring normally resting flat against the inner face of the plate E⁵.

G is a threaded stud adapted to screw into the boss E⁶, the stud being formed with an outwardly-extending flange G', an angular central perforation G², and a straight slot G³ of width sufficient to give passage to the spring F, formed across its inner end.

H is a selecting-plate of the kind used for making electrical contacts with selecting devices governing the receipt or transit of the carrier, the course of the carrier depending on the diameter of the particular selecting-plate with which it is provided. Such plates are preferably formed, as shown, with their centers dished and perforated, as indicated at H'.

J, Fig. 23, is a key having an angular portion J', adapted to engage with the angular perforation G² of the stud and of a length exceeding somewhat the length of the stud.

When it is desired to remove the selecting-plate H, the angular portion J' of the key J is inserted in the perforation of the stud and pressed against the spring F until its center is pressed into the dished slot E⁸ to a sufficient degree to clear the slot G³ in the stud. The key is then rotated so as to unscrew the stud and permit the removal of the selecting-plate. To secure a new selecting-plate in place, it is placed on the front of the cushion and the stud passed through its center and screwed into the threaded boss E⁶, the key pressing the spring away and permitting the flange G' of the stud to be firmly screwed down against the selecting-plate, the removal of the key permitting the spring F to move up into the slot G³ of the stud and effectually lock it in place.

Referring next to the open end of the carrier, K is a conical lid-seat firmly secured, as by rivets, to the inside of the open end of the cylinder.

K' K', &c., (see Figs. 8 and 10,) are bolt-holes formed on the inner edge of the seat.

L is a hinge-block firmly secured to the inside of the casing, as shown, (see Fig. 8,) and to which is attached the link L' of a chain hinge L' L² L³ L⁴, the link or plate L⁴ being attached to the inside of the lid and the links L² and L³ intervening between the lid and cylinder. The device which I have called a "chain hinge" shares the peculiarities of a chain in that it consists of a number of links free to turn on each other in one direction

and also those of a hinge in that it permits angular movement of the lid only in one direction. In the plane at right angles to the hinge-joints the lid is movable as freely as though secured by a rope; but it is without freedom to move in other directions and therefore always occupies the same position on the conical seat when closed.

M is the lid, which is formed with an outwardly-extending conical flange M' , preferably having a peripheral outwardly-extending flange M^2 , which when the lid is seated rests against the end A^2 of the cylinder. The center of the lid M is, as shown, formed with a circular perforation, (indicated at m .)

M^3 is an annular ring secured around the inner edge of the lid M, preferably having its outer end projecting somewhat beyond it, as shown, the ring being bent so as to form bolt-guiding recesses M^4 . (See Figs. 1 and 4.)

M^5 (see Figs. 1, 8, and 11) is a plate having a central perforation corresponding to the perforation m in the lid, which plate is secured to the center of the lid and is formed with bolt-guide recesses M^6 , radially corresponding with the guides M^4 , formed in the ring M^3 .

N is a circular plate or disk fitting in the perforation m and extending through the perforation in the plate M^5 . To the outer face of this disk is firmly secured, as by rivets, a plate N' , (shown in detail in Fig. 6,) one end of which, N^2 , is recessed, as indicated at N^4 , flanges N^3 N^3 on each side of the recess being thrust upward from the face of the lid, as indicated in Figs. 1, 6, and 8. To the end N^2 of the plate N' is firmly secured the hinge-eye plate N^5 . (Shown in detail in Fig. 7.)

N^6 (see Figs. 1, 2, 3, 5, and 8) is a segmental plate firmly secured to the lid, as shown, and having a flange N^7 extending inwardly toward the center of the lid and outwardly from the plane of the lid, said flange being recessed at N^9 , (see Fig. 5,) so that the end N^8 of the flange N^7 will lie to one side of the hinge-eye opening in the plate N^5 when it is turned to the position shown in Fig. 3.

O is a pivot or hinge pin secured in the hinge-eye of the plate N^5 and which passes through the head O' of the lock-operating lever O^2 , the parts being arranged so that in one position the head O' of the lever lies in the recess N^9 of the flange N^7 and in close registry with the end N^8 of this flange. The head O' of the lever is formed with a recess o' , which when the lever is turned to the position indicated in Fig. 2 enables the head O' to clear the flange N^7 , permitting the recess and the parts attached thereto to be turned toward the left, as shown in Fig. 3, such movement of the lever, however, causing the recess o' to so interlock with the flange N^7 that the lever cannot be moved backward until the parts are again turned to the position shown in Fig. 3. It will be seen that when the lever O^2 is turned outward or into operative position its free end o^2 projects to a considerable distance

beyond the outer face of the cylinder, a construction which will effectually prevent the insertion of the carrier into a transmission-tube while the lever is in its operative position and which will also prevent the lever from moving to an operative position while the carrier is within the tube. In its non-operative position, that shown in Figs. 1 and 3, the lever is folded down against the outside of the lid, and its free end o^2 is engaged by a catch O^3 , held in operative position by means of a spring O^4 , as shown in Figs. 1 and 3.

Secured to the inner face of the disk N is a plate P, which rotates with the disk N and by means of which motion is given to the locking-bolts. As shown and as most conveniently constructed, the plate P has formed in it cam-slots P' , corresponding in number to the bolts used in connection with the lid, and preferably it is also formed with notches (indicated at P^2) in its periphery, the purpose of which will be hereinafter described.

Q Q, &c., are bolts the outer ends of which pass through the guideways M^4 , while their inner ends are preferably made forked, as indicated at Q' , Fig. 1, so as to pass on each side of the plate P, the inner fork extending into one of the guideways M^6 of the plate M^5 .

Q^2 is a pin which passes through the forked ends Q' of each bolt and through one of the cam-grooves P' of the plate P. It will readily be seen how in view of the construction above described the movements of the lever O^2 control the movement of the bolts.

R R are bolts fulcrumed on pins M^7 M^7 , secured on the inner face of the lid and having rearwardly-extending lever-arms R' , which are pivotally connected with bars or rods R^2 , the outer ends of which extend through the guideways M^4 , formed in the ring M^3 .

R^3 R^3 indicate pins extending out from the bars R^2 , and R^4 R^4 are springs which press against the pins R^3 , tending to throw the rods R^2 outward and the bolts R inward. The length of the rods R^2 is such that they normally project for some distance beyond the edge of the lid M, and when the pawls R are in registry with the notches P^2 the openings R^4 cause such pawls to be forced into the notches. This registry of the pawls and notches, however, only occurs when the bolts are fully withdrawn and the notched plate P is in its corresponding position in each position of the bolts and plate, and when the lid is opened the pawls effectually lock the bolt-actuating plate P against a movement in a direction to force the bolts outward. As the lid is placed in position to close the carrier-cylinder the outer projecting ends of the rod R^2 come in contact with the conical seat K, which presses the rod inward, moving the pawl R outward, and when the lid is fully seated to its proper position releasing the engagements between the pawls R and the notches P^2 , permitting the actuating-lever to move the plate P and throw the bolts outward into engaging position.

While any convenient form of gasket can be used to make a tight joint between the conical flange M' of the lid and the conical seat K in the end of the carrier-cylinder, I prefer to use a gasket S, of rubber or like material, having a substantially-circular section, as indicated in Fig. 12. Such gaskets have been long known for use in connection with preserve-jars and like receptacles, and I adapt my carrier to their effective use by uniting the lid and cylinder by means of what I have referred to as a "chain hinge" which permits the lid to be inserted in or on the carrier by a substantially-straight inward push.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A carrier-cylinder having a tightly and permanently closed front end in combination with cushion-holding devices secured permanently to said closed end, a cushion and means for attaching the cushion secured to it and adapted to engage with the cushion-holding devices on the carrier.

2. A carrier-cylinder having a tightly and permanently closed front end formed integral with the walls of the carrier in combination with cushion-holding devices secured permanently to said closed end, a cushion and means for attaching the cushion secured to it and adapted to engage with the cushion-holding devices on the carrier.

3. A carrier-cylinder having a tightly-closed front end in combination with a ring, as C, secured on said front end and having an upwardly-projecting flange, as C', cut away at one point, as C², a cushion and a ring, as D, secured to the inner face of said cushion having an inwardly-projecting flange, as D', cut away at one point, as D², and adapted to engage with flange C' as described.

4. A carrier-cylinder cushion formed of two sections E and E' of leather or similar material secured together at their edges and packed with elastic compressible material in combination with a plate E³ of metal or similar material secured on the inside of the outer leather section, and means for securing a selecting-plate at the center of the outer layer of the cushion.

5. In combination with a carrier-cylinder, means for securing a selecting-plate in position thereon consisting of a plate, as E⁵, secured on the front of the carrier and having a threaded perforation, a plate E⁷ having a groove E⁸ secured on the inside of plate E⁵, a threaded stud G adapted to screw into the threaded perforation in plate E⁵, said stud having an angular perforation G², a flange G' and a transverse slot G³ across its inner end and a spring F lying in groove E⁸ in position to enter and engage slot G³ when not depressed as by a key.

6. In combination with a carrier-cylinder having a closed and an open end, a lid for closing its open end, a chain hinge having two or more links interposed between the inside

of the open end of the cylinder and the inner face of the lid, and locking mechanism for fastening the lid on the open end of the cylinder.

7. In combination with a carrier-cylinder and a lid adapted to close the same, a bolt or bolts secured on the lid and adapted to lock it in place on the cylinder, a plate revolubly secured on the lid and arranged when moved to actuate said bolts, a locking pawl or pawls secured on the lid and arranged to engage and lock the revoluble plate in fixed position when the bolts are withdrawn, a pawl-actuating rod or rods having its or their ends projecting beyond the edge of the lid and a rod-actuating incline secured on the end of the carrier-cylinder and arranged to actuate the rod or rods to release the pawl or pawls when the lid is properly seated on the carrier.

8. In combination with a carrier-cylinder and a lid adapted to close the same, a bolt or bolts secured on the lid and adapted to lock it in place on the cylinder, a cam-plate revolubly secured on the lid and arranged when moved to actuate bolts, a locking pawl or pawls secured on the lid and arranged to engage and lock the cam-plate in fixed position when the bolts are withdrawn, a pawl-actuating rod or rods having its or their ends projecting beyond the end of the lid and a rod-actuating incline secured on the end of the carrier-cylinder and arranged to actuate the rod or rods to release the pawl or pawls when the lid is properly seated on the carrier.

9. In combination with a carrier-cylinder and a lid adapted to close the same, a bolt or bolts secured on the lid and adapted to lock it in place on the cylinder, a plate revolubly secured on the lid and arranged when moved to actuate the bolts, a bolt-actuating lever pivotally secured to the plate on the outside of the lid and so as to turn on its pivot from operative to non-operative position, and a locking device arranged to prevent rotative movement of the plate and lever when the bolts are moved to locking position and the lever to non-operative position and to prevent the movement of the lever to its non-operative position in any other position of the rotatable plate than that corresponding to the locking position of the bolts.

10. In combination with a carrier-cylinder and a lid adapted to close the same, a bolt or bolts secured on the lid and adapted to lock it in place on the cylinder, a plate revolubly secured on the lid and arranged when moved to actuate said bolts, a bolt-actuating lever pivotally secured to the plate on the outside of the lid and so as to turn on its pivot from operative to non-operative position, said lever being arranged to project beyond the edge of the carrier-cylinder when in operative position and to fold down over the lid in non-operative position, and a locking device arranged to prevent rotative movement of the plate and lever when the bolts are moved to locking position and the lever to non-oper-

ative position and to prevent the movement of the lever to its non-operative position in any other position of the rotatable plate than that corresponding to the locking position of the bolts.

11. In combination with a carrier-cylinder and a lid adapted to close the same, a bolt or bolts secured on the lid and adapted to lock it in place on the cylinder, a plate revolubly secured on the lid and arranged when moved to actuate the bolts, a bolt-actuating lever pivotally secured to the plate on the outside of the lid and so as to turn on its pivot from operative to non-operative position, said lever having a head, as O' , with a notch o' , a ledge as N^7 secured on the lid and extending from a point, as N^8 , lying clear of the head O' when in locking position in the direction of movement of said head when moving to withdraw the bolts, said ledge being arranged to, as described, prevent the rotative movement of the lever and plate to which it is attached in all positions of the lever except when turned on its pivot to operative position and to prevent the turning of the lever to non-operative position in all positions except that corresponding to the locked position of the bolts.

12. In combination with a carrier-cylinder and a lid adapted to close the same, a bolt or bolts secured on the lid and adapted to lock it in place on the cylinder, a plate revolubly secured on the lid and arranged when moved to actuate the bolts, a locking pawl or pawls secured on the lid and arranged to engage and lock the revoluble plate in fixed position when the bolts are withdrawn, a pawl-actuating rod or rods having its or their ends projecting beyond the edge of the lid, a rod-actuating incline secured on the end of the carrier-cylinder and arranged to actuate the rod or rods to release the pawl or pawls when the lid is properly seated on the carrier, a bolt-

actuating lever pivotally secured to the rotatable plate on the outside of the lid and so as to turn on its pivot from operative to non-operative position and a locking device arranged as specified to prevent rotative movement of the plate and lever when the bolts are moved to locking position and the lever to non-operative position and to prevent the movement of the lever to non-operative position in any other position of the rotatable plate than that corresponding to the locking position of the bolts.

13. In combination with a carrier-cylinder, a conical lid-seat, as K , a lid having a conical peripheral flange, as M' , a chain hinge having two or more links intervening between the lid and carrier-cylinder and a gasket, as S , having a substantially-round section of less diameter than the conical faces K and M' situated on the flange M' and adapted to intervene between it and seat K when the lid is closed.

14. In combination with a carrier-cylinder a lid M having a central circular opening m in combination with a plate M^5 having a central opening and guide-slots M^6 formed in its outer edge said plate being secured to the inside of the center of lid M , a disk-shaped plate N situated in the circular central openings of lid M and plate M^5 , a cam-plate P secured to inside of plate N , a ring M^3 having guideways M^4 secured to the outer edge of the lid, bolts Q operatively connected to the cam-plate and having their outer ends guided in ways M^4 and their inner ends guided in slots M^6 and a plate, as N' , secured on the outside of the lid to plate N and by means of which said plate and the cam-plate are rotated.

BIRNEY C. BATCHELLER.

Witnesses:

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