

No. 637,739.

Patented Nov. 21, 1899.

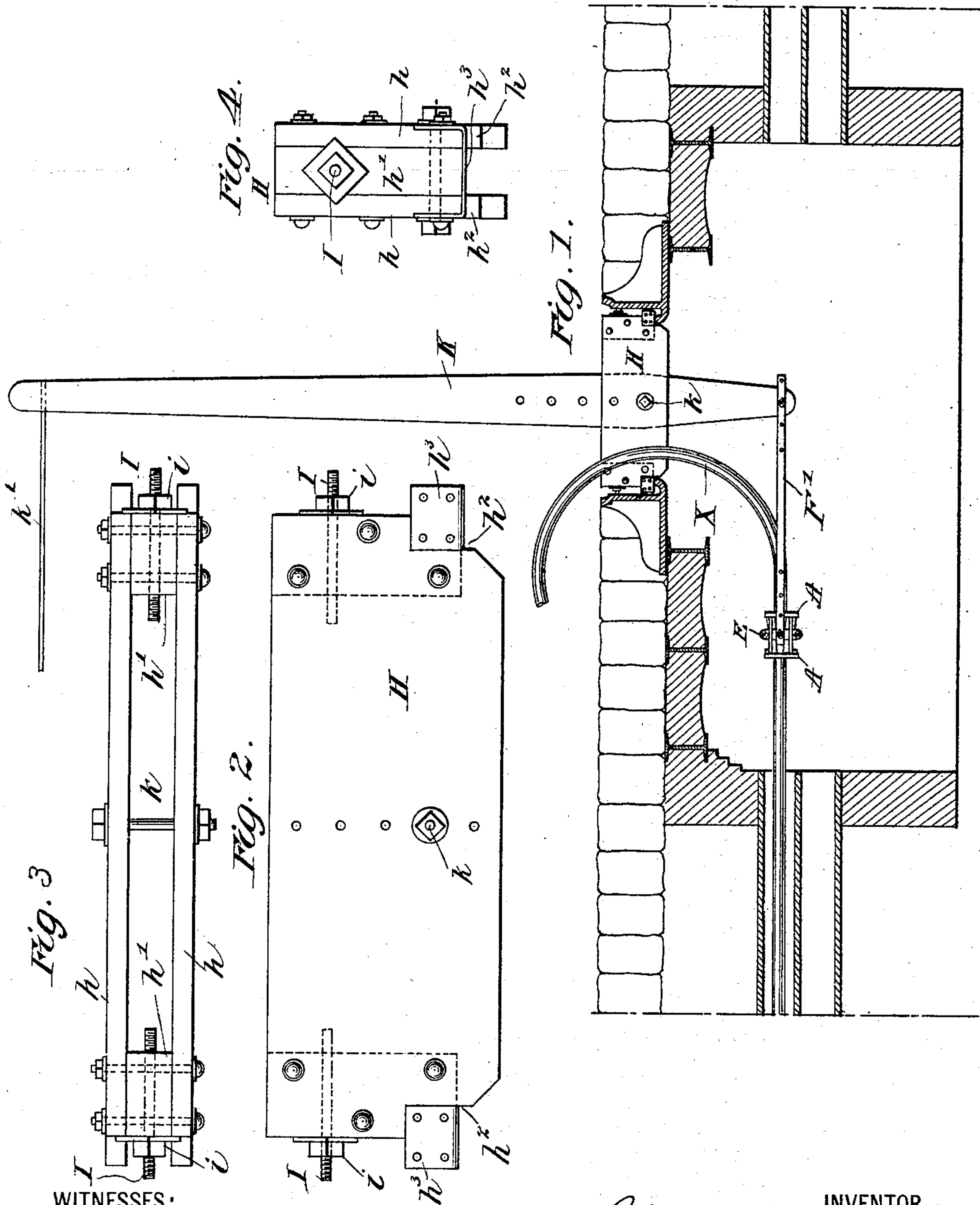
C. H. MATCHETT.

APPARATUS FOR HAULING OR DRAWING CABLES.

(Application filed Aug. 21, 1899.)

(No Model.)

4 Sheets—Sheet 1.



WITNESSES:

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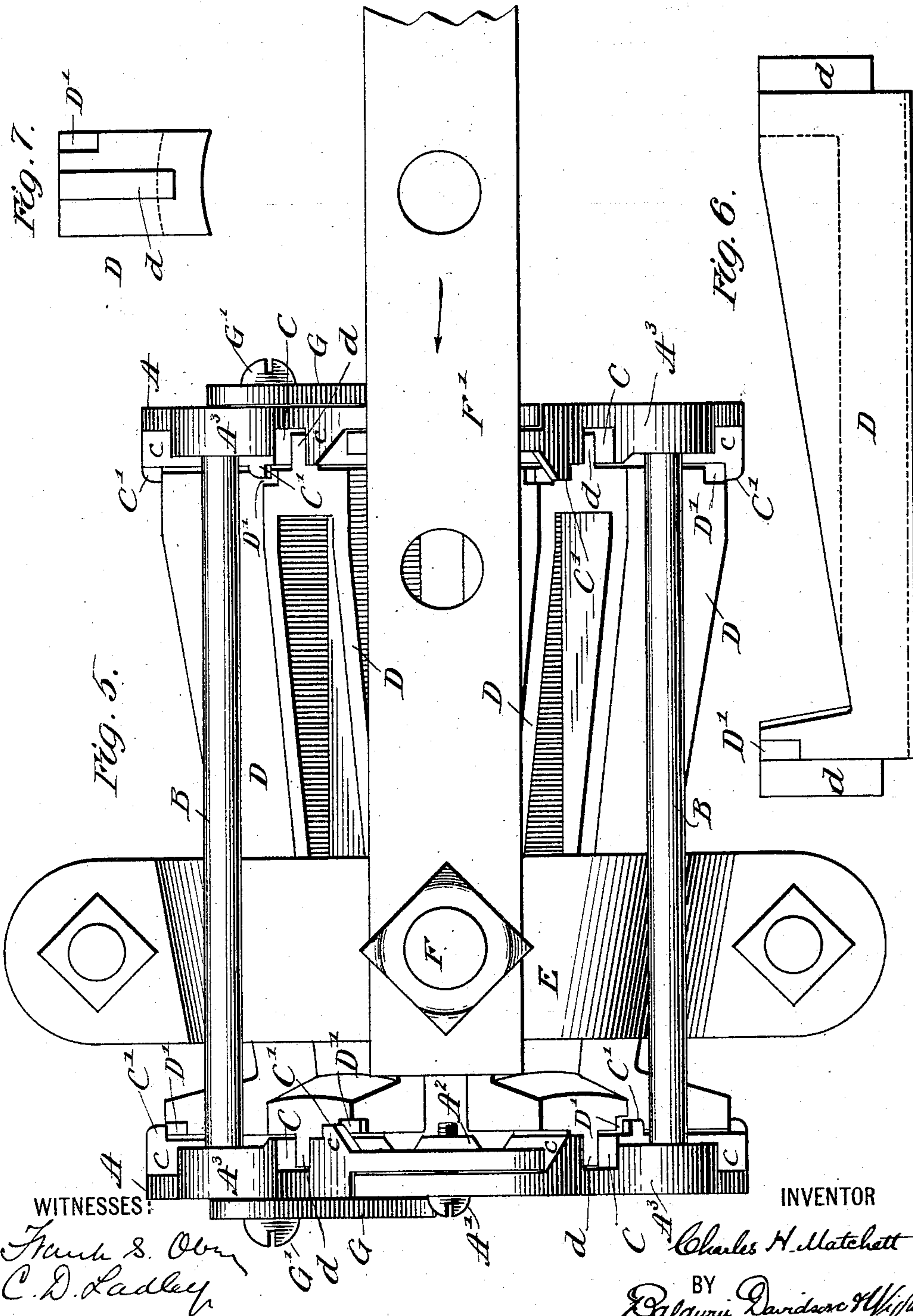
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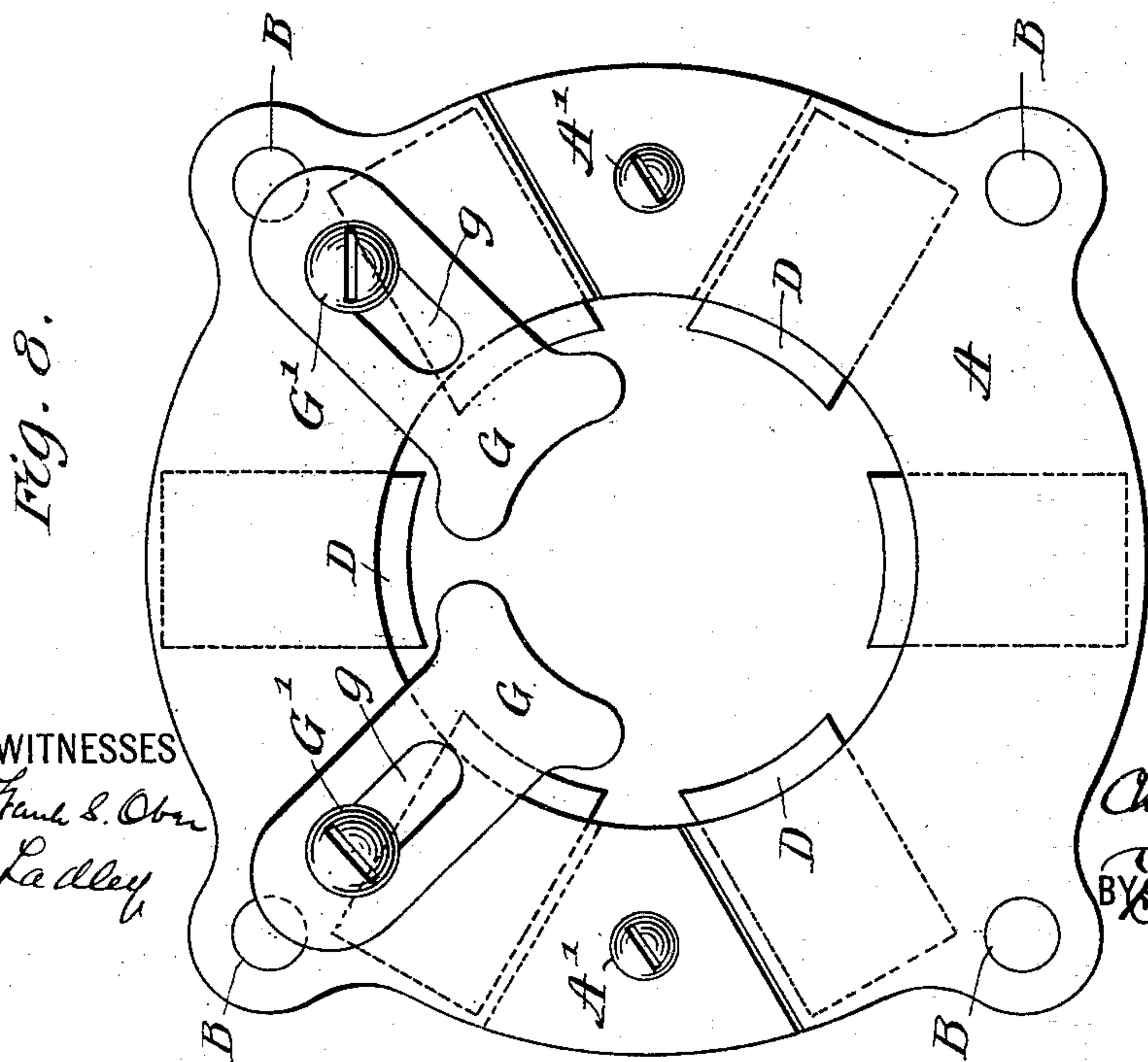
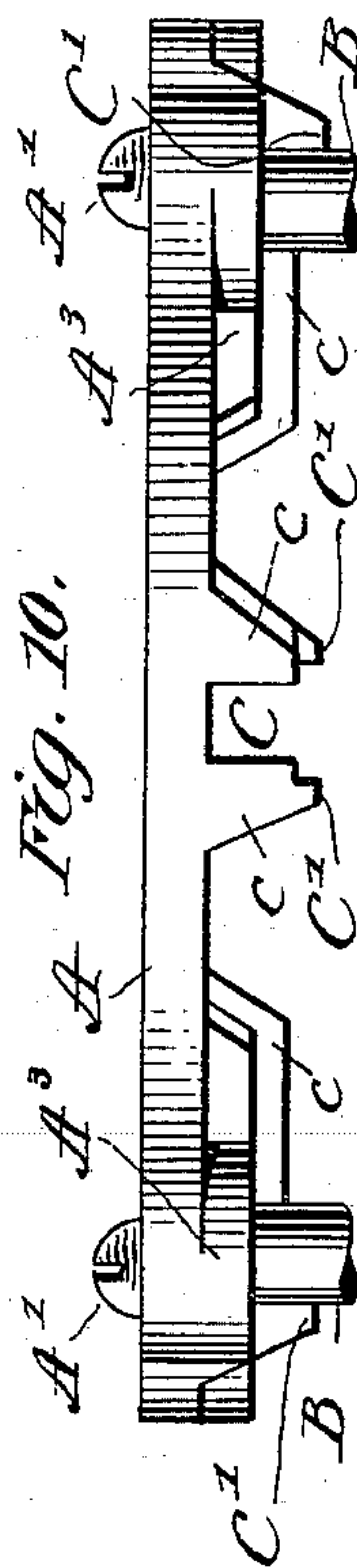
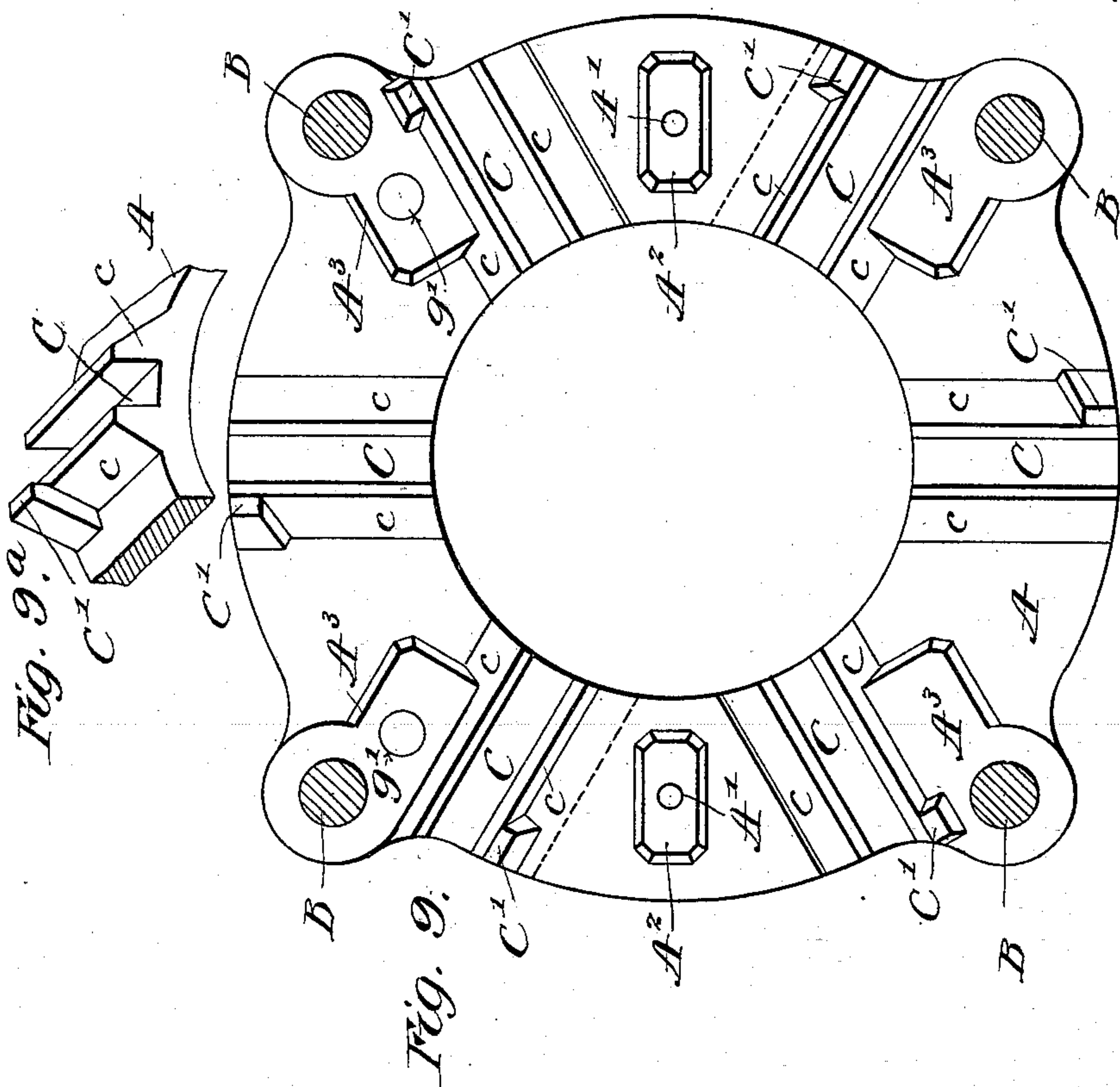
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4 Sheets—Sheet 3.



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Fig. 12.

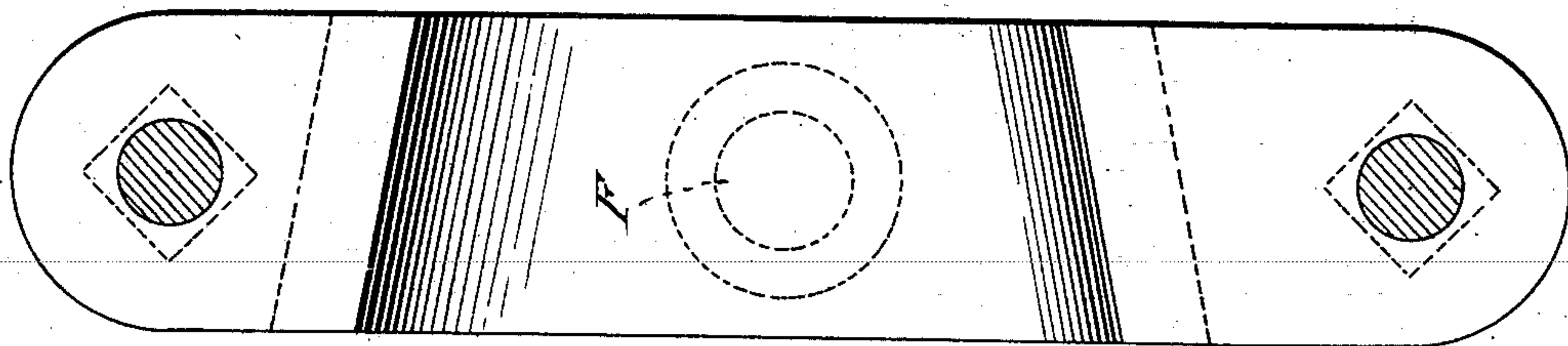
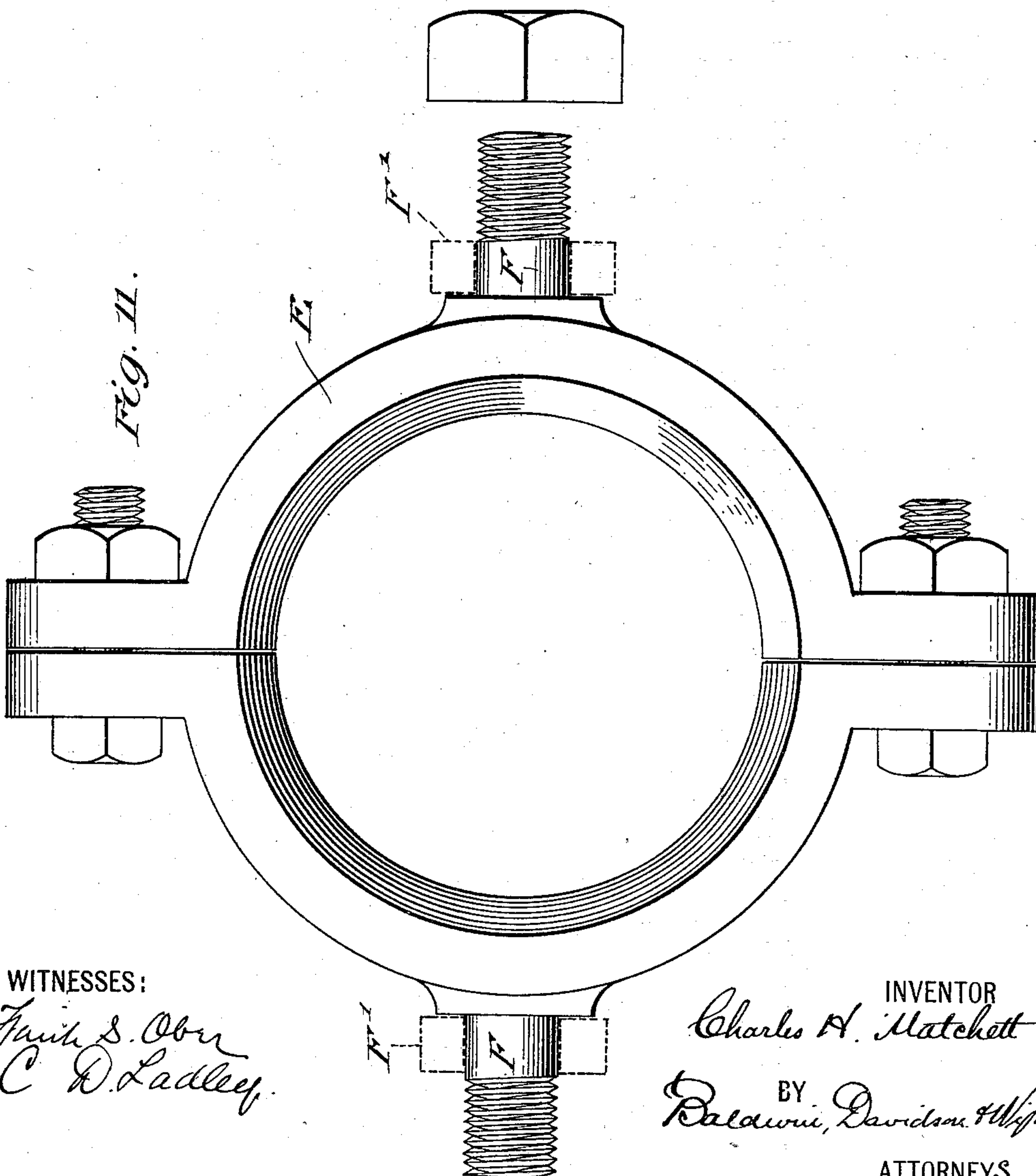


Fig. 11.



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UNITED STATES PATENT OFFICE.

CHARLES H. MATCHETT, OF NEW YORK, N. Y.

APPARATUS FOR HAULING OR DRAWING CABLES.

SPECIFICATION forming part of Letters Patent No. 637,739, dated November 21, 1899.

Application filed August 21, 1899. Serial No. 727,936. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. MATCHETT, a citizen of the United States, residing in the borough of Brooklyn, city of New York, State of New York, have invented certain new and useful Improvements in Apparatus for Hauling or Drawing Cables, &c., of which the following is a specification.

The invention is designed more especially for drawing cables of electrical conductors from subway-ducts; but obviously it may be used for drawing cables of all kinds, rods, pipes, &c., from passages or ducts in which they may be located.

The invention comprises some kind of a suitable frame having an annular passage, through which the cable to be operated upon passes, and radially-movable blocks adapted to be moved inwardly, so that their inner faces, which may be curved to conform or substantially conform to the circumference of the cable, may by appropriate means be caused to clamp the cable between them, when a proper draft upon the device will cause it to move forward with the cable in its grasp. The means by which the draft is applied to the gripping device may be and in the organization hereinafter described is such as to be reciprocated, and the general organization is such that when the reciprocating draft devices are moved rearwardly the cable is released from the clamping action of the gripping device, which then slides back upon the cable, and when the draft devices are drawn forward the radially-movable gripping members or jaws are caused to first clamp the cable, after which the gripping device, with the cable in its grasp, moves forward with the draft device.

The general operation and details of construction are hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a sectional view showing a subway-manhole with the apparatus appropriately mounted for drawing a cable out of one of the ducts leading into the manhole. Figs. 2, 3, and 4 are respectively a side elevation, plan, and end view of a bridge-piece adapted to be placed across the manhole-opening and in which the lever for operating the gripping and drawing device may be pivoted. Fig. 5 is a side elevation, on an enlarged scale, show-

ing the gripping device and the draw-bars connected therewith. Fig. 6 is a side elevation of one of the radially-movable gripping members or jaws, and Fig. 7 is an end view thereof. Fig. 8 is an elevation of either end of the gripping device; Fig. 9, a view of the inner face of either of the end pieces of the frame carrying the gripping members or jaws, the tie-rods which unite the two end members of the frame being shown in section; Fig. 9^a, a detail view of part of Fig. 9; Fig. 10, a plan view of Fig. 9; Fig. 11, an elevation of a sectional ring which surrounds the radially-moving gripping members or jaws and to which the draw-bars are connected, and Fig. 12 an elevation of the inner face of one of the sections of said ring.

The construction illustrated in the drawings is one which has been practically used and one which is considered by me to be the best form of embodiment of my invention now known to me, although obviously the details of construction may be changed without departing from the principles of the invention or materially changing its general mode of operation or behavior in use.

As shown in the drawings, the frame or support of the gripping members or jaws consists of two annular end plates or rings A, connected by tie-rods B, which hold them in fixed relation to each other and at a suitable distance apart. Preferably each such annular end plate is made in two parts, as seen in Figs. 5, 8, and 9, the two parts forming lap-joints with each other and being secured together by screw-bolts A' A'. The inner faces of the inner overlapping portions of the annular plates are formed with hubs or bosses A² A² to form proper sockets for the screw-bolts A'. The portions of the plates in which the tie-rods B are seated or attached are also formed with bosses or thickened portions A³ to insure strength and proper sockets for the tie-rods, which may be screwed into these portions of the plates. The inner faces of the annular end plates are formed with radial ribs c, forming grooves C, six such grooves being shown in the drawings, Fig. 9. At one side of each such groove and adjacent to the outer edge of the annular plate is a projecting lug C'. These lugs project beyond the plane of the edges of the ribs c, as illus-

trated in the detail view Fig. 9^a. Seated in opposite radial grooves in the two end plates are the radial-moving gripping members or jaws D; each of which is formed at its ends with ribs $d d$, which run in the grooves C, and with notches D', in which the lugs C' seat, thereby limiting outward radial movement. The inner faces of these members may be curved transversely, as shown, and their outer faces are inclined from one end toward the other. The gripping members and the annular end plates may be of cast-iron or may be otherwise made, as is desired. The gripping-jaws may be placed in position by inserting them through the central opening in one of the end plates and then moving them outwardly, with their ribs $d d$ seated in the corresponding grooves or channels C. When all are in position, they may be held in place, when the apparatus is not in use, by a cylindrical plug. Around the outer faces of the gripping members and within the tie-rods B is arranged the draft-ring E, which is shown in Figs. 11 and 12 as made of two sections or halves bolted together and whose inner face is inclined from one side of the ring to the other. On opposite sides of the ring are formed trunnions F, over which draw-bars F' F' may be placed and secured by nuts, as clearly indicated. On the outer face of each annular end plate and above the horizontal line passing through the axis of its opening, as viewed in Fig. 8, I prefer to attach plates which serve to center the cable within the gripping device. The inner edges of these plates G G are curved to conform generally to the circumference of the cable to be operated upon, and they are provided with slots g to permit of adjustment and are held by clamping-bolts G', seated in threaded sockets in the bosses or thickened parts A³ of the plates, these screw-threaded sockets being marked g' in Fig. 9.

When this apparatus is applied to a cable to be operated upon, and which will occupy the annular openings in the end plates and be surrounded by the radially-acting gripping members, it will be obvious that when the draw-bars F' are moved backwardly in the direction of the arrow, Fig. 5, the ring E will be carried back, the gripping-jaws will be released, and the apparatus will slide back upon the cable, the gripping apparatus being held in symmetrical relation thereto by the supporting-plates G G. When the draw-bars are drawn forward, the ring E, acting upon the inclined outer faces of the gripping members, will draw them in radially until they clamp or firmly embrace the cable. Continued forward movement of the draw-bars will then draw the gripping apparatus, and the cable with it, forward. By the suitable manipulation of the draw-bars, therefore, the gripping device may be reciprocated and the cable be drawn forward step by step. The ring E is divided for convenience of placing it in position, and the annular end plates A A are

divided, so that the gripping device may be readily applied to a cable where it is not convenient to pass the end of the cable through the openings in the annular plates.

This apparatus may be used in a variety of ways, according to the exigencies of its use, and one of which is illustrated in Fig. 1. The bridge-piece H, which may be applied across the manhole-opening, may consist of two side plates $h h$, spaced at the ends by interposed blocks $h' h'$, through which and the side plates securing-bolts pass. These side plates and the interposed block are at each end notched or cut away, as at h^2 , and when the parts $h' h'$ are made of wood the shoulder formed at h^2 may be faced by a piece of sheet-iron h^3 , which may be riveted or bolted in position. This shoulder may rest upon the ordinary annular flange in the manhole-opening and the bridge-piece be firmly held in position by screw-bolts II, occupying sockets in the blocks $h' h'$ and worked in or out by nuts i , so that they can be caused to impinge against the wall of the manhole-opening. The lever K for operating the draw-bars F' may be pivoted upon a bolt k , passing through the side pieces $h h$ of the bridge H.

k' is a rope which may be attached to the end of the lever and a gang of men or other source of power applied to it to draw the cable from the duct.

In Fig. 1, X indicates a cable which is being drawn from its duct by the apparatus described.

I claim as my invention—

1. The combination of a frame or support having a central opening through which a cable or other object to be operated upon passes, a series of radially-movable gripping members or jaws each mounted at both its ends in the frame around the central opening and adapted to be caused at will to move inwardly bodily to grip the cable or to be caused to release the cable, and means for moving the frame back and forth whereby the cable or other object may be drawn forward step by step.

2. The combination of the frame having annular end pieces and parts connecting them rigidly, gripping members or jaws arranged between the inner faces of the end plates and adapted to move radially with reference to the openings therein, means whereby at will the jaws may be moved inwardly to grip a cable or other object occupying the openings in the end plates or be caused to release said cable, and means for moving the frame back and forth whereby the cable or other object may be drawn forward step by step.

3. The combination of a frame or support having a central opening therethrough to be occupied by the cable or other object to be operated upon, a series of radially-movable grippers each mounted at both its ends in guides or ways in the frame and around the opening thereof and draft devices which when moved in one direction release the cable from

the grippers and which when moved in the opposite direction cause the grippers to move inwardly to engage the cable to carry it forward with the frame.

5 4. The combination of the frame having annular end plates, gripping-jaws extending between the end plates and connected with them by radial groove-and-rib connections, the outer edges of the gripping-jaws being inclined, a draft-ring surrounding the series of
10 jaws and adapted to act thereon as described and draw-bars or draft devices applied to the ring, substantially as set forth.

15 5. The combination of a frame having annular end plates, gripping-jaws having inclined outer edges and extending between the end plates and connected therewith by radial groove-and-rib connections, stops for limiting the outward movement of the jaws, a
20 draft-ring surrounding the gripping-jaws and acting upon the inclined outer edges thereof and a draft device or draw-bars attached to the ring, substantially as set forth.

25 6. The combination of the frame having annular end plates divided into sections, rigid connections between corresponding sections of the two end plates and means for securing the sections of each end plate together, radial movable grippers arranged between the
30 end plates and around the openings thereof and draft devices which when moved in one direction cause the grippers to grip a cable or other object occupying the openings in the end plates and which when moved in the opposite direction release the cable from the ac-
35 tion of the grippers.

40 7. An apparatus for drawing cables and other objects comprising a reciprocating frame having grippers which grip the cable when the frame is moved in one direction and release the cable when the frame is moved in the opposite direction and guide or centering devices which center the cable with reference to the grippers.

45 8. The combination of a frame having annular end plates, radially-movable grippers arranged between the end plates and around the openings thereof adapted to grip a cable occupying the openings in the plates when
50 moved in one direction and to release it when moved in the opposite direction, and centering plates or guides which maintain the axial relation of the cable to the openings in the end plates.

55 9. The combination of a frame having annular end plates, radially-movable grippers arranged between the end plates and around the openings thereof adapted to grip a cable occupying the openings in the plates when
60 moved in one direction and to release it when moved in the opposite direction, and adjustable centering plates or guides which maintain the axial relation of the cable to the openings in the end plates.

10. The combination of a frame having annular end plates, radially-movable gripping-jaws arranged between the end plates and around the annular openings therein and connected therewith by rib-and-groove connections, draft devices which when moved in one direction cause the gripping-jaws to grip a cable or other object occupying the annular openings in the end plates and to release it when moved in the opposite direction, a bridge-piece adapted to be placed across a manhole-opening and having devices, as I, for engaging the walls of the manhole to hold the bridge-piece in position, and a lever pivoted in the bridge-piece and connected with the draft devices of the gripping apparatus.

11. The combination of the frame having annular end pieces and parts connecting them rigidly, gripping members or jaws arranged between the inner faces of the end plates and adapted to move radially with reference to the openings therein, and means whereby at will the jaws may be moved inwardly to grip a cable or other object occupying the openings in the end plates or be caused to release said cable.

12. The combination of the frame having annular end plates divided into sections, rigid connections between corresponding sections of the two end plates and means for securing the sections of each end plate together and radial movable grippers arranged between the end plates and around the openings thereof and adapted to be caused at will to grip or release the cable occupying the openings in the end plates.

13. A longitudinally-separable frame having a longitudinal passage occupied by the cable or other object to be operated upon, radially-movable grippers each mounted at each end in the frame around said passage and adapted at will to be caused to grip or release the cable.

14. The combination of the longitudinally-separable frame having a longitudinal passage therethrough, and radially-movable grippers having inclined outer edges mounted in the frame around said passage, and the longitudinally-separable draft-rings surrounding the grippers and acting upon the inclined edges thereof.

15. The combination of the frame having a longitudinal passage therethrough, gripping-jaws loosely held in the frame around the passage and radially movable, and means whereby the jaws may be forced inwardly to clamp a cable occupying the passage or relieved of pressure to release the cable.

In testimony whereof I have hereunto subscribed my name.

CHARLES H. MATCHETT.

Witness:

THOMAS SHERWOOD,
HENRY M. SHERWOOD.