

(No Model.)

2 Sheets—Sheet 1.

W. J. McLEOD & G. H. CORMACK.

Water Cut Off.

No. 233,943.

Patented Nov. 2, 1880.

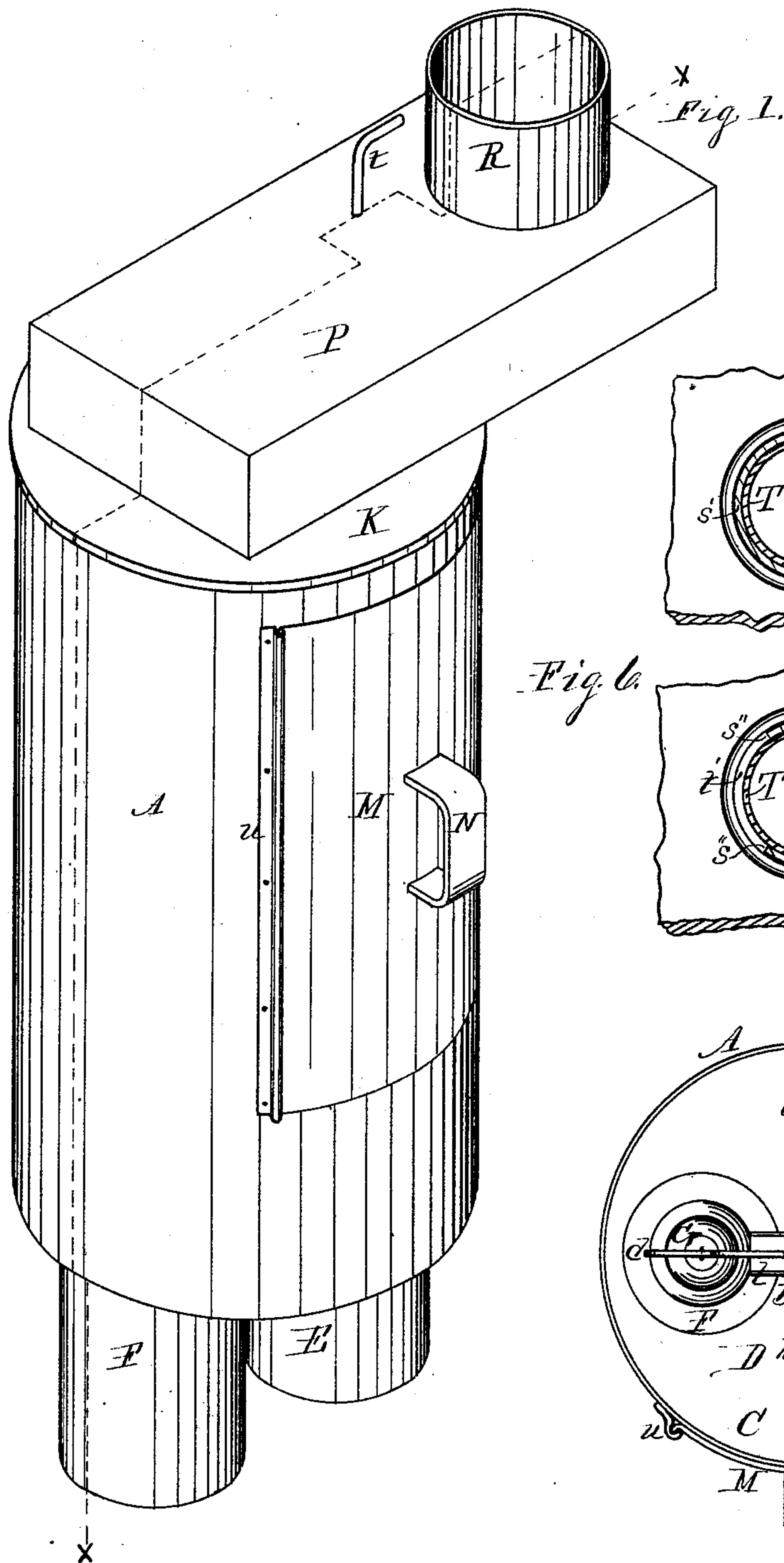


Fig. 1.

Fig. 5.

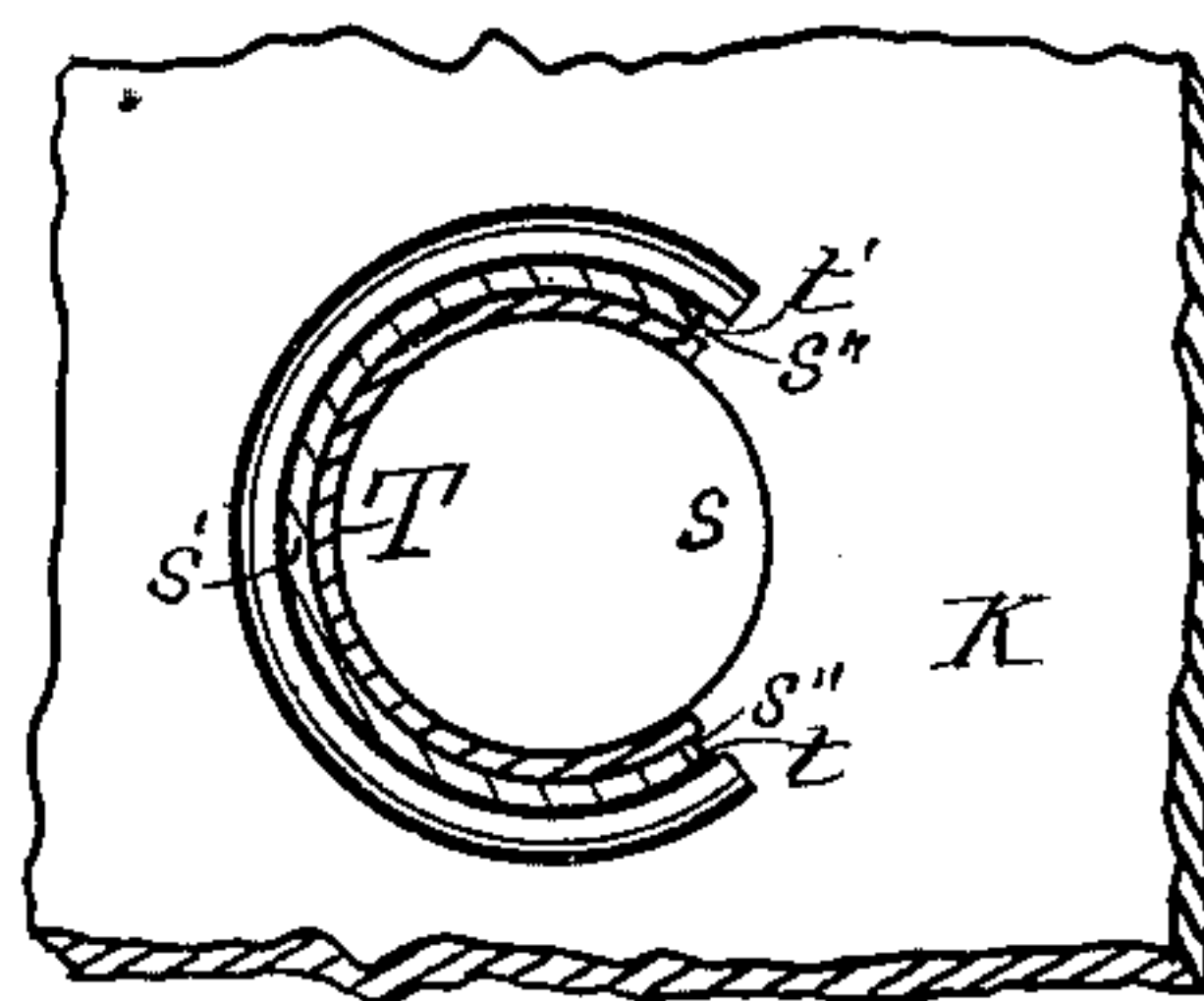


Fig. 6.

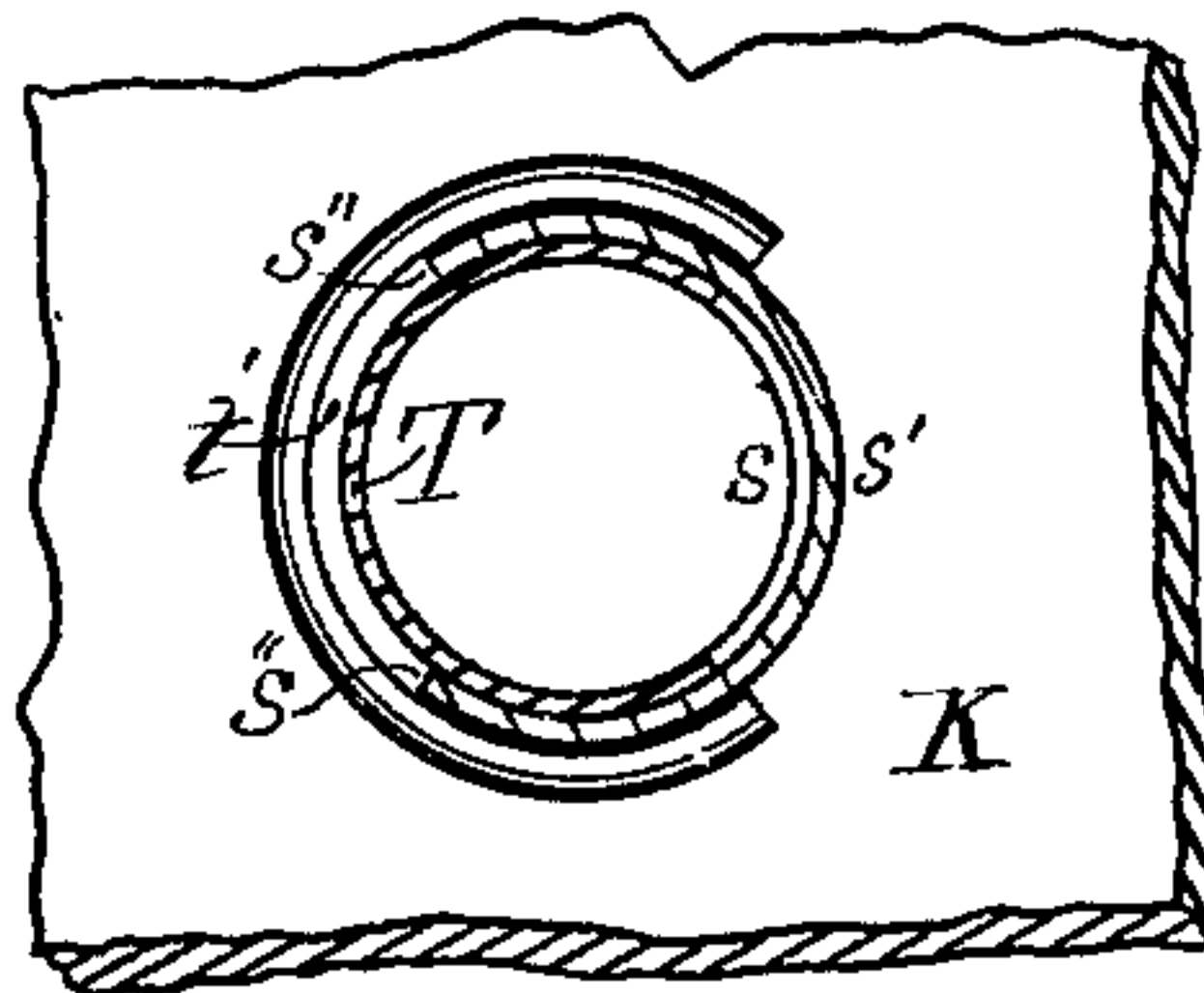
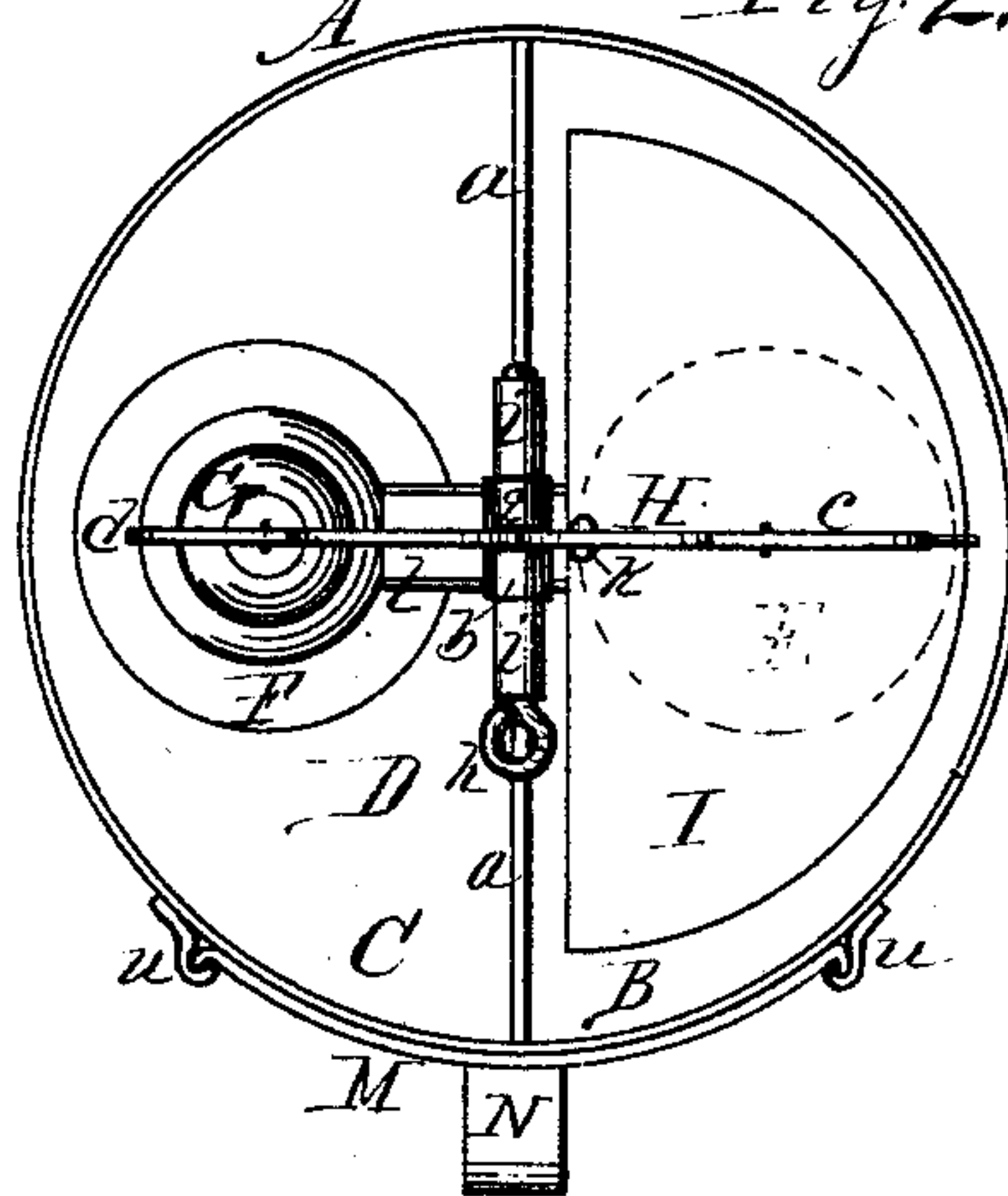


Fig. 2.



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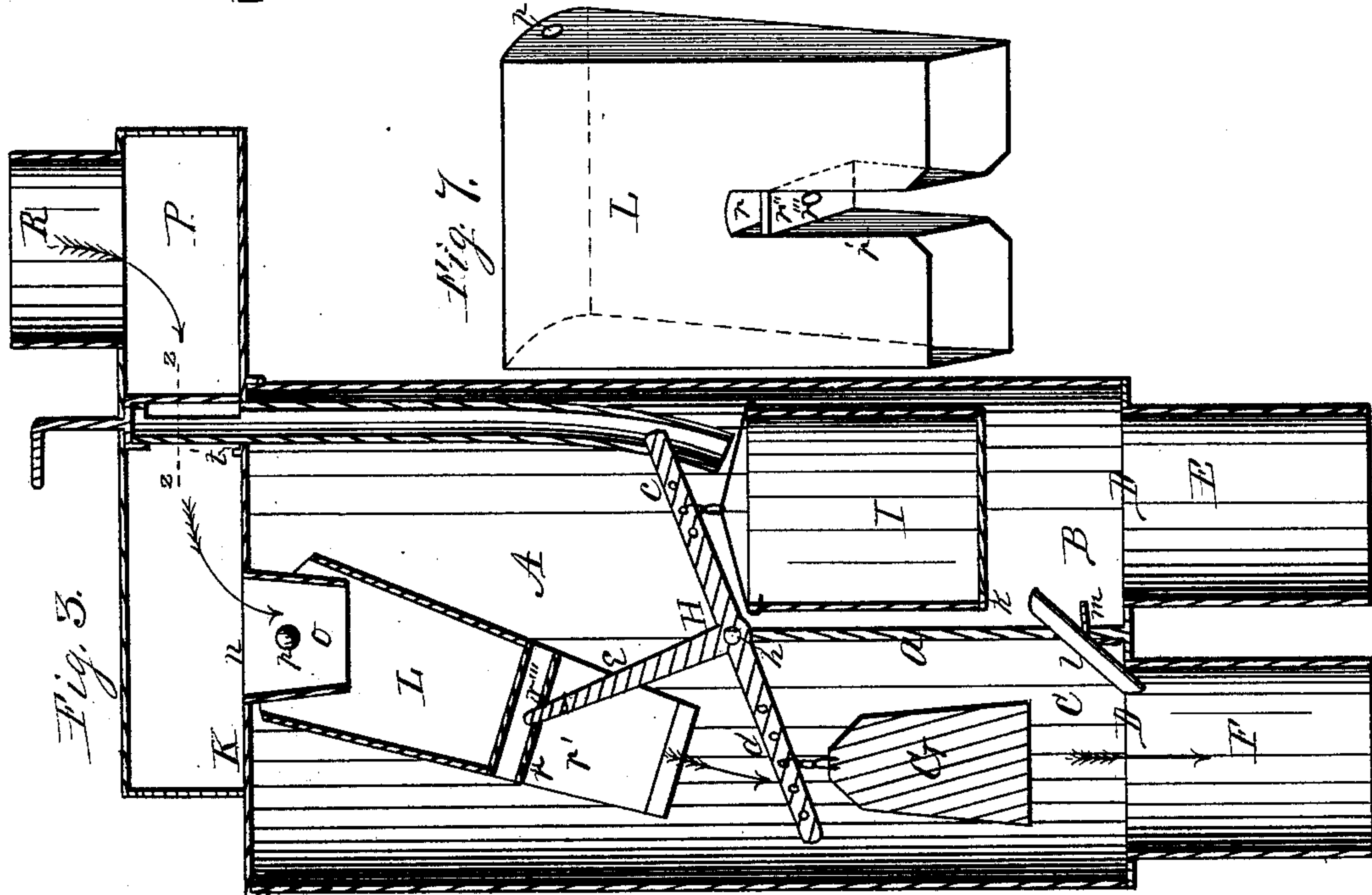
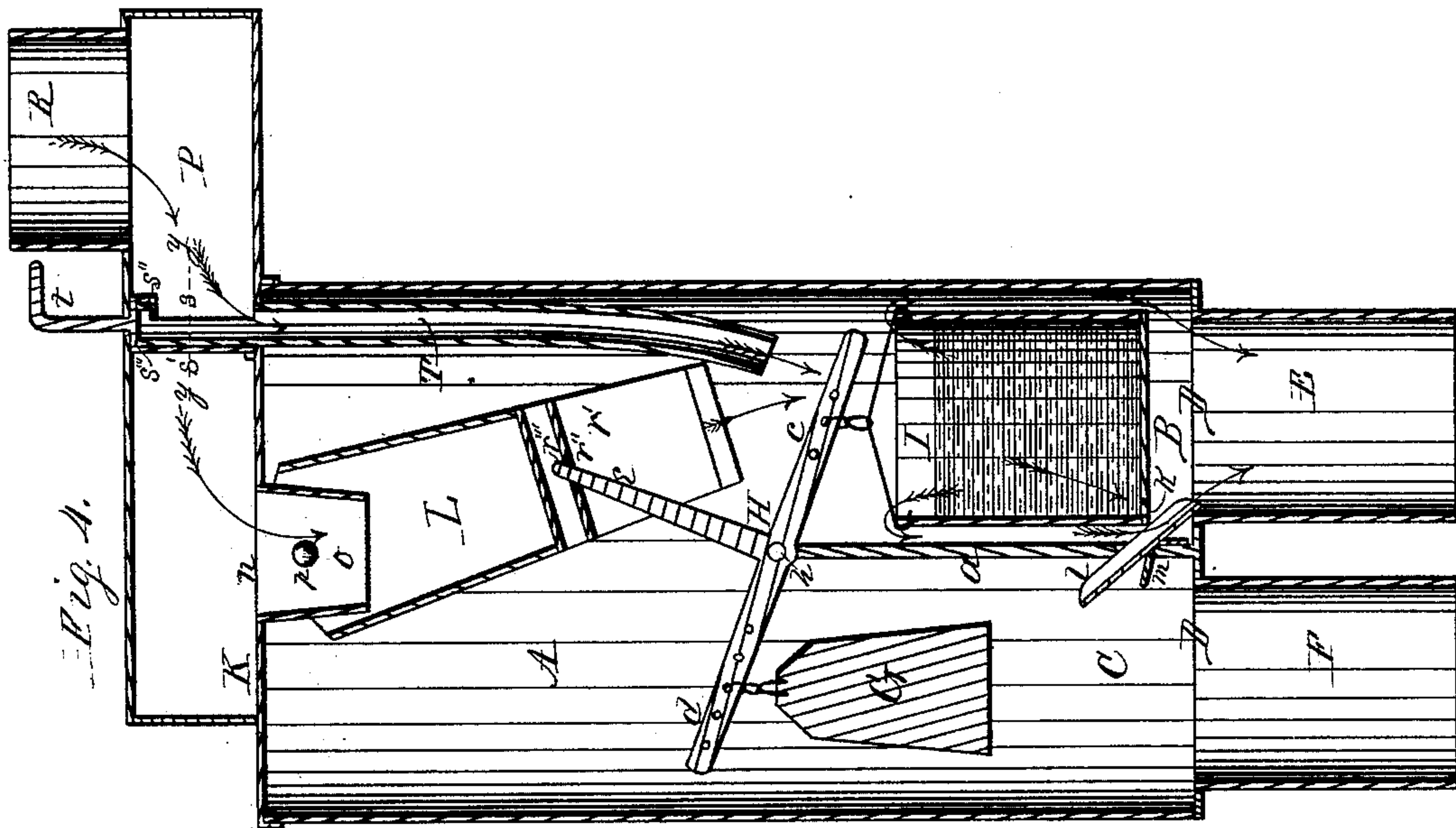
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# UNITED STATES PATENT OFFICE.

WILLIAM J. McLEOD AND GEORGE H. CORMACK, OF ROCKFORD, ILLINOIS.

## WATER CUT-OFF.

SPECIFICATION forming part of Letters Patent No. 233,943, dated November 2, 1880.

Application filed August 9, 1880. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM J. McLEOD and GEORGE H. CORMACK, both of the city of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Water Cut-Off, of which the following is a specification.

This invention relates to that class of inventions employed mainly in connection with conductor-pipes employed to conduct the water from the roofs of buildings into cisterns.

The object of this invention is to provide a ready and efficient means, in connection with the conductor-pipe employed to conduct the water from the roof of a building into the cistern, to change its direction to cause it to flow into the cistern or to exclude it therefrom; and it consists in a device made to exclude from the cistern the washings of the roof in the first flow of water therefrom in each shower or rain, and that, after the washings of the roof have passed, will be automatically changed to conduct the clean water into the cistern, and in a valve capable of adjustment to exclude all the water from the cistern. These and other improvements, all of which will be hereinafter more fully explained, constitute the subject-matter of this specification.

In the accompanying drawings, Figure 1 is an isometrical representation of our improved water cut-off, of which Fig. 2 is a plan view, in which the top portion, including its appliances, is removed. Fig. 3 is a vertical central section on dotted line *x* of Fig. 1, in which the parts are in position to conduct the water to waste. Fig. 4 is a like vertical section, in which the parts are in position to conduct the water into the cistern. Fig. 5 is a horizontal section on dotted line *y* of Fig. 4, in which the valve is open to admit a portion of the water to descend the small pipe into the vessel to cause the water to flow into the cistern. Fig. 6 is a like section on dotted line *z* of Fig. 3, in which the valve is closed to cause the water to waste. Fig. 7 is an isometrical representation of the pivoted spout employed to change the delivery of the water to the cistern or to waste.

In the figures, A represents a cylindrical vessel, in this instance constructed of plate material, having its lower portion divided into two compartments, B and C, by a vertical trans-

verse central wall, *a*, joined to the bottom D and vertical side walls of the cylinder. The bottom in each of these compartments is provided with a discharge or outlet pipe, E and F, of which the pipe E is designed to connect with a pipe to conduct the water into the cistern, and the pipe F to connect with the waste or overflow pipe.

At H is represented a tri-armed lever, consisting of a hub, *b*, from the opposite sides of which extend horizontal arms *c* and *d*, also a vertical arm, *e*. This tri-armed lever is mounted in position on the central portion of the upper edge of the central wall, *a*, supported in position by means of a pivot-pin, *h*, which is supported in sockets *i* on the center wall, and is passed through the axial center of the hub of the tri-armed lever, forming the fulcrum-support thereof. The horizontal arms of this tri-armed lever are provided with a series of holes in their lengthwise direction, which are designed to receive balancing attachments.

At I is represented a balance-vessel of a form corresponding to, but of less dimensions than, the compartment B, connected with the cistern, and in which this vessel is suspended by means of a link-connection with the lever-arm *c* in such a manner as to rise and fall in the compartment with the up-and-down vibrations of the lever. The bottom of this vessel is provided with a drip or waste hole, *k*, near the center of the straight side of its bottom.

At *l* is represented a tilting spout consisting of a plane bottom having upturned edges, and is supported in the central wall near its connection with the bottom of the cylinder, and is held in place therein by means of angle-blades *m*, fixed to its bottom in such a manner that it will be free to tilt, to incline to either side, and in such position as to receive the drippings or small stream issuing from the opening or hole *k* in the bottom of the vessel I. The relative lengths of the respective ends of the spout, or the weight of its respective ends, are such that when free it will always incline to the outlet-compartment, as seen in Fig. 3, and in this position the drippings from the balance-vessel will be carried to waste. On the lever-arm *d* is supported, by suitable link-connection, a weight, G, sufficient to balance the vessel I when nearly filled with water.



K represents the lid or cover of the cylinder, having a transverse central opening, *n*, fitted with a depending spout, *o*, to admit the water to the cylinder.

5 At L is represented a conducting-spout, pivoted at its upper end, at *p*, to the end portions of the spout *o*, depending from the lid of the cylinder in such a manner as to permit its lower end to swing to either side of the center wall  
10 to discharge the water into either compartment of the cylinder. The lower end portion of this pivoted conducting-spout is provided with a vertical transverse opening, as at *r*, formed by the vertical transverse walls *r'*. This trans-  
15 verse opening, near its upper end, is fitted with a horizontal transverse bar, *r''*, provided centrally with a hole, *r'''*, adapted to receive the upper end of the vertical arm *e* of the tri-armed lever H, from which it will be seen that  
20 the swinging of the spout and its position will be controlled by the movements and position of the tri-armed lever.

At P is represented a receiving-box of rectangular chest-like form, fixed to the upper side  
25 of the lid, covering the transverse opening therein and extending over the side of the cylinder, and its overhanging end is provided with an uprising pipe, R, designed to connect with the conductor leading from the roof of  
30 the building.

At T is represented a tube, the upper portion of which is fixed in the cover of the cylinder and extending nearly to the upper wall of the receiving-box, having a portion of its side to-  
35 ward the induction-pipe cut away, as at *s*, producing an opening to admit a portion of the water passing through the receiver.

At *s'* is represented a tube fitted to snugly receive that portion of the tube T which ex-  
40 tends into the receiving-chamber. This tube *s'* has one of its sides, as at *s''*, cut away to correspond with the cut-away portion of the tube T. The upper end of the tube *s'* is closed by means of a head, *s'''*, from which rises a stem,  
45 *t*, having its upper end portion bent in crank-handle form, by means of which the tube *s'* may be turned into the position as at Fig. 3, operating as a valve to close the opening in tube T, or as at Fig. 4, in which position the  
50 tube will be open to admit the water to descend the tube. The lower portion of the tube T extends into the cylinder in such position as to deliver the water descending it into the balance-vessel I in the compartment B. The lower  
55 end of the movable tube *s'* is fitted to move in a groove, *t'*, formed on the bottom portion of the receiver. The side of the cylinder is provided with a slide-door, M, provided with a handle, N, and is fitted to slide in grooved  
60 ways *u*, and is employed as a convenient means of obtaining access to the inclosed working parts.

From the foregoing it will be seen that with our improved cut-off, in connection with the  
65 induction-pipe, the cistern, and waste-pipe, and the valve in the position as in Figs. 4

and 5, the first water in each shower or rain descending the conductor will pass through the receiver and mainly descend the pivoted spout and run to waste. A portion, however, 70 will descend the small tube and be delivered into the balance-vessel, from which a small quantity will be discharged, through the drip-hole in its bottom, onto the tilting spout and be conducted to waste; but the induction-pipe 75 being of greater capacity than the exit, the water will accumulate in the vessel until its weight will overbalance the weight G on the lever-arm *d* in the waste-compartment C, when the vessel will descend, which descent, by 80 means of its connection with the pivoted spout, will change its position to deliver the water into the compartment connected with the cistern, and will be held in such position to de- 85 liver the water into the cistern during the continuance of the rain, and the descent of the vessel acting upon the tilting spout will have changed its position to conduct the drippings from the vessel into the compartment con- 90 nected with the cistern. This state of things will continue during the supply of water. When the supply of water has ceased the drippings from the balance-vessel will soon re- 95 duce the quantity, and consequently the weight, of the contained water below that of the weight G, the action of which will raise the vessel to its elevated position to receive the first flow of water in the next rain. This operation will be repeated automatically in every shower or rain 100 so long as the valve in the small tube remains in its open position, as represented at Fig. 4, and the effect is to exclude from the cistern the first washings of the roof in every shower, and to admit only clean water to the cistern.

From the foregoing it will be seen that by 105 means of the opening in the tube T and in the movable tube *s'*, forming the valve, extending the full height or nearly the full height of the receiving-box, the quantity of water which will run to waste in washing the roof in the 110 first of every shower or rain, whether heavy or light, will be substantially the same, as with a given opening of the valve the quantity descending the tube T will always be in pro- 115 portion to the quantity running to waste. The quantity of water thus excluded from the cistern can be varied by a greater or less opening of the valve by means of its crank-formed valve-stem, and when the valve is fully closed, 120 as in Fig. 3, all the water will be excluded from the cistern and conducted to waste.

The arrows in the accompanying drawings indicate the direction of all or nearly all these currents.

We claim as our invention— 125

1. The combination, with a vessel provided with two compartments, one communicating with a cistern and the other with a waste-pipe, and a lever having a weight attached to one end and a water-receptacle to its other end, of 130 a stationary water-conductor arranged to deliver water into said water-receptacle, and a



pivoted conductor connected with said lever and adapted to be moved in one direction by the weight and in the other direction by the weight of water in said water-receptacle, substantially as set forth.

2. The combination, with the pivoted conducting-spout, of a lever, substantially as herein described, operating to change the position of the pivoted conducting-spout, substantially as and for the purpose hereinbefore set forth.

3. The combination, with a pivoted lever employed to change the position of the pivoted conducting-spout, of a weight operating to hold the spout to deliver the water to waste, substantially as and for the purpose hereinbefore set forth.

4. The combination, with the weighted lever employed to control the position of the pivoted spout, of a balance-vessel adapted to receive a

portion of the water through the open valve of the tube T, operating to counteract the weight on the opposite arm of the lever to change the delivery-spout, substantially as and for the purpose hereinbefore set forth.

5. The combination, with a balance-vessel provided with an outlet-opening, of a pivoted tilting spout adapted to receive the water escaping through the outlet of the vessel to conduct it to one or the other of the compartments as the vessel is elevated or depressed, substantially as and for the purpose hereinbefore set forth.

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