

(No Model.)

2 Sheets—Sheet 1.

G. W. STINEBRING.

ROTARY STEAM ENGINE.

No. 332,216.

Patented Dec. 8, 1885.

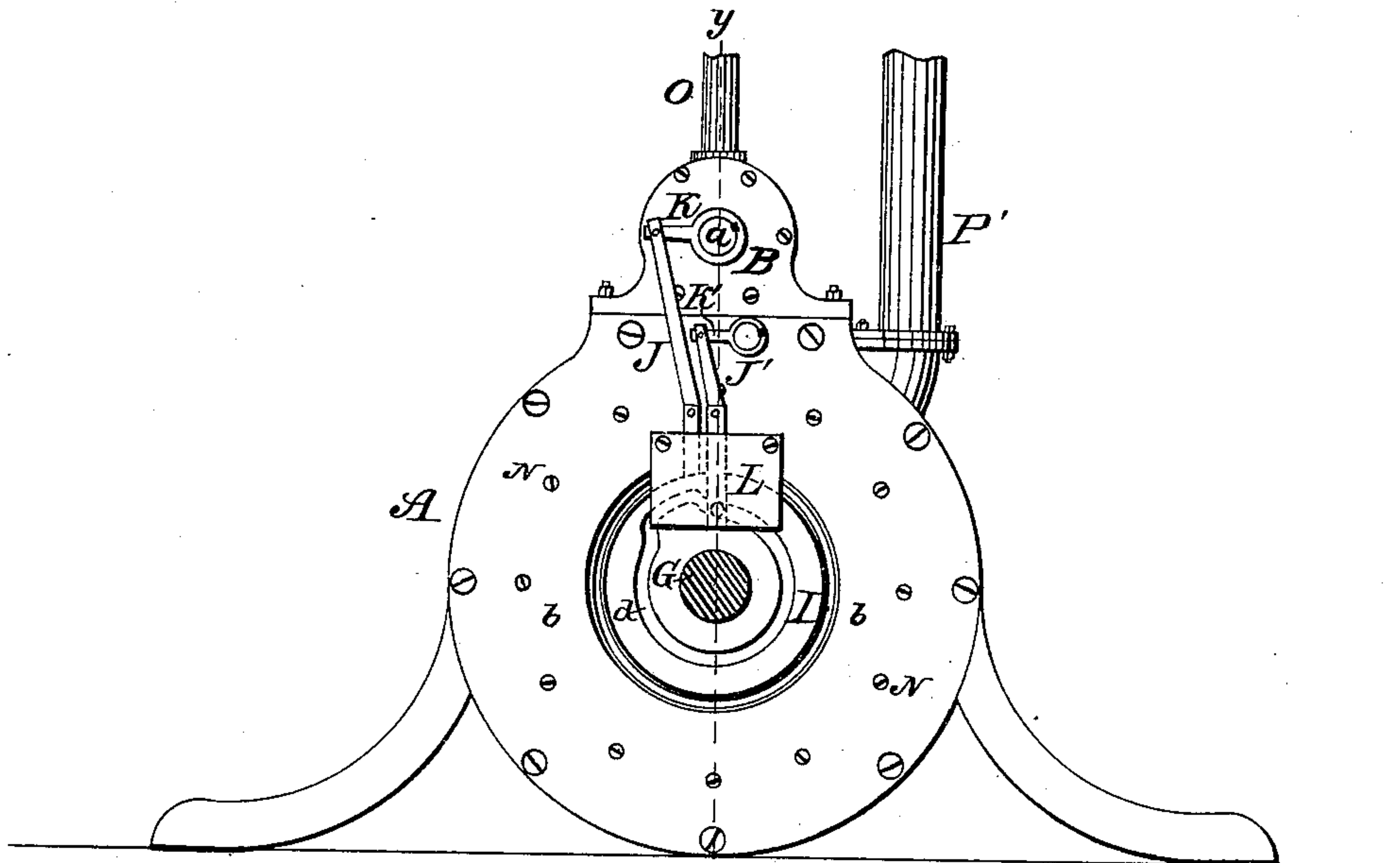


Fig. 1.

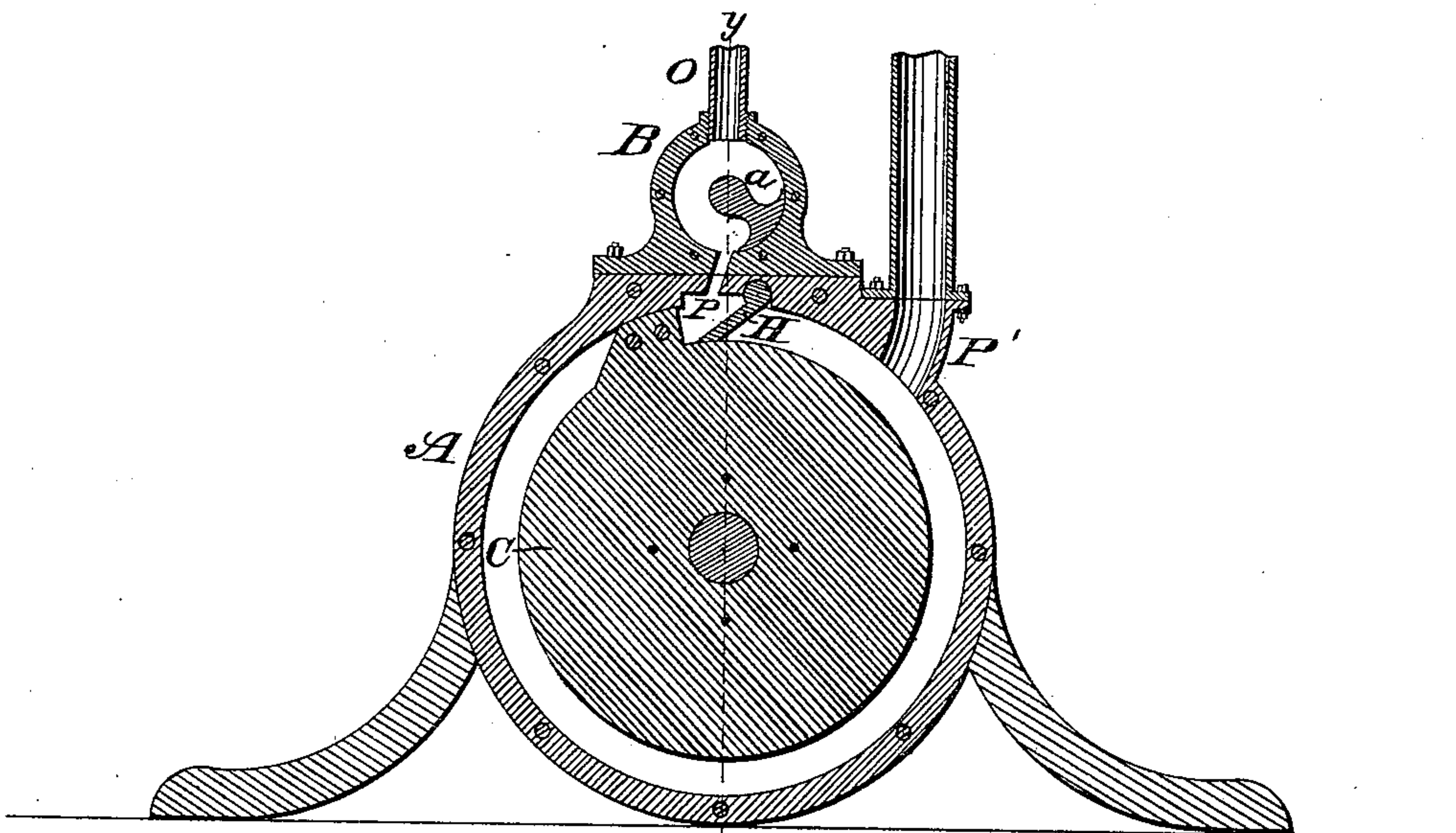


Fig. 2.

WITNESSES:

Harry Frease

Charles J. Ball

INVENTOR

BY *George W. Stinebring*

Paul W. Bond ATTORNEY

(No Model.)

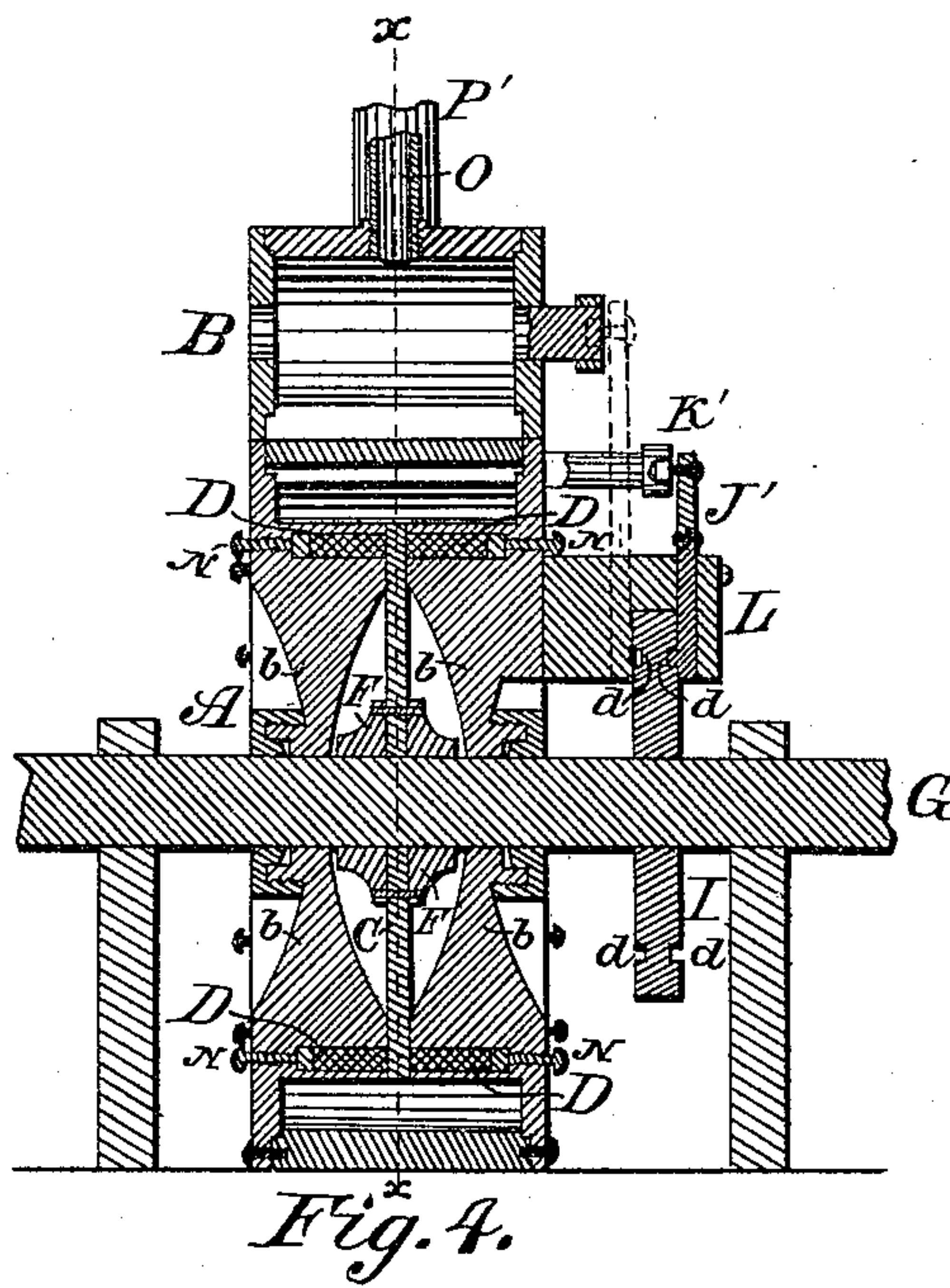
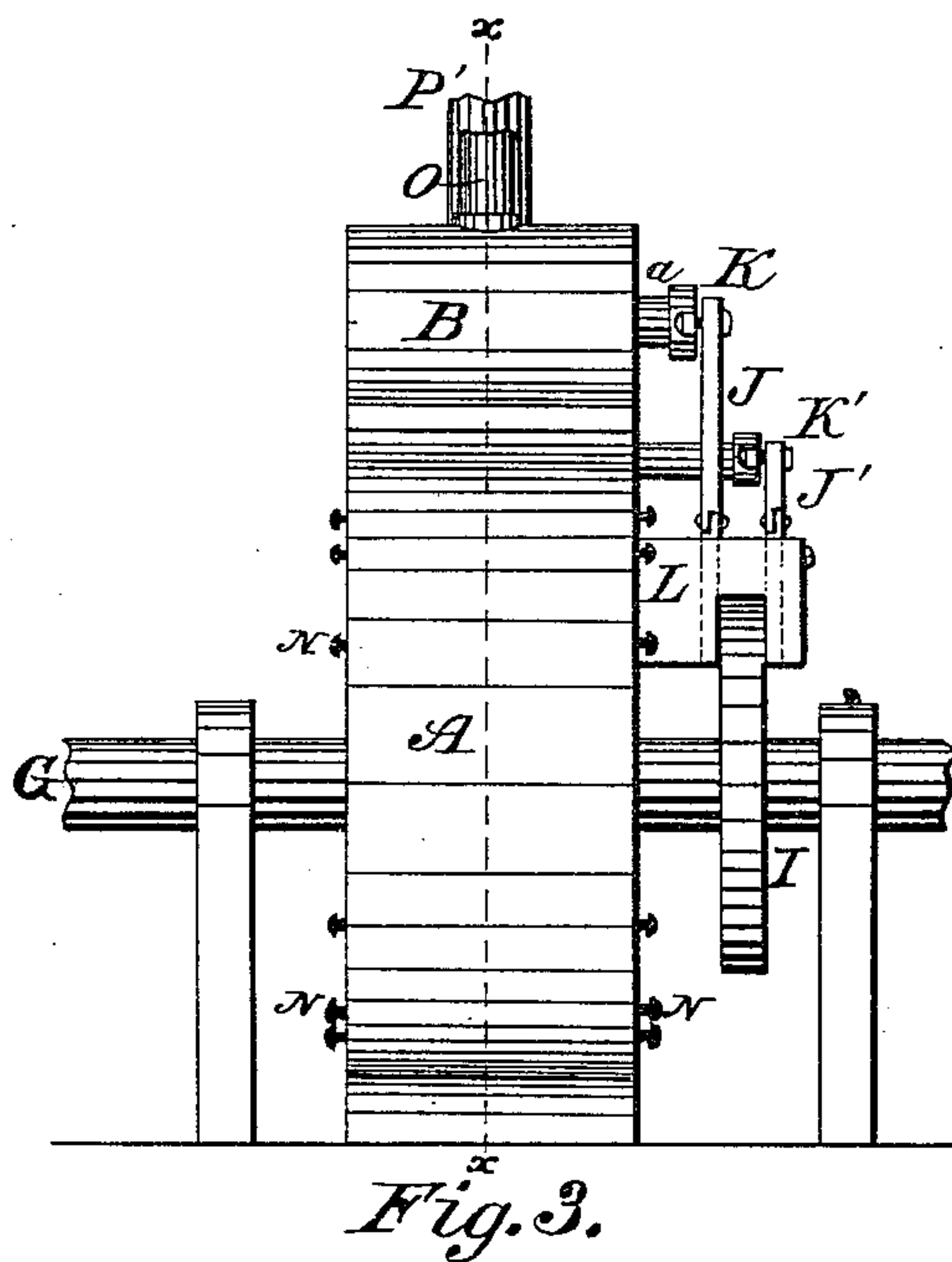
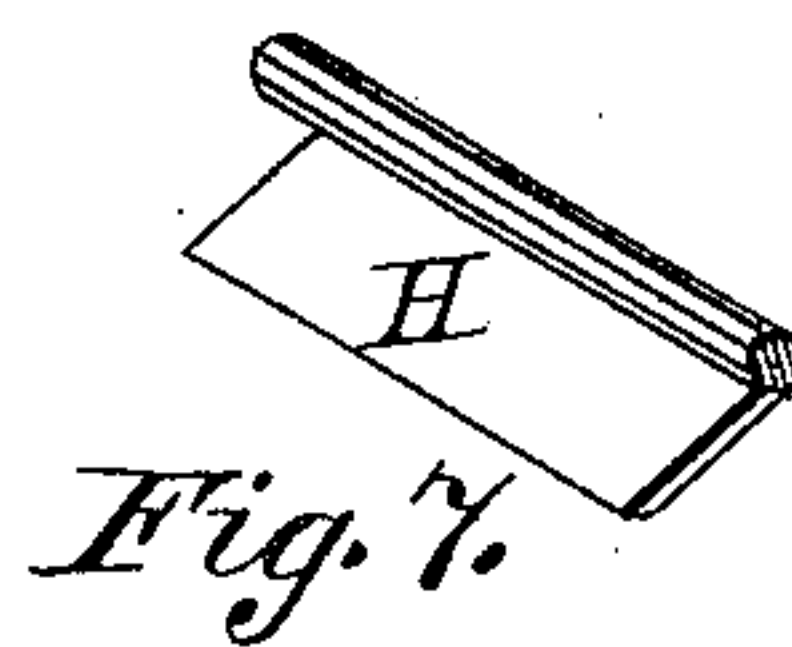
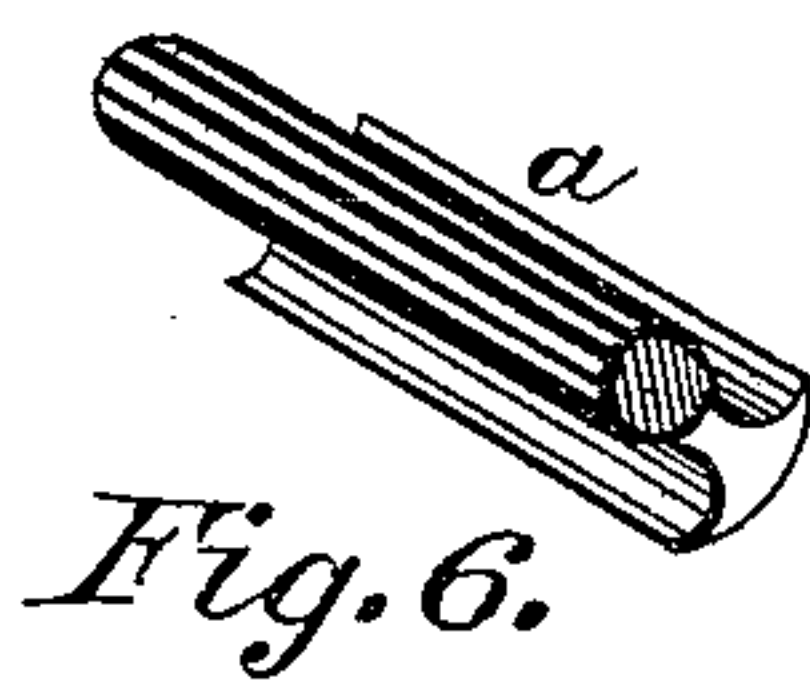
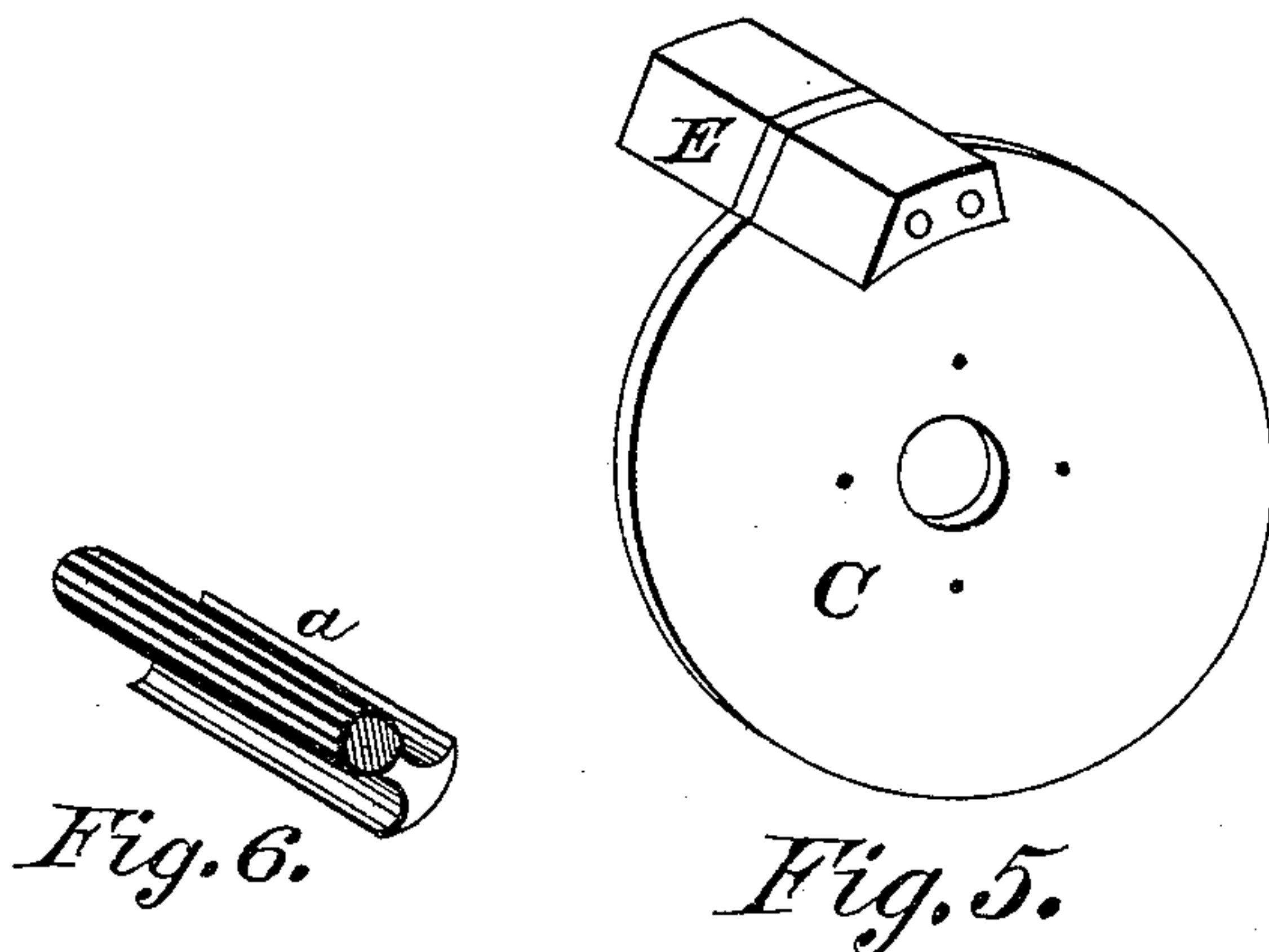
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UNITED STATES PATENT OFFICE.

GEORGE W. STINEBRING, OF COLUMBUS, OHIO, ASSIGNOR OF ONE-HALF TO
JOHN C. DALTON, OF SAME PLACE.

ROTARY STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 332,216, dated December 8, 1885.

Application filed December 30, 1884. Serial No. 151,600. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. STINEBRING, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Rotary Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon, in which—

Figure 1 is a side view of the entire engine. Fig. 2 is a longitudinal section through the dotted line *x x* in Figs. 3 and 4. Fig. 3 is an end view of the entire engine. Fig. 4 is a transverse section through the dotted line *y y* in Figs. 1 and 2, showing the cylinder-head and cut-off valve removed. Fig. 5 is an isometrical detached view of the piston-head and shaft-connecting plate or wheel. Fig. 6 is an isometrical detached view of cut-off valve. Fig. 7 is an isometrical detached view of the drop valve or wing.

The present invention has relation to the peculiar arrangement of the different parts and combination of parts hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, A represents the cylinder, which is substantially of the form shown in the drawings, and is securely held in the proper position in the ordinary manner. Within the cylinder A are located the packings, the shaft-connecting plate or wheel, the piston-head, and the abutment valve or wing.

To the top or upper part of the cylinder A is attached the steam-chest B, which is substantially of the form shown in the drawings, and is provided with the cut-off valve *a*, said valve *a* being substantially of the form shown. The inner sides of the cylinder A are provided with the collars or flanges *b*, which are substantially of the form shown, and are for the purpose of strengthening the cylinder A, and at the same time forming braces for the connecting plate or wheel C, and also forming shoulders to hold the adjustable packing D. At the same time the projecting flanges *b* receive the centripetal force of the steam, so that the least

possible amount of dead-pressure is sustained by the thin peripheral edge of the connecting plate or wheel C, to which the piston-head is attached. The connecting plate or wheel C is provided with the piston-head E, which is substantially of the form shown in Fig. 5, and is firmly held to the plate C by means of suitable clamping bolts or rivets.

To the side of the connecting plate or wheel C are attached the collars or flanges F, which may be of the form shown in the drawings, and are for the purpose of strengthening the wheel C, and at the same time provide a means of securely attaching the wheel C to the shaft G.

The abutment valve or wing H is substantially of the form shown in the drawings, and is placed in the position shown in Fig. 2, and is so arranged that it can be moved automatically, as hereinafter described.

To the shaft G is attached in the ordinary manner the double-cam wheel I, which is substantially of the form shown in the drawings. This cam-wheel I is provided with the grooves *d d*, said grooves being for the purpose of communicating motion to the cut-off valve *a* and the abutment valve or wing H, by means of the connecting-rods J and J', the lower ends of said connecting-rods J and J' being provided with arms or projections which fit in the grooves *d d*, as seen in Fig. 4.

To the outer ends of the cut-off valve *a* and the abutment valve or wing H are attached the cranks K and K', to which cranks are attached the upper ends of the connecting-rods J and J', as seen in Fig. 1, said connecting-rod being provided with joints, as seen in Fig. 1, so as to admit the lower sections of said rods to be moved straight up and down in grooves or guides, and at the same time permitting the upper ends or sections of said connecting-rods to follow the curve of the cranks K and K'.

To the side of the cylinder A is attached the block or guide L, which holds in proper position the connecting-rods J and J'.

The packing D is made of rubber or like material, and is in the form of rings, and is placed around the collars or flanges *b*, as seen in Fig. 4, said packing being for the purpose of keeping steam from entering below the

packing, thereby preventing any steam-pressure on the sides of the connecting plate or wheel C. This wheel C is made thin, so as to prevent the steam from pressing against the periphery of said wheel C.

The packing D is held in proper position by means of the screws N, and is so arranged that as the packing D becomes worn it can be adjusted from the outside of the cylinder A by means of the screws N.

The operation of my invention is as follows: Steam is admitted into the steam-chest B through the feed-pipe O; thence to the cylinder A, when it presses against the piston-head E, causing the connecting plate or wheel C to revolve together with the shaft G. Just before the piston-head E arrives at the exhaust-pipe P' the cut-off valve *a* is closed by means of the cam-wheel I, the connecting-rod J, and the crank K. The exhaust is then effected through the pipe P'. The cylinder-head H is then raised into the recess P by means of the cam-wheel I, the connecting-rod J', and the crank K', which admits of the piston-head E passing under the abutment valve or wing. As soon as the piston-head E has passed the abutment valve or wing H, said cylinder-head is brought down by the cam-wheel I, the connecting-rod J', and the crank K'. The cut-off valve is then opened by means of the cam-wheel I, the connecting-rod J, and the crank K, and assumes the position shown in Fig. 2.

The exhaust-pipe P' may be placed nearer the abutment valve or wing H than shown in the drawings, if desired.

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

1. The combination of cylinder A, formed with recess P, and having abutment H, hinged adjacent to said recess, plate C, provided with piston-head E, steam-chest B, communicating with cylinder A and provided with valve *a*, wheel I, formed with cam-grooves *d*, and rods J J', connecting with said grooves and with valve *a* and abutment H, substantially as and for the purposes described.

2. The combination of cylinder A, formed with flanges *b* and recess P, and having abutment H, hinged adjacent to said recess, shaft G, plates C, provided with piston E and secured to shaft G by flanges F, steam-chest B, communicating with cylinder A and provided with valve *a*, wheel I, formed with cam-grooves *d*, and rods J J', connecting with said grooves and with valve *a* and abutment H, substantially as and for the purposes described.

3. The combination of cylinder A, formed with recess P, and provided with hinged abutment H, plate C, provided with piston-head E, steam-chest B, communicating with cylinder A and having valve *a*, wheel I, having cam-grooves *d*, guide-block L, and rods J J', passing through said block and connecting with said grooves and valve *a* and abutment H, substantially as described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

GEORGE W. STINEBRING.

Witnesses:

ABNER GAINES,
HENRY M. BUTLER.