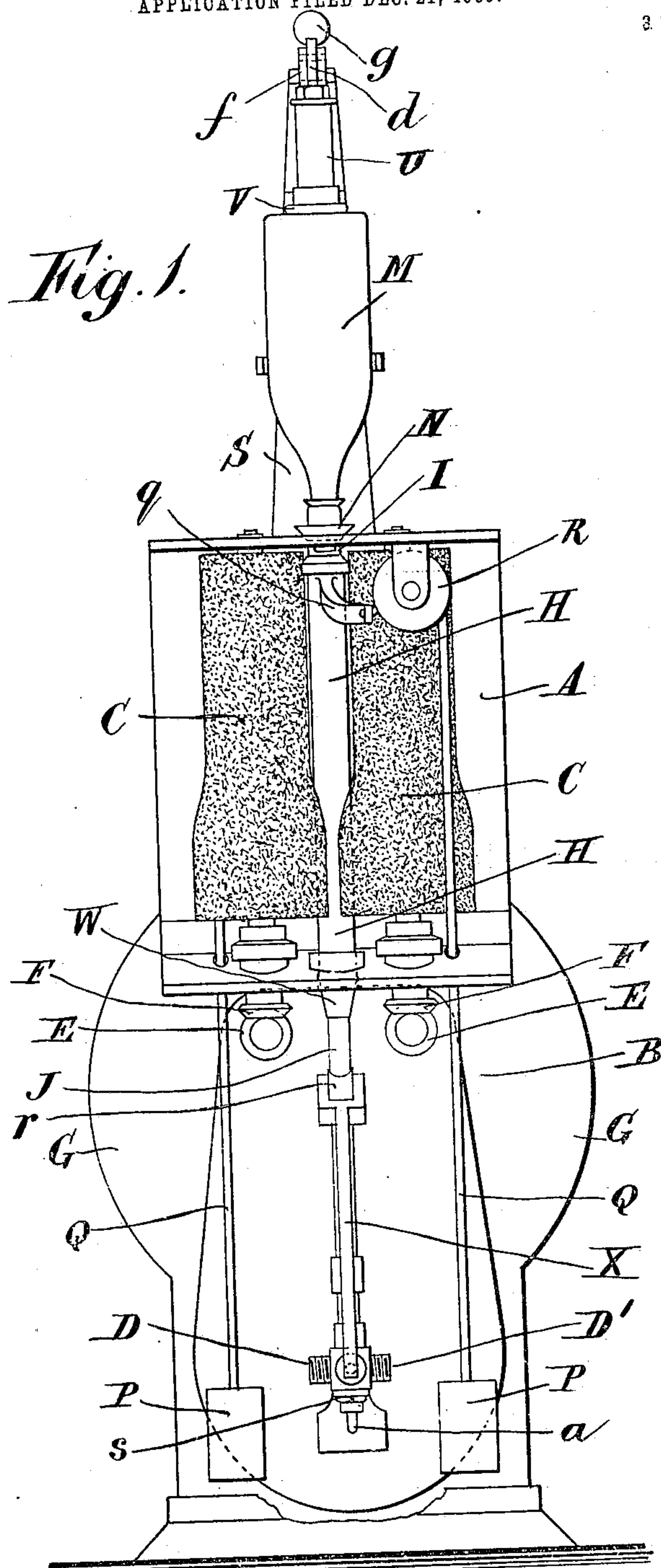


No. 830,869.

PATENTED SEPT. 11, 1906.

D. WICKHAM.
BOTTLE WASHING MACHINE.
APPLICATION FILED DEC. 21, 1905.

3 SHEETS—SHEET 1.



Witnesses:

J. B. Kester
E. S. Kester

Inventor

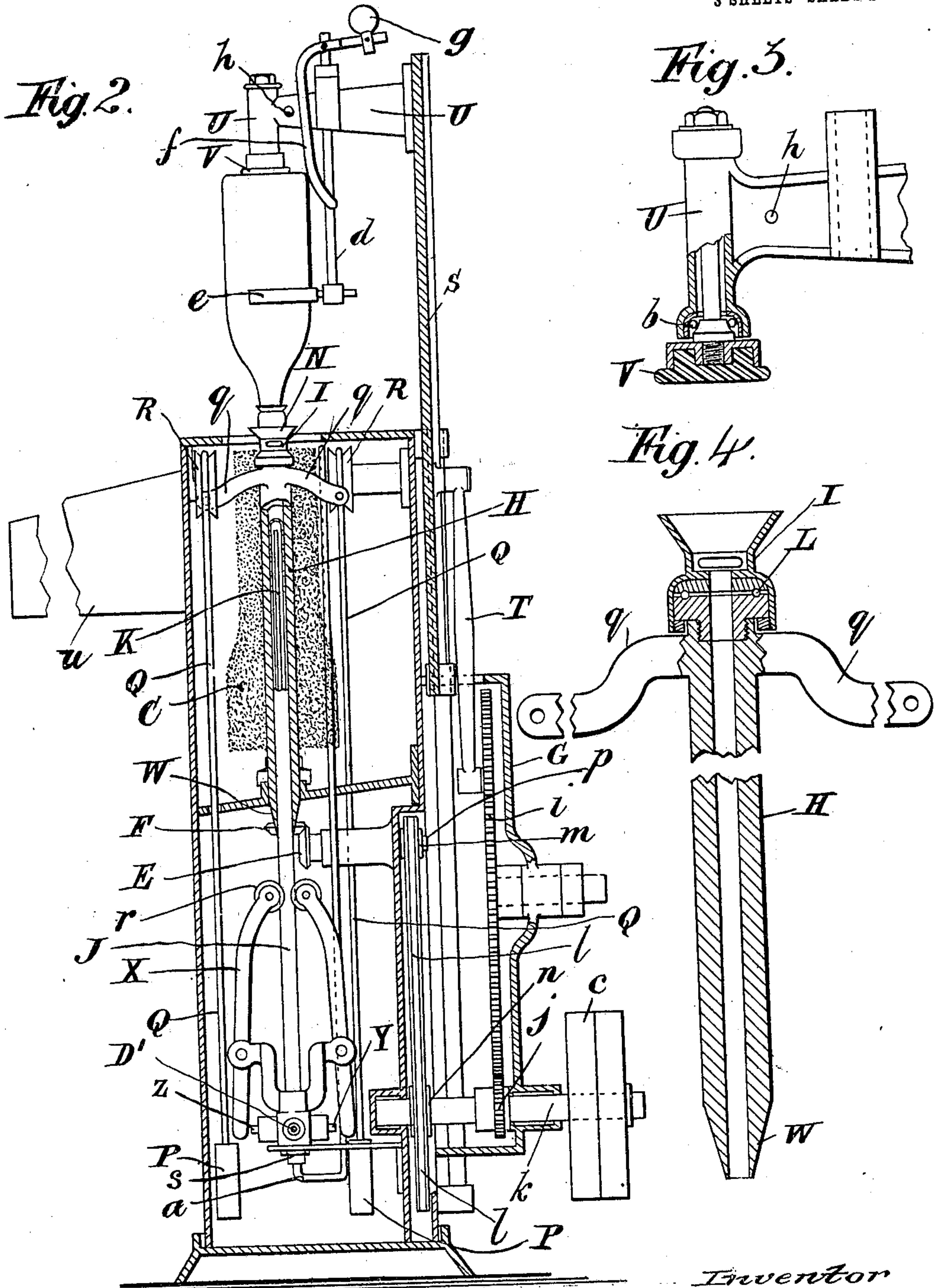
Dennis Wickham
By *James W. Norrie*
att'y

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3 SHEETS—SHEET 2.



Witnesses:

J. B. Kiefer
C. D. Kessler

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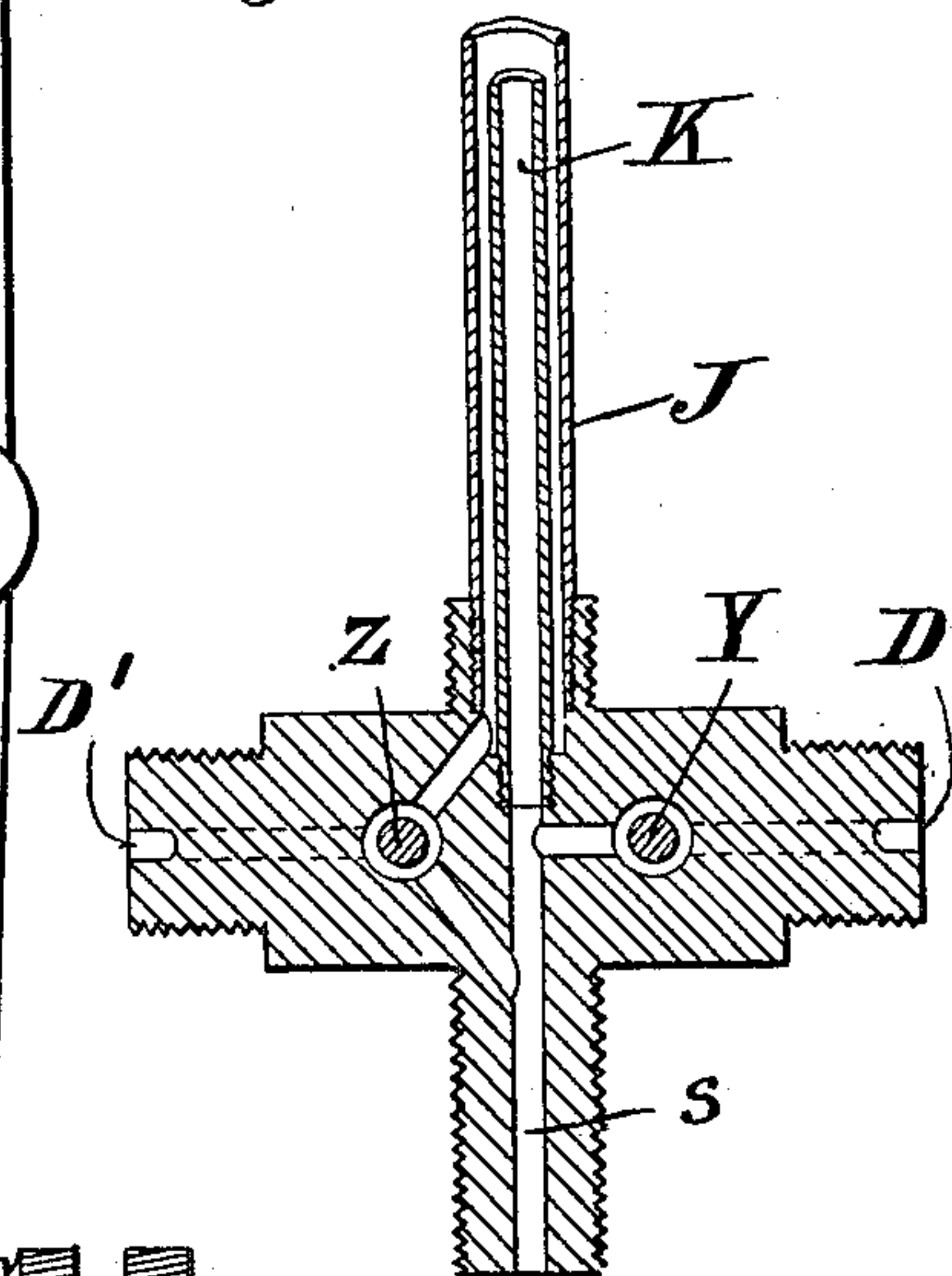
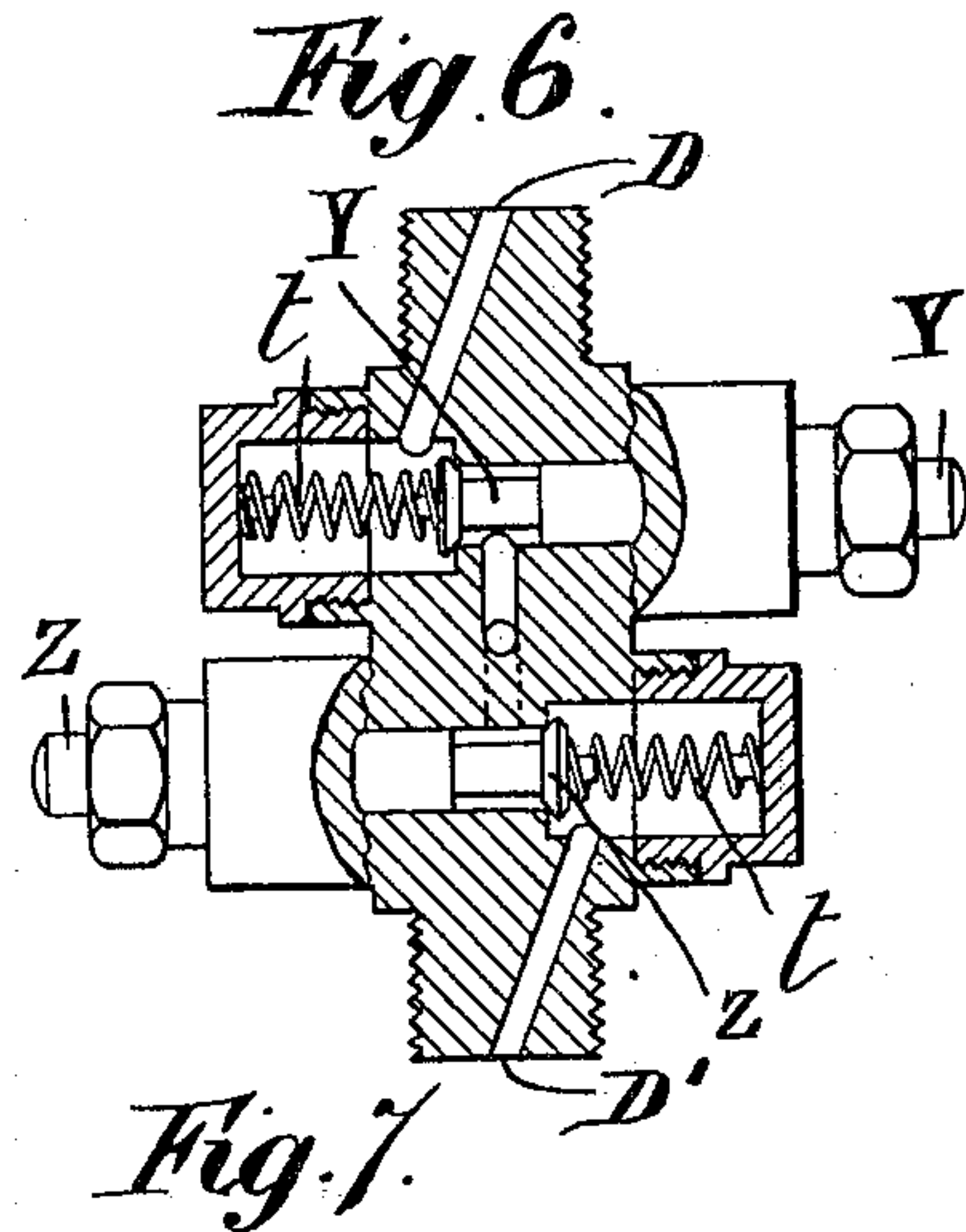
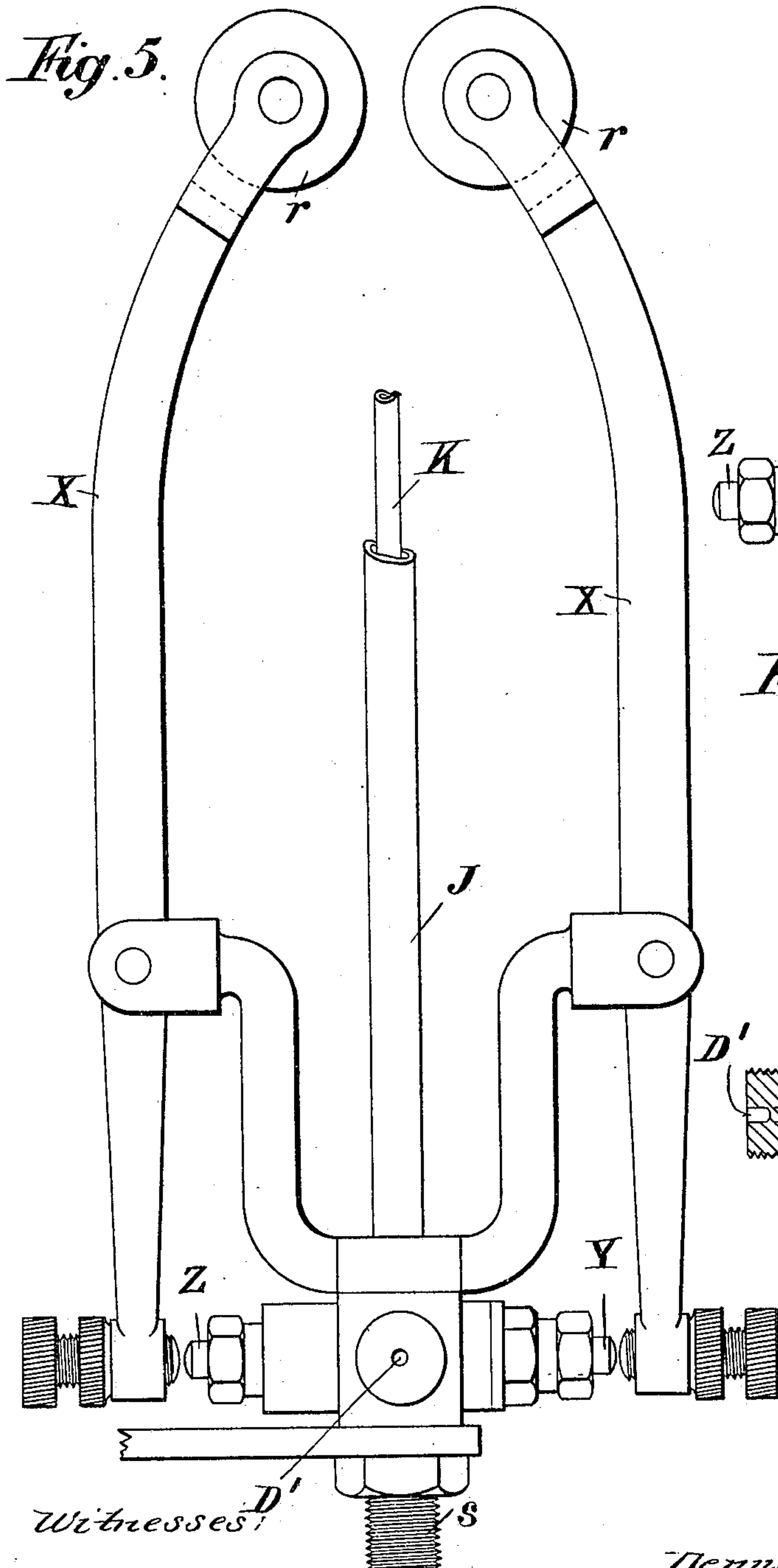
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3 SHEETS—SHEET 3.



Witnesses:

W. B. Keeler
C. G. Kessler

Inventor

Dennis Wickham

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Att'y

UNITED STATES PATENT OFFICE.

DENNIS WICKHAM, OF WARE, ENGLAND.

BOTTLE-WASHING MACHINE.

No. 830,869.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed December 21, 1905. Serial No. 292,767.

To all whom it may concern:

Be it known that I, DENNIS WICKHAM, a subject of the King of Great Britain, residing at Baldock street, Ware, Hertfordshire, England, have invented certain new and useful Improvements in Bottle-Washing Machines, of which the following is a specification.

This invention consists of a machine for automatically spraying a jet of cold water or hot water and steam or air into the bottle for thoroughly washing the inside of the bottle after it has been treated to a soaking process and to also clean the outside of the bottle simultaneously.

My invention will be clearly understood from the following description, aided by the accompanying drawings, in which—

Figure 1 is a front elevation of a machine with one wall of the washing-chamber removed to show the interior mechanism. Fig. 2 is a side sectional elevation of the machine. Fig. 3 is a part-sectional elevation of the sliding head with the cap for engaging the bottle. Fig. 4 is a sectional elevation of the sliding tube and cup for receiving the neck of the bottle. Fig. 5 is an elevation of the valve's operating mechanism. Fig. 6 is a sectional plan, and Fig. 7 a sectional elevation, of the valves.

For the purpose of my invention I construct a framework with two chambers A B, the top chamber A carrying the brushes C and the bottom chamber B having the valves Y Z and driving-pinions E F, the driving-gear proper being arranged outside the framework and preferably inclosed by a shield G.

A sliding tube H and collar I are placed over cold water or steam and hot water or air-supply tubes J K. The connection between the sliding tubes J K and collar I is provided with ball-races L, so that the collar I can easily revolve. The bottle M is placed in a cup N on the collar I to receive the neck of the bottle M. The sliding tube H and collar I are held in their position by means of balance-weights P, attached to chains Q, running over two pulleys R. A sleeve S, capable of up-and-down movement by means of a connecting-rod T, is provided and is constructed with its head U in line with the collar I and is also provided with a cap V, so that the bottle to be washed can be placed between this cap V and the cup N of the collar I. The sliding tube H is formed with its end W of angular or cam formation for operating levers X, which open two valves Y Z, one, Y, for steam or air,

which passes through the central steel tube K, and the other, Z, for hot or cold water, which passes up through the central steel tube K and into the bottle at any desired pressure. The valve Z also allows a spray of hot or cold water to be forced through the branch s up a tube a onto the bottle exterior, where it comes in contact with revolving brushes C to assist cleaning the exterior of the bottle. The cap V, attached to the head U, has a ball-race b, so that the bottle can easily revolve on the ball-race L of the sliding tube H.

The brushes (preferably two) are driven by belting or gearing from the pulley c, one brush traveling approximately as fast again as the other and preferably in contrary directions, so that in brushing the bottle it is caused to revolve. The arm S, which is intended to carry the bottle down, travels a distance of approximately fourteen inches, and on its return movement the bottle is released from the guide and is discharged from the machine. The brushes which brush and clean the outside of the bottle can be detached when they have become worn and new ones inserted in their place. Also fresh brushes can be put in, according to the diameter of the bottles desired to be brushed.

Attached to the head U is a bar d, carrying a fork e, said bar and fork being adjustable as to position to suit the shape and size of bottle, and pivoted to bar d is a lever f, carrying a balance-weight g to eject the bottle after release, as hereinafter described. h is a stop to limit the movement of the lever f.

The pulley c, operated from any prime mover, is carried by the shaft k, having a pinion j thereon, which pinion j meshes with a toothed wheel i, carrying the connecting-rod T, this operating the slide S and bottle-carrier. The axle k also carries a sprocket-wheel n, which through the chain l and sprocket m on shaft P operates the brushes through the gear E W.

To start the machine, the slide S and head U are placed in their highest position. A bottle is then placed by its neck into the cup N and the bottom of the bottle under the cap V. The slide S and head U are now moved downward by the connecting-rod T being actuated by the wheel i, operated by the pinion j on the driving-shaft k through the pulley c. This downward movement grips the bottle firmly between the cup N and the cap V, a continued movement forcing sliding

tube H and the bottle M between the brushes
 C, the tubes J K entering the bottle. Dur-
 ing this movement the brushes have been re-
 volved through the chain *l*, operating the
 5 sprocket-wheels *m* from the sprocket-wheels
n on the driving-axle *k*, the shafts *p* of the
 sprocket-wheels *m* carrying the pinions E,
 which mesh with the pinions F for operating
 the brushes. At the same time the arms *g*
 10 of the sliding tube have by the cords Q lifted
 the balance-weights P so as to retain the grip
 on the bottle. When the coned end W of the
 sliding tube H has reached the rollers *r* of the
 15 operating-arms X, it opens them out and in
 so doing causes the other ends of the arms to
 open the valves Y Z, steam or air passing
 from the inlet D through the valve Y to the
 inner tube K, cold or hot water from the in-
 20 let D' through the valve Z and up the outer
 tube J, both substances meeting and mixing
 in the bottle for effectually cleaning the in-
 side of same. At the same time water passes
 through the outlet *s*, leading from the valve
 Z to the pipe *a* for conveying water to the
 25 outside of the bottle for proper action of the
 brushes. During the movement the bottle
 is being cleansed both inside and outside, and
 when on the return movement the coned end
 W leaves the rollers *r* the springs *t* close the
 30 valves Y Z and force the arms X back for
 their rollers *r* to be free, and just before the
 completion of the upstroke of the arm S the
 head U and cap V leave the bottle and the
 balance-weight *g*, acting on the lever *f*, and

forces the bottle over sidewise, when it falls 35
 onto a table or tray *u* or onto a traveling
 belt to be carried to a distance for drying, the
 machine being then in a position for receiv-
 ing a fresh bottle. During the movement of
 the bottle when the fork *e* rests on the ma- 40
 chine the bar *d* slides in the head U, the bot-
 tle being between the brushes.

What I claim, and desire to secure by Let-
 ters Patent, is—

In a bottle-washing machine the combina- 45
 tion of a framework, a sliding tube and mov-
 able head having ball-bearing cups and caps
 carrying the bottle, the balance-weights for
 controlling the slidable tube, steam and air
 and water tubes being arranged inside the 50
 sliding tube, means on the sliding tube for
 actuating levers operating valves of the
 steam and air and water tubes, brushes ar-
 ranged outside the sliding tube, pipe from
 hot or cold water valve to convey water 55
 to the bottle for outside cleaning, a gear for
 operating the head to bring the bottle into
 position for cleaning the inside of same, and
 operating-brushes for cleaning the outside of
 the bottle and revolving same, the whole act- 60
 ing as and in the manner set forth.

In testimony whereof I have hereunto set
 my hand in presence of two subscribing wit-
 nesses.

DENNIS WICKHAM.

Witnesses:

PERCY E. MATTOCKS,
 WM. O. BROWN.