

(No Model.)

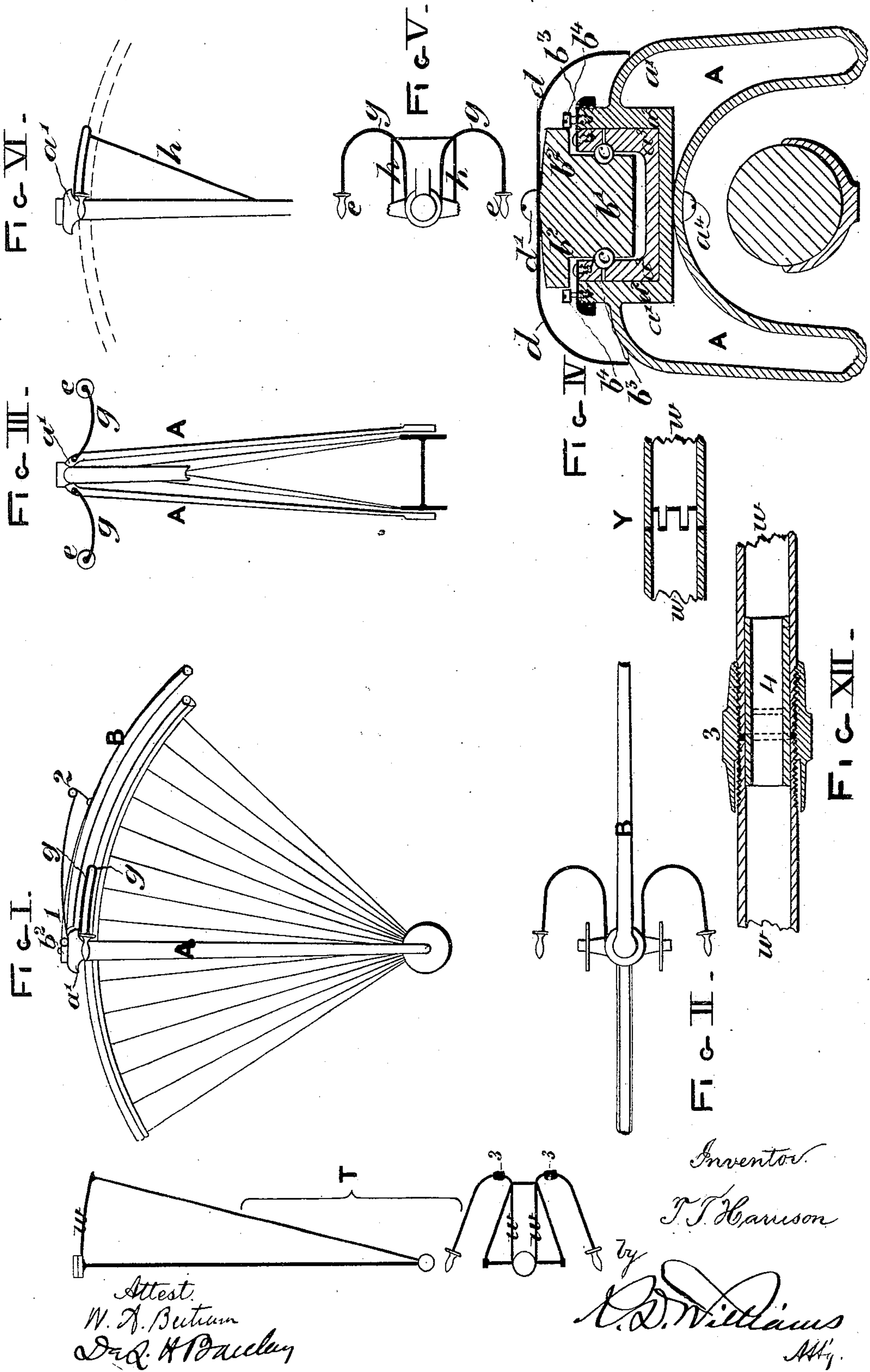
2 Sheets—Sheet 1.

T. T. HARRISON.

BICYCLE.

No. 252,939.

Patented Jan. 31, 1882.



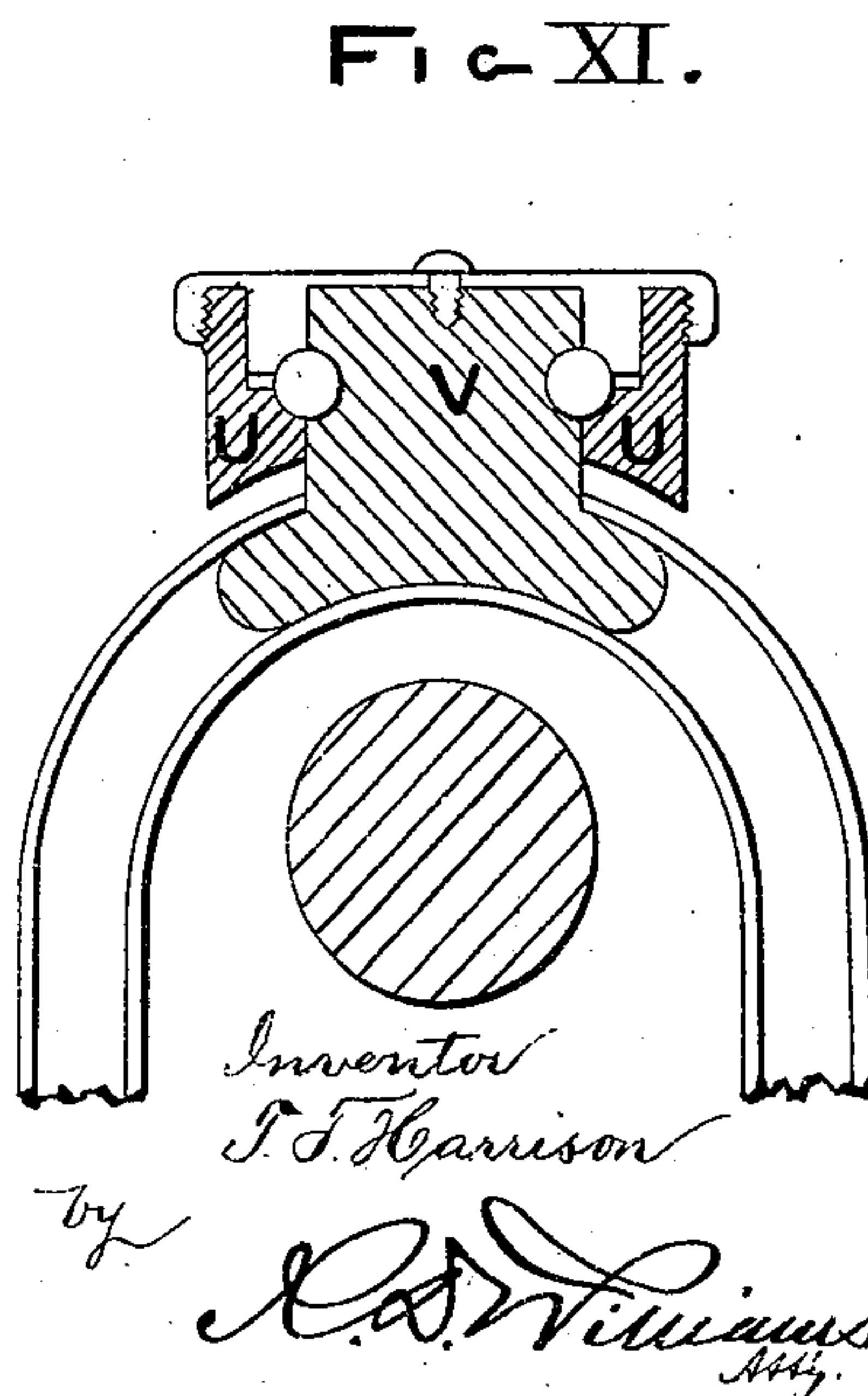
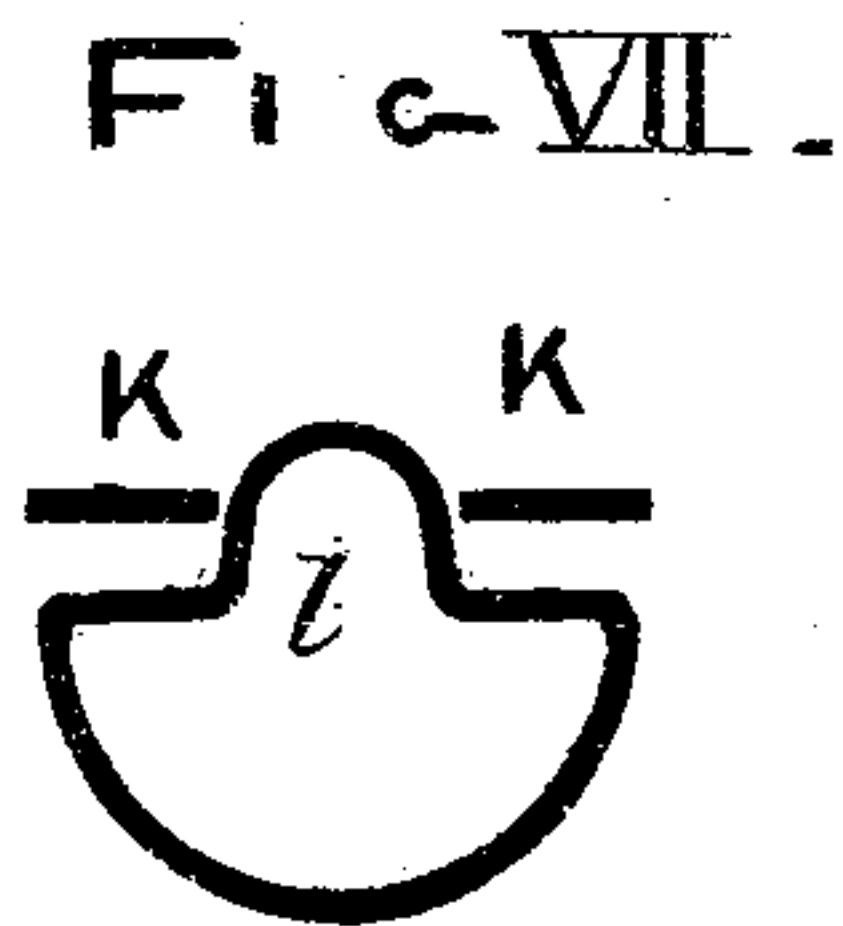
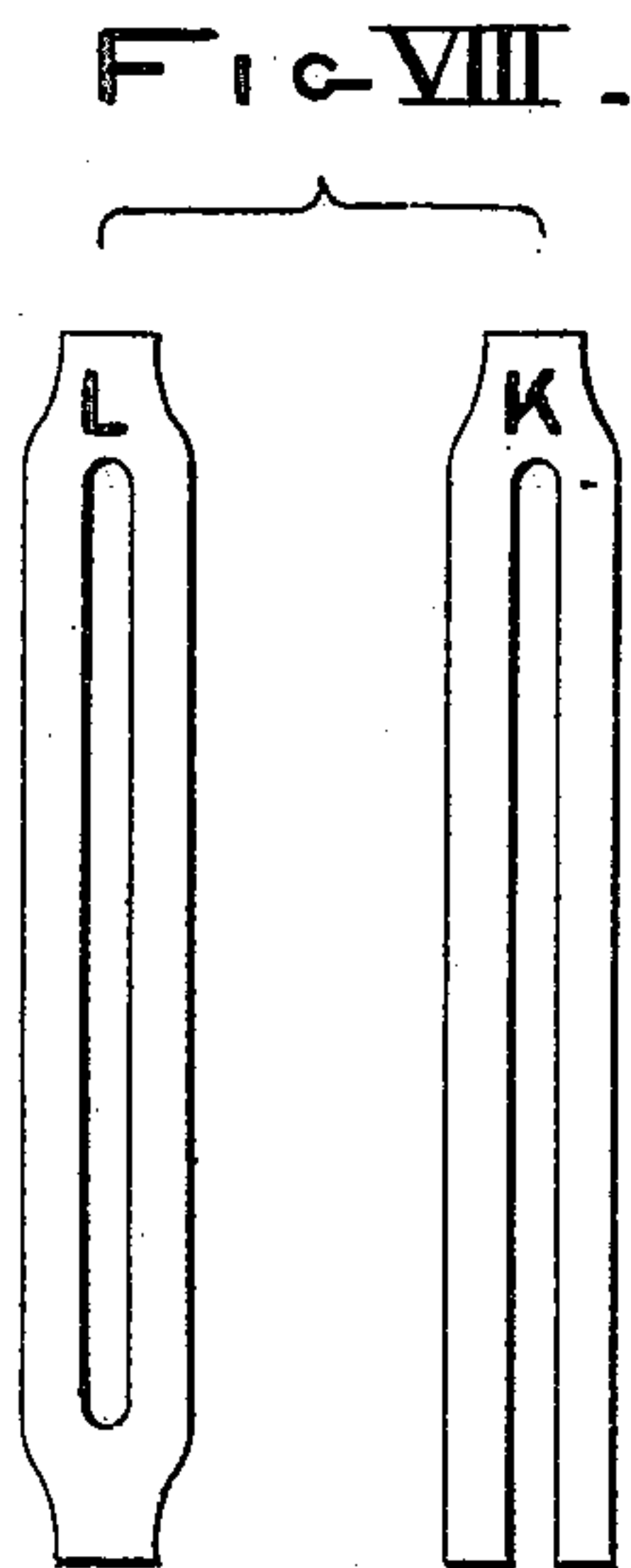
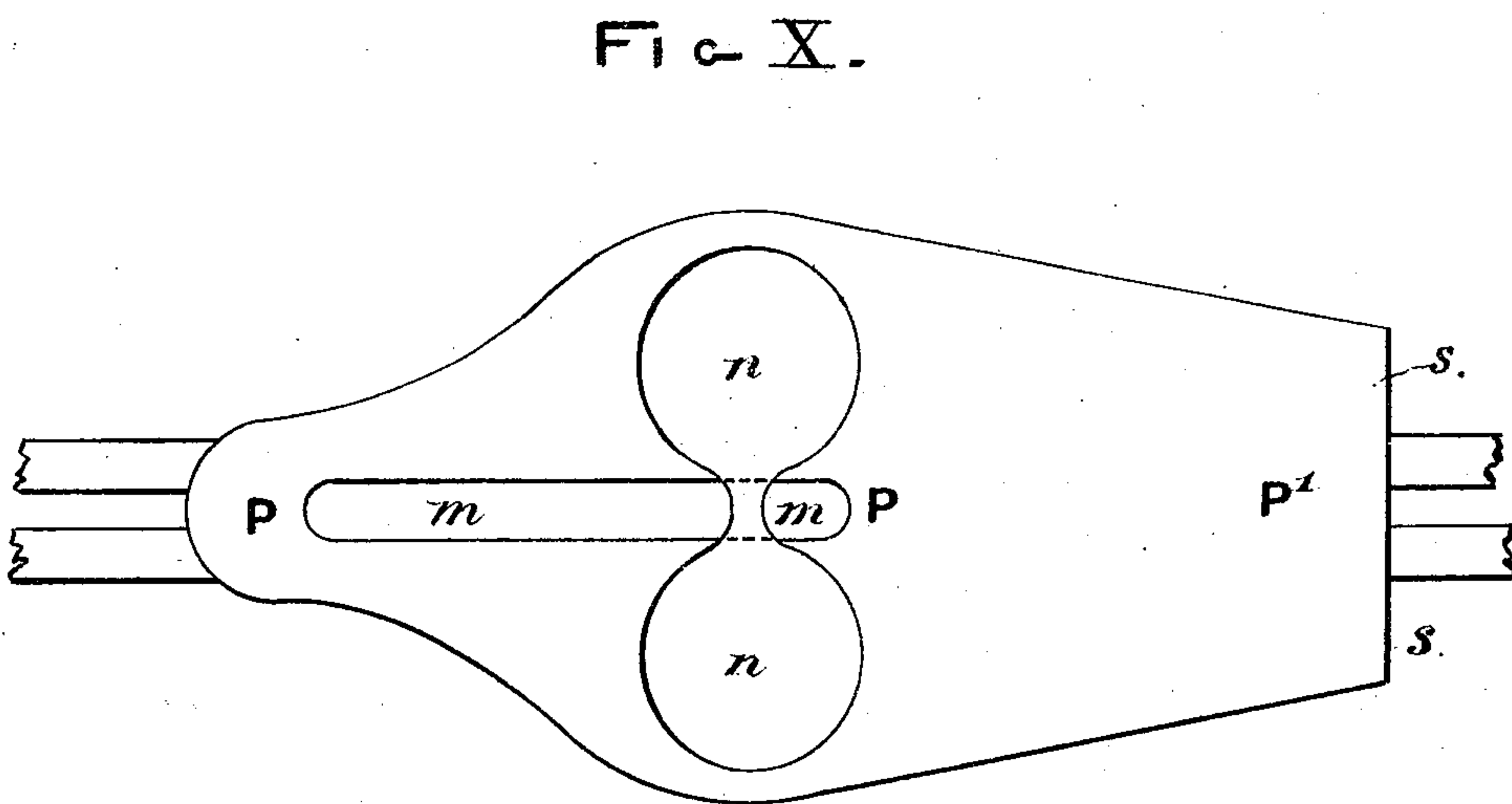
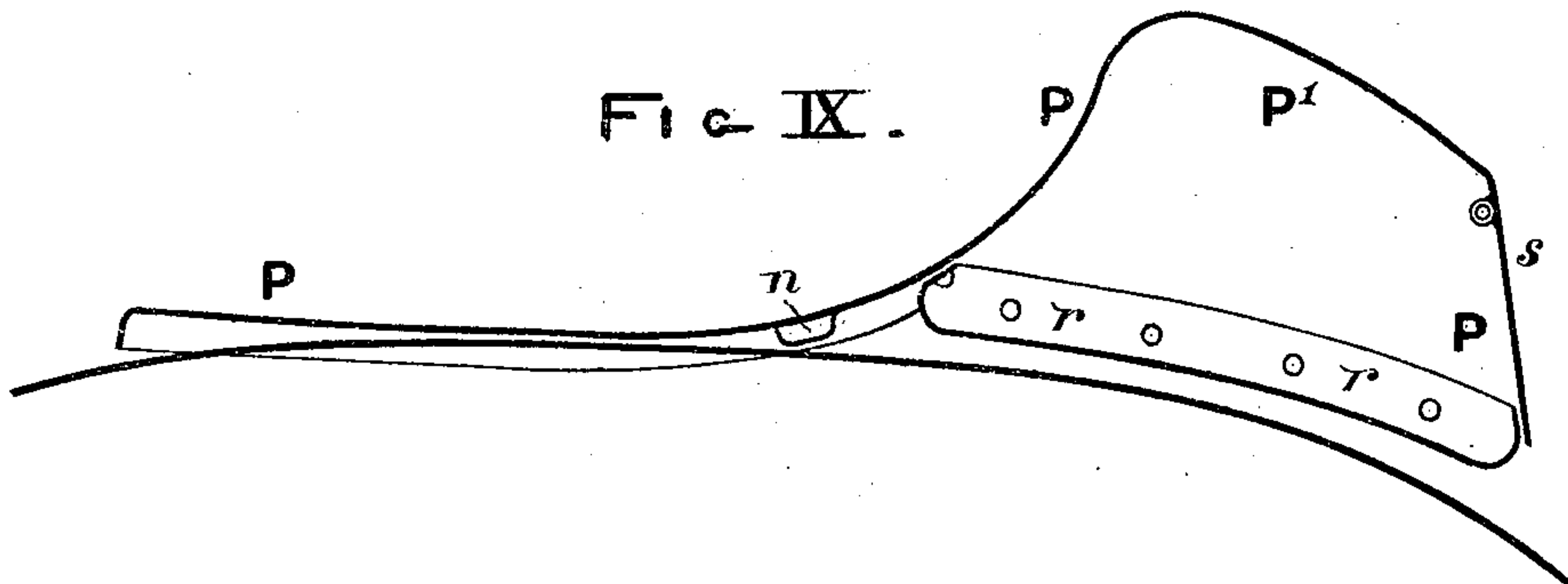
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2 Sheets—Sheet 2.

T. T. HARRISON.
BICYCLE.

No. 252,939.

Patented Jan. 31, 1882.



Attest.
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UNITED STATES PATENT OFFICE.

THOMAS T. HARRISON, OF BRISTOL, COUNTY OF BRISTOL, ENGLAND.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 252,939, dated January 31, 1882.

Application filed November 25, 1881. (No model.)

To all whom it may concern:

Be it known that I, THOMAS TEBBUTT HARRISON, of Bristol, in the county of Bristol, England, have invented new and useful Improvements in Bicycles, which improvements are fully set forth in the following specification and drawings.

The object of my invention is to dispense entirely with the present steering-head, shoulders, guiding cross-bar, and neck. Indeed, according to my invention all parts of a bicycle which at present project above the level of the saddle are entirely swept away, so that the rider is perfectly free to slide off the front of his machine without coming in contact with any projection or obstacle whatever.

Figure I is a side elevation of a machine. Fig. II is a plan, and Fig. III is a back elevation.

In carrying out my invention I use a front fork, A, to carry the two front bearings, very similar in shape to the present forks. The top part of this fork is formed into a hollow casing, a' , as shown by section Fig. IV, to receive the pivot-pin b' , which is formed on or attached under the front end of the backbone B, or the pivot-pin may be a part of the fork and the bearing-recess formed under the backbone. I have shown a ball-bearing around the pivot in the drawing, which may be double or single; but any ordinary bearing will answer the purpose. The backbone is formed with a strong end, b^2 , which may either be integral with or made separate from the pivot-pin b' . The casing a^2 is either made integral with or firmly fixed to the fork A. The cone or step a^3 is fixed tightly by the screw a^4 or otherwise at the bottom of the casing a^2 , and the top cone, b^3 , is fixed to or made in one with the cap, which is made adjustable by being furnished with a female screw, and is screwed onto the outside of the case a^2 . The latter is bored on its top edge at b^4 with little holes to receive the little set pin or screw to secure the cap from turning back, thus making the bearing adjustable, so as to tighten it up at any time. Balls $c c$ are interposed between the parts a^3 and b^3 , as shown. The outer cap, d , which is also an alarm-bell, is secured to the backbone by screw d' , and covers the whole bearing up from dust. The pivot

of the bearing may be formed on the fork and the bearing on the end of the backbone, if necessary, as shown by Fig. XI, where U is the backbone and V the pivot-pin attached inside the top of the fork or formed one with the fork.

For the purpose of steering the machine I provide two handles, $e e$, which are secured to the front fork at any convenient position under the level of the backbone. These handles may either be joined separately on each side of the fork, as shown, by rods g , or they may be connected together by a bar, f , as shown by Fig. V, so as to stiffen each other; but in either case a branch rod or bar passes on each side behind each leg of the rider, and is then carried forward to any desired distance or to any desired elevation to suit each particular rider. Sometimes I carry a diagonal rod, h , Fig. VI and Fig. V, from each side of the fork up to the steering-rods to stiffen them. In the case of racers, for lightness I form the fork and steering part with light rods or tubes, as shown by the modification T, where the connecting-rods w act as mudguards. The form of steering-handles in passing round the legs may be varied greatly to suit various machines and riders. In this modification T, for instance, they are different from the former ones. These steering-rods would of course be so shaped in cross-section as to best resist the strains, and this would vary according to the design of the machine and the position on the fork from which the rods would branch out. These rods g answer the purpose of a leg-guard also, and may be either hollow or solid.

The elevation of the handles may be regulated to some extent by the adjusting arrangement shown by Fig. XII, where the junction-ferrule 3 screws over the teeth formed in the tubular handle rods w , which are more clearly shown at Y, with the inside stiffening-tube, 4, which is brazed inside, removed. Thus by screwing back the ferrule 3 the handle may be adjusted into another notch and the ferrule then replaced. The brake handles and levers would generally be arranged to follow the direction of these handles and rods, either inside or outside of them, acting upon the periphery of the wheel behind the fork; but I do not confine myself to any particular kind of brakes, as

many brake devices may be adopted with my headless machines.

When the driving-wheel of the machine is required of the maximum diameter I use a backbone of novel shape, (or this backbone may be used for any machine,) as shown by Fig. VII, in which cases I should use a slotted or forked spring, K, Fig. VIII, which allows it freedom of motion on each side of the projection *l*, which extends any convenient distance, or two springs may be used, or the spring may be made with each end solid, and the slot in or near the middle, as shown by L, Fig. VIII. The position of the slot in the spring will of course be made to suit the projecting rib *l* on the backbone. One end of the spring is attached to the forward end of the backbone beneath the dust-cap *d* and the other end to the backbone by a single or double shackle. As a means of bringing the rider still nearer to the backbone I make a saddle-plate, P, of novel shape, as shown by Fig. IX, side elevation, and Fig. X, plan, in which *m* is a slot, suitably formed to allow the rib *l* on the backbone to enter the slot with liberty. There is also formed in the saddle-plate a depression, *n*, in which I place a pad, of india rubber or other suitable elastic material, which may be inflated by air or a liquid.

For the purpose of making the machine still more complete in its outfit, I extend the saddle-plate P to P', beyond the dimensions required for a seat, and form therewith a valise or satchel.

The bottom part may be made of a supplemental plate, *r*, if more convenient, and the whole is covered with leather, and is most complete in every respect.

The door *s* may be a plate or leather, and the general design may be varied to a considerable extent as well as its capacity.

I claim as my invention—

1. A bicycle having its steering-handles attached to the front fork and curved, so as to pass beneath the legs of the rider, as set forth.
2. In combination with the front fork of a bicycle, a pair of steering-handles curved to the rear, so as to pass behind and beneath the legs of the rider, and attached to the fork by braces *h*, as described.
3. In combination with the front fork, having casing *a'*, and a half-seat for the balls *c*, the backbone provided with a pivot, *b'*, having corresponding half-seat, as set forth.
4. In combination with a bicycle, a slotted saddle-plate, P, having depression *n*, containing an inflatable bag or cushion, as set forth.
5. In combination with a bicycle, a saddle-plate extended backward, as at P', to constitute a valise-cover and cantle, as set forth.
6. In combination with the front fork, having casing *a'*, the cone *a³*, cap-piece *b³*, balls *c*, and pivot *b'*, attached to the backbone, as set forth.
7. In combination with the pivot *b'* and its bearing in the top of the front fork, the inclosing convex bell and cover *d*, as set forth.

In testimony that I claim the foregoing as my own I affix my signature in the presence of two witnesses.

THOMAS TEBBUTT HARRISON.

Witnesses:

BENJAMIN STEVENS,
GEORGE WALTER STEVENS.