

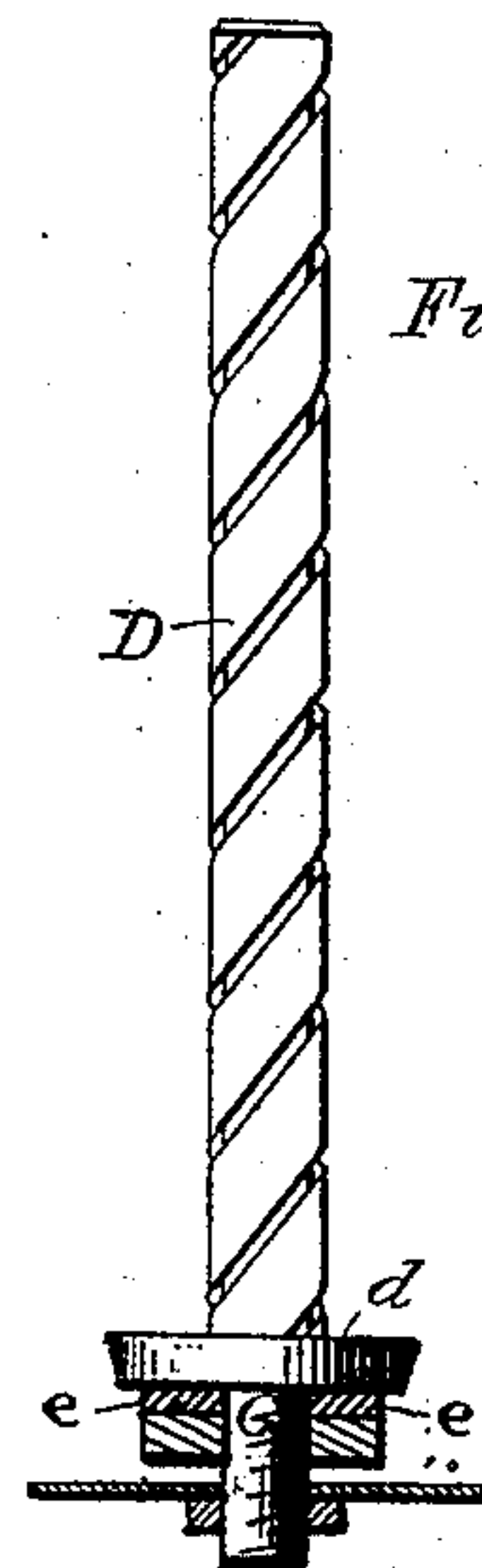
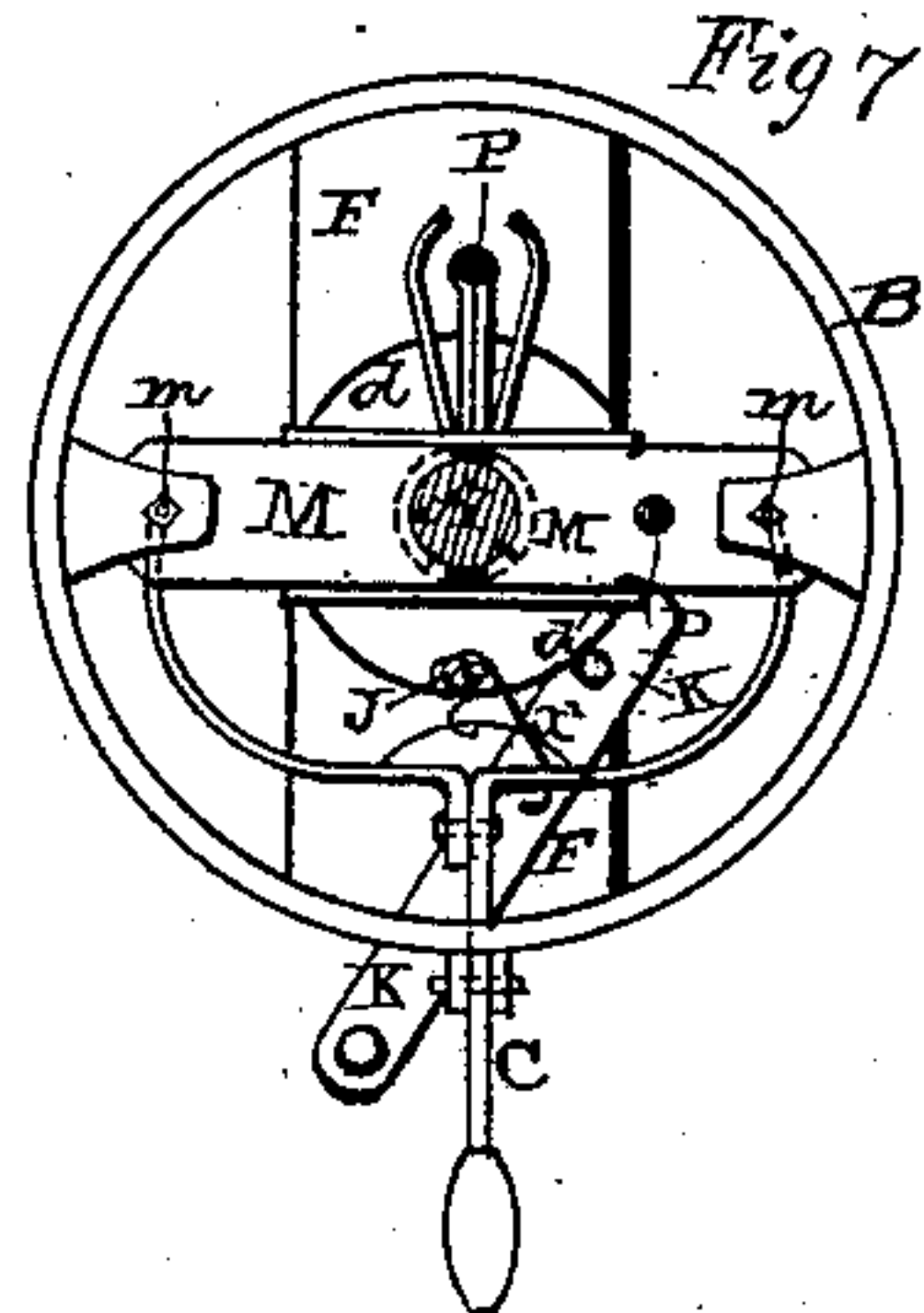
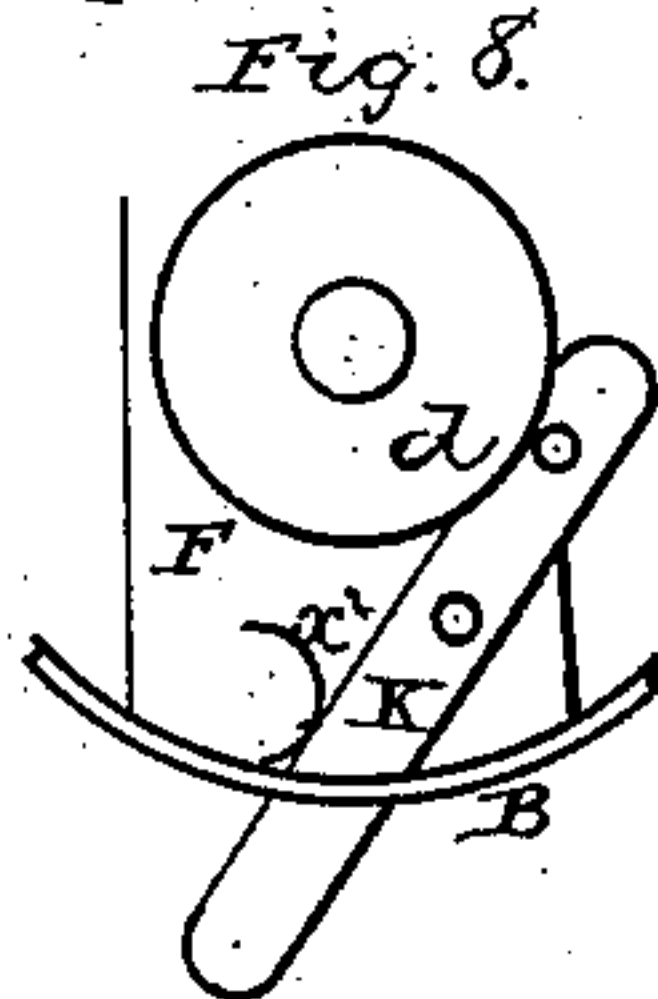
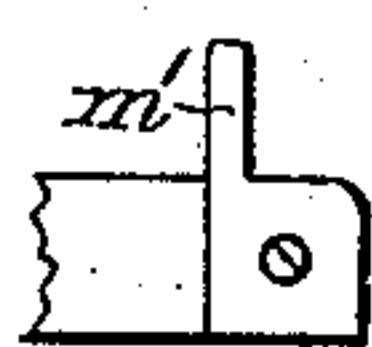
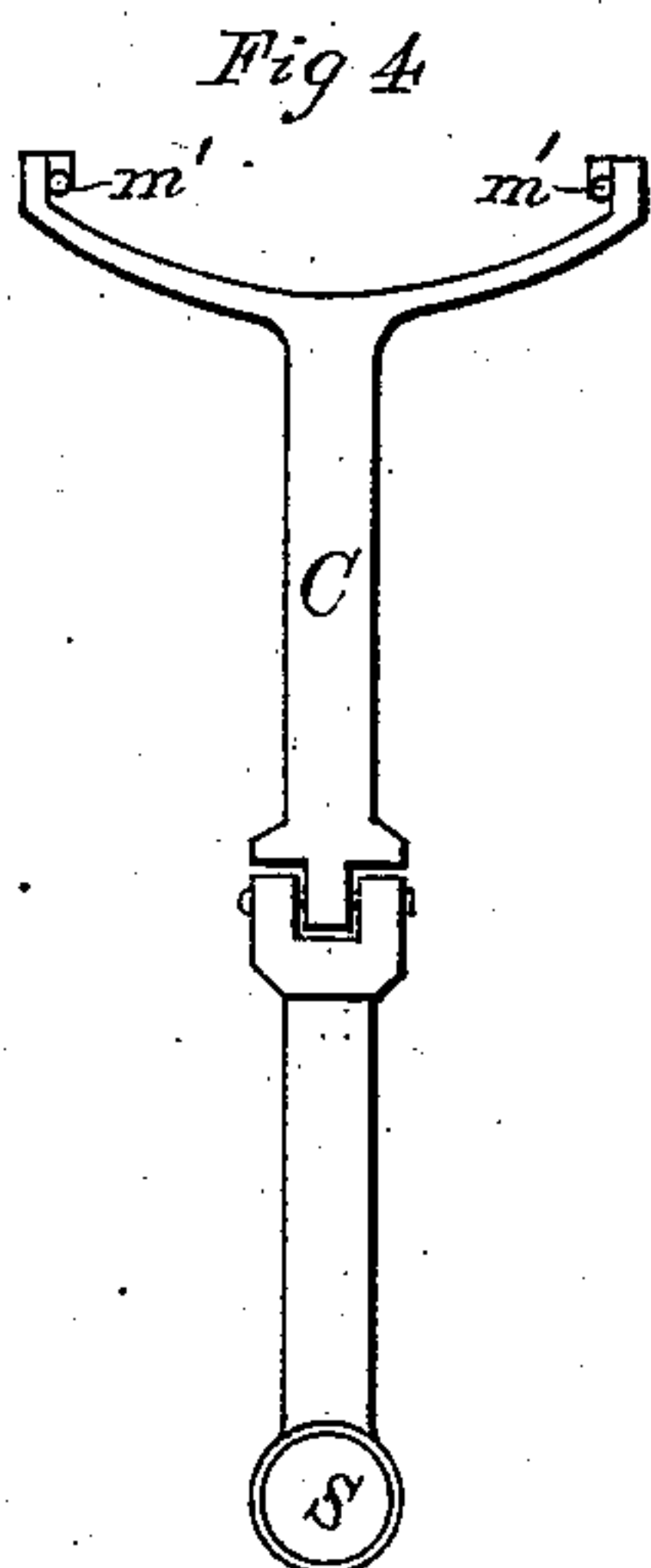
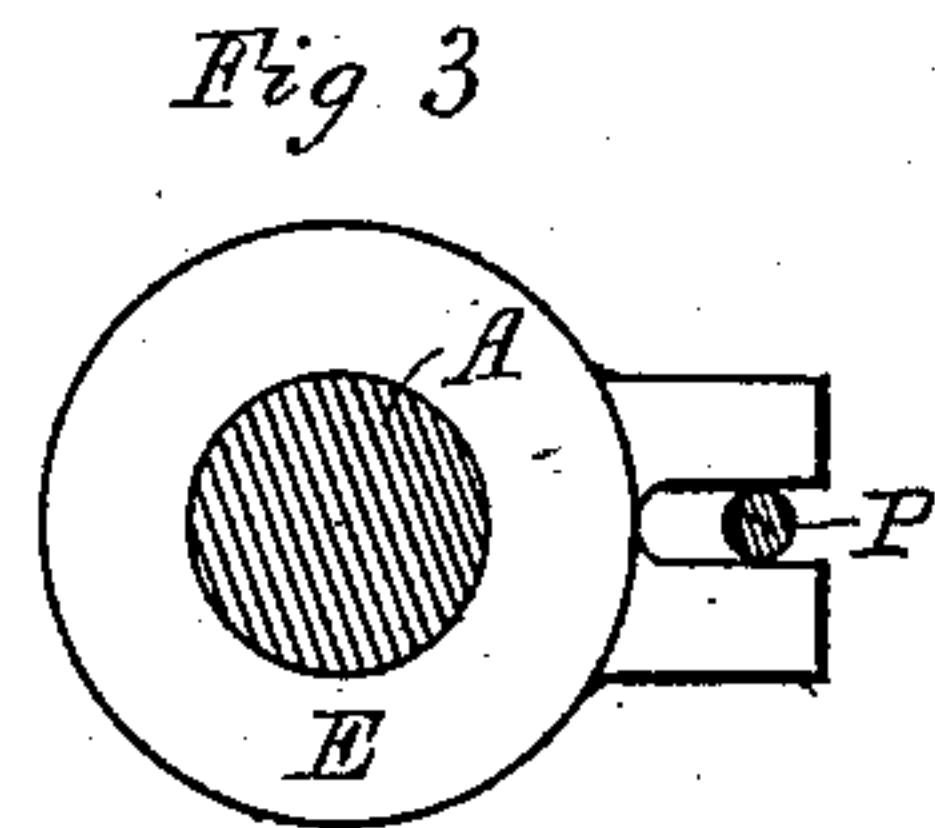
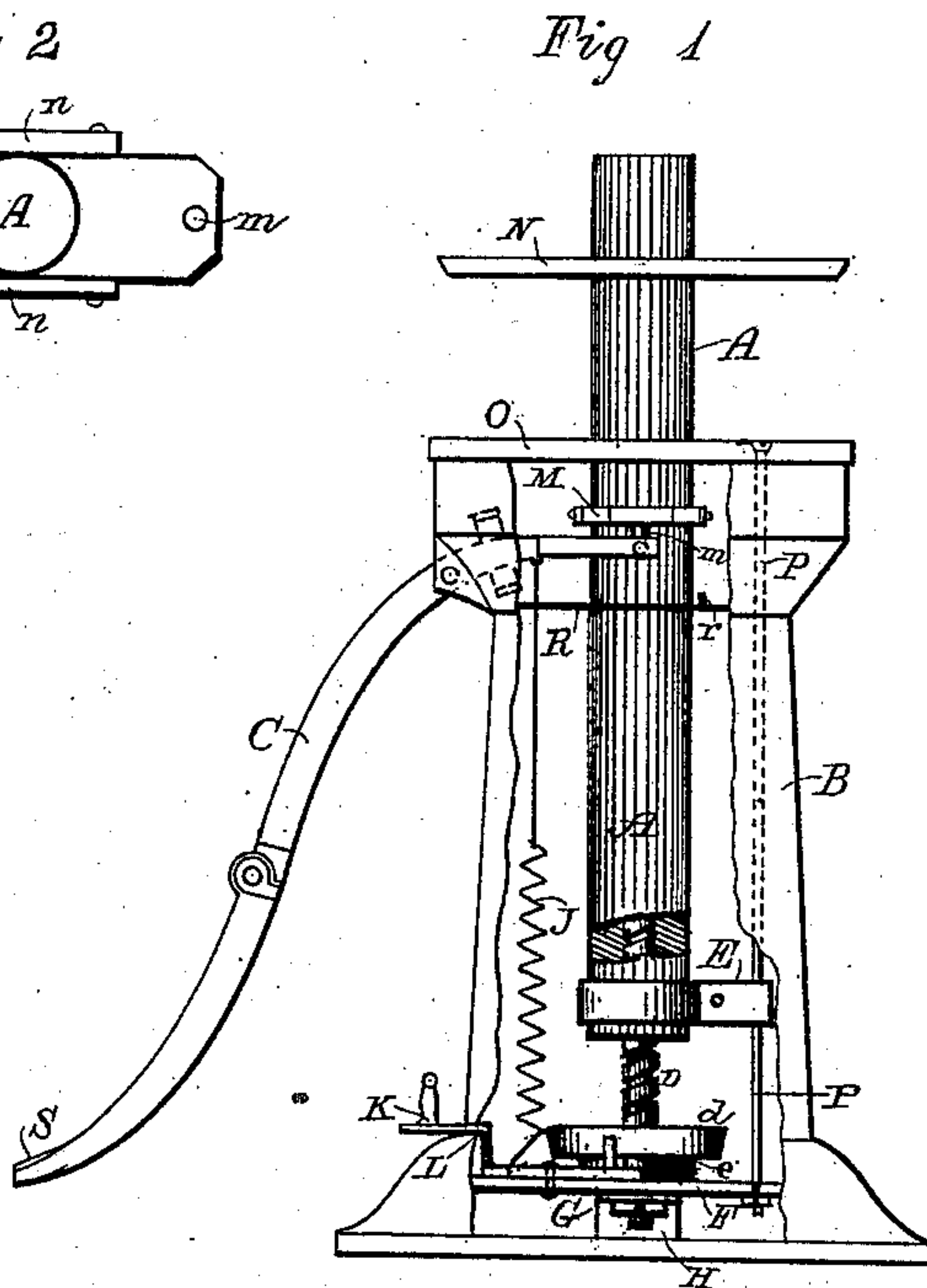
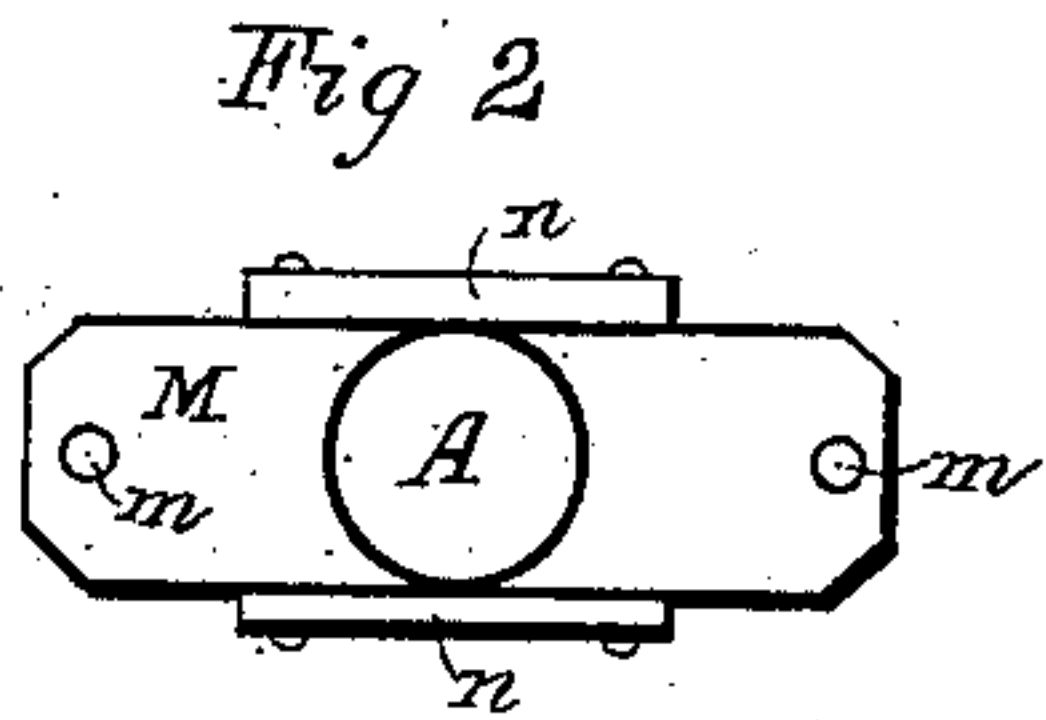
(No Model.)

L. STUCK:

LOWERING MECHANISM FOR DENTAL CHAIRS.

No. 365,322.

Patented June 21, 1887.



WITNESSES:

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LOWERING MECHANISM FOR DENTAL CHAIRS.

SPECIFICATION forming part of Letters Patent No. 365,322, dated June 21, 1887.

Application filed December 10, 1886. Serial No. 221,236. (No model.)

To all whom it may concern:

Be it known that I, LEVI STUCK, a citizen of the United States, residing at Hart, in the county of Oceana, State of Michigan, have invented certain new and useful Improvements in the Raising and Lowering Mechanism for Dental Chairs, of which the following is a specification.

My invention consists in the arrangement and combination of parts, which will be more fully described hereinafter, and set forth in the claims.

The object of my invention is to dispense with the use of packing, valves, oils that adhere to the chair sustaining piston, and the liabilities of leakage, which form objectionable features inseparably connected with all dental chairs of the above class now known.

The further object of my invention consists in providing a mechanism for the elevation and automatic descent of dental chairs that shall be less complicated, simpler in construction, having a less number of pieces in its composition, less liabilities of disorganization, and less expensive in construction than any of its class that have preceded it.

The invention consists in the construction and arrangements of parts, as will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in the figures.

Figure 1 is a vertical side view of my improved lowering mechanism for dental chairs with a portion of its outer casement displaced. Fig. 2 is an under face view of the clutch M, that grasps the cylinder A (see Fig. 1) and raises the chair. Fig. 3 is a face view of the ring E, with its slotted extension. It surrounds and is fastened to the cylinder A at its lower end, which it prevents from rotating by its engagement with guide-bar P, which it receives in its slotted extension and upon which it slides in the elevation and descent of the chair. Fig. 4 is a face view of the elevating-lever C. (See Fig. 1.) Fig. 5 is an enlarged view of a pivotal pin or bearing for the clutch M to rest on, but one pivotal pin being shown. (See M, Fig. 1.) Fig. 6 is a vertical view of the screw D and the friction-disk *d*; also the lower terminus of the screw G, which passes

through the platform F. (See Fig. 1.) Fig. 7 represents a face view of platform F and its connections with the outer cylinder, B, which incloses the works. Fig. 8 is a detail view, showing the spring which operates the brake-lever.

In the drawings, A represents a tubular cylinder surrounding the screw D. (See Fig. 1.) Cylinder A has in its interior, commencing preferably at its lower end and extending upward a suitable distance, a thread or nut forming a counterpart of screw D, by which means screw D is made to support cylinder A in its elevation and descent, with the chair mounted on the disk N, near the top of the cylinder. A friction-disk, *d*, is fastened to the lower terminus of screw D and rotates with it.

The friction-disk *d* receives, through the intervening connections of screw D and cylinder A, the weight of the chair and its occupant. The friction-disk *d* also rests upon the platform F, preferably with friction-washer *e* intervening, the reason for which will presently appear. A downward movement of the cylinder A causes a rotary movement of screw D, by which it will be seen that the diameter of the friction bearing-surface of disk *d* controls the velocity of screw D in its revolution and the consequent velocity of the descent of the chair.

Placed under the friction-disk *d* is a washer, *e*, upon which the disk *d* bears. The washer *e* is increased or diminished in diameter according to the amount of frictional contact desired. The greater the amount of frictional contact upon the disk *d* as it revolves the more slowly the disk will revolve and the more slowly the chair will descend. If a quick descent of the chair is desired, the washer *e* will be made quite small; but if a slower descent is required, the diameter of the washer will be increased accordingly.

The platform F has a hole of suitable diameter, through which the lower portion of screw D passes to keep it in position. The recessed thread of the screw D terminates at the top of the disk *d*. The nut H prevents the screw D from being raised out of the platform F when the cylinder A is being elevated. The space G, between the nut H and the platform F, is for the purpose of allowing the screw D and

disk *d* to rise slightly, and the drawings thus exhibit them slightly raised from the platform, as shown in Fig. 6, in the process of elevating the cylinder A, in order to relieve them from all friction, by reason of which the screw D rotates rapidly and easily by the force of its own weight downward.

The chair is prevented from descending by means of the lever K, which acts as a brake, upon the inner end of which the lower and outer edge of disk *d* rests, the diameter of which is too great to allow it to rotate when resting upon the lever K. The lever K is pivoted on platform F, with reference to a lateral or side movement, by which it is moved out from under disk *d* by pressing laterally against its outer end with the foot when the descent of the chair is desired. To stop the descent of the chair at any point I release the lever K from lateral pressure, when it will be drawn under the disk by the action of a spring, *x*², located on the platform F.

The cylinder A is prevented from rotating by means of the ring E at its lower end, which ring receives the guide-bar P in its slotted extension, and on which it traverses or slides in its elevation and descent.

M represents a clutch, which surrounds and raises the cylinder A, said clutch resting at both of its outer ends on pivotal pins *m'*, Fig. 5, which pins are pivoted on both ends of bifurcated arms of the inner end of lever C. (See *m' m'*, Fig. 4.) These pivoted pins *m' m'* admit of an easy to-and-fro movement of the inner end of lever C in its elevation and descent, with the clutch M in its act of raising the cylinder A. The clutch M has holes extending only a portion of the distance through it on its under side, *m m*, Fig. 2, for the purpose of receiving the ends of the pivotal pins *m' m'*, Fig. 4. The outer ends of the clutch M, Fig. 2, have an up-and-down movement by being hinged or pivoted near their inner circular ends, A, to pieces N N. An opening is formed through the clutch corresponding to the diameter of the cylinder A, which it surrounds when in position, fitting it closely, but not so firmly as to prevent a free descent. The clutch retains its position on the pivotal pins *m'* when the outer end of lever C is released from its depressed position by the foot, and its inner end is caused to descend by the action of the spring J, after which action but a slight pressure on the outer end of the lever C by the foot causes the clutch M to grasp the cylinder A firmly without the least sliding of the clutch on the cylinder, and a depression of the lever C by the foot raises the cylinder A and constitutes the operation of elevating the chair. The clutch M, when not in use,

rests at its lowest point of descent on a bearing, *r*, which projects from a cross-bar, R, the bearing *r* being placed near the inner ends of the clutch, by which its outer ends are made to drop, causing it to release its grasp on cylinder A, by which construction the chair is always ready for descent by pressing laterally against the lever K.

The cylinder A is firmly supported in position by passing through the top O of the cylinder B. The cylinder B supports as well as incloses the works, and is secured to the floor.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is, in the mechanism for the automatic descent of a dental chair—

1. The combination of the chair sustaining cylinder which telescopes or surrounds the upright screw, the female screw on the inside of said cylinder, by which it is sustained in its endwise or vertical movement up and down on the vertical screw, the said screw rotating in a horizontal plane, the friction-disk to which the vertical screw is fastened and with which it rotates in a horizontal plane on its platform, and the brake-lever pivoted with reference to a lateral movement, its inner end projecting under and bearing against the friction-disk, substantially as described, and for the purpose set forth.

2. The combination of the chair-sustaining cylinder which telescopes or surrounds the upright screw, the female screw on the inside of said cylinder, by which it is sustained in its endwise or vertical movement up and down on the vertical screw, the said screw rotating in a horizontal plane, the friction-disk to which the vertical screw is fastened and with which it rotates in a horizontal plane on its platform, the friction-washer between the friction-disk and platform, and the brake-lever pivoted with reference to a lateral movement, its inner end projecting under and bearing against the friction-disk, substantially as described, and for the purpose set forth.

3. In the lowering mechanism for a dental chair, the combination of the vertical screw D, the friction-disk *d*, the cylinder A, the thread on the inside of the same, the lever K, platform D, ring E, guide-bar P, and nut H, substantially as described, and for the purpose as set forth.

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

LEVI STUCK.

Witnesses:

HARY E. HUTCHINS,
CHAS. E. ALBAUGH.