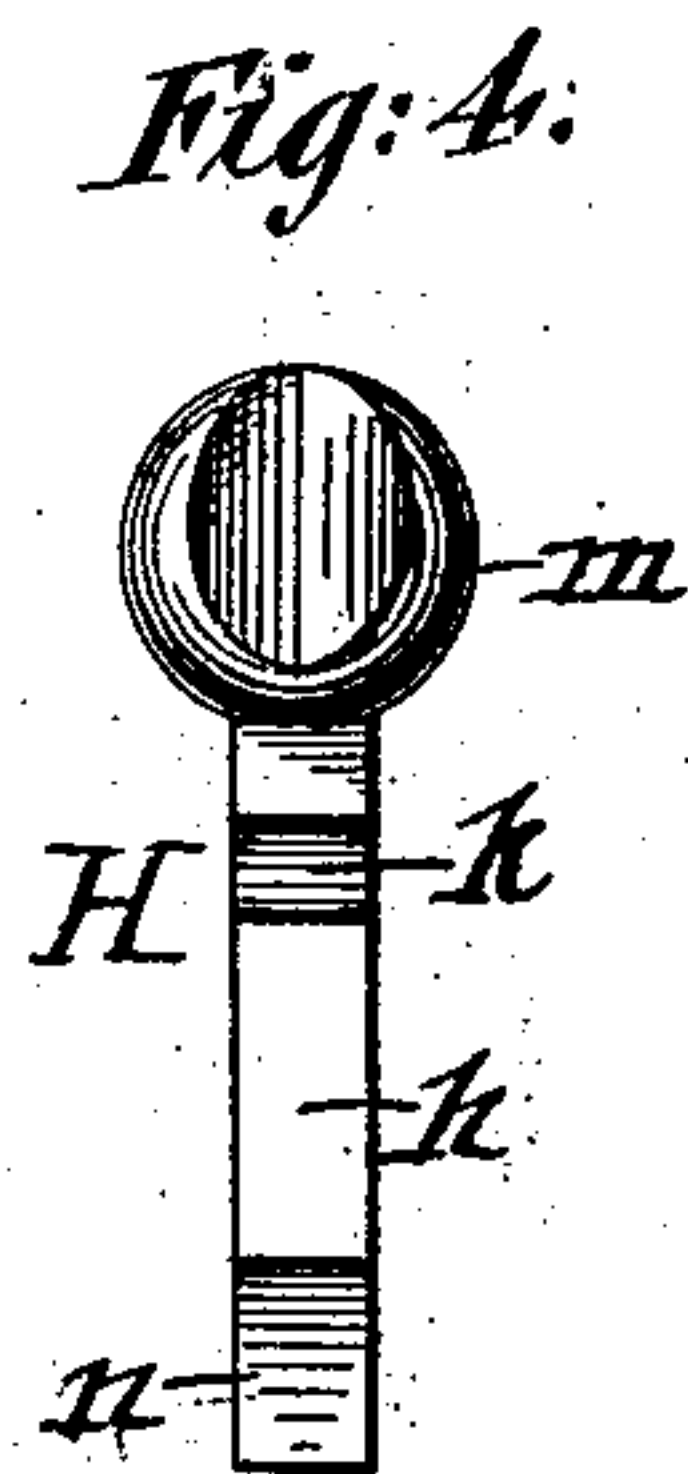
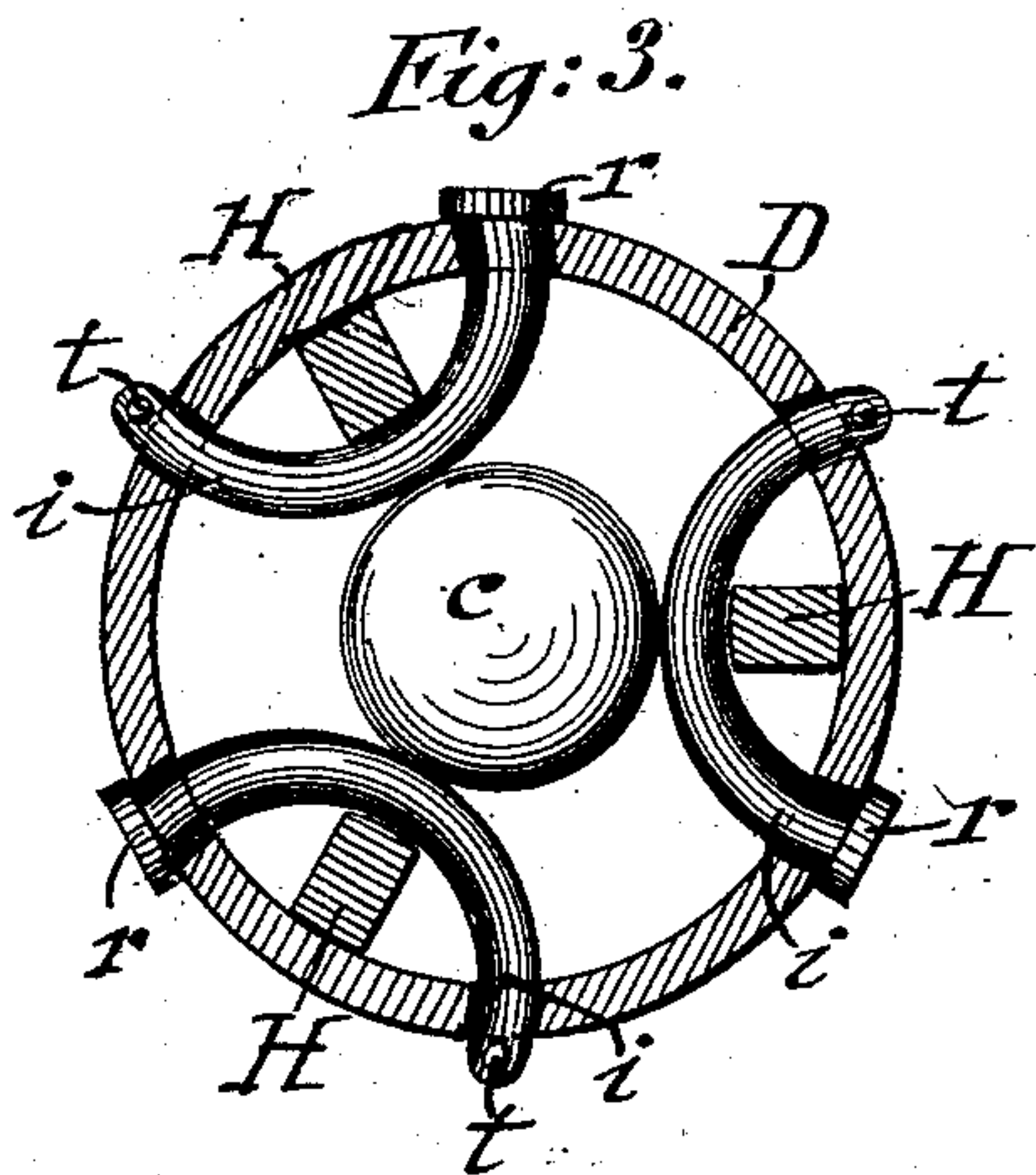
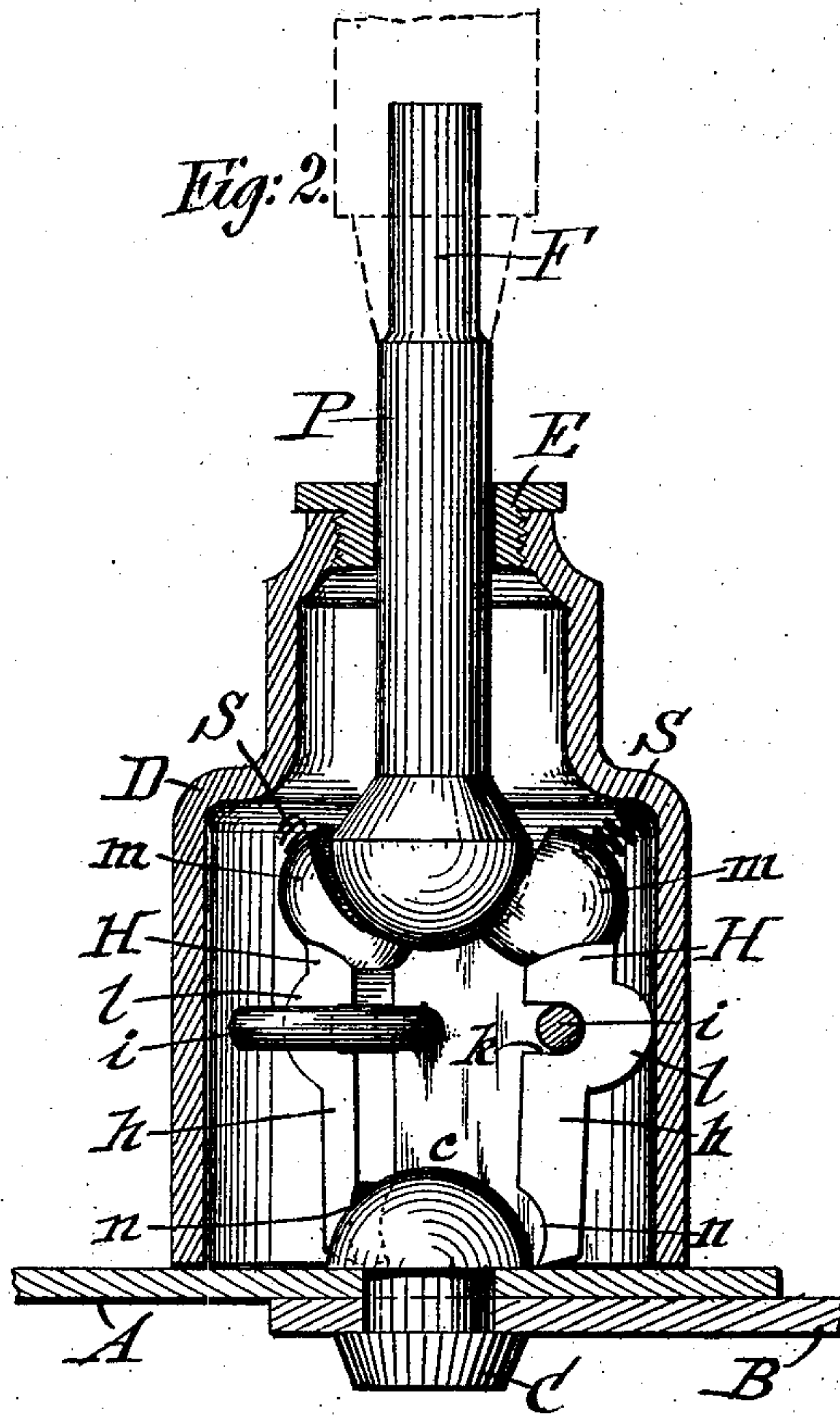
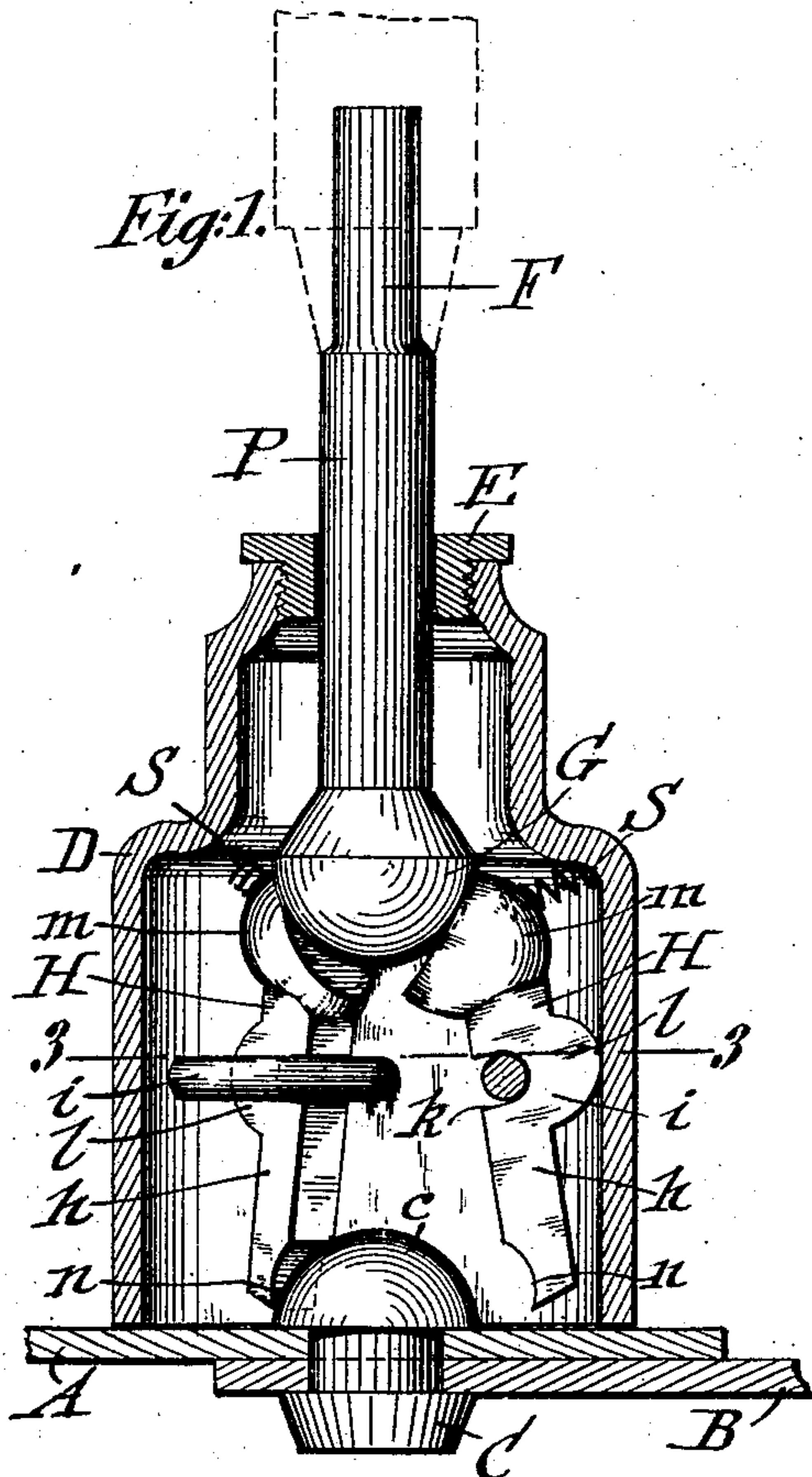


No. 715,624.

Patented Dec. 9, 1902.

P. J. SWEENEY.  
RIVET CALKING TOOL.  
(Application filed Sept. 3, 1902.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

PATRICK J. SWEENEY, OF ELIZABETH, NEW JERSEY.

## RIVET-CALKING TOOL.

SPECIFICATION forming part of Letters Patent No. 715,624, dated December 9, 1902.

Application filed September 6, 1902. Serial No. 122,340. (No model.)

*To all whom it may concern:*

Be it known that I, PATRICK J. SWEENEY, a citizen of the United States, residing in Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Rivet-Calking Tools, of which the following is a specification.

The object of this invention is to provide means for calking the rivets of boilers, tanks, and other vessels after the plates have been joined together by the rivets in the usual manner; and for this purpose the invention consists, essentially, of a rivet-calking tool comprising an exterior shell or casing open at its lower end for receiving the rivet to be calked, a plurality of movable calking-hammers in said casing arranged to receive the rivet-head between them, and means for simultaneously operating said calking-hammers into and out of contact with said rivet-head; and the invention consists, further, of certain details of construction and combinations of parts, which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of my improved rivet-calking tool ready for calking the rivet. Fig. 2 is a similar view showing the calking-hammers applied in the act of calking. Fig. 3 is a transverse section taken on line 3 3, Fig. 1; and Fig. 4 is a front view of one of the calking-hammers.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A indicates one of the plates of a tank, boiler, or other vessel, which plate has been riveted to the adjacent plate B by means of the rivet C. When the plates have been so riveted, it frequently becomes necessary to further compress the head *c* of the rivet C in toward the plate A to insure thereby an absolutely tight joint.

My rivet-calking tool consists of a preferably cylindrical casing or exterior shell D open at one end, which is placed on the upper or outer plate A. The other end of the shell D is contracted and in the same is screwed or otherwise secured a bushing E, preferably of any suitable bearing metal, as

babbitt, &c. Reciprocating in the bushing is a hammer-operating piston P, the outer end F of which is adapted to be coupled to the reciprocating piston-rod of any suitable motor, preferably a pneumatic motor, the other end of said piston being provided with an enlarged spherical head suitable for transmitting power to the calking-hammers.

The calking-hammers H consist each of a shank *h*, which is recessed at or near its middle part at its inner side, in which recess *k* is placed a hammer-pin *i*, which holds the calking-hammer in position in the casing. At the outer side of the hammer corresponding to the recess is a rounded fulcrum lug or mount *l*, that acts as a bearing for the hammer against the casing-wall. At one end of the calking-hammer H is an enlarged head *m*, having an inclined face at its inner side, which face is preferably provided with a groove or concave recess adapted to fit the piston-head G of the reciprocating operating-piston. Fastened to this upward rear end *m* of the hammer H is any suitable return-spring S, which forces the end *m* of the hammer H away from the casing or exterior shell D. At the other end of the calking-hammer H is a preferably pointed nose or calking-face *n*, suited to act on the metal of the rivet-head *c* to force the same tightly against the plate A and to insure thereby a tight and perfect joint. The hammer-pins *i* are preferably made slightly tapering, as shown in Fig. 3, and are inserted each in two bored holes in the walls of the casing D, the wider end of the pin having an offset head *r*, and the smaller end being provided with a small cotter-pin *t*, so as to secure the hammer-pins in place. The calking-hammers H are thus firmly held and pivoted by the pins *i* on their recessed side and by the casing or exterior shell D on their outer side, as the rounded fulcrum lug or mount *l* acts as a bearing of the hammer H on the casing D.

The operation and application of my improved tool is the following: After the plates A and B have been riveted by a number of rivets C in the usual manner my improved rivet-calking tool is set over a rivet C, as shown in Fig. 1, and then the hammer-operating piston-rod is rapidly oscillated by any pneumatic motor or other suitable means.



The piston P is thereby caused to act on the rear end *m* of each hammer H and move it out toward the casing D against the tensile force of the spring S. As the calking-hammer H is pivoted in its recess *k* by the pin *i* and at the same time moves on its rounded fulcrum lug or mount *l* against the casing D, the lower end or nose *n* will be forced with considerable energy against the head *c* of the rivet C and press thereby the metal so acted upon tightly in toward the plate A, thereby accomplishing a fluid-tight joint. On the upward stroke of the piston P the end *m* of the hammers will be relieved, the tension of the return-spring S will force the ends *m* inward toward the center of the riveter, the nose *n* will travel outward toward the casing, and the riveting-hammers will be placed in position ready for their next active stroke. This repeated action of the hammer ends or calking-faces *n*, acting with considerable force and pressure on the rivet-head, and the successive turning of the rivet-calking tool, so as to compress the metal of the rivet-head on all sides, will quickly and efficiently calk the rivet, so as to close the small space between the rivet-head and the plate.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A rivet-calking tool, comprising an exterior shell or casing open at its lower end for receiving the rivet to be calked, a plurality of movable calking-hammers in said casing arranged to receive the rivet-head between them, and means for simultaneously operating said calking-hammers into and out of contact with said rivet-head, substantially as set forth.
2. A rivet-calking tool, comprising an exterior shell or casing open at its lower end for receiving the rivet to be calked, a plurality of pivoted calking-hammers arranged in said casing in upright position and adapted to receive between them at their lower ends the head of the rivet to be calked, and an operating-piston guided in said casing and provided at its inner end with means for simul-

taneously actuating said hammers, substantially as set forth.

3. A rivet-calking tool, comprising an exterior shell or casing open at its lower end for receiving the rivet to be calked, a plurality of pivoted calking-hammers arranged in said casing in upright position and adapted to receive between them at their lower ends the head of the rivet to be calked, an operating-piston guided in said casing and provided at its inner end with means for simultaneously actuating said hammers, and means for re-

turning said hammers to their original position after each forward movement of the same, substantially as set forth.

4. A rivet-calking tool, comprising an exterior shell or casing open at its lower end for receiving the rivet to be calked, a plurality of calking-hammers symmetrically arranged in said casing, each hammer comprising a shank provided at its inner face with a recess and at its outer face opposite said recess with a rounded lug or mount adapted to bear against the side wall of the shell or casing, a lower end or nose shaped for attacking the rivet-head, and an upper end or head provided with an inclined longitudinally-grooved face, a curved and tapering horizontal pivot-pin for each hammer secured at its ends in the casing and engaging the hammer in its recess for pivoting the same in vertical position, a compression return-spring for each hammer located between the head of the same and the casing-wall, an operating-piston guided vertically in the casing and adapted to be reciprocated in the same toward and away from said hammers, and a rounded head at the inner end of said piston, for engaging in the inclined grooves of the hammer-heads, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

PATRICK J. SWEENEY.

Witnesses:

PAUL GOEPEL,  
JOSEPH H. NILES.