

No. 884,244.

PATENTED APR. 7, 1908.

V. J. WAHLSTROM.
CHUCK.

APPLICATION FILED JULY 17, 1907.

Fig. 1

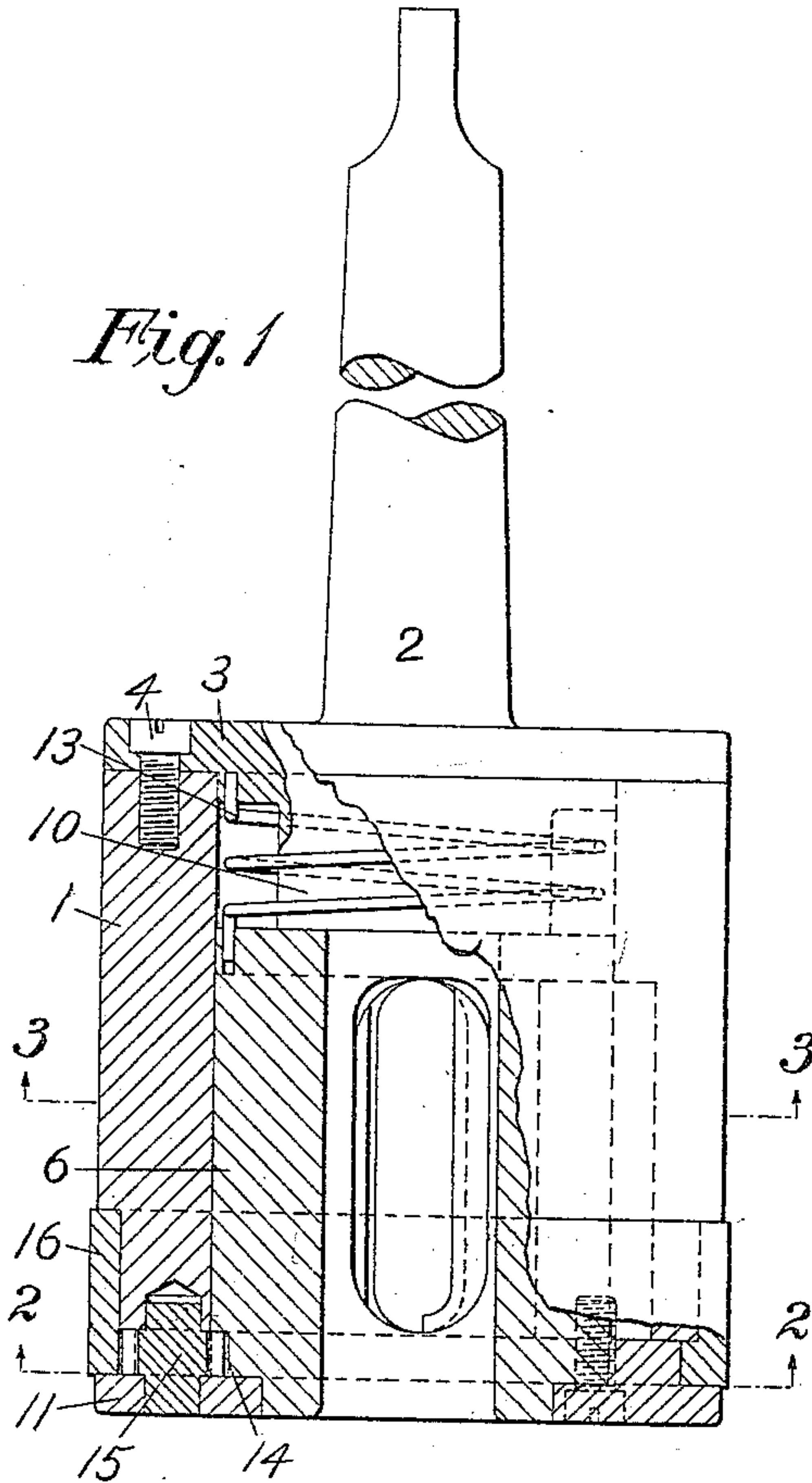
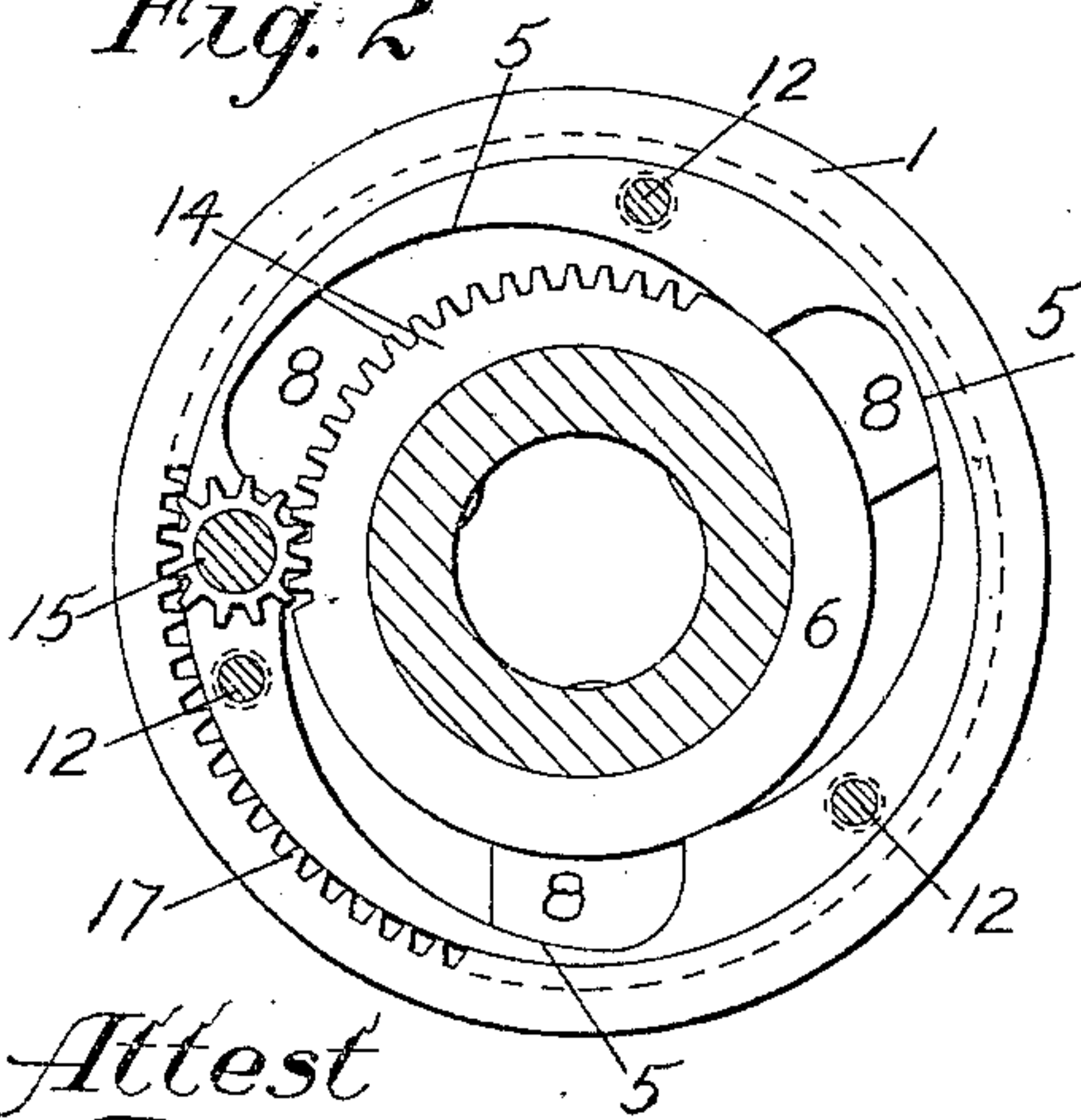
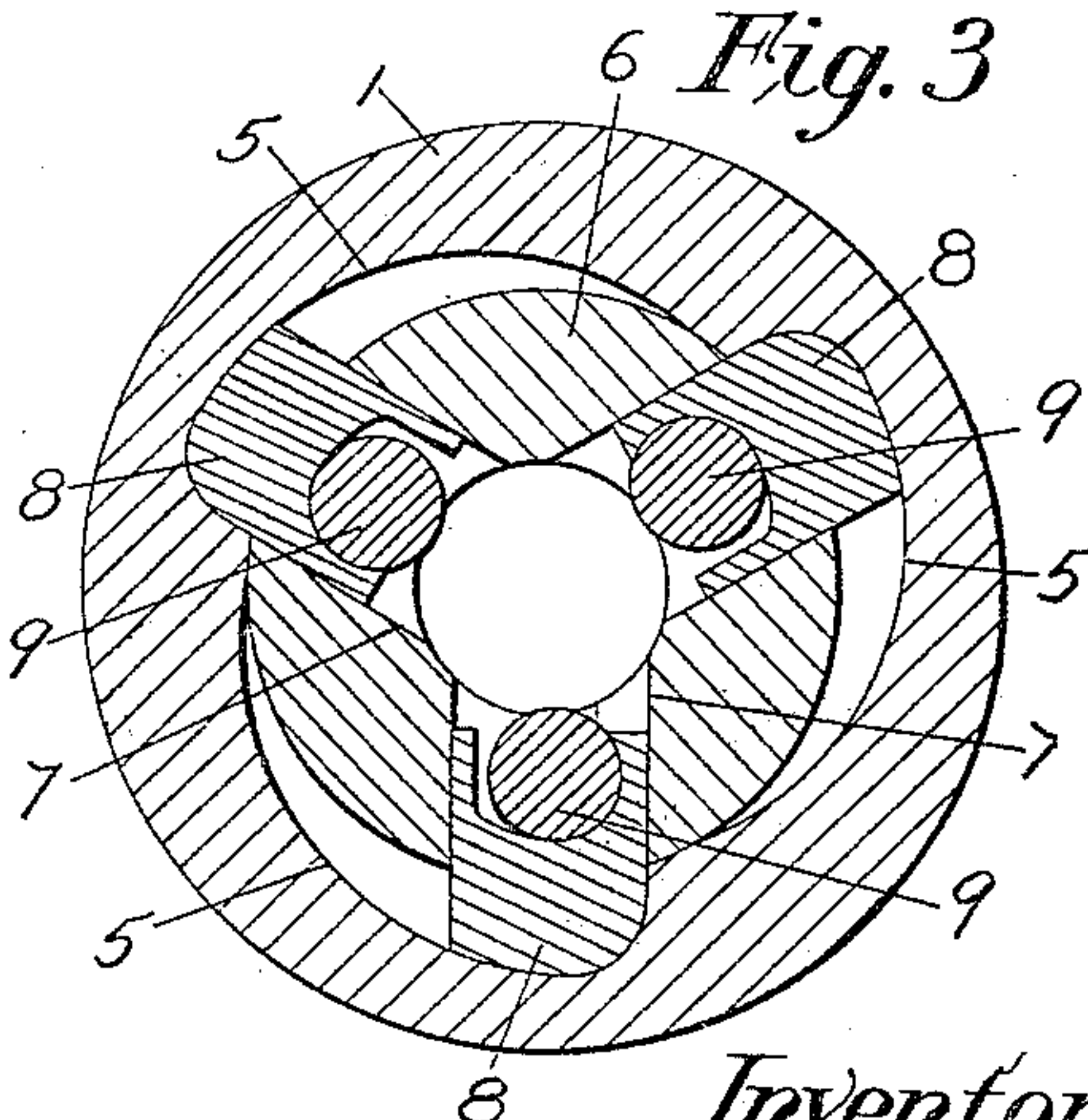


Fig. 2



Attest
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Fig. 3



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UNITED STATES PATENT OFFICE.

VERNER J. WAHLSTROM, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO BERNHARD T. BURCHARDI, OF BROOKLYN, NEW YORK.

CHUCK.

No. 884,244.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed July 17, 1907. Serial No. 384,251.

To all whom it may concern:

Be it known that I, VERNER J. WAHLSTROM, a citizen of the United States, residing at New York, in the county of Kings and State of New York, have invented a new and useful Chuck, of which the following is a specification.

This invention relates to an improvement in chucks.

10 In certain types of chucks heretofore employed, a plurality of radially movable jaws has been used, each jaw carrying a roller arranged to be rolled up an inclined face on the jaw by contact with a tool shank, to effect
15 the clamping of the same. In these devices, internal cam surfaces were cut upon a sleeve loosely mounted upon a chuck-body, the function of the cam surfaces being to produce, when rotated, a movement of the jaws toward the axis of the chuck. The rotation of
20 the sleeve was effected by means of a spring.

It has been found in practice that by forming the cam surfaces upon the chuck-body itself and mounting the jaws in a relatively
25 rotatable member carried by the chuck-body, that a wider range is obtained, that is to say, a larger number of different sized tool shanks may be clamped in the device. This is due to the fact that the cam surfaces are
30 positively driven and that there is, therefore, a constant tendency to crowd the jaws toward the axis of the chuck, irrespective of the action of the spring that initially brings the jaws into contact with the tool shank.

35 It is one of the objects of this invention, therefore, to provide a chuck in which the cam surfaces for moving the jaws inwardly are mounted on the chuck-body.

40 With this and other objects in view, the invention consists in certain constructions and combinations which will be hereinafter fully described and then specifically pointed out in the claims hereunto appended.

45 In the drawings which form a part of this specification and in which like characters of reference indicate the same parts, Figure 1 is an elevation, partly sectional, of a structure embodying the invention; Fig. 2 is a cross sectional view taken on the line 2—2 of Fig.
50 1; and Fig. 3 is a cross sectional view taken on the line 3—3 of Fig. 1.

55 In carrying the invention into effect, there is provided a hollow chuck-body having a plurality of cam surfaces for operating the jaws and this chuck-body may vary widely

in construction. As shown, a hollow chuck-body 1 is employed and is connected to a shank 2 by any suitable means, as for instance by a flange 3 formed integrally with the shank 2 and secured to the chuck-body
60 by means of screws 4. In the device selected to illustrate the invention, internal cam surfaces 5 are formed on the chuck-body 1.

There is provided a relatively rotatable member carried by the chuck-body for supporting the jaws. As shown, a relatively
65 rotatable member 6 is mounted within the hollow chuck-body 1, before referred to, and is provided with a plurality of radial slots 7 in which are mounted a plurality of radially
70 movable jaws 8, the rear ends of which contact with the cam surfaces 5, before referred to. Each of the jaws 8, carries a gripping roller 9 mounted therein in a manner well known in the art. The upper end of the ro-
75 tatable member 6 contacts with a boss 10 extended from the shank 2, before referred to, and is held in position within the chuck-body 1 by means of a plate 11 secured to the chuck-body 1 by suitable means, as screws 12. 80

A spring 13, one end of which is fixed in the flange 3 and the other to the rotatable member 6, is provided for the purpose of producing a relative movement of the chuck-body and member to cause the jaws to ap-
85 proach the axis of the chuck.

Means are provided for positively producing a reverse movement and this means may vary widely in construction. As shown, the rotatable member 6 is provided near its lower
90 end, with a segmental rack 14 which is in mesh with a pinion 15 loosely mounted in the chuck-body 1 and retaining plate 11. A sleeve 16 is rotatably mounted upon the lower end of the chuck-body 1, and this
95 sleeve is provided with a segmental rack 17, in mesh with the pinion 15, before referred to.

In the operation of the device, the shank 2 is inserted in a drill press, and through its connections the chuck-body 1 is positively
100 driven. When a tool shank is inserted in the central aperture of the chuck between the gripping rollers 9, the spring 13 will produce a relative movement of the chuck-body 1 and member 6 to cause the jaws to move to-
105 ward the axis of the chuck. While the tool shank is held in position, there is a constant tendency of the positively driven cam surfaces 5, to move the jaws inwardly with a force greatly in excess of that exerted by the 110

spring 13 during the initial inward movement of the jaws. Owing to this construction and action, the cam surfaces 5 may be steeper than in constructions heretofore used and
5 the range of the chuck thereby increased. To release the tool, the sleeve 16 is grasped by the operative and stopped, which results in the rotation of the pinion 15 and a reverse movement of the member 6, this movement
10 relieving the jaws from the force exerted by the cam surfaces 5. The tool will then fall, or may be readily slipped out.

Changes and variations may be made in the structure by which the invention is carried into effect. The invention, therefore, is
15 not to be limited to the precise details of the structure shown and described.

What is claimed is:

In a chuck, the combination with a chuck-body provided with a plurality of cam surfaces, a relatively rotatable jaw carrying
20 member mounted therein, a segmental rack formed on said member, a pinion carried by the chuck-body and in mesh with said rack, and a sleeve rotatably mounted on the chuck-
25 body and having a segmental rack in mesh with the pinion, substantially as described.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

VERNER J. WAHLSTROM.

Witnesses:

J. D. H. BERGEN,
H. C. GUION.