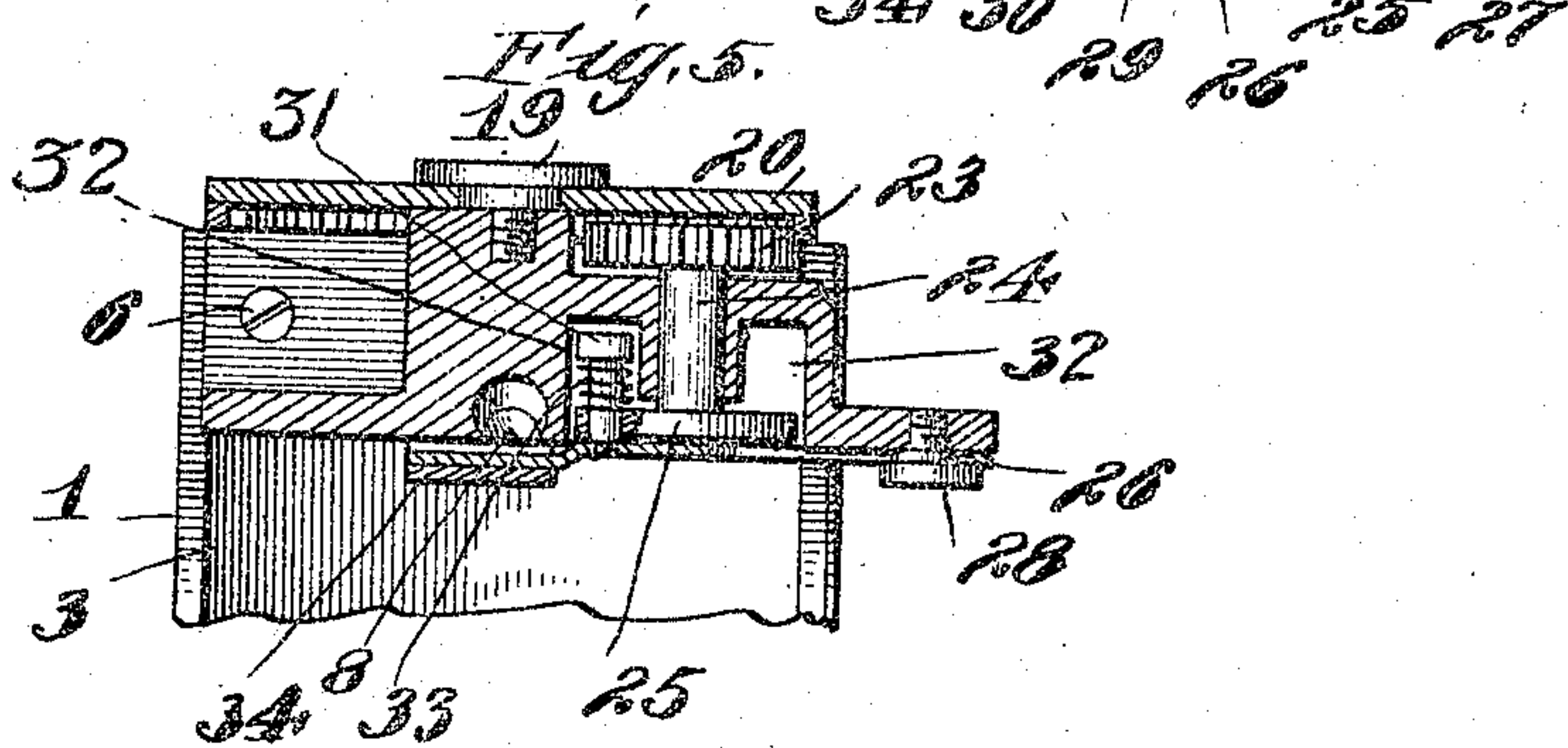
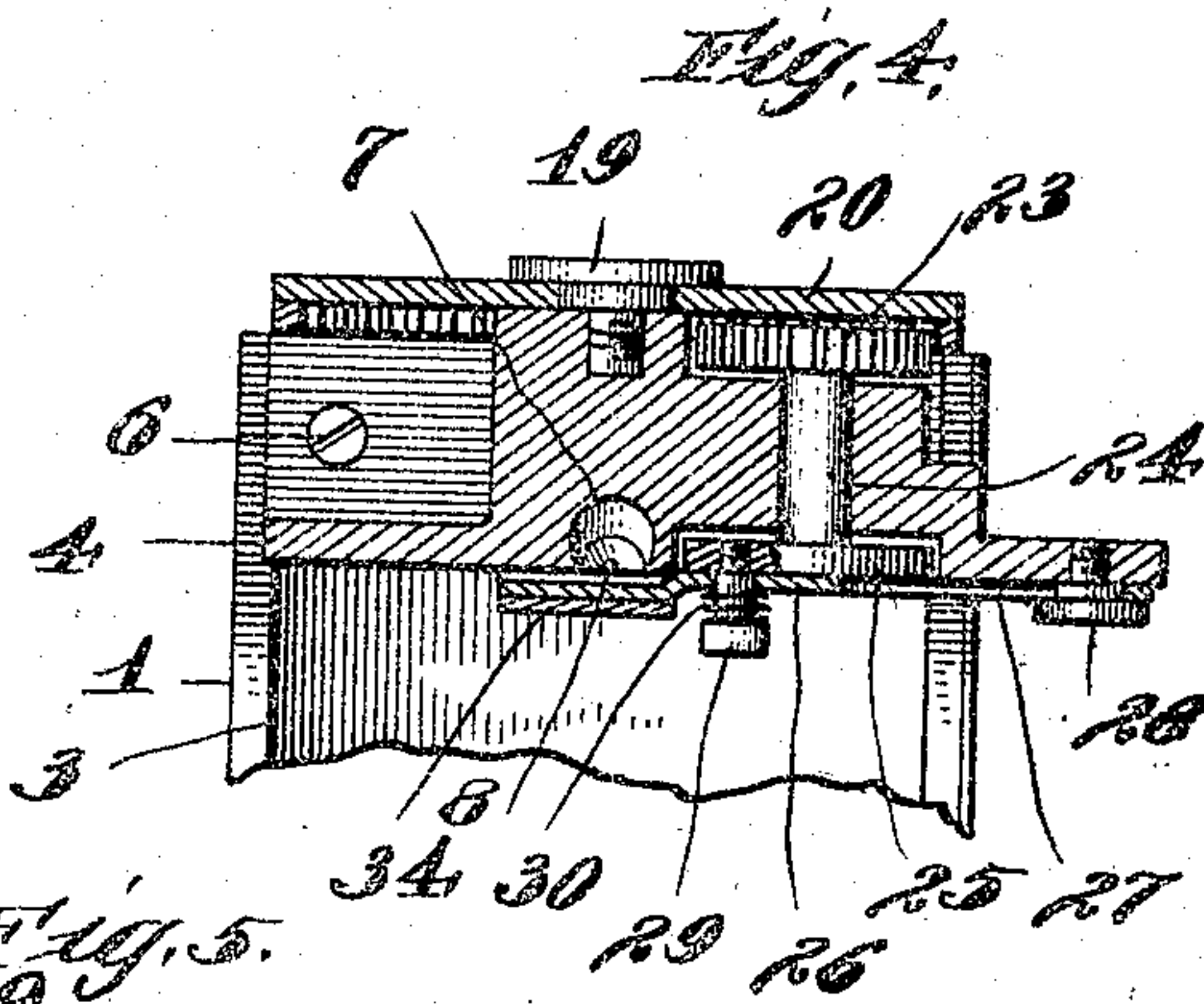
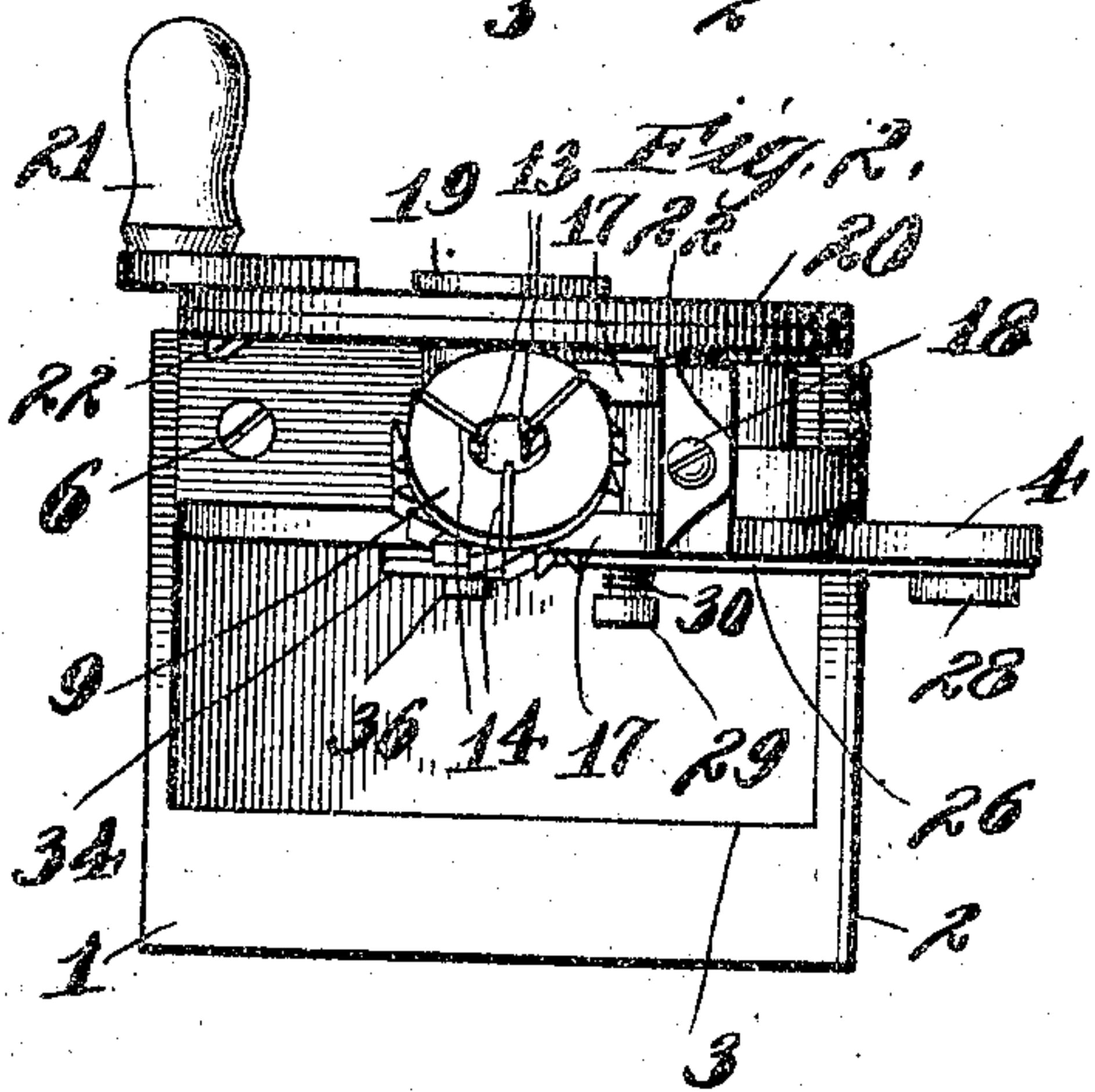
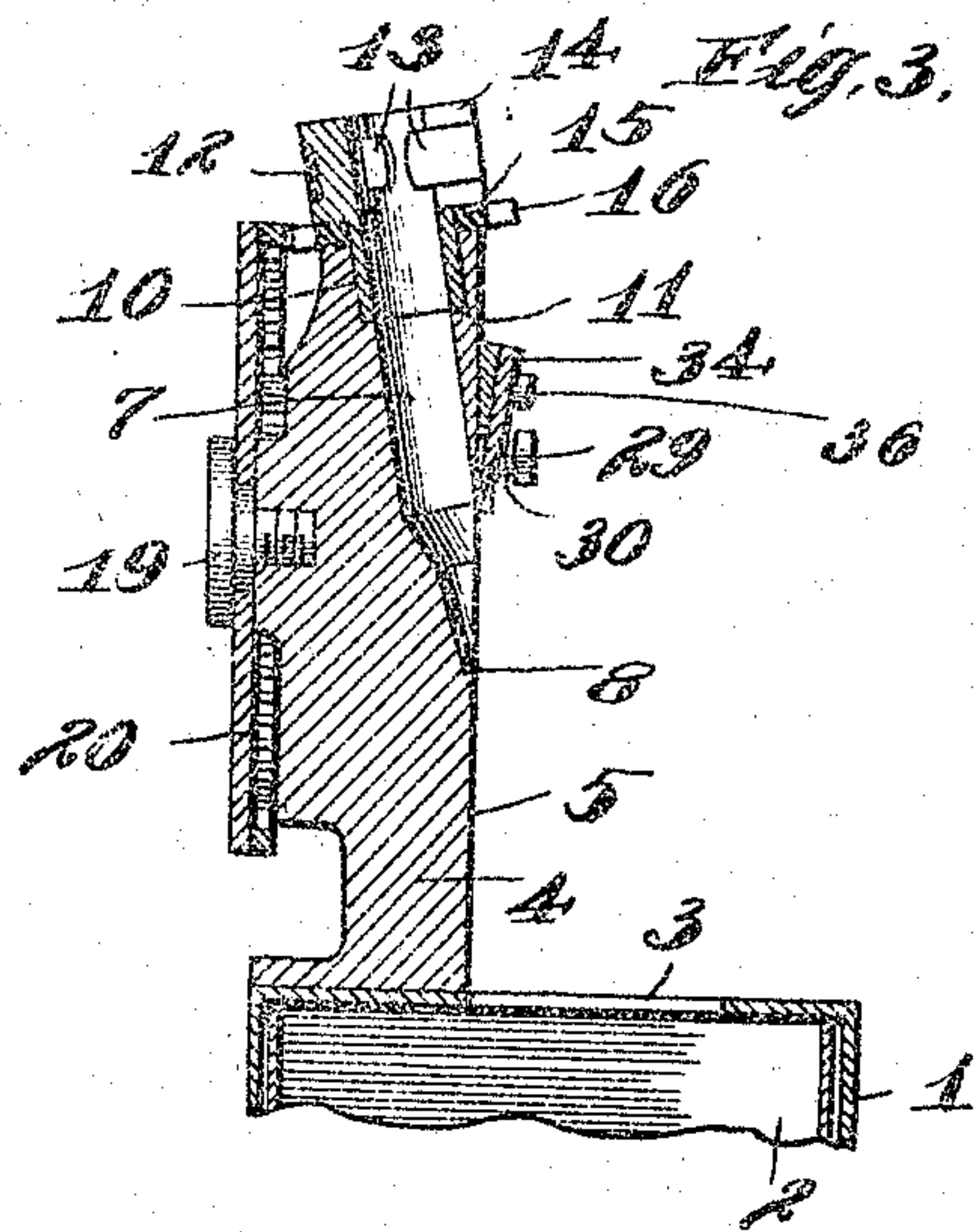
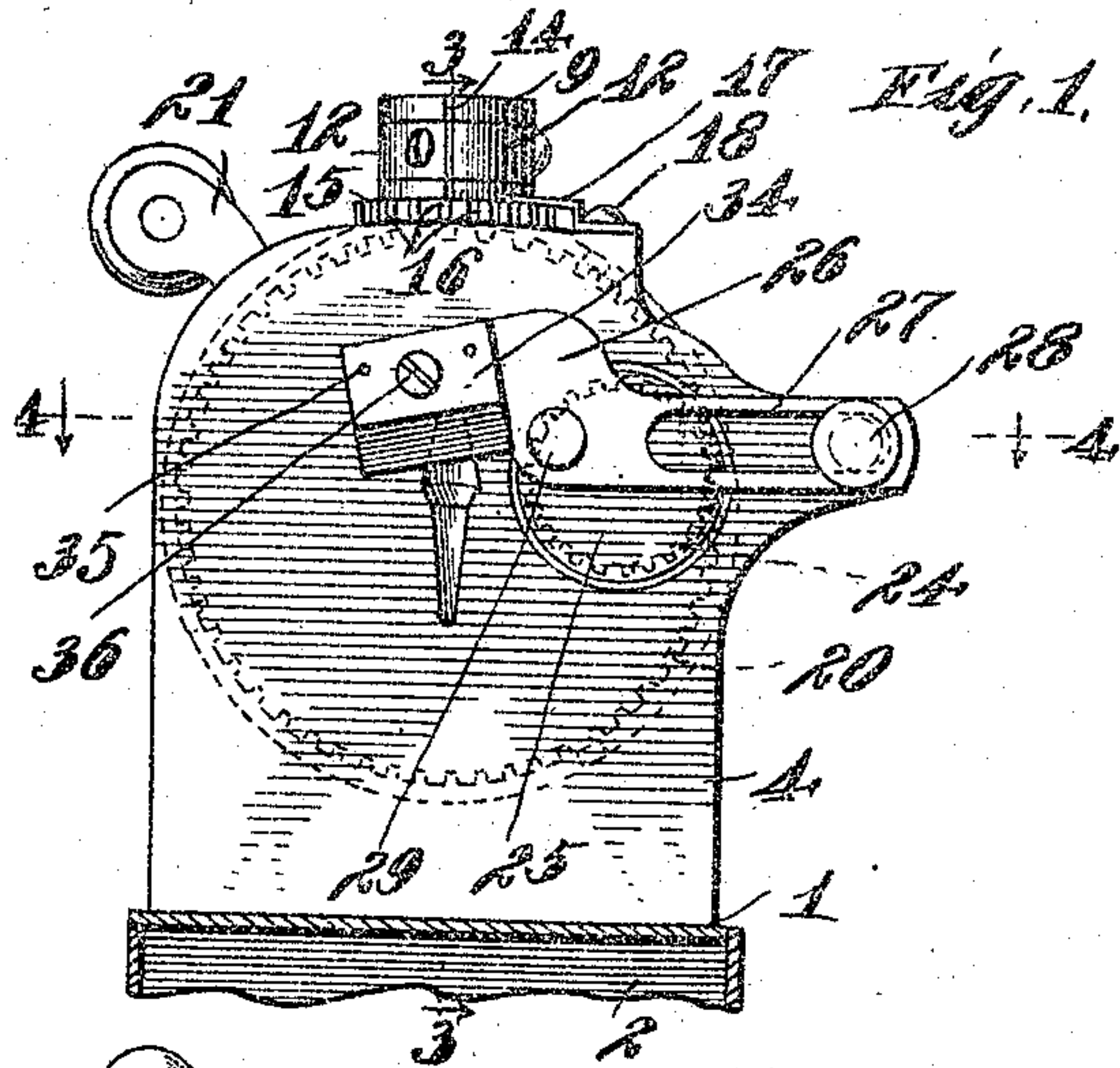


No. 868,028.

PATENTED OCT. 15, 1907.

C. C. SPENGLER.
PENCIL SHARPENER.
APPLICATION FILED FEB. 13, 1907.



Witnesses.

J. A. Paulschmidt

George L. Chindahl

Inventor.

Charles C. Spengler

By Luther L. Miller.

Atty.

UNITED STATES PATENT OFFICE.

CHARLES C. SPENGLER, OF ROCKFORD, ILLINOIS, ASSIGNOR TO AUTOMATIC PENCIL SHARPENER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PENCIL-SHARPENER.

No. 868,028.

Specification of Letters Patent.

Patented Oct. 15, 1907.

Application filed February 13, 1907. Serial No. 357,152.

To all whom it may concern:

Be it known that I, CHARLES C. SPENGLER, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Pencil-Sharpeners, of which the following is a specification.

One of the objects of this invention is the production of means for permitting the cutting element to yield in order to prevent breakage.

10 Another object of the invention is the provision of improved means for rotating the pencil being operated upon.

The invention also relates to the other and further improvements in pencil sharpeners hereafter set forth.

15 In the accompanying drawings Figure 1 is a front elevation of a pencil sharpener embodying the features of my invention, a portion of the base being broken away. Fig. 2 is a top plan view of said machine. Fig. 3 is a vertical sectional view through the 20 machine taken on the plane of dotted line 3 3 of Fig. 1. Fig. 4 is a horizontal section on dotted line 4 4 of Fig. 1. Fig. 5 is a view similar to that of Fig. 4, illustrating an alternative construction.

In the embodiment herein shown, the mechanism of 25 the machine is supported upon a base 1 constructed to receive within it a drawer 2 for catching the shavings and dust resulting in the operation of the machine, said shavings and dust falling through an opening 3 in the upper wall of said base into said drawer 2.

30 A supporting member 4 having a vertically-extending, plane face 5 is fixed to the top of the base 1 in any suitable way, as by means of the screws 6. In said supporting member is formed a cylindrical opening 7 to receive the pencil, said opening extending to the 35 face 5 of the supporting member and tapering at its lower end to correspond to the shape given the lower end of the pencil by the cutting mechanism.

Near the lower end of the opening 7 is a shoulder 8 10 against which the point of the pencil lodges when the pencil is fully sharpened.

A sleeve 9 is rotatably mounted in the enlarged upper portion 10 of the opening 7, the lower end of said sleeve bearing upon the annular shoulder 11. Within said sleeve is provided means for frictionally engaging the pencil, said means comprising a plurality of 5 spring fingers 12, secured to the outer side of said sleeve and having inwardly bent portions 13 extending through slots 14 formed in said sleeve.

A ring 15 is fixed to the sleeve 9 and carries a peripheral series of teeth 16.

The sleeve 9 is held in place and prevented from rotating too freely by means of two spring fingers 17 15 attached to the member 4 at 18.

Upon a pivot screw 19 seated in the supporting member 4, is rotatably mounted an internal spur gear

20, having secured to one side a crank 21 by means of which it may be rotated.

About the periphery of the spur gear wheel 20 is a plurality of projections 22 adapted to engage the teeth 16 and thereby impart a succession of partial rotations 60 to the sleeve 9.

The spur gear 20 meshes with a pinion 23 fixed upon one end of a shaft 24 rotatably mounted in the supporting member 4. To the other end of the shaft 24 65 is fixed a crank or face plate 25.

A knife arm 26 having an elongated opening 27 therein is secured to the supporting member 4 by means of a screw 28 extending through said elongated opening into said supporting member.

At a point between its ends the knife arm 26 is connected to the face plate 25 through the agency of a screw 29, said screw passing freely through an opening in said knife arm into a screw-threaded opening in said face plate. 70

To permit the knife arm 26 to spring outwardly in 75 case a pencil be forced into the opening 7 when said knife arm overlies the lower open end of said openings, I interpose a coiled spring 30 between the head of the screw 29 and the knife arm 26.

A practical embodiment that may be resorted to and 80 which I consider substantially equivalent to that just described, is shown in Fig. 5 of the drawings and consists in attaching the pivot screw 31 to the knife arm 26 and face plate 25 in such a manner that it extends rearwardly into an annular recess 32 formed for it in the 85 supporting member. A spring 33 is provided between the head of said screw and the face plate 25, substantially as in the form first described.

A knife blade 34 is secured to one end of the knife arm 26 in position to pass over the lower open end of the 90 opening 7 during the movement of said knife arm. I prefer to fasten the knife blade 34 to said knife arm in such a manner as to permit of removing the blade, if desirable, for sharpening or renewal. In the present instance, said blade is secured to the knife arm by 95 means of pins 35 fixed in said knife arm and lying within openings in the knife blade, and a screw 36.

In use, the pencil is inserted into the opening 7, the lower portion projecting to a greater or less extent through the lower end of said opening beyond the face 5 100 of the supporting member 4. When the spur gear wheel 20 is rotated, the knife arm 26 is reciprocated and tilted through the connections 23, 24, and 25. The movement of the knife blade 34 over the lower end of the opening 7 is diagonally downward from left to 105 right, Fig. 1, causing a draw-cutting action upon the pencil. As the gear wheel 20 is rotated the projections 22, carried by said gear wheel engage the teeth 16 and cause the sleeve 9 and the pencil being operated upon to rotate, thus presenting fresh portions of the pencil 110

to the knife. In its operation, the knife draws the pencil downward in its opening until the point of the pencil rests against the shoulder 8, at which time the pencil is fully sharpened. Should the pencil be forced
 5 into the opening 7 when the knife arm 26 overlies the lower end of said opening, said knife arm is free to move laterally, thus avoiding breakage.

I have illustrated and described my improvements in detail in the forms at present preferred by me, but I
 10 am aware that they are capable of considerable variation in structural details without departing from my invention.

I claim as my invention:

1. In a pencil sharpener, in combination, a supporting member; an internal spur gear rotatably mounted upon
 15 said supporting member; a shaft rotatably mounted in said supporting member; a pinion on one end of said shaft meshing with said spur gear; a crank fixed to the other end of said shaft; and a cutting element moved
 20 by said crank.

2. In a pencil sharpener, in combination, a cutting element; a crank arm pivotally connected with said cutting element; and a spring moving with said crank arm and adapted to permit of a lateral yielding movement of
 25 said cutting element.

3. In a pencil sharpener, in combination, a cutting element; a crank arm; a crank pin carried by said crank arm for connecting said cutting element and said arm; and a spring engaging said crank pin adapted to
 30 permit of a lateral yielding movement of said cutting element.

4. In a pencil sharpener, in combination, a cutting element; a crank arm; a crank pin carried by said crank arm for connecting said cutting element and said arm; and a coiled spring surrounding said crank pin and adapted to permit of a lateral yielding movement of said cutting
 35 element.

5. In a pencil sharpener, in combination, a fixed member; a knife arm having an elongated opening therein; a member extending through said elongated opening and
 40 fixed to said fixed member; a rotatable crank; a crank pin carried by said crank for connecting said knife arm and said crank; and a spring engaging said crank pin and adapted to permit of a lateral yielding movement of said knife arm.
 45

6. In a pencil sharpener, in combination, a fixed member; a knife arm having an elongated opening therein; a member extending through said elongated opening and fixed to said fixed member; a rotatable crank; a member pivotally connecting said knife arm and said crank; and a
 50 spring tending to hold said knife arm against lateral movement.

7. In a pencil sharpener, in combination, a supporting member having a plane face and adapted to support a pencil; an internal spur gear rotatably mounted upon
 55 the rear side of said supporting member; a shaft rotatably mounted in said supporting member; a pinion fixed to one end of said shaft and meshing with said internal spur gear; a crank fixed to the other end of said shaft; a knife bar pivotally connected with said crank; and means for
 60 limiting and guiding said knife arm.

8. In a pencil sharpener, in combination, a supporting member; a gear wheel rotatably mounted thereon; means for supporting the pencil comprising a sleeve having a projection thereon; a projection carried by said gear
 65 wheel adapted to engage the projection on said sleeve; and a cutting element driven by said gear wheel.

9. In a pencil sharpener, in combination, a rotatable pencil-supporting member having a projection thereon; a cutting element; a gear wheel for driving said cutting
 70 element; and a projection on said gear wheel adapted to engage said first mentioned projection for rotating the pencil.

CHARLES C. SPENGLER.

Witnesses:

C. PAUL PARKER,
 GEORGE L. CHINDAHL.