

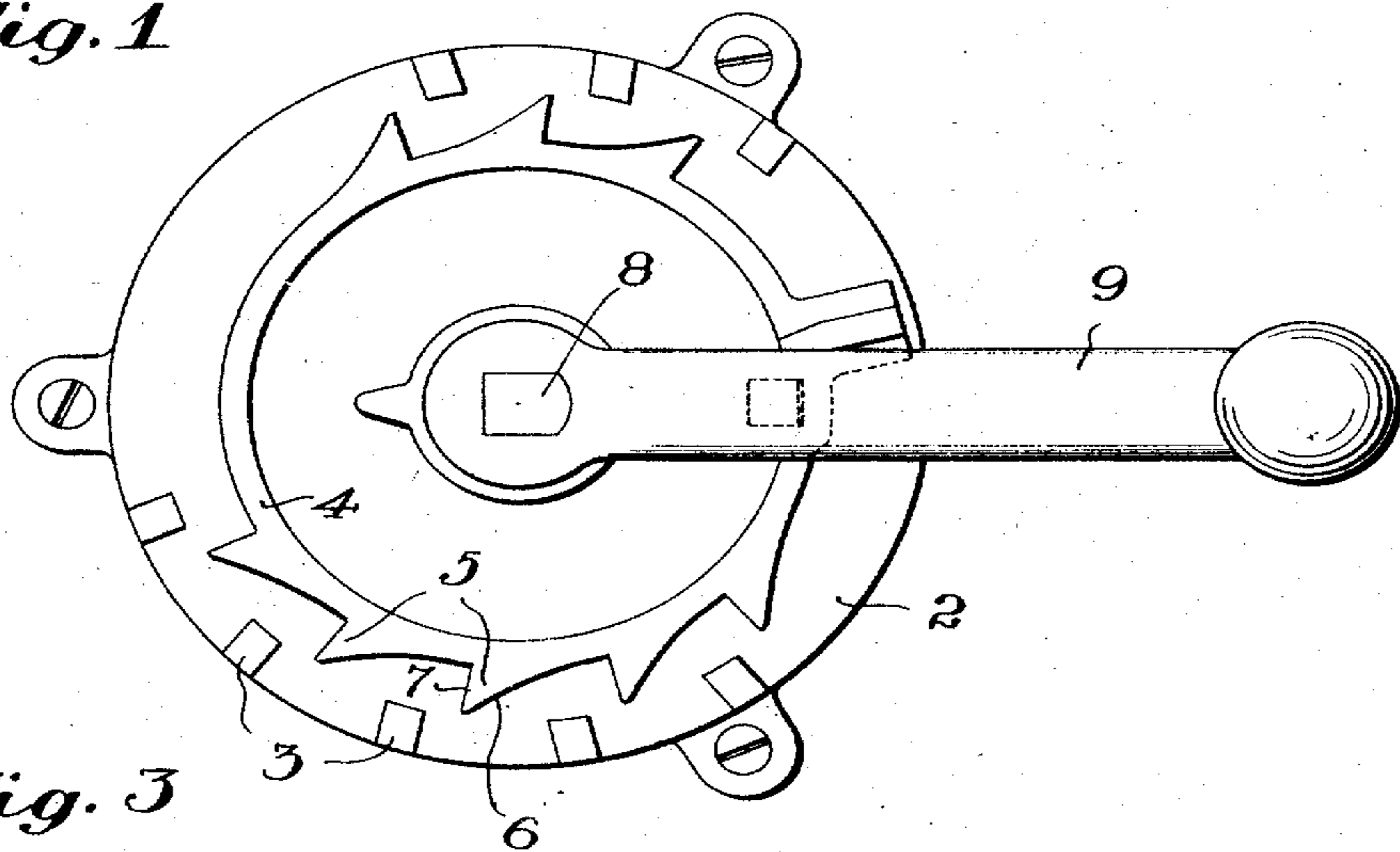
J. P. DURKIN.  
CONTROLLER.

APPLICATION FILED OCT. 15, 1904.

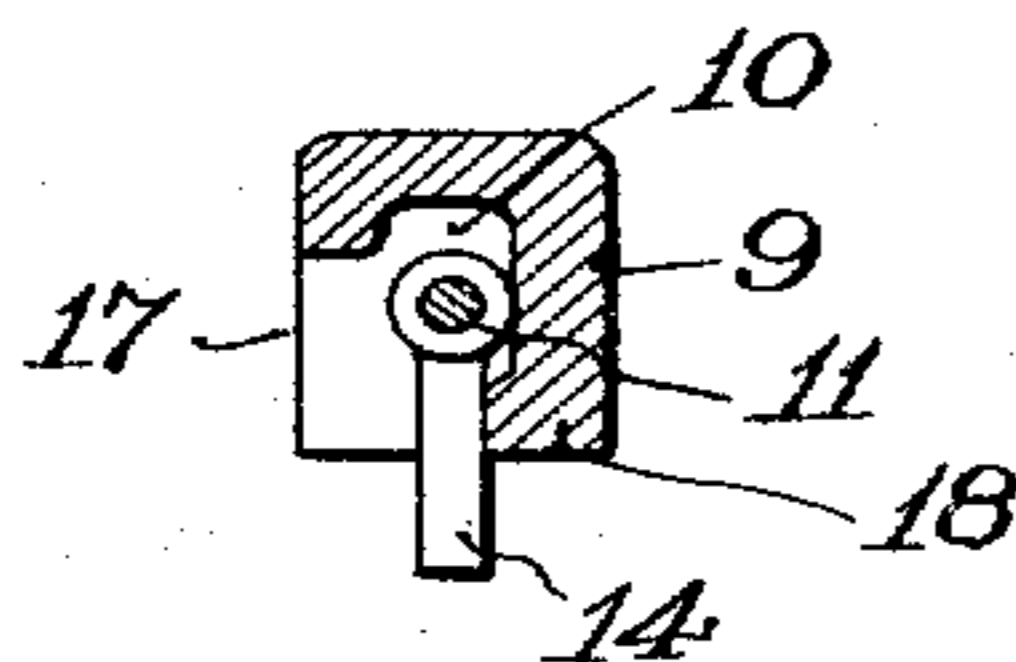
NO MODEL.

2 SHEETS—SHEET 1.

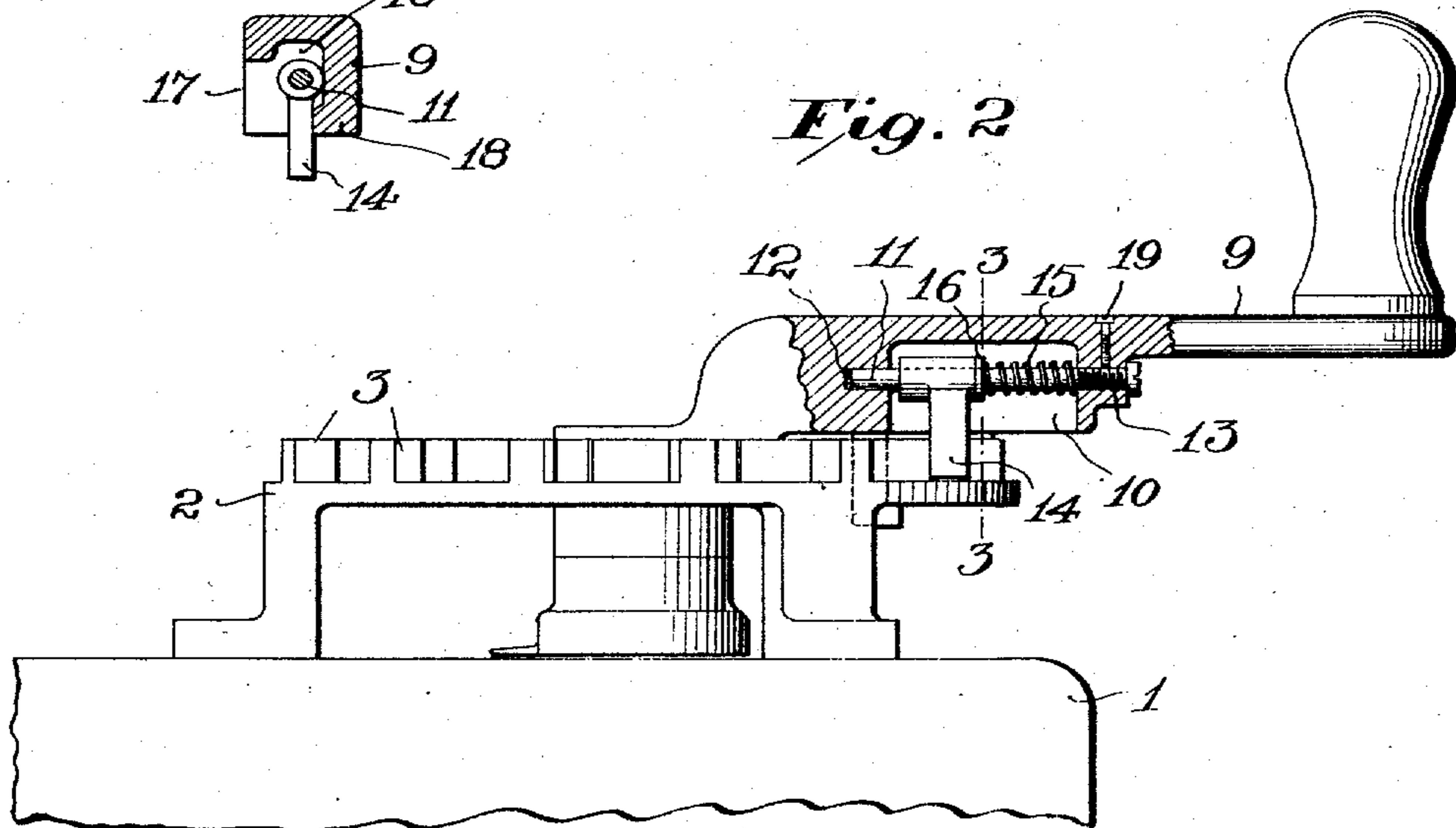
*Fig. 1*



*Fig. 3*



*Fig. 2*



WITNESSES:

*Wm. E. Crane, Jr.*

INVENTOR

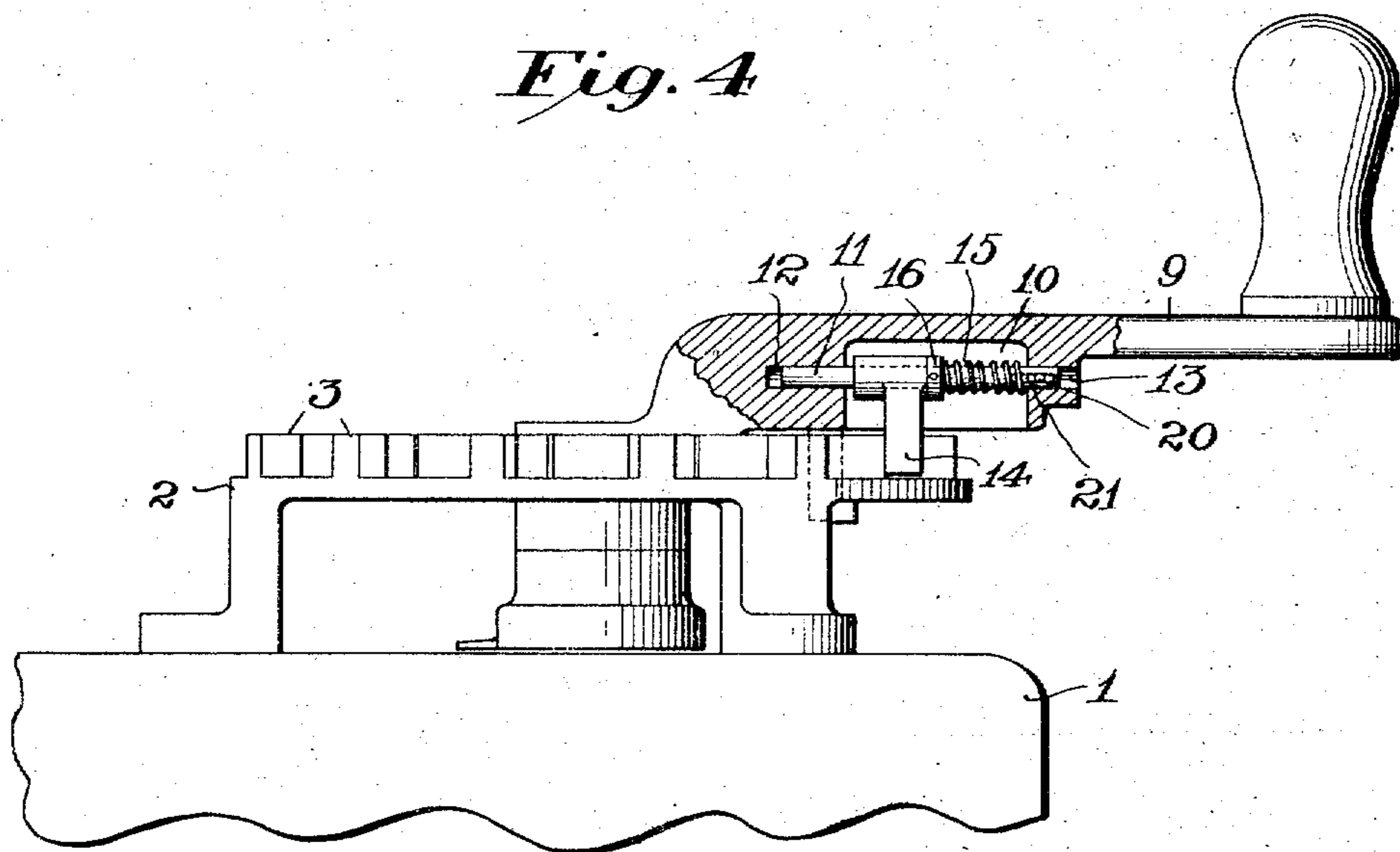
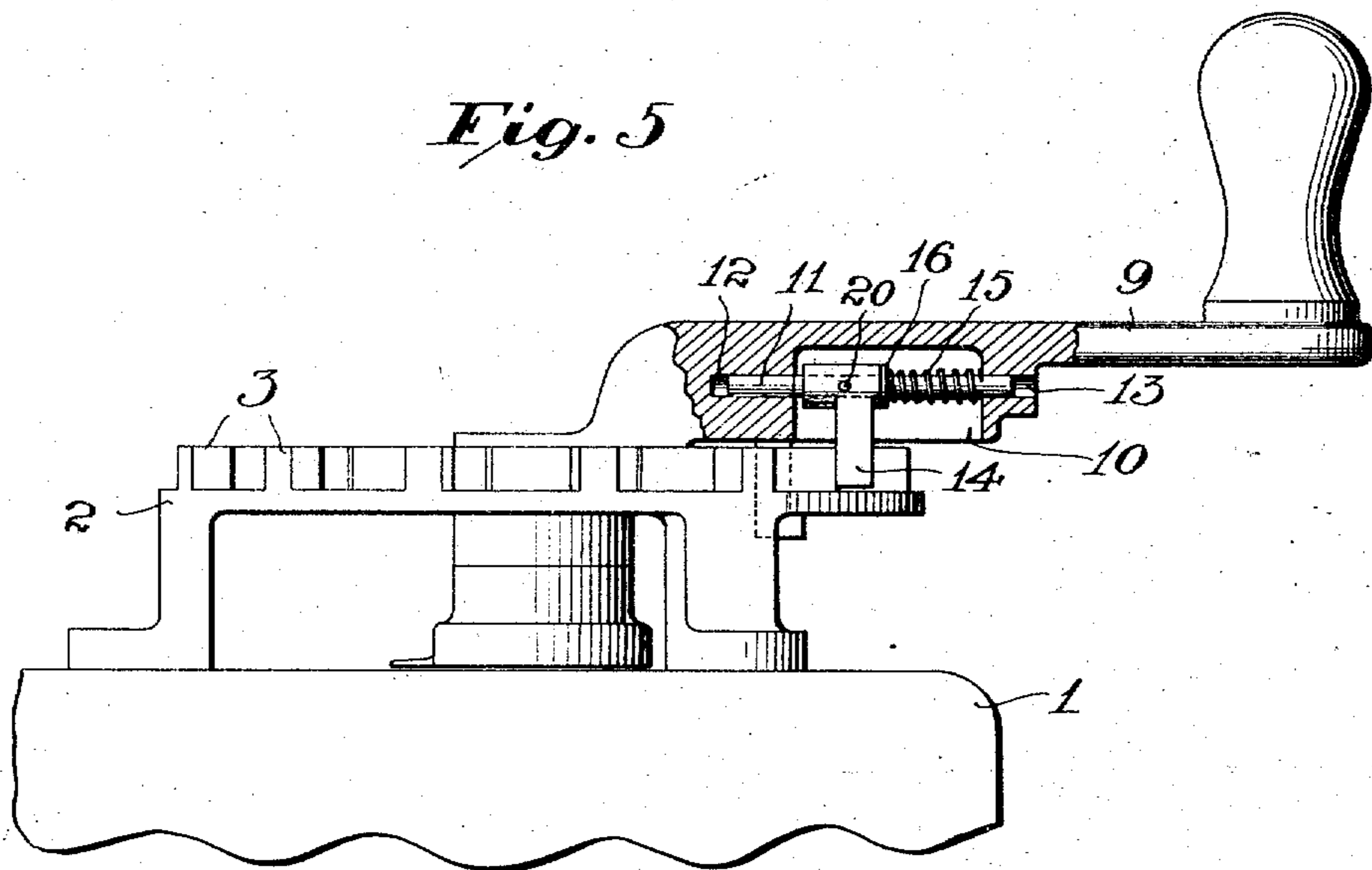
*John P. Durkin*  
BY  
*Charles N. Butler*  
ATTORNEY.

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NO MODEL.

2 SHEETS—SHEET 2.

*Fig. 4**Fig. 5*

WITNESSES:

*W. H. Snyder,*  
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INVENTOR

*John P. Durkin*  
BY

*Charles H. Butler*  
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# UNITED STATES PATENT OFFICE.

JOHN P. DURKIN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO GEORGE B. KIRKBRIDE, WILLIAM S. TAYLOR, AND EDGAR W. BAIRD, OF PHILADELPHIA, PENNSYLVANIA.

## CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 776,895, dated December 6, 1904.

Application filed October 15, 1904. Serial No. 228,609. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN P. DURKIN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Controllers, of which the following is a specification.

This invention relates to improvements in controllers, particularly for electric car-motors, and its leading object is to provide a simplified device for automatically effecting a graduated turning on of the current, preventing it from being thrown on too rapidly, while permitting a reversal or throw-off without retardation.

In the accompanying drawings, Figure 1 represents a plan view of a controller to which my improvements are applied. Fig. 2 represents an elevation of the same, part of the handle being shown in section. Fig. 3 represents a sectional view taken on the line 3 3 of Fig. 2. Fig. 4 represents an elevation having part of the handle shown in section in illustration of a modified construction, and Fig. 5 represents an elevation having part of the handle broken away in illustration of a further modified construction.

As shown in the drawings, the controller-casing 1 supports the ring 2, having thereon the stops 3 and the rack or serrated ring 4, the latter comprising the teeth 5, having faces 6, inclined to the normal, and 7 substantially radial to the ring. The shaft 8 for operating the commutator is engaged and revolved by the handle 9, having in the aperture 10 thereof a bolt 11, carried in bearings 12 and 13 of the handle. A catch 14 is carried by the bolt and is pressed inward by the spring 15, located between the bearing 13 and the washer 16, making contact with the catch, the latter being adapted to reciprocate radially to its path of revolution, to oscillate in the lateral opening 17 of the handle, and to be limited in its oscillatory movement by the handle's depending portion 18.

As shown in Fig. 2, the bolt 11 may be fixed as by a set-screw 19. The catch 14 reciprocates and oscillates on the bolt, the catch be-

ing held normally against the adjacent inclined surface 6 by the spring 15.

As shown in Fig. 4, the bolt 11 is adapted to reciprocate in its bearings 12 and 13, but is held against revolution by the pin 20, set in the handle and passing through the slot 21 in the bolt. The catch 14 is adapted to oscillate on the bolt while its outward reciprocation thereon is limited by fixing the washer 16 to the bolt, the latter being pressed inward by the spring 15 to hold the catch in its normal position against the adjacent inclined surface 6.

As shown in Fig. 5, the catch 14 may be fixed, as by the pin 20, to the bolt 11, which is adapted to reciprocate and oscillate in its bearings 12 and 13, the spring 15 pressing the bolt and the catch fixed thereon inward to hold the catch in its normal position in contact with the rack.

In operation as the handle is revolved in the forward direction to throw on the current the catch will be thrown out by the inclined surface, against which it bears, together with the momentum of revolution, into engagement with the stop in its path, by which the revolution is checked. Upon relieving the pressure on the handle the spring throws the catch inward again, permitting the handle to be advanced again, the operation continuing in the same way. When it is desired to reverse and throw off the current, this can be accomplished without retardation, as the catch is free to rock so as to ride over the rack.

Having described my invention, I claim—

1. A controller having a handle, a catch connected with said handle, an inclined surface, a spring for causing said catch to engage with said surface, and a stop against which said catch is thrown by said surface and the movement of said handle, said spring disengaging said catch from said stop, substantially as specified.

2. A controller having a handle, a bolt carried by said handle, an oscillating catch connected with said bolt, a serrated rack, means for automatically throwing said catch into position to engage said rack, and a series of stops

into the path of which said catch is thrown by said rack and the movement of said handle, substantially as specified.

3. A controller having a handle, a bolt carried by said handle, a catch having a movable connection with said bolt, a serrated rack, means for automatically throwing said catch into position to engage said rack, and a series of stops into the path of which said catch is thrown by said rack and the movement of said handle, substantially as specified.

4. A controller having a handle, a bolt connected with said handle, a reciprocating catch adapted to oscillate on said bolt, a serrated rack, automatic mechanism for causing said catch to occupy a position to be engaged by said rack, and a series of stops against which

said rack throws said catch successively, substantially as specified.

5. A controller having a handle, a bolt adapted to reciprocate in said handle, a catch adapted to oscillate on said bolt, an inclined surface, automatic mechanism for causing said catch to engage said inclined surface, and a stop against which said catch is thrown by said inclined surface and the revolution of said handle, substantially as specified.

In testimony whereof I have hereunto set my hand, this 1st day of October, 1904, in the presence of the subscribing witnesses.

JOHN P. DURKIN.

Witnesses:

CHARLES N. BUTLER,  
UTLEY E. CRANE, Jr.

Corrections in Letters Patent No. 776,895.

It is hereby certified that Letters Patent No. 776,895, granted December 6, 1904, upon the application of John P. Durkin, of Philadelphia, Pennsylvania, for an improvement in "Controllers," was erroneously issued to the inventor, John P. Durkin, and George B. Kirkbride, William S. Taylor, and Edgar W. Baird, as assignees of one-half interest in said invention; whereas the said Letters Patent should have been granted to said *George B. Kirkbride, William S. Taylor, and Edgar W. Baird*, they being sole owners of the entire interest as shown by the assignments of record in the Patent Office; also that the words "one-half" in line 7 of the grant, and the words "of one-half" in the heading to the printed specification should be stricken out; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 20th day of December, A. D., 1904.

[SEAL.]

F. I. ALLEN,  
*Commissioner of Patents.*

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