

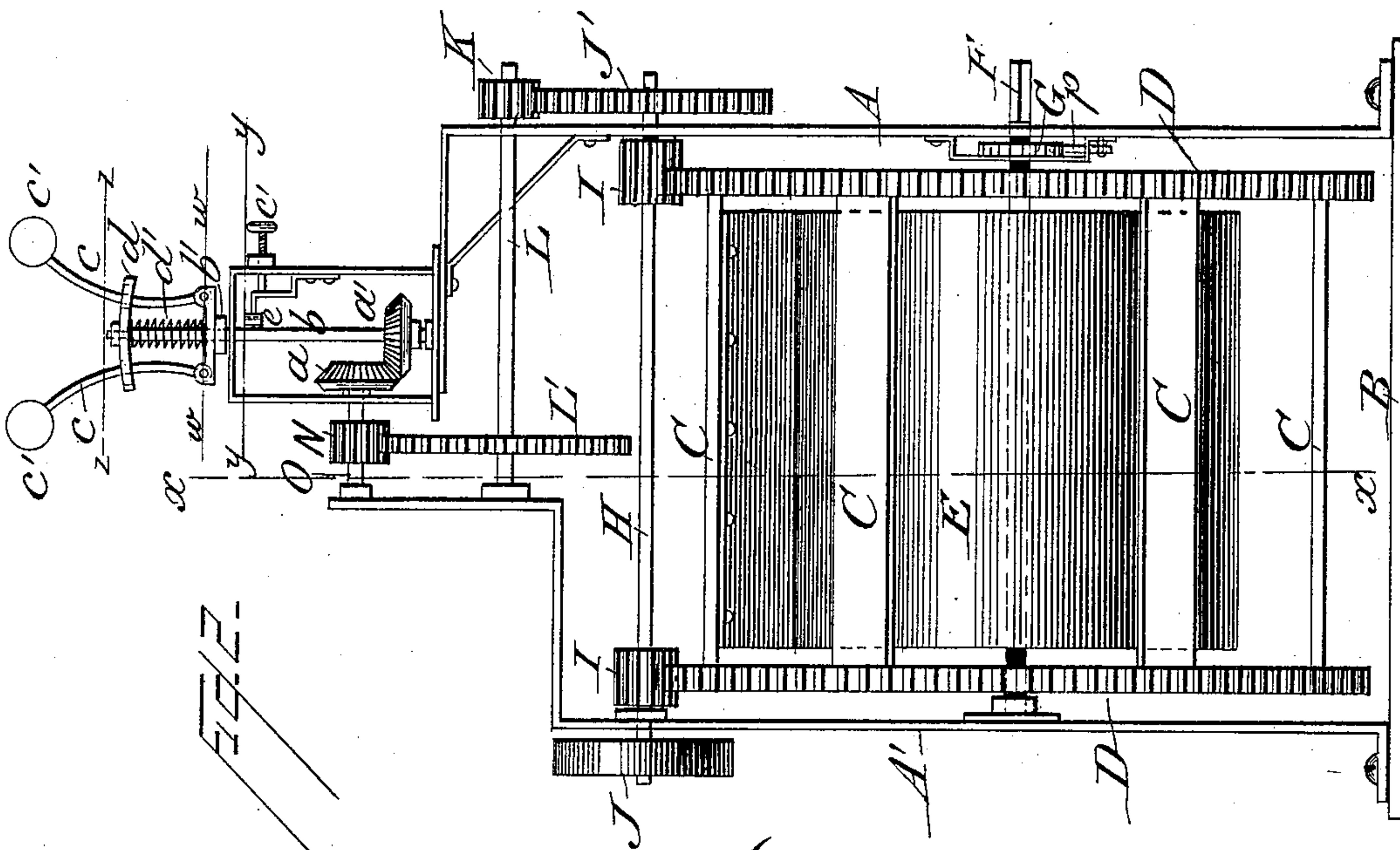
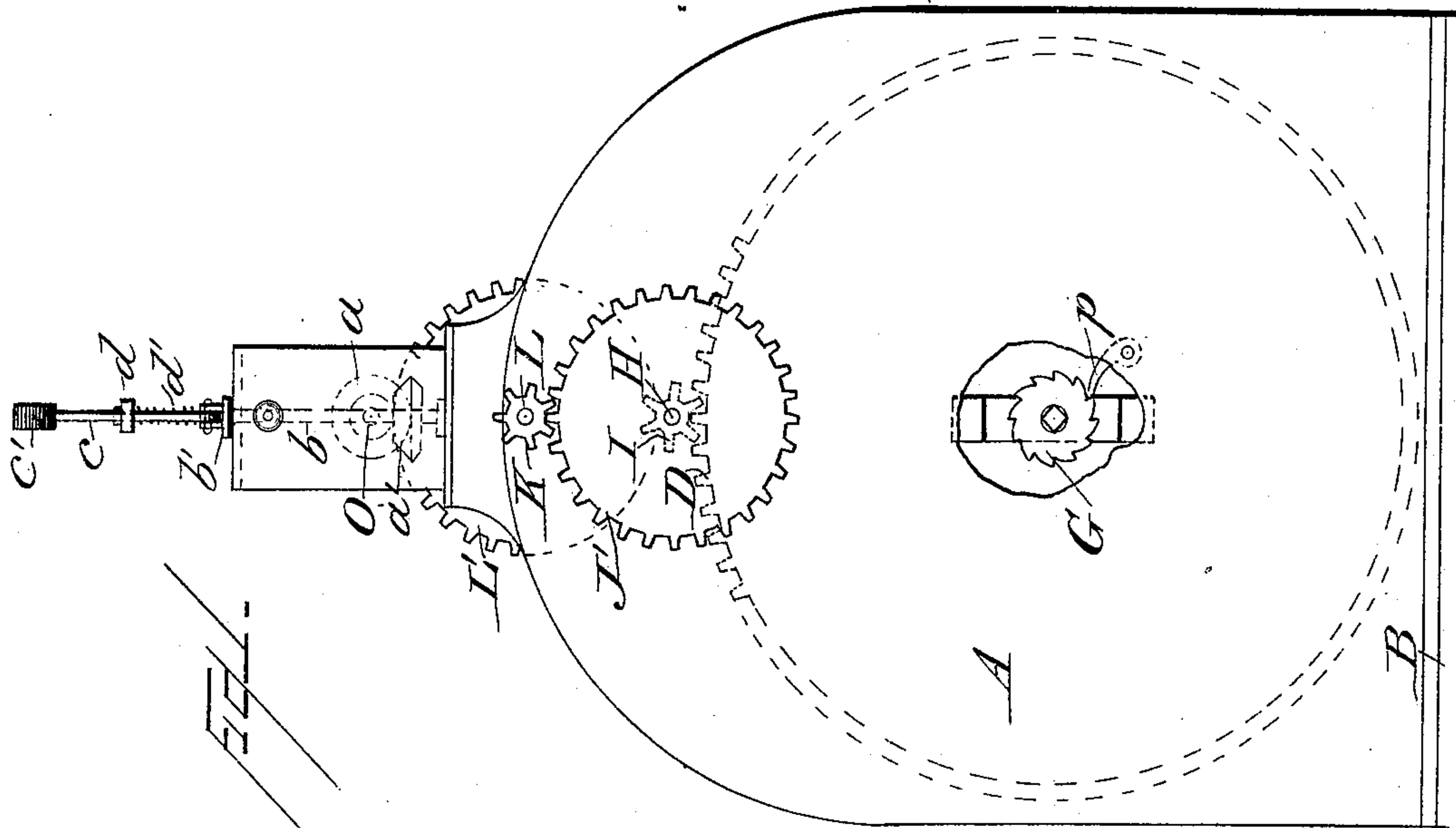
(No Model.)

2 Sheets—Sheet 1.

A. MEAHL.  
SPRING MOTOR.

No. 401,047.

Patented Apr. 9, 1889.



Witnesses

J. H. Schott  
W. H. Chandler

Adam Meahl Inventor,  
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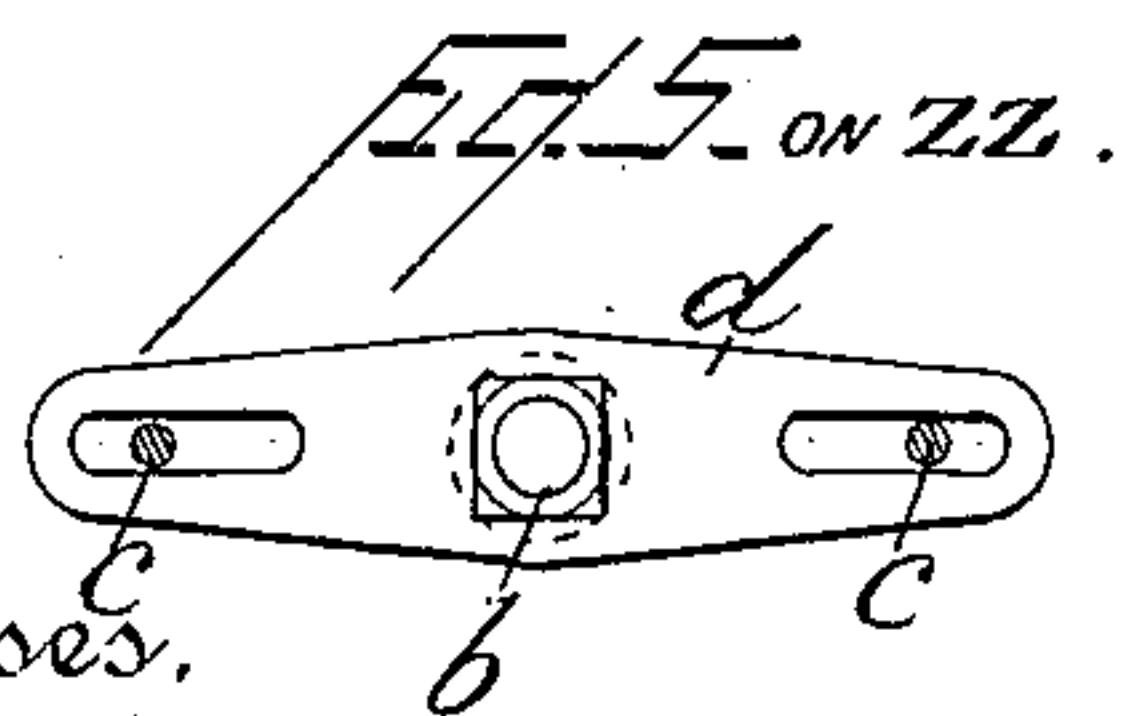
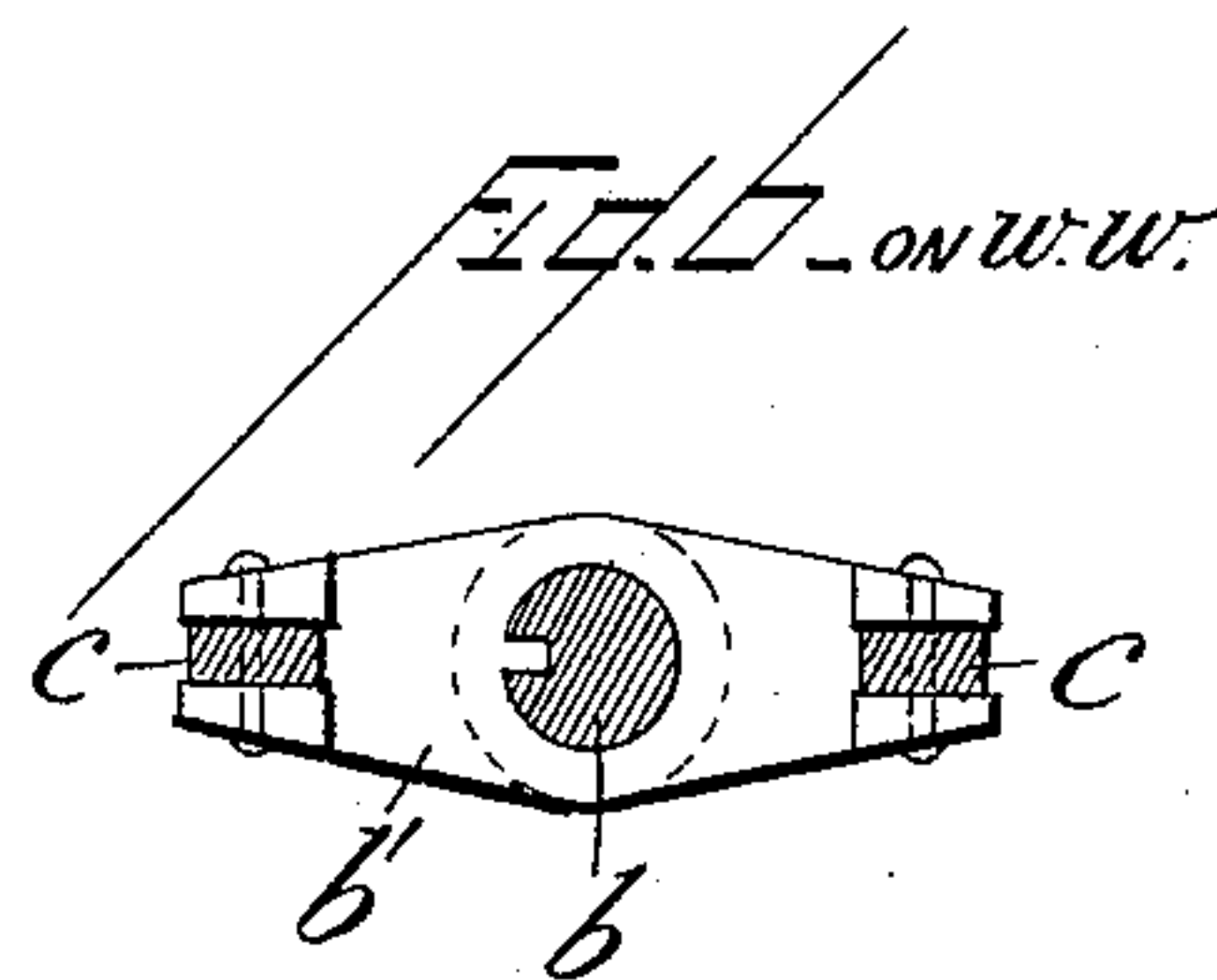
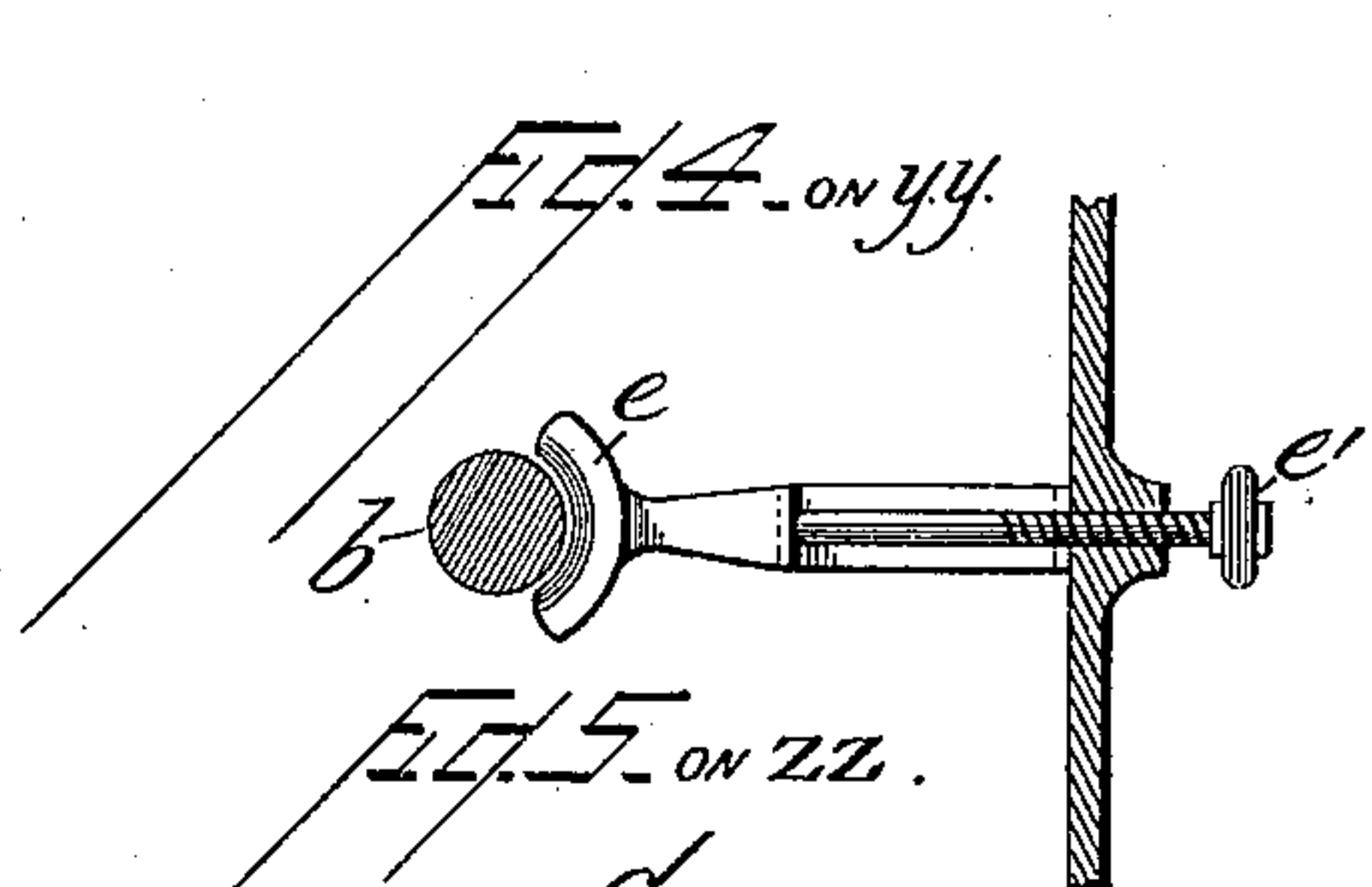
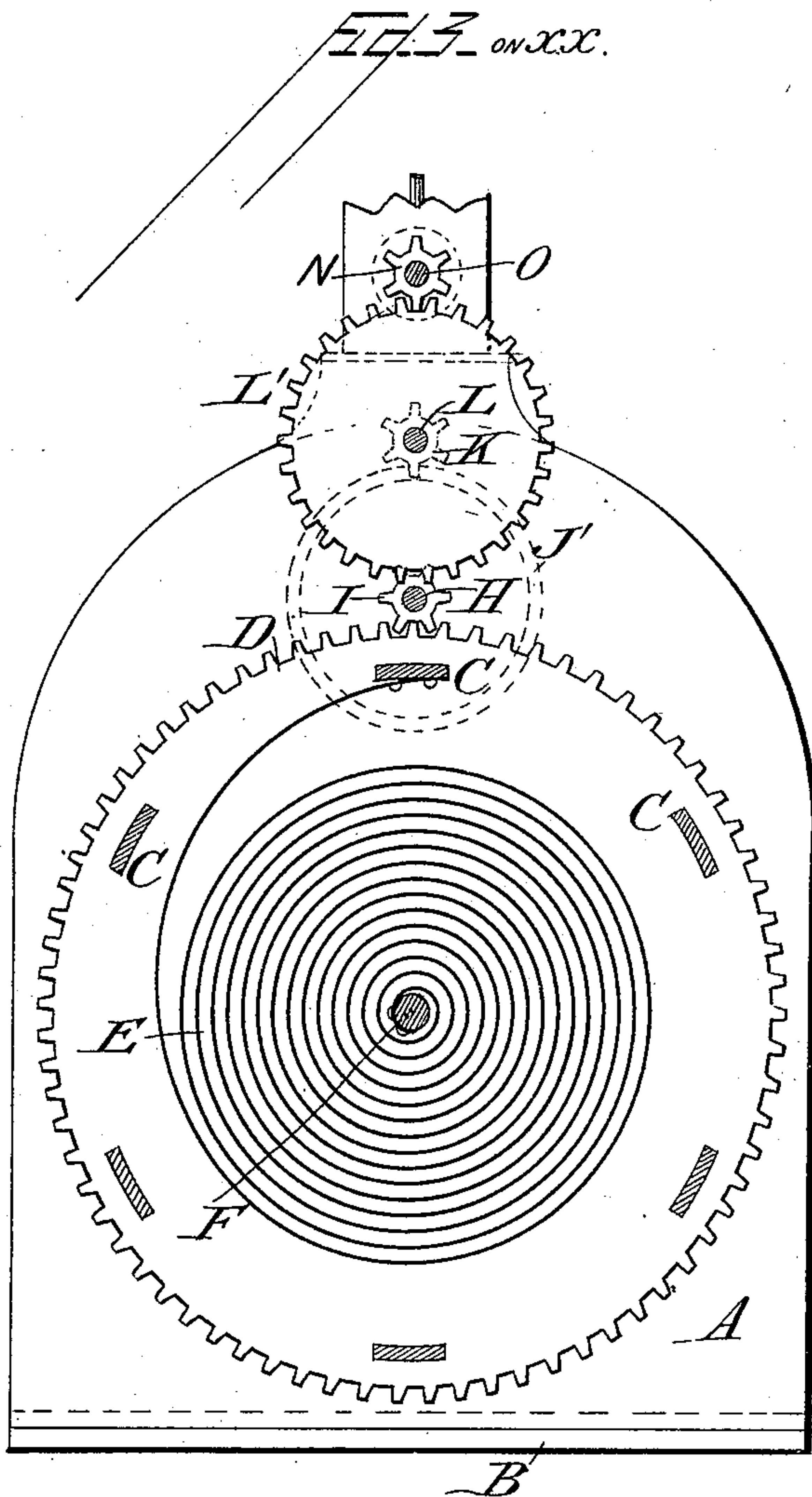
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# UNITED STATES PATENT OFFICE.

ADAM MEAHL, OF CAIRO, KENTUCKY.

## SPRING-MOTOR.

SPECIFICATION forming part of Letters Patent No. 401,047, dated April 9, 1889.

Application filed June 21, 1888. Serial No. 277,766. (No model.)

*To all whom it may concern:*

Be it known that I, ADAM MEAHL, a citizen of the United States, residing at Cairo, in the county of Henderson, State of Kentucky, have  
5 invented certain new and useful Improvements in Spring-Motors; and I do declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to  
10 make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Figure 1 is a front elevation showing the  
15 frame and spring-winding devices. Fig. 2 is a side elevation illustrating the arrangement in the frame of the spring and its connecting-gearing. Fig. 3 is a vertical section on line *x x*, Fig. 2; and Figs. 4, 5, and 6 are  
20 detail views of parts of the machine upon an enlarged scale.

This invention relates especially to that class of spring-motors employed for the purpose of driving rotary fans or other light work;  
25 but by increasing the strength of the spring and other parts it may be used for many other purposes, such as driving small lathes or other tools used by clock and watch makers, and may even be employed to drive a saw,  
30 churn, or other implement used upon the farm.

In carrying out my improvement I first provide a strong frame, in which is journaled the spring-shaft to which one end of the spring is attached, its opposite end being connected to  
35 the spring-case, which revolves upon said shaft within the frame. The ends of this spring-case are formed of two gear-wheels, which engage with pinions upon another shaft provided with a band-pulley at one end and a  
40 gear-wheel at the other, and revolving in suitable journal-boxes supported by the frame. This gear-wheel by engaging with another gives motion to another shaft, which gives motion to a governor by which the speed of the  
45 machine is regulated, the pulley upon the opposite end of the shaft being employed to convey motion to the machine or implement to be operated by the motor.

To give a better understanding of the construction of the machine, I will describe it in  
50 detail in connection with the drawings.

A is the front portion of the frame, and A'

the rear portion. These parts are preferably formed from two plates of metal, and are secured to the base or bed piece B at their lower  
55 ends, thus being retained in a vertical position at a suitable distance from each other to receive between them the spring-case. This case is formed by connecting the peripheries of two spur gear-wheels, D D, by means of  
60 cross-bars C, in any suitable manner, thus forming a cage, within which is placed the spring E. This spring is made from a long plate of suitable metal, one end firmly attached to the winding-shaft F and the other to one  
65 of the cross-bars C. The winding-shaft F projects at one end through the plate A, and has secured upon it a ratchet-wheel, G, with which engages the spring-locking pawl *p*. From this construction it will be seen that when the  
70 spring is wound up by applying a crank to the projecting end of the winding-shaft and turning the same it will be prevented from unwinding by the pawl and ratchet, and will therefore have a tendency to rotate the case  
75 around the winding-shaft upon which it is journaled. Revolving in journal-boxes forming a part of or attached to the plates A and A' of the frame is a shaft, H. This shaft is provided with spur-pinions I I, which engage  
80 with the spur-wheels D D, forming a part of the spring-case. The shaft H projects at both ends beyond its journals, carrying firmly secured upon one end thereof the band-pulley  
85 J, conveying power from the motor to the machine or implement to which it is to be applied.

From this description of the construction of the motor it is evident that when the spring is wound up, unless restrained, it will rotate the case within which it is confined, and that  
90 such rotation through the engagement of the gears D with the pinions I upon the shaft H will revolve said shaft; but as the speed of this revolution would be much greater when the spring was first wound up than when it had  
95 nearly expended its power, it becomes necessary to provide some means for regulating this speed, so that it may be nearly the same at all times. This I accomplish by means of the toothed gear-wheel J' upon the shaft H,  
100 engaging with the toothed gear K upon one end of a shaft, L. This shaft is carried in bearings upon an extension of the frame of the motor, and is provided with a gear-wheel,



L', which engages with the pinion N upon horizontal shaft O. This shaft has upon one end the miter-gear *a*, which engages with a similar wheel, *a'*, upon the vertical spindle *b*.  
 5 This spindle is provided with a flanged collar, *b'*, to which are pivoted the two arms *c c*, which arms pass through the slotted cross-piece *d* on the upper end of the spindle *b*, and are provided at their extremities with the  
 10 weights or fans *c'*. A spring, *d'*, is coiled around the spindle *b* between the collar *b'* and the slotted cross-piece *d*. The object of this spring is to keep the arms in an upright position by holding the collar *b'* down. It  
 15 will be apparent that as the speed of the spindle increases the arms *c'* will be thrown outward by the centrifugal force, and that the position of the weights or fans *c'* will thus be changed from a point near the spindle to one  
 20 farther away from it, and that as this distance increases the greater will be the resistance of the fans to rotation, thus neutralizing the increased power of the spring when first wound up and equalizing the speed of the machine.  
 25 In order to provide an additional means for controlling the movements of the machine or of stopping it entirely, if desired, I provide a brake composed of a suitable pad or brake-block, *e*, attached to a spring secured to the  
 30 spindle-supporting frame and operated by a

screw, *e'*, passing through a nut attached to said frame. Thus by forcing the brake-pad against the spindle by means of the screw its speed may be lessened or its rotation wholly prevented.

To the pulley J are attached by means of a band any of the various machines the motor is designed to operate, the size of the various parts of said motor and the power of its spring being proportioned to the work it is  
 40 proposed to accomplish by its use.

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

In a spring-motor, the combination of the  
 45 spring C, the mechanism for winding the same, the gearing for conveying motion to the spindle *b*, the flanged collar *b'*, movably attached to said spindle, the arms *c c*, attached to its outer edge, the cross-piece *d*, attached to the  
 50 top of the spindle and having the arms *c c* passing through its ends, and the spring between the cross-piece and flanged collar, all arranged substantially as set forth.

In testimony whereof I hereunto affix my  
 55 signature in presence of two witnesses.

ADAM MEAHL.

Witnesses:

W. T. COTTINGHAM,  
 J. A. PHILLIPS.