

(No Model.)

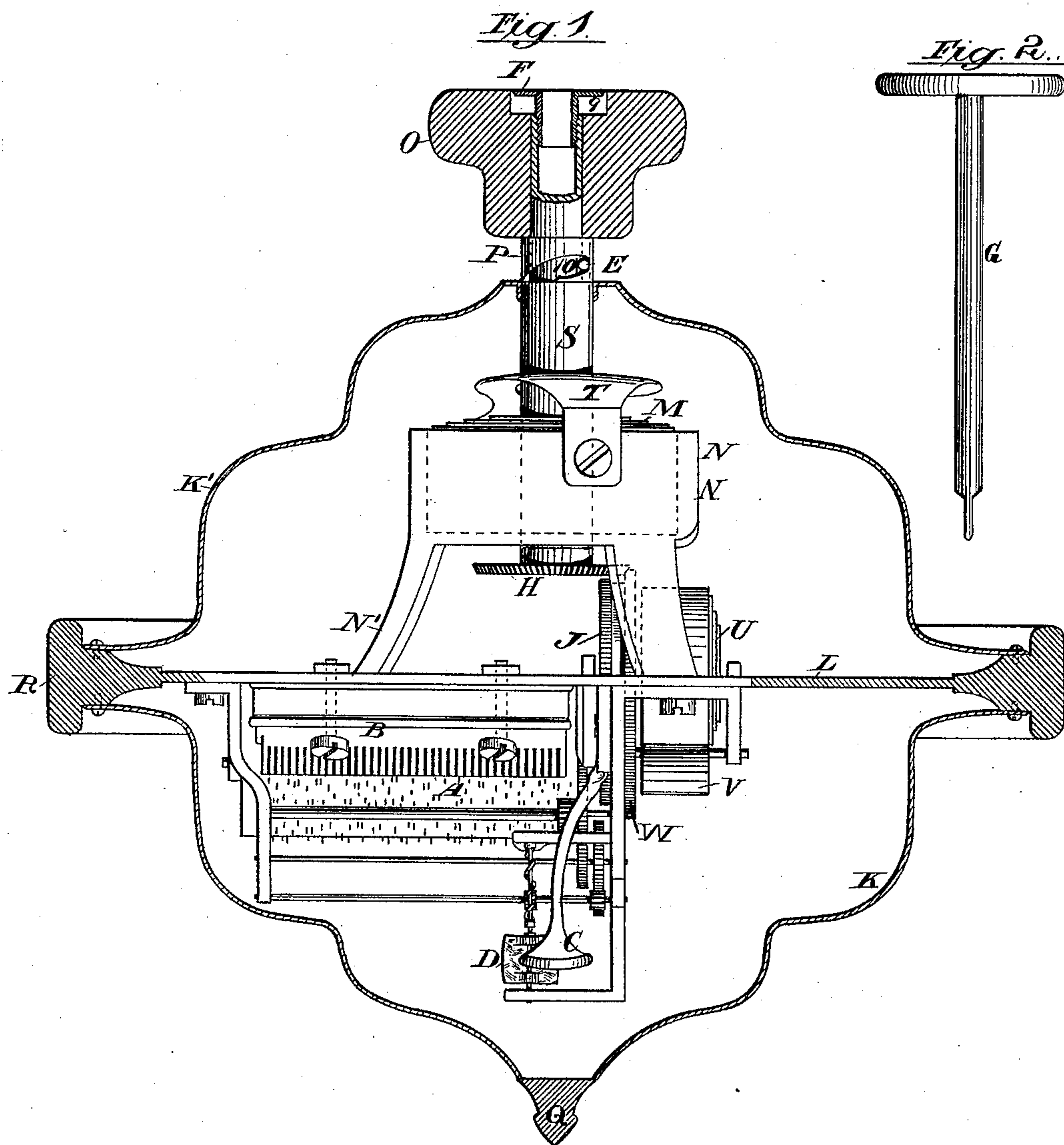
3 Sheets—Sheet 1.

W. E. ROBINSON.

MUSICAL TOP.

No. 362,463.

Patented May 3, 1887.



Attest:

George H. Botts
Geo. H. Graham

Inventor:

Ward E. Robinson,
Munsell & Philipp,
attys.

(No Model.)

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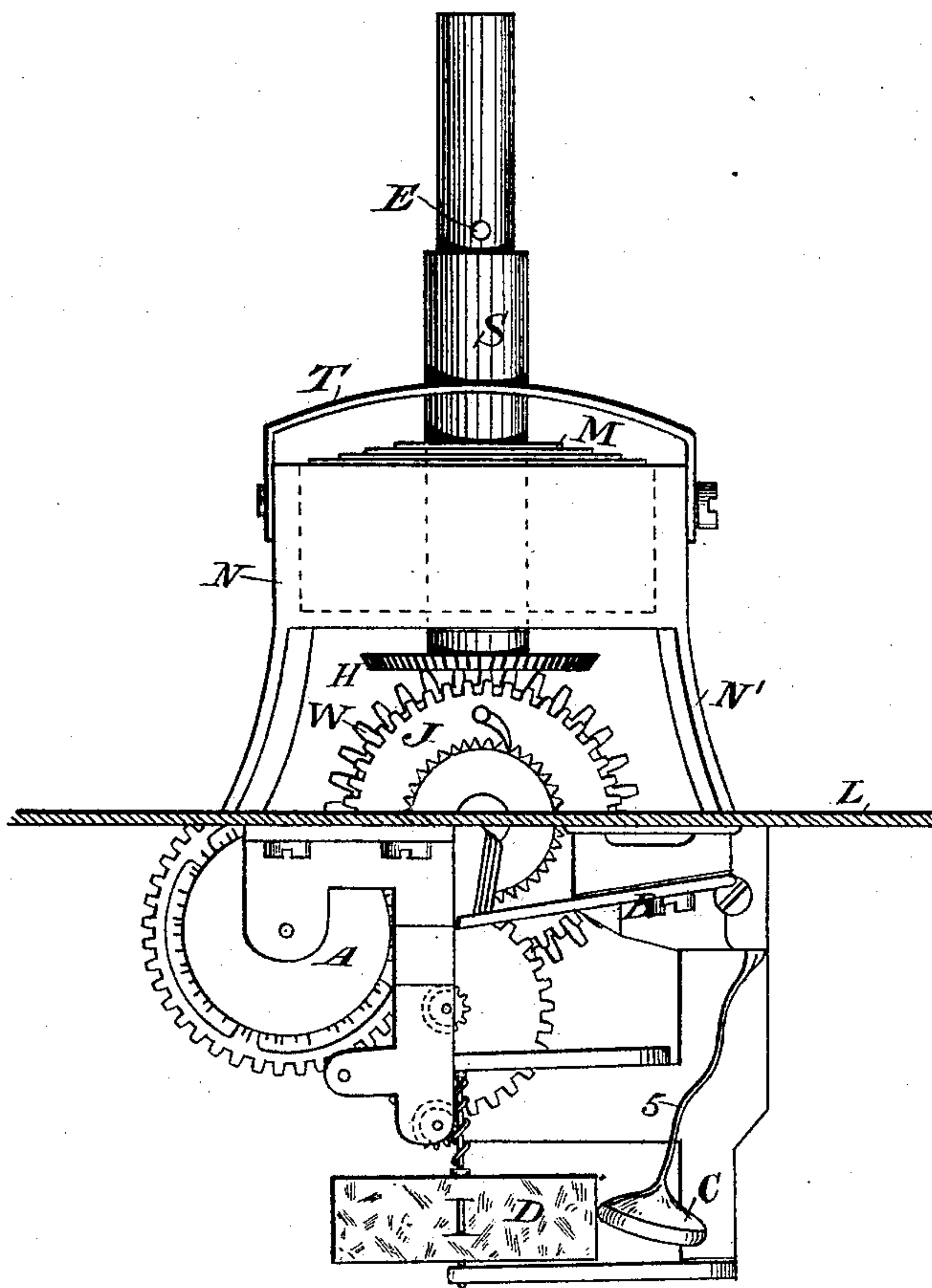
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Fig. 3.



Attest:

George H. Botts.
Geo. M. Graham

Inventor:

W. E. Robinson,
by Messrs. Philipp
attys.

(No Model.)

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Fig. 5.

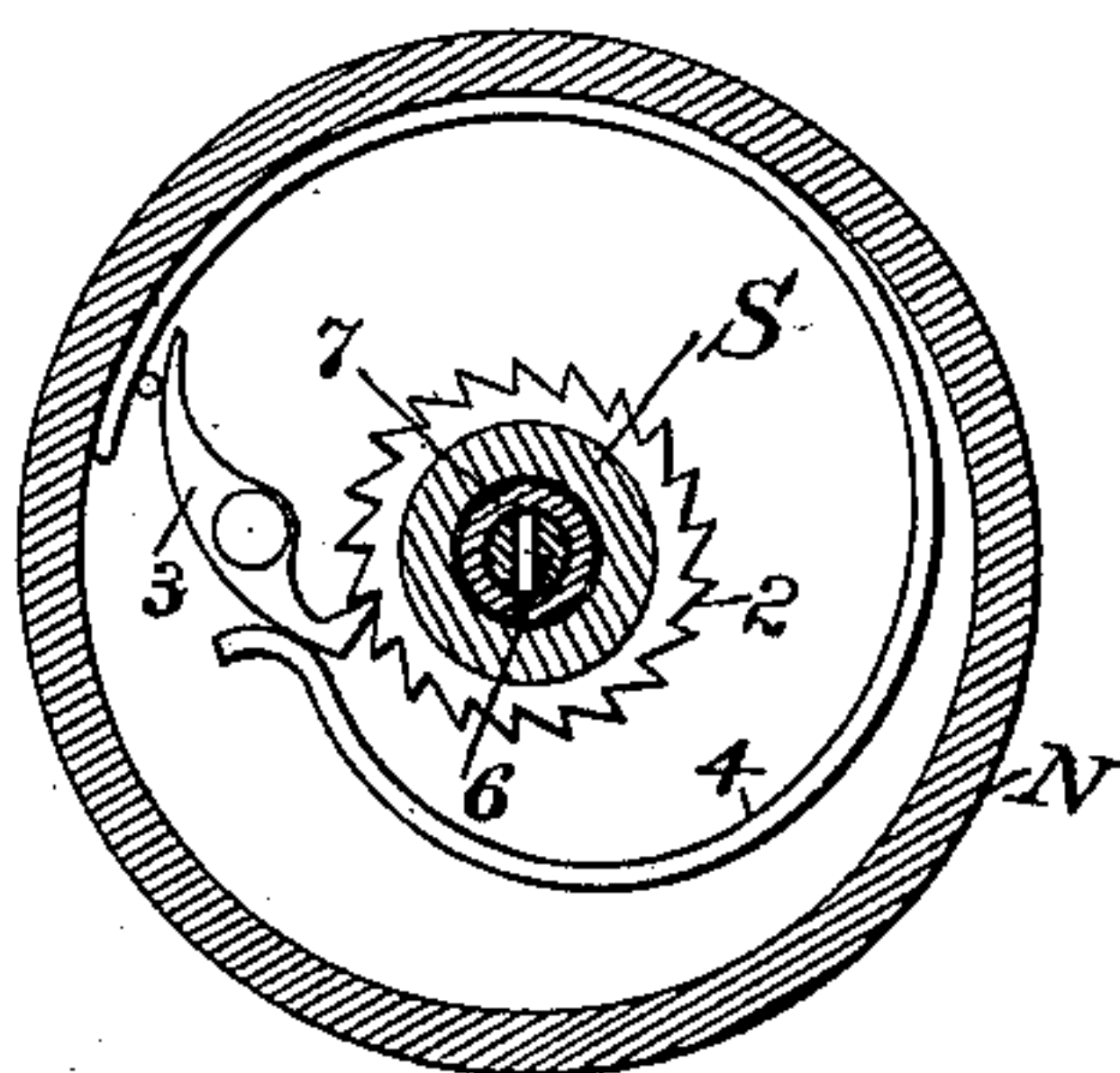
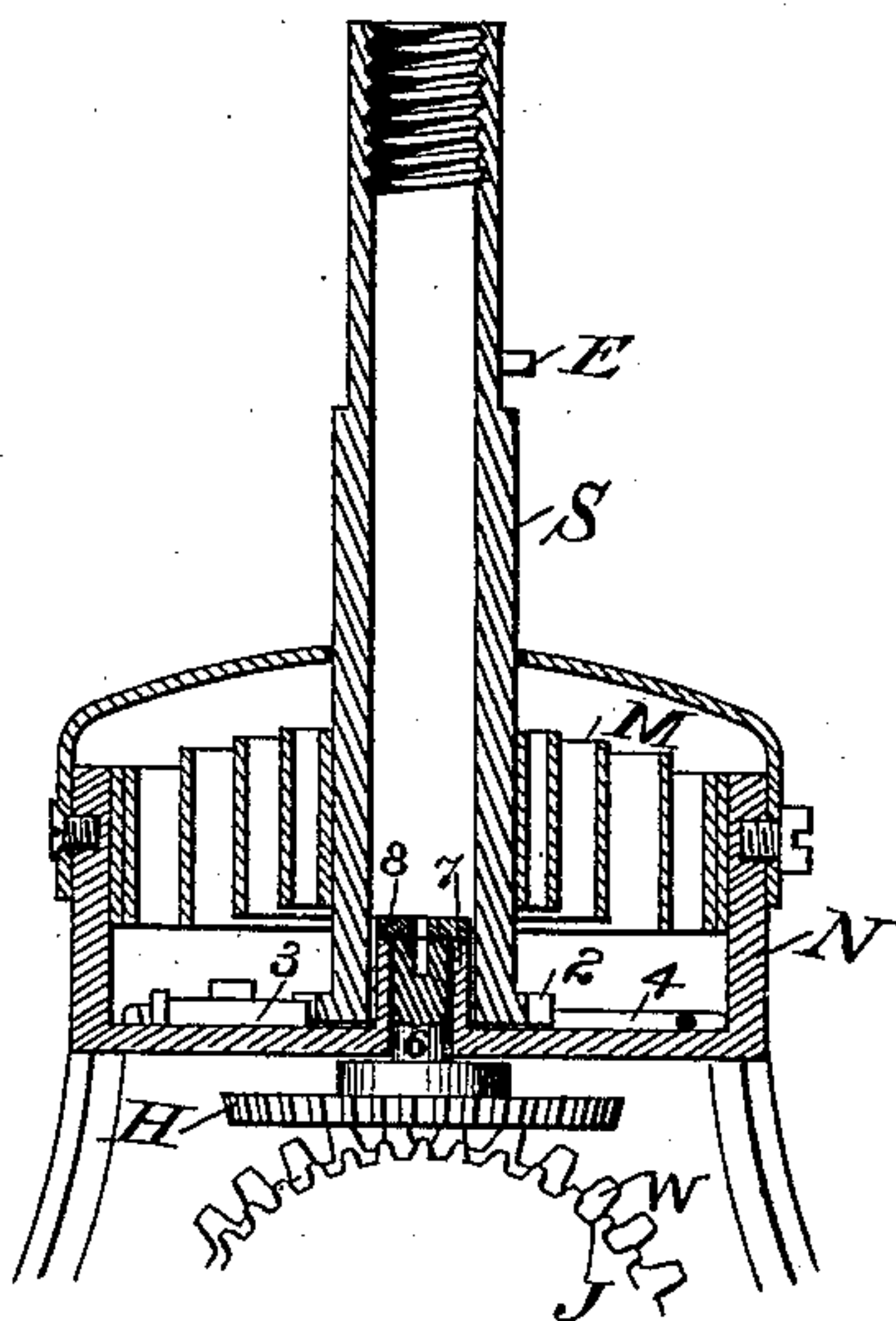


Fig. 4.



Attest:

George H. Bott.
Geo. H. Graham

Inventor:

Ward E. Robinson,
by Munson & Philpott,
Attys.

UNITED STATES PATENT OFFICE.

WARD E. ROBINSON, OF NEW YORK, N. Y., ASSIGNOR TO EMILY McNEIL,
OF SAME PLACE.

MUSICAL TOP.

SPECIFICATION forming part of Letters Patent No. 362,463, dated May 3, 1887.

Application filed September 1, 1884. Serial No. 141,939. (No model.)

To all whom it may concern:

Be it known that I, WARD E. ROBINSON, a citizen of the United States, residing in the city of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Musical Tops, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

In said drawings, Figure 1 represents a vertical diametrical sectional elevation of the top with its interior in elevation. Fig. 2 represents a winding-key. Fig. 3 represents the interior mechanisms in elevation, the view being at right angles to that of Fig. 1. Fig. 4 represents a vertical section of the driving devices, and Fig. 5 a horizontal plan view of the pawl and ratchet connected with the driving-shaft.

The object of this invention is the production of a spinning-top provided with means for causing its rotation, and with a music-producing apparatus that is set into operation by the rotative movement of the top.

The invention consists in a spinning-top having within its interior a driving mechanism for propelling it, a mechanical musical instrument, and a governing device operated by the rotation of the top to control the action of the musical instrument.

It also comprises combinations of mechanical devices, as hereinafter specifically pointed out.

The various parts of the top are sustained by means of a central metal disk, L, the outer portion of which is expanded to form a heavy rim, R, at its periphery, to which rim are secured the upper dome-like shell, K', and the cone-like lower shell, K. The upper shell, K', is secured by its outer flange to the rim R, and is provided centrally at its upper end with an opening that forms a bearing for the driving-shaft S. The lower shell, K, is secured by its outer flange to the rim R, and at its lower end is provided centrally with a foot or spinning-point, Q. The two shells, in connection with the disk L, thus form a hollow conoidal body that provides a casing and support for the mechanisms.

The driving mechanism consists of a main

spring, M, a driving-shaft, S, and a clutching device, by which the shaft may be secured in any position of its rotation. The mainspring is contained in a circular housing, N, that is supported by legs N', rising from the disk L, and a bridge-piece, T, that embraces the shaft S. The mainspring is attached at one end to the shaft S, and at the other to the housing N, and winds up on the shaft S inside of the housing, its wound condition being secured by means of a clutching device consisting of a ratchet-wheel, 2, fast at the lower end of the shaft, and a pawl, 3, pivoted to the bottom plate of the housing N, and held to duty by a light spring, 4. The winding up of the spring is effected through the driving-shaft, which is provided with a stud, E, that may be engaged by the spiral slot 10 in the neck P of a winding-head, O.

The mechanical musical device consists of a music-box mechanism made up of a comb, B, a barrel, A, with pins, and means for rotating the barrel, composed in this instance of a coiled spring, U, fixed at one end to a pin, V, and attached at the other to the shaft of a driving-wheel, J, which, through a suitable train of wheels, properly rotates the barrel and drives the regulator-fan D. The wheel J is connected to its shaft by means of a pawl and ratchet, as shown in Fig. 3. In connection with said regulator-fan a delicate plate-spring, 5, with a heavy head, C, is arranged in such position that in its normal state the spring will sustain the head C within the range of movement of one blade of the regulator-fan, and thus prevent the musical instrument from operating.

The propelling-spring U of the musical instrument is wound up by means of a wheel, W, connected with the shaft of wheel J, and meshing with a wheel, H, that is provided with a shaft, 6, that is slotted to receive a winding-key, G. The wheel H is mounted to turn in the housing N by means of its short shaft 6, that is journaled in a circular seat, 7, rising from the bottom of the housing N, said shaft being secured in place by a collar, 8. This seat 7 also serves as a bearing for the shaft S, as seen in Fig. 4.

The disk L, its rim R, and the housing N may all be cast in one piece or made in separate

rate parts, as may be desired, and the shells K and K' may be of metal or any other suitable material.

When the parts are assembled as in Fig. 1, the winding-head O is secured to the shaft S by means of a hollow screw-cap, F, that is inserted into the threaded upper end of the shaft S; but the winding-head O is recessed as at 9, so as to admit of its vertical play, for a purpose to be explained.

The shaft S is hollow, and the cap F is perforated to admit the passage of the key G to enter the shaft 6. The musical instrument having been wound up by turning its shaft 6 through the key G, its mechanisms will be prevented from operating by means of the head C being held in position to intercept the regulating-fan and suspend its movements by the spring 5. The propelling-spring M of the top is then wound up by pressing the winding head O downward and turning it so that its slot 10 shall engage the stud E, whereupon the shaft S will be turned to coil the spring M about it, and the ratchet 2 and pawl 3 will secure the wound condition of the spring.

To apply the spring and cause the rotation of the top, the winding-head O is drawn outward, the recess 9 permitting such movement, and thus disengages the ratchet 2 from its holding-pawl 3, whereupon the spring M will apply its resilient force through the housing N to the top-body and cause it to spin rapidly, the inertia of the heavy body and rim R continuing the movement for a considerable time. The moment a rapid rotation of the top is attained the centrifugal force will cause the heavy head C of the spring 5 to move away from the regulating-fan D, thus releasing the same and permitting the musical instrument to operate. The instrument will play so long as the top spins and its centrifugal force holds the head C clear of the fan; but when the top ceases its rotation the spring 5 will bear the head C into contact with the fan D and suspend the music.

By locating the winding mechanism within the body of the top and permanently combined therewith liability of its loss, due to the old arrangement of a detached winding device, is avoided, while a compactness of parts and an arrangement of them conducing greatly to the perfect spinning of the top are effected.

The structure of parts is such that an effective, cheap, and automatic musical toy top is not only produced, but its mechanisms are so combined, housed, driven, and controlled as to be preserved intact and not to be liable to displacement or injury.

I am aware that a musical instrument combined with a spinning-top has heretofore been shown as provided with an arresting device, which was operated by centrifugal force, and hence such an arrangement is not herein claimed, broadly.

I am aware that a reciprocating spindle and a device for releasing a driving-spring are old in a driving device which is detached when the top is spun, and such is not claimed herein; but

What is claimed is—

1. A top provided with a driving mechanism located within its body and rotating therewith, substantially as described.

2. A top provided with a driving mechanism and a mechanical musical instrument, both of which are located within the body of the top and rotate therewith, substantially as described.

3. A top provided with a driving mechanism and a mechanical musical instrument, both of which are located within the body of the top and rotate therewith, in combination with a centrifugal governor carried by the top for controlling the operation of the musical instrument, substantially as described.

4. The combination, with the top-body and the driving-spring M, of the longitudinally-moving winding-shaft S, carried by said top-body, and a locking device for locking the shaft to prevent the uncoiling of the spring when the shaft is moved in one direction, said locking device being arranged to permit the spring to uncoil when the shaft is moved in the other direction, substantially as described.

5. A top having a body provided with a horizontal diaphragm or partition, and having its driving mechanism secured to one side of said partition, and a mechanical musical instrument secured to the other side thereof, substantially as described.

6. In a musical top, the combination, with a mechanical musical instrument, its motor-spring, and connections between the two, all located in the body of the top, of the winding-shaft 6, connected to the motor-spring and arranged to be operated through an opening in the shaft which winds the driving-spring of the top, substantially as described.

7. The combination, with the body of the top, of the housing N, spring M, reciprocating shaft S, ratchet 2, and pawl 3, substantially as described.

8. The combination, with the body of the top, of the housing N, spring M, hollow shaft S, bearing 7, and shaft 6, substantially as described.

9. The combination, with the reciprocating shaft S and its stud E, of the reciprocating head O and its plate F, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WARD E. ROBINSON.

Witnesses:

T. H. PALMER,
H. T. MUNSON.