

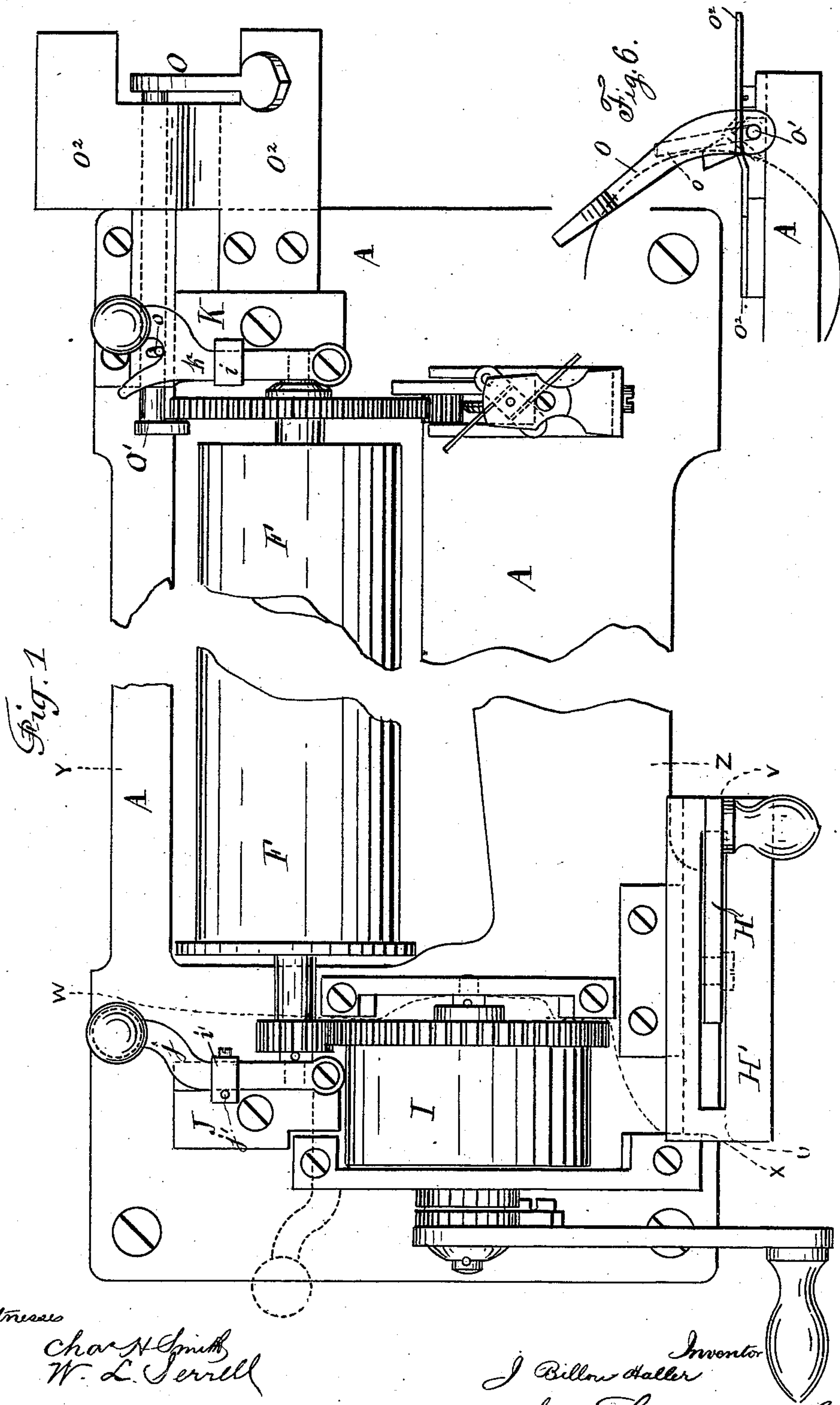
(No Model.)

3 Sheets—Sheet 1.

J. BILLOU-HALLER.
MUSICAL BOX.

No. 361,043.

Patented Apr. 12, 1887.



Witnesses

Chas. H. Smith
W. L. Serrell

J. Billou Haller
for Lemuel W. Serrell

(No Model.)

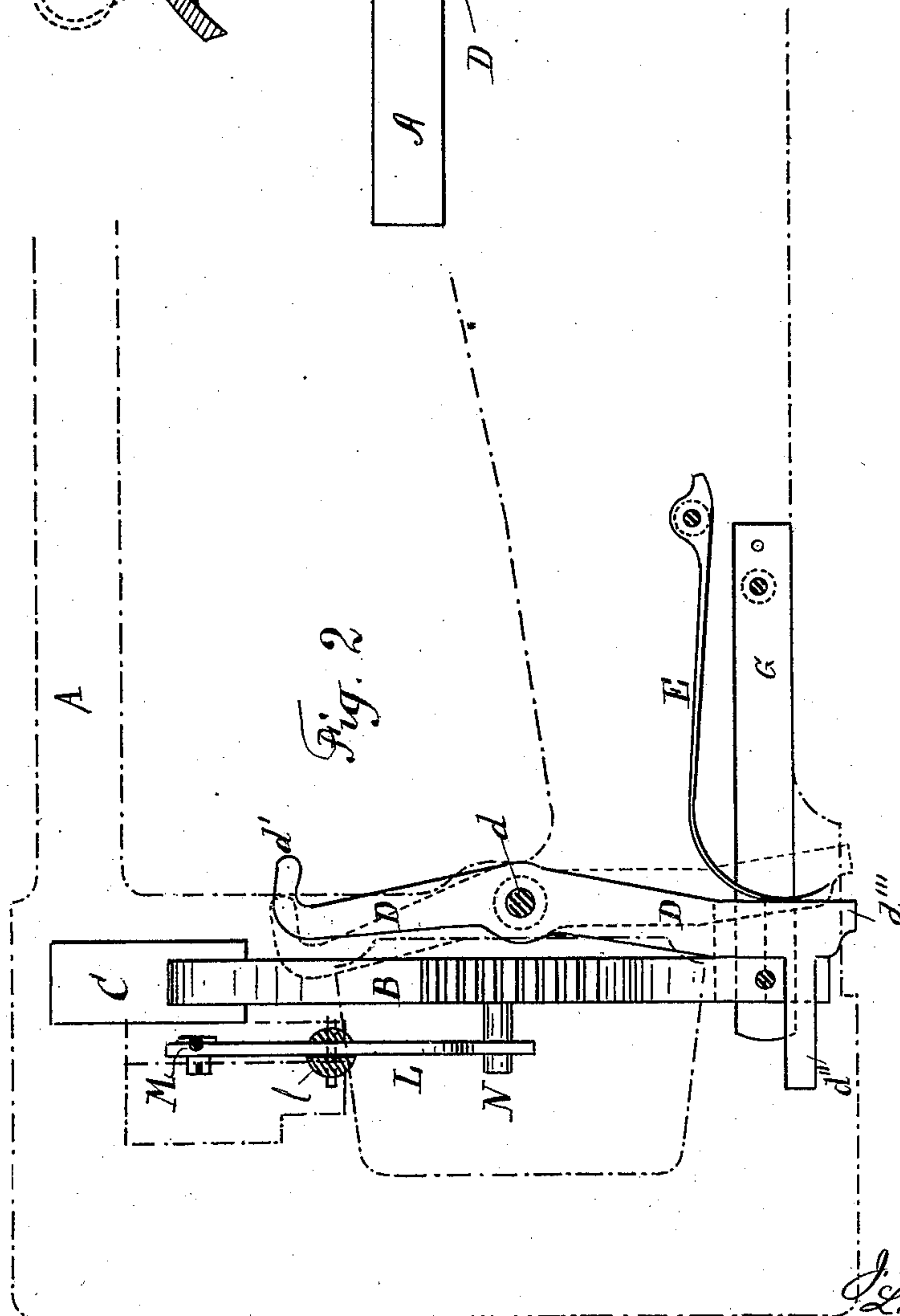
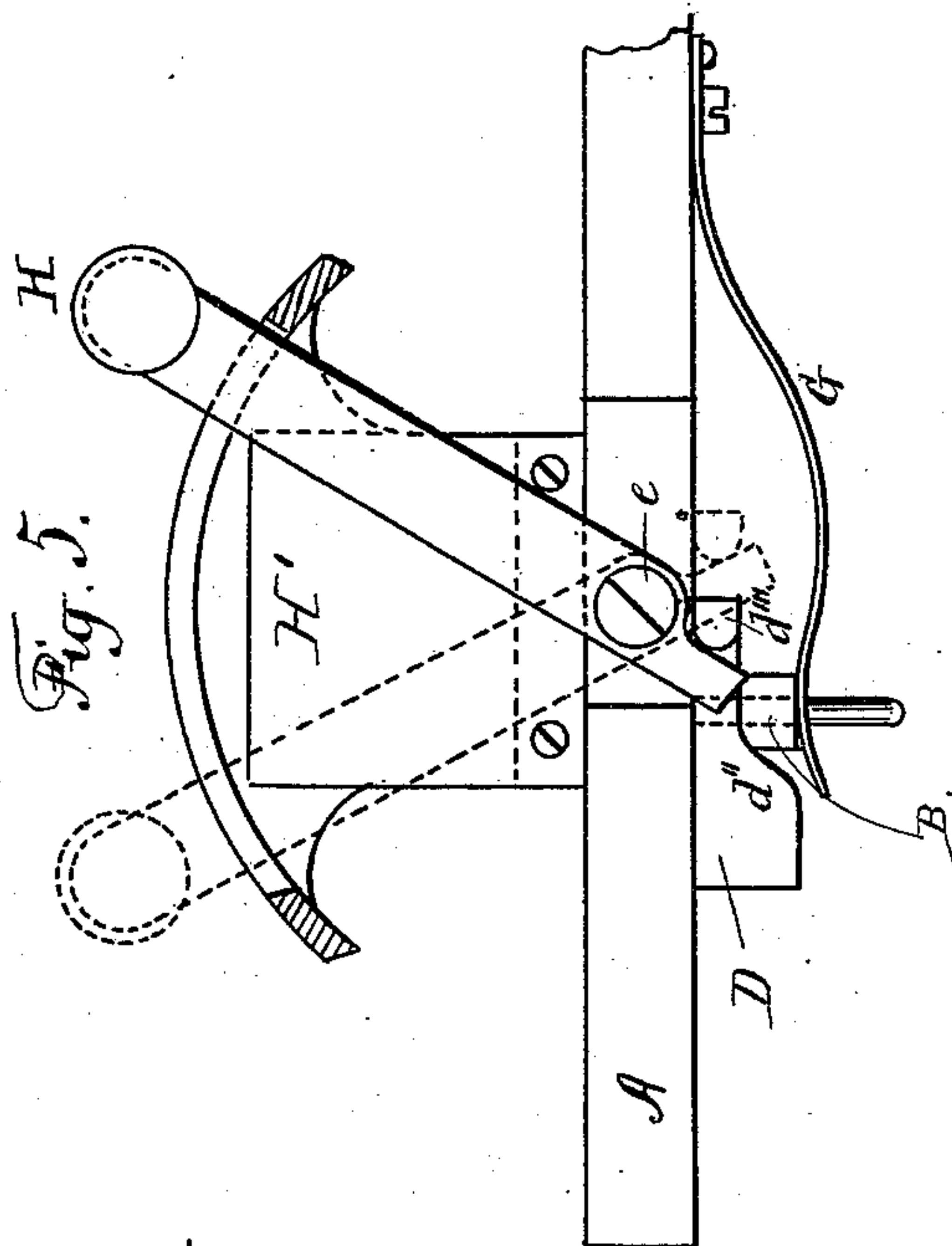
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Inventor
J. Bullon-Haller
L. W. Serrellt

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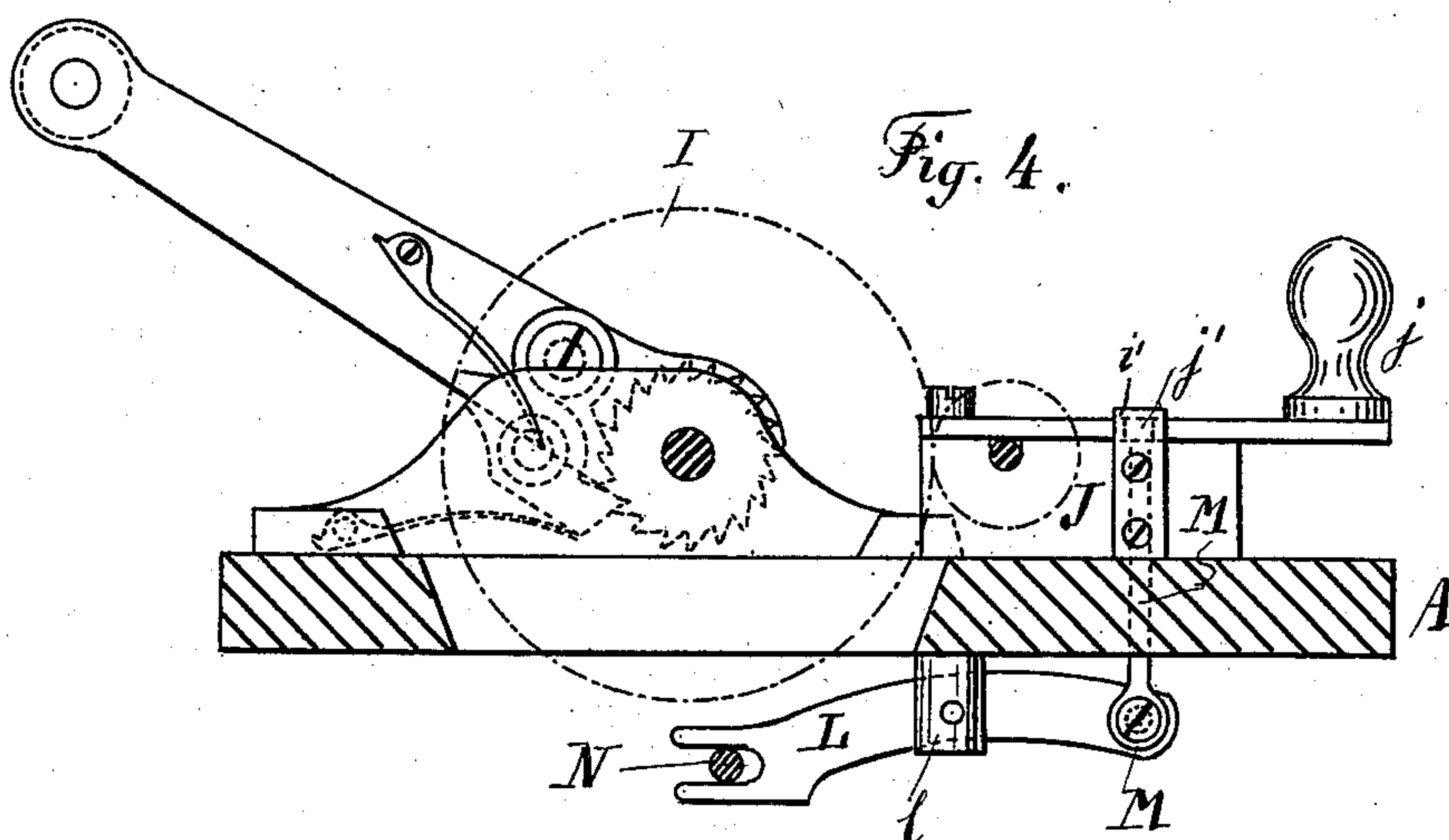
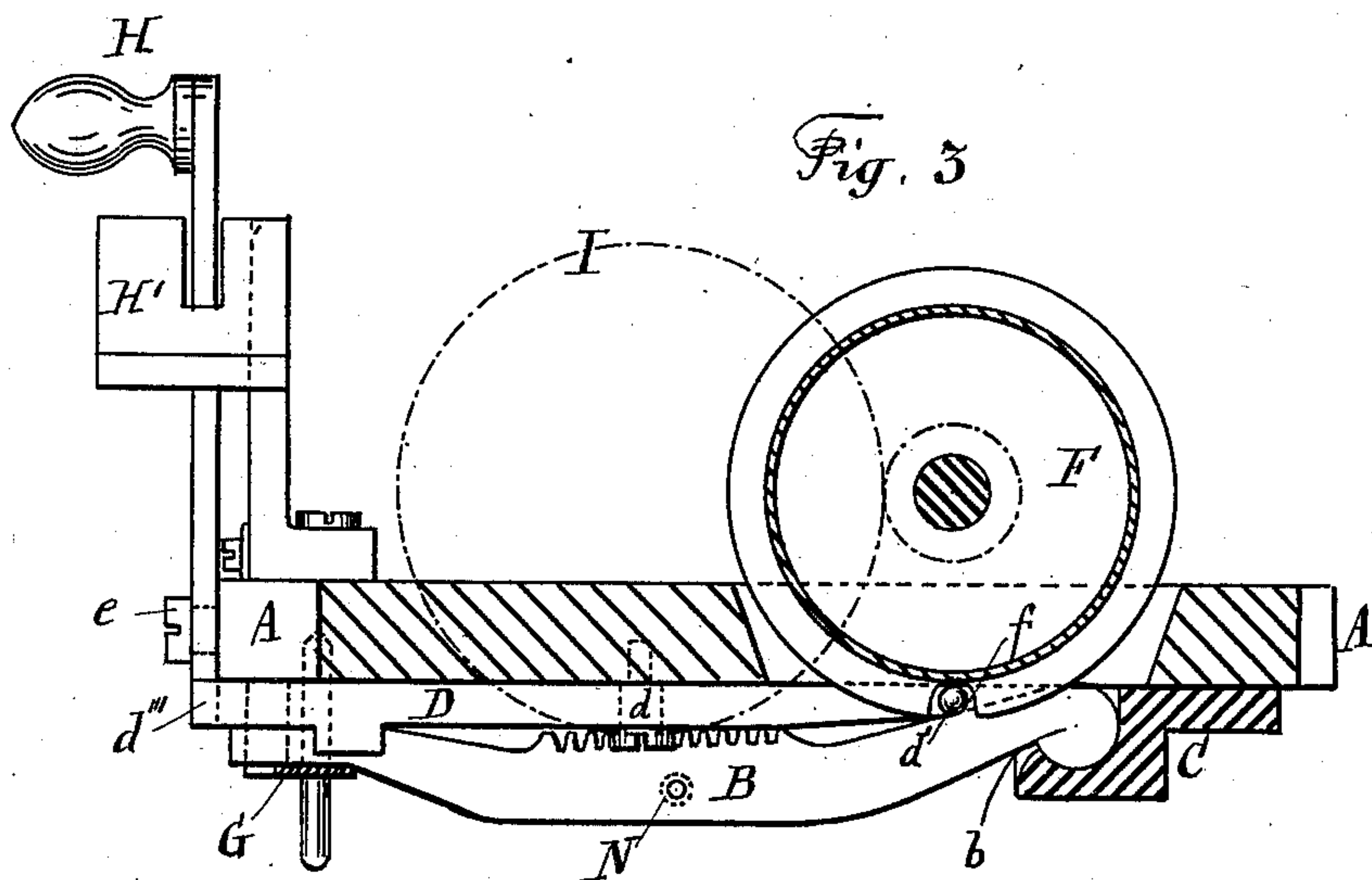
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W. L. Serrell

Inventor

J. Billou-Haller
per Lemuel W. Serrell atty

UNITED STATES PATENT OFFICE.

JEAN BILLOU-HALLER, OF GENEVA, SWITZERLAND.

MUSICAL BOX.

SPECIFICATION forming part of Letters Patent No. 361,043, dated April 12, 1887.

Application filed December 28, 1886. Serial No. 222,764. (No model.)

To all whom it may concern:

Be it known that I, JEAN BILLOU-HALLER, engineer, residing at Geneva, in Switzerland, have invented a new and useful Improvement in Music-Boxes; and the following is declared to be a description of the same.

The object of my invention is twofold—viz., to provide means for stopping the mechanism of the music-box at the toothed wheel of the spring barrel or drum, and to provide means whereby the cylinder having the pins can be removed and replaced by another cylinder having differently set pins, representing other tunes, so that interchangeable cylinders can accompany and be operated by one power mechanism.

My invention consists of a toothed or rack bar and a pivoted lever operated by springs to simultaneously engage the toothed wheel of the spring-drum and the cylinder and stop them, and I employ a lever to disengage the rack-bar and lever and start the mechanism; and my invention also relates to the bearings for the cylinders and adjacent mechanism, whereby the cylinder can be removed when the mechanism has ceased its motion and another cylinder having pins representing other tunes can be substituted therefor.

In the drawings, Figure 1 is a plan view of a music-box mechanism embodying my improvement. Fig. 2 is a plan view of the stop mechanism. Fig. 3 is a section through Y Z of Fig. 1. Fig. 4 is a section through W X of Fig. 1. Fig. 5 is a section through U V, the stop-lever and accompanying mechanism being shown in elevation; and Fig. 6 is an end view of one of the locking-levers.

The drum I and driving-spring within it, and the lever-arm and ratchet for winding up said spring, the cylinder F, and fly-governor and toothed wheels between the respective parts, are of usual character and do not require further description.

The stop mechanism is located on the under side of the main plate A, which supports the music-box mechanism, and the stop mechanism is also beneath the toothed wheel of the drum I, and the same consists of the following parts: The lever D is pivoted at d to the under side of the plate A, and is of the shape shown in Fig. 2, its inner end being made as a hook, d' , and its outer end as an inclined

plane, d'' , and a projection, d''' , and the bent spring E bears against one side of the lever D, as shown.

The bar B has a cylindrical inner end, b , pivoted in a bridge, C, secured upon the under side of the plate A, and the upper surface of the bar B is made with teeth to engage the teeth of the toothed wheel attached to the drum I, and the flat spring G bears against the under side of the bar B and serves to keep its teeth toward the teeth of the drum I, and to keep it in contact with the inclined plane d'' upon the lever D.

The stop-lever H is pivoted at e upon the edge of the plate A, and it works in and its movement is determined by a slot in the standard H', and the lower end of the lever H is made with a projection which engages the projection d''' on the end of the lever D.

In the position shown in Figs. 1, 2, 3, and 5 the mechanism is at rest, and the teeth on B are engaged with the teeth on I, and the hook d' is engaged in the notch f , provided in one of the end flanges of the cylinder F, thus preventing both the drum I and cylinder F from revolving.

To set the mechanism in motion, the lever H is moved into the position shown by dotted lines in Fig. 5, which operation moves the lever D, and by the inclined plane d'' depresses the rack-bar B, releasing the drum I and simultaneously withdrawing the tooth d' and releasing the cylinder F, so that the driving-spring is free to revolve the drum I and cylinder F and bring its pins into contact with the usual vibrating tongues to produce the music.

The movement of the lever H back to its normal position releases the parts and allows the springs to act as soon as the cylinder F turns round, so that the notch in its flange comes opposite the hook d' . Then said hook is forced by the spring E into said notch, and simultaneously the spring G lifts the rack-bar B, and its teeth engage the teeth upon the drum I, and the mechanism is stopped. This notch f is so placed in the flange of the cylinder F that it will come around opposite the hook d' at the end of every tune.

The pivots of the cylinder F are supported in open bearings in the blocks J K, secured upon the main plate A, and there are mova-

ble retaining-levers *j k* pivotally secured upon said blocks, which levers occupy the position shown in Fig. 1, over the pivots of the cylinder F and under the bent fingers *i i'*. These
 5 levers *j k* can be swung aside to the dotted position of lever *j*, (shown in Fig. 1,) in which position the cylinder F can be lifted out and another inserted without disturbing the lever D or hook *d'*.

10 To prevent the retaining-lever *j* being turned accidentally when the musical mechanism is playing, I provide a safety device, which consists of a pin, M, which passes up through the block J and at the side of lever *j*, and enters
 15 a hole, *j'*, in the finger *i'*. The lower end of this pin M is pivoted to a forked lever, L, which is supported by a bearing-block, Z, upon the under side of the plate A, and the outer or forked end of this lever L receives a short
 20 stud, N, which is secured in the rack-bar B and projects from the side of the same.

The downward movement of the rack-bar B in starting the mechanism carries with it the forward end of the lever L and raises the back
 25 end of lever L and the pin M, and locks the lever J in place, and when the mechanism is stopped the position of these parts is reversed, so that the pin M is pulled down and the lever J can be swung aside to release the cylinder F.

30 The retaining-lever *k* is of a peculiar form, as shown in Fig. 1. The lever O is upon a shaft, *o'*, and carries a pin, *o*, which pin is received in the forked end of the lever *k* and acts to keep the lever *k* from moving accidentally, and there is a spring-plate, *o''*, secured to
 35 the plate A, which plate *o''* bears frictionally upon the shaft *o'* to keep the lever from turning; but when the lever *k* is moved by hand to remove the cylinder F the lever O is shifted
 40 automatically. When the spring in the drum is fully wound up, it is held by the mechanism heretofore described, and cannot unwind or set the works of the music-box in rapid motion, and should the cylinder be changed or the fly-
 45 governor or any of its attendant mechanism be removed for cleaning, &c., no accident can happen to the music-box cylinder or works, because the power of the spring is under con-

trol at the drum. It is a great advantage to be able to exchange the cylinders, and thereby
 50 play many tunes with one operating mechanism.

I claim as my invention—

1. The combination, with the drum I and cylinder F, of the rack-bar B, the lever D, 55 having a hook upon one end and an incline upon the other end, and means, substantially as specified, for moving the parts in one direction, and springs for returning them to their normal position, substantially as specified. 6c

2. The combination, with the drum I and cylinder F, of the rack-bar B, the lever D, having a hook, *d'*, incline *d''*, and projection *d'''*, springs EG, and lever H, substantially as specified. 65

3. The combination, with the cylinder F and its bearings and the lever H and spring G, of the rack-bar B, stud N, forked lever L, and pin M, and retaining-lever *j*, substantially as specified. 70

4. The combination, with the cylinder F and its bearings J K, of the retaining-levers *j k*, fingers *i i'*, levers L O, and pins M *o*, substantially as and for the purposes set forth.

5. The combination, with the drum I and 75 cylinder F, of a rack-bar to engage the teeth of the toothed wheel upon the drum and a lever and mechanism, substantially as specified, for moving said rack-bar, whereby the actuating mechanism of the music-box is 80 stopped and held at a point between the driving-spring and the cylinder, for the purposes and substantially as set forth.

6. The combination, with the drum I and cylinder F, of a toothed wheel upon the drum 85 I and a notched flange upon one end of the cylinder F, a rack-bar, B, the lever D, having a hooked end, *d'*, and springs moving the same, whereby the drum and cylinder are simultaneously stopped at the completion of a tune, 90 substantially as specified.

JEAN BILLOU-HALLER.

Witnesses:

TH. TRUER.

ELMER SCHNEIDER.