

(No Model.)

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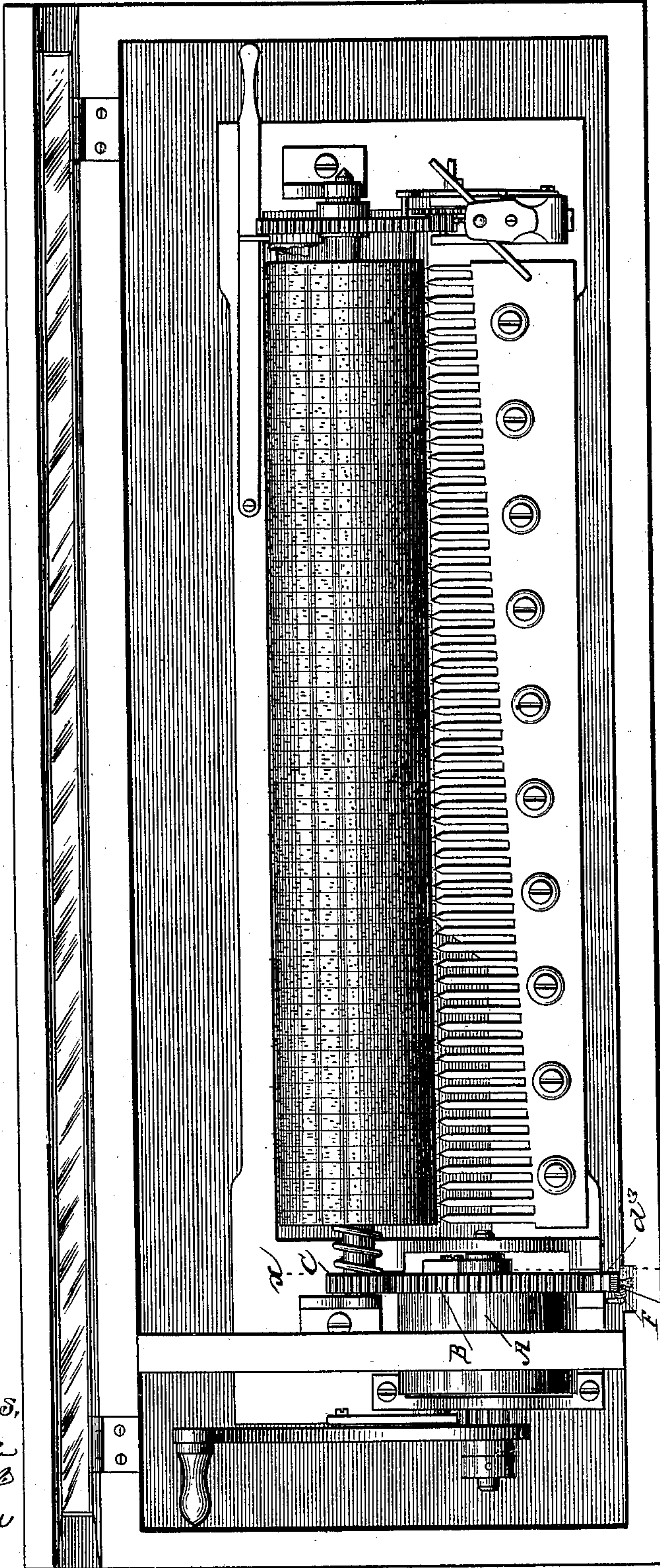
E. SUEUR.

STOP ATTACHMENT FOR MUSIC BOXES.

No. 360,830.

Patented Apr. 5, 1887.

*Fig 1.*



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(No Model.)

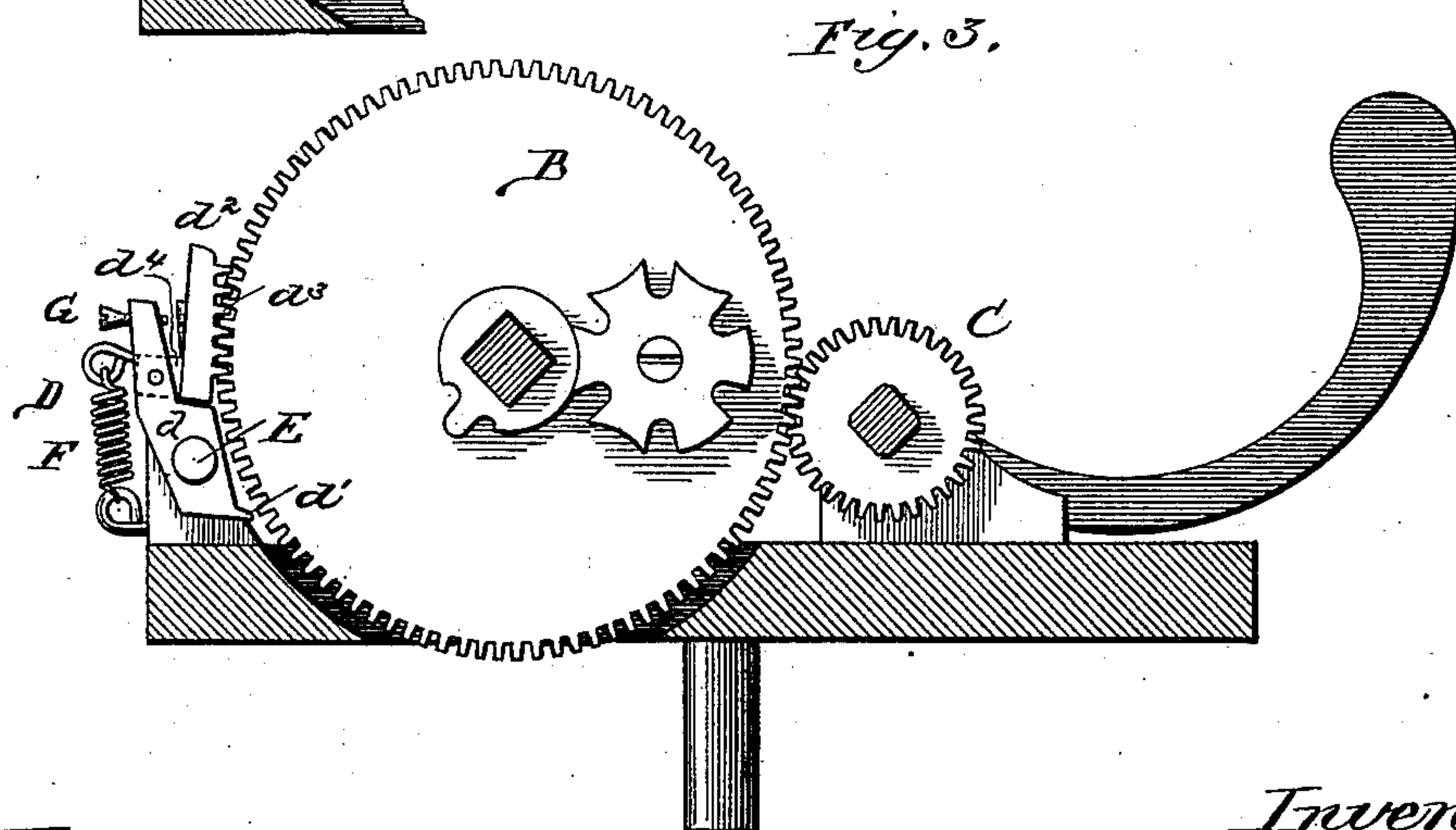
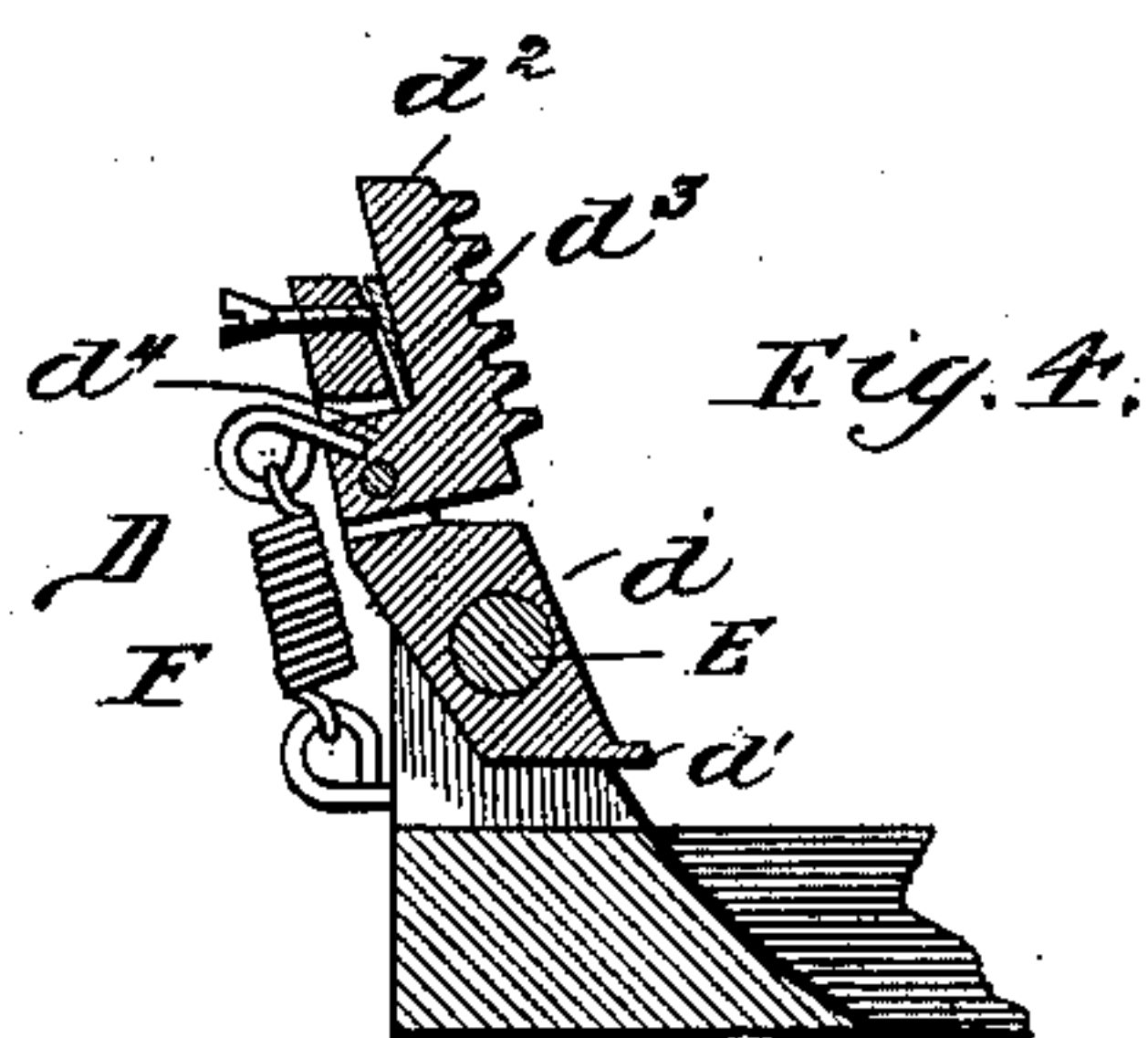
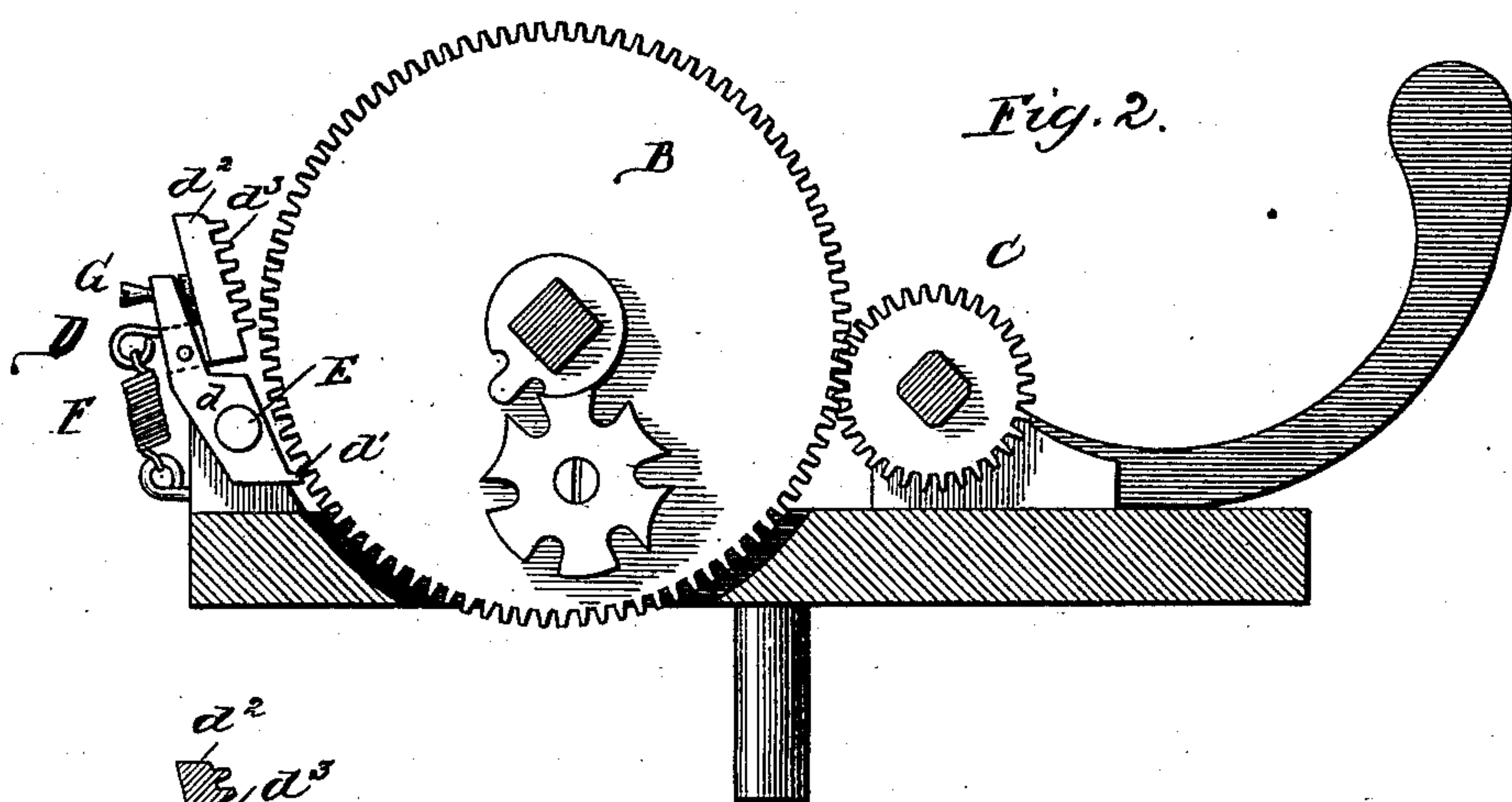
2 Sheets—Sheet 2.

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# UNITED STATES PATENT OFFICE.

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OF SAME PLACE.

## STOP ATTACHMENT FOR MUSIC-BOXES.

SPECIFICATION forming part of Letters Patent No. 360,830, dated April 5, 1887.

Application filed November 1, 1886. Serial No. 217,731. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD SUEUR, a native of Switzerland, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Music-Boxes, of which the following is a specification.

This invention relates to an improvement in stop-motion devices for music-boxes, and is particularly designed to provide a ready and efficient means for automatically arresting the motion of the large driving-gear that is usually formed upon or secured to a revolving drum containing the spring which serves as a source of motive power for the instrument, the objects being to check the movement of the driving-drum or driving-gear in the event of any undue acceleration in the speed thereof, owing, for instance, to disarrangement of other portions of the instrument, and to provide ready means for holding said driving-gear against rotation in case it becomes desirable to take out the usual toothed cylinder at a time when the spring is wound up, and to render said stop-motion device or safety-check sensitive and immediate in its action, and at the same time to guard against its operation as a stop or check merely upon the event of the tipping of the instrument.

To the attainment of the foregoing and other useful ends my invention consists in matters hereinafter described, and particularly pointed out in the claims.

As a reference to the state of the art to which my invention relates, it may be here mentioned that heretofore a music-box has been provided with a pivotally-supported pawl consisting of a single piece having at its lower end a hook or shoulder, said pawl being normally maintained in an upright position with its lower hook end kept up to a ratchet-wheel on the toothed cylinder-shaft by means of a weighted arm upon the pivot or journal of the pawl. Under such arrangement, when the instrument runs at its ordinary speed, the ratchet-teeth necessarily depress and clear the lower hook end of the pawl, but in thus vibrating the pawl fails to throw it sufficiently against the resistance of the weight to cause its upper end to engage the ratchet unless a sudden increase in the speed of the ratchet is attained

by reason of the cylinder escaping from the control of the fan-escapement, in which last-mentioned event it is intended that the pawl shall be thrown sufficiently to engage and thereby check the movement of the ratchet.

In carrying out my invention I provide a two-part stop attachment having one of its parts pivotally supported and its other part spring-controlled, and jointed or pivotally attached to the aforesaid pivotally-supported part, the whole being arranged so that during the normal operation of the instrument the stop device shall vibrate as an entirety and act in conjunction with a gear somewhat similar to an anchor-escapement, the two parts of the device alternately and lightly stepping in and along the line of gear-teeth. The instant, however, there is any tendency toward undue acceleration of speed on the part of the gear, the spring-controlled part of the stop device will be brought into engagement with the gear in a manner to hold the same.

Other details of my said device will be hereinafter more particularly set forth.

In the drawings, Figure 1 represents a top plan view of a music-box with my improved stop attachment applied thereto. Fig. 2 is a sectional elevation on the line *xx*, Fig. 1, with the stop device off from the gear. Fig. 3 is a like view with its stop attachment thrown into position for checking the rotation of the drum. Fig. 4 represents a vertical section through the stop attachment.

In said drawings, A indicates the drum, within which a spring is wound up, as usual, from and by the handle of the instrument. This drum is provided at one end with a peripheral line of gear-teeth, or, what is the same thing, with a large gear, B. This gear B usually engages a cog, C, upon the axle of the cylinder, in order to rotate the same. The stop-motion comprises a vibratory escapement, D, composed of two parts, which are jointed together, one of said parts being pivotally supported in proper proximity to the gear B, and the other one of said parts being spring-controlled and pivoted to the first-mentioned part of the escapement. The part *d* of this escapement or stop device is pivotally supported, for example, by means of a pivot, E, held in a suitable standard, and said part is provided



at its lower end with a single tooth,  $d'$ , arranged to engage the large gear and step from tooth to tooth of the latter regularly and uniformly so long as the instrument runs regularly and with the required degree of slowness. The part  $d^2$  of this stop device is in the nature of a pivoted rack, which is supported by the vibratory part  $d$  of the attachment, but in a manner to prevent its positive and permanent engagement with the gear B during the normal vibratory action of the entire attachment. As herein shown, the part  $d^2$ , which may be termed the "rack" portion of the attachment, in contradistinction to the single-tooth portion of the attachment, is provided with a line of rack or other analogous teeth,  $d^3$ , and as a convenient mode of attaching it to the single-tooth portion it is provided at its lower end with a lateral arm,  $d^4$ , which is pivoted in a recess in said single-tooth portion, said arm being proximately radial to the large gear B. The spring F is attached to said arm of the upper pivoted part,  $d^2$ , of the attachment, and connects the same with some fixed portion of the instrument.

In Fig. 2 the instrument is supposed to be running at the usual rate of speed, in which case the two portions  $d$  and  $d^2$  of the attachment will act with relation to the large gear after the manner of an ordinary anchor-escapement. Should, however, the speed be increased, the rapid rotation of the large gear B will throw off the lower single-tooth portion,  $d$ , of the attachment, thereby causing the upper tooth portion,  $d^2$ , of the attachment to engage and positively hold said gear against rotation, as in Fig. 3.

During the normal working of the attachment the spring serves to cause its regular action, and likewise to prevent the upper tooth portion,  $d^2$ , of said attachment from positively engaging the gear B; but when the lower portion of the attachment is suddenly thrown from the gear B the resistance of the spring is overcome.

The lower portion of the attachment should be provided with but one tooth; but by providing the upper pivotal portion of the attachment with two or more teeth several advantages are gained. For example, when it is thrown into positive engagement with the gear B it will more effectively maintain its hold therewith; and, moreover, liability of any breakage of its teeth will be avoided. This stop attachment is also of great utility in case it is desired to take the instrument apart, since it will hold the driving-drum against rotation. It will also be observed that in case the instrument should be tipped to one side the spring will prevent the part  $d^2$  of the attachment from engaging and stopping the gear B.

What I claim as my invention is—

1. The stop attachment comprising a toothed pivotally-supported part, combined with a second toothed part pivotally attached to the said pivotally-supported part and spring-controlled, substantially as and for the purpose described.

2. In a stop attachment, the single tooth pivotally-supported part  $d$ , combined with the toothed portion  $d^2$ , pivotally attached to the former and spring-controlled, substantially as described.

3. The combination, with the pivotally-supported toothed portion  $d$ , of the toothed portion  $d^2$ , provided with two or more teeth and normally controlled by a spring, F, substantially as described.

4. The spring-driven drum provided with a gear, B, in combination with the two-part stop attachment having one of its parts pivotally supported and its other part jointed to the pivotally-supported part, said two parts of the stop attachment being arranged for alternately engaging said gear, substantially as described.

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Witnesses:

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