

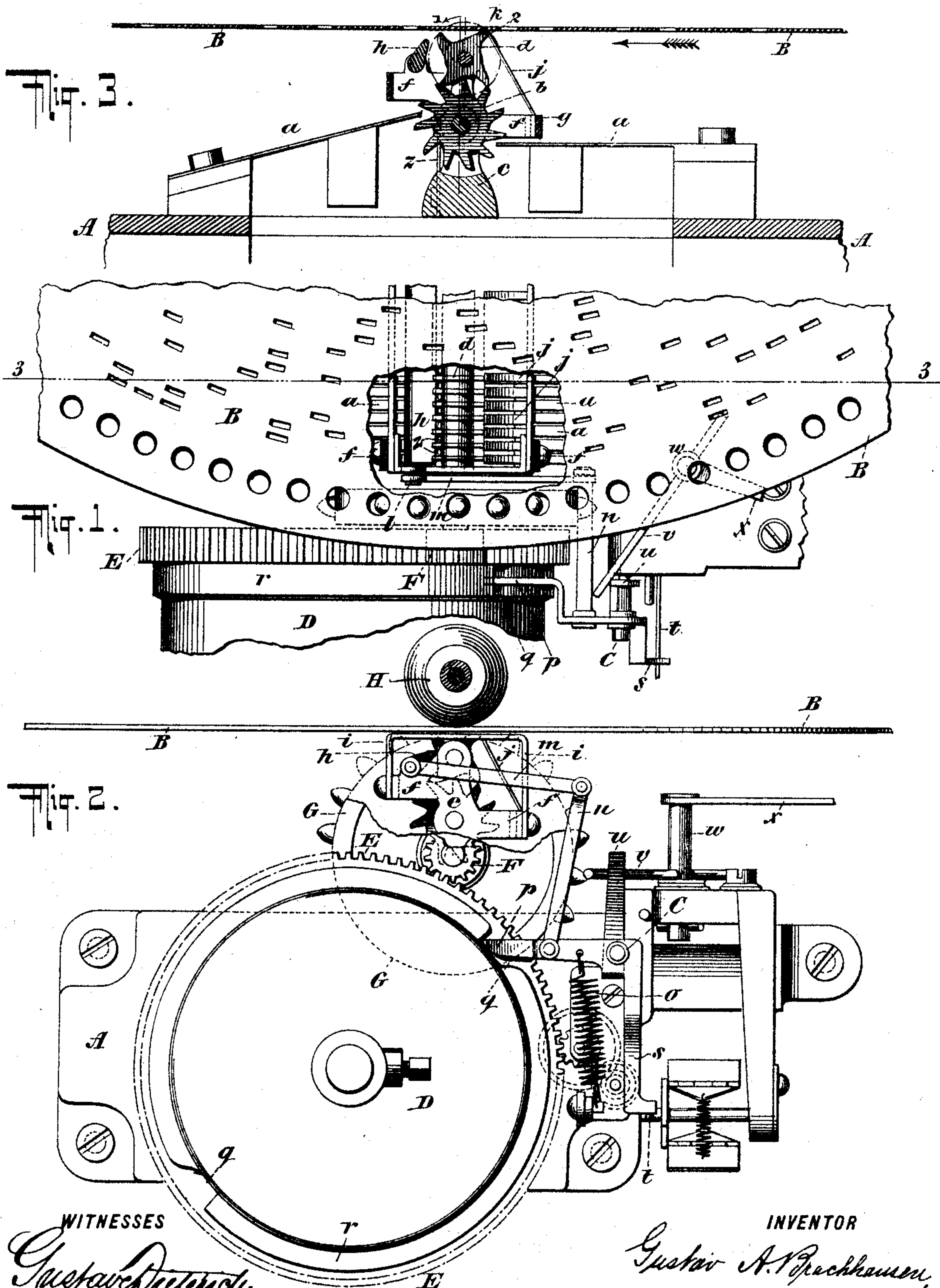
(No Model.)

2 Sheets—Sheet 1.

G. A. BRACHHAUSEN.
MECHANICAL MUSICAL INSTRUMENT.

No. 585,737.

Patented July 6, 1897.



WITNESSES

Gustave Delecluse
Charles E. Smith

INVENTOR

Gustav A. Brachhausen
BY *Briesen Knautz*

ATTORNEYS.

(No Model.)

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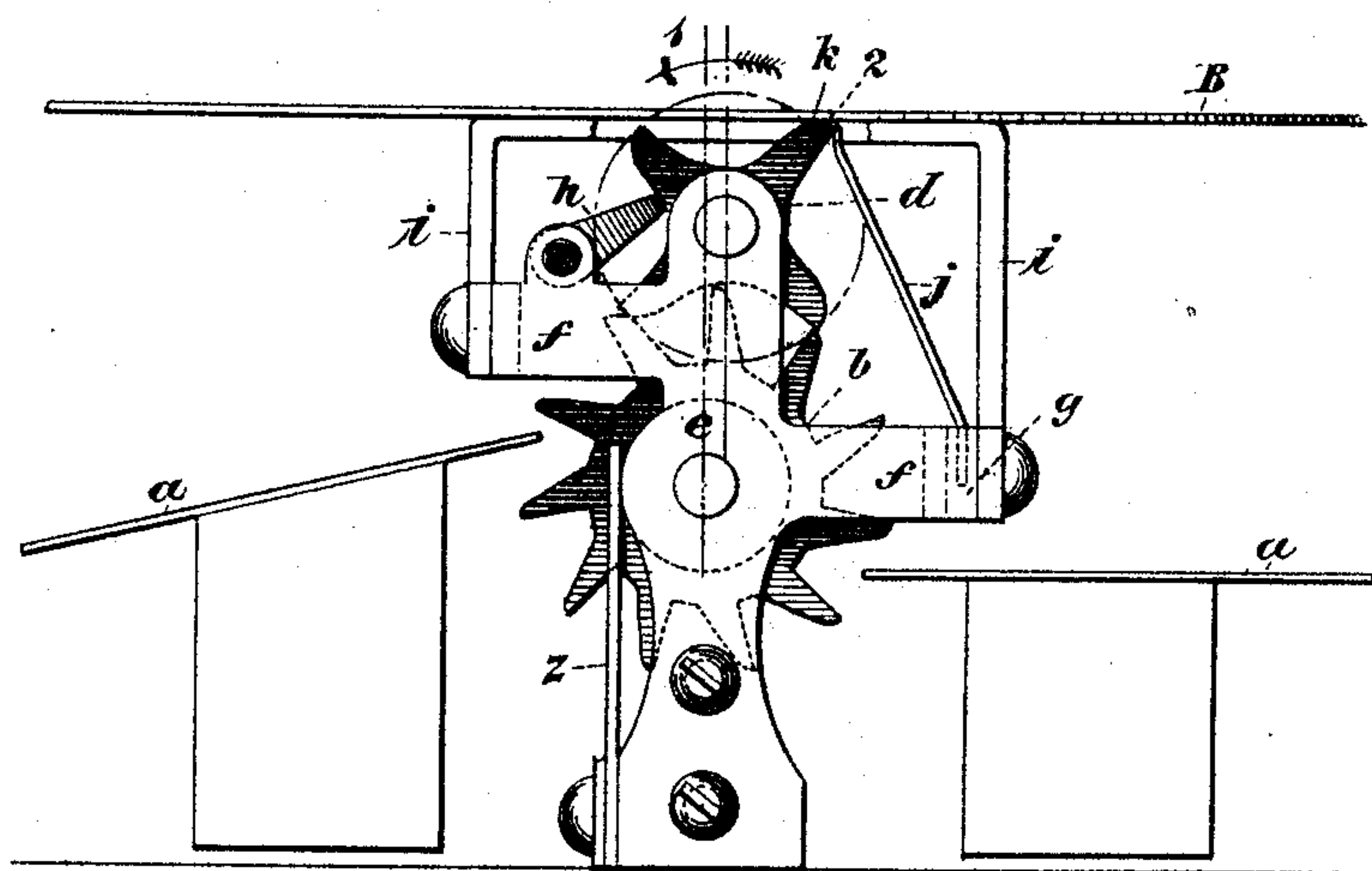
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Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

GUSTAV A. BRACHHAUSEN, OF RAHWAY, NEW JERSEY.

MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 585,737, dated July 6, 1897.

Application filed January 6, 1897. Serial No. 618,150. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV A. BRACHHAUSEN, residing in Rahway, Union county, State of New Jersey, have invented certain new and useful Improvements in Mechanical Musical Instruments, of which the following is a specification.

My invention relates to mechanical musical instruments of that character wherein star-wheels are employed to actuate the sound-producing device.

Heretofore various attempts have been made to operate musical instruments wherein star-wheels were employed with perforated disks or sheets; but for many reasons such devices have not been found feasible or practicable.

The object of my invention is to overcome the difficulties heretofore found in this character of devices and to produce a simple and efficient device wherein a perforated note-disk can be employed to effect the operation of the star-wheels.

To this end my invention consists in the novel arrangement and combination of parts and in details hereinafter described and claimed.

In the accompanying drawings, wherein like parts are represented by the same reference letters and numerals in the various views, Figure 1 is a fragmental top view, with parts removed for purpose of clearness, of a sufficient number of parts of a music-box to illustrate my invention. Fig. 2 is a side view of the same. Fig. 3 is a vertical sectional view of the same on the line 3 3 of Fig. 1. Fig. 4 is a like view of the same on an enlarged scale.

Referring to the drawings, A indicates the bed-plate of the instrument, upon which are mounted music-combs *a*, which are shown in the present instance in duplex arrangement. The teeth of these combs are vibrated by star-wheels *b*, which are mounted in star-wheel standards *c* and may, if desired, be provided with brake-springs *z*. These star-wheel standards are continued up above the star-wheels *b* to form partition-pieces and supports for a second set of star-wheels *d*, so that a plurality of series of interlocking star-wheels are provided. To each end of the star-wheel standards is affixed a standard-piece *e*, (see Fig. 4,) 50

which is provided with oppositely-extending arms *f*, which form supports for the holding-strip *g*, a locking-bar *h*, and note-sheet supports *i*. The holding-strip *g* carries springs *j*, one of which bears upon each of the star-wheels *d* and normally maintains one tooth thereof in contact with the note-sheet B, as indicated at *k* in Fig. 4, and exerts a slight pressure upon said tooth in the direction of the arrow *l*. 55 60

The locking-bar *h* hereinbefore referred to consists of a bar which is pivoted in the pieces *e* at each end of the star-wheel standard, as indicated at *l*, and extends throughout the length of the star-wheel standard. The locking-bar is connected by suitable means, as the levers *m n*, with the starting and stopping mechanism of the instrument. Thus in the present instance the lever *n* is connected with a cruciform lever C, which has a retractile spring *o* connected therewith, which tends to maintain the parts in the positions indicated in Fig. 2 of the drawings, with the locking-bar engaging between two teeth of each of the star-wheels *d*. It will be observed that in this position, which is the position of rest, the arm *p* of the cruciform lever rests in a notch *q* of the rim *r* upon the main spring-barrel D, and the arm *s* is projected into the path of an arm *t*, carried by the governor. A third arm *u* projects from the cruciform lever C into the path of an arm *v*, carried upon a spindle *w*, which is sufficiently friction-tight to overcome the tension of the spring *o* when it is moved to any desired position by the handle *x*, which extends to a portion of the instrument where it is readily accessible to the operator. The drum D has a gear E connected therewith which meshes with a pinion F, carried by the sprocket-wheel G, that is adapted to engage the note-disk B and operate the same, the note-disk being held down in position by friction-rollers H or in any desired manner. 75 80 85 90 95

The operation of my device is as follows: The parts being in the position shown in Fig. 2, the handle *x* is turned so that the arm *v* will cause the arm *u* of the cruciform lever to be moved to the right, thereby carrying the arm *p* out of the notch *q* and the arm *s* out of the path of the arm *t* on the governor, when the 100

governor is free to revolve and the note-disk to be rotated. This same movement of the cruciform lever causes the locking-bar *h* to be turned on its pivots out of the path of star-wheels *d*, and when an aperture in the note-disk comes opposite a tooth 2 of any of the star-wheels *d* the said tooth is forced into the aperture by a spring *j*, and a further movement of the note-sheet causes the engaged star-wheel to be further rotated until the parts again assume the positions indicated in Fig. 3. This partial rotation of the star-wheel *d* transmits sufficient movement to its corresponding star-wheel *b* to cause it to vibrate the music tongue or tongues which it is to operate. If it is desired that the tune be played but once, the handle *x* is restored to its initial position shortly after it has been operated to start the instrument, when the spring *o* will hold the arm *p* in contact with the rim *r* on the spring-barrel *D* until a notch *q* is reached, when the arm *p* will be forced into the notch and the instrument will be stopped. At the same instant the lock-bar *h* is automatically forced into the position represented in Fig. 2, and thereby causes a proper alinement of the star-wheels *d* should any of them be out of alinement, and at the same time will lock the star-wheels against movement. A half-revolution of the spring-barrel causes a complete revolution of the note-disk, so that a tune has been completed when the arm *p* engages in one of the notches *q*. To allow the tune to be repeated, it is merely necessary to shift the handle *x* and allow it to remain in the shifted position, when the cruciform lever will be held in the disengaged position against the tension of its spring.

It will be observed that by my invention I am enabled to provide a simple, strong, and efficient musical instrument wherein the parts are rigid and motion is communicated from the perforated note-disk to the sound-producing device in a positive manner.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels the star-wheels of each series being independent of each other and means for effecting the movement of said star-wheels to operate the sound-producing device.

2. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels, the star-wheels of each series being independent of each other and a perforated note disk or sheet for effecting the movement of said

star-wheels to operate the sound-producing device.

3. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels, a perforated note disk or sheet for effecting the movement of said star-wheels to operate the sound-producing device, and a separate spring for each of said star-wheels.

4. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels, the star-wheels of each series being independent of each other and a perforated note disk or sheet coöperating with one series of said star-wheels to effect the operation of the sound-producing device.

5. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels, the star-wheels of each series being independent of each other means for effecting the movement of said star-wheels to operate the sound-producing device, and means for locking the star-wheels against movement when the instrument is not in operation.

6. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels, means for effecting the movement of said star-wheels to operate the sound-producing device, and means for automatically locking the star-wheels against movement when the instrument is stopped.

7. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels, means for effecting the operation of said star-wheels, means for starting and stopping the operating means, means for locking the star-wheels and connections between the locking means and the operating means, whereby a movement of one will effect the movement of the other.

8. In an automatic musical instrument, the combination of a sound-producing device, a plurality of series of interlocking star-wheels, the star-wheels of each series being independent of each other one series of said star-wheels operating upon said sound-producing device, and a perforated note disk or sheet adapted to bear directly upon another series of star-wheels and communicate motion to the star-wheels which operate the sound-producing devices.

GUSTAV A. BRACHHAUSEN.

Witnesses:

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GEO. E. MORSE.