

(No Model.)

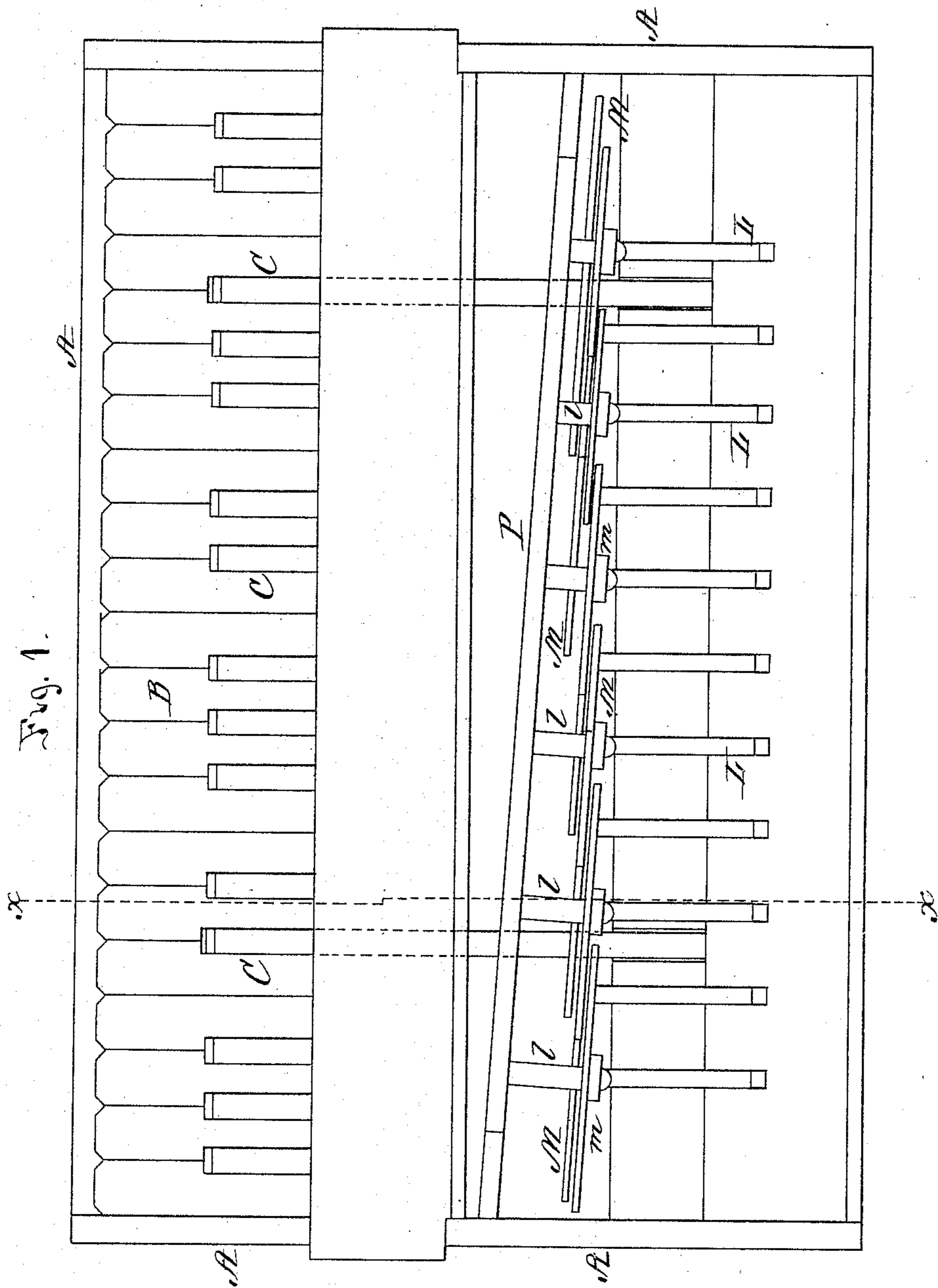
3 Sheets—Sheet 1.

A. A. McINTIRE.

MECHANICAL MUSICAL INSTRUMENT.

No. 355,880.

Patented Jan. 11, 1887.



Witnesses
A. B. Castman
A. David

Inventor
Albert A. McIntire
per Norman W. Stearns,
Atty.

(No Model.)

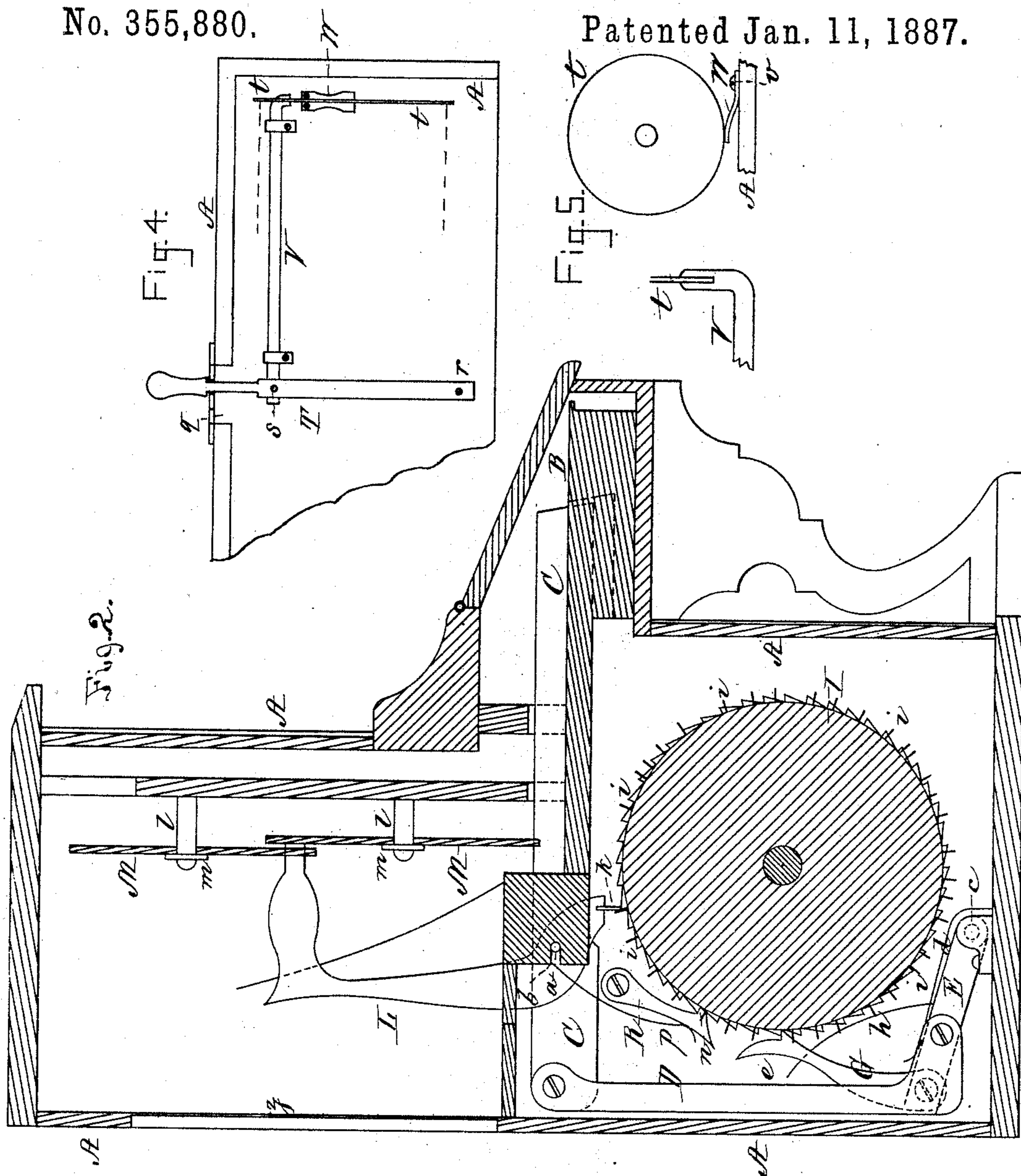
3 Sheets—Sheet 2.

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No. 355,880.

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Witnesses
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Inventor
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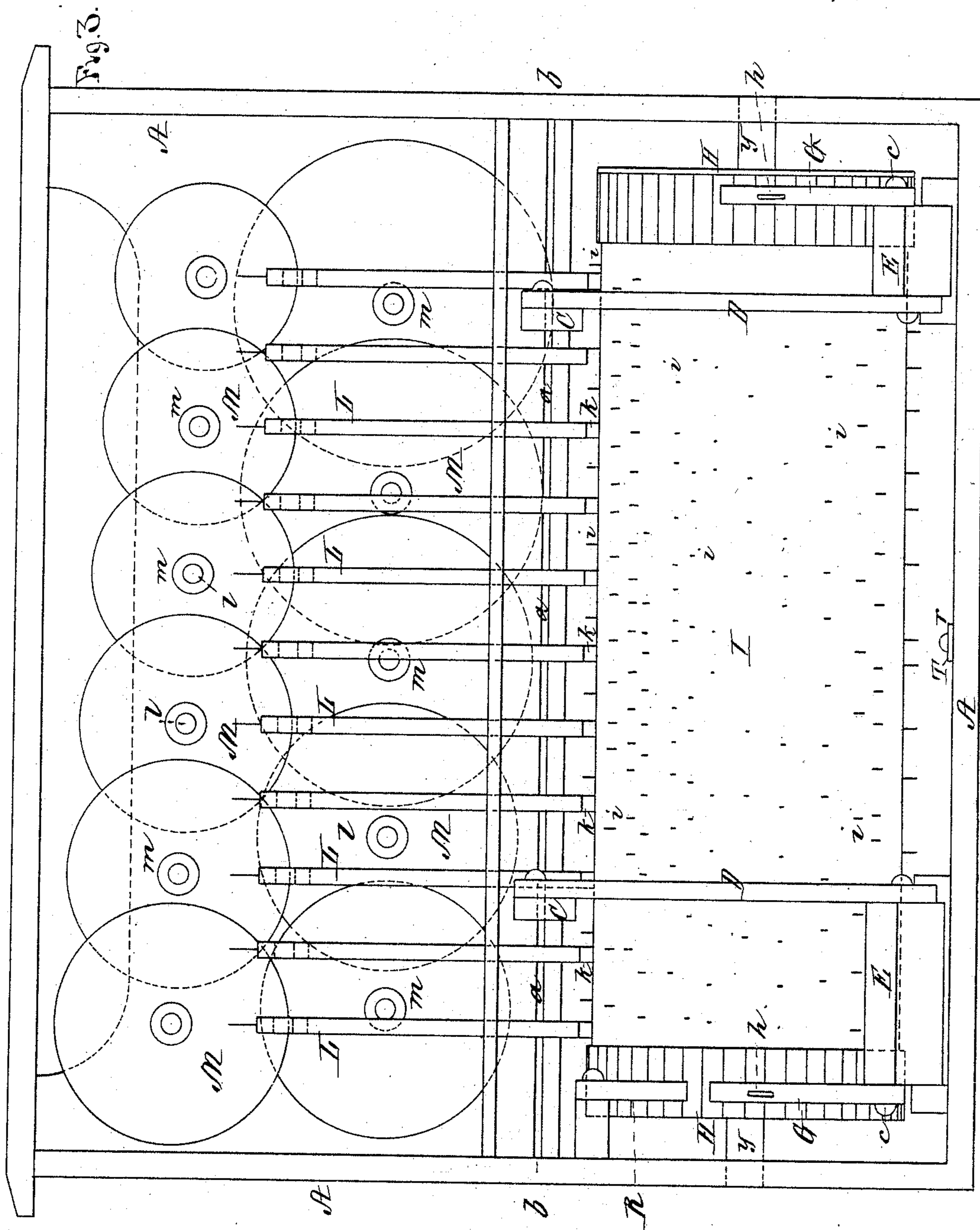
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A. A. McINTIRE.

MECHANICAL MUSICAL INSTRUMENT.

No. 355,880.

Patented Jan. 11, 1887.



Witnesses
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Inventor
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UNITED STATES PATENT OFFICE.

ALBERT ANDREW MCINTIRE, OF BOSTON, ASSIGNOR TO JAMES H. CURRIER,
OF SOMERVILLE, MASSACHUSETTS.

MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 355,850, dated January 11, 1887.

Application filed February 3, 1886. Serial No. 190,640. (No model.)

To all whom it may concern:

Be it known that I, ALBERT ANDREW MCINTIRE, of Boston, county of Suffolk, and State of Massachusetts, have invented certain Improvements in Musical Toys, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of a musical toy constructed in accordance with my invention, the casing being removed to show the mechanism within. Fig. 2 is a vertical transverse section on the line *xx* of Fig. 1. Fig. 3 is a rear elevation; Figs. 4 and 5, details to be referred to.

My invention relates to a musical toy, for the entertainment of children, in which a pin-cylinder is employed; and this invention consists in one or more series of metallic disks or gongs, a corresponding number of hammers for striking them, and a pin-cylinder, in combination with and rotated by mechanism connecting it with one or more keys, depressed by the hand of the operator, the several features of my said invention being hereinafter fully described and claimed.

In the said drawings, A represents the casing of an upright toy piano-forte; B, its keyboard. Two of the keys, C C, of said keyboard are connected with upright rocker-arms D in the following manner: Each key consists of a horizontal lever having its fulcrum on a common rod, *a*, extending longitudinally within a groove or channel, *b*, formed in the framework, the outer extremity of each key having pivoted thereto the upper end of a vertical arm, D, pivoted at its lower end to an inclined step, E, pivoted at its bottom within suitable bearings, *c*, each inclined step being held in its normal position, Fig. 2, by a spring, *d*. At one side of the inclined step E is pivoted the bottom of an upright pawl, G, having a tooth or projection, *e*, which is permanently held by a spring, *h*, in contact with the teeth of an annular gear, H, located at each end of the periphery of a long horizontal cylinder, I, provided with a series of pins, *i*, and having its shaft supported in bearings in the side of the casing.

L L are a series of hammers pivoted at their lower ends to the same longitudinal rod, *a*, which forms the common fulcrum of the keys

or key-levers C, the heels of the hammers being provided with metal projections *k*, which lie in the paths of the pins *i*, which are to actuate them.

M M are two series of metallic disks or gongs, arranged on studs *l*, projecting from the sounding board P, which is inclined to the front or vertical plane passing through the front of the casing, the length of the studs *l* consequently increasing from one end to another. A flexible or soft washer, *m*, is placed around each stud on each side of a metallic disk, so that no vibration thereof may be communicated to other parts, thus insuring a clear distinct sound, as desired. The metallic disks or gongs are arranged in two rows, one above and slightly to one side of the other, so as not to come into contact with each other, and the length of the hammers L which strike the lower disks or gongs are longer than those which strike the upper disks or gongs, and the sizes of the latter are graduated—*i. e.*, they are of different diameters—to insure the proper pitch or strength of tone of each one, respectively.

R is a retaining-pawl having a tooth or projection, *n*, constantly held by a spring, *p*, in contact with the teeth of the contiguous annular gear H, and by the connections previously described, when pressure is applied to a key, C, the upright arm D is raised, and simultaneously therewith the tooth of the actuating-pawl G presses up against a tooth of the annular gear H and rotates the cylinder I a small arc of a circle corresponding to the distance between two teeth of the gear H, the movement made by this partial revolution causing a pin, *i*, to come into contact with a pin, *k*, of the hammer L, and thereby give the required stroke upon its gong.

Extending through an aperture, *q*, in the front of the lower end of the casing, is the outer free end of an arm or shipper, T, Fig. 4, the other end being pivoted to the bottom of the interior of the casing at *r*.

V is a longitudinal rod pivoted at one end, *s*, to the shipper-arm T, the opposite end of the rod V being bifurcated and embracing the flange *t* at the end of the pin-cylinder I, contiguous thereto, Fig. 5. The aperture in the front of the casing is notched or recessed, and

the shipper-arm T is reduced in width, so as to fit snugly therein, and as the shaft *y* of the cylinder is stationary and the cylinder free to rotate thereon, and also to be moved longitudinally independently upon it, the shipper may give the cylinder a lengthwise movement equal to the distance between two contiguous notches of the aperture at the front of the casing, or a distance equal to the entire distance between the outside notches, by which construction, after one tune has been played, a different series of pins may be brought in line with the hammers, in order that a new tune may be played.

W is a spring-plate, Fig. 5, having its bottom pivoted at *v* to the inside of the bottom of the casing, the top of the plate pressing on the under side of the peripheral flange *t* of the cylinder, in order that sufficient friction may be created to prevent the accidental rotation of the pin-cylinder.

The rear of the casing is provided with a wire-gauze, *z*, or other open-work, so as to facilitate the egress of the sound outwardly.

(See Fig. 2.)

I claim—

1. The key-lever C, arm D, and pawl G, in combination with and for rotating the pin-cylinder I, provided with an annular gear, H, substantially as set forth.

2. In combination with the pin-cylinder I

and its annular gear H, the retaining-pawl R, the actuating-pawl G, arm D, and key-lever C, substantially as specified.

3. A series of metallic disks or gongs, M, a series of hammers, L, and one or more key-levers, C, pivoted to one and the same continuous rod, *a*, which serves as a common fulcrum for the hammers and key lever or levers, in combination with a pin-cylinder, I, having an annular gear, H, a number of upright arms, D, corresponding to that of the key-levers, a number of actuating-pawls, G, also corresponding to that of the key-levers, and one or more retaining-pawls, R, constructed to operate in the manner and for the purpose stated.

4. A shipper arm, T, pivoted to a rod, V, in combination with a pin-cylinder, I, for giving the latter a longitudinal movement, substantially as set forth.

5. The spring-pressure plate W, in combination with the pin-cylinder I, its shaft *y*, and flange *t*, as and for the purpose specified.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 21st day of December, A. D. 1885.

ALBERT ANDREW McINTIRE.

Witnesses:

A. B. EASTMAN,
A. DAVIS.