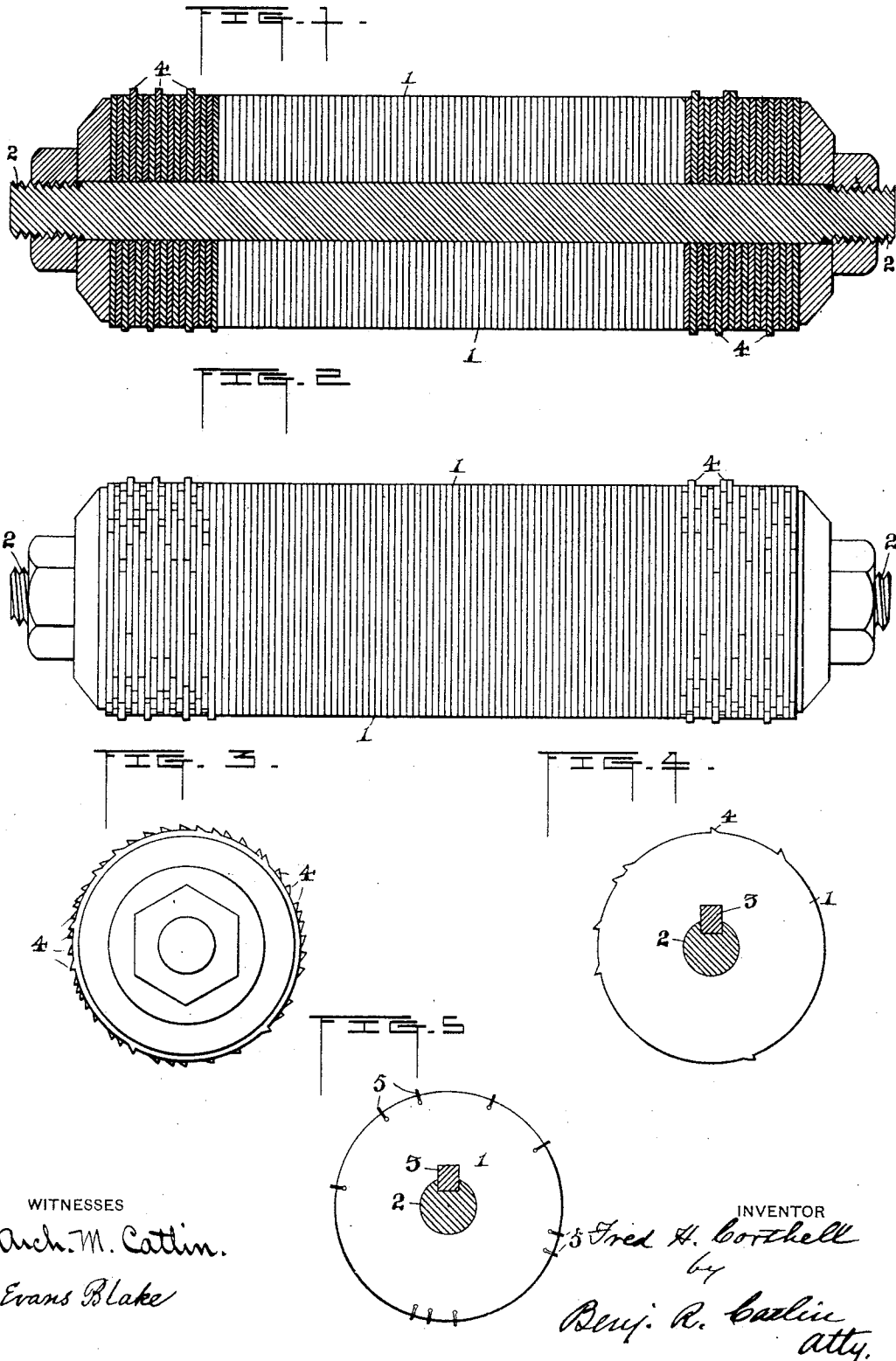


(No Model.)

F. H. CORTHELL.
MUSIC BOX.

No. 474,370.

Patented May 10, 1892.



WITNESSES

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UNITED STATES PATENT OFFICE.

FRED H. CORTHELL, OF NEW HAVEN, CONNECTICUT.

MUSIC-BOX.

SPECIFICATION forming part of Letters Patent No. 474,370, dated May 10, 1892.

Application filed September 26, 1891. Serial No. 406,921. (No model.)

To all whom it may concern:

Be it known that I, FRED H. CORTHELL, a resident of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Music-Boxes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

The invention relates to music-boxes and like instruments, and has for its object to provide a pin-cylinder of such construction that it can be accurately and cheaply made in the first instance and subsequently repaired with convenience when repairs are required; and it consists in the construction hereinafter described and particularly pointed out.

In the accompanying drawings, Figure 1 is a longitudinal section of the improved pin-cylinder. Fig. 2 is a side elevation, and Fig. 3 is an end elevation, of the same. Fig. 4 is an elevation of one of the disks of which a cylinder is composed, and Fig. 5 is a similar view of a modification.

The cylinder which carries the pins that operate the sound-producing devices in a so-called "self-acting" musical instrument—such as the well-known music-box—is indicated on the drawings by numeral 1. It is composed of numerous thin disks, preferably made of steel, placed side by side upon an arbor 2. The disks and the arbor are by preference slotted to receive a key 3, which secures them in proper position circumferentially. It is not essential that both disk and arbor be slotted nor that a key be employed instead of a feather; but a removable key is preferred for the reason that it interferes less with the proper finishing of the arbor and of the opening in the disk. The disks are secured against movement lengthwise of the arbor by nuts and washers or by any suitable means. Each disk is provided on its periphery with pins 4, adapted to operate a particular reed or an intermediate sound-producing device, and the various disks provided with such pins are arranged and connected to produce, in conjunction with the usual comb or equivalent tone-producer, a variety of tunes.

To prepare the above-described disks, any convenient number of steel blanks suitably perforated and slotted at the center are placed upon an arbor and clamped in position, whereupon their peripheries are so cut away by means of saws, dies, or other metal-cutting devices as to leave suitable projections or pins 4, the location of these having been previously determined in the usual manner and the cutting regulated accordingly. These disks thus prepared are all similar and interchangeable. Others are prepared in like manner, having similar teeth differently disposed to correspond with the requirements of a particular melody or melodies. Thus disks are made for pin-cylinders equal in number to the disks prepared with pins at each operation, and all that is required is to suitably assemble them.

Instead of cutting away the disks so as to leave pins 4, as above described, other disks having a diameter equal to that of the pin-cylinder required may in like manner be placed upon an arbor and radial saw kerfs or cuts made in their peripheries. In these the pins 5 may be inserted and the metal of the disks then swaged or compressed upon the inserted end of each pin.

By the means above described the manufacture of pin-cylinders is much simplified and the cost thereof reduced, and, further, the construction provides for easily and quickly remedying defects or repairing injuries to the cylinder and pins, since each disk, with its pins, is replaceable by others which can be kept in stock. The construction thus furnishes a remedy for the difficulty heretofore experienced in drilling cylinders for the insertion of the pins. It is difficult to so drill or bore holes in the cylinder according to the old method as to fit them for properly holding the pins. The tool is liable to drift, and the work is thereby rendered defective. After the insertion of the pins it is further necessary to file them down to a uniform distance from the cylinder. As this drilling and filing is done by hand, the work is less perfect and much more laborious than that required for the manufacture of a pin-cylinder of the form herein described, and obviously if one or more

pins require to be replaced the present invention provides for effecting the operation much more easily.

5 Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

10 1. A pin-cylinder for a music-box or like instrument, composed of circular disks provided with suitable pins on their peripheries and arranged side by side, an arbor passing centrally through said disks, and means for securing the latter together, substantially as set forth.

15 2. A pin-cylinder for a music-box or like instrument, composed of circular disks having suitable pins on their peripheries and detach-

ably secured upon an arbor, and a key to hold the disks and arbor in fixed relation circumferentially, substantially as set forth. 20

3. A pin-cylinder for a music-box or like instrument, composed of disks having pins and secured together side by side, an arbor passing centrally through the disks, and clamping-nuts to force the disks together on 25 said arbor, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

FRED H. CORTHELL.

Witnesses:

J. E. BRUCE,

CHAS. N. FROST.