

No. 674,552.

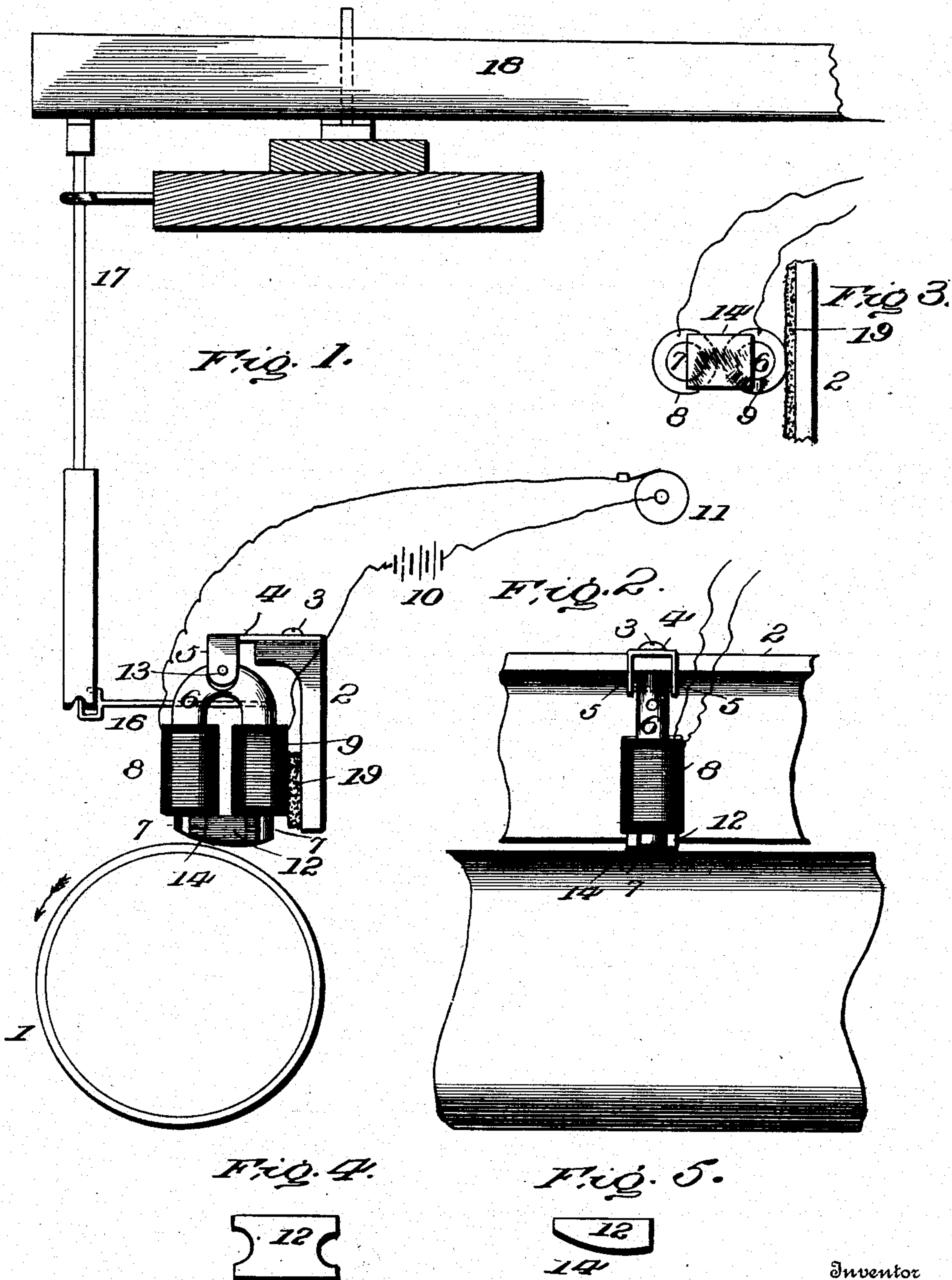
Patented May 21, 1901.

G. H. DAVIS.

SELF PLAYING MUSICAL INSTRUMENT.

(Application filed Nov. 30, 1897. Renewed Apr. 22, 1901.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE HOWLETT DAVIS, OF NEW YORK, N. Y.

SELF-PLAYING MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 674,552, dated May 21, 1901.

Application filed November 30, 1897. Renewed April 22, 1901. Serial No. 56,956. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HOWLETT DAVIS, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new, useful, and valuable Improvement in Self-Playing Musical Instruments, of which the following is a full, clear, and exact description.

My present invention relates to self-playing musical instruments, and more particularly to that class operated electrically and employing a rotary drum against which a friction-shoe is caused to impinge, and in which class of devices I have applied for and taken out several patents.

The special object of the present invention is to greatly simplify the construction heretofore employed by combining the friction-shoe and magnet for actuating the same in one movable part. To accomplish this important end, I employ the combination and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a transverse section showing my improved mechanism in operative position under a piano-key. Fig. 2 is a front view of my improvements alone. Fig. 3 is a view looking at the under side of my combined magnet and friction-shoe, to be hereinafter referred to as a "magnet friction-shoe." Fig. 4 is a detail view of the wood filler, which forms, with the ends of the magnet-core, the arc-shaped friction surface or shoe. Fig. 5 is a side view of the same.

Like numerals of reference indicate corresponding parts throughout the several views.

The revoluble iron drum 1 is supported and revolved in the direction indicated by the arrow in Fig. 1 in any well-known manner. Rigidly suspended above said drum 1 is a supporting-rail 2, and secured to the upper edge of said rail by screws 3 is a blade-spring 4, having downwardly-extending ears 5. Pivotaly secured between said ears 5 is a horse-shoe-electromagnet 6, formed of the U-shaped core 7, and the two helices 8 and 9 are mounted upon said core, as shown, the latter being in circuit with the battery 10 and becoming energized whenever the circuit is completed at the contact making and breaking device 11.

Between the ends of the magnet-core 7 is

forced a piece of wood 12 of the shape approximately as shown in Figs. 4 and 5, and afterward the said wood and ends of the core 7 are ground off in the arc of a circle taken from the pivot-point 13 as a center. After this a strip of leather 14 is glued over the curved surface of the wood and iron of the core in order to create a sufficient friction when it is thrown into contact with the periphery of the revoluble drum 1 and cause the entire magnet friction-shoe to be thrown inward upon its pivot 13 and raise the arm 16, the striker-rod 17, and the piano-key 18, as will appear obvious from a study of the drawings.

I prefer to provide a strip of felt 19 to act as a cushion for the magnet friction-shoe and prevent the latter from making a noise upon falling back into its normal position. This strip of felt 19 is glued or otherwise attached to the rail 2, as illustrated in the drawings.

The revoluble drum 1 being made of iron, it will be readily understood that when the magnet friction-shoe is energized by completing the circuit at the point 11 said shoe will be attracted by the iron drum 1 and moved toward the same, so as to contact therewith to actuate the arm 16, rod 17, and piano-key 18, as heretofore set forth.

As this novel electromechanical mechanism may obviously be employed for many purposes other than that illustrated, the following claims are drawn to cover, broadly, any uses to which the invention may be put.

What I claim is—

1. In an electromechanical movement, the combination with a revoluble iron drum, of a movable magnet carrying a friction-shoe between its cores, said magnet being in circuit with a source of electric supply, and a device for making and breaking the circuit, whereby the magnet is energized, to move the friction-shoe into contact with the periphery of said drum, for the purpose specified.

2. In an electromechanical movement, the combination with a rotary iron drum, of a magnet pivoted adjacent to said drum and carrying a friction-shoe between its core-pieces, said shoe being normally out of contact with the drum, a source of electrical supply in circuit with the said magnet, and a device for making and breaking the circuit whereby the

said friction-shoe is brought alternately into and out of contact with the periphery of the said drum, as and for the purpose specified.

3. In an electromechanical movement for operating the keys of a musical instrument, the combination with a rotary iron drum, of a magnet carrying a friction-shoe and pivoted above and normally out of contact with said drum, a piano-key, a connection between said magnet and key, a source of electrical energy in circuit with the said magnet, and a device for making and breaking the circuit whereby the friction-shoe is brought alternately into and out of contact with the said rotary drum to operate the said piano-key.

4. In an electromechanical movement, the combination with a rotary iron drum, of a pivoted U-shaped magnet mounted adjacent to said drum, a friction-shoe carried by said magnet, a source of electric energy in circuit with the magnet, and a device for making and breaking the circuit whereby the magnet is energized and the shoe alternately brought into and out of contact with the periphery of the drum, as and for the purpose specified.

5. In an electromechanical movement, the combination with a rotary drum of magnetic material, of a U-shaped magnet-core pivoted adjacent to said drum, a pair of magnet spools or helices mounted upon said U-shaped core, a friction-shoe located between the ends of said core, a source of electric energy in circuit with the said magnets, and a device for making and breaking the circuit whereby the magnets are energized as and for the purpose specified.

6. In an electromechanical movement, the combination with a rotary iron drum, of a magnet carrying a friction-shoe and pivoted above and normally out of contact with the said drum, a cushion against which said magnet normally rests, a source of electrical supply in circuit with the said magnet, and a device for making and breaking the said circuit whereby the friction-shoe is brought alternately into and out of contact with the periphery of the rotary drum, as and for the purpose specified.

7. In an electromechanical movement, the combination with a rotary iron drum, of a U-shaped magnet-core pivoted adjacent to said drum and having its ends curved, a pair of magnet spools or helices mounted upon said core, a friction-shoe located between the ends of said core and having its lower face curved and flush with the curved ends of the core, a source of electric supply in circuit with the said magnet, and a device for making and breaking the circuit whereby the magnet is energized to bring the friction-shoe into and out of contact with the said rotary drum.

8. As a new article of manufacture, a magnet comprising a U-shaped core carrying spools or helices, and a friction-shoe mounted between and carried by the ends of said U-shaped core.

In testimony whereof I affix my signature in the presence of two witnesses.

GEORGE HOWLETT DAVIS.

Witnesses:

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