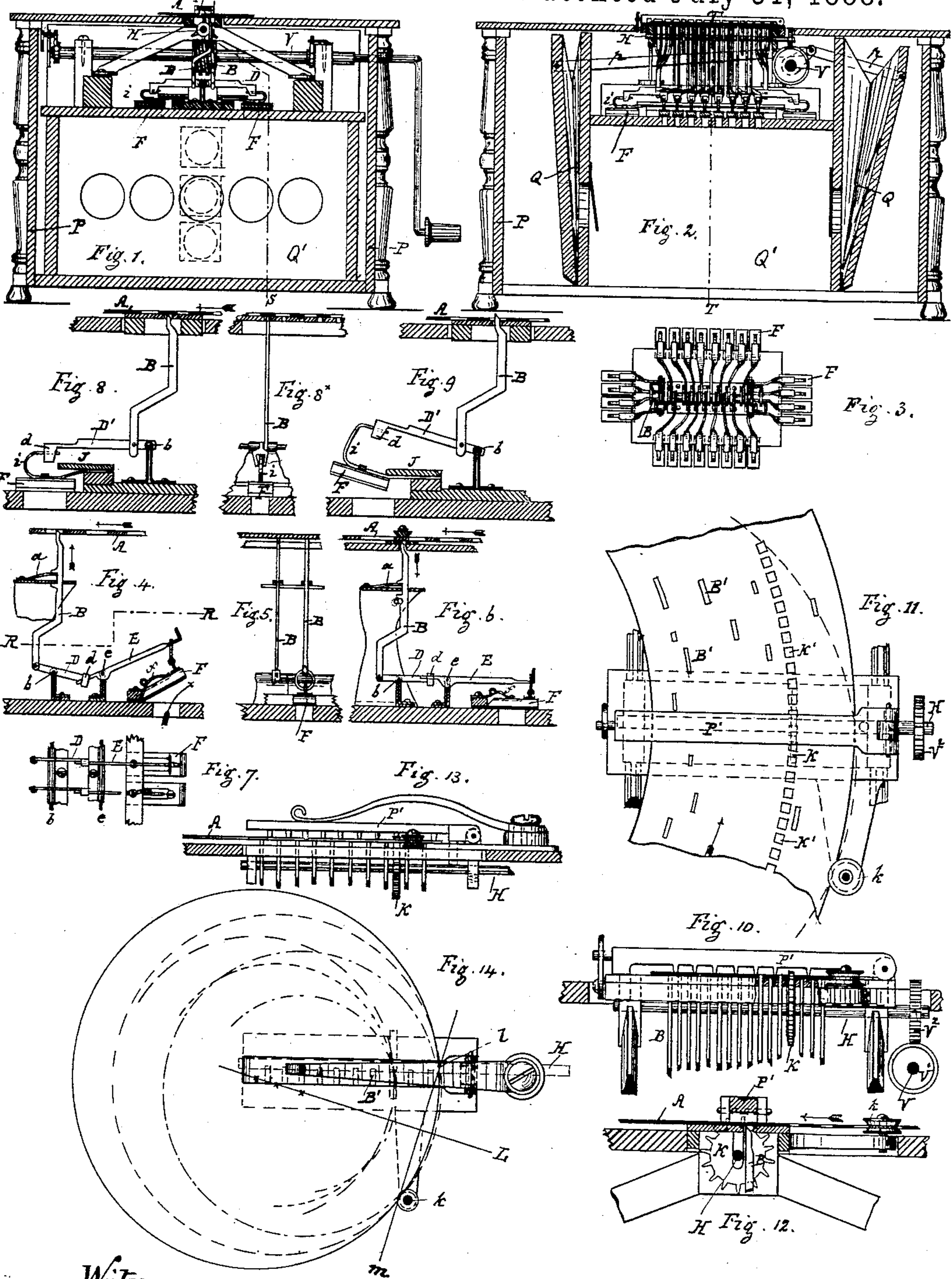


(No Model.)

H. BURCKAS.
MECHANICAL MUSICAL INSTRUMENT.

No. 387,141

Patented July 31, 1888.



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UNITED STATES PATENT OFFICE.

HUGO BURCKAS, OF LEIPSIC, SAXONY, GERMANY.

MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 387,141, dated July 31, 1888.

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To all whom it may concern:

Be it known that I, HUGO BURCKAS, a citizen of Germany, residing at Leipsic, Empire of Germany, have invented a new and Improved Musical Instrument, of which the following is a specification.

The nature of my invention consists in the improved mechanism whereby the pressing of the rods against the music-sheets and the closing of the reed-valves are independent of each other, insuring thereby little friction against the under side of the music-sheet and greater certainty of a tight closing of the reed-valves, and further in the arrangement and construction of the music-sheets, whereby sheets of different dimensions may be used in the same instrument.

In the accompanying drawings, Figure 1 is a longitudinal section of my improved instrument at line T T, Fig. 2. Fig. 2 is a cross section of the same at line S S, Fig. 1. Fig. 3 is a plan of the reed-valve mechanism. Fig. 4 represents a side view of the rods and levers for operating the reed-valve in the position when the valve is closed. Fig. 5 is an end view of the same. Fig. 6 is a side view, similar to Fig. 4, in the position when the valve is open. Fig. 7 is a plan at line R R, Fig. 6. Fig. 8 is a side view of rod, lever, and reed-valve when closed, showing a modification. Fig. 8^x is an end view of the same. Fig. 9 is a side view, similar to that shown in Fig. 8, when the reed-valve is open. Fig. 10 is a cross-section of part of the instrument, similar to Fig. 2, showing the driving mechanism on an enlarged scale. Fig. 11 is a plan of the same. Fig. 12 is a section of part of the instrument, similar to Fig. 1, on an enlarged scale. Fig. 13 is a section, similar to Fig. 10, showing a modification. Fig. 14 is a top view of part of the mechanisms, showing diagrammatically the position of various music-sheets referred to in this specification.

In a suitable case, P, the bellows Q are arranged, operated through rods *p p*, connected with cranks on the driving-shaft V, Fig. 2. Above the air-chamber Q the reed-valves and their mechanism are arranged. The driving-shaft V carries a worm-wheel, V', which engages with a wheel, V², fast on a shaft, H, (see Fig. 10,) which latter carries a tooth-wheel, K, for operating the music-sheet A, placed on top

of the case P and held down upon the surface by means of a hinged presser-bar, P'.

B are the rods which operate the reed-valves supported and pressed against the under side of the music-sheet A or moved into their perforations by means of a small spring, *a*. These rods B are hinged to levers D, turning on fixed centers *b*. The free end of this lever D is provided with a projection, *d*, acting against the free end of a lever, E, turning on a fixed center, *e*. To the other end of the lever E the reed-valve F is hooked, and is acted upon by a spring, *f*, to keep said reed-valve closed. By this arrangement the reed-valve, when in the position shown in Fig. 4, or when closed, will always be kept perfectly tight through the action of said spring *f*, being perfectly independent in that position of its actuating mechanism.

By the above-described mechanism for operating the reed-valves, the motion of the rods B requires to be only very little, as the required motion for the reed-valves can be obtained and easily regulated by the different proportions of the arms of the levers D and E.

The reed valve F may be attached to a spring, *i*, acting to keep said valve open and connected to the end of a lever, D', to which the rod B is attached in such a manner that when the end of said rod B is in contact with the under side of the music-sheet the lever D' will compress the spring *i* to keep the valve F closed, as shown in Fig. 8, and when the end of the rod B enters any of the perforations in the music-sheet the lever D' will release the spring, so as to allow the same to open said valve F, as shown in Fig. 9. The amount of motion of the valve is regulated in this case by a cross-bar, J.

In order to introduce music-sheets of different diameters and different sizes according to the length of the piece of music to be played, while at the same time the mechanism for operating the music-sheet as well as the mechanism for operating the reed-valves is fixed and the same for all sizes of music-sheets, holes K' are provided in said music sheets (see Fig. 11) concentric with the circumference of the music-sheet, into which the teeth of the wheel K, attached to the shaft H, are made to work, and through which said music-sheet receives its

regular motion. A guiding pin or wheel, *k*, is arranged at some part of the casing forward of the center line of the shaft *H*, guiding the outer periphery of the music-sheet. This arrangement brings the center of the music sheet not in line with the center of the instrument but into a line, *L*, perpendicular to a line, *m*, drawn from a point, *l*, at the periphery of the music-sheet and in line with the axis *H*, and through the periphery of the guiding pin or wheel *k*, and half-way between said two points. (See Fig. 14.)

In case the line of the rods *B* correspond with the center line of the shaft *H*, or is parallel to the same, as is usually the case, the longitudinal axis of the perforation *B'* in the music-sheet must be at right angles to a line forming a tangent of a circle whose radius is equal to the distance of the center of the music-sheet from the center line of the axis *H*.

What I claim is—

1. In a mechanical musical instrument, the combination of the rod *B* with spring *a*, levers *D E*, and reed-valve *F*, arranged to operate in the manner and for the purpose described. 25

2. In combination with the reed-valve *F*, the spring *f*, closing said valve independent of its actuating mechanism, substantially as set forth.

3. In a musical instrument, in combination with the music-sheet *A* and driving-wheel *K*, the guiding pin or wheel *k*, guiding the outer periphery of the music-sheet, substantially as described. 30

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 35

HUGO BURCKAS.

Witnesses:

EDMUND BACH,
MAX MATTHÄI.