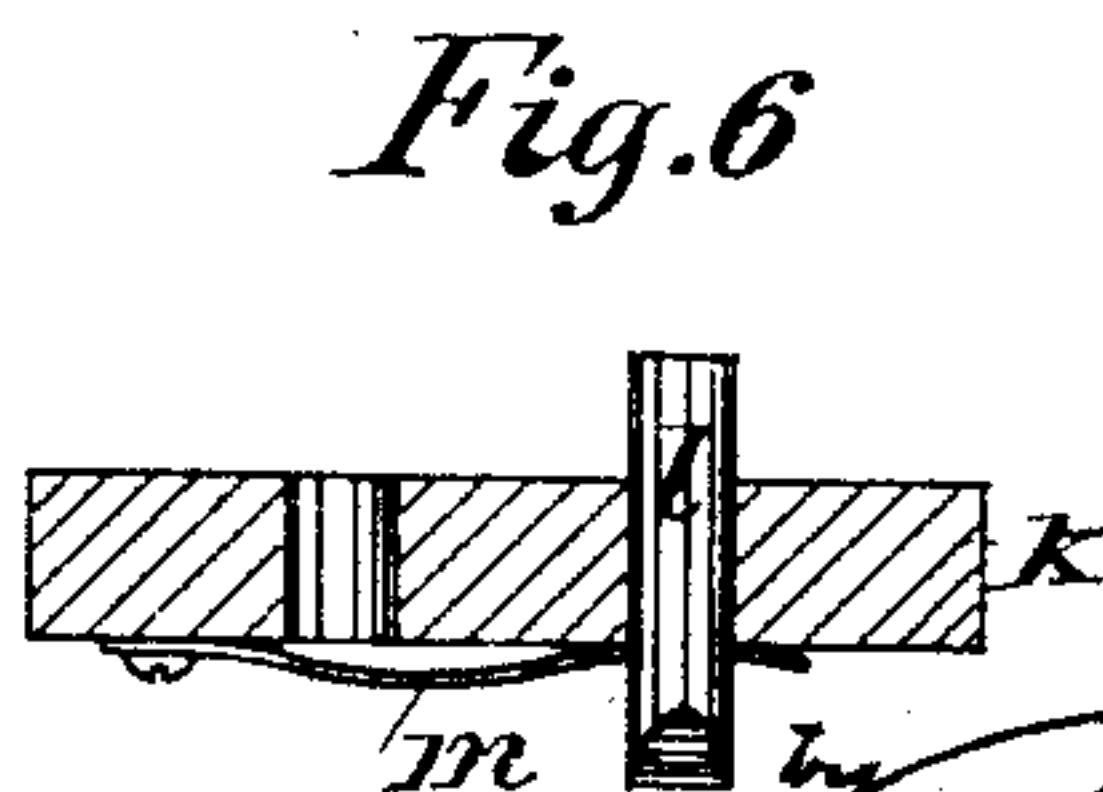
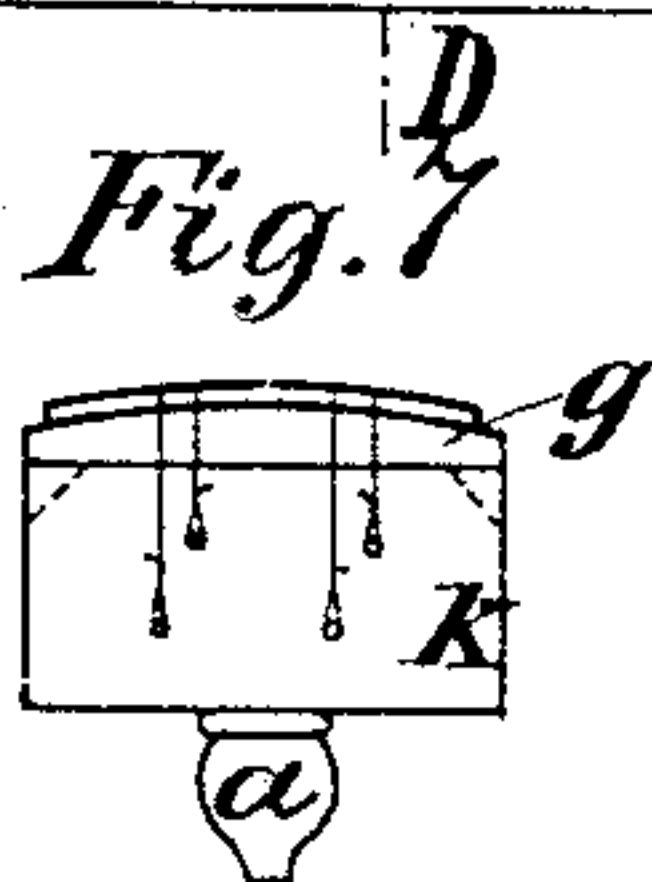
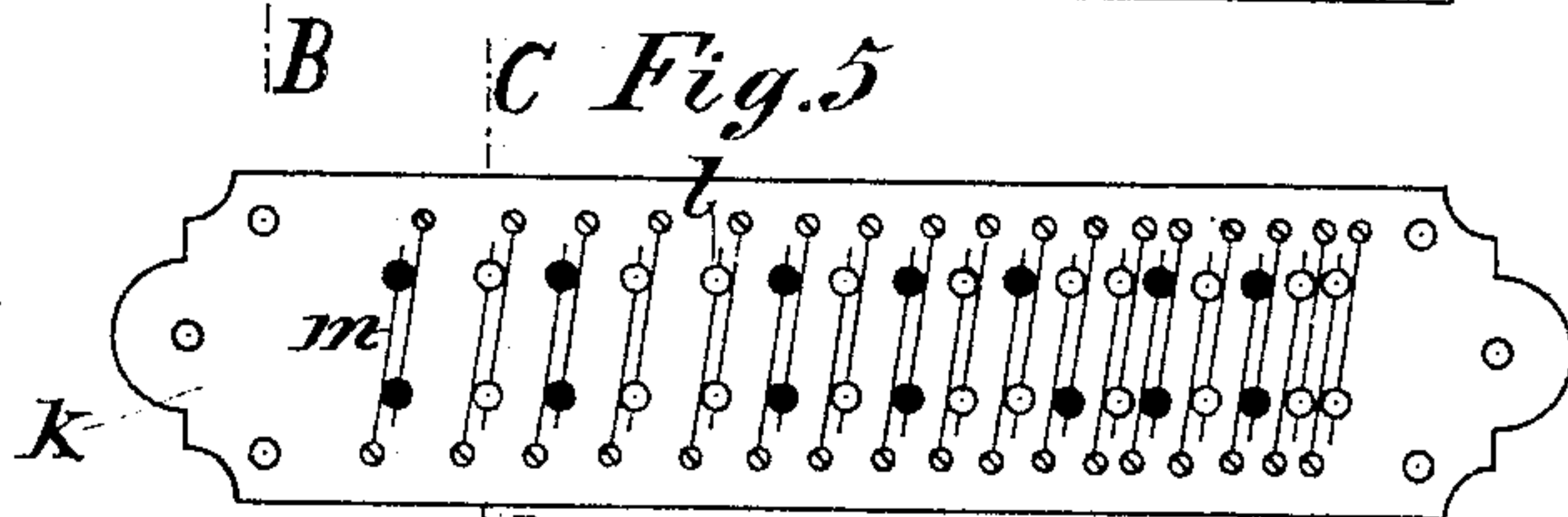
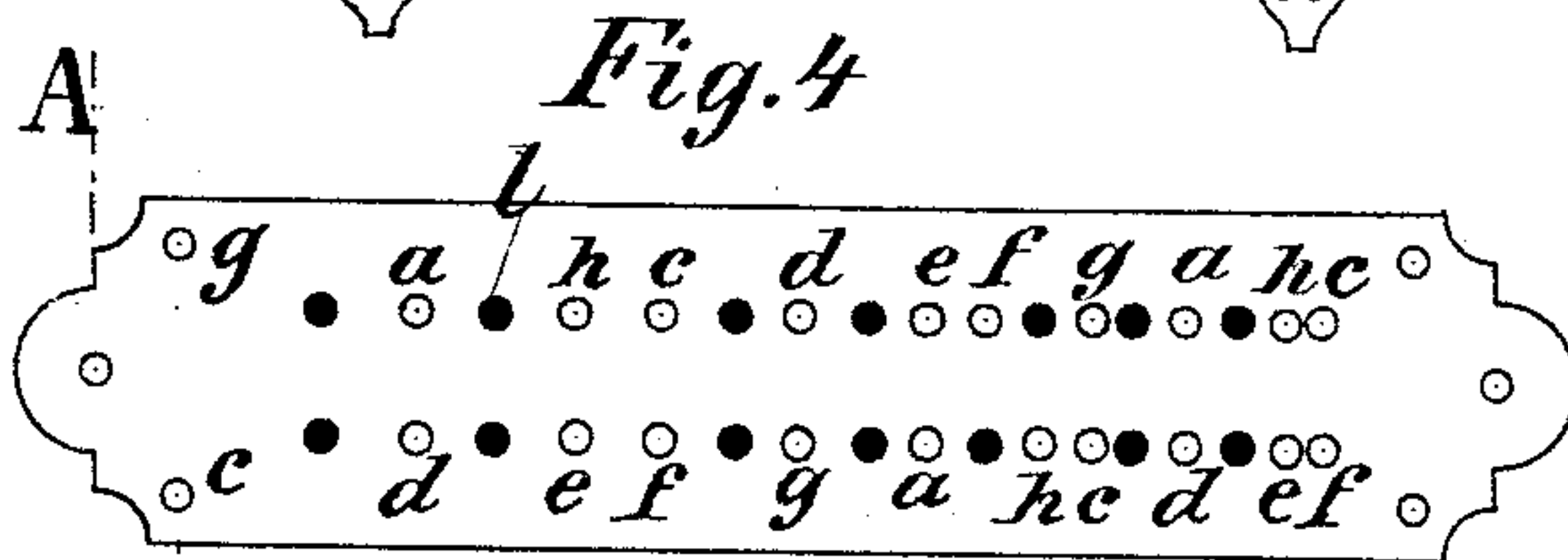
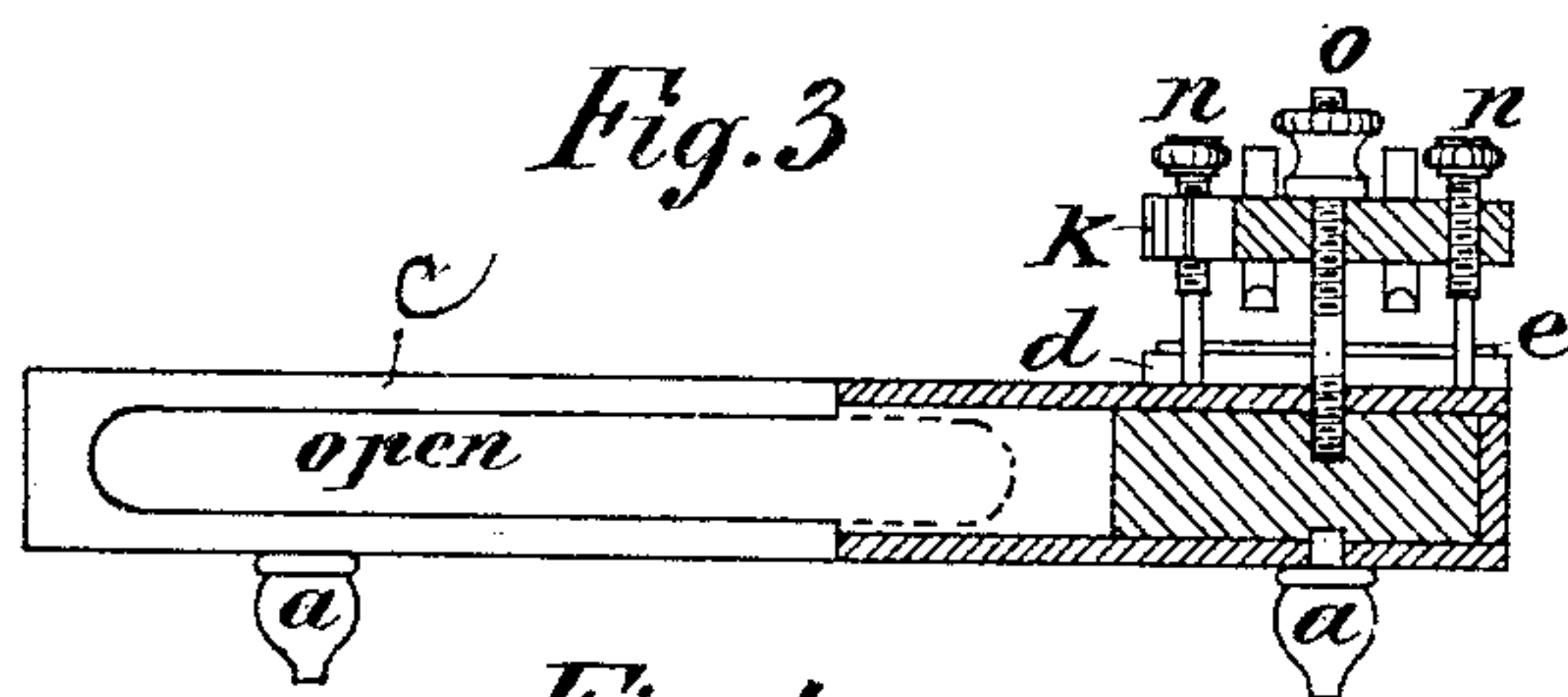
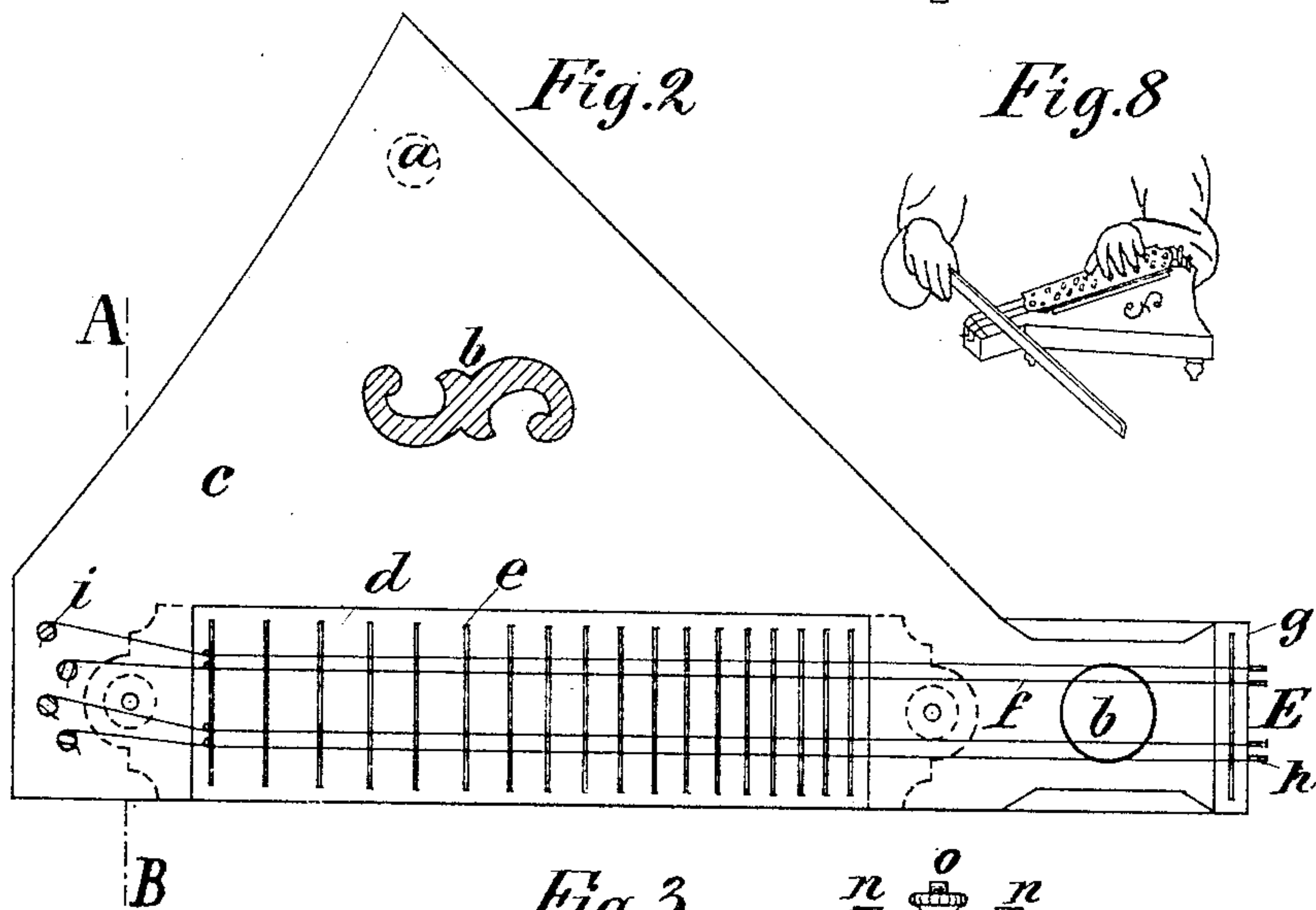


E. BÖCKER.
STRING INSTRUMENT.

Patented Dec. 19, 1893.



Inventor
Ernst Böcker

by *Richard A.*
attorneys

UNITED STATES PATENT OFFICE.

ERNST BÖCKER, OF COLOGNE, GERMANY.

STRING INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 511,009, dated December 19, 1893.

Application filed February 2, 1893. Serial No. 460,779. (No model.) Patented in Germany August 11, 1891, No. 62,830, and in Belgium October 8, 1892, No. 101,651.

To all whom it may concern:

Be it known that I, ERNST BÖCKER, a subject of the Emperor of Germany, residing at Cologne, (Rhineland,) Germany, have invented certain new and useful Improvements in String Instruments, of which the following is a full, clear, and exact description.

The invention has been patented in Germany, No. 62,830, August 11, 1891, and in Belgium October 8, 1892, No. 101,651.

In the following description reference will be made to the accompanying drawings of which—

Figure 1 is a front elevation of an instrument embodying my invention. Fig. 2 is a top view of the same, without keyboard; Fig. 3 a section along line A B, with keyboard; Fig. 4 a plan of the keyboard; Fig. 5 a bottom view of the keyboard; Fig. 6 a section along line C D of Fig. 5; Fig. 7 an end view; Fig. 8 a diagram representing the mode of playing.

The instrument chiefly comprises a sound chest *c* resting on three legs *a* and provided with two unequal sound openings *b*, and a finger board *d* mounted on the said sound chest. In order to promote the development of sound, the sound box *c*, as shown by Fig. 3, is quite open on one side. The finger board or string board *d* is chromatically divided by small bars of metal *e*, and has mounted on it four strings *f* of metal or catgut arranged in pairs, the strings of which are placed close together and tuned in unison. The instrument is thus stringed to produce double tones as every string is in duplicate, and two strings are always simultaneously sounded by the player.

In the present instrument the two front strings are tuned in C, and the two rear strings in G. The strings are held to a bridge *g* by pegs *h*, as shown in Fig. 7, and fastened with the front end to the tuning pins *i*. Over the strings is placed a keyboard. This consists of a flat wooden piece *k* having two rows of holes drilled perpendicularly toward the ledges of the finger board placed underneath. In the holes are loosely fitted cylindrical keys *l* having flattened extremities and each of which is held by a separate spring *m*. One

end of the spring is inserted into a hole drilled into the lower part of the key, while the other end is fastened to the under side of the keyboard by means of a screw. The keyboard is provided at each end with a pair of adjusting screws *n*, which support the whole keyboard. The keyboards may therefore be raised or lowered by these adjusting screws, so that the keys may be exactly brought to the proper distance from the strings situated underneath the same. The keyboard is fixed by the two nuts and screws *o*, which are screwed with their lower ends into the cover of the instrument. The keys should, when being pressed downward, rest with their bottom ends on the strings, a short distance from the brass bars of the finger board; on this depends the exact position of the key board or the keys.

For playing on the instrument, it is placed on a table in the manner shown by Fig. 8. By a slight pressure with the fingers of the left hand, the keys are pressed down on the strings, and when the fingers are taken off, the keys rise immediately under the influence of the springs. The strings are sounded by means of a bow held in the right hand. At the corresponding keys the notes of the C major scale are indicated by letters, and by depressing the keys, the respective string is caused to produce the notes marked near the said keys. In order to make it easier to find one's way, the notes of C major scale are represented by white keys and the intermediate notes by black keys.

The instrument is specially intended as a teaching-instrument, to be used for practicing songs by the method of solmization.

The keyboard mounted on the instrument has for its object, to enable anybody, even without possessing a musical ear, after a short time of self instruction, to play the instrument without difficulty and with clearness.

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

In combination, the sounding box having the strings and the frets thereon, the elevated key board over said strings and having a se-

ries of spring keys *l* movable therethrough,
the adjusting screws *n* at the ends of the key
board for moving it at either or both ends to-
ward or from the sounding board and the set
5 nuts *o* for fixing the key board in place, sub-
stantially as described.

In testimony whereof I have signed this

specification in the presence of two subscri-
ing witnesses.

ERNST BÖCKER.

Witnesses:

G. WOLF KARR.

FRITZ SCHROEDER.