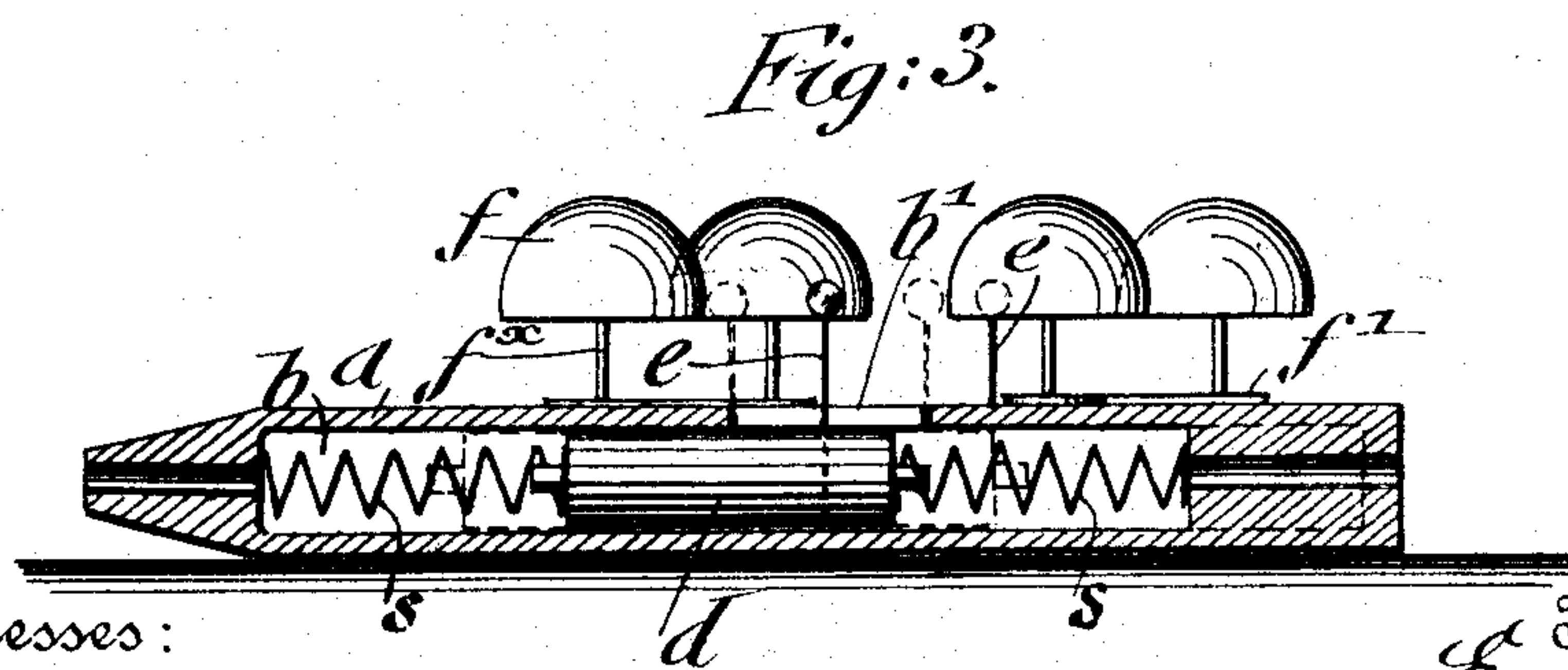
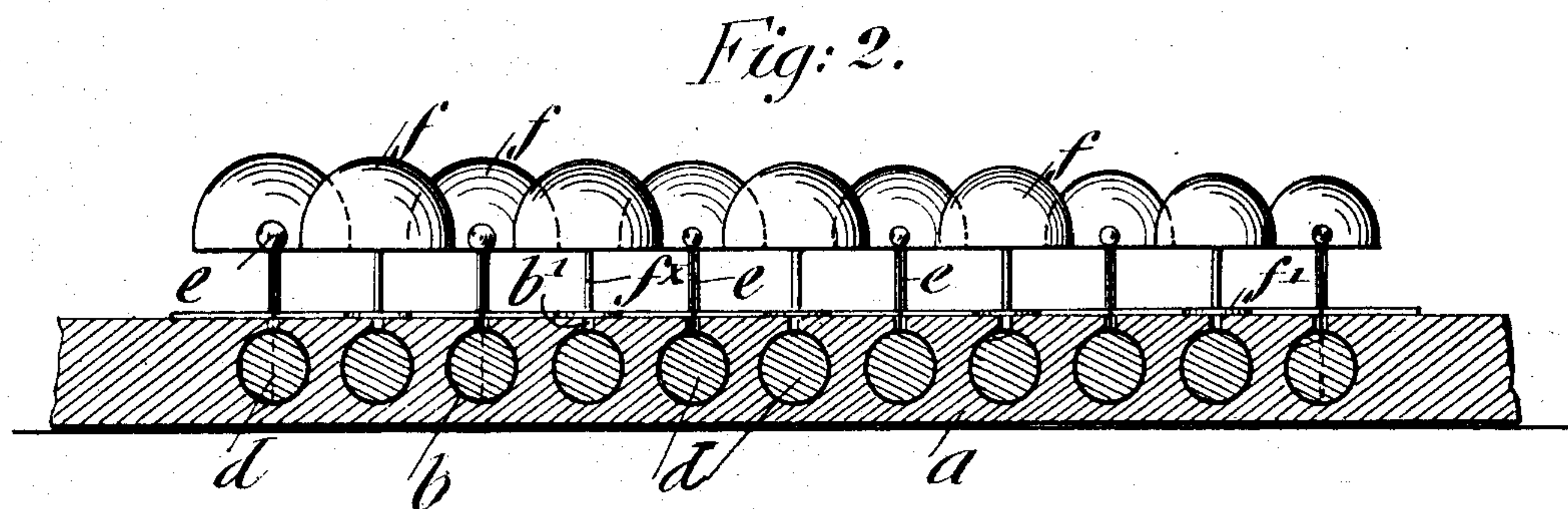
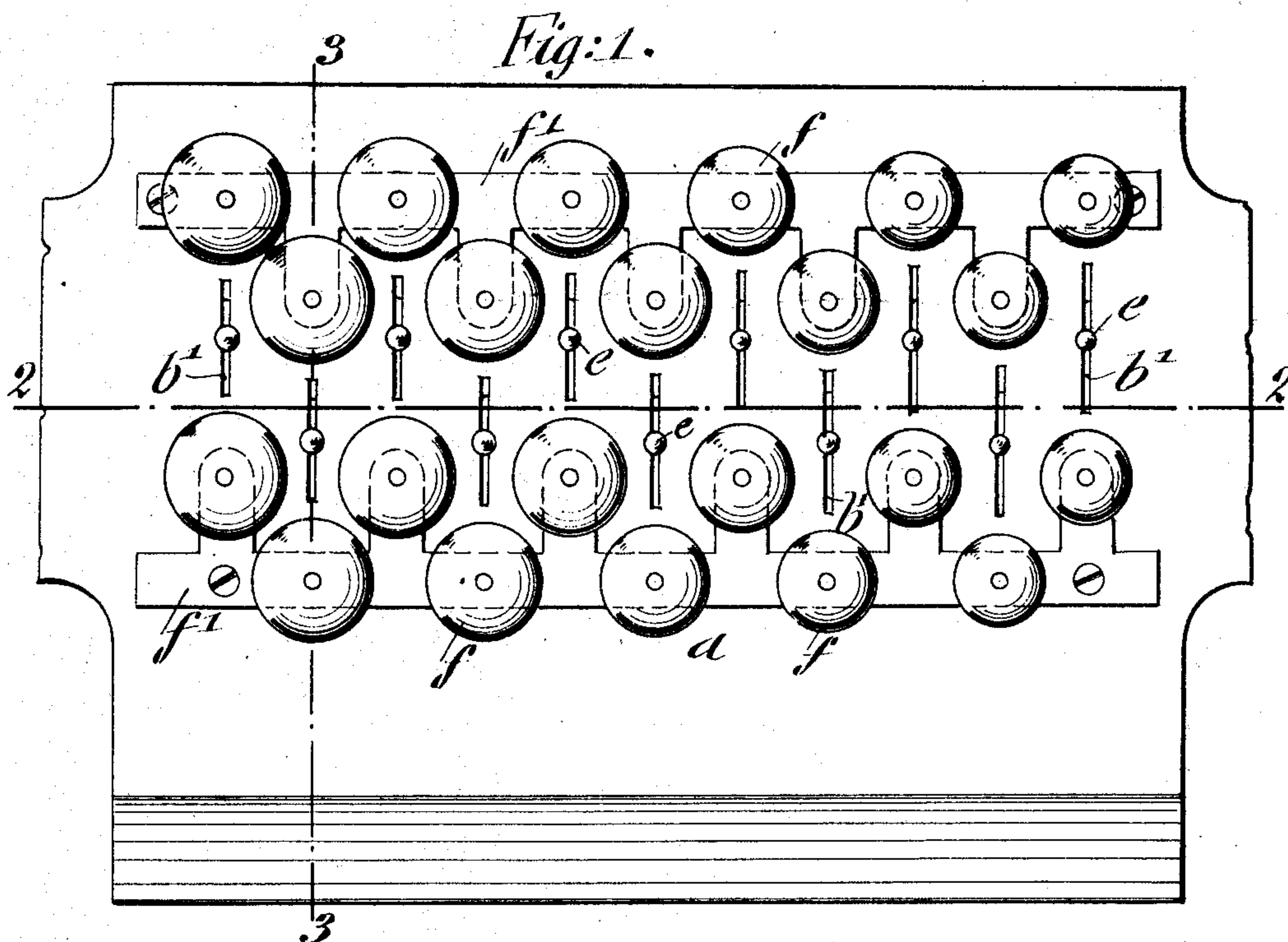


No. 887,402.

PATENTED MAY 12, 1908.

E. KOCH.
MOUTH HARMONICA.
APPLICATION FILED JAN. 21, 1908.



Witnesses:
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MOUTH-HARMONICA.

No. 887,402.

Specification of Letters Patent.

Patented May 12, 1908.

Application filed January 21, 1908. Serial No. 411,927.

To all whom it may concern:

Be it known that I, ERNST KOCH, a citizen of the Empire of Germany, residing in Jersey City Heights, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Mouth-Harmonicas, of which the following is a specification.

This invention relates to mouth harmonicas in which instead of reeds small bells are used which are actuated by means of clappers in the same manner as the reeds are, by suction and pressure exerted by the mouth; and the invention consists in the novel features of construction which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a perspective view of my improved mouth harmonica, and Figs. 2 and 3 are respectively a vertical longitudinal section and a vertical transverse section on lines 2, 2 and 3, 3, Fig. 1.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, *a* represents the casing of my improved mouth harmonica, which is made in the usual manner, of any suitable size. In the casing *a* are arranged transverse bores or passages *b*, of circular cross-section and provided with guide-slots *b*¹ in their upper part. At the interior of the bores are arranged pistons *d* which are actuated by suction and pressure of the mouth produced in the same manner as in ordinary harmonicas in sounding the reeds. To the pistons are rigidly attached clappers *e* that are carried solely by the pistons and guided in the slots *b*¹ of the bores. The upper ends or heads of the clappers are capable of movement so as to strike one pair of bells *f*, each pair consisting of bells of different sizes, that are arranged at the front and rear of the clappers. As many pairs of bells are arranged as there are bores arranged in the casing *a* of the harmonica, the stems *f*^x of the bells being supported on base-plates *f*¹ which are attached to the upper portion of the casing. The bells are grouped in two longitudinal rows in staggered relation to provide the necessary space for the same, decreasing in size from the left-hand or bass-end towards the right-hand or treble-end of the harmonica.

The playing of the harmonica is accomplished by the suction and force of the air which actuates the pistons in the bores, and thereby the clappers which strike the bells. To facilitate the movement of the pistons and return the clappers into median position between each corresponding pair of bells, cushioning springs *s* are interposed between the ends of the pistons and suitable collars or stops in the bores, as shown in Fig. 3. The central position of the clappers between the bells secures the striking of the bells on the actuation of the pistons by suction or force, so that a very attractive bell mouth harmonica is obtained which furnishes entirely new effects.

In place of the bells, metallic plates, so-called metallophone plates, may be used for producing the tone.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A mouth harmonica comprising a casing having bores therein, groups of bells mounted on said casing and arranged in pairs disposed longitudinally of the bores, and a device operating in each bore and between the corresponding pair of bells by which both of the latter are struck.

2. In a mouth harmonica, the combination of a casing having a bore therein, a pair of bells mounted on said casing above said bore, a piston in said bore, and a clapper on said piston which at each end of its movement strikes one of said bells.

3. A mouth harmonica consisting of a casing having bores or passages, pistons in said bores, clappers attached to the pistons and guided in slots of said bores, and bells mounted on the casing.

4. A mouth harmonica consisting of a casing having bores therein, pistons in said bores, cushioning springs interposed between the pistons and the ends of the bores, clappers supported on the pistons, and devices which are struck by the clappers.

5. A mouth harmonica comprising a casing having a plurality of bores, rows of bells mounted on said casing at the front and rear of said bores and arranged in staggered relation, said bells being also arranged in pairs disposed longitudinally of the bores, and devices operating in said bores by which both bells of each pair are struck.

6. In a mouth harmonica, the combination of a casing having a bore therein, a bell mounted on the casing, a piston movable in said bore, and a clapper mounted solely on
5 said piston and arranged to be moved by the latter into direct contact with said bell.
In testimony, that I claim the foregoing as

my invention, I have signed my name in presence of two subscribing witnesses.

ERNST KOCH.

Witnesses:

PAUL GOEPEL,
HENRY BRAEUNINGER.