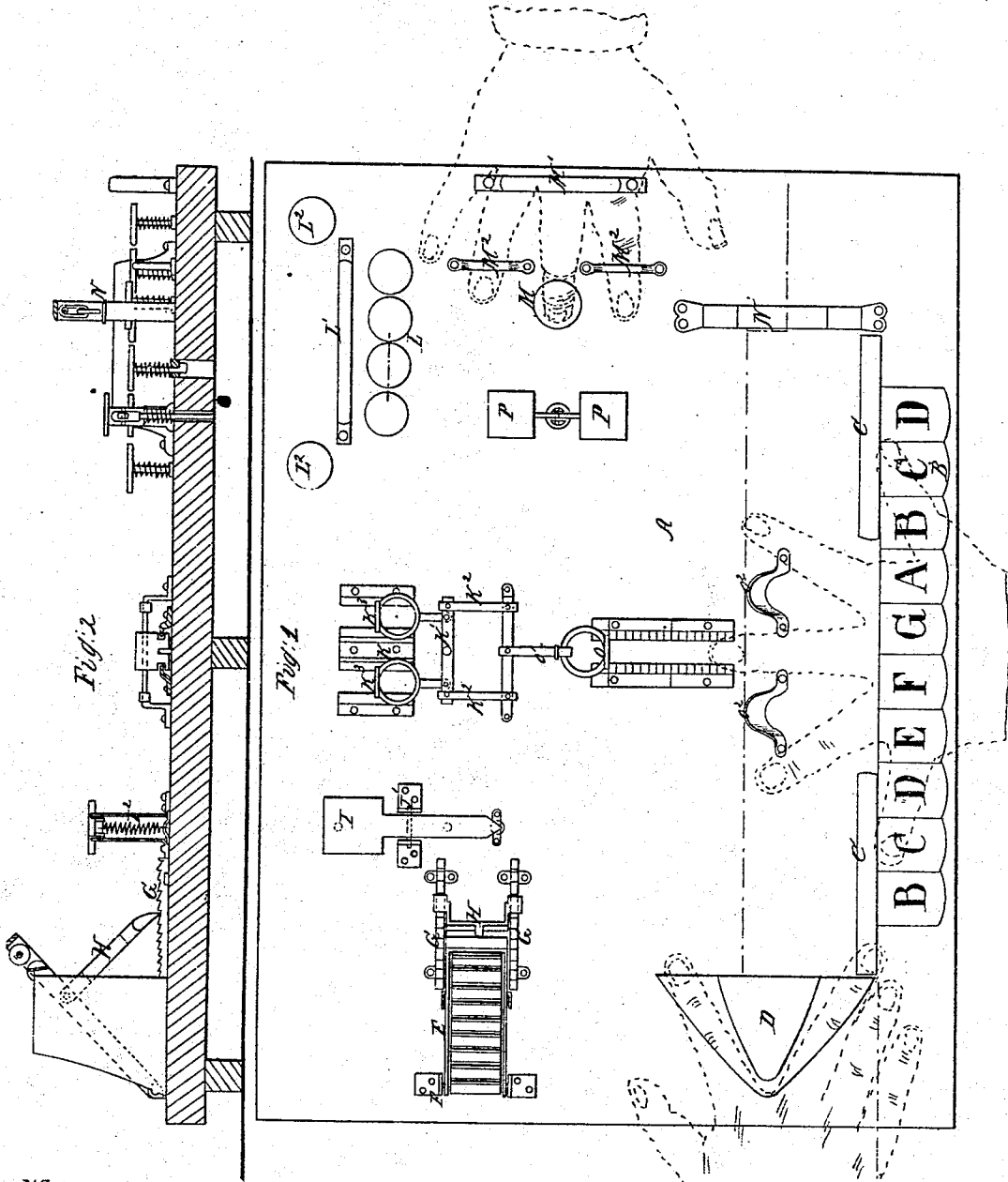


*A. C. Armengol,*

*Key Board.*

*No. 86,722.*

*Patented Feb. 9, 1869.*



*Witnesses*  
*C. R. Keith*  
*J. A. Morgan*

*Inventor*  
*A. C. Armengol*  
*Wm. L. Morgan*  
*Attorneys.*

# United States Patent Office.

ARTHUR C. ARMENGOL, OF NEW YORK, N. Y.

Letters Patent No. 86,722, dated February 9, 1869.

## FINGER-EXERCISING APPARATUS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ARTHUR C. ARMENGOL, of the city, county, and State of New York, have invented a new and improved Finger-Exercising Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to apparatus for exercising the fingers, to fit them, by rendering the joints more flexible, for playing the piano with greater ease, and for attaining greater excellence therein.

It consists in the arrangement, upon a board or table, of a set of practising-apparatus, by which the fingers may be exercised in the movements necessary to give them the requisite strength, elasticity, and pliability for attaining greater excellence in the said performance.

The said apparatus may be thus described:

First, a device for practising two fingers in alternate parallel and horizontal movements.

Second, a device for fitting the hands to assume the right positions on the piano.

Third, a device for fitting the hands to assume the right position when the middle fingers alone are to perform.

Fourth, a device for imparting strength and agility to either finger, as in the vertical movement of a single finger.

Fifth, a device for imparting strength to the fingers in the ends, and to measure the degree of the same.

Sixth, a device for preparing two fingers to perform vertical movements alternately in opposite directions.

In the drawings—

Figure 1 represents a plan view of my improvements.

Figure 2 represents a longitudinal sectional elevation on the line  $x x$  of fig. 1.

Similar letters of reference indicate corresponding parts.

A represents a table, which may be of any preferred size and form, for the attachment of my improved finger-exercising apparatus.

K represents a device for practising two fingers in alternate to-and-fro movements horizontally, consisting of a vibrating lever,  $K^1$ , attached by springs,  $K^2$ , connected to each end to any fixed support, and provided with rings,  $K^3$ , into each of which a finger is placed, and moved alternately in horizontal directions against the action of the springs, thereby exercising the muscles of the fingers in that manner.

L represents a series of six spring-touches, and  $L^1$ , a bridge in connection therewith, four of the said touches being arranged in a row, for the application of the four fingers of either hand, while the others,  $L^2$ , are arranged sufficiently in the rear for the application of the thumbs, one for the right and the other for the left thumb. The bridge  $L^1$ , in front of the four touches  $L$ , serves to maintain the fingers at the proper degree of curvature, and thereby the hand sufficiently above the level of the key-board, as is required for this practice, while the finger-exercise of pressing down the touches against the springs is taking place.

M represents a single similar touch, in connection

with which is a bridge,  $M^1$ , and two finger-guards,  $M^2$ . The object of this arrangement is to maintain the hand at the proper elevation, and in a state of rest, while one finger is performing vertical movements.

N represents a ring, or other device, suspended by a spring, for the practice of pressing down forcibly with one finger while the hand is in a state of rest.

O represents a slide, arranged in horizontal ways, attached to a fixed point by a spring,  $O^1$ , and arranged in combination with two finger-guards,  $O^2$ , against which two fingers may rest to hold the hand in position, while a third finger performs a to-and-fro horizontal practice with the slide O. The ways, in which the slide works, may be provided with a scale, on which the movement of the finger or the tension of the springs may be measured.

P represents two spring-touches, connected by a lever, arranged to vibrate on a central axis, compelling one to rise while the other falls, for the purpose of practising vertical movements with two fingers alternately.

It will be readily observed, without further description, that the above-described apparatus affords a system for finger-practice whereby the learner may readily acquire skill in fingering the keys, thereby greatly facilitating his progress.

The order of arrangement of the several devices on the table may be varied, to suit taste or circumstances.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

1. The combination, with the table A, of the vibrating lever  $K^1$ , provided with the rings  $K^3$  and ways, and connected by the springs  $K^2$  to fixed points, substantially as and for the purpose described.

2. The combination, with the table A, of the spring-touches L  $L^2$ , and bridge  $L^1$ , substantially as and for the purpose described.

3. The combination, with the table A, of the spring-touch M, guards  $M^2$ , and bridge  $M^1$ , substantially as and for the purpose described.

4. The combination, with the table A, of the finger-piece N, suspended from the bridge  $N^1$  by a spring, substantially as and for the purpose described.

5. The combination, with the table A, of the slide O, connected by a spring to a fixed pivot, and provided with ways and the guards  $O^2$ , substantially as and for the purpose described.

6. The combination, with the table A, of the spring-touches P, arranged substantially as and for the purpose described.

7. The combination, in one apparatus, of the several sets of finger-exercising devices, substantially as and for the purpose described.

8. A system of finger-exercising apparatus, substantially such as herein shown and described, and for the purpose specified.

The above specification of my invention signed by me, this 26th day of September, 1868.

ARTHUR C. ARMENGOL.

Witnesses:

FRANK BLOCKLEY,  
E. G. COLLINS.