(No Model.)

G. A. LIEBIG, Jr.

FINGER EXERCISING MACHINE.

No. 318,916. Patented May 26, 1885.

Fig. 1.

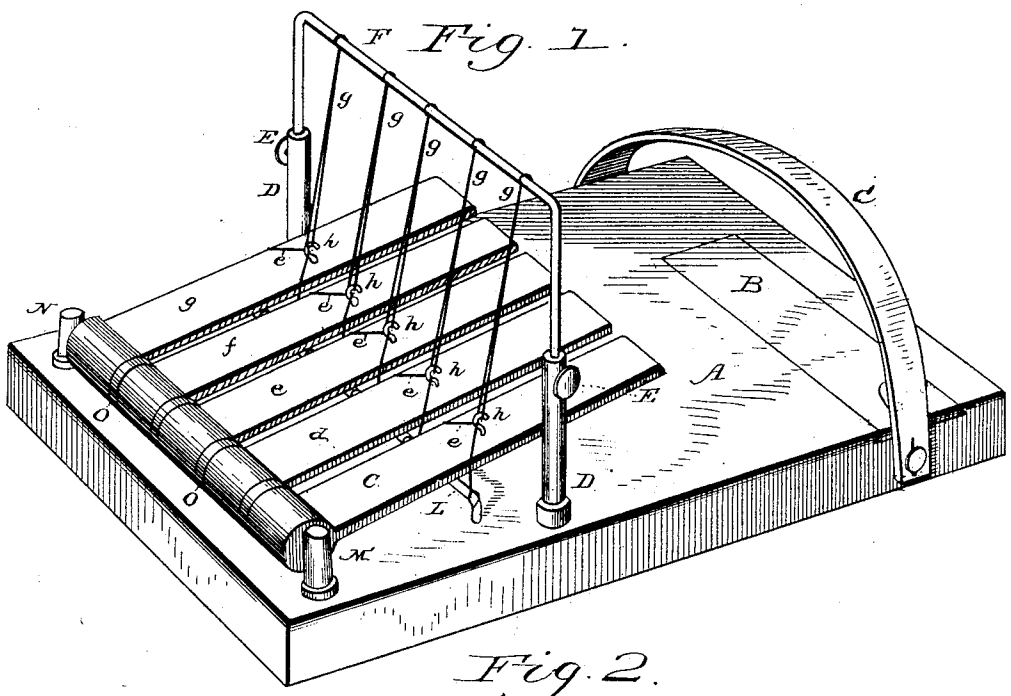
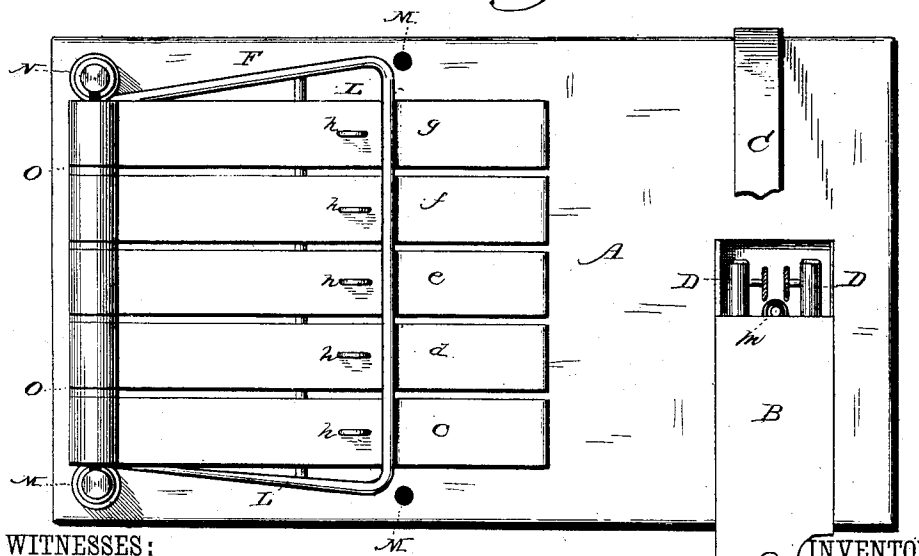


Fig. 2.



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GUSTAV A. LIEBIG, JR., OF BALTIMORE, MARYLAND.

FINGER-EXERCISING MACHINE.

SPECIFICATION forming part of Letters Patent No. 318,916, dated May 26, 1885.

Application filed December 13, 1884. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV A. LIEBIG, Jr., a citizen of the United States, residing at Baltimore, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Finger-Exercising Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to that class of devices known as "finger-exercising machines," designed, especially, by loosening the ligaments and strengthening the muscles of the fingers, to impart ease and vigor of execution to performances upon the piano, organ, or like musical instrument.

Machines of the kind referred to, if constructed upon proper principles, are of invaluable service to beginners, reproducing the essential conditions for practice of the musical instrument itself, while affording facilities for the harmonious development of the capabilities of the fingers as a whole, and the especial training and strengthening of such as are by nature exceptionally weak. At the same time they are desirable as a means of lessening wear and tear of the original instrument, and particularly that occasioned by the long-continued practice exacted of beginners upon the white keys at the center of the key-board in the execution of the so-called "five-finger" movements. For advanced musicians, by counteracting the tendency of the fingers to resume a portion of their former rigidity, they lessen or sometimes entirely obviate the evil effects almost inseparable from long-intermitted practice.

In the accompanying drawings I have illustrated a finger-exercising machine of my invention, which, while performing its required functions in an efficient and trustworthy manner, is at the same time of simple, inexpensive, and durable construction, the separate parts of which may be renewed at small cost, and which may be readily and conveniently folded within a comparatively small space for traveling purposes or for shipment.

Referring more particularly to the several figures of the drawings, wherein like letters indicate like parts throughout, Figure 1 represents a perspective view of my invention in position for use. Fig. 2 represents a plan view of the same in the folded position.

In the drawings, A indicates a rectangular base-board provided at one end with the upright stanchions N N, bearing a transverse shaft, upon which are threaded the enlarged or bossed ends of a series of practice-keys, *c d e f g*, and intervening washers, O O. The base-board is provided with two opposite perforations or steps, M M, for the reception of the lower ends of the removable hollow sleeve-pieces D D, having binding-screws E E, and adapted to receive the vertically-adjustable rectangular supporting-bar F.

Beneath the keys is secured the transverse bar L, which, like the bar F, is preferably made of stout wire, and from each bar a retractile connection extends to a hook, *h*, or similar securing device located upon each of the series of keys. These retractile connections may consist of spiral springs; but in practice I prefer to employ simply rubber bands, as shown, both because of their comparatively small cost and ease of replacement, and for the further reason that the tension upon each key may be readily regulated by merely adding additional rubbers thereto. The tension upon the whole series may be simultaneously varied by raising or lowering the adjustable bar F, fixing it at the desired elevation by means of the binding-screws E E.

At the end of the board opposite the free extremities of the keys is located a strap, extending over the top of the board and adapted to be secured over the hand of the performer for the purpose of retaining the hand in proper position.

The mode of operation of my invention is as follows: The parts being arranged in the relationship shown in Fig. 1, and the proper tension given to each of the keys, the apparatus is in condition for use in the same manner as an ordinary piano or organ key-board, the tension being so regulated that the keys shall have an upward incline of suitable pitch. The fingers may now be exercised by pressing downwardly upon the keys against the resistance of the rubbers *g*, or upwardly against the resistance of the rubbers *e*. In some instances, however, I contemplate dispensing entirely with the under series of rubbers.

The apparatus may be readily packed within small compass by removing the standards D from their sockets, taking out the adjustable bar F, and forcing the free ends of the latter between the standards N N and beneath the key-bosses, as indicated in Fig. 2.

The standards D may, if desired, be conveniently carried by being placed within a receptacle hollowed out in the base-board and closed by a slide B. Extra rubbers may also be stored within this receptacle, being stretched over pins, one of which is shown at *m*.

I may sometimes dispense with the standards D, inserting the bar F directly in the sockets M M.

Other modifications for the various elements of my invention and obvious to the skilled mechanic I regard as within its general scope, and intend to be understood as contemplating their use as the particular circumstances of the case may call for.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a finger-exercising machine, the combination, with the base-board, of the pivoted key-levers, a supporting top bar, and resilient connections between said levers and bar, substantially as shown and described.

2. In a finger-exercising machine, the combination, with the base-board, of the pivoted key-levers, a supporting top bar, and resilient connections between said levers and bar and between said levers and base-board, substantially as shown and described.

3. In a finger-exercising machine, the combination, with the base-board, pivoted key-levers, top bar, and resilient connections, of the sleeve-standards, within which the said top bar is adjustable, substantially as shown and described.

4. In a finger-exercising machine, the combination, with the base-board and pivoted key-levers, of the side standards, N, and the removable top bar, and locking-piece F, substantially as shown and described.

5. In a finger-exercising machine, the combination, with the depressible key-levers, of the hand-strap C, substantially as shown and described.

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

GUSTAV A. LIEBIG, JR.

Witnesses:
W. S. WILKINSON,
LÉONCE RABILLON, JR.