(No Model.)

# F. L. BECKER.

## Finger Exercising Machine.

No. 232,231. Patented Sept. 14, 1880.

Fig. 1.

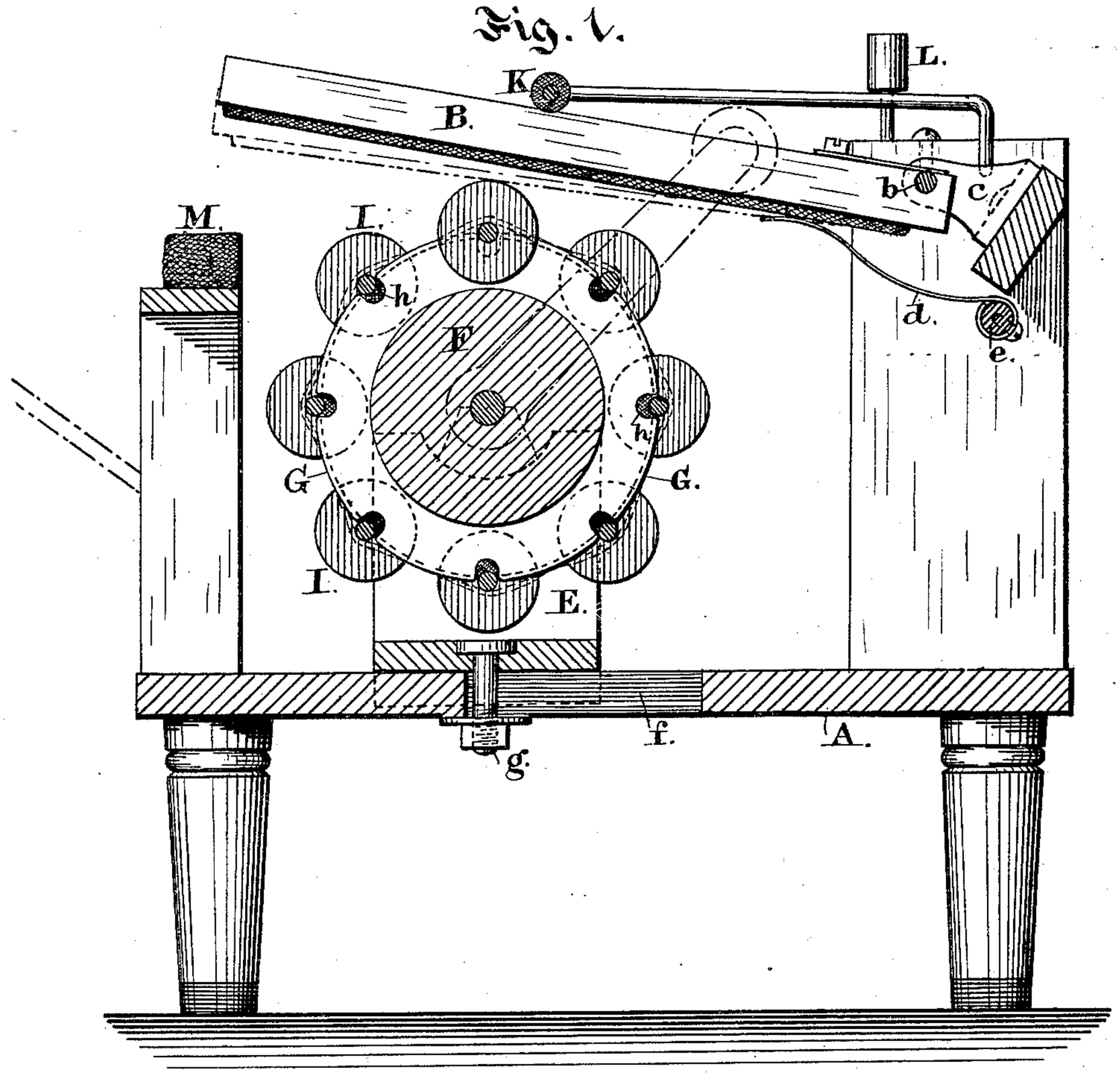



Fig. 2.

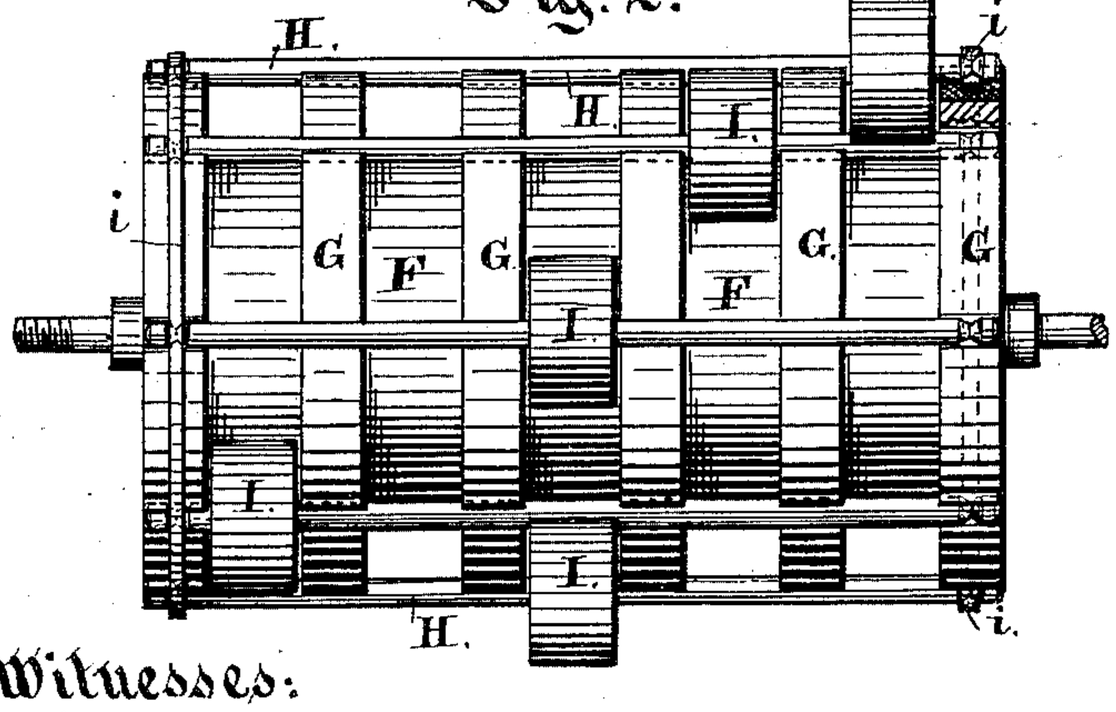
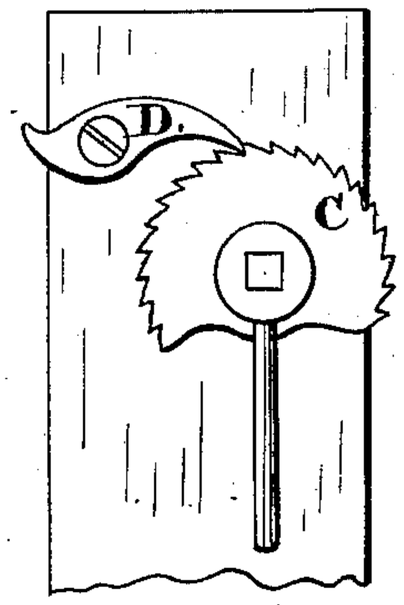



Fig. 3.

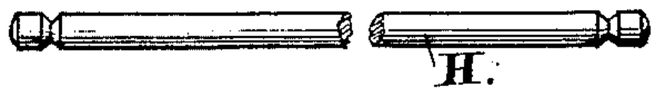



Witnesses:

L. Schmidt

D. Ballauf

Fig. 4.




Inventor:

F. L. Becker

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

FRANCIS L. BECKER, OF GALVESTON, TEXAS.

## FINGER-EXERCISING MACHINE.

SPECIFICATION forming part of Letters Patent No. 232,231, dated September 14, 1880.

Application filed March 11, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS L. BECKER, of Galveston, Texas, have invented new and useful Improvements in Finger-Exercising Machines, and of which the following is a specification.

My invention relates to improvements in apparatus for exercising the fingers and imparting to them increased strength and flexibility for performance upon piano-fortes, organs, or other musical instruments, in which a cylinder provided with friction-rollers imparts motion to a set of keys upon which the fingers are placed; and the object of my improvements is to impart flexibility to the fingers, and to overcome otherwise difficult motion.

The invention consists in the construction and arrangement of parts, as will be hereinafter more fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical cross-section of my machine. Fig. 2 is a side view of the cylinder with the rollers. Fig. 3 is a detached view of the tension mechanism. Fig. 4 is an enlarged view of one of the rods for the rollers.

Similar letters refer to similar parts throughout the several views.

In the drawings, A is a suitable stand having at its rear side a number (two or more) of piano-keys, B, pivoted on a shaft, *b*, which may be supported by one or more brackets, *c*, intermediately. The lower sides of the keys are covered with felt or other suitable material to prevent noise when operating. Toward the rear end and under each key is arranged a spring, *d*, secured on a shaft, *e*, by which the keys are forced back to their normal position. To vary the tension of the springs (in order to increase muscular power of the fingers) the ratchet C and pawl D are arranged on one end of the shaft *e*, and may be adjusted as desired.

Upon the bottom of the stand is arranged a slide, E, which is made adjustable by means of a slot, *f*, and bolt *g*, so that it may be moved backward and forward and give more or less inclination to the keys.

Upon the slide E is journaled a cylinder, F, with a suitable number (two or more) of collars, G, forming grooves, which correspond with the number of keys employed. The collars are provided with a suitable number (two or more) of transverse grooves, *h*, which are lined with felt, and in these grooves are supported a corresponding number of rods, H, upon which are strung any desired number of friction-rollers, I, according to the number of notes a certain musical exercise may contain. The rollers I move freely between the collars G of the cylinder F. The rods H are held in place by rubber bands *i* or springs, so that they can be easily removed and replaced in order to change the rollers thereon in any desired manner. The cylinder is set in motion by a crank secured to its axle on each side, and can be easily taken out or reversed after raising the keys. The height of the keys in their upward inclination may be regulated by a guard, K, and screw-buttons L.

At the front end of the stand is arranged a cushion, M, upon which the keys strike when the machine is in use, and the fingers are pressed upon the keys, while the wrist may be rested upon a suitable support secured to the machine and extending out in front.

The advantages of my machine as a finger-exerciser are that the tedious way of practicing finger-exercises upon any musical instrument in order to gain flexibility, and which will require many years' practice, is overcome in a comparatively short time by using my apparatus. The combinations of setting the rollers to suit the different exercises are so very numerous that they are inexhaustible. It imparts motion to the fingers instead of the fingers imparting motion to the keys. It loosens the ligaments between the fingers, and imparts flexibility and strength to them, thus facilitating the practice of said exercises on the piano or any other musical instrument. By using my exerciser the wear and tear of keyed instruments is greatly preserved, especially on new pianos, (in the middle white keys,) which are often seriously damaged and always made uneven in tone and touch by practicing upon them the so-called "five-finger exercises."

The machine is simple in construction, very durable, not liable to get out of order, and any child will soon understand and learn the use of it. Although the apparatus is not limited to any certain number of keys or corresponding collars and grooves on the cylinder, yet

experience has convinced me that with five keys all desired results may be obtained, thus reducing the cost price considerably below that of extended key-boards.

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

1. In an apparatus for exercising the fingers and imparting to them strength and flexibility for execution upon musical instruments, the cylinder F, provided with two or more collars, G, constructed and arranged to operate substantially as specified.

2. In a finger-exercising machine, the cylinder F, provided with collars G and friction-rollers I, constructed and arranged substantially as described.

3. In a finger-exercising machine, the cylinder F, provided with collars G, having transverse grooves *h*, for the reception of rods H, upon which friction-rollers I are strung, substantially as and for the purpose specified.

4. In a finger-exercising machine, the combination of the cylinder F, constructed as described, with the keys B, pivoted on a shaft, *b*, and provided with springs *d*, constructed and arranged substantially as specified.

5. In a finger-exercising machine, the combination of the cylinder F, constructed as described, with the keys B, pivoted on a shaft, *b*, and provided with springs *d* and ratchet C and pawl D, for adjusting the tension of the springs, all constructed and arranged substantially as specified and shown.

6. The finger-exercising machine herein described, consisting of the cylinder F, provided with collars and friction-rollers, the adjustable slide E, the keys B, the tension mechanism C D, and the cushion M, all constructed and arranged as shown, and for the purpose specified.

In witness that I claim the above I hereunto subscribe my name in the presence of two witnesses.

F. L. BECKER.

Witnesses:
J. C. SMITH,
JAMES J. SHEEHY.