

(No Model.)

A. J. GILLESPIE.

STRINGING PIANOS.

No. 365,593.

Patented June 28, 1887.

Fig. 1.

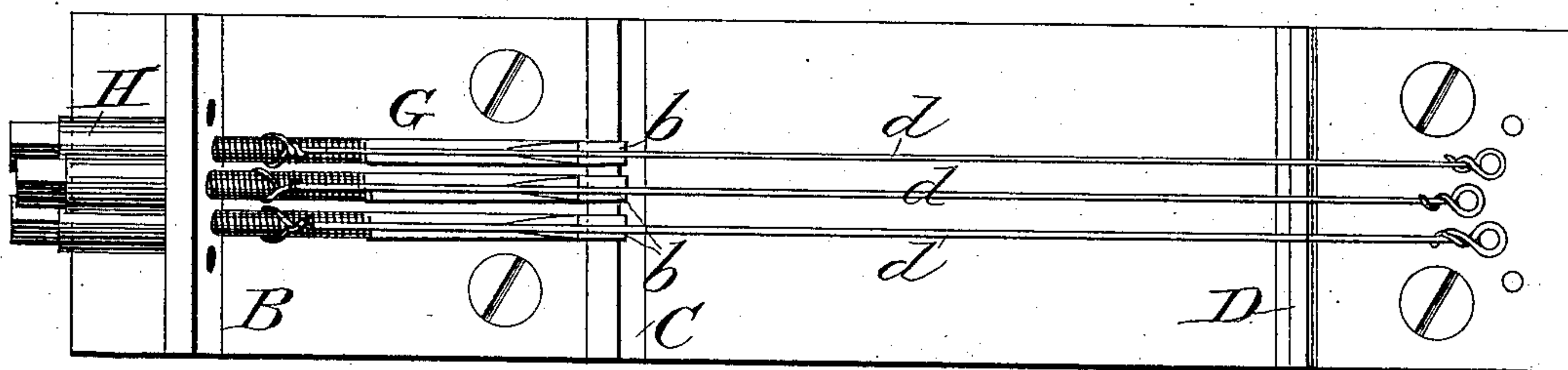


Fig. 2.

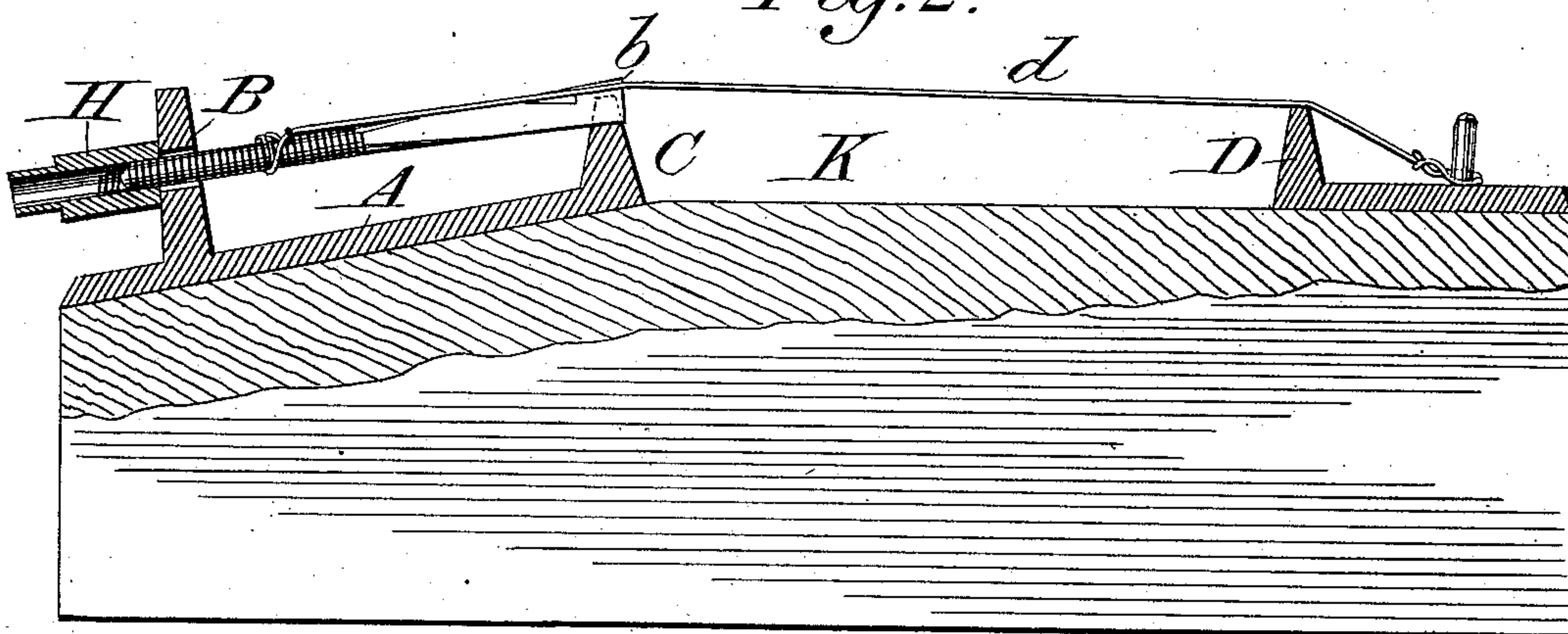


Fig. 3.

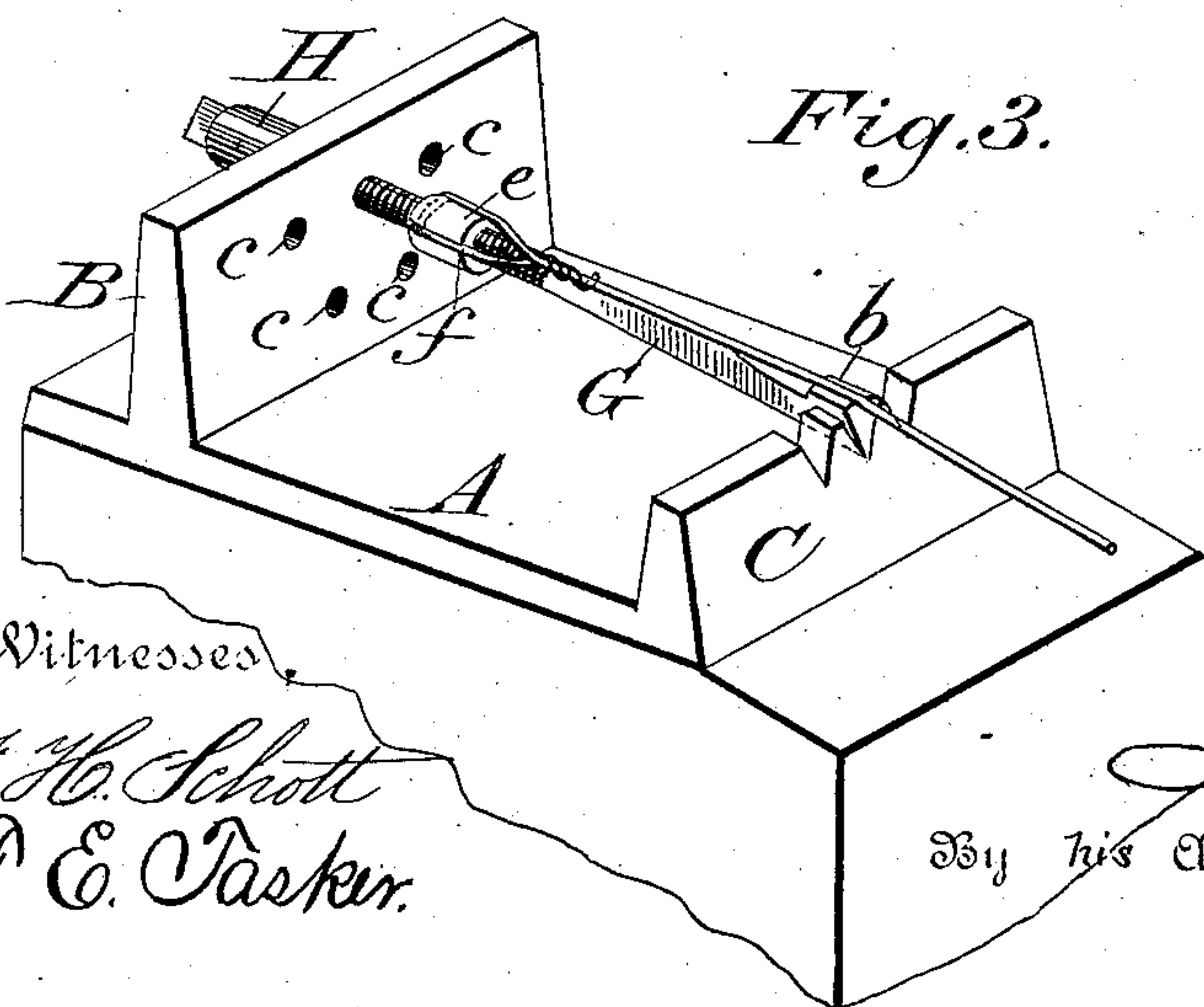
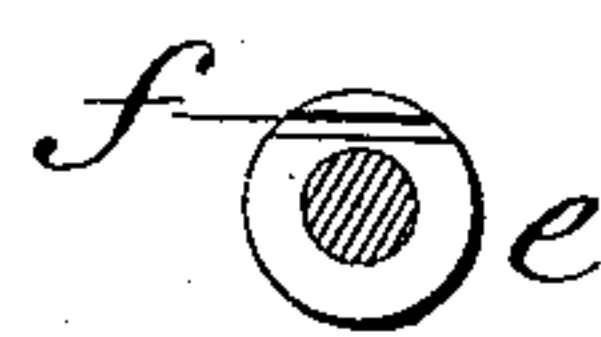


Fig. 4.



Witnesses

J. H. Schott
D. E. Parker

Inventor

Alfred J. Gillespie
By his Attorney *J. C. Parker*

UNITED STATES PATENT OFFICE.

ALFRED J. GILLESPIE, OF ATLANTIC, IOWA.

STRINGING PIANOS.

SPECIFICATION forming part of Letters Patent No. 365,593, dated June 28, 1887.

Application filed March 11, 1887. Serial No. 230,543. (No model.)

To all whom it may concern:

Be it known that I, ALFRED J. GILLESPIE, a citizen of the United States, residing at Atlantic, in the county of Cass and State of Iowa, have invented certain new and useful Improvements in Stringing Pianos; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain improvements in the construction and arrangements of the tuning mechanism in piano-fortes, whereby they may be easily tuned and at the same time the possibility of getting out of tune reduced to a minimum.

The invention consists, substantially, of the construction, arrangement, and combination of parts, as will be hereinafter described and claimed.

In the annexed drawings, illustrating my invention, Figure 1 is a plan view of a piano-forte frame to which my invention is shown as applied. Fig. 2 is a longitudinal sectional elevation of the same. Fig. 3 is a perspective view of the perforated flange and the notched flange, with one of the sliding agraffe-rods in position and provided with an improved form of nut, to which a string is secured. Fig. 4 is an end view of the slotted nut.

Like letters of reference designate like parts in all the figures.

Piano-fortes get out of tune chiefly on account of the instability of the tuning mechanism, and the difference between the tension back of the agraffe and the vibrating part of the strings, caused by the friction in drawing them through the agraffe or bearings in the operation of tuning, which cannot be equalized by the tuner with any degree of certainty, but which, however, becomes equalized by the constant shock of the hammers in playing and the frequent changes in temperature, causing the strings to settle out of tune.

The object of my invention is to construct the tuning mechanism of a piano-forte so as to secure perfect rigidity in the tension from the vibrating-point in the strings back to and including the fastening to the plate or frame.

Piano-makers often seek to produce all the friction possible in the agraffe consistent with

safety to the strings, in order that they may not be settled out of tune by the causes before mentioned. I seek to relieve the strings entirely from friction by means of the sliding agraffe herein shown and described, and by the same device afford a means of tuning that is perfectly rigid and at the same time very easily operated and destroying all tendency in the strings to raise or fall in pitch by the action of the hammers in playing or changes in temperature, reducing the liability to get out of tune to the lowest possible degree.

In the accompanying drawings, K represents a piano-forte frame, from which is projected the flanges B and C, the latter being either made a part of the frame or suitably secured thereto. The flange B is perforated with a double row of holes, *c*, staggered, as shown in Fig. 3, and a like number of V-shaped notches cut in the flange C. The sliding agraffe-rod G, Fig. 3, has its round end screw-threaded about half its length and placed loosely in one of the holes in flange B and the square-headed nut H applied, and the other end flattened or thinned into a V shape in cross-section and placed in one of the notches in the flange C, to which it is adapted to fit closely to avoid jarring, thus forming what may be termed a "sliding agraffe." The V end of the rod G is provided with a longitudinal groove, *b*, on its outer or thicker edge to receive and carry the string *d*.

To attach the strings, I wind the end around the screw-threaded part of the rod G, preferably twice, and twist the short end around the string, as shown in Fig. 1, so that it may act as a nut for the purpose of adjustment, by which means the ends of the rods G are brought into a line to secure uniformity of tone and appearance. I then place the rod G in position, as before described, and replace the nut H, then lay the string *d* in the groove *b*, and attach the other end to a hitch-pin in the opposite part of the frame K in the usual manner. I then apply a wrench to the nut H, and by turning it draw the rod G endwise and adjust the string to pitch, which constitutes the operation of tuning. If the V end of the rod G does not come even with the flange C, I remove the nut H, take out the rod G, and screw it through the loop in the string, so as to se-

cure this result, replace the rod and nut, and again adjust to pitch. I find it best to allow the ends of the rods to project slightly beyond the face of the flange C, to allow for a limited amount of stretch in the strings. If after years of use the stretch of the strings should cause the ends of the rods to recede too far, their position may be restored by the adjusting operation above described.

The strings may be attached to the rods G in several other ways, one of which is by the slotted nut *e*, Fig. 4, which is screw-threaded internally, placed on the aforesaid rod, and the looped end of the string *d* hooked into its slotted end, as shown in Fig. 3, or the looped end may be placed around the rod back of the nut *e* and the latter be made to act as a stop and means of adjustment. The plan first described is preferable for the lighter strings, while the latter is more desirable for the bass.

In order that the strings *d* and sliding agraffe-rods G may be held firmly in their seats, I find it best to incline the frame-plate back of the agraffe in such manner as to hold the threaded ends of the rods G somewhat lower than the plane of the vibrating portion of the strings, as shown in Fig. 2.

By means of the construction and operation herein shown and described the tension of the strings *d* cannot be any greater or less back of the agraffe than in the vibrating part, as they are carried without friction in the operation of tuning by the sliding agraffe-rods G, which cannot vary perceptibly in length. As they reach from the vibrating-point in the strings back to the flange B, they leave practically nothing, save the unavoidable stretch of the strings, to destroy the harmony of pitch in a piano-forte.

It has always been the practice to stagger straining-pins and other tuning devices over the frame-plates of a piano-forte when necessary to secure room for their operation. Projecting flanges having one or more rows of holes and staggered, when necessary, and provided with straining rods or hooks have been used.

I am also aware that perforated flanges have been used provided with staggered stringing devices having their flattened ends held loosely

in a guide-rail; but I am not aware that straining-rods have been used having their threaded ends held in staggered perforations in a flange and their opposite ends extended to the vibrating part of the strings and closely fitted and held in a notched flange and adapted to slide therein for the purpose of carrying the strings without friction and form a sliding agraffe.

I claim—

1. The notched flange C of a piano-forte frame, K, in combination with the sliding agraffe-rods G, having their thinner or V-shaped ends closely fitted and adapted to slide therein, and their opposite ends connected with suitable straining and holding mechanism to form a sliding agraffe, substantially as described.

2. The notched flange C of a piano-forte frame, K, in combination with the sliding rods G, having their thinner V-shaped ends closely fitted and adapted to slide therein, and their thicker ends screw-threaded and placed in the staggered perforations in the flange B, and provided with the nut H, substantially as described.

3. The sliding rod G, having its thicker end screw-threaded and its thinner end V-shaped, and having in its outer or thicker edge a longitudinal groove, *b*, substantially as herein set forth.

4. The sliding rod G, nut H, and groove *b*, and string *d*, having one of its ends attached adjustably to the screw-threaded part of the rod G and contained in the groove *b*, and its other end suitably attached to the opposite part of the frame K, substantially as described.

5. The flange C, provided with V-shaped notches, the rod G, closely fitted and adapted to slide endwise therein, and having the string *d* adjustably attached, the nut H and flange B of a piano-forte frame, K, all combined to form a sliding agraffe and straining mechanism, arranged and operated substantially as and for the purposes herein set forth.

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

ALFRED J. GILLESPIE.

Witnesses:

J. S. HARLAN,
J. H. WILLEY.