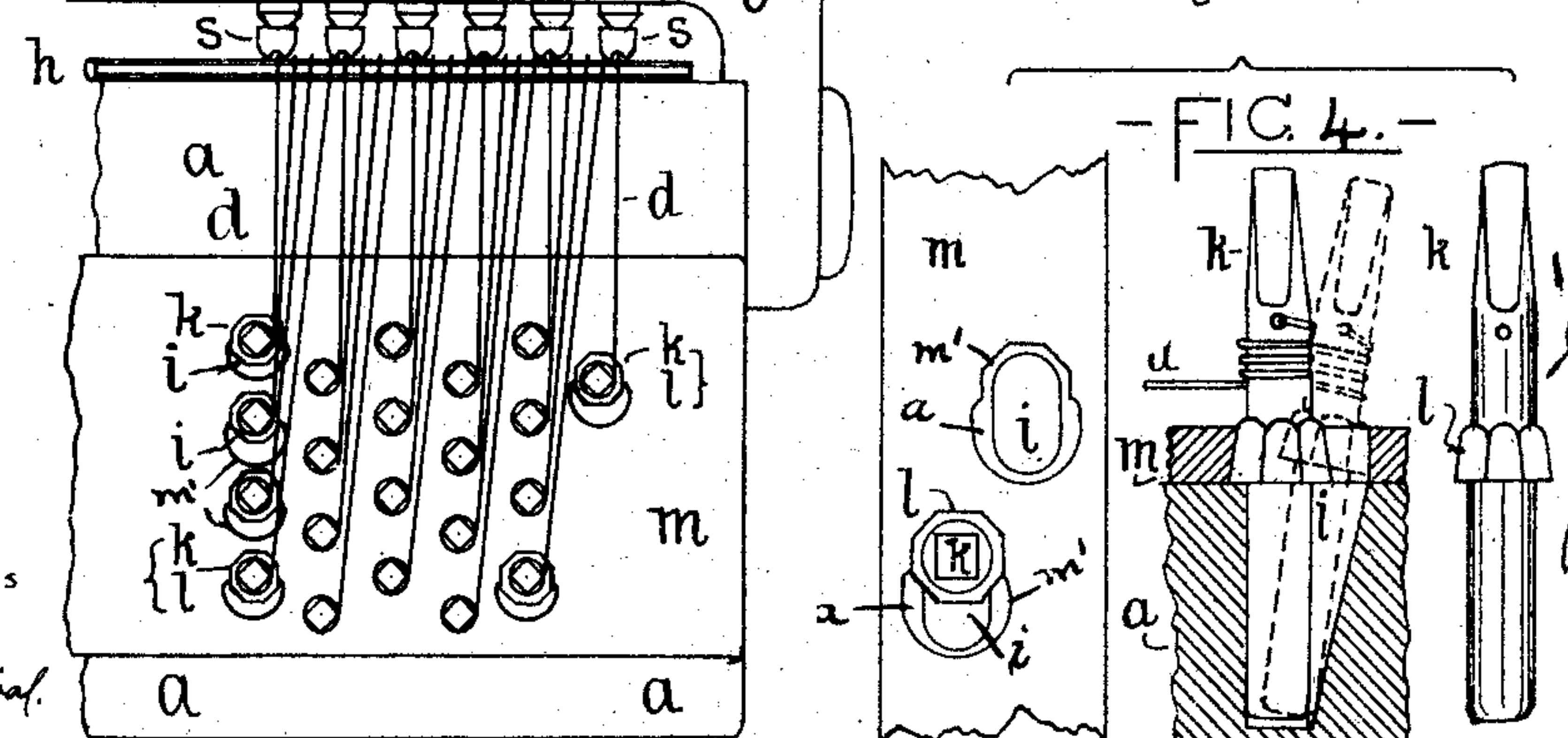
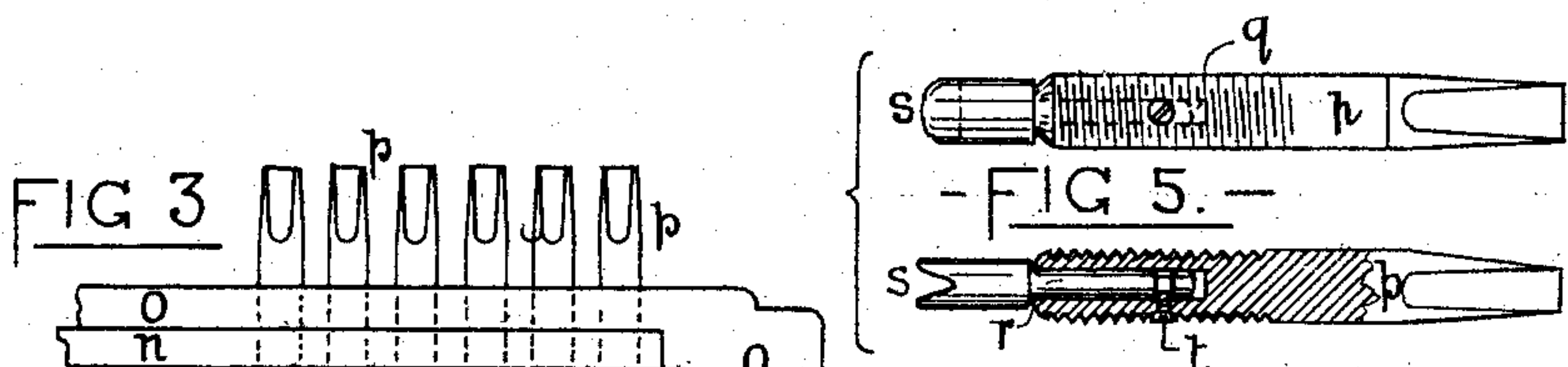
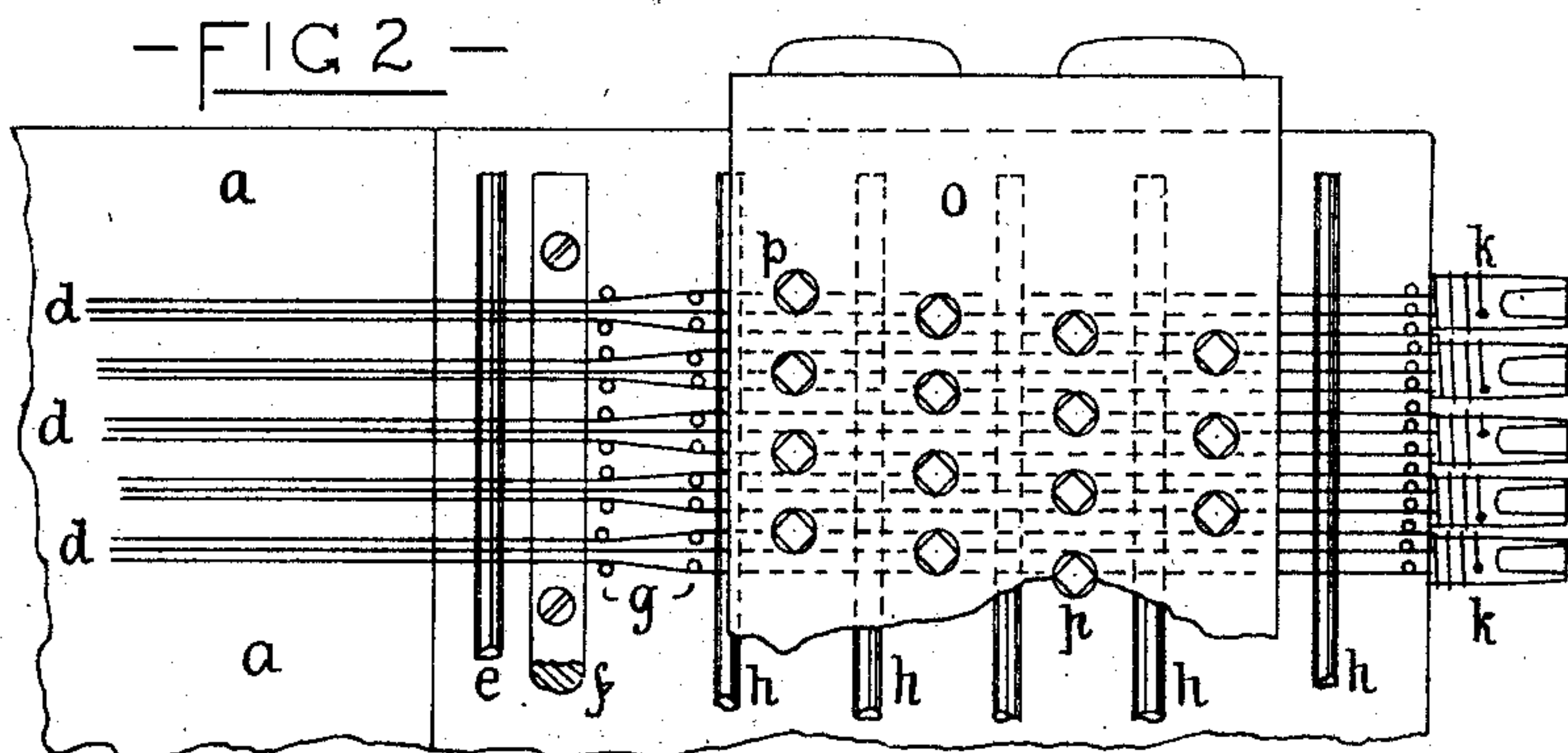
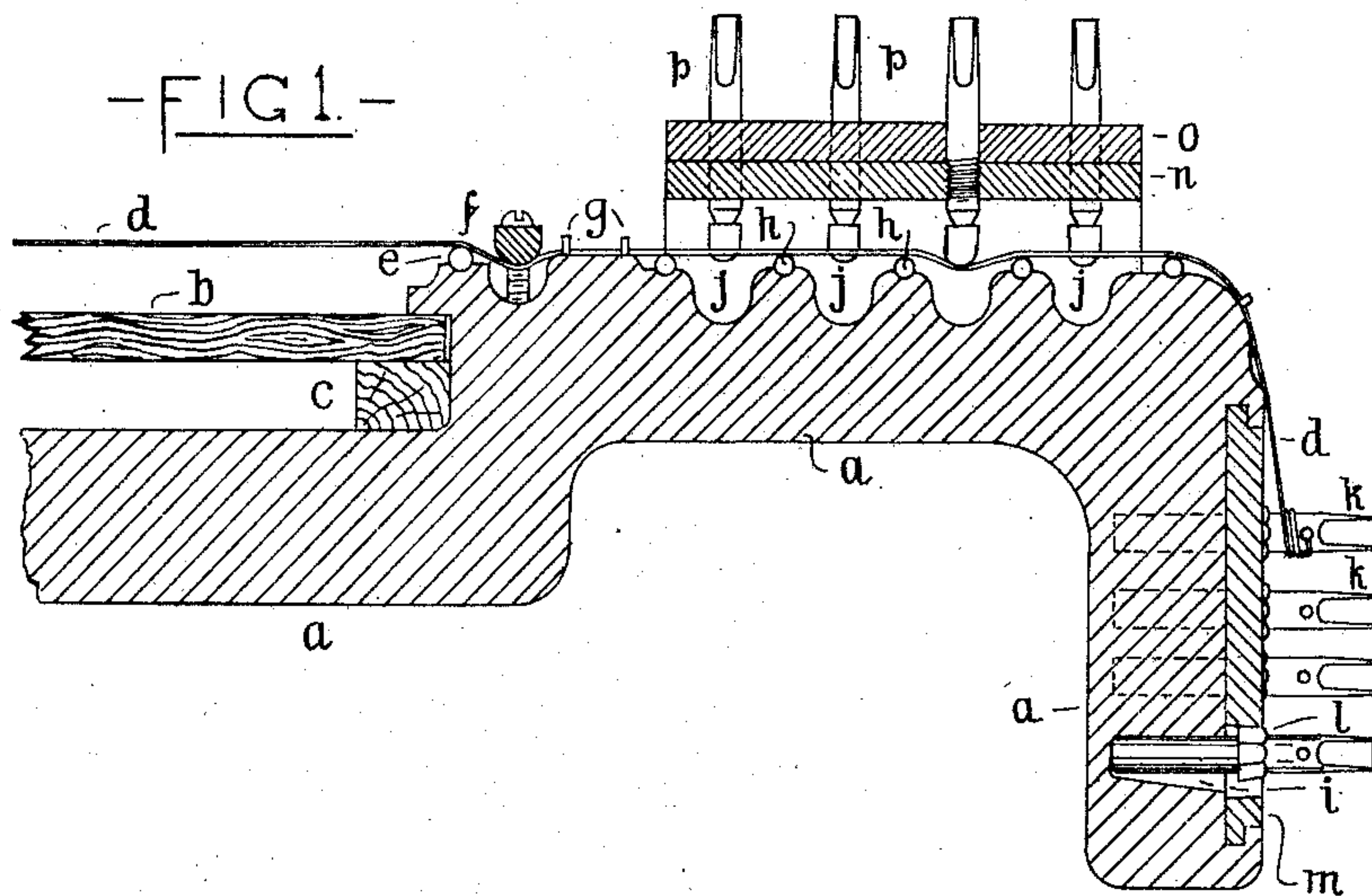


No. 883,285.

PATENTED MAR. 31, 1908.

J. J. BRUER.
PIANO TUNING PIN.
APPLICATION FILED OCT. 10, 1905.



WITNESSES
M. White
John G. Parnell

INVENTOR
Jeffrey James Bruer
by Richard S. Atty.

UNITED STATES PATENT OFFICE.

JEFFREY JAMES BRUER, OF ADELAIDE, SOUTH AUSTRALIA, AUSTRALIA.

PIANO-TUNING PIN.

No. 883,285.

Specification of Letters Patent.

Patented March 31, 1908.

Application filed October 10, 1905. Serial No. 282,173.

To all whom it may concern:

Be it known that I, JEFFREY JAMES BRUER, a subject of the King of Great Britain, residing at King William street, Adelaide, in the State of South Australia, Australia, have invented new and useful Improvements in and Connected with Piano-Tuning Pins, of which the following is a specification.

My invention relates to improvements in and connected with pianos and other stringed instruments, and has for its principal object the more secure stringing and more delicate tuning of that class of instrument wherein the tune or pitch is regulated according to the tension of the string. The invention is applicable to straight or overstrung, upright or horizontal pianos.

In carrying my invention into effect I provide two sets of pins which are preferably, but not necessarily, arranged at right angles to each other, one set of pins being used for holding or locking and approximately tuning the strings while the other set of pins is intended to depress the strings after they have been approximately tuned so as to enable the pitch to be increased or decreased according to the requirements with great accuracy and precision. These last mentioned pins are hereinafter referred to as "tuning pins" and exert their pressure upon the wires or strings at a convenient point above the customary upper bridge and beyond the pressure bar, that is to say at a point beyond the intended vibrational length.

I will now proceed to describe my invention by aid of the accompanying illustrations wherein

Figure 1 is a sectional view of what may be considered the upper portion of a piano. Fig. 2 is a plan of same. Fig. 3 is a top or end view of the foregoing. Fig. 4 shows a locking pin alone, a sectional view and a plan view with the pin in position. Fig. 5 details of tuning pin.

Throughout the drawings similar letters of reference are used to denote similar or corresponding parts wherever they occur, and the drawings above mentioned are substantially applicable to pianos and other instruments whether built on the horizontal or upright principle.

In the drawing *a* is the frame of the instrument preferably made of cast iron, and supports a sound board *b* which may be mounted upon a wooden support *c* so that it is held

beneath the projection of the frame as illustrated in Fig. 1 of the drawings.

The strings or wires of the instrument are illustrated at *d*, and are arranged to pass over the usual primary bridge *e*, commonly known as the upper bridge, beneath the pressure bar *f*, between the pins *g* and from thence in approximately parallel lines over a series of conveniently placed secondary bridges *h* arranged upon either side of recesses or grooves *j*, which latter are formed in the frame casting, and from thence the strings are led to the locking pins *k* round which they are wound and held in position by being passed through a small hole near the top of each pin in the ordinary way. Each locking pin is characterized by having a multi-sided shoulder or body *l* at or near its middle portion, the formation being preferably octagonal and slightly beveled or tapered. The locking key is let into the end of the frame *a* in an elongated tapered or wedge shaped hole *i*, the multi-sided portion being arranged to fit into a corresponding recess *m'* in a nut plate *m* half of same being formed on the multi-sided principle and slightly beveled to insure the better retention of the locking pin but the remaining portion of the hole in the nut plate is elongated and of sufficient width or diameter to enable the shouldered part of the locking pin *k* to rotate therein without binding when pressed downwards or backwards as will be well understood on reference to the drawings. This part of the mechanism can be arranged at either or both ends of the instrument and it will be seen that as the tension of the wire is increased there will be a tendency to draw the multi-sided shoulder into the corresponding portion of the recess in the nut plate, thus locking the pin in position.

n is a screw plate having a series of holes tapped therein, said holes being arranged immediately opposite to or above the recesses or grooves *j* which are formed in the frame *a*. This screw plate is securely fastened to the outer pin plate *o* which occupies a similar position to that which is usually taken by the face of the ordinary wrest plank and is preferably formed of cast iron and is rigidly mounted opposite to and in alinement with the recesses *j* before mentioned. The pin plate is provided with a series of holes corresponding in number and position to the holes in the screw plate *n* such holes being a little larger in diameter than the tapped

holes. Through the holes in the screw plate and pin plate the tuning pins p are passed. The tuning pins are screwed in the middle portion to correspond with the thread which
 5 is cut in the screw plate n and at their lower or inner ends a hole is drilled at q for the reception of a shank r which is formed integral with the slotted swivel depressor block s so that one of the strings d can be
 10 engaged in the slot of the depressor block and the latter can then be depressed without rotating when the tuning pin is turned. For convenience of handling the complete tuning pin a small binding screw t or its equivalent
 15 may be added to the device for securing the depressor block in position.

The method of using my invention is as follows:—The various parts having been placed in their relative positions the strings
 20 d are carried over the primary bridge e , under the pressure bar f and thence between the space pins g and over the alternate secondary bridges h and recesses j , and are retained by the locking pins k . A string having
 25 thus been placed in position the operator by means of his tuning handle presses the holding pin downwards or backwards so as to free the multi-sided shoulder from the multi-sided portion of the recess in the nut
 30 plate, so that the key can be rotated until the string is tightened up or slackened back to the approximate pitch. A suitable amount of tension having been attained the locking pin is drawn by the elasticity of the
 35 wire to the position shown in Fig. 1, so that the multi-sided shoulder engages with and is retained by the corresponding portion of the recess, and is thereby prevented from automatically unwinding itself. It now only
 40 remains for the operator to apply his tuning handle to the tuning pin p so that when the slot in the depressor s engages the wire d the turning of the tuning pin will bring pressure to bear upon the string, thereby further
 45 tightening the same and thus raising the tone. By this latter action it will be seen

that a considerable amount of turning of the tuning key will only produce a relatively slight depression upon the string or wire, and assuming the thread upon the tuning pin and screw
 50 plate to be of slight pitch, say twenty-six threads per inch, a sixteenth of a revolution of the tuning key will give a depression of about one four hundredth part of an inch so that the requisite delicacy of pressure can be
 55 brought to bear upon the string to insure perfection in tuning.

Having now particularly described and ascertained the nature of my said invention and the manner in which it is to be per-
 60 formed, I declare that what I claim is:—

1. In a piano the combination of a string plate having parallel grooves therein, bridges placed between the grooves over which the strings are passed, a plate located above the
 65 strings and grooves, and having screw-threaded holes therein located directly over the grooves, locking pins for holding the strings and screw threaded tuning pins passing through the holes in the plate and
 70 having their ends adapted to bear on that portion of the strings between the bridges and over the grooves.

2. In a piano, a string plate having wedge-shaped holes therein, a plate covering the
 75 hole-containing-portion of the string plate and having tapered openings therein registering with the wedge shaped holes, one half of each of said openings being of greater width at its larger end than the locking pins,
 80 while the other half is multi-sided, and locking-pins adapted to fit in said holes and each having a tapered multi-sided portion adapted to engage with the multi-sided portion of the opening.
 85

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JEFFREY JAMES BRUER.

Witnesses:

JOHN HERBERT COOKE,
 CHAS. A. MURPHY.