

(No Model.)

F. W. HALE.
TUNING IMPLEMENT.

No. 310,674.

Patented Jan. 13, 1885.

Fig. 1.

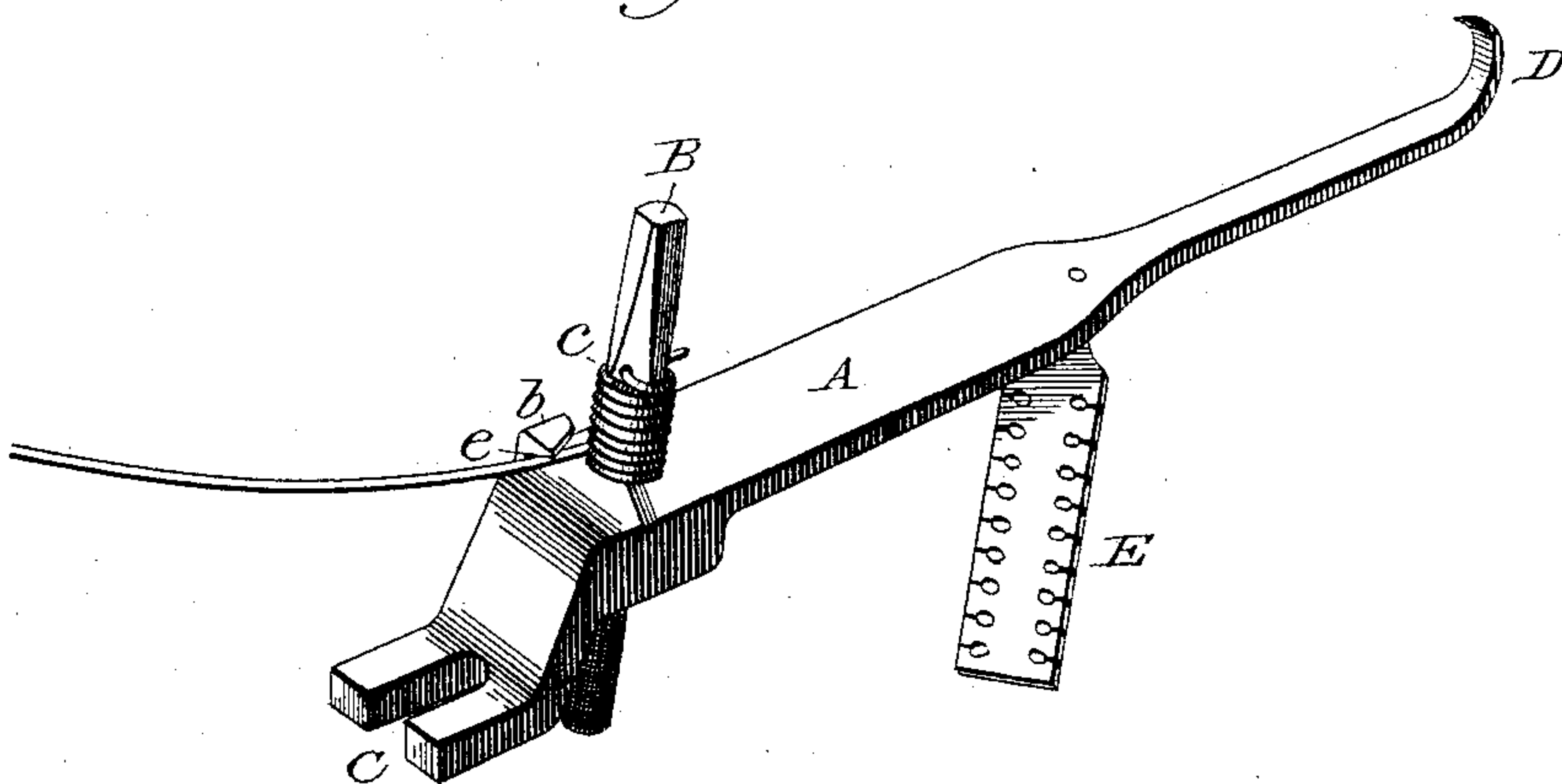


Fig. 2.

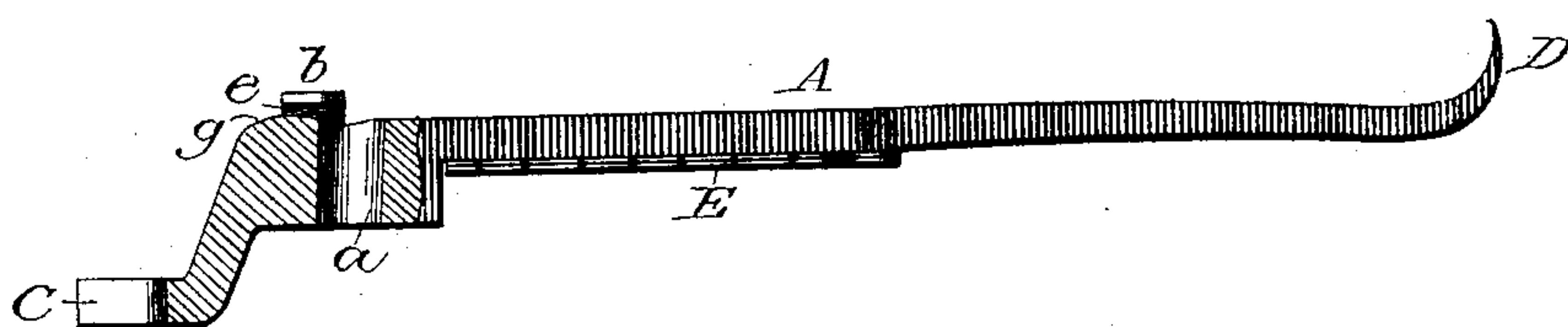
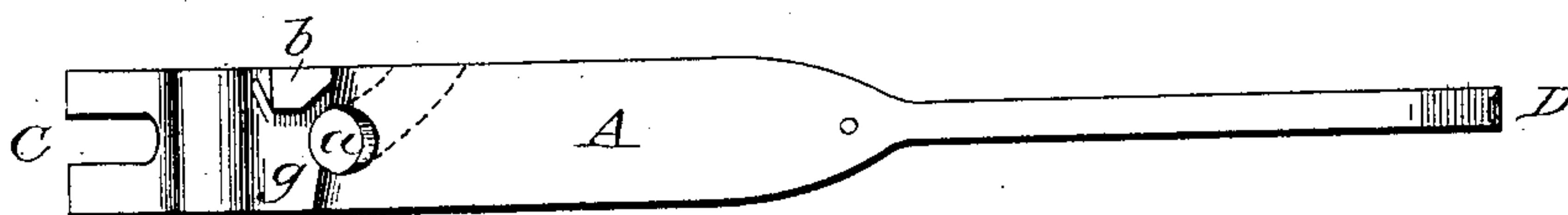


Fig. 3.



Witnesses:

Abel W. Thompson.
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UNITED STATES PATENT OFFICE.

FRANK W. HALE, OF BOSTON, MASSACHUSETTS.

TUNING IMPLEMENT.

SPECIFICATION forming part of Letters Patent No. 310,674, dated January 13, 1885.

Application filed March 31, 1884. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. HALE, of Boston, county of Suffolk, and State of Massachusetts, have invented a new and useful Improvement in Tuning Implements, of which the following is a full, clear, and exact specification, reference being had to the accompanying drawings, forming part of the same, in which—

10 Figure 1 is a view in perspective of my device applied to a piano-pin. Fig. 2 is a side view partly in section, and Fig. 3 is a top view, of the face of it, which is uppermost when in use.

15 My invention relates to implements used by tuners of stringed instruments, and the object thereof is to perfect an implement specially suited to effect various operations in the repair of such instruments, reference 20 being had specially to pianos; and my invention consists in an implement provided with devices for properly attaching the strings to the pins upon which they are wound, a device to hold the pins as they are driven home, 25 and other features, as shall be hereinafter described.

In the drawings, A represents a plain bar or shank of metal, having formed therein an opening, *a*, preferably a round hole of size 30 adapted to the general size of the pins upon which the wires of pianos are wound; or the opening may be in the form of a notch or pocket, leaving the adjacent metal in the form of a hook, as shown by dotted lines in Fig. 3. 35 Near the margin of this hole or notch upon one side of the bar is a raised lug, *b*, one side of which, in a line tangential to the adjacent margin, is notched or grooved more or less deep. It is sufficient if this grooving be 40 enough merely to prevent a wire bearing against the side of the lug from slipping off.

The purpose of this device is as follows: The wires for pianos being generally of steel more or less tempered, to wind their ends 45 upon the pins in a neat workmanlike manner is often a very difficult matter, especially if the wires are the large heavy ones rendering the bass notes; and that a wire when once tuned may not slacken and lower its tone 50 it is necessary to have it laid evenly and uni-

formly and tightly about the pin, so as to have a continuous bearing around it. Now, to wind the wire properly around the pin, the end of the wire is passed through the hole *c* in the pin B. The pin, then being held by its 55 squared end in any suitable wrench or pliers, is passed through the hole of the bar and held in such relation to the bar that the long portion of the wire lies in the groove *e* of the lug *b*. Now, by rotating either the pin in the hole 60 or the bar upon the pin in such a direction as shall cause the wire to wind before the lug on the pin, it will be found that the wire will be laid around and upon the pin in a close, even, and workmanlike manner. 65

Piano-wires often break very near the pin. It is desirable, then, to be able to unwind enough of the other end of the wire from the other pin to enable the broken end to be re-mounted on its pin in order that the same wire 70 may still be used; but in this case there is apt to be so little of one or both ends to be wound on that without bending over the short ends after they are passed through the pins, after the manner of a hook, (see Fig. 1,) they are 75 likely to slip for want of grip on the pins, and so the wire loses tune. Bending these short ends over to form the said hook by hammer or pliers is apt to break them; but I have found this device most useful in forming the said 80 bend or hook in such manner that a firm hold of the wires upon the pins is obtained. Another advantage of all this is that it becomes unnecessary to handle the pins much with the fingers, which handling is apt to leave a moist- 85 ure upon them, which readily causes them to rust in their sockets—a cause of great annoyance in tuning. This device works with perfect ease and always insures a perfect coil.

Upon the end of the bar I have formed a 90 small clutch, *c*, adapted to the general size of piano-pins. I preferably form it in an offset end of the bar, as shown, to adapt it to be applied to the piano-pin below the upper end thereof, so that the latter may be exposed to 95 be struck by the hammer when desired. Without some such device to hold the pin from rotation when it is struck to sink it deeper and more firmly in its socket, the tension of the wire causes the pin at the same instant to turn. 100

back, and consequently slacken the tension and lower the tone of the wire, and this often requires so much turning up again as to loosen again the pin in its socket. By this device I
5 am able not only to hold the pin from turning back when it is struck, but even to turn it forward, if need be, at the same instant. To be able to do this, leaving the end of the pin exposed, and at the same time not interfere with
10 other pins, will generally require a considerable offset in the end of the bar. I have added, also, a hook, D, for the purpose of drawing the strings over the guide-pins into their proper places, and a wire-gage to determine the size and caliber of the wires, the latter being either in a
15 separate piece and pivoted upon the bar or formed in the body of the bar.

The above-described devices have resulted from my own experience as a practical tuner
20 and instructor in that art, and are believed to put such repairs as the replacing of a broken wire within the skill of any ordinarily-intelligent operator upon pianos.

To secure the best results, I bore the hole *a*
25 in the bar slightly inclined toward the axis of it, and in front of the groove in the lug *b* the face of the bar is raised slightly above the general surface of it, as clearly shown in the drawings at *g*. The operation of this bulge *g*
30 is that as the wire is being wound on the pin by the rotation of the implement upon it the bulge precedes the lug *b* and the free end of

the wire, and under the pressure, ordinarily exerted endwise, of the pin pushes the previously-wound coils together, so that as the
35 free end follows it is laid at once close up to close preceding turns, the result of which is a very close coil, such as is never found in joints of telegraph-wire or the coiled barbs on fence-wire. The slight inclination of the hole in the
40 bar also aids this result.

The clutch *c* may be formed with the recess slightly V-shaped to adapt it to various sizes of pins.

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

1. In a tuner's implement, the bar A, having the opening *a* slightly inclined to the axis of the bar, the lug *b*, and the bulge *g*, as and
50 for the purposes set forth.

2. A tuner's implement comprising the bar having the opening and the lug, the clutch formed in the offset end of said bar, as shown, the hook, and the gage, all constructed and
55 arranged substantially as and for the purposes set forth.

In testimony that I claim the above I have hereunto signed my name in the presence of witnesses.

FRANK W. HALE.

Witnesses:

ALBERT W. THOMPSON,
OLIVER C. FAUST.