

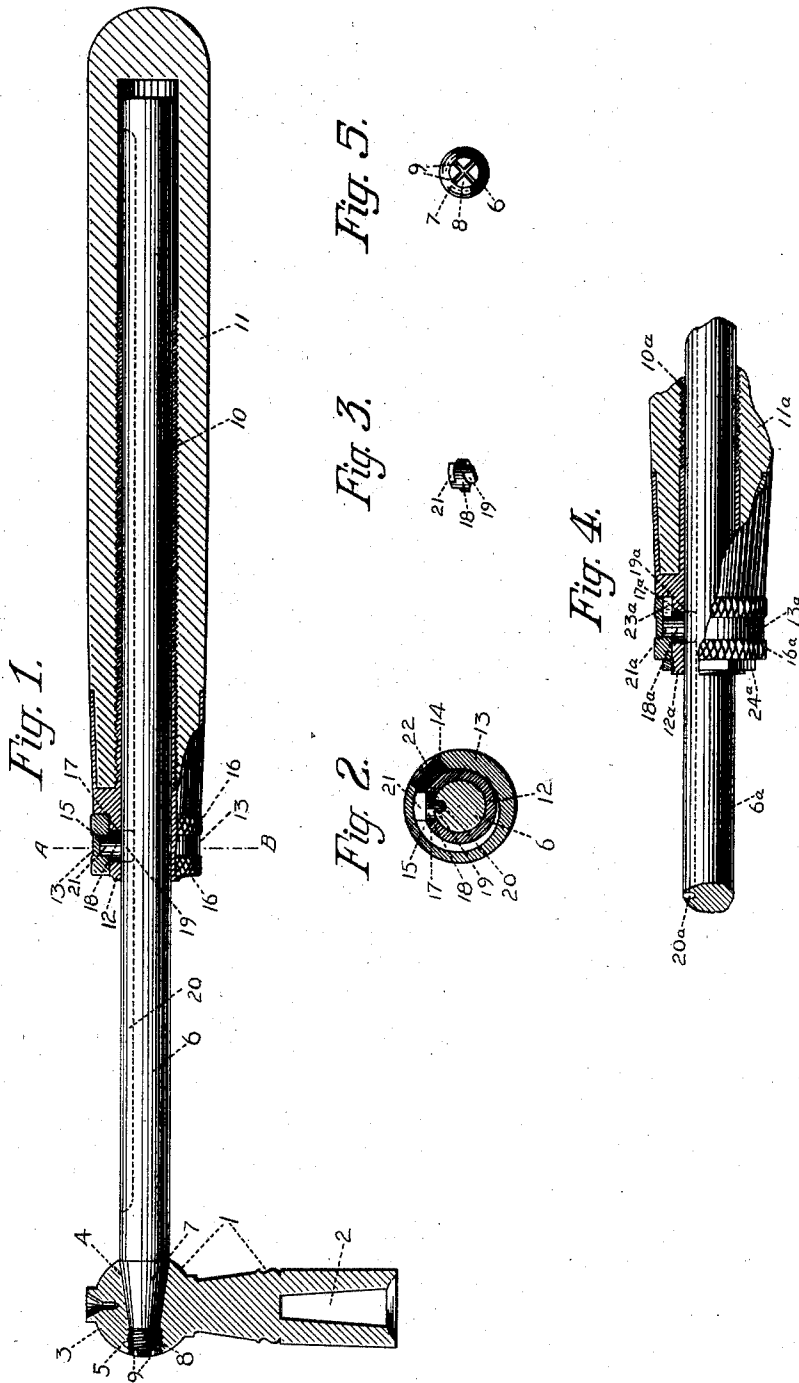
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J. ERLANDSEN.
TUNING HAMMER.

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NO MODEL.



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TUNING-HAMMER.

SPECIFICATION forming part of Letters Patent No. 777,281, dated December 13, 1904.

Application filed April 26, 1902. Serial No. 104,901. (No model.)

To all whom it may concern:

Be it known that I, JULIUS ERLANDSEN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Tuning-Hammers, of which the following is a specification.

My invention relates to improvements in the method of securing the head of piano tuning-hammers to the handle-stem; and the objects of my invention are, first, to secure a rigid connection between the hammer-head and the stem of the handle; second, to reduce the possibility of fracture of the stem of the handle at the juncture with the hammer-head; third, to provide a method of joining that will permit the stem of the handle to be detached from the hammer-head and used in connection with another hammer-head; fourth, to provide a means of joining the hammer-head to the stem that will compensate for the wear on the joint caused either by changing the heads or using the tuning-hammer. I attain these objects by means of the devices illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view of a tuning-hammer, showing the method of securing the hammer-head to the handle-stem and the device for securing the handle at any position on the stem. Fig. 2 is a sectional view through the handle and stem, taken on the line A B and showing the groove in the handle-stem, the dog in the groove, the loose sleeve mounted on the handle, and the eccentric groove in the sleeve operative on the dog. Fig. 3 is a perspective view of the dog. Fig. 4 is a modified form of the device in which a nut is screwed on the end of the bushing to secure the loose sleeve to position on the handle. Fig. 5 is an end view of the handle-stem, showing the two slots cut at right angles to each other.

Similar numerals refer to similar parts throughout the several views.

As is well known, the present state of the art of connecting tuning-hammer heads to the handle-stem consists in cutting down and

threading the end of the stem of the handle, forming a square-shouldered short cylindrical screw of smaller diameter than the handle-stem. This screw is fitted to a threaded hole in the hammer-head, the square shoulder bearing against the edges of the threaded hole. When the tuning-hammer is in use, it serves as a wrench to turn the piano-pins, and consequently the handle-stem becomes a lever whose point of greatest strain is at the juncture of the short cylindrical screw and square shoulder formed on the end of the handle-stem. As the stem has been weakened at this point by reducing it to form the threaded end, it frequently fails and the threaded end is broken off and left in the threaded hole in the hammer-head, causing considerable annoyance and loss. Again, lint gathers in the bottom of the threaded hole and prevents the square shoulder from coming to a bearing against the edges of the threaded hole, and so increases the liability of fracture of the handle-stem. To obviate these imperfections, I have made the following improvements:

In the hammer-head 1, consisting of the portion 2, formed to fit over and turn a piano-pin, and the portion 3, usually formed spherical and designed to receive the end of the handle-stem, is formed the tapered hole 4, connecting with the threaded hole 5, the axes of both holes coinciding. (See Fig. 1.) On one end of the handle-stem 6 is formed the tapered surface 7 and the threaded cylindrical end 8, in which at right angles to each other are cut the two slots 9. (See Fig. 5.) The tapered surface 7 is carefully fitted to the tapered hole 4 and the threaded cylindrical end 8 to the threaded hole 5.

To the handle-stem 6 is fitted the bushing 10, formed to receive the handle-grip 11. The end 12 of the bushing 10 is formed to receive the loose sleeve 13, which is rotatably fitted thereto. In the loose sleeve 13 is formed the threaded hole 14, connecting with the spiral groove 15, while on the outer cylindrical surface is formed the knurling 16. In the end 12 of the bushing 10 is formed the hole 17. To the hole 17 is fitted the dog 18, having on

its lower end the tongue 19, fitted to the groove 20, formed in the handle-stem 6, and in its upper end the tongue 21, formed to fit in the spiral groove 15. To the threaded hole 14 is fitted the screw 22. (See Figs. 1, 2, and 3.)

Having described the component parts of my invention, it will be seen that a handle may readily be attached to a handle-stem by inserting the stem 6 in the bushing 10 and placing the loose sleeve 13 upon the end 12, turning the bushing by the hand-grip 11 until the hole 17 is over the groove 20 and the loose sleeve 13 until the threaded hole 14 is also over the hole 17, and inserting the dog 18, through the hole 14, in the hole 17 with the tongue 19 in the groove 20. On turning the loose sleeve 13 slightly the tongue 21 enters the spiral groove 15 and holds the loose sleeve on the end 12. After rotating the loose sleeve 13 until the tongue 21 is entirely free from the hole 14 the screw 22 is inserted in the threaded hole 14 to prevent the dog 18 from falling out. The groove 20 running parallel with the axis of the handle-stem permits the tongue 19 and the bushing holding the dog 18, on which the tongue 19 is formed, to be moved lengthwise of the stem, but prevents rotation of the bushing independent of the stem. The loose sleeve 13 upon rotation upon the end 12 brings the cylindrically-formed surface of the eccentric groove 15 nearer to or farther from the top surface of the tongue 21 of the dog 18, causing it to press on the tongue 21 and force the shoulders of the dog 18 against the handle-stem with sufficient force to hold the bushing rigidly to the stem or relieving it from such force and allowing the bushing to slide on the stem. The hand-grip 11 being fixed to the bushing 10, it follows that the hand-grip or handle is fixed to position when the bushing is secured to the handle-stem and is free to slide on the stem when the bushing is free to slide on the stem. The handle can thus be moved in toward the hammer-head or away from the hammer-head and quickly and securely fixed to position. When it is desired to attach a hammer-head to a handle-stem, the threaded cylindrical end 8 is passed through the tapered hole 4 and revolved, the thread on the end 8 engaging with the thread in the hole 5, drawing the tapered surface 7 into the tapered hole 4 until the tapered surface 7 fits firmly against the sides of the tapered hole, when the hammer-head 1 will be rigidly attached to the handle-stem 6. (See Fig. 1.) By unscrewing the handle-stem 6 the thread on the cylindrical end 8 and in the threaded hole 5 forces the handle-stem away from the hammer-head, ejecting the tapered surface 7 from the tapered hole 4, when the hammer-head may be removed from the handle-stem and another hammer-head placed upon and secured to the handle-stem. It is

obvious that this same method may be employed to secure either single or double heads to the handle-stem.

It will be noticed in this improvement that the juncture between the handle-stem and the hammer-head is effected without recourse to a square shoulder, but that the juncture is the base of the tapered surface, which is preferably a cone. The point of greatest strain in the handle-stem is therefore left its full diameter and diminishes in area as the strain diminishes, terminating in the threaded cylindrical end. This end having the slots 9 cut therein could easily be removed from the hole 5 by means of a screw-driver should the end be broken off from the tapered surface. It will also be noticed that in the old form should a break occur the handle-stem would be left with a square end, and the tuning-hammer could not be again used until the end was re-threaded, while in the present improvement if a break occurs a tapered surface would still be on the end of the handle-stem and could be used in connection with the tapered hole in the hammer-head until such time as would be convenient for repairs.

The threaded hole 5 passing entirely through the hammer-head 1 cannot hold lint and dust and so prevent the tapered surface from coming in close contact with the tapered hole, and any lint or dirt that may settle in the threads will be removed by the slots 9, which while the end 8 is connected to the tapered surface 7 serve to clean all such lint and dirt from the thread.

I claim as my invention and desire to secure by Letters Patent—

1. In a tuning-hammer the combination of a handle-stem having a slotted and threaded end and a tapered surface with a tuning-hammer head pierced by a hole.

2. In a tuning-hammer the combination of a tuning-hammer head pierced by a hole threaded for a portion of its length and formed tapering for the remainder of its distance with a handle-stem having a slotted and threaded portion adapted to enter and work in the threaded hole in the hammer-head and a tapered surface adapted to fit and bear against the tapered portion of the hole in the said hammer-head.

3. In a tuning-hammer, the combination of a tuning-hammer head and a handle-stem, a tapered portion and a threaded and slotted portion on the end of the handle-stem with a tapered hole connecting with a cylindrical hole in the hammer-head and a thread adapted to engage with the threaded portion on the handle-stem and force and hold the tapered portion on the said handle-stem into the said tapered hole of the hammer-head.

4. In a tuning-hammer the combination of a handle-stem having a tapered portion and a

threaded portion on the end of the handle-stem
with a tuning-hammer head having a tapered
hole and a threaded hole adapted to receive
the tapered and threaded portions on the said
5 handle-stem and one or more slots formed in
the threaded end of the handle-stem substan-
tially as described.

5. In a tuning-hammer the combination of

a tuning-hammer head with a handle-stem hav-
ing a tapered portion and a threaded portion 10
on one end and grooves formed in the thread-
ed portion.

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