

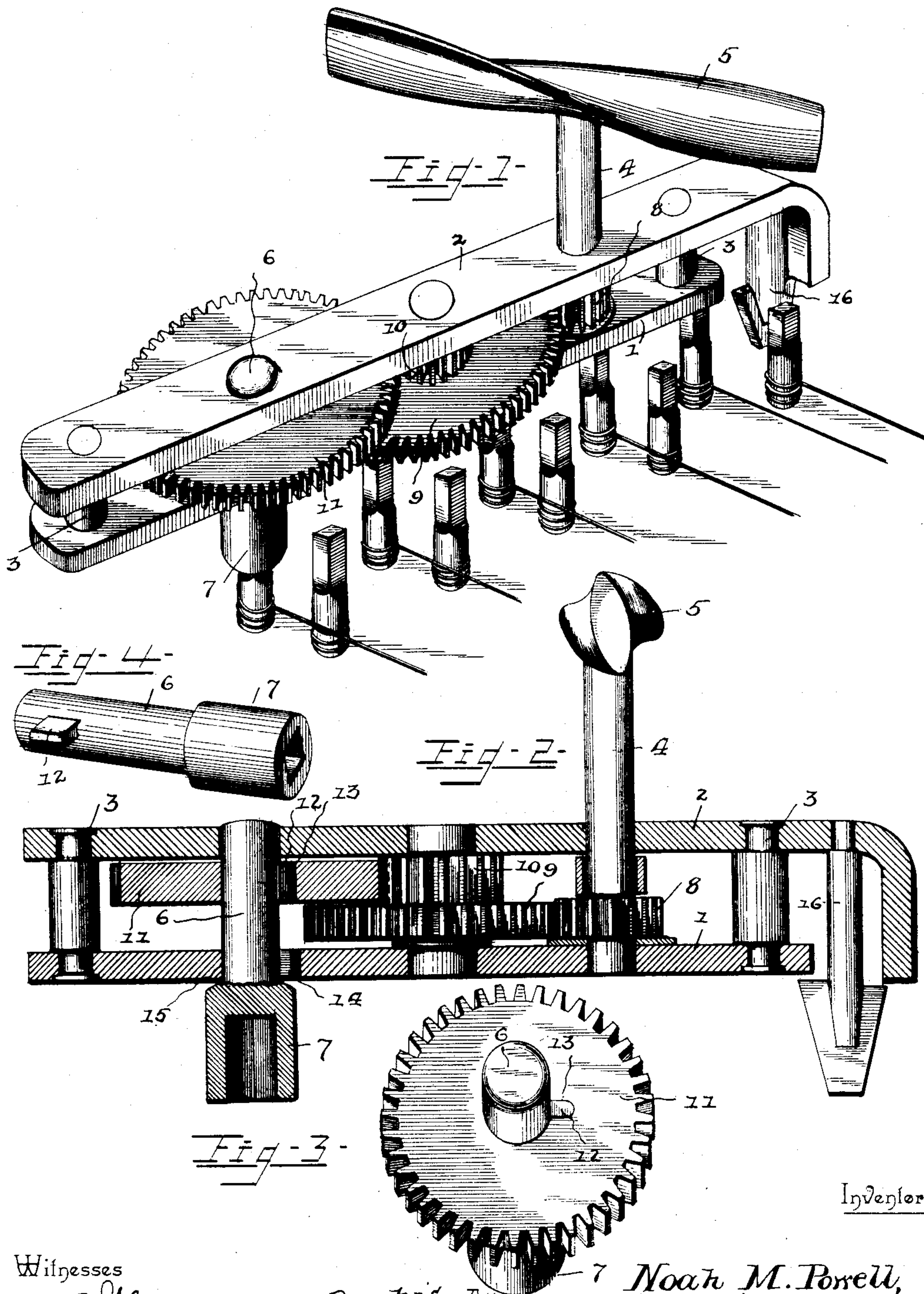
No. 610,973.

Patented Sept. 20, 1898.

N. M. POWELL.  
TUNING HAMMER.

(Application filed Nov. 10, 1897.)

(No Model.)



Inventor:-

Witnesses

*C. J. Young*  
*C. J. Young*

By *his* Attorneys,

*Noah M. Powell,*

*Cashner & Co.*



# UNITED STATES PATENT OFFICE.

NOAH M. POWELL, OF EDINA, MISSOURI, ASSIGNOR OF TWO-THIRDS TO  
FRED B. PARSONS AND ORVILLE D. JONES, OF SAME PLACE.

## TUNING-HAMMER.

SPECIFICATION forming part of Letters Patent No. 610,973, dated September 20, 1898.

Application filed November 10, 1897. Serial No. 658,044. (No model.)

*To all whom it may concern:*

Be it known that I, NOAH M. POWELL, a citizen of the United States, residing at Edina, in the county of Knox and State of Missouri, have invented a new and useful Tuning-Hammer, of which the following is a specification.

My invention relates to wrenches, and particularly to a tuning-hammer for pianos; and the object in view is to provide a simple, inexpensive, and efficient construction and arrangement of parts whereby the accuracy of rotary adjustment as applied to a tuning-pin is increased to enable the operator to control the amount of movement and check the same exactly at the proper point.

It is well known that with a tuning-hammer of the ordinary construction the resistance offered by the frictional contact of the tuning-pin with the socket in which it is fitted causes the hammer to yield in an irregular manner, as in jerks, and the hand of the operator is frequently unable to prevent an excessive movement of the pin. In other words, when the pin yields it moves under the strain applied to it through a greater distance than is required or desired by the operator. This necessitates a backward movement in order to correct the error produced in the first movement.

It is my object to provide a tuning-hammer by which the pin can be steadily and slowly turned with a very slight effort upon the part of the operator and whereby the movement may be stopped at any point desired to avoid the excessive movement above mentioned.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a tuning-hammer constructed in accordance with my invention applied in the operative position to the tuning-pin of an instrument. Fig. 2 is a longitudinal section of the same. Fig. 3 is a detail view in perspective of the detachable head or tuning-pin socket and the gear with which it is connected. Fig. 4 is a detail view of the head or tuning-pin socket detached.

Similar numerals of reference indicate cor-

responding parts in all the figures of the drawings.

Mounted in a suitable frame, preferably consisting of parallel plates 1 and 2, connected by studs or pins 3, is an operating-shaft 4, provided with a handhold or lever 5, connected by interposed gearing with the spindle 6 of a rotary head or tuning-pin-engaging socket 7. The gearing is of the speed-reducing and power-multiplying type, consisting in the construction illustrated of a pinion 8 on the operating shaft or spindle meshing with a gear 9 of larger diameter, a pinion 10, carried by said gear, and a second or driven gear 11, meshing with the pinion 10 and having connection with the spindle of the head. Obviously the relative sizes of the gears and pinions may be changed to produce any desired movement of the head for a given movement of the operating-lever.

The head projects beyond the plate 1 of the frame and is preferably shouldered to bear against said plate, and the spindle of the head is detachably connected with the driven gear by means adapting it to be disconnected, whereby a plurality of interchangeable heads, having openings adapted to receive tuning-pins of different cross-sectional constructions and areas, may be used in connection with the body portion of the wrench. In the construction illustrated the spindle of the head is provided with a feather 12, fitting in an offset 13 in the bore of the driven gear, a corresponding offset 14 being formed in communication with the bearing 15 in the bar 1 for the head-spindle. Said offset 14 allows the dismounting of the spindle from its bearing when detached from the driven gear.

The frame of the wrench embodying my invention is provided with a detent or foot 16, preferably depending from the bar 2 and projecting beyond the frame at the same side as the head to engage a fixed object contiguous to the tuning-pin which is being operated. In practice this detent or foot, which is flattened for the purpose, is adapted to be arranged between other tuning-pins contiguous to that upon which the head is fitted, whereby in operating the handle or lever the frame is held stationary.



From the above description it will be obvious that the necessary power for turning a tuning-pin may be applied with comparatively little exertion to the operating handle 5 or lever, and owing to the reduction of speed due to the relative sizes of the gears the tuning-pin may be turned through a distance which would be practically imperceptible to the hand of an operator and wholly without 10 the irregularity or jerking which constitutes the objection to a lever tuning-hammer of the ordinary construction.

A further objection of the ordinary construction of hammer resides in the fact that 15 the spring of the handle is liable to mislead the operator by making it appear that the pin has been turned, whereas the handle has been simply sprung. With the improved construction, however, the strain applied to the handle 20 or lever is so slight as to be insufficient to cause it to spring, and the spindle of the head is too short to have any appreciable torsional elasticity. The strain applied to the pin is positive, and the objections to elasticity in 25 the tool are thus avoided.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this 30 invention.

Having described my invention, what I claim is—

1. A tuning-hammer having a frame comprising parallel plates provided at one end 35 with a perpendicularly-disposed detent or foot for engagement with a tuning-pin to prevent rotary movement of the frame, and provided adjacent to the other end with regis-

tering bearings, a rotary head having a pin-receiving socket and provided with a stem fitted in said bearings, a driven gear concentric 40 with the stem of the head and having a detachable interlocking connection therewith, the head being detachable axially, and a driving-shaft mounted in the frame between 45 said bearings and the detent or foot, and connected with the driven gear by a speed-reducing gearing, substantially as specified.

2. A tuning-hammer having a frame comprising parallel plates provided adjacent to 50 one end with a perpendicularly-disposed detent or foot for engagement with a tuning-pin, to prevent rotary movement of the frame, and provided adjacent to the other end with 55 alined bearings, of which one is provided with an offset 14, a rotary head having its spindle removably fitted in said alined bearings, and provided with a lateral feather adapted to pass through said offset 14, a driven gear 60 mounted concentric with the spindle of the head and provided with a central opening to receive the spindle, and an offset for engagement with said feather, a driving-shaft mounted in the frame between said detent or foot 65 and said alined bearings, and speed-reducing gearing permanently connecting the driving-shaft with the driven gear, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 70 the presence of two witnesses.

NOAH M. POWELL.

Witnesses:

J. J. JACK,  
W. B. HUDSON.