

No. 778,129.

PATENTED DEC. 20, 1904.

W. HENZI.  
TUNING HEAD FOR MUSICAL INSTRUMENTS.  
APPLICATION FILED DEC. 8, 1903.

NO MODEL.

FIG. 1.

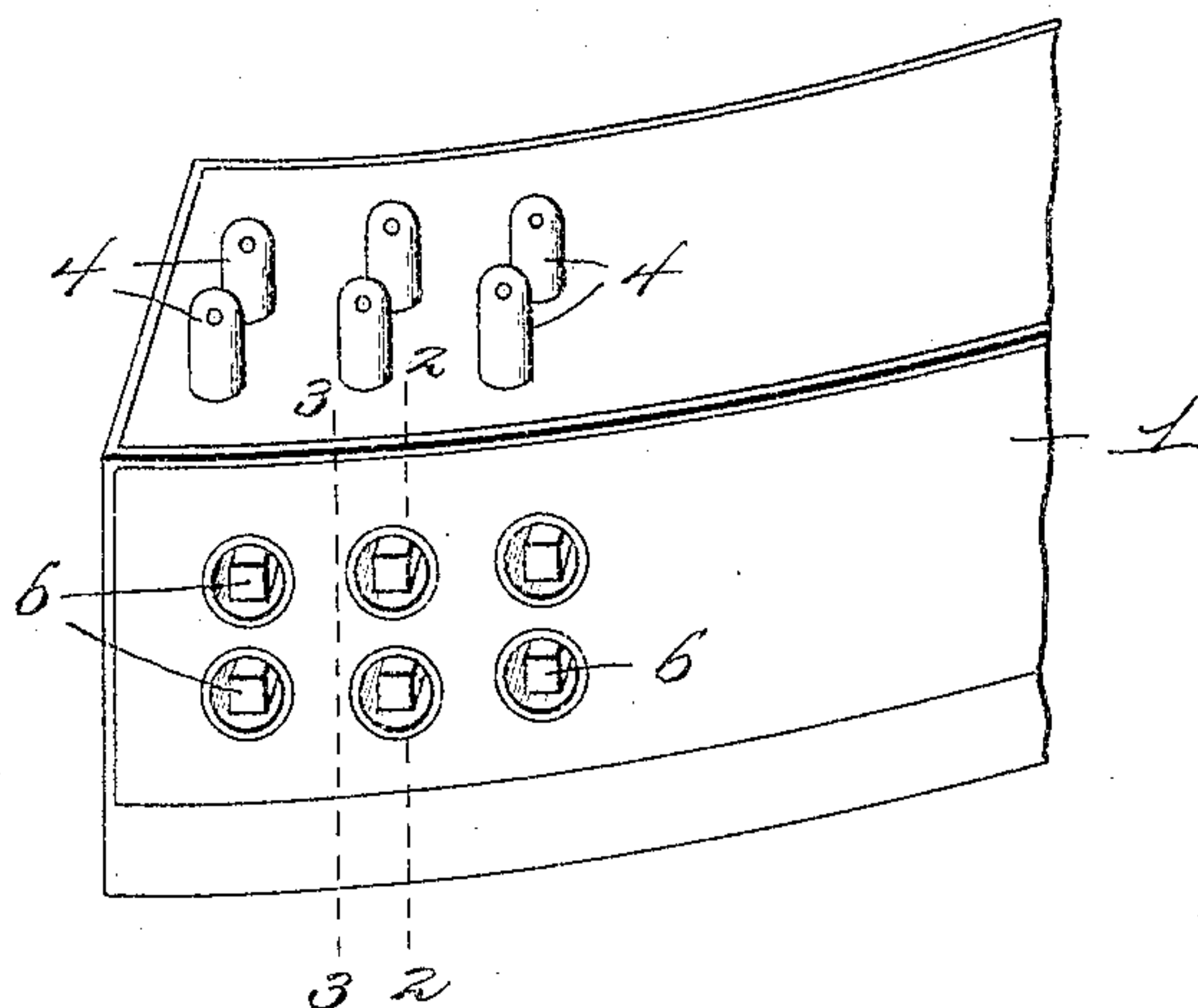


FIG. 2.

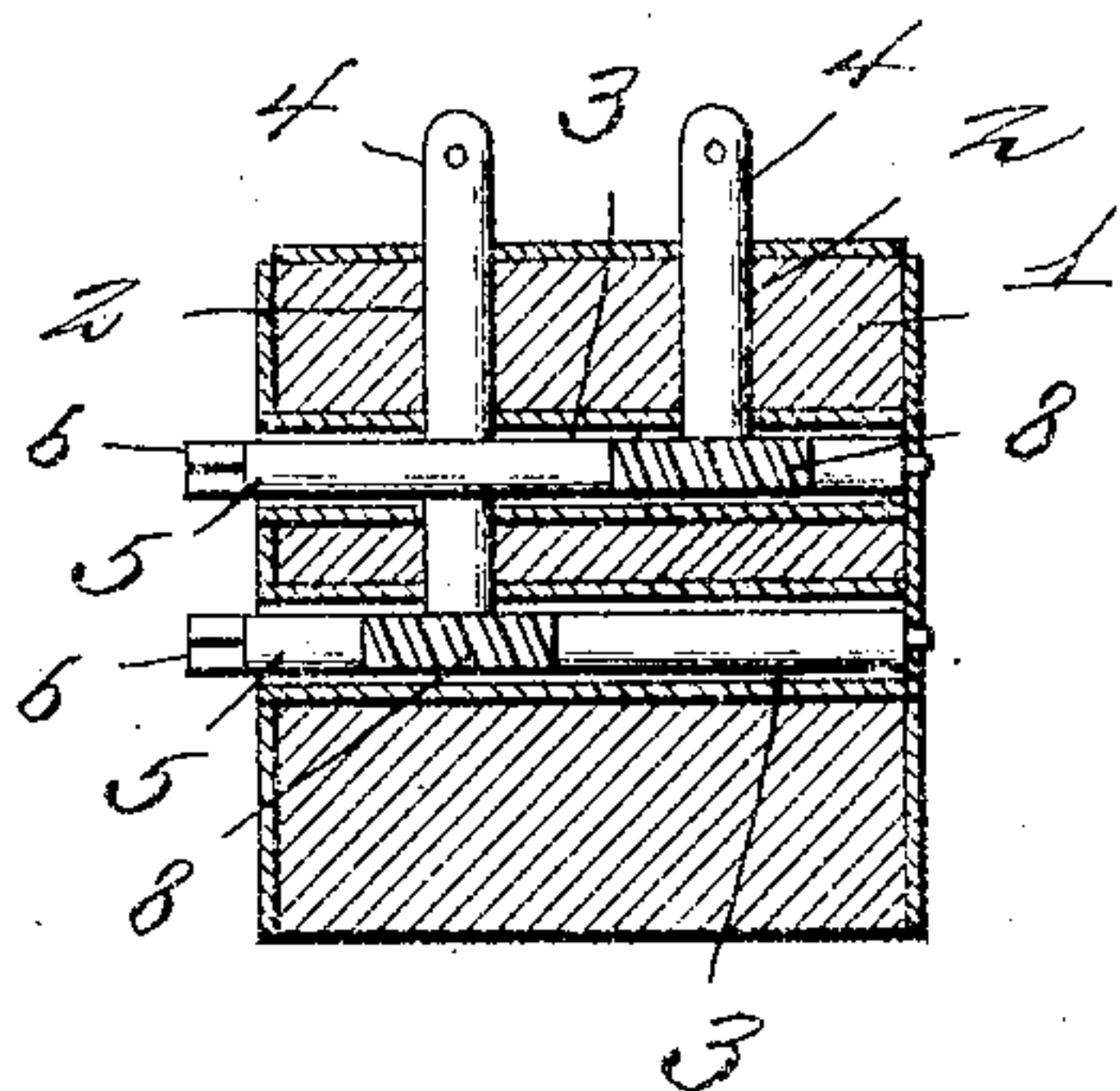
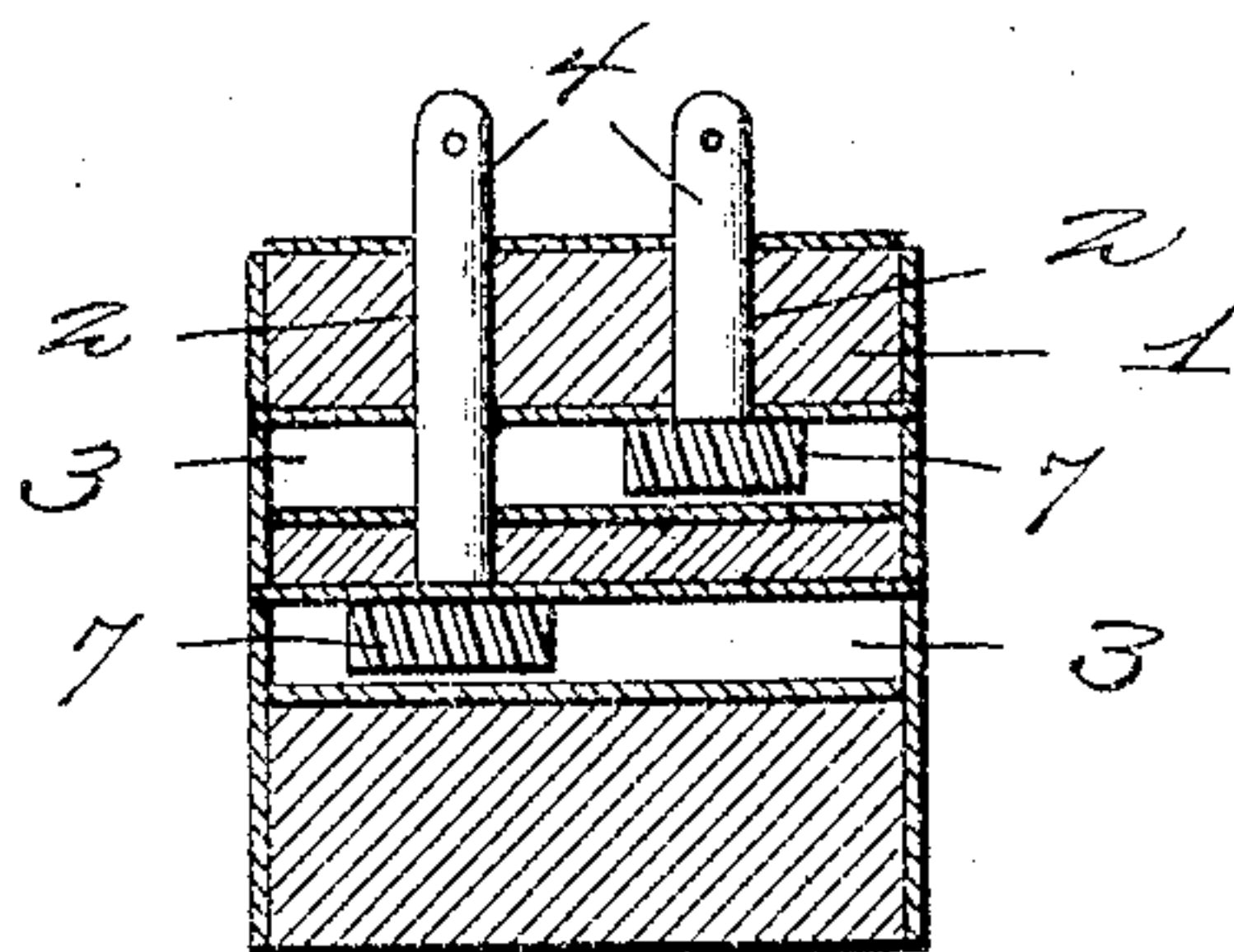


FIG. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## TUNING-HEAD FOR MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 778,129, dated December 20, 1904.

Application filed December 8, 1903. Serial No. 184,291.

*To all whom it may concern:*

Be it known that I, WALTER HENZI, a citizen of Switzerland, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented new and useful Improvements in Tuning-Heads for Musical Instruments, of which the following is a specification.

This invention relates to tuning-heads for musical instruments, and more particularly refers to a novel arrangement of the tuning-pins and gearing devices therefor.

The primary object of the invention is to provide a tuning mechanism for zithers and analogous stringed instruments which have the strings so close together as to render it impracticable to employ the usual tuning devices embodied in other stringed instruments.

A further object of the invention is to facilitate tuning stringed instruments by simple means arranged in compact form and capable of application and operation within a reduced space.

With these and other objects and advantages in view the invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of a portion of a tuning-head embodying the features of the invention. Fig. 2 is a transverse vertical section taken in the plane of the line 2 2, Fig. 1. Fig. 3 is a transverse vertical section taken in the plane of the line 3 3, Fig. 1.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a tuning-head which in the present instance is composed of a series of parts of metal and wood to strengthen the same and also provide bearings for the actuating devices and tuning-pins. At regular intervals the head 1 is formed with a series of vertical bores 2, which intersect transversely-arranged horizontal bores 3. The bores 2 are closely positioned, and therein tuning-pins 4 are rotatably mounted, having their upper extremities projected a suitable distance above the top plate or upper surface of

the head 1. The pins are arranged in contiguous pairs for use with an instrument having the strings closely disposed, as in a zither, and coöperating with each pair of pins is a pair of actuating-rods 5, which are located in the bores 3 and have outer angular terminals 6 for engagement by a tuning-key of any suitable form. The tuning-pins 4 differ in length, the one pin being operative by the upper actuating-rod and the other by the lower actuating-rod. Each pin within the bore 3 has a worm-wheel 7 secured thereon, and each actuating-rod 5 has a worm 8 formed thereon and continually held in mesh with the worm-wheel 7 of the pin 4, which it is adapted to control. It will be seen that the pins 4 are located to one side of the plane of the actuating-rods, so that the said pins may be disposed in parallel relation and the one rod extended past the one pin of each pair without interfering with the operation of either the pin or rod. This disposition of the parts permits a close arrangement of the pins and a practical assemblage of the rods.

The pins 4 are suitably braced in the portions of the head 1 through which they extend to set up a sufficient resistance to obviate loosening of the pins by the tension of the strings thereon. Moreover, by the arrangement of the worm-wheels and worms on the pins and rods as set forth a more sensitive adjustment or operation of the tuning-pins can be obtained, and the rotation of the pins will be rendered regular with obvious advantages in stringed instruments. The several parts of the head will be assembled in such manner as to accommodate the disposition of the worm-wheels on the pins within the head, and, as indicated by Figs. 2 and 3, the head is made up of what may be termed "sections" or "plates" adapted to be suitably secured to each other.

The improved tuning-head will be found exceptionally convenient, and the annoyance incident to tuning closely-stringed instruments by the ordinary form of tuning means will be obviated.

It is obvious that changes in the dimensions, proportions, and minor details of the inven-



tion may be resorted to without in the least departing from the spirit or sacrificing any of the advantages thereof.

Having thus fully described the invention,  
5 what is claimed as new is—

A tuning-head for stringed instruments, formed with a set of vertical bores of different depths, and with a set of horizontal bores disposed one above the other to one side of the  
10 plane of said vertical bores, the corresponding bores of the two sets being in communica-

tion with each other, pins of different lengths fitting in the vertical bores, actuating-rods located in the horizontal bores, and gear devices between said pins and rods.

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

WALTER HENZI.

Witnesses:

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15