

No. 657,493.

Patented Sept. 4, 1900.

W. A. LANG.

TUNING STEM FOR STRINGED INSTRUMENTS.

(Application filed July 8, 1898. Renewed June 30, 1900.)

(No Model.)

Fig. 1.

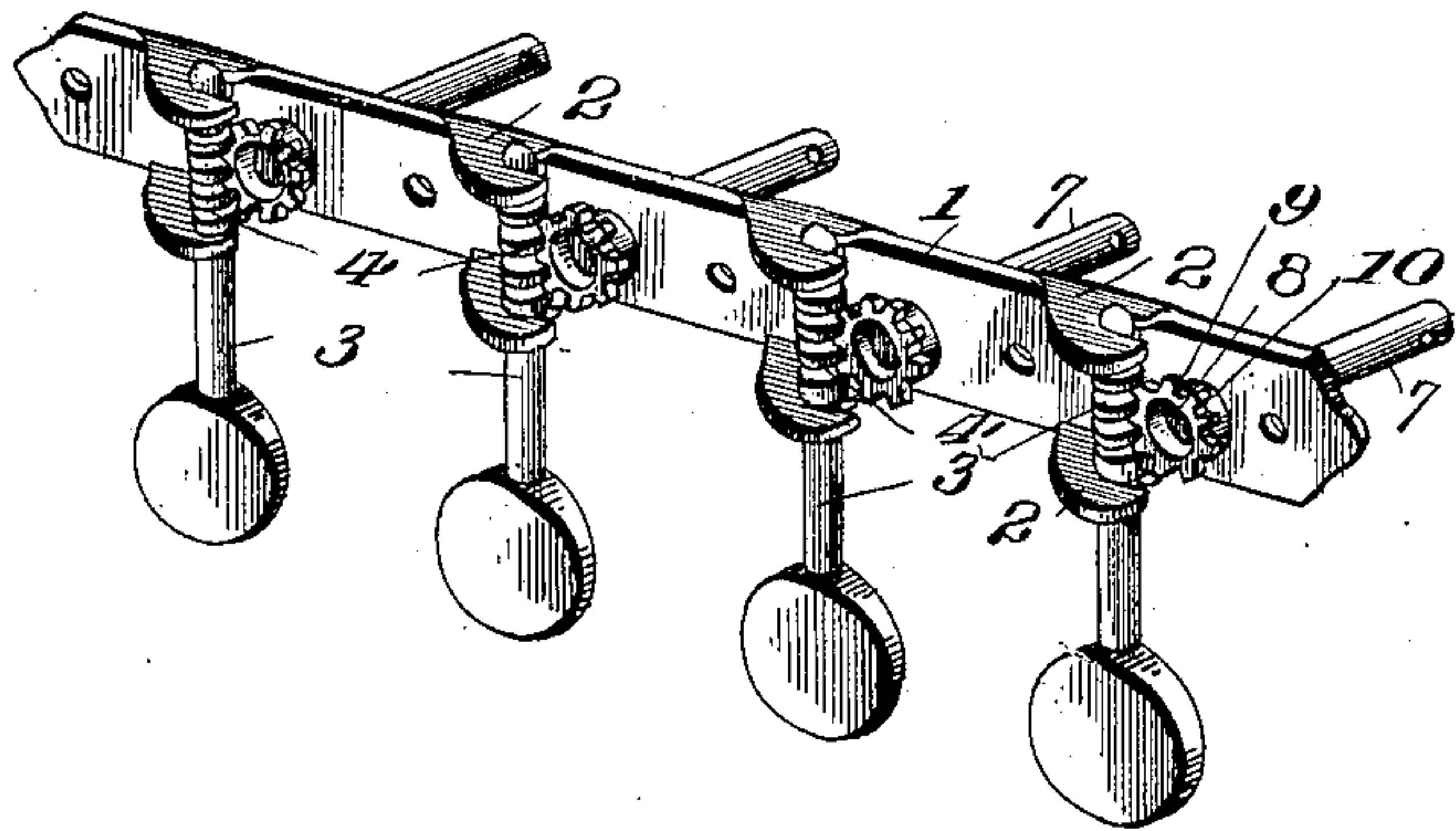


Fig. 2.

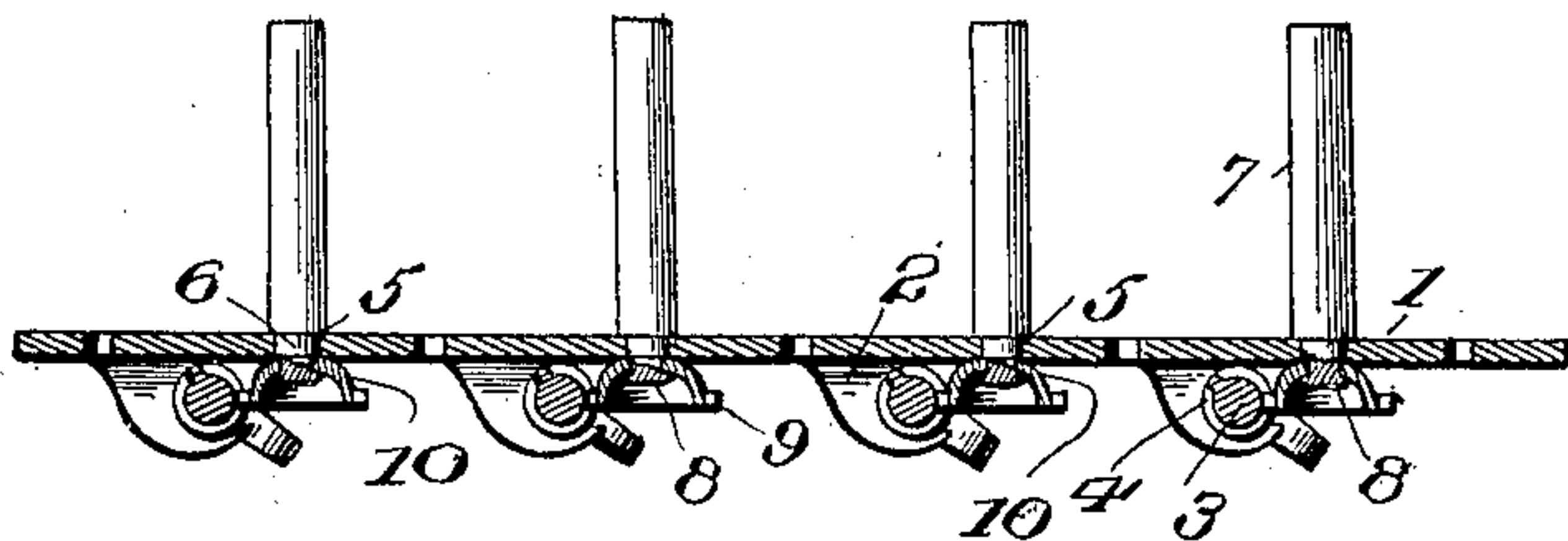


Fig. 3.

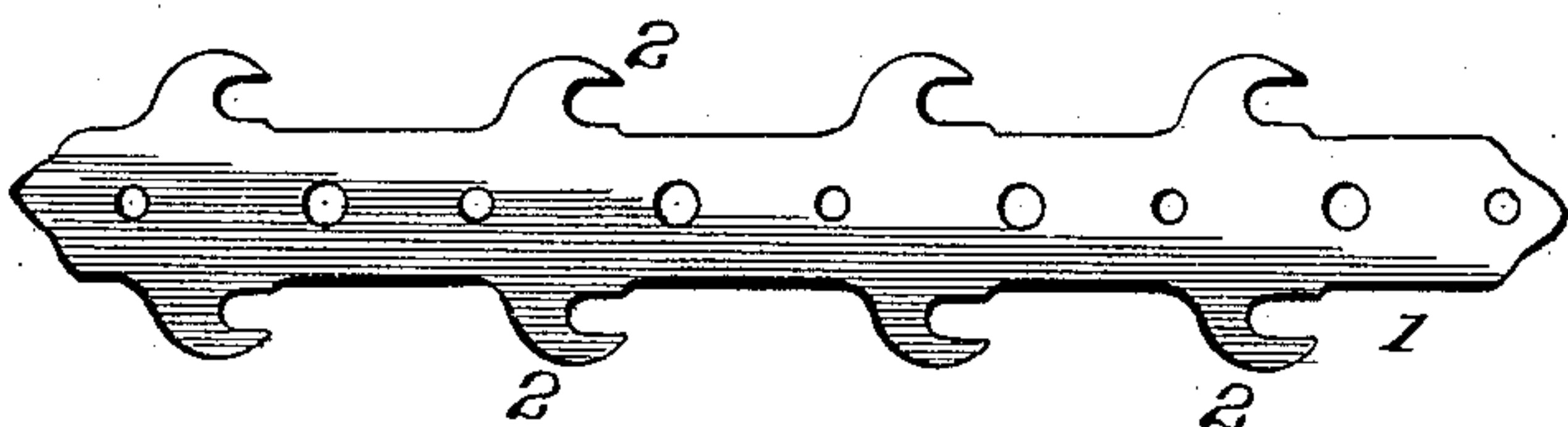
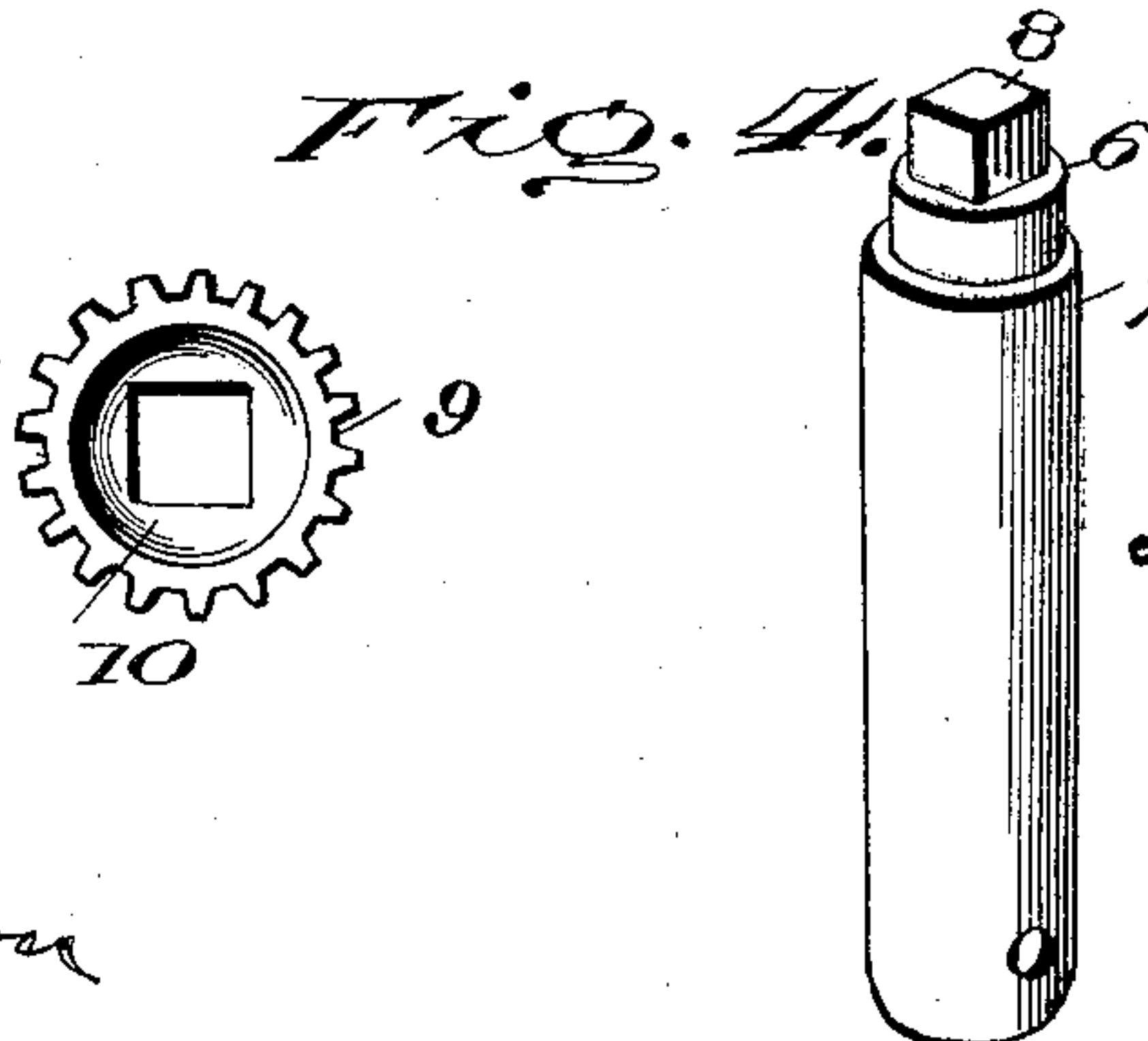


Fig. 4.



Witnesses

*James H. Lang*  
*W. A. Lang*

*William A. Lang* Inventor

*J. R. Nottingham*

Attorney



# UNITED STATES PATENT OFFICE.

WILLIAM A. LANG, OF NEW YORK, N. Y., ASSIGNOR TO ARTHUR LANG, OF  
SAME PLACE.

## TUNING-STEM FOR STRINGED INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 657,493, dated September 4, 1900.

Application filed July 8, 1898. Renewed June 30, 1900. Serial No. 22,202. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. LANG, a citizen of the United States, residing in the borough of Brooklyn, city of New York, in the county of Kings and State of New York, have  
5 invented certain new and useful Improvements in Tuning-Stems for Stringed Instruments; and I do hereby declare the following to be a full, clear, and exact description of the  
10 invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to musical stringed instruments—such as guitars, banjos, &c.—but  
15 more particularly to the construction of the tuning-stems of such instruments; and its object is to produce a stem of the simplest and cheapest form and which when combined with the means for operating it will be most  
20 effective in the operation of relaxing and tightening a string.

The invention consists in the combination and arrangement of the various parts which go to make up the tuning attachment as a  
25 whole, as will be hereinafter more fully described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a perspective view of a tuning attachment, showing my improved tuning-stem arranged  
30 and combined therein; Fig. 2, a longitudinal horizontal section; Fig. 3, a plan view of the base-plate as stamped or struck up from a sheet-metal blank; and Fig. 4, separate views of the gear and stem, somewhat enlarged.

35 Referring to the several views, the numeral 1 indicates the base-plate, which is stamped or struck up from a sheet-metal blank. The base-plate is provided with bearing-lugs 2, which are turned or bent upwardly at right  
40 angles thereto. These bearing-lugs are provided with open slots to form bearings for the shafts of tuning-keys 3, which are provided with screw-threads 4 between their bearings. The base-plate is provided with suitable  
45 screw-holes for the reception of screws, by means of which the attachment may be secured to the head of the instrument. The base-plate immediately in front of each pair of bearing-lugs is provided with a central perforation 5, in which is received and fitted the  
50

reduced shank portion 6 of a solid stem 7. The shank 6 of each stem terminates in a square tenon 8, on which is secured, preferably by upsetting or riveting, a gear-wheel 9, which meshes with the worm-screw on the  
55 turning-key shaft. The gear-wheels are dish shape in form, with their bottoms provided with a central square aperture to receive the tenon 8 of the stem, and are stamped from  
60 sheet metal by means of suitable dies at a single operation. By thus constructing the gear-wheels a boss 10 is produced on their under sides which serves to elevate the teeth of the gear-wheels above the base-plate and out of  
65 frictional contact therewith, thereby preventing undue wear of the teeth and plate. The purpose of the boss on the gear-wheels is twofold, as it not only serves to maintain the teeth out of frictional contact with the base-plate, but serves to produce, by means of its  
70 clamping effect in connection with the shoulder formed by the reduced shank portion, an accurate and steady bearing for the stem in its seat and the gear-wheel in its engagement with the screw portion of the turning-key  
75 shaft. By thus providing the stem with a proper and efficient bearing the strain incident to the meshing engagement of the gear-wheel with the screw of the turning-key is greatly diminished and the tuning of the in-  
80 strument rendered much easier of accomplishment.

A tuning-stem constructed with my invention is much simpler in form and less expensive to construct than those now in use, at  
85 the same time being more durable and efficient in service.

In constructing the gear-wheel for my improved stem from sheet metal I am able to effect a saving not only in material, which is  
90 a considerable saving of itself, but also in the cost of construction, as it takes but three operations to make my wheel, while it takes five operations to make one of solid metal. It will be understood that the teeth of my im-  
95 proved wheel are of the same thickness as the metal from which it is stamped, while the boss portion is much thinner, and, owing to the great pressure of the dies, will be much tougher.

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

5 In an attachment of the character described, the combination with a suitable base-plate, having bearing-lugs integral therewith and provided with forwardly-opening slots and a worm-turning key detachably jour-  
10 naled in said slots, of a stem provided with a reduced end portion, said end being provided with a square tenon, and a dish-shaped gear-wheel having a square opening therein to fit upon said square tenon, the convex portion

of said dish-shaped gear-wheel being adjacent to the base-plate, and held thereto by 15 upsetting, the perimeter of the projecting portion of said gear-wheel being provided with lugs or teeth adapted to mesh with the worm-turning key, as and for the purpose set forth. 20

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

WILLIAM A. LANG.

Witnesses:

GEO. HOCH,

HENRY HERROLD.