This invention relates to a tuning device for string instruments of the violin family, such as the violin, cello and violon.

An object of the invention is to provide a tuning device including a lever having a long power arm carrying an adjustable block to be supported by the string in front of the tail piece, and a short weight arm projecting at an obtuse angle from the long arm and adapted to enter the string aperture of the tail piece from the bottom and be secured at the top to the end of the string, the lever being adapted at fulcrum upon the edge of the aperture, and because of the power arm being of greater length than the weight arm, excepting great leverage with slight effort applied to the adjustable block to promote easy comfortable tuning of the string to the desired pitch.

A further object is to provide a unitary device of this character which may be easily and quickly applied, which may be formed of a few simple strong and durable parts, which may be easily manufactured, and which will not easily get out of order.

With the above and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter fully described and claimed, it being understood that various modifications may be resorted to within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawing forming a part of this specification:

Figure 1 is a fragmentary plan view of a violin showing a tuning device constructed in accordance with the invention, applied to one of the strings.

Figure 2 is a longitudinal sectional view of the violin and tuning device shown in Figure 1 with the downward pull of the device upon the string shown by dotted lines, and exaggerated, for the purpose of clearness.

Figures 3 is an end elevation of the tuning device.

Figure 4 is a cross sectional view taken on the line 4—4 of Figure 3.

Figure 5 is a side elevation of a modified form of the tuning device.

Referring now to the drawing in which like characters of reference designate similar parts in the various views, the tuning device comprises a lever having a long power arm 10 and a short weight arm 11 projecting at an obtuse angle from the power arm. The short arm is provided with a grooved head 12, best shown in Figure 3, for the reception of one end of the violin string 13. In one form of the invention the long arm has rotatably secured in a smooth bore aperture 14 adjacent its end, a threaded stem 15 upon which is fixedly secured a suitable head 16, preferably of wood or other non-metallic material, which in practice serves to mute the bad effect of metal which in practice is objected to in the tone of stringed instruments. Threadedly engaged, as shown at 19, on the threaded stem between the head and the lever is a block 17 having a groove 18 on its bottom face to receive the violin string 13 between the tail piece 20 and the bridge 22 of the violin so that the end of the long arm of the tuning device is supported by the string.

The short arm of the lever is adapted to enter the string aperture 19 of the tail piece from the bottom and the end of the violin string 13 is hitched in the groove of the short arm in the usual manner to secure the string to the lever. The lever is adapted at fulcrum at the bottom of the short arm upon the edge of the aperture 15 when slight pressure is applied to the head 16 to turn the stem 15 and because of the power arm 10 being of greater length than the weight arm 11, great leverage is exerted to pull down the block 17 upon the string 13 to provide easy comfortable tuning of the string to the desired pitch. The short arm rocks backward in the tail piece aperture 19 to tighten the string as shown by dotted lines and rocks forward in the aperture to loosen the string.

In Figure 5 there is shown another form of the tuning device in which the lever is provided with a long power arm 23 and with a short weight arm 24 projecting at an obtuse angle to the long arm. The short arm is provided with a grooved head 25 to receive the end of the string. At the end of the long arm the lever is provided with a threaded aperture 26 to receive a threaded stem 27. The stem terminates preferably in a non-metallic head 28 and below the head the block 29 is loosely mounted on a smooth portion 30 of the stem. The block is grooved in the bottom to be supported by the string. The only difference between this form of the invention and the first described form of the invention is that the threaded stem is threadedly engaged with the lever in the form shown in Figure 5 and is threadedly engaged with the block in the form shown in Figure 2. In either form of the invention the action is the same, that is, when the stem is rotated the lever will be rocked on the edge of the string.
the tail piece aperture as a fulcrum to tighten or to loosen the string.

From the above description it is thought that the construction and operation of the invention will be fully understood without further explanation.

What is claimed is:

1. A tuning device for stringed instruments of the violin family comprising a lever having a long power arm and a short weight arm projecting at an obtuse angle from the long arm, said short arm terminating in a head formed for the reception of one end of the string of the instrument, the short arm being adapted to be extended upwardly through one of the apertures of the tail piece of the instrument, a tuning stem threadedly engaged in the long arm, a head fixed to the top of the tuning stem for turning the stem, and a block rotatably mounted on the tuning stem having a groove in the bottom for receiving the string so that the string supports the device, said stem being connected to the block to effect unitary movement of the block and lever to cause the lever to rock at the bottom of the short arm upon the edge of said aperture as a fulcrum to tighten or to loosen the string.

2. A tuning device for stringed instruments of the violin family comprising a lever having a long power arm and a short weight arm projecting at an obtuse angle from the long arm, said short arm terminating in a groove head for the reception of one end of the string of the instrument, the short arm being adapted to be extended upwardly through one of the conventional apertures of the tail piece of the instrument, a tuning stem threadedly engaged in the long arm, a head fixed to the top of the tuning stem for turning the stem, and a block rotatably mounted on the tuning stem having a groove in the bottom face adapted to receive said string, rotation of the stem rocking the lever on the edge of said aperture as a fulcrum to move the block for tightening or for loosening the string.

OSCAR M. HUBBARD.