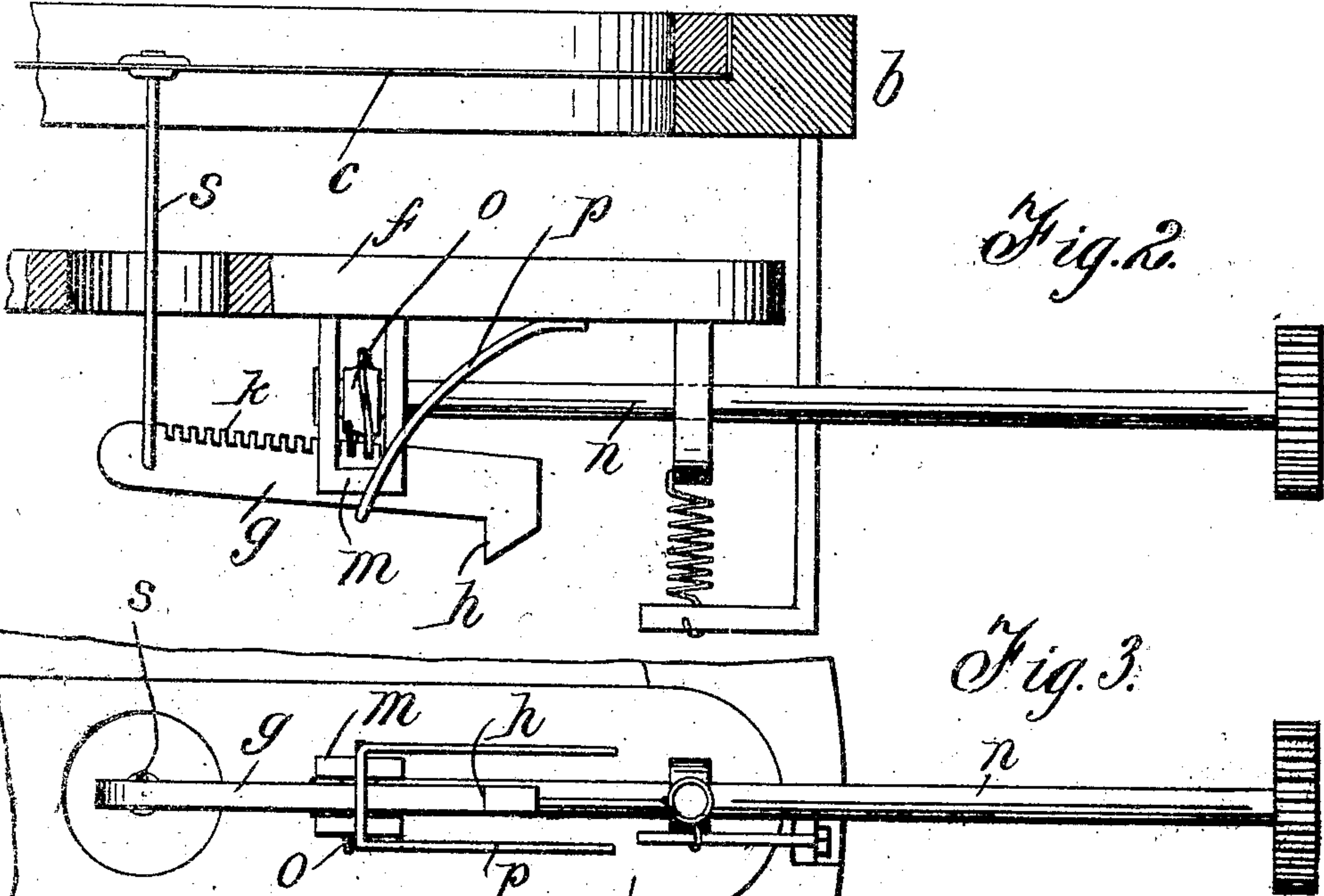
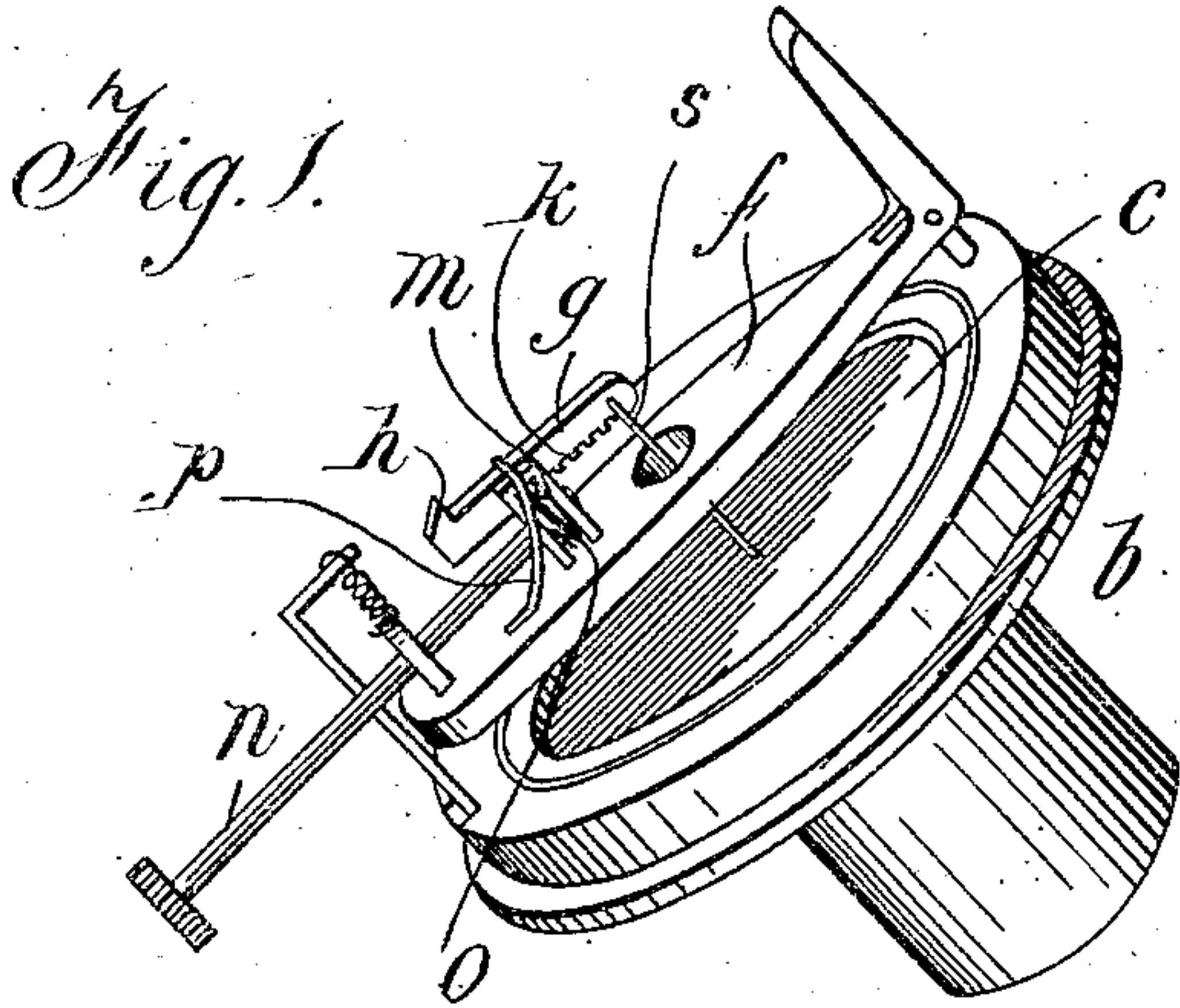


T. P. HALL.
 GRAPHOPHONE.
 APPLICATION FILED OCT. 3, 1907.

910,529.

Patented Jan. 26, 1909.



Witnesses
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UNITED STATES PATENT OFFICE

TOMAS PROCTOR HALL, OF VANCOUVER, BRITISH COLUMBIA, CANADA.

GRAPHOPHONE.

No. 910,529.

Specification of Letters Patent.

Patented Jan. 26, 1909.

Application filed October 3, 1907. Serial No. 395,799.

To all whom it may concern:

Be it known that I, **TOMAS PROCTOR HALL**, of the city of Vancouver Province of British Columbia, Canada, have invented certain new and useful Improvements in Graphophones.

My invention relates particularly to the reproducer and it has for its object to enable the amplitude of vibration of the mica diaphragm to be adjusted, and thereby soften or reduce the volume of sound without altering the quality of the tone, or amplify such tone; and to this end I provide for the adjustment of the lever upon which the needle or jewel tip is carried for the purpose of varying its fulcrum. For full comprehension, however, of my invention, reference must be had to the accompanying drawings in which similar reference characters indicate the same parts and wherein—

Figure 1 is a perspective view of a reproducer inverted and drawn to an enlarged scale, with my invention applied thereto; Fig. 2 is a side elevation of the immediate parts thereof to which my invention applies; and Fig. 3 is a plan view thereof.

The reproducer is indicated at *b* and the mica diaphragm at *c*.

f is the bar upon which is usually mounted the lever *g* carrying the needle or jewel point *h*. According to my invention the lever *g* is formed with a series of ratchet teeth *k* and it is located slidably between the legs of a U-bracket *m* mounted rigidly upon the bar *f* and serving as a bearing for a rotary spindle *n* carrying a worm-wheel *o* rigidly thereon, the legs of the bearing *m* being slotted to accommodate such worm-wheel, while a bow spring *p* carried by the bar *f* bears across the ends of the U-bracket and retains the lever *g* yieldingly in engagement with the worm wheel. This arrangement has the effect of fulcruming the lever *g* on the thread of the worm wheel *o*, while the tail of the lever is as usual connected by a wire to the diaphragm *c*.

In order to soften or reduce the volume of

sound the spindle *n* is turned to move the lever *g* with relation to its fulcrum towards the right (looking at Figs. 2 and 3) thereby reducing the extent of vibration of the diaphragm which has the effect of making the sound more mellow; and to increase the volume the lever is adjusted in the opposite direction.

What I claim is as follows:—

1. A talking machine reproducer having a lever for carrying the needle or jewel tip, a rotary spindle, means securing such spindle permanently against longitudinal movement, and means carried rigidly by the spindle for operatively connecting the spindle to the lever whereby the said lever is adjusted with relation to its fulcrum for the purpose of varying the volume of sound.

2. A talking machine reproducer having a lever for carrying the needle or jewel tip, such lever having one side toothed; a worm wheel operatively engaging the said teeth and upon which the said lever is fulcrumed, and means for rotating the worm wheel for the purpose of adjusting the lever longitudinally relatively to the said worm wheel.

3. A talking machine reproducer having a lever for carrying the needle or jewel tip, such lever having one side toothed; a rotary spindle mounted upon the reproducer, a worm wheel mounted rigidly on the spindle and operatively engaging the said teeth and upon which the said lever is fulcrumed, a bow spring secured to the reproducer and retaining the lever yieldingly in engagement with the worm wheel, and means for rotating the worm wheel for the purpose of adjusting the lever longitudinally relatively to the said worm wheel.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

TOMAS PROCTOR HALL.

Witnesses:

**EDNA B. BEARDSLEE,
RUTH McMANUS HALL.**