

No. 672,235.

Patented Apr. 16, 1901.

F. MYERS.

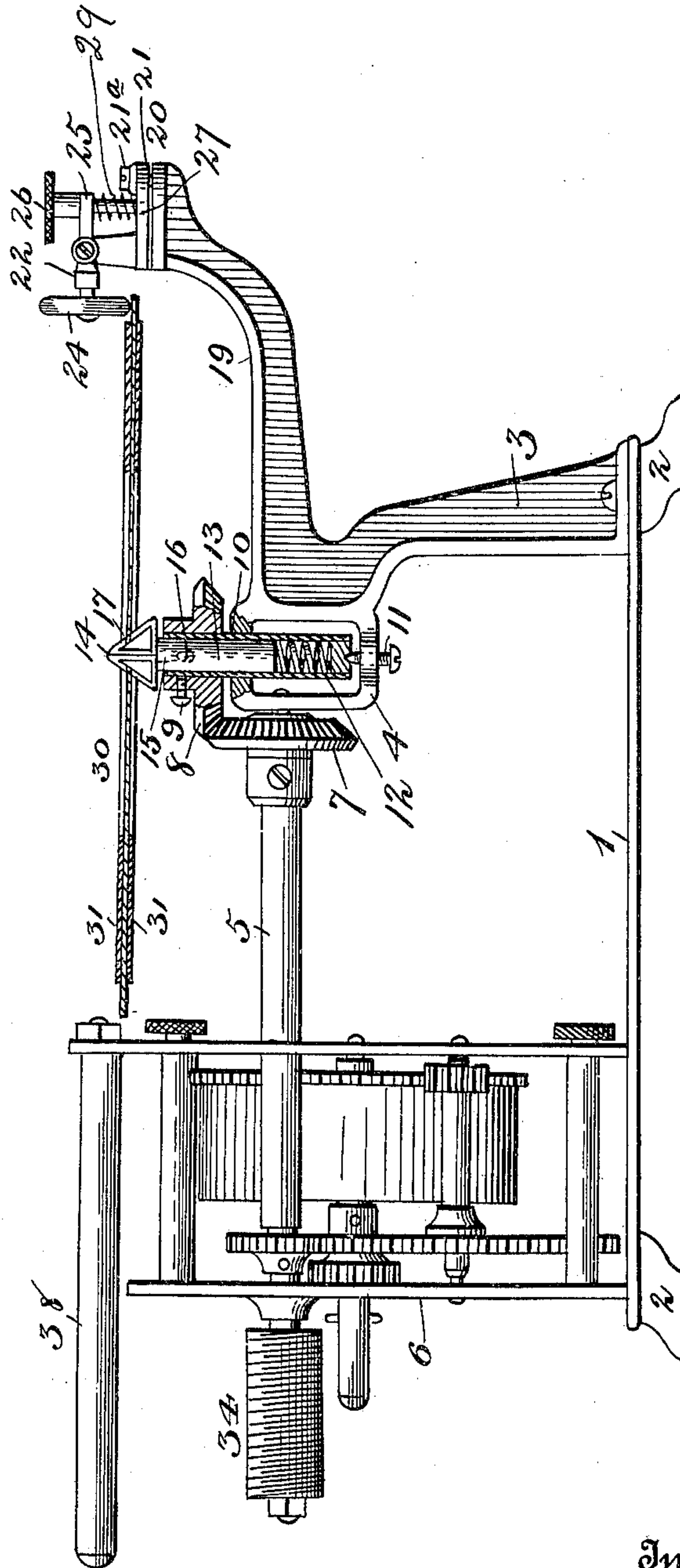
SOUND PRODUCING INSTRUMENT.

(No Model.)

(Application filed Jan. 9, 1901.)

3 Sheets—Sheet 1.

FIG. 1--



Witnesses  
F. L. Orvand.  
George J. Neta.

Inventor  
Frederick Myers  
By E. R. Bunge,  
his Attorney

No. 672,235.

Patented Apr. 16, 1901.

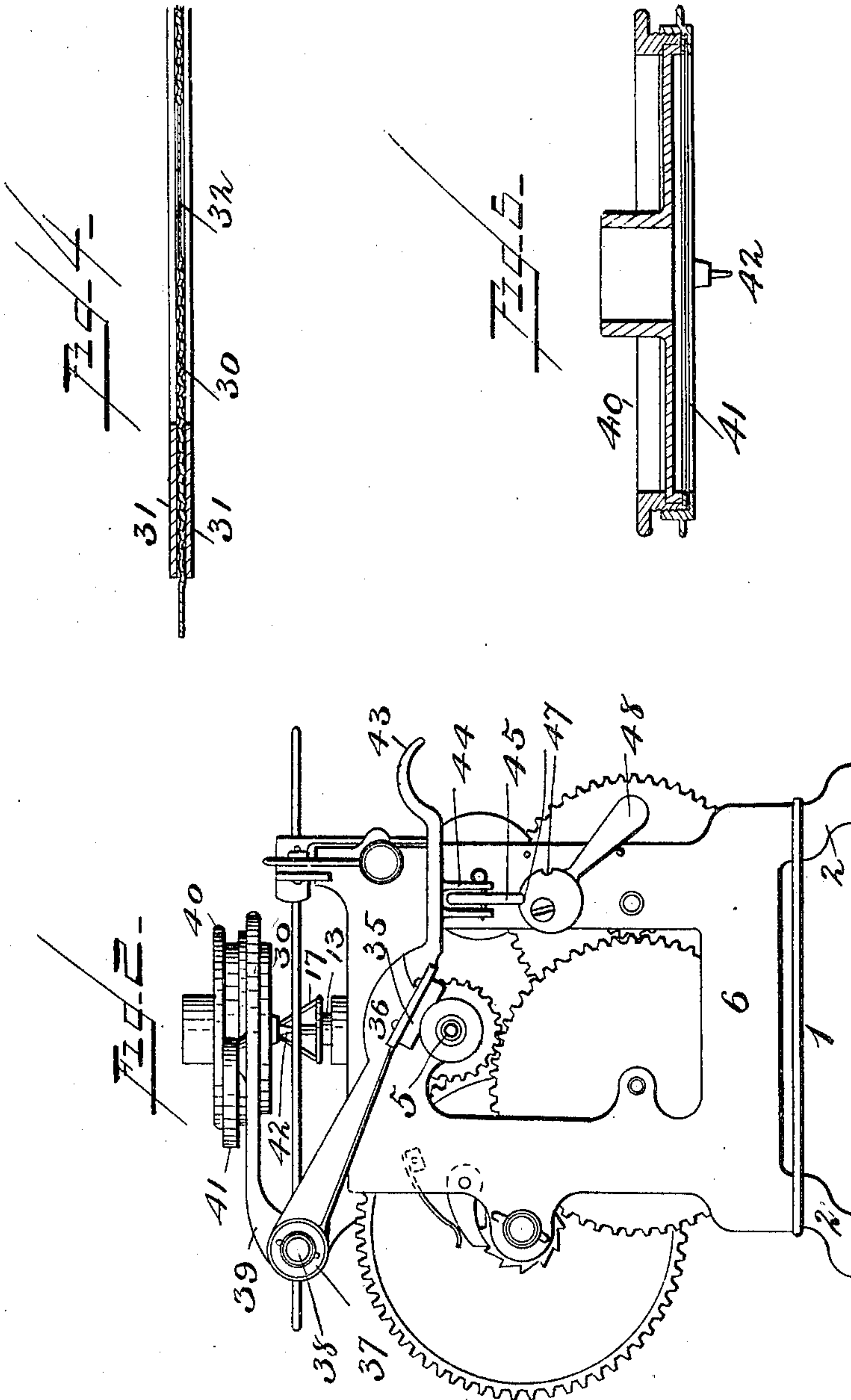
F. MYERS.

SOUND PRODUCING INSTRUMENT.

(No Model.)

(Application filed Jan. 9, 1901.)

3 Sheets—Sheet 2.



Witnesses  
F. L. Curran  
George J. Weber

Inventor  
Frederick Myers  
By E. P. Ringer,  
his Attorney

No. 672,235.

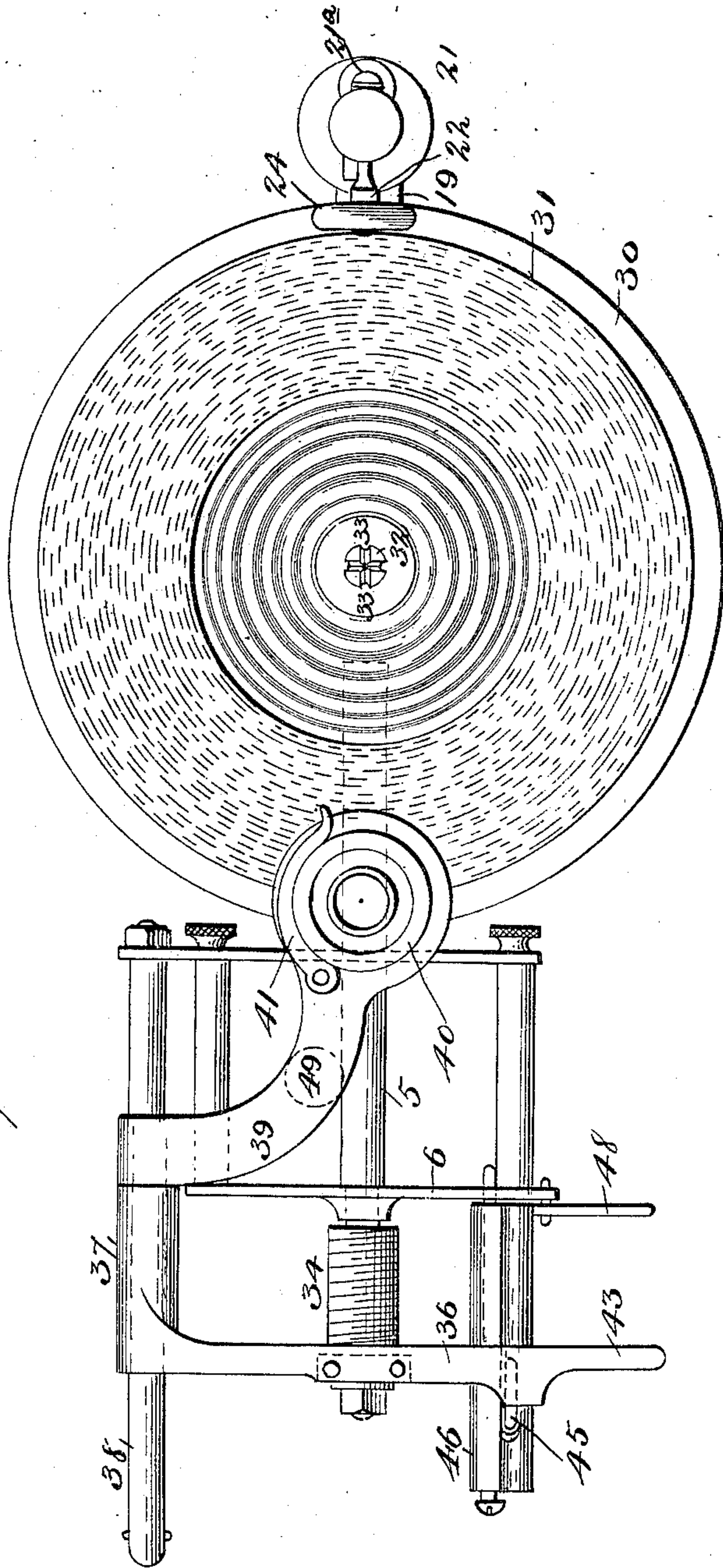
Patented Apr. 16, 1901.

F. MYERS.  
SOUND PRODUCING INSTRUMENT.

(No Model.)

(Application filed Jan. 9, 1901.)

3 Sheets- Sheet 3.



Witnesses  
F. L. Ourand.  
George J. Heber

Inventor  
Frederick Myers  
by E. R. Bungea,  
his Attorney



# UNITED STATES PATENT OFFICE.

FREDERICK MYERS, OF NEW YORK, N. Y., ASSIGNOR TO THE STYLOPHONE COMPANY, OF SAME PLACE.

## SOUND-PRODUCING INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 672,235, dated April 16, 1901.

Application filed January 9, 1901. Serial No. 42,677. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK MYERS, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Sound-Producing Instruments, of which the following is a specification.

My invention relates to sound-producing instruments of the phonograph type, and the principal object of the same is to provide simple and efficient means for giving a rotary and a vertical vibratory motion to the record-disk. In instruments which reproduce from the record-disk as at present in use the disk is rotated and the reproducer is mounted upon a pivoted arm, the stylus being free to follow the spiral grooves in the disk, and thus serving to carry the reproducer laterally across the face of the disk. The object referred to is attained by means of the construction illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of an instrument made in accordance with my invention. Fig. 2 is an end elevation of the same. Fig. 3 is a plan view. Fig. 4 is a sectional view of the record-disk. Fig. 5 is a central section through the sound-box.

Like numerals of reference designate like parts in the different views of the drawings.

The numeral 1 designates a table or stand for supporting the instrument, and 2 represents the legs for said table. Rising from one end of the table is a bracket 3, having formed at its upper end a journal-yoke 4 for one end of the feed-shaft 5, the opposite end of said feed-shaft being journaled in one of the uprights 6 of the motor-frame. A miter-gear 7 is secured to the shaft 5 in any suitable manner, and this gear is in mesh with a miter-gear 8, secured by a screw 9 to a sleeve 10, said sleeve having a solid lower portion which revolves upon a bearing-pin 11, passing through a hole in the yoke 4. A spiral spring 12 is seated in the sleeve 10, and resting upon the upper end of the spring is a pin 13, having a conical point 14. The sleeve 10 is slotted at 15, and a pin 16 passes through the slot, and thus permits the pin 13 to have a vertical play while it is revolved by the miter-gears. The conical point 14 is grooved longitudinally at 17 for a purpose which will be hereinafter

described. An arm 19 extends upward from the yoke 4, and at the upper end of the arm a round flat table 20 is provided. A roller-carriage 21 is pivoted on the table 20 by a screw 21<sup>a</sup>. A lever 22 is pivoted on a bracket rising from the roller-carriage, and a roller 24 is journaled at one end of this lever. This roller is preferably made of some soft material, like felt or chamois, in order that, as it bears upon the smooth portion of the disk or record-support, it may be noiseless. The opposite end of the lever 22 has a boss 25, provided with a smooth hole therein to form a seat for an adjusting-screw 26. The end of this screw fits a threaded hole 27 in the roller-carriage 21, and a spiral spring 29 encircles the shank of the screw 26 and bears at one end against the carriage 21 and at its upper end against the boss 25. The record-disk consists of a disk of thin corrugated sheet-steel 30, having a papier-mâché record-ring 31 cemented to each side thereof. The corrugations in the disk 30 serve to stiffen the disk and also to form grooves for the adhesive material for securing the record-rings to the disk. The central aperture 32 in the disk 30 has a number of teeth 33 projecting inward to fit the grooves 17 in the conical point 14 in order to insure their rotation.

The feed-screw 34 is secured to the shaft 5 in any suitable manner, and a nut 35 is secured to an arm 36, connected to a sleeve 37, mounted to slide upon a rod 38, secured to the motor-frame. An arm 39, formed on the sleeve 37, is curved and apertured to carry a sound-box 40, and a pivoted lever 41 holds the sound-box in place in the aperture in said curved arm. This sound-box may consist of a suitable diaphragm 41<sup>a</sup>, suitably secured in the box, and a stylus 42, centrally attached to the diaphragm. Since the stylus is not required to vibrate, it need not be of the gravity type, but may be mounted directly to the diaphragm and not weighted to move up and down. To throw the nut out of contact with the feed-screw, a finger-lever 43 is secured to said nut, and journaled in a bracket 44, depending from said lever, is a roller 45, having a round bearing-surface. A tubular eccentric 46 is provided with two longitudinal grooves 47 47<sup>a</sup>, in which the roller 45 travels. A handle 48, attached to the eccentric 46, may



be used to raise or lower the feed-nut, the roller 45 running in the groove 47 when the nut is thrown down into contact with the feed-screw and said roller running in the groove 5 47<sup>a</sup> when the feed is thrown off. When the nut is raised, the stylus is simultaneously raised from the record. The sound-box arm may be pivoted at 49 to permit the sound-box to be swung out of the way when changing 10 the record, although this is not absolutely necessary.

Any suitable motor may be used for running the instrument, that shown being of the spring type.

15 In making the record I take the original record-disk and electrotype it. From the electrotype I produce a papier-mâché matrix, and this matrix is then mounted upon a thin corrugated steel disk, said disk then serving 20 as the record-support and not requiring the use of a separate table-support made as a part of the instrument. The disk may have a record upon either or both sides.

The operation of the instrument is as follows: 25 When the motor is started, the feed-shaft is rotated, which revolves the miter-gears and imparts the required revolution to the record-disk. When the nut is thrown into contact with the feed-screw, the movement of the sound-box is lateral across the 30 face of the record. The record-disk being supported centrally upon a spring-sustained pin and having a spring-pressed roller bearing upon its outer edge, the record is held up 35 in contact with the stylus with just the required stress to compel the stylus to follow the sound-grooves. The adjusting-screw 26 may be turned to throw the opposite edge of the record-disk up to the stylus with greater 40 or less force. It is to be noted that the center pin, the roller, and the stylus are in the same diametrical line, and these being the

only bearing-points of the record a very sensitive vibratory motion is given to the free edge of the disk by the stylus, and the extent 45 and force of this motion may be readily adjusted by the screw 26.

By means of the construction and arrangement set forth herein the construction of the sound-box may be simplified, some of the 50 parts of the instrument dispensed with, and a more uniform and reliable operation attained. Instead of feeding the sound-box across the record by a very slight change in the mechanism the record may be fed later- 55 ally, and the sound-box may be held stationary.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the prin- 60 ciple or sacrificing any of the advantages of this invention.

I claim—

1. A record-disk mounted upon a central pin, a roller bearing upon the upper surface 65 of the disk near its periphery, means for adjusting the roller toward and from the disk, and means for revolving the disk in contact with a stylus located in a diametrical line with the central pin and roller. 70

2. In a sound-producing instrument, a record-disk mounted upon a yielding central support, a spring-sustained roller bearing upon the upper surface of the disk near one edge, and a stylus bearing upon the disk in 75 a diametrical line with the central support and roller.

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

FREDERICK MYERS.

Witnesses:

GUY E. PADGETT,  
EDWARD BYRNE.