M. MARCUS.

DISK TALKING MACHINE.

APPLICATION FILED JUNE 10, 1914.

1,115,707. Patented Nov. 3, 1914.

Fig. 1.

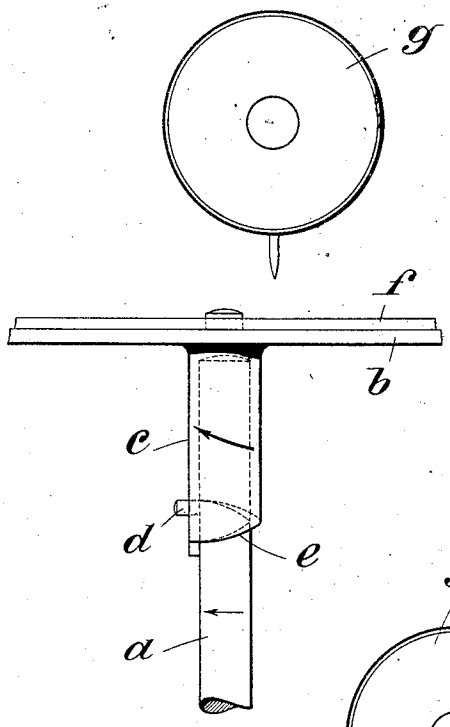



Fig. 2.

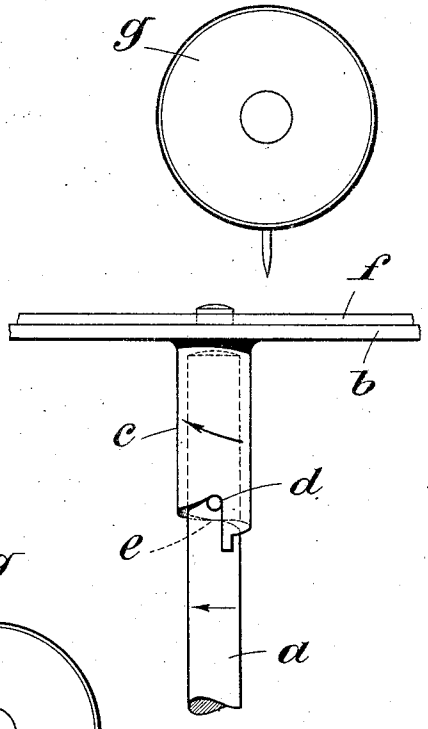
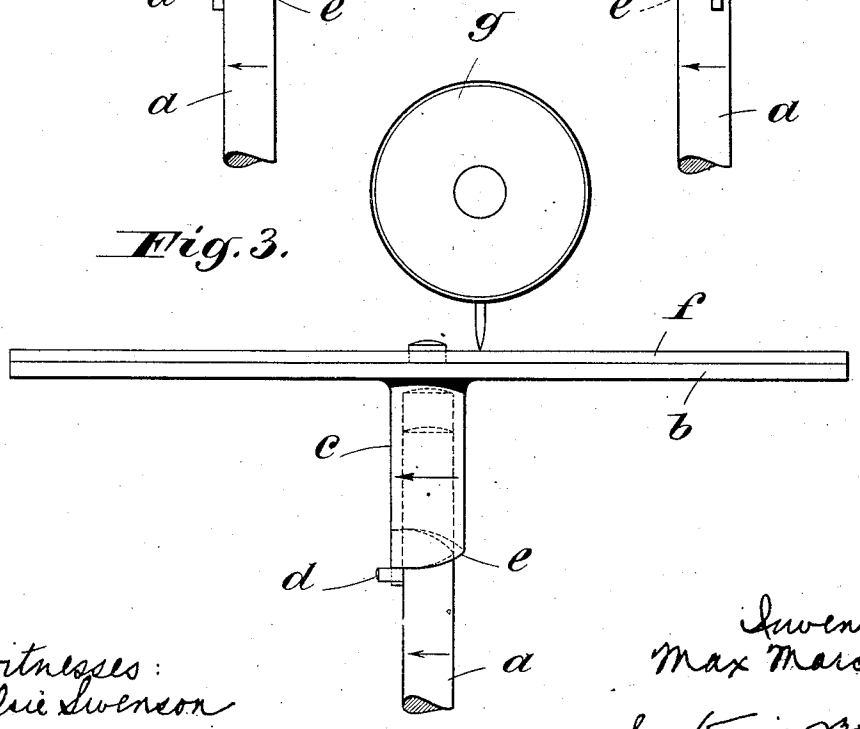



Fig. 3.




Witnesses:
Elsie Swenson
Ray J. Ernst

Inventor:
Max Marcus
by Knight Bros
Attorneys

# UNITED STATES PATENT OFFICE.

MAX MARCUS, OF PANKOW, NEAR BERLIN, GERMANY.

## DISK TALKING-MACHINE.

1,115,707. Specification of Letters Patent. Patented Nov. 3, 1914.

Application filed June 10, 1914. Serial No. 844,219.

*To all whom it may concern:*

Be it known that I, MAX MARCUS, of Pankow, near Berlin, a subject of the King of Prussia, and whose post-office address is 42 Tirolerstrasse, Pankow, near Berlin, Kingdom of Prussia, German Empire, have invented new and useful Improvements in or Relating to Disk Talking-Machines, of which the following is a specification.

This invention relates to disk talking machines such as gramophones and the like and has for its object to provide an apparatus whereby the needle or like member carried by the sound box is automatically brought into operation instead of being moved by hand or by some separate mechanism as heretofore.

A further object of this invention is to insure the needle always engaging the record smoothly without employing any additional mechanism and to effect disengagement between the needle and the record as soon as the main driving spindle ceases to rotate.

According to this invention the turn-table is so mounted on its spindle that the starting or stopping of the latter automatically moves the turn-table into or out of its operative position and also causes the rotation of the turn-table to be started or stopped gradually. To this end the turn-table is mounted on its spindle so as to rotate relatively thereto within certain limits and the driving engagement between the spindle and the turn-table is effected through a cam surface. When the spindle is at rest the turn-table occupies a plane below that in which it rotates during operation of the machine, the inertia of the turn-table relatively to the spindle and the cam surface causing the turn-table to be gradually rotated to the same speed as the spindle and simultaneously raised into engagement with the sound reproducing needle. When the record is completed and the driving mechanism is stopped the turn-table and the record it carries descend vertically relatively to the spindle and thus are moved out of engagement with the needle owing to the momentum of the turn-table. In this way the turn-table is automatically returned to its initial position without any danger to the surface of the record which remains intact.

In the accompanying drawings, Figure 1 shows in front elevation diagrammatically the turn-table and spindle in their inoperative position. Fig. 2 is a side elevation also in the position of rest, and Fig. 3 shows the turn-table in operation.

In the construction illustrated, on the spindle *a* of the main driving mechanism the turn-table *b* is loosely mounted by means of a sleeve *c* connected to the underside of the turn-table. In the position of rest the sleeve bears against a pin *d* formed on the spindle *a* or against some equivalent stop. The lower end of the sleeve *c* constitutes a cam surface *e* terminating in a driver, and on the spindle *a* being rotated the turn-table is raised from its inoperative position by the pin engaging the curve. The turn-table remains in this position until, on the main driving gear being disconnected or stopped, the spindle *a* ceases to rotate whereupon the turn-table owing to its momentum and weight gradually descends, thus moving the record out of contact with the needle so that the latter can be returned either by hand or automatically to its initial position without any risk of damage to the record surface. It is merely necessary to provide some suitable stop or abutment to prevent the sound box ever occupying a plane as low as that in which the record lies when at rest.

It will thus be seen that unlike previous apparatus it is possible to exchange records without raising the sound arm or sound box.

It will be appreciated that a cam groove if desired may be formed in the spindle and a pin project into this groove from the sleeve and that the actual form of cam mechanism may vary considerably without departing from this invention.

What I do claim as my invention, and desire to secure by Letters Patent of the United States, is: —

1. In a disk talking machine the combination of a rotatable spindle, a turn-table mounted thereon and driving means between the spindle and the turn-table whereby the rotary motion of the spindle is gradually imparted to the turn-table and a relative vertical motion is given to said turn-table when the spindle is started or stopped.

2. In a disk talking machine the combination of a rotatable spindle, a turn-table mounted thereon, a driving member on the rotatable spindle and an inclined or cam surface on the turn-table coöperating with such driving member for the purpose set forth.

3. In a disk talking machine rotatable

spindle, a turn-table mounted thereon and rotatable relatively thereto within certain limits and means whereby, on the starting or stopping of the spindle, the turn-table is caused to move vertically relatively to the spindle into or out of its operative position.

4. In a disk talking machine the combination of a rotatable spindle, a turn-table, a socket attached to such turn-table and adapted to fit easily over said rotatable spindle, a cam surface at the lower end of said socket, steps or engaging members at the ends of the cam surface and a pin on the rotatable spindle adapted to engage with the cam surface and the steps thereof substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

MAX MARCUS.

Witnesses:
WOLDEMAR HAUPT,
HENRY HASPER.