No. 679,236. Patented July 23, 1901.

T. H. MACDONALD.

GRAPHOPHONE.

(Application filed Mar. 14, 1901.)

(No Model.)

Fig. 1.

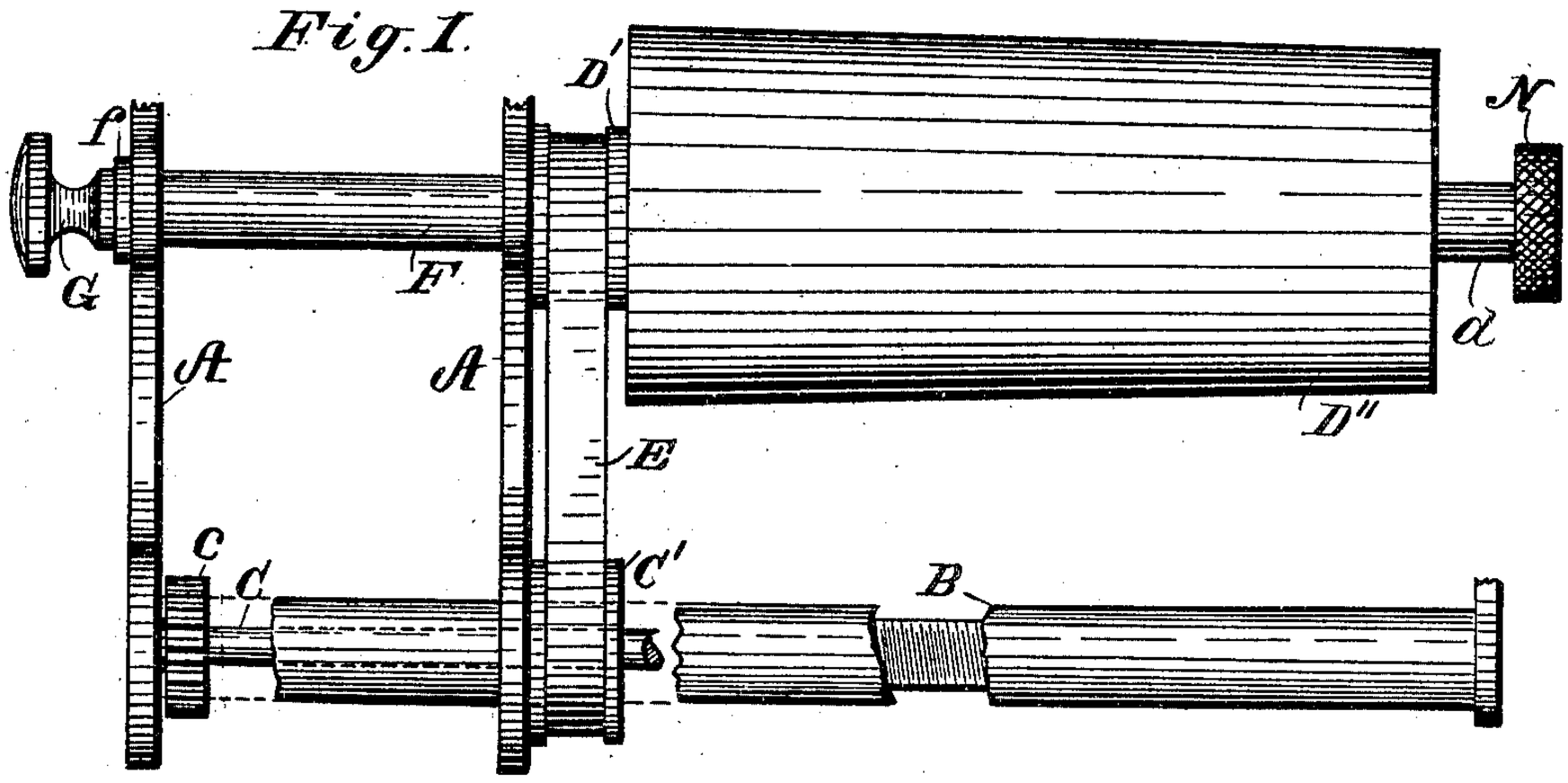


Fig. 2.

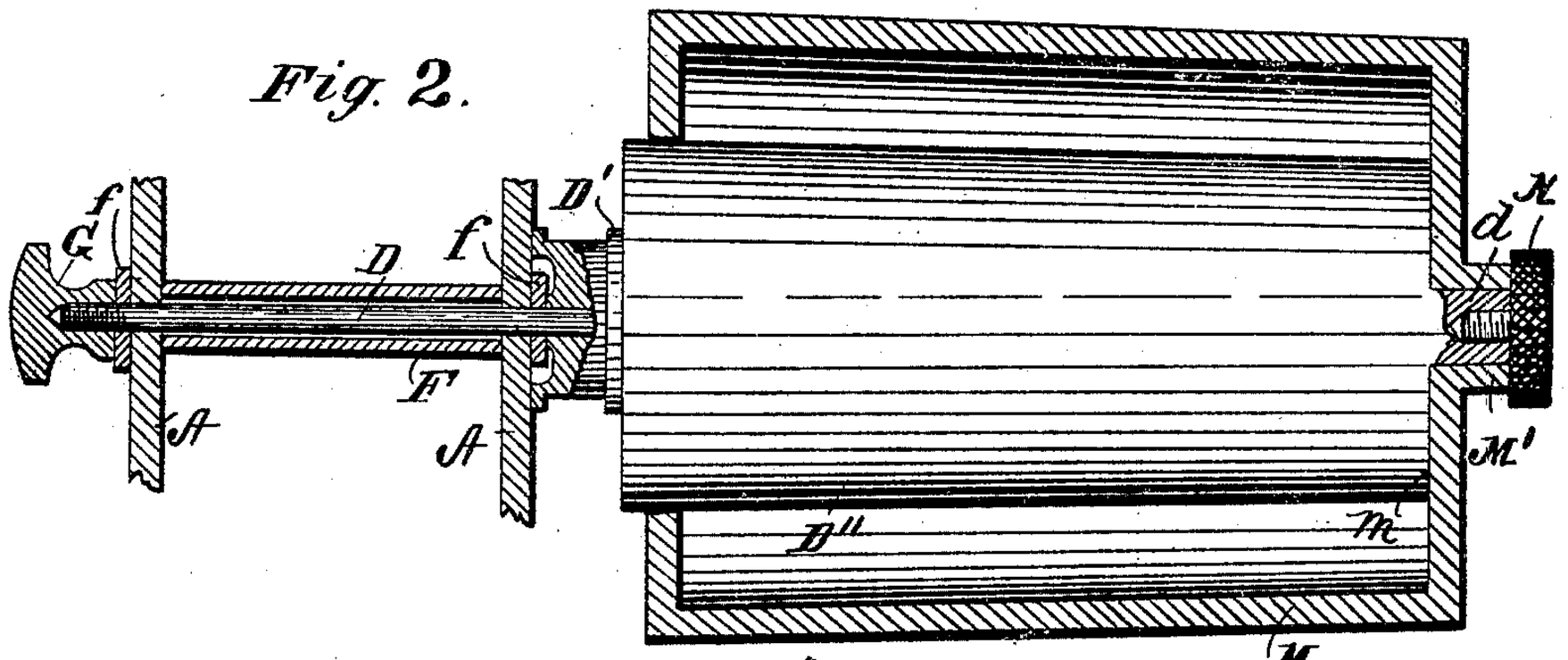
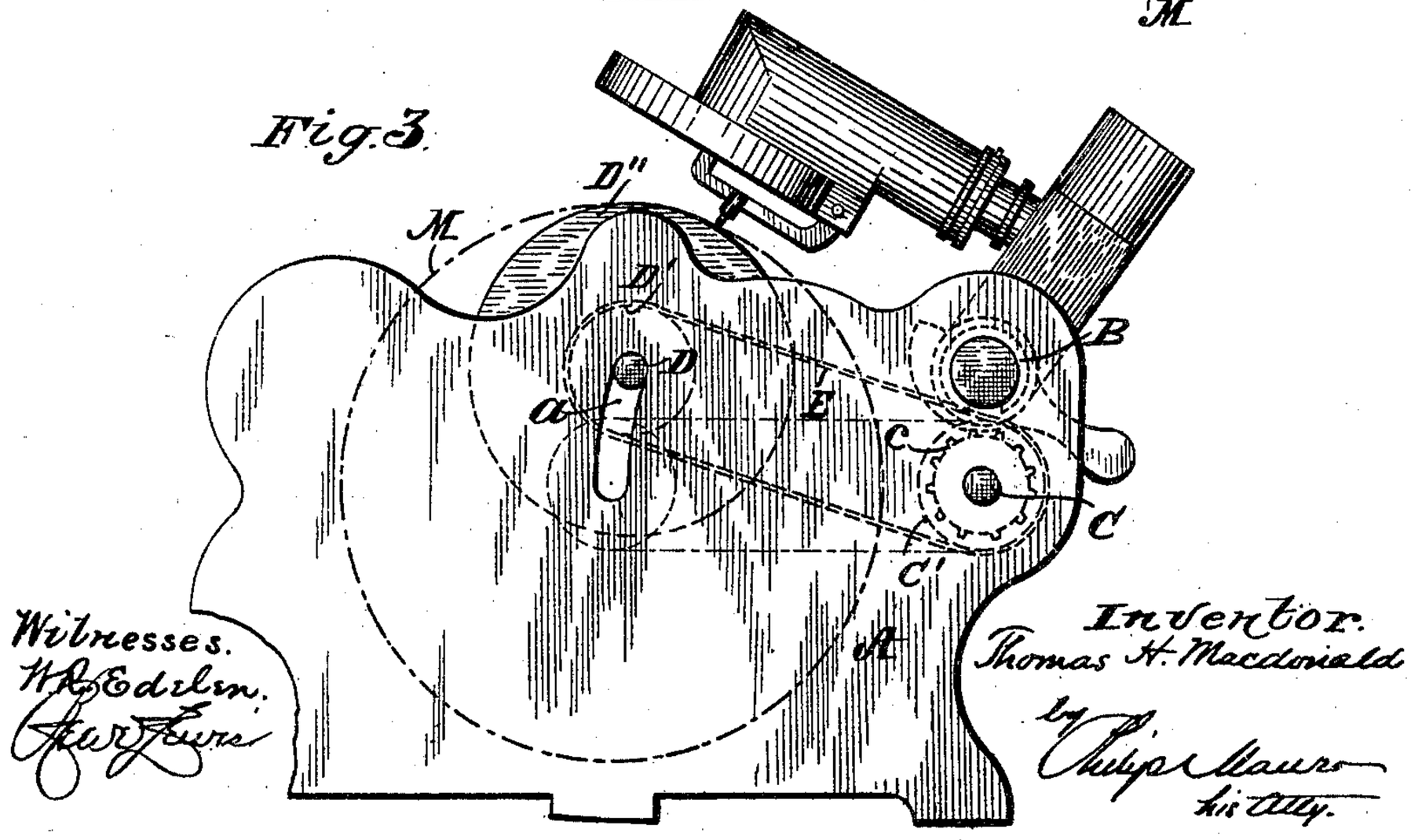


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

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GRAPHOPHONE.

SPECIFICATION forming part of Letters Patent No. 679,236, dated July 23, 1901.

Application filed March 14, 1901. Serial No. 51,165. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. MACDONALD, of Bridgeport, Connecticut, have invented a new and useful Improvement in Graphophones, which is fully set forth in the following specification.

This invention relates to graphophones or talking-machines, more particularly to a machine for carrying either the standard records (or blanks) or those of larger diameter, known as "grand" records and blanks.

The arrangement consists, first, in placing on the ordinary mandrel an outer mandrel or shell of sufficient diameter to carry the grand cylinder, and, second, in shifting the mandrel-rod, with its mandrel and shell, so that the speaker (recorder or reproducer) shall have proper relation with the surface of the cylinder. One advantage of this latter feature consists in doing away with any "extra neck" or similar device necessary in shifting the speaker relative to the record-surface, in that the record-surface itself is shifted.

The invention consists, further, in certain details of construction, to be pointed out. Briefly, the shifting of the mandrel-rod is provided for by mounting it adjustably in curved bearing-slots that are concentric with the shaft from which the mandrel receives motion, hereinafter called the "driving-shaft." By reason of this mounting, since the slots are curved concentric with the driving-shaft, the mandrel is always in revoluble connection with its driving-shaft at any position of its adjustment.

In the drawings annexed to illustrate one embodiment of my invention, Figure 1 is a plan; Fig. 2, a longitudinal section, and Fig. 3 a detail end view.

While my invention is applicable to various types of machines, I have shown it as applied to that type known commercially as the "Eagle" graphophone.

A A are the usual bearing-plates, between which are located the driving-spring, governor, gearing, &c., all as usual.

B is the split sleeve encircling the feed-screw.

C is what I shall here call the "driving-shaft," that receives motion through gear *c* from the driving-spring and intermediate gearing. (Not shown.) On the outer end of shaft C is a pulley C′.

D is the mandrel-rod.

Plates A are extended to the rear more than has been usual heretofore, and each has the curved slot *a*, that register with each other and are concentric with the shaft C. On the mandrel-rod turn the ordinary pulley D′ and taper-mandrel D″. A belt E, driven by pulley C′, turns pulley D′ and the mandrel. Thus in any position of rod D within its curved-slot bearings *a* the mandrel is always ready to be rotated by the shaft C.

For holding the mandrel-rod in its different positions of adjustment I provide sleeve F, placed between plates A and surrounding rod D, thumb-nut G, turning down on the screw-threaded end of rod D, and washers *f f*, on the outer sides of plates A and adjacent to the thumb-nut and pulley D′, respectively. The slots are so situated and extend to such position that when the mandrel-rod is raised to its upper limit (against the upper ends of the slots) then the standard cylinder on the standard mandrel will be in proper position relative to the reproducing (or recording) stylus, while when the mandrel-rod is shifted to its lower position (at the bottom of the slots) and the outer mandrel (to be described hereinafter) is put in place the grand cylinder on said outer mandrel will then be in proper relation to the stylus. The belt E serves as a sort of radius-vector, and owing also to the snug fit of sleeve F between plates A the mandrel-rod D is always parallel to the driving-shaft C, as well as equidistant therefrom. Tightening thumb-nut G clamps the mandrel-rod in its adjusted position.

For carrying grand cylinders I have provided a false mandrel or shell M, having an opening at one end to fit upon the inner end of mandrel D″ and the hollow neck M′ and shoulder *m* at its other end to take over stem *d* of the standard mandrel and abut against the outer end thereof, all as seen in Fig. 2. A thumb-nut N, screwed into the end of stem *d* of mandrel D″, serves to hold the outer mandrel in place.

The great advantage of my invention as a whole consists in the ease, rapidity, and accuracy of its adjustment for the different-

sized cylinders. When a small record is in place, to substitute a larger first remove the record; second, loosen thumb-nut G; third, shift the rod F to the bottom of slots and tighten nut G; fourth, apply mandrel M and large record, and, fifth, tighten thumb-nut N. All this has been done in some seven to ten seconds, and the adjustment is perfect. The reverse of this operation can be performed in even less time.

Of course instead of belt E power may be transmitted from shaft C to the mandrel by other means, or some other driving device may be employed in place of shaft C, and other changes may be made without in any case departing from the spirit of my invention, which lies, broadly, in shifting the position of the sound-record (or blank) relative to the "speaker," in order to bring either the standard record (or blank) or that of larger size into proper relation to the speaker.

Having thus described my invention, I claim—

1. In a talking-machine, the combination with a driving device, of an adjustably-mounted mandrel always in rotatable connection therewith, and means for holding the latter firmly in its various adjustments, substantially as described.

2. In a talking-machine, the combination with a driving-shaft journaled in bearing-plates, of a mandrel-rod carried by said plates in curved bearing-slots that are concentric with said driving-shaft, and a connection from said driving-shaft that turns the mandrel on said rod, substantially as described.

3. In a talking-machine, the combination with bearing-plates and a driving-shaft journaled therein, of an adjustable mandrel-rod supported by said plates within curved bearing-slots that are concentric with said driving-shaft, a sleeve surrounding that portion of the mandrel-rod between said plates and abutting against the latter, and means for holding said mandrel-rod in its adjustment, substantially as described.

4. In a talking-machine, the combination with a driving-shaft, and a mandrel adjustably mounted so as to be always parallel therewith and equidistant therefrom, of an outer mandrel detachably mounted on said mandrel, substantially as described.

5. In a talking-machine, the combination with a driving device, and an adjustable mandrel so mounted that it may—at pleasure—carry in operative position either a standard cylinder or one of larger diameter, substantially as described.

6. In a talking-machine, the combination with the speaker thereof (recorder or reproducer), of an adjustable mandrel capable of being revolved in any of its positions of adjustment, and adapted to carry either a large or a small record-cylinder in operative contact with said speaker, substantially as described.

7. In a talking-machine, the combination with a speaker (recorder or reproducer), and a revoluble device for carrying a cylinder, of means for adjusting said device relative to said speaker to enable the former to carry—at pleasure—cylinders of different diameters in operative contact with said speaker, substantially as described.

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

THOMAS H. MACDONALD.

Witnesses:
M. A. FOGO,
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