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Patented Nov. 13, 1900.

G. KORYTOWSKI.
STYLUS MAGAZINE FOR GRAMOPHONES.

(Application filed Aug. 22, 1899.)

(No Model.)

Fig. 1.

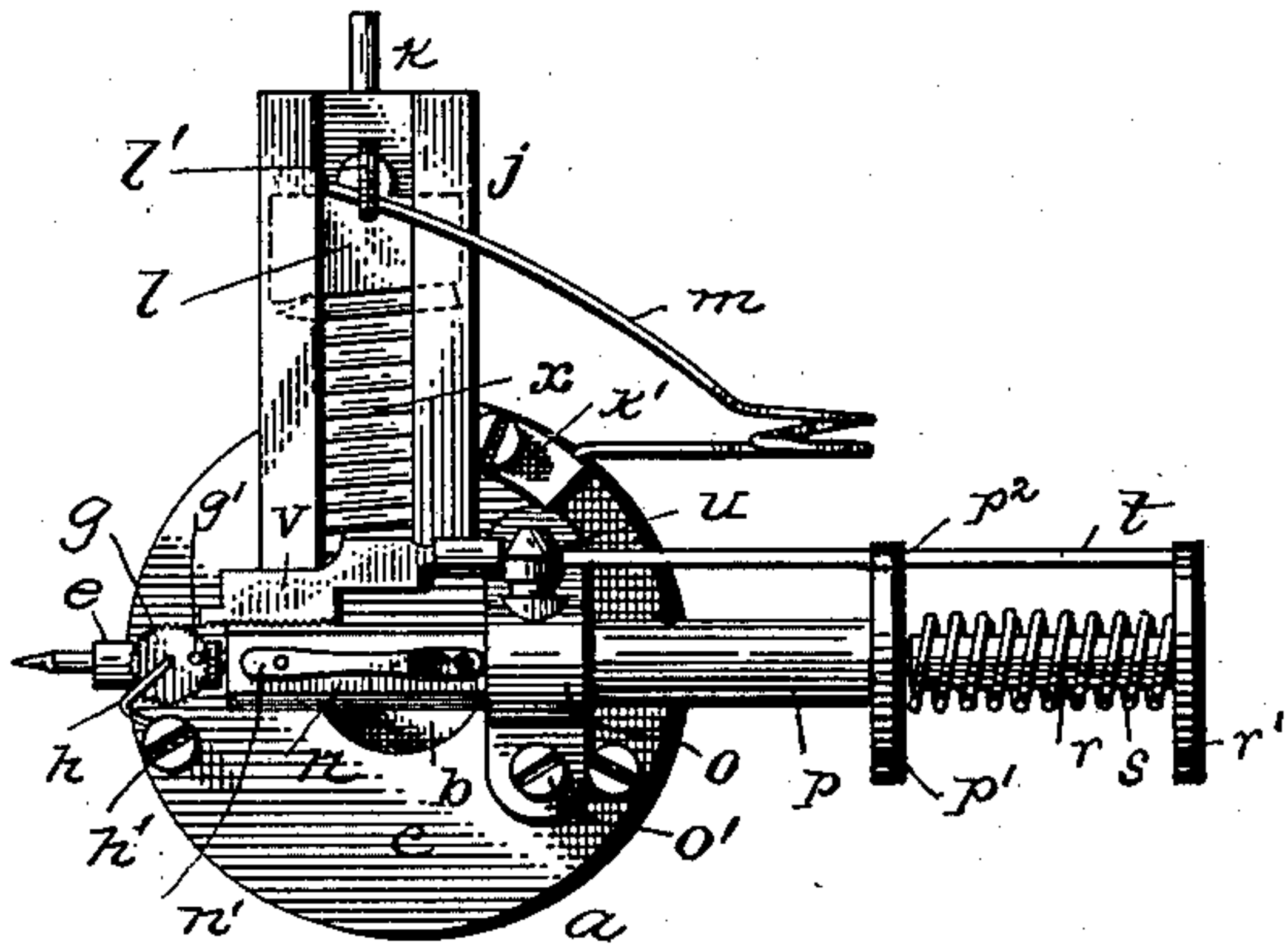


Fig. 2.

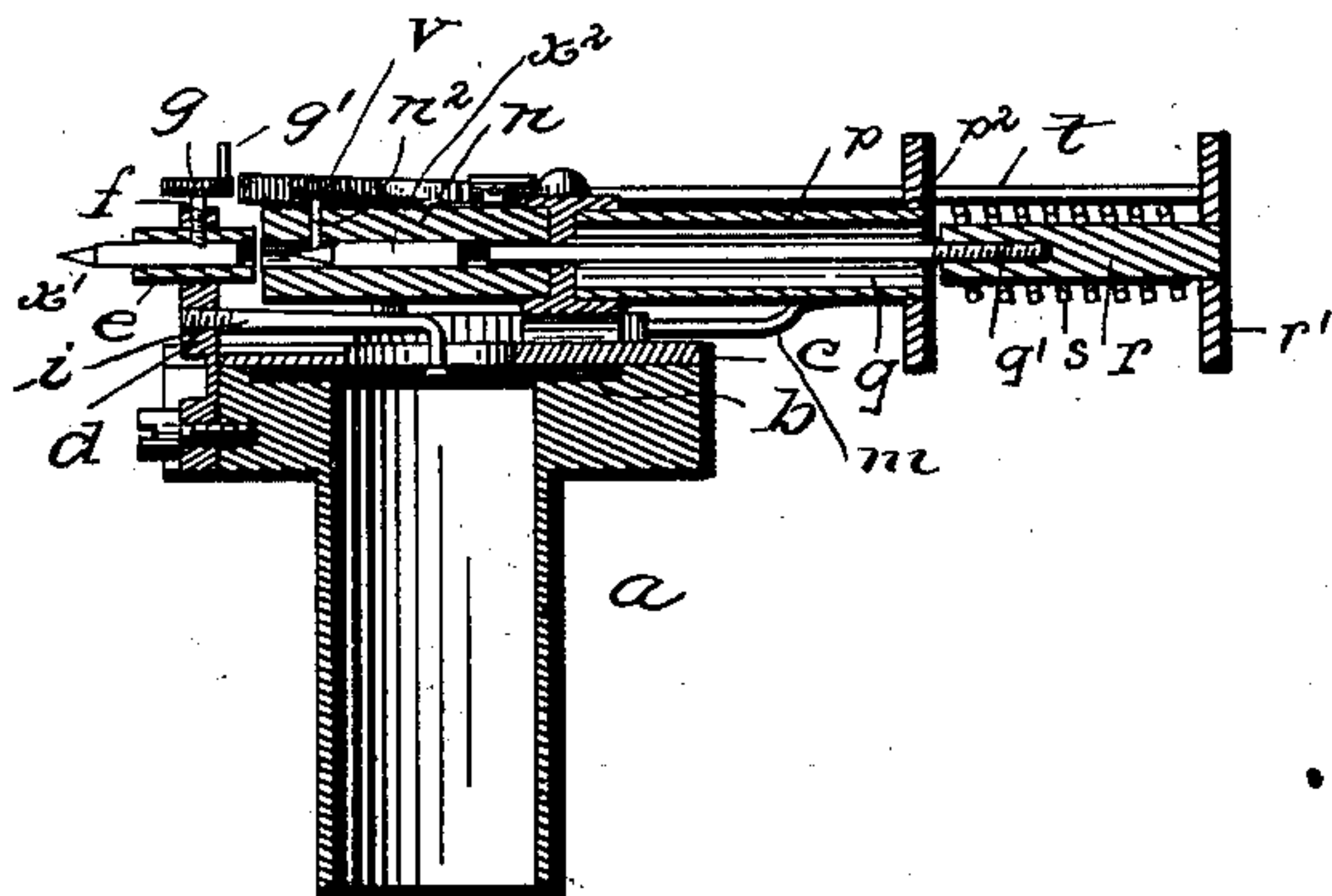
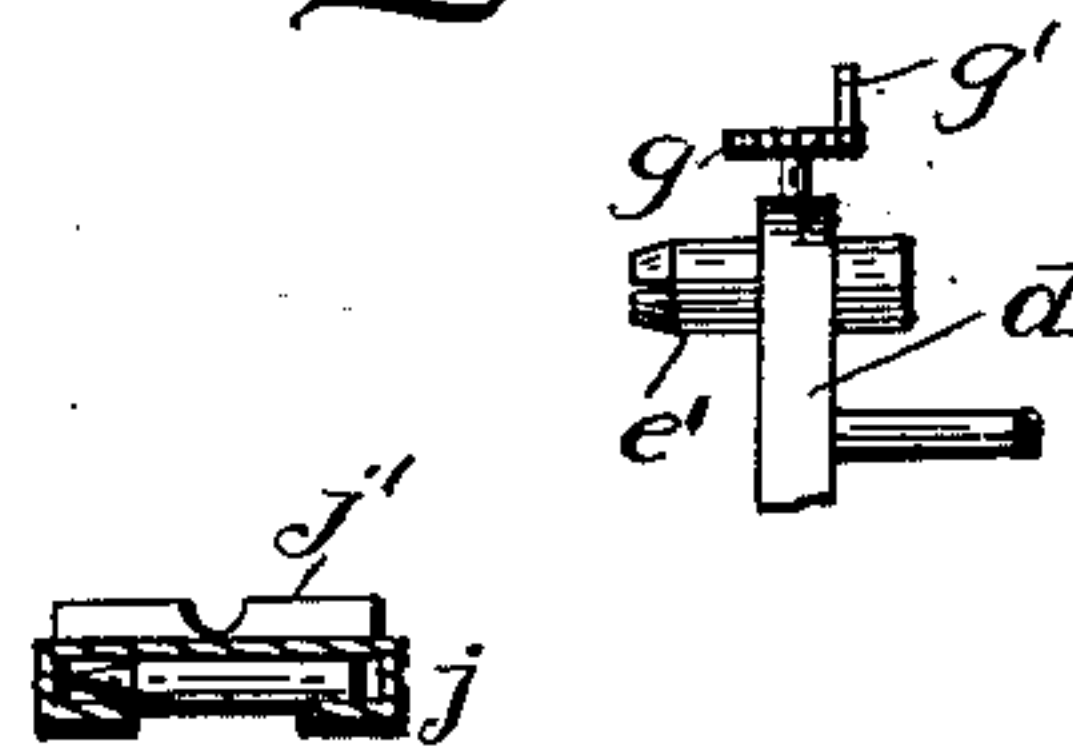


Fig. 3.



WITNESSES

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GUSTAV KORYTOWSKI, OF LEIPSIC, GERMANY.

STYLUS-MAGAZINE FOR GRAMOPHONES.

SPECIFICATION forming part of Letters Patent No. 661,662, dated November 13, 1900.

Application filed August 22, 1899. Serial No. 728,098. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV KORYTOWSKI, a subject of the German Emperor, residing at Leipsic, in the Empire of Germany, have
5 invented certain new and useful Improvements in Devices for Changing the Tracers of Sound-Reproducing Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as
10 it appertains to make and use the same.

My present invention has reference to talking-machines.

The reproducers in gramophones, phonographs, and the like are usually provided with a needle or its equivalent which follows the engraved lines of the record, and the needles being generally of soft metal are liable to wear, the wear being in some of the apparatus, especially in gramophones, a rapid one, thus necessitating frequent changing. This has heretofore been generally done by hand, but owing to the delicate mechanism of the reproducer a certain skill is required for inserting and fixing the needles, which obviously cannot be done by every one.

The object of this invention is to provide a means for automatically discarding the used needle and simultaneously replacing it with
30 a fresh one.

To this end the invention consists in a magazine for carrying a plurality of needles, a needle-holder to which the needles are fed, a means for feeding the needles to said needle-holder, and in certain details of construction, all as hereinafter described and claimed.

In order to more fully describe and ascertain the nature of the said invention, reference will be had to the accompanying drawings, which illustrate a preferred embodiment of my invention, and wherein—

Figure 1 is a face view showing the general arrangement. Fig. 2 is a longitudinal section of Fig. 1, and Fig. 3 represents details showing a transverse section through the magazine and a modification of the needle-holder.

The invention is shown as applied to a reproducer of the Berliner system.

50 *a* designates the sound-box, having diaphragm *b*, retained by disk *c* in the usual manner. The sound-box is provided with a

lateral recess, in which is mounted the needle-holder support *d*, secured by a screw or other suitable means. The needle-holder *e* 55 may consist of a tubular member integral with the support or may be tapered and split longitudinally at its forward end, as shown at *e'* in Fig. 3, so as to assume the function of a clamp to prevent the operating-needle from
60 being displaced.

The needle-holder is provided with a set-screw *f*, the head of which is formed as a pinion *g*, carrying a pin *g'*, which prevents the screw from being fully rotated by bearing 65 against a spring *h*, retained by screw *h'* on the sound-box.

i designates the stylus connecting the needle-holder support *d* and diaphragm *b* in the usual manner. 70

The magazine *j* is preferably constructed of sheet metal and consists of a rectangular member having a sight-opening extending the length thereof. The needles are loosely received therein and superposed one upon the 75 other, as shown at *x*, with their points facing the needle-holder.

The magazine may be secured to the sound-box in any suitable manner. In the present instance I have shown it as being received at 80 its base in a box or trough *n*, mounted in a support upon the sound-box. This magazine is provided with a grooved shoulder *j'*, in which is adapted to engage a spring-wire *k*, mounted in a segmental plate *k'*, secured to 85 the sound-box. The magazine has a pusher or tensioning device for the needles, which comprises a presser-block *l*, having its under side inclined to coincide with the tapered form of the needles and having a shank *l'* extending through the sight-opening, upon 90 which is adapted to bear one arm of a spring *m*, the other arm of the spring being retained in plate *k'*.

Any suitable means may be employed for 95 feeding the needles to the needle-holder. In the present instance I have shown a box or trough *n*, into which the magazine feeds, said box being axially alined with the needle-holder and provided with a lateral opening 100 closed by a reed or spring *n'*, having an inwardly-protruding pin *n''*, adapted to bear upon the tapered point of the second needle to prevent the same from creeping forward

against the operating-needle. Said trough n is integral with or otherwise mounted upon a support o , retained by screws o' upon the sound-box. The support o has a tubular extension or sleeve p , provided at its outer end with a flange p' , having an eye p^2 . (Shown dotted in Figs. 1 and 2.) A plunger or rod q is guided centrally of said sleeve to be in axial alinement with the needle in trough n and is threaded, as at q' , to be received in a cylindrical block r , having a flange r' . A coil-spring s is mounted upon said block and impinges at its ends against the flanges p' and r' , normally tending to keep the rod q retracted. The flange r' has rigidly connected therewith a rod t , guided in the eye p^2 and in a guide u , secured to the support o . The rod t carries at its other end a rack v , attached thereto in any suitable manner and adapted to engage the teeth of pinion g when the rod q is actuated. The magazine being supplied with needles, the lowermost one will lie in the trough n , and it will be seen that by depressing the rod q this needle will be pushed forward to its proper position in the needle-holder, as shown at x' , where it is retained by the set-screw g , which is actuated by the rack v . The next needle x^2 will take the place of the preceding one, and it will be seen that upon repeating this operation the second needle will operate to eject the used needle.

It is obvious that various changes in the form, construction, combination, and arrangement of parts of my invention may be resorted to without sacrificing any of the advantages or departing from the spirit of my invention.

Having thus described my invention, I claim—

1. A reproducer for talking-machines having a plurality of reproducing-needles in a substantially common plane and automatic means for discarding the used needle and simultaneously replacing it with a fresh one.

2. In a reproducer for talking-machines, a magazine containing a number of reproducing-needles arranged in a substantially common plane, and means for putting said needles into position, one after another, to reproduce sound.

3. In a reproducer for talking-machines, a magazine, a number of reproducing-needles in superposed relation, and automatic means for simultaneously ejecting the used needle and replacing it with a fresh one.

4. In a reproducer for talking-machines, a magazine containing a number of reproducing-needles in superposed relation and having a downward feed, and automatic means for simultaneously ejecting the used needle and replacing it with a fresh one.

5. In a reproducer for talking-machines, a magazine attached to the sound-box and containing a number of reproducing-needles a needle-holder, and means for feeding said needles to the needle-holder, consecutively.

6. In a reproducer for talking-machines, a magazine attached to the sound-box, a plu-

rality of reproducing-needles contained in said magazine under tension, a needle-holder alined with the lowermost needle, and means for feeding said needles to the needle-holder, consecutively.

7. In a reproducer for talking-machines, a magazine attached to the sound-box, a plurality of reproducing-needles contained in said magazine, a needle-holder, means for keeping the lowermost needle in axial alinement therewith, a plunger mechanism for causing the needles to be inserted in the needle-holder, one after another, in position to reproduce sound.

8. In a reproducer for talking-machines, a magazine attached to the sound-box, a plurality of reproducing-needles contained in said magazine, a clamping needle-holder, a plunger device, and means connected with the needle-holder whereby when the plunger is actuated, the used needle is released and a new one substituted.

9. In a reproducer for talking-machines, a magazine attached to the sound-box, a plurality of reproducing-needles contained in said magazine, a clamping needle-holder, a plunger device axially alined with said needle-holder and the lowermost needle, means connected with the needle-holder whereby when the plunger is actuated, the used needle is released and a new one substituted, and suitable means to prevent a second needle working forward while a needle is operating.

10. A magazine for talking-machines, having a downward feed and containing a plurality of superposed reproducing-needles under tension in combination with means for automatically feeding said needles to the needle-holder.

11. A magazine for talking-machines, adapted and arranged to contain a plurality of needles and having a sight-opening, a spring-block bearing upon said needles, and a lateral slot near the base of said magazine, with a reed or spring having a projection normally bearing upon the lowermost needle to hold same in position.

12. The combination in a talking-machine, of a reproducer having a magazine provided with a sight-opening extending the length thereof and with a slot near its lower end, a plurality of reproducing-needles contained in said magazine, a clamping needle-holder, a plunger device axially alined with said needle-holder and the lowermost needle, means connected with the needle-holder whereby when the plunger is actuated the used needle is discarded and a new one substituted therefor, and a spring having a projection located in said slot and normally tending to prevent a second needle working forward while a needle is operating.

13. The combination, in a talking-machine, of a reproducer having a magazine attached to the sound-box and provided with a sight-opening extending the length thereof and with a

slot near its lower end, a removable connection
between the magazine and the sound-box, a
plurality of reproducing-needles contained in
said magazine, a clamping needle-holder, a
5 plunger device axially alined with said needle-
holder and with the lowermost needle,
means connected with the needle-holder
whereby when the plunger is actuated the
used needle is discarded and a new one sub-
10 stituted therefor, and a spring having a nose
or projection located in said slot and nor-
mally tending to prevent a second needle
from working forward while a needle is oper-
ating.
15 14. The combination in a talking-machine,
of a reproducer having a magazine attached
to the sound-box and provided with a sight-
opening extending the length thereof, a re-
movable connection between the magazine
20 and the sound-box, including a laterally-slot-

ted trough into which the magazine is adapt-
ed to feed a plurality of reproducing-needles
contained in said magazine, a clamping needle-
holder, a plunger device axially alined
with said needle-holder and with the lower- 25
most needle, means connected with the needle-
holder whereby when the plunger is actuated
the used needle is discarded and a new one
substituted therefor, and a spring having
a nose or projection protruding through the 30
slot in said trough and normally tending to
prevent a second needle from working forward
while a needle is operating.

In testimony that I claim the foregoing as
my invention I have signed my name in pres- 35
ence of two subscribing witnesses.

GUSTAV KORYTOWSKI.

Witnesses:

EMIL F. HOFMANN,
B. H. WARNER, Jr.