

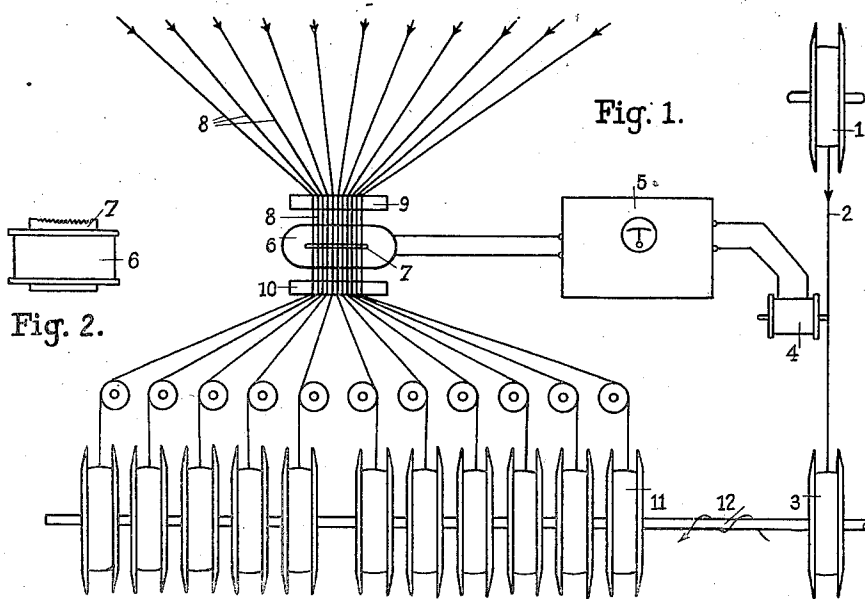
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DUPLICATION OF SOUND RECORDS OBTAINED BY MAGNETIC MEANS

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## UNITED STATES PATENT OFFICE

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## DUPLICATION OF SOUND RECORDS OBTAINED BY MAGNETIC MEANS

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It is known to record sound waves magnetically on steel carriers in the form of tape or wire by causing the said steel carrier to pass through a so-called "talking head" containing magnets which are influenced by electric currents produced by the sound waves and by producing an induction in the said steel carrier by means of the said talking head. When such sound records are used instead of the known sound record discs, and also in the case of talking films, it is necessary to be able to duplicate the sound records in a simple manner on a continuously magnetized steel carrier, and the object of the present invention is to produce such a duplicating apparatus.

The essence of the invention consists in this that the steel carrier on which the sound has been magnetically recorded is directly or indirectly so adapted as an exciting reproducing magnet that, at the same time it produces a magnetic induction in a series of parallel reproducing steel carriers which are passed along it. This arrangement has substantial advantages as compared with the obvious solution that a series of single reproducing talking heads be used next to one another for each duplicating wire; firstly, because the construction is simplified and more compact, secondly, because of the more truthful and more uniform recording for all the duplicating wires and, finally, because the guiding of the duplicating wires through the reproducing talking head is more simple and easier. One way of carrying the invention into effect is illustrated by way of example in the accompanying drawings in which Figure 1 is a showing of the duplicating system and Figure 2 a detail of the reproducing head used.

1 is the reel of the wire 2 which carries the record and 3 is the winding-on reel associated therewith. The recording wire 2 excites the pick-up magnet 4, which in its turn excites the electromagnet 6 of the talking head over an amplifier 5. The core of the latter magnet is constructed in the form of a comb with closely adjacent teeth (see Figure 2). Obviously, in order to obtain the required magnetic closure, an upper comb 7 may addition-

ally be employed, which surrounds the duplicating wires from above, being arranged above the lower magnet 7 (this is not shown in the drawing). The individual duplicating wires 8 are passed parallel through the guiding eyes 9, 10 and through the free spaces left between the teeth of the upper comb 7. The wires coming from the storing reels converge towards the guiding eyes 9 and from the guiding eyes 10 they diverge towards the winding-on reels 11. The latter reels are mounted on the same shaft 12 as the winding-on reel of the record wire, which shaft is driven by the motor at the required speed. In this way, the uniform drawing of the record wire and of all the duplicating wires through the duplicating apparatus is ensured.

I claim:

1. An apparatus for the simultaneous repeated duplication of steel carriers in the form of bands or wires on which acoustic vibrations are magnetically recorded comprising in combination with a magnetic master record a duplicating "talking head" and means inserted between the said master magnetic record and the duplicating talking head for influencing the latter in accordance with the magnetic record of the acoustic vibrations on the master record, the said talking head having a wide magnet over which the steel carriers to be duplicated are caused to pass parallel and close to one another.

2. An apparatus as claimed in claim 1, in which the said wide magnet of the talking head has comb-like teeth over which the wires or bands to be duplicated are caused to pass parallel and close to one another.

3. An apparatus as claimed in claim 1, in which the talking head has an additional wide magnet, both wide magnets having comb-like teeth and one of the magnets being arranged above and the other one underneath the parallel duplicating wires in order to obtain a magnetic closure.

4. An apparatus as claimed in claim 1, characterized by the feature that parallel guiding of the duplicating wires through the duplicating talking head is effected by means of guiding passages in front and behind the

talking head magnet, which guiding passages consist of holes or grooves uniformly arranged at close distances from one another and from which the duplicating wires diverge towards the winding-off and winding-on reels.

In testimony whereof I have signed my name to this specification.

CURT STILLE.

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