H. R. STUART.

TELEGRAPHONE.

APPLICATION FILED MAR. 21, 1908.

936,490. Patented Oct. 12, 1909.

Fig. 1.

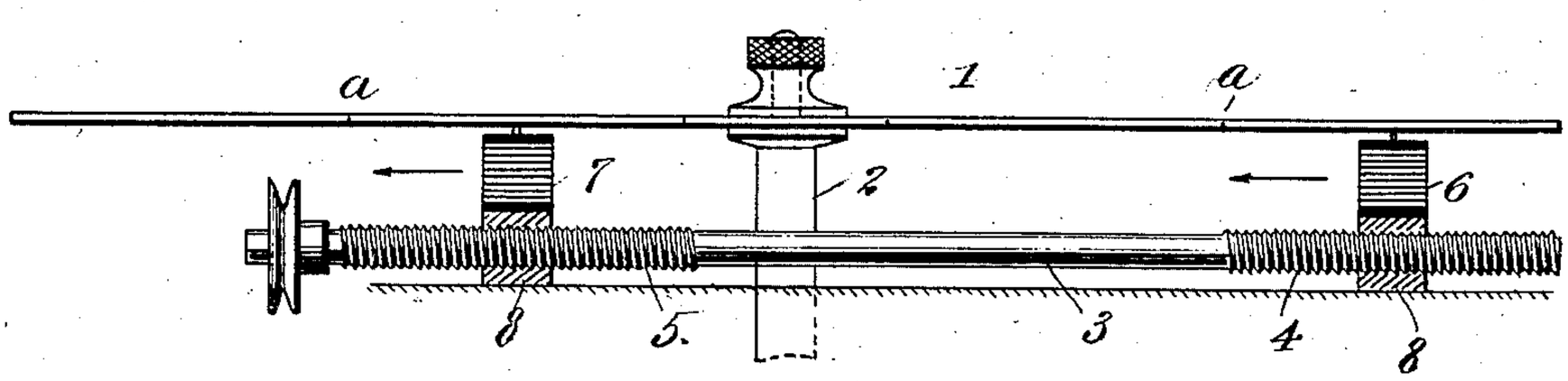

Fig. 3.

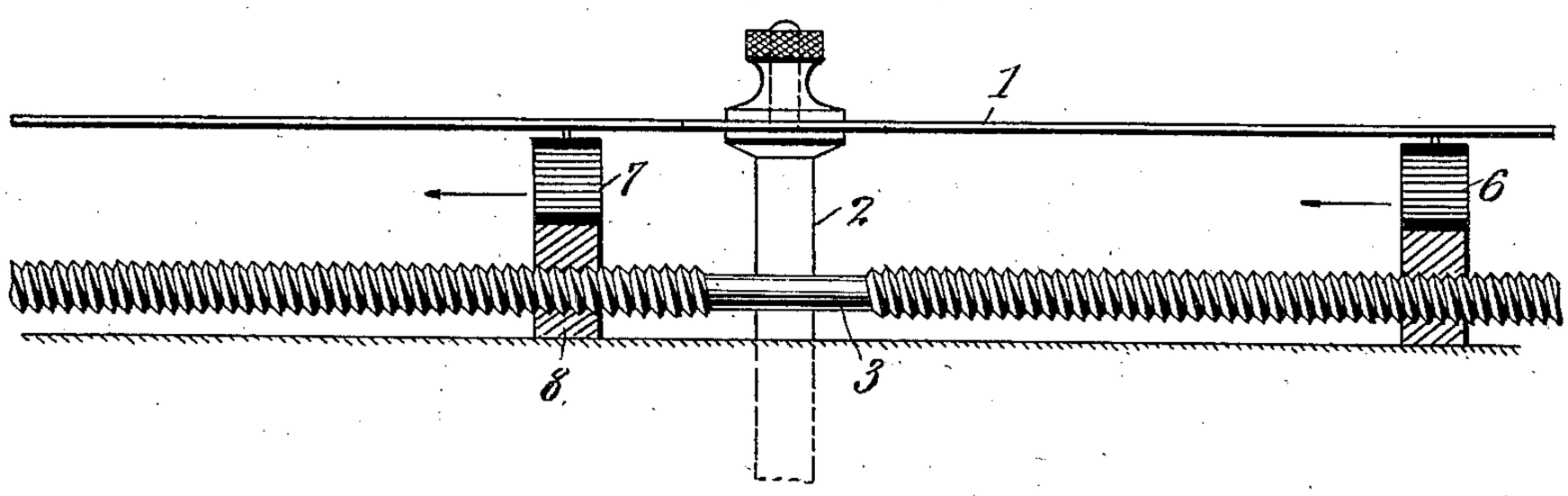

Fig. 2.

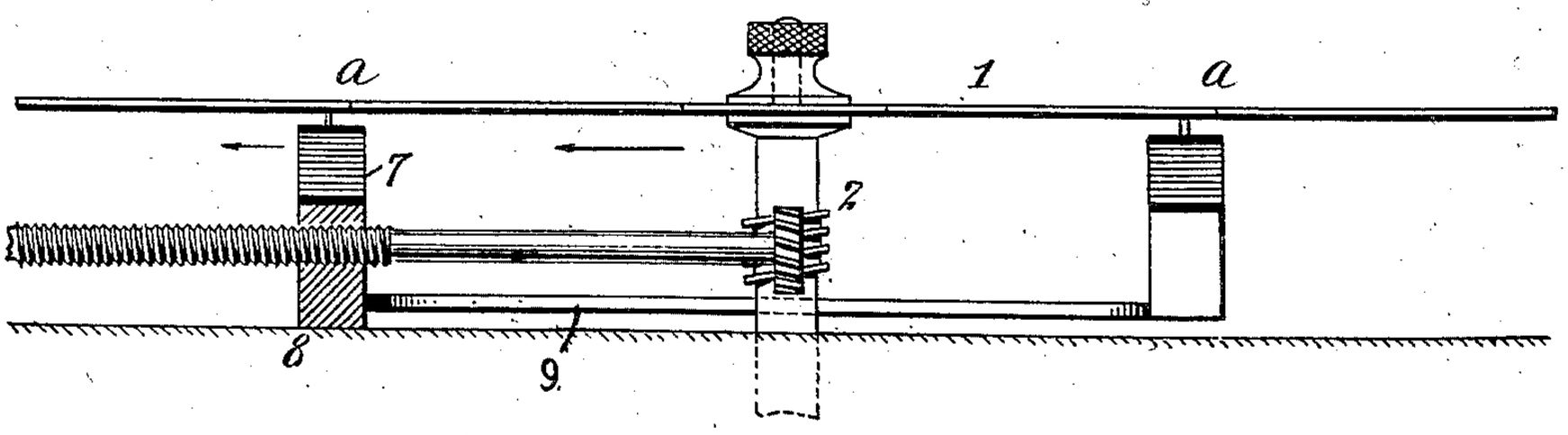

Fig. 1.

Witnesses:
Harold Obal.
Waldo M. Chapin

Inventor
Harve R. Stuart
By his Attorneys
Rosenbaum & Stockbridge

UNITED STATES PATENT OFFICE.

HARVE R. STUART, OF WHEELING, WEST VIRGINIA, ASSIGNOR TO AMERICAN TELEGRAPHONE COMPANY, A CORPORATION OF THE DISTRICT OF COLUMBIA.

TELEGRAPHONE.

936,490. Specification of Letters Patent. Patented Oct. 12, 1909.

Application filed March 21, 1908. Serial No. 422,399.

To all whom it may concern:

Be it known that I, HARVE R. STUART, a citizen of the United States, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented certain new and useful Improvements in Telegraphones, of which the following is a full, clear, and exact description.

This invention relates to telegraphones of that class in which the recording steel body is in the form of a disk. In this kind of machine, it is well known that if the disk runs at a uniform speed, the record will be weaker as it approaches the center of the disk, on account of the peripheral speed with respect to the magnet growing less as the diameter decreases. Speed governors are not always desirable, and sometimes cannot be relied upon for accurate graduation of speed as the magnet shifts its position. Consequently, two magnets, one moving from the periphery toward the center and the other from the center toward the periphery, and both connected in the same circuit, have been used to obtain uniform strength of record and reproduction thereof. This arrangement also gives a louder reproduction, since the sum of the effect of the two magnets is obtained. In using two magnets in this manner heretofore, one magnet has been arranged to act upon one face of the disk, while the other has been arranged to act upon the opposite face, both magnets being fed radially the entire distance from the periphery to the hub. Under some conditions, however, it is not convenient or feasible to operate a magnet on each side of the disk.

My invention therefore consists, broadly, in locating the two magnets both on the same side of the disk, leaving the other side free. In this arrangement, each magnet can act upon only one-half of the recording surface, so that the capacity is reduced in that proportion, but for some purposes this is not material, and when the reduced capacity is not material, the advantage of a clear space on the opposite side of the disk is gained.

My invention is illustrated in the accompanying drawing, in which,

Figure 1 is a side elevation of a conventional form of my invention in which the two magnets are located on opposite sides of the center of the disk. Fig. 2 is a similar view of a form of the invention in which two magnets are mounted on a single frame which is fed by a single screw. Fig. 3 is a similar view in which the two magnets are located on opposite sides of the center of the disk, but travel the entire distance across the recording surface, the spiral path traced by one alternating with that traced by the other; and Fig. 4 illustrates the path of the two magnets when arranged as in Fig. 4.

Referring to the drawings, 1 indicates the recording body in the form of a disk, it being mounted upon a central rotating shaft 2. Arranged parallel to one face of the disk is a feed screw 2 to be rotated in any suitable manner from the motor of the machine. As shown in Fig. 1, this feed screw extends across but to one side of the axis of the disk and on each side of the axis is provided with a screw thread 4 and 5 respectively, the thread at one end being opposite the outer half of the recording space, that is, the recording space that extends from the periphery of the disk to the point *a* half way to the hub, while the thread at the other end of the screw is opposite the inner half of the recording surface which lies between the point *a* and the hub. The recording magnets indicated by 6 and 7 are mounted upon suitable carriers which are provided with a nut or threaded portion 8 and engage the respective threaded portions 4 and 5 of the feed screw. The magnets are so placed upon their respective threads that when one of them is at the extreme outer position, the other is at the extreme inner position of the respective recording surfaces. When the machine is in motion, the magnets uniformly shift their relative positions, both of them traveling in the same direction, as indicated by the arrows. The record produced and reproduced by the magnet 6 will always be stronger than that produced and reproduced by the magnet 7, because it acts upon a portion of the disk which is moving at a higher speed than that portion of the disk which is acted upon by the magnet 7. But, at all times, since the magnets are connected in the same circuit, the record produced and reproduced by the magnet 6 will be augmented by that produced and reproduced by the magnet 7. Since the magnets change their radial positions uniformly, one growing weaker while the other grows stronger, the sum of the record produced and repro-

duced will, at all times, be constant. It will be seen, however, that by this arrangement, each magnet acts upon only one-half of the recording surface, so that the capacity of the disk on that surface is reduced to one half.

In the arrangement shown in Fig. 2, the capacity of the disk remains the same as in the arrangement of Fig. 1, and the strength of the record produced and reproduced is also the same, but the two magnets are here mounted upon a single frame 9 which requires a single nut 8 and a single feed screw.

In Fig. 3, the two magnets are located upon opposite sides of the center of the disk, but each travels the full radial width of the recording surface. In order to prevent one of these magnets from tracing the same spiral path on the disk which is traced by the other, and thereby causing interference of the two magnetic records, the pitch of the threads on the feeding screw are made coarser, or the pitch and width of the record path made less, and one magnet is so placed upon the screw that it will trace a spiral line, the turns of which will alternate with those of the spiral line traced by the other magnet, as clearly illustrated in Fig. 4, wherein the full line indicates the path of one magnet, and the dotted line the path of the other. With this arrangement, the capacity of the disk is the same as in the other structures and the production and reproduction of the record remains the same.

What I claim, is:

1. In a telegraphone, the combination of a recording body in the form of a disk, two telegraphone magnets located upon the same side of the disk, and means for moving one of the magnets from a point on the disk running at high speed to a point at lower speed and for moving the other magnet simultaneously and uniformly therewith from a point on the disk running at low speed to one running at a higher speed, substantially as described.

2. In a telegraphone, the combination of a recording body in the form of a disk, two telegraphone magnets located on the same side of the disk, said magnets being located upon opposite sides of the center of the disk and feeding mechanism for moving said magnets simultaneously in a substantially radial direction, one magnet from a position on the disk of high speed toward a position of low speed, and the other from a position on the disk of low speed to one of higher speed.

In witness whereof, I subscribe my signature, in the presence of two witnesses.

HARVE R. STUART.

Witnesses:
FRANK S. OBUR,
WALDO M. CHAPIN.