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POLECHANGER TRANSMITTER

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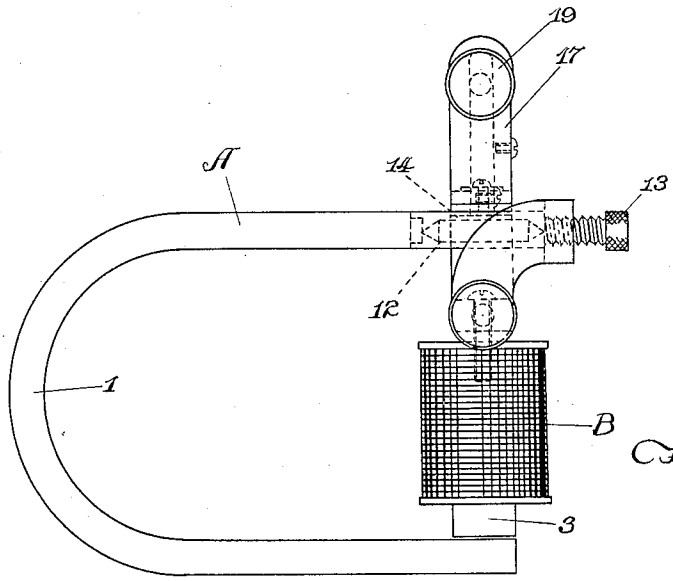


Fig. 1.

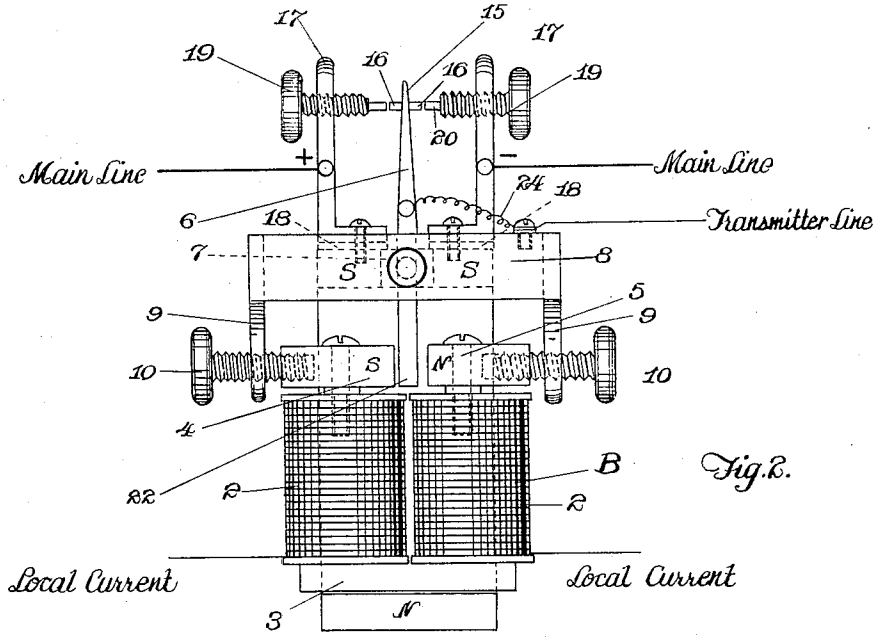


Fig. 2.

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POLE-CHANGER TRANSMITTER

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This invention relates to a polechanger transmitter wherein a permanent magnet is employed and upon one of its poles, usually the lower one, is fastened a U-shaped electromagnet. This magnet may be wound to any number of ampere turns desired to meet local conditions.

A feature of the invention resides in so constructing the electrically excited magnet to provide two separate pole pieces, individually adjustable by which the bias condition is accomplished, between these two pole pieces. The lower end of the armature, below the pivot points, is caused to move to and fro, as induced by the electromagnetism in the U-shaped electromagnet.

It is also a feature of my invention to provide a small iron drum between the pivot points of the armature, the purpose of which is to avoid loss of magnetic flux.

The electrically excited magnet is actuated by local current. When the local current is released the armature swings back to its normal stop being attracted by the biased magnetic adjustment avoiding the recoil from the use of retractile tension springs which have been used heretofore, also overcoming the arcing which is detrimental to a proper functioning of the apparatus at the distant end.

My polechanger transmitter provides a construction giving economy on the silver and platinum points by reducing the arc. This is an important feature of the invention. My polechanger is adapted to telegraph transmission, and also in telephone circuits where a device of this nature is desirable.

These features, together with other details and objects of my invention will be more fully and clearly set forth in the specification and claims.

In the drawings forming part of this specification:

Figure 1 is a side view of my polechanger transmitter.

Figure 2 is a front view of the polechanger transmitter.

The drawings illustrate my polechanger transmitter A which is adapted for single, duplex, quadruplex and multiplex telegraph and telephone circuits.

The polechanger transmitter A is provided with a permanent magnet 1, one end of which is connected with a cross bar 3. This cross bar connects the electromagnet coils 2 which are wound to any resistance desired and ampere turns necessary to actuate it in any circuit.

The other end of the permanent magnet is adapted to be connected with adjustable pole pieces 4 and 5, between which the polarized lower end of the armature 6 plays freely.

The armature 6 is pivoted in the slot 7 formed in the upper end of the permanent magnet 1 and a yoke 8 having depending side ears 9 which curve inwardly extends from the divided end of the permanent magnet and in a manner so as to support adjusting screws 10 by the ears 9.

The armature 6 is pivoted in the slot 7 of the upper end of the permanent magnet 1 and is held by the pivot member 12 which is pointed on its ends and which is adapted to be adjusted by the screw 13. I provide a cylindrical small iron member 14 around the pivot member 12, the purpose of which is to avoid loss of magnetic flux. The upper end 15 of the armature 6 tapers toward a point and is adapted to carry the contact points 16 on either side thereof.

Bracket arms 17 are provided extending upwardly from the upper end of the permanent magnet 1 and attached thereto but separated by insulation 18. These bracket arms 17 carry a pair of adjusting screws 19 which have contact points 20. The contact points 20 are adapted to be adjusted in relation to the contact points 16 on the armature 6 to adjust the armature 6 in its operation.

To actuate the armature by energizing the coils 2 of the electromagnet B, it should be biased, which is accomplished by adjusting the pole pieces 4 closer to the depending portion 22 of the armature 6, which extends between the pole pieces 4 and 5, than it is positioned to the pole piece 5. This is for the purpose of producing the desired signals.

It is evident that either of the pole pieces 4 or 5 may be adjusted as just described in closer relation to the end 22 of the armature 6, one to the other, or in other words, one of the pole pieces 4 or 5 must be closer to the end 22 than the other to set my polechanger transmitter biased, and this is necessary to produce the desired signals.

The electromagnet, consisting of the coils 2 which are energized or excited by the local current, has very soft iron cores and is wound to any resistance desired to give the ampere turns necessary to actuate it on any circuit.

The adjusting screws 19 which are marked plus and minus are to be connected in the main line source of current, while the armature is connected with the line on which the transmission operates. By means of a small wire connection 24 the armature is connected to the yoke 8 to insure good contact at all times.

The principles of operation of my polechanger transmitter A are the biased armature 6 playing freely between the two electromagnetic pole pieces 4 and 5, while the permanent magnet induces magnetic force to the armature. The unlike poles attract, while like poles repel. This pole changer transmitter is particularly adapted for use in telegraph transmission of signals and may be for single, duplex, quadruplex and multiplex telegraph and also for telephone circuits where an electrical signal is transmitted. The features of advantage which are of primary importance in my polechanger include a means of providing polechanger transmitter wherein the recoil obtained from using retractile tension springs is avoided and in a delicate instrument of this nature this is highly important. I also accomplish with my polechanger a minimizing of the yoke on the silver and platinum points which permits the changer to function more readily and economizes in the use of the same. The simple, inexpensive structure in my polechanger transmitter I have found to be very practical in actual use and the same accomplishes results which from my knowledge of telegraphy are very desirable.

In accordance with the patent statutes I have described the principles of my polechanger transmitter and while I have illustrated the construction in particular formation and nature I desire to have it understood that the same is only illustrative of a means of carrying out my invention and that changes and variations may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A polechanger transmitter comprising, a U-shaped permanent magnet, an electromagnet attached to one end of said permanent magnet, independently adjustable pole pieces for said electromagnet, an armature pivotally secured to the other end of said permanent magnet, adjustable contact screws for one end of said armature adapted to connect the same with the main line, a yoke supported from the end of said permanent magnet carrying said armature, said yoke being provided with means for supporting adjusting screws for said pole pieces of said electromagnet.

2. A polechanger including, a permanent magnet, an electromagnet supported on one end of said permanent magnet, adjustable pole pieces for said electromagnet, an armature pivotally supported by the other end of said permanent magnet, a yoke extending from the end of said permanent magnet supporting said armature, adjusting screws carried by said yoke for said pole pieces of said electromagnet, and contact points adjustably positioned on either side of said armature to connect the same with the main line.

3. A polechanger transmitter including a permanent magnet, an electromagnet supported on one end of said permanent magnet pole pieces therefore, the other end of said permanent magnet being bifurcated to receive an armature, means for pivotally supporting the armature by said bifurcated end, and a plurality of independently operable adjusting means extending from said armature supporting means and operatively connected to said pole pieces, whereby the latter may be adjusted with respect to the armature.

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