Mar. 13, 1923. 1,448,712

E. C. POOL.

CONVEYING MECHANISM

Filed Mar. 30, 1921 3 sheets-sheet 1

Fig. 1.

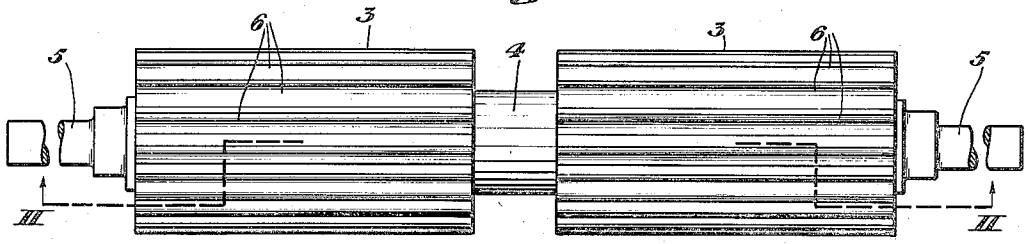


Fig. 2.

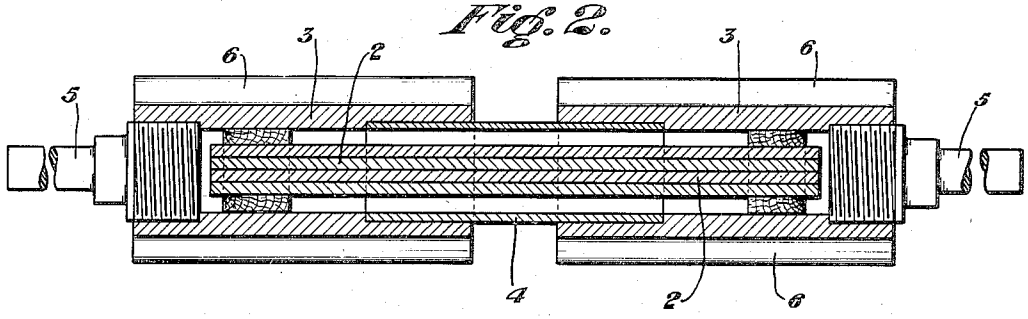
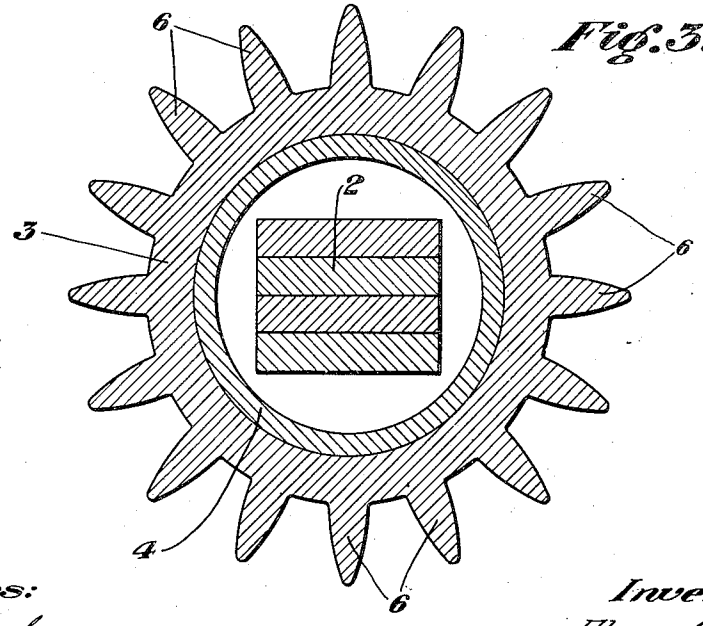


Fig. 3.



Witnesses:
Edwin Trueb

Inventor
Elmer C. Pool.
by: D. Anthony Usina
his Attorney

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CONVEYING MECHANISM

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Fig. 4.

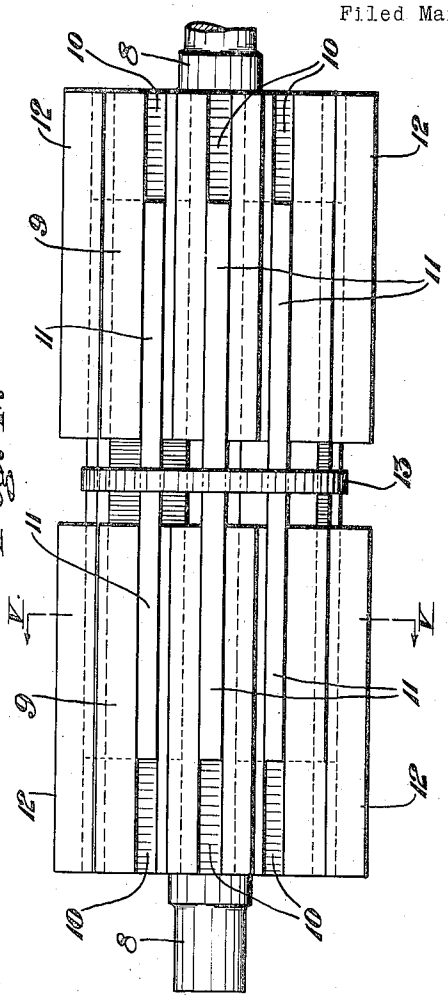


Fig. 6.

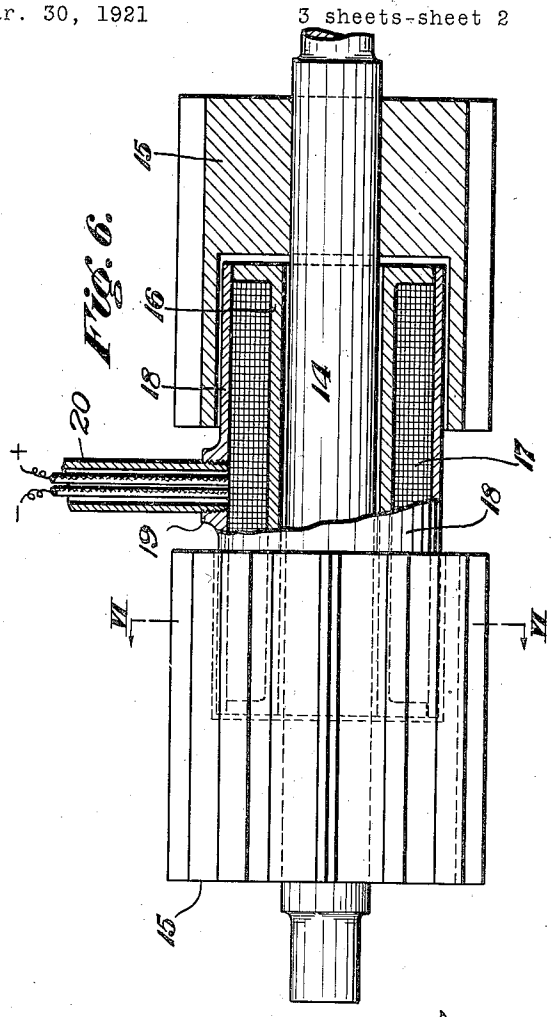


Fig. 5.

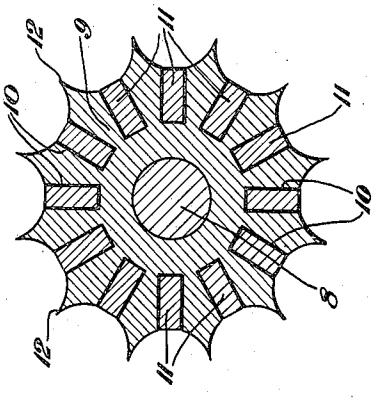
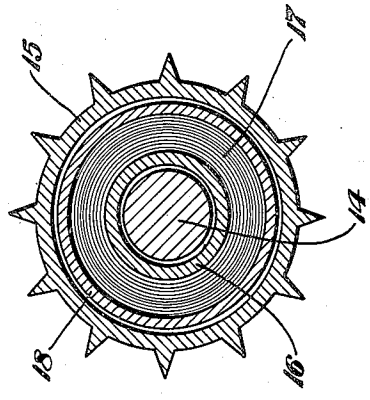


Fig. 7.



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Mar. 13, 1923. 1,448,712

E. C. POOL

CONVEYING MECHANISM

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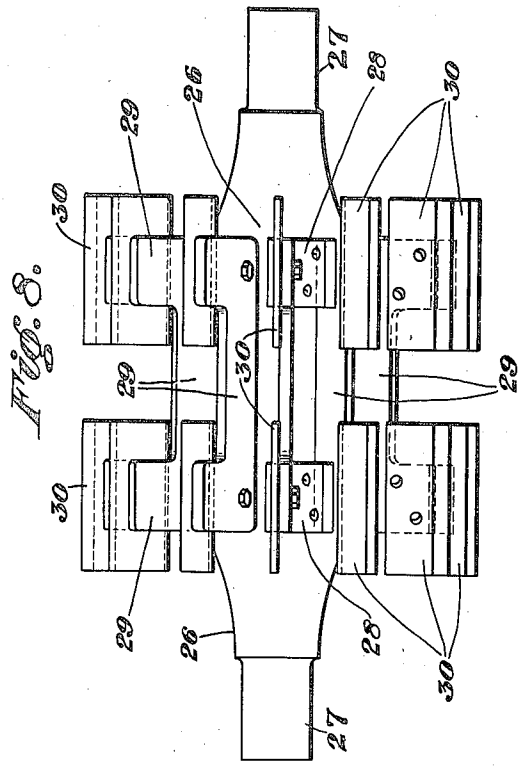


Fig. 8.

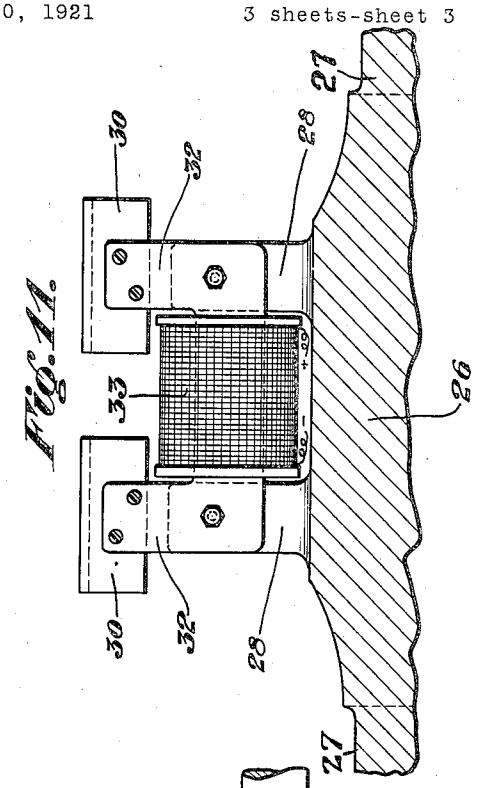


Fig. 11.

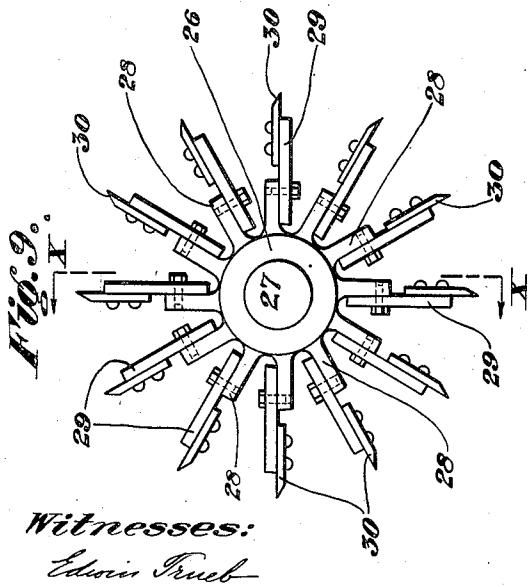


Fig. 9.

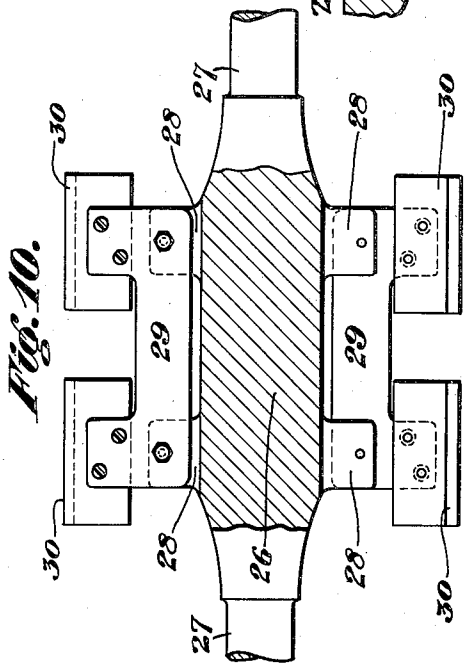


Fig. 10.

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Patented Mar. 13, 1923. 1,448,712

UNITED STATES PATENT OFFICE.

ELMER C. POOL, OF NEW CASTLE, PENNSYLVANIA.

CONVEYING MECHANISM.

Application filed March 30, 1921. Serial No. 456,864.

To all whom it may concern:

Be it known that I, ELMER C. POOL, a citizen of the United States, and resident of New Castle, in the county of Lawrence and State of Pennsylvania, have invented certain new and useful Improvements in Conveying Mechanism, of which the following is a specification.

This invention relates to conveying mechanism, and while not limited thereto, relates particularly to rotary conveyers for manipulating metal sheets and plates or other similar articles.

The principal object of this invention is to provide a conveyer of this class that will feed metal plates or sheets, one at a time from a pile, without moving more than one plate, and without disturbing the position of the plate or plates next to the one being moved.

The primary feature of my invention is to provide a magnetic conveyer for conveying metal plates or sheets from a pile, or singly, if desired, having a plurality of diametrically disposed poles around its periphery adapted to contact with the face of the outermost plate, and to so spread the path of the magnetic lines or circuits over the plate that there is no tendency for any of the magnetic lines to pass therethrough into the next adjacent plate or plates, such terminals or poles being of such form as to concentrate the lines of force into a relatively small area when entering the plate, thereby increasing the pull or holding power of the magnet.

Referring to the accompanying drawings:

Figure 1 is a side elevation of a magnetic conveyer constructed in accordance with my invention.

Figure 2 is a sectional elevation on the line II—II of Figure 1.

Figure 3 is a sectional end elevation of the conveyer.

Figure 4 is a side elevation of a modified form of conveyer.

Figure 5 is a cross sectional elevation on the line V—V of Figure 4.

Figure 6 is a side elevation of another modified form of conveyer utilizing an active magnet to compel plates to adhere thereto.

Figure 7 is a cross sectional elevation on the line VII—VII of Figure 6.

Figure 8 is a side elevation of still another modified form of conveyer.

Figure 9 is an end elevation of the conveyer of Figure 8.

Figure 10 is a sectional elevation on the line X—X of Figure 9.

Figure 11 is a plan of a modified form of magnet adapted to be used with the conveyer of Figures 8, 9 and 10.

Referring particularly to Figures 1 to 3 of the drawings, the numeral 2 designates a permanent magnet which is mounted within a pair of hollow cylindrical casings 3, having their inner ends spaced apart and joined by a non-magnetic hollow cylindrical tubular member 4. Suitable stub shafts 5 are threaded into the outer ends of the casings 3 and serve to support the magnet for rotation.

The hollow cylindrical casing members 3 are formed from soft iron or other suitable material which will readily convey the circuit or attracting forces from the magnet 2, thus forming unlike poles through which a circuit will be completed when they contact with a metal plate to be conveyed.

The outer surface or periphery of the casing members 3 is fluted, forming a series of diametrically disposed knife-edge ribs or projections 6 adapted to successively engage the plate being conveyed, as the conveyer is rotated. The projections 6 on the opposite members 3 will form opposite or unlike pole contacts, adapted to complete a circuit through the plate they contact with.

The knife-edge pole contacts 6 serve to concentrate the forces of the magnet in the immediate plate being conveyed, and, therefore, when the plate being conveyed is taken from a pile of plates, the lines of force are prevented from spreading into the next adjoining plate and only one plate will be moved by the magnet.

In Figures 4 and 5 I have shown a slightly modified form of conveyer in which 8 designates a central shaft or core of non-magnetic material upon which is mounted a pair of cylindrical pole members 9—9 composed of soft iron or other similar material.

The members 9—9 are provided with diametrically disposed slots 10 spaced around their periphery for the reception of permanent magnet bars 11, which extend across both the members 9—9.

The walls of the members 9—9 between the slots 10 are beveled, forming knife-edge ribs or projections 12 adapted to successively engage the plate being conveyed as the de-

vice is rotated. The projections 12 on the opposite members 9—9 will form opposite or unlike pole contacts adapted to complete a circuit through the plate they contact with, due to the mounting of the magnet bars 11 in the slots 10.

The bars 11 are adapted to be held in the slots 10 by a tie ring 13 or other similar device.

In Figures 6 and 7 I have shown a slightly further modified form of conveyer, in which 14 designates a central shaft or core composed of soft iron or the like magnetic material, upon which is mounted a pair of cylindrical pole members 15—15 of like material.

The members 15—15 have their inner ends recessed for the reception of the ends of a spool 16 of an active magnet coil 17. The spool 16 is journaled for free rotation on the shaft or core 14, and is enclosed by the tubular shell 18 which has a fluid tight connection with the spool 16. The spool 16 and shell 18 are preferably formed of brass or other non-magnetic metal.

The shell 18 has an apertured and internally threaded boss 19 extending therefrom, and a conduit 20 is threaded therein through which the power lines are run to the coil 17.

The pole members 15—15 have their peripheries grooved or fluted, forming a series of diametrically disposed knife-edge ribs or projections 21 adapted to successively engage the plate being conveyed.

In Figures 8 to 10 I have shown still another modified construction of conveyer using permanent magnets. In this construction 26 designates a spider member which has its ends reduced forming bearings 27, and is preferably composed of brass or other non-magnetic metal.

The spider member 26 comprises a body portion having diametrically disposed pairs of arms 28. A U-shaped permanent magnet 29 is secured to each pair of arms 28, and has knife-edge line contact plates 30 secured to each pole adapted to successively engage the plate being conveyed.

In Figure 11 I have shown an active magnet adapted to be substituted for the permanent magnets of Figures 8 to 10, which comprises a U-shaped core member 32 having a coil 33 wrapped thereon and having knife-edge contact plates 30 secured to each pole adapted to engage the article to be conveyed.

It will thus be seen that I have provided a conveyer that is particularly adapted for conveying metal sheets and plates and the like, and one that is particularly adapted for conveying a single plate from a pile of plates without disturbing the other plates of the pile.

While I have shown and described a permanent magnet for energizing the pole members of some constructions, and active magnets for others, it will be understood that either form of magnet may be used, and various other modifications may be made within the scope of the appended claims without departing from the spirit of my invention.

I claim:

1. A rotary magnetic conveyer for conveying plates and sheets comprising a body portion, and a plurality of knife-edge poles disposed around the periphery of said body portion and adapted to successively engage the article being conveyed.

2. A rotary magnetic conveyer comprising a hollow body portion, a plurality of knife-edge contact portions disposed around the periphery of said body portion, and means for magnetizing said hollow body portions.

3. A rotary magnetic conveyer comprising a cylindrical body portion having a plurality of knife-edge pole contacts disposed around its periphery.

4. A rotary magnetic conveyer comprising a hollow body portion, a plurality of knife-edge contact portions disposed around the periphery of said body portion, and a permanent magnet within said cylindrical body portion, for magnetically energizing said body portion.

5. A rotary magnetic conveyer comprising a pair of hollow pole portions, a non-magnetic tubular connecting member connecting said pole portions, and means for magnetically energizing said pole portions, said pole portions having their outer peripheries fluted, forming knife-edge contacting surfaces.

6. A rotary magnetic conveyer comprising a pair of hollow pole portions, a non-magnetic tubular connecting member connecting said pole portions, and a permanent magnet arranged within said pole portions for magnetically energizing said pole portions, said pole portions having their peripheries fluted, forming knife-edge contacting surfaces.

In testimony whereof I have hereunto signed my name.

ELMER C. POOL.