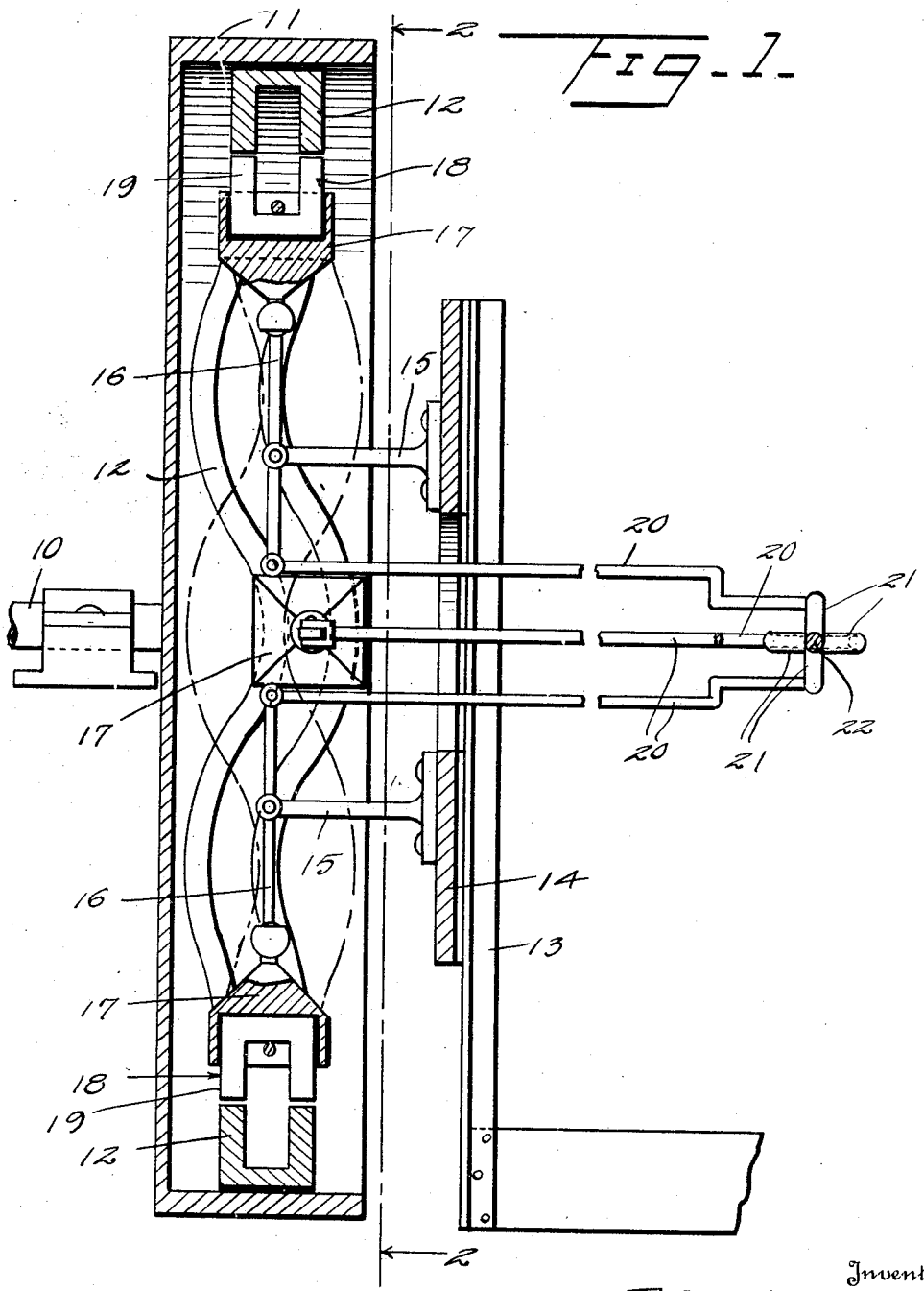
Jan. 6, 1931. T. M. O'NEAL ET AL 1,788,065

POWER TRANSMISSION APPARATUS

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Fig. 1.




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Fig. 2.

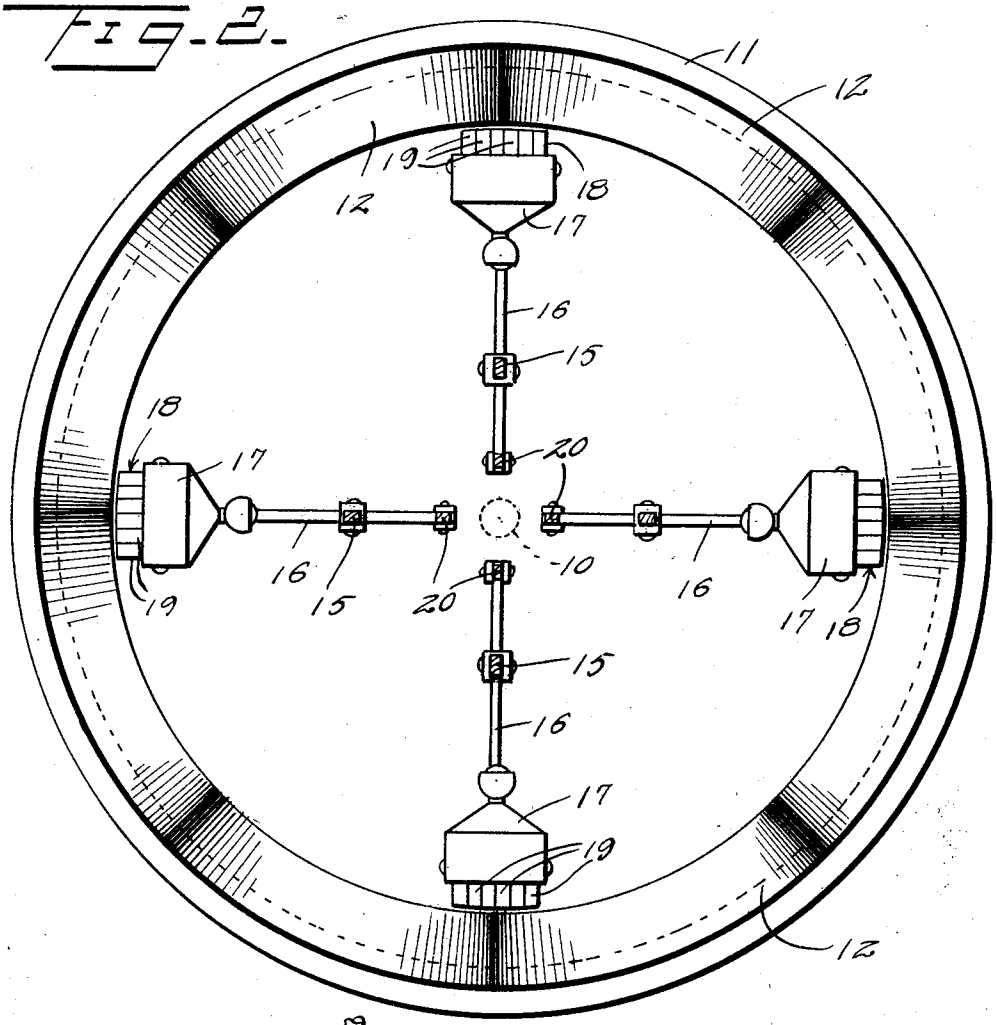
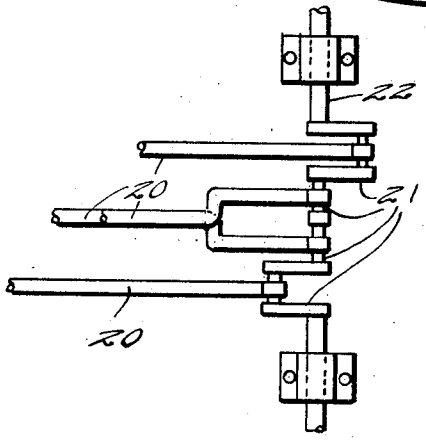



Fig. 3.




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# UNITED STATES PATENT OFFICE

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## POWER-TRANSMISSION APPARATUS

Application filed December 4, 1928. Serial No. 323,688.

This invention relates to power transmission apparatus, and more particularly to a means for increasing the velocity ratio between a driving and driven element.

A more specific object of the invention is to provide means for magnetically transmitting power from one to the other of driving and driven shafts.

A still further object of the invention is to produce a device of this character which may be readily and cheaply produced, which will be durable and efficient in service, and a general improvement in the art.

These and other objects we attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of our invention and wherein:—

Figure 1 is a vertical sectional view showing power transmission apparatus constructed in accordance with our invention;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a fragmentary plan view showing the manner of connecting the transmitting element to one type of driven element.

Referring now more particularly to the drawings, the numeral 10 generally designates a driving shaft and 11 a balanced rim secured to and rotated by said shaft. This rim is provided either interiorly or exteriorly, the former construction being at present illustrated, with an annular series of magnets 12 arranged in a fixed undulatory path. The magnets 12 are at present shown as of the permanent horseshoe type but may obviously be of any type desired. Opposing the rim 11 is a support 13 having mounted thereon a bracket element 14 annular in form and concentrically disposed with relation to the rim.

Projecting from this bracket are a plurality of pivot posts 15, to the outer ends of each of which is pivoted a radially extending lever 16. To the outer end of each lever 16 is swiveled a head 17 having mounted therein a magnet 18, the poles of which are reversely arranged as regards the arrangement of the poles of the magnets 12 of the rim and oppose the poles of the rim in spaced relation thereto. The magnets 18 are at present shown as of the fixed type and as compounded by securing a plurality of horseshoe type magnet elements 19 in position in the head.

It will be quite obvious that upon rotation of the rim 11, the magnets 18 will be caused to oscillate transversely of the rim in response to the undulations of the magnet series of this rim and that the levers 16 will thereby be oscillated upon their pivots. This oscillatory movement of the levers 16 may be employed in any suitable manner and at present is shown as converted to a rotary motion by connecting these levers through rods 20 to the cranks 21 of a shaft 22 perpendicularly related to the shaft 10.

In event it is desired that the motion be converted to rotary motion, it will be obvious that other means than that illustrated might readily be employed.

Since the construction illustrated is capable of a considerable range of change and modification without materially departing from the spirit of the invention, we do not limit ourselves to such specific structure except as hereinafter claimed.

We claim:—

1. In drive transmission apparatus and in combination, a rotating structure having an annular transversely undulate series of magnets, a plurality of armature elements confronting said magnet series and maintained in spaced relation thereto, mountings for said armature elements permitting reciprocation thereof in response to the undulations of the series, and means connecting said elements to a common element which is to be operated thereby.

2. In a drive transmission apparatus, a driving shaft, a rim secured to the shaft, an

annular series of magnets secured to the inner side of the rim and arranged in an undulatory path, an annular series of posts arranged inwardly of and concentrically to the rim, levers arranged radially within the rim and pivoted between their ends to the posts, heads swivelly connected to the outer ends of the levers, magnets carried by the heads, a driven element, and means connecting the inner ends of the levers to the driven element.

In testimony whereof we hereunto affix our signatures.

THEODORE M. O'NEAL.
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