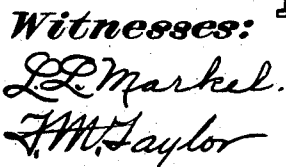


1,047,948.

Patented Dec. 24, 1912.



Inventors:
Maxim Karminski
Charles Peters
By their Attorneys
Sutherland & Anderson.

UNITED STATES PATENT OFFICE.

MAXIM KARMINSKI AND CHARLES PETERS, OF THOMPSONVILLE, CONNECTICUT.

LIQUID TRANSMISSION APPARATUS.

1,047,948.

Specification of Letters Patent.

Patented Dec. 24, 1912.

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To all whom it may concern:

Be it known that we, MAXIM KARMINSKI and CHARLES PETERS, subjects of the Emperor of Germany, residing at Thompsonville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Liquid Transmission Apparatus, of which the following is a specification.

0 This invention relates to liquid transmission apparatus, the object of the invention being to provide an effective apparatus of this character by which changes in speed can be quickly and easily accomplished, and
15 said apparatus is adapted for advantageous use in many different connections for example in conjunction with or as part of an automobile.

In the drawings accompanying and forming part of the present specification there is shown in detail one convenient form of embodiment of the invention, which to enable those skilled in the art to practise the same will be set forth fully in the following
20 description, while the novelty of the invention will be included in the claims succeeding said description. From such observations it will be clear that the invention is not restricted to such showing and certain departures may be made from the latter within the scope of the said claims.

Referring to the drawings: Figure 1 is a longitudinal section of apparatus involving the invention. Fig. 2 is a view of one of the
35 sections of the housing with the disk and blades therein and looking in the direction of the upper arrow in Fig. 1. Fig. 3 is a similar view of the other section of said housing and looking in the direction of the
40 lower arrow in said Fig. 1. Fig. 4 is a section on the line 4—4 of Fig. 2 looking in the direction of the arrow.

Like characters refer to like parts throughout the several figures of the drawings.

45 The apparatus involves in its make-up two main or principal members such as those denoted in a general way by 2 and 3 respectively, and while such members may vary as to structure, the member 2 is shown
50 as consisting of a disk, while the member 3 is represented consisting of a housing, boxing or casing inclosing the disk, means being provided for transferring the effect of one of said members, through the agency of

a body of suitable liquid such as glycerin 55 or some equivalent substance, to the other. The members 2 and 3 are shown supported by a shaft 4 sustained by suitable bearings which it is not necessary to show, one of said members being connected with said shaft for
60 rotation therewith, while the other is rotatable around or about said shaft. In the present case the disk 2 rotates with the shaft 4 and for such purpose it may as illustrated be connected to said shaft by screw thread-
65 ing as shown in Fig. 1. The boxing or casing 3 is, therefore, loose on said shaft. Said boxing is shown consisting of two sections 5 and 6, and although the said boxing 3 may vary as to form, it is represented as being
70 approximately cylindrical, the section 5 being internally threaded to receive external threads on the section 6 as also illustrated in Fig. 1. Said boxing or casing 3 is shown
75 equipped with an elongated hub 7 which in the present instance is integral with the section 6, and said hub carries for rotation therewith, some suitable type of power-
80 transferring device such as the sprocket wheel 8 and which in the case of an automobile may be utilized for transmitting motion to an axle or any other desired part. Inclosed by the elongated hub 7 and surrounding the shaft 4 is a stuffing box 9 serving its customary function.

85 The disk 2 is shown provided on its inner side with several swinging blades or wings all of which for convenience are denoted by 10 and preferably these blades are hinged to said disk, means being provided to operate
90 said wings so as to vary their angular relation to the disk and therefore correspondingly vary their propulsive effect or as it might otherwise be stated vary the effective
95 resisting area presented to the liquid acting against said blades. In addition to this the blades have a wholly ineffective position at which time they preferably fit in apertures or pockets as 11 in the inner face of said disk
2 as shown best in Fig. 4. The blades 10 are
100 shown flat, and while this construction is preferable, it is not necessary, and as having eyes 12 on one edge to receive pins 13 in the pockets or apertures 11. In Fig. 4 one of the
105 blades 10 is shown as being in its outer position. This blade, however, can be so swung as to fit within the cooperating pocket or aperture 11, and when this relation is pres-

ent with the series of blades, the outer surface thereof will be flush with the corresponding surface of the disk, so that at such time, if the shaft 4 be in rotation as will hereinafter appear, the disk with its blades will rotate idly in the body of liquid without accomplishing any function or without transferring power.

As a matter of properly supporting the casing section 5, the disk 2 may, as illustrated, have on its outer face the lateral central hub 14 adapted to fit a bearing opening in the hub 15 of said section 5. In said hub 15 there is shown disposed the stuffing box 16 and through the stuffing box the blade-actuating member 17 projects, said blade-actuating member consisting in the present case of a longitudinally-reciprocative rod, the shaft 4 having a longitudinal bore 18 to receive said rod, which as will hereinafter appear, has an operative connection with the several blades 10. Surrounding the shaft 4 and slidable thereon is a sleeve 19 which is moved back and forth in the direction of said shaft by the rod 17 shown connected with said sleeve by the pin 20, the shaft being slotted to provide for the proper movement of said pin. The sleeve 19 has at its outer end an annular enlargement 21 peripherally grooved to receive the inwardly extending studs 22 on the inner edges of the several blades 10. It, therefore, follows that by endwise moving the rod 17 the angular position of the blades 10 with respect to the disk 2, can be regulated, while said blades may be also seated wholly in their respective pockets 11 as already indicated. The rod 17 is represented as equipped at its outer end with a collar 23 by which said rod can be operated, and this collar may be as shown peripherally grooved to receive the branches of an operating fork which is not shown.

The section 6 is provided with vanes each denoted by 24 and which extend across the inner surface of the rim or outer wall of said section and also along the web thereof, and these vanes prevent circulation bodily as it may be termed, of the liquid contained in the casing 3, by virtue of which the said liquid can be arrested in its movement sufficiently to insure the requisite resistance to the motion of the blades 10, the greater such resistance, the greater the speed, the speed being reduced as the blades 10 are swung in and the transferring effect being eliminated altogether when the blades are pocketed in the apertures 11. The side edges of the blades 10 travel opposite to the shanks or bodies of the vanes 24 while the outer edges of the blades are located opposite the transverse portions of said vanes, such transverse portions being cut away on curved lines to provide for the proper action of the blades. Between the vanes 24 are arranged shorter

vanes 25 which also tend to check the flow of the liquid thereby increasing the efficiency of the apparatus.

Preferably the shanks or bodies of the vanes are longitudinally curved so as to avoid shock in the transmission of power.

What we claim is:

1. In a liquid transmission apparatus, a casing for containing liquid, a member inclosed by the casing, one of the parts being rotative with respect to the other, a series of angularly adjustable blades supported by one of the members, and a series of cooperating vanes carried by the other member and surrounding the blades.

2. In a liquid transmission apparatus, a casing for containing liquid, a member in said casing, one of said parts being rotative with respect to the other, a series of blades supported by one of said parts, vanes cooperating with said blades, carried by the other part, and means for adjusting the angular relation of the blades, the blade-carrying part having pockets to receive the respective blades.

3. In a liquid transmission apparatus, a casing for containing liquid, a disk mounted in the casing, a series of angularly adjustable blades supported by one side of the disk, and a series of vanes extending across the casing and surrounding the blades.

4. In a liquid transmission apparatus, a casing for containing liquid, a disk mounted in said casing, one of said parts being rotative with respect to the other, said disk having a series of pockets, blades pivotally supported in said pockets, the blades being angularly adjustable with respect to the disk and being also capable of being seated in said pockets, and vanes cooperative with said blades, carried by the casing.

5. In a liquid transmission apparatus, a casing for containing liquid, a disk mounted in the casing, a series of angularly adjustable blades mounted on one side of the disk, and a series of vanes supported by the casing and surrounding the blades.

6. In a liquid transmission apparatus, a casing for containing a liquid, a member inclosed by the casing, one of the parts being rotative with respect to the other, a series of angularly adjustable blades supported by one of said members, a series of cooperating vanes carried by the other member, and means acting against the vanes between their points of support and outer edges for angularly adjusting the same.

7. In a liquid transmission apparatus, a casing for containing liquid, a disk mounted in the casing, a shaft to which one of said members is connected for rotation, the other member being rotative about the shaft, a series of blades pivotally supported by one of said members for angular adjustment, cooperating vanes supported by the other

member, an endwise reciprocative actuating device sustained by the shafts, and connections between said actuating device and the blades, being united to the respective blades between their pivots and outer edges.

8. In a liquid transmission apparatus, a casing for containing liquid, a disk in said casing, a plurality of angularly adjustable blades supported by said disk, vanes in the casing extending across and along one side thereof, and a second series of vanes extending across the space between the other vanes.

In testimony whereof we affix our signatures in presence of two witnesses, this 19th day of June, 1911, and 28th day of June, 15 1911, respectively.

MAXIM KARMINSKI.
CHARLES PETERS.

Witnesses for Maxim Karminski:

WILLIAM R. GEORGE,
STEPHEN A. DOUGLAS.

Witnesses for Charles Peters:

F. E. ANDERSON,
HEATH SUTHERLAND.