May 13, 1924. **1,493,937**

A. J. HARTLEY

CLUTCHING MECHANISM

Original Filed April 25, 1921

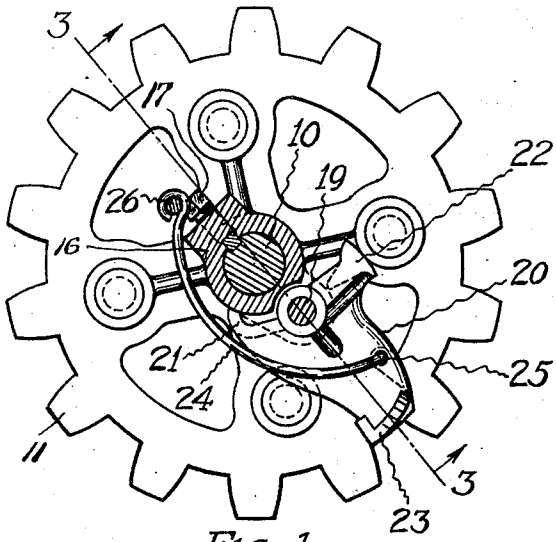


Fig-1

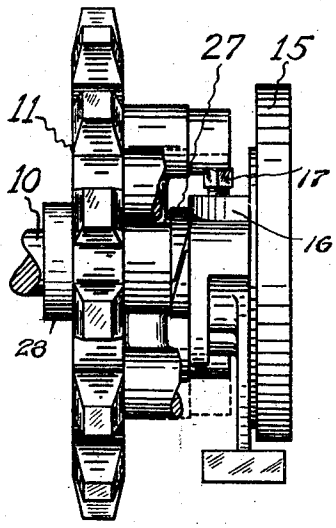


Fig-2.

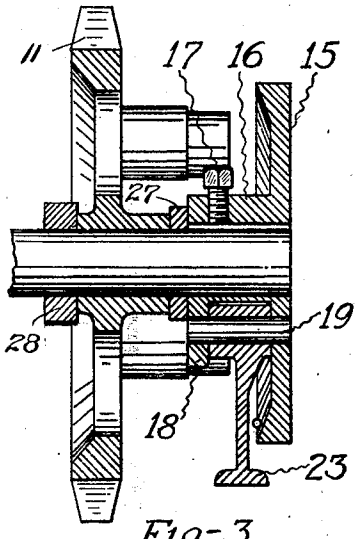


Fig-3

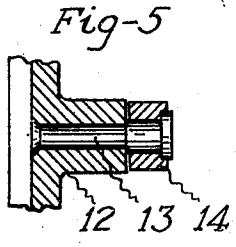


Fig-5

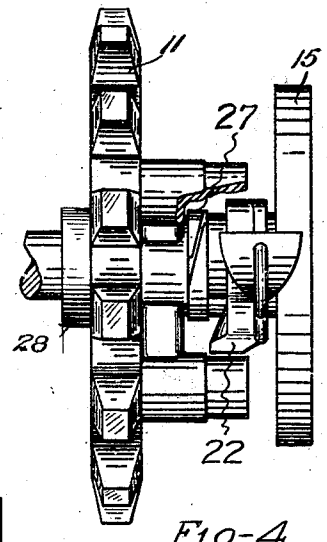


Fig-4

Witnesses.
C. A. Barnett.

Inventor
Arthur J. Hartley
By Jeffe & Jeffe
Attorney

Patented May 13, 1924. 1,493,937

UNITED STATES PATENT OFFICE.

ARTHUR J. HARTLEY, OF PEORIA, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE NORTHERN TRUST COMPANY, TRUSTEE, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CLUTCHING MECHANISM.

Substitute for application Serial No. 464,279, filed April 25, 1921. This application filed June 18, 1923. Serial No. 646,418.

To all whom it may concern:

Be it known that I, ARTHUR J. HARTLEY, a citizen of the United States of America, residing at Peoria, Illinois, in the county of Peoria, have invented certain new and useful Improvements in Clutching Mechanism, of which the following is a specification.

This application is a substitute for my former application, Serial Number 464,279, filed April 25th 1921.

My invention relates to clutching mechanisms, and more particularly to the type of a clutch wherein a trip member operates corresponding trip mechanism to throw into or out of operation, a power shaft.

The object of my invention is in the provision of a simply constructed clutching mechanism wherein means is provided for obviating the usual chattering which is set up between the constantly driven portion of the clutching mechanism and the intermittently operated or trip portions thereof.

Other objects of my invention will appear in the following specification in connection with the annexed drawing, in which:

Figure 1 is an enlarged detail, partially in section, of the tripping mechanism.

Figure 2 is a side elevation of the clutching mechanism.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a side elevation of the clutching mechanism, the said mechanism, however, being viewed at a different angle than that shown in Figure 2 of the drawings.

Figure 5 is a detail of one of the lugs on the power sprocket.

Referring to the drawings, a power shaft is shown at 10—said shaft being capable of driving a series of members not shown. The sprocket wheel 11 is rotatively mounted on the shaft 10 and is driven by a chain not shown, said chain having connection with some constantly driven power. Mounted on the inner side of the sprocket 11 and projecting therefrom are lug members 12, said lug members having inner cores 13 which project slightly beyond the lugs 12. The outer ends of the cores have formed thereon abutments capable of holding on the outer ends of said cores, friction rollers 14, a plate 15 having a hub portion 16 is positively mounted on the outer end of the shaft 10 by means of the set screw 17. Supported at one end in the plate 15 and at the other end in a projecting portion 18 of the hub member is mounted an axis 19 and pivoted on said axis is a trip member 20, the form of said trip member being shown clearly in Figure 1 of the drawings. The trip member shown generally at 20 is capable of a limited pivotal movement on the axis 19, said movement being restricted at one side by the portion 21 of said member. Another projection or surface 22 on the trip member has possible contact with the lugs, or rather friction rollers 14, on the lug members. There is also shown a trip lug 23 on said trip member which may be engaged by a similar trip lug, not shown, that is, the trip lug, not shown, would act to throw the member 23 in such manner that the contact member 22 would be thrown backward out of contact with the lugs on the constantly moving sprocket wheel 11. A spring 24 is attached at one end 25 to the lug member and at its other end as at 26 to the plate 15. At 27 is shown a spring member which places a tension between the two main portions of the clutching mechanism, with the result that any noise, or rather chattering, that is set up in the clutch, when the contact portion 22 rides slightly forward and is struck by the lug members when the mechanism is in its unclutched position, will be lessened or rather obviated by this spring or friction member which retards a quick movement of the members that would result in the so-called chattering.

The operation of the clutch is as follows:—

The sprocket 11, which is constantly rotated, through its lugs 12, or friction rollers thereon, strikes the contact surface 22 on the trip member, but is held in its forward position by the spring 24, with the result that the trip member is rotated, and consequently the plate 15 and shaft 10. However, should it be desired to unclutch the mechanism and to stop the rotation of the power shaft 10, the trip lug 23 is thrown rearwardly by a similar lug, not shown—said movement of the trip lug throwing the contact surface 22 rearwardly out of engagement with the lug members on the sprocket wheel and thereby permitting the sprocket to rotate and the

power shaft to be unclutched therefrom. A difficulty has arisen in the above construction, in that the trip 23 has such a connection with the second trip not shown, that at times the contact surface 22 is permitted to move against the lug members 14 with a resultant chattering between the two elements, this due to the fact that the lug members are continually rotating. To overcome this noise the spring member 27 is mounted on the power shaft 10 between the hub portion 16 and the power sprocket 11 with the result that a quick movement of either portion of the clutch mechanism due to the striking of the lugs against the contact surface 22 is retarded and a comparatively quiet clutching mechanism results.

The spring member 27 performs its functions of preventing chattering and slightly retarding the movements of the adjacent members, mainly due to the expansion wherein the adjacent members are forced against the portions that oppose them upon their outer sides. The retarding action of the trip mechanism takes place due to the tensioning of said portions through the compression of the split ring 27.

Member 28 surrounds shaft 10, and is firmly located thereon, in a manner to locate the sprocket 11 with relation to the split ring 27.

What I claim is:—

1. In a device of the class described, in combination, a power shaft, a constantly driven sprocket member on said shaft, lug members projecting inwardly from said sprocket, a plate member having positive connection with the power shaft, a trip member pivotally mounted on the plate member, said trip member including a spring for holding it in its forward position, a trip lug and a contact surface capable of engagement with the lug members, and a spring means between the sprocket and plate member for retarding slightly the action of said members.

2. In a device of the class described, in combination, a power shaft, a constantly driven member thereon, lugs projecting inwardly from said member, a plate having positive connection with the power shaft, a trip member pivotally mounted thereon, said trip member having possible engagement with said lugs, in order that the power shaft may be thrown into clutched relation with the constantly driven member and a spring means mounted on the power shaft between the constantly driven member and the plate member for slightly retarding the movements of said members.

3. In a device of the class described, in combination, a power shaft, a constantly driven member thereon, lugs projecting inwardly from said member, a plate having positive connection with the power shaft, said plate having trip mechanism thereon adapted to be thrown into or out of engagement with said constantly driven member, and a spring means mounted on the power shaft between the constantly driven member and the plate member for slightly retarding the movement of said members.

In testimony whereof I affix my signature.

ARTHUR J. HARTLEY.

Certificate of Correction.

It is hereby certified that Letters Patent No. 1,493,937, granted May 13, 1924, upon the application of Arthur J. Hartley, of Peoria, Illinois, for an improvement in "Clutching Mechanism," were erroneously issued to "The Northern Trust Company, Trustee, of Chicago, Illinois, a Corporation of Illinois," whereas said Letters Patent should have been issued to *Hart Grain Weigher Co., a Corporation of Illinois*, (*Incorporated in 1923*), as assignee, by mesne assignments, of the *entire interest* in said invention, as shown by the records of assignments in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 5th day of August, A. D. 1924.

[SEAL.]

WM. A. KINNAN,
Acting Commissioner of Patents.