June 30, 1925. 1,544,362

M. M. WILCOX

ROTARY TAPPET

Filed March 5, 1923

Fig. 1.

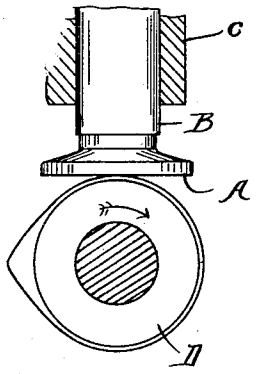


Fig. 3.

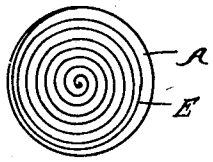
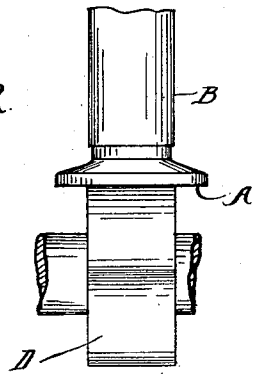


Fig. 2.



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UNITED STATES PATENT OFFICE.

MERRILL M. WILCOX, OF SAGINAW, MICHIGAN; A. ELWOOD SNOW ADMINISTRATOR OF SAID MERRILL M. WILCOX, DECEASED.

ROTARY TAPPET.

Application filed March 5, 1923. Serial No. 622,987.

To all whom it may concern:

Be it known that I, MERRILL M. WILCOX, a citizen of the United States of America, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Rotary Tappets, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to cam followers and consists in certain novel features of construction whereby the wiping of a cooperating cam over the surface of the follower imparts a rotary motion thereto thereby presenting a larger surface to the action of the cam and preventing undue wear.

In the drawings:—

Figure 1 is an elevation showing a cam in engagement with the improved cam follower;

Figure 2 is an end view of the same;

Figure 3 is a plan view of the improved cam follower.

One of the common types of cam followers consists of a flat hardened surface A arranged perpendicular to the axis of a rotatable shank B which is slidable in a tappet guide C. D represents a cam engaging with the surface A and mounted so that the contacting surface is substantially equally disposed upon opposite sides of the rotative axis of the shank, this axis preferably intersecting with the line of contact. With a cam of this construction there is a tendency to wear a groove in the surface of the follower after continued service and to overcome this difficulty it is desirable that some means be provided for rotating the follower in the guide. This has been accomplished in prior art by offsetting the cam with respect to the follower so that the cam engages the surface eccentrically thereby causing the follower to revolve in its guide.

I have discovered, however, that it is not necessary to offset the guide and follower for a rotary motion may be obtained when the parts are mounted concentrically if the flat surface of the follower is scored with a spiral groove E. I have found that when a cam follower is scored in this way the wiping of the cam over the scored surface produces a rotary motion thereby producing an even wear over the entire surface of the follower.

One possible explanation of this action is that the film of oil which ordinarily covers the parts is trapped in the spiral groove and due to the eccentricity of the spiral and the viscosity of the oil film there is a slightly greater torque on one side of the center of the follower then on the other.

In the drawings the scoring is shown in the form of an Archimedean spiral but I do not wish to limit my invention to this form of scoring alone since other arrangements which are not symmetrical with respect to the axis of the follower may cause a similar action.

What I claim as my invention is:—

1. The combination with a cam, of a cam follower engaging therewith having a flat cooperating surface provided with a spiral groove.

2. A cam follower having a flat surface for engaging with a cooperating cam, said surface containing a spiral groove.

3. A rotatable cam follower having the working surface thereof scored unsymmetrically with respect to the axis of rotation.

4. The combination with a cam, of a rotatable cam follower having a co-operating surface arranged to engage said cam and to have contact therewith substantially equally disposed on opposite sides of the axis of rotation, and means operable by the wiping of said surface by said cam for rotating said cam follower.

5. The combination with a cam, of a rotatable cam follower having a co-operating surface arranged to engage said cam and to have a line contact therewith substantially equally disposed upon opposite sides of the axis of rotation, said surface being provided with a spiral groove.

In testimony whereof I affix my signature.

MERRILL M. WILCOX.