

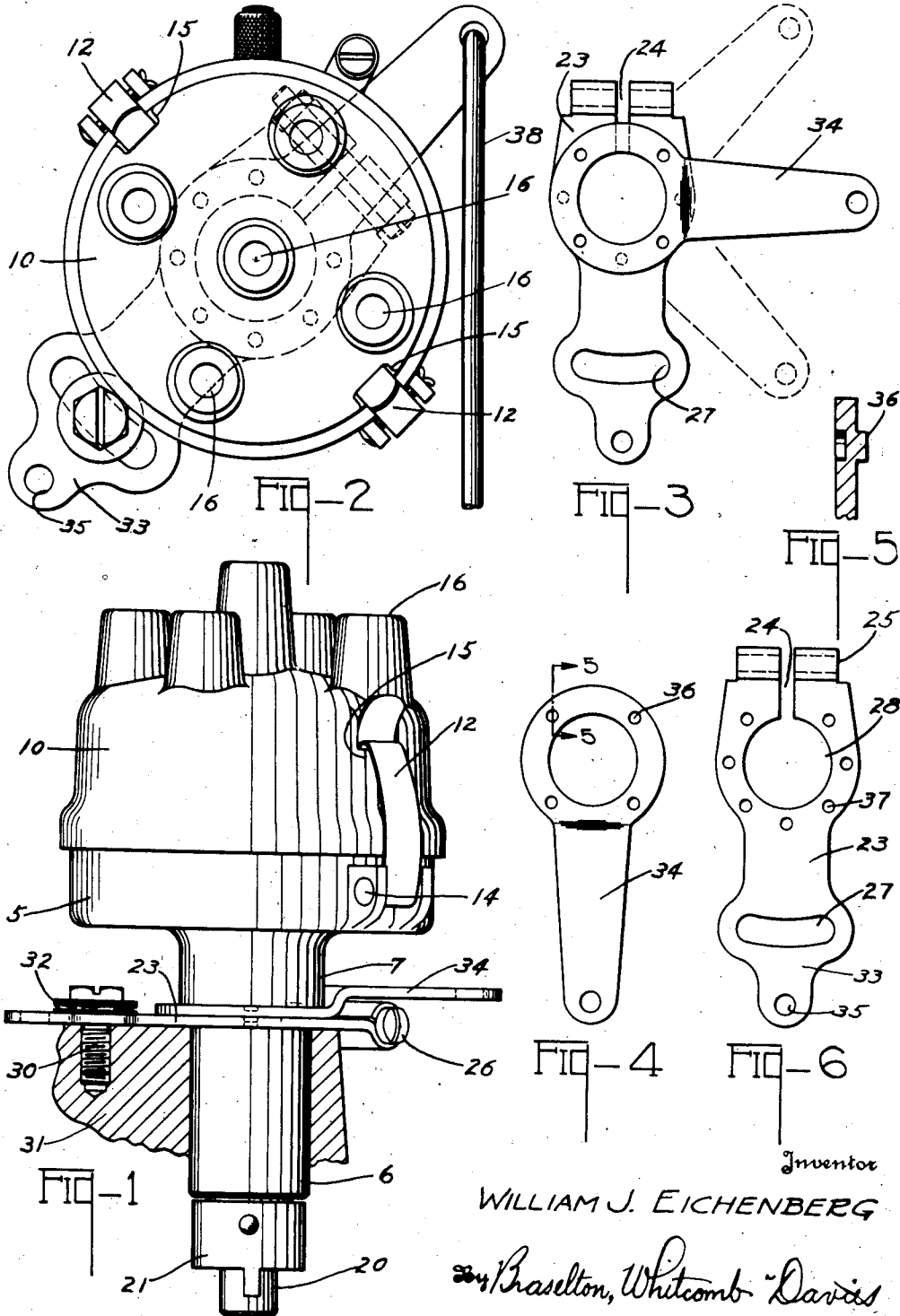
Feb. 5, 1935.

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1,990,452

TIMING MECHANISM

Filed Aug. 15, 1930



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UNITED STATES PATENT OFFICE

1,990,452

TIMING MECHANISM

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Application August 15, 1930, Serial No. 475,414

10 Claims. (Cl. 200—19)

This invention relates to ignition devices and to those of the type for use with internal combustion engines and particularly to manipulating means for the ignition device for adjusting the timing of the ignition.

The present invention has for an object the provision of suitable manipulating means for changing the relative position of a combined timer and distributor which may be selectively moved to various relatively fixed positions in order to adapt the mechanism for use with various installations of manipulating means.

The invention further embraces the use of a member which may be adjusted to several fixed positions, thus rendering a timer and distributor adaptable for use with several installations utilizing a standard method of control irrespective of the particular location and manner in which the ignition device is applied or used with an internal combustion engine.

The invention also embraces the use of parts capable of being fixedly interlocked in several selective positions and held in such adjusted positions.

Further objects and advantages are within the scope of this invention such as relate to the arrangement, operation and function of the related elements of the structure, to various details of construction and to combinations of parts, elements per se, and to economies of manufacture and numerous other features as will be apparent from a consideration of the specification and drawing of a form of the invention, which may be preferred, in which:

Figure 1 is a side elevational view of a combined timer and distributor showing the device of my invention as incorporated therewith;

Fig. 2 is a top plan view of the parts shown in Figure 1;

Figure 3 is a fragmentary detailed view showing an assembly of the manipulating means forming part of my invention;

Figure 4 is a plan view showing another element of the manipulating means;

Figure 5 is an enlarged fragmentary detailed sectional view taken substantially on the line 5—5 of Figure 4;

Figure 6 is a plan view of another element forming a part of the manipulating means of my invention.

I have illustrated my invention in conjunction with a combined timer and distributing mechanism of the type used for producing the ignition of an internal combustion engine, but it is to be understood that I contemplate the use of my in-

vention with other mechanisms wherever the same may be found to be applicable.

Referring to the drawing in detail, the timer and distributor device with which my invention is illustrated comprises a cup-shaped enclosure or casing 5 having a depending portion or shank 6 adapted to be received by a socket 8 in the engine frame, the latter providing a bearing for rotatably supporting casing 5, and other mechanism carried thereby. Superposed upon the casing 5 is an inverted cup-shaped housing 10 preferably fabricated of insulating material being secured to the casing 5 by means of resilient clips 12 pivotally secured to the casing as at 14, the upper extremities of the clips 12 seating in notches 15 formed in the housing 10. The housing 10 is also provided with terminal posts 16 suitably adapted for making the necessary electrical connections for the device. The casing 5 and housing 10 suitably enclose the combined ignition timing and distributing mechanism (not shown) of the usual type comprising a cam operated circuit interrupter and a high tension current distributor. The mechanism includes a shaft 20 which is suitably journaled within the depending shank 6 of the casing and is provided at its lower extremity with a connecting member 21 formed for interlocking engagement with the actuating mechanism of the internal combustion engine (not shown) with which my device may be used, said shaft forming the driving means for the timer and distributor mechanisms.

It is desirable to vary the time of firing of the charges of the internal combustion engine or the ignition timing in order that the highest efficiency may be obtained from the explosive mixtures. The timing of the ignition may be manually adjusted in such an arrangement by a partial rotation of the casing or housing carrying the circuit interrupter about the axis of rotation of the cam or circuit actuating means. A governor mechanism may be also used to control or perform part of the ignition timing by changing the relative position of the cam or circuit actuating means with respect to the engine driving means used in cooperation with the means for manually adjusting the housing with respect to the cam or circuit actuating means. In these types the combined timer and distributor supporting mechanism may be initially set to the fixed operating scope, i. e., the mechanism may be set to operate between fixed limits so as to obtain the best and most efficient operation.

In order to adapt an ignition mechanism to various installations wherein the mechanism must

be initially fixed to a particular position, I have provided the shank 6 of the housing 5 with a sheet metal clamping member or arm 23, having an aperture 28 slightly greater in diameter than that of shank portion 6. The arm 23 is provided with a serration 24 adjacent a rolled portion 25 which is adapted to receive a clamping bolt 26 or other suitable securing means for bringing the adjacent legs of the arm into close engagement with the shank 6 gripping the same in any desired position. The opposite end of the arm 23 is formed with a slot 27 of an arcuate contour formed of a radius about the center of the opening 28 which receives the shank 6. A headed screw 30 passes through the slot 27 and is supported by a portion 31 of the engine base or other supporting member and a coiled spring washer 32 is interposed between the head of the screw 30 and the arm 23, the washer exerting sufficient pressure against the arm 23 to hold the same in an adjusted position, but which is sufficiently resilient to permit adjustment of the arm 23 for partial rotation of casing 5 and other mechanism carried thereby. In connection with this construction it should be noted that the screw 30 will engage the ends of the arcuate slot 27, thus limiting the extent of movement of the arm 23, and that the clamping member or arm 23 is provided with an extension 33 having an opening 35 adapted to receive any suitable manipulating means, which may be used to move housing 5.

Interposed between the arm 23 and an enlarged shouldered portion 7 of the shank 6 is a second member or arm 34, the latter being clamped between the first arm and the shouldered portion.

I have provided means whereby the arm 34 may be selectively and fixedly positioned with respect to the arm 23 so that a relatively fixed adjustment can be obtained between these members. This means comprises a plurality of projections 36 formed upon one of the arms in the illustration shown, the arm 34, the other arm being provided with a series of spaced openings 37 adapted to receive and accommodate the tenons or projections 36 of the other arm. By this means it should be noted that the position of the arm 34 may be changed by merely releasing the clamping screw 26, lowering the arm 23 to permit rotation of the arm 34 to a different position as particularly illustrated in Figure 3, and the arm 34 may then be shifted to a position to accommodate any particular length of manipulating rod 38 or method of connecting an operating member to the arm and obviously this construction makes possible the use of one member to obtain several different positions of an igniting mechanism and greatly facilitate the adjustment and ignition control irrespective of its location with respect to the engine or the cam direction of rotation.

It is apparent that, within the scope of the invention modifications and different arrangements may be made other than is herein disclosed, and the present disclosure is illustrative merely, the invention comprehending all variations thereof.

What I claim is:

1. In combination, a timer and distributor housing; a support for said housing; said housing being capable of relative movement with respect to said support; means to move said distributor housing comprising a manipulating member adapted to be selectively secured to said housing in several positions; and means external of said member for locking the same in its select-

ed position to said housing, said last mentioned means having a slot, a member carried by said support cooperating with said slot for limiting the movement imparted to the housing by the manipulating member.

2. In combination, a timer and distributor housing; a support for said housing; said housing being capable of relative movement with respect to said support; means to move said distributor housing comprising a flat sheet metal manipulating member having a plurality of spaced struck-up projections adapted to be selectively secured to said housing in several positions; and means external of said member for locking the same in its selected position to said housing.

3. In combination, a timer and distributor housing having a reduced portion; a support for said housing, said housing being capable of relative movement with respect to said support means to move said distributor housing comprising a flat sheet metal manipulating member adapted to be selectively secured to the reduced portion of said housing in several positions, said member having means projecting from a plane passing through the body portion of said member; and means independent of the manipulating member cooperating with said projecting means for locking said member in its selected position to said housing.

4. In an ignition apparatus, in combination, a housing; a support therefor; a member adapted to be secured to said housing and having limited movement with respect to said support; a second member acting as manipulating means for changing the relative movement of said housing adapted to be interlocked with said first member in one of the several selected positions; and means carried by said first member for locking both members to said housing.

5. In an ignition mechanism, a housing having a reduced portion; a support for said reduced portion of said housing; a member secured to said reduced portion and having means cooperating with said support to limit the movement of said housing with respect to said support; a second member acting as manipulating means for changing the relative position of said housing having interlocking connections with said first member; and resilient means cooperating with one of said members for retaining said housing in adjusted position.

6. In an ignition apparatus, a housing; a support therefor; a member associated with said housing having limited movement with respect to said support; a second member associated with said first member and acting as manipulating means for changing the relative position of said housing, one of said members having a plurality of struck up projections formed on the face of said member, the other of said members having a plurality of openings, said respective projections and openings forming interlocking means for holding said members in fixed selective relation.

7. In combination, a contractible member; a flat sheet metal manipulating arm independent of said member, said arm having an interlocking connection with said member and capable of being selectively adjusted to several positions; and means for contracting said member for fixedly retaining said arm in a selected position with respect to said member.

8. In combination, a member adapted to be secured to an ignition device; a second member associated with said first mentioned member;

means cooperating with said members for selectively positioning one with respect to the other; and clamping means in one of said members for locking both members in a selected position.

5 9. In combination, a contractible sheet metal member adapted to be secured to an ignition device; a second sheet metal member associated with said first member, one of said members having a plurality of projections extending at
10 right angles to the plane of said member, the other of said members having a plurality of cooperating openings; and means for contracting said first mentioned member whereby the respective projections and openings form interlocking
15 means for holding said members in fixed selective relation.

10. In an ignition apparatus, a housing; a

support therefor; a member associated with said housing having limited movement with respect to said support; a second member associated with said first member and acting as manipulating means for changing the relative movement of
5 said housing, one of said members having a plurality of projections, the other of said members having a plurality of openings, said respective projections and openings forming interlocking
10 means for holding said members in fixed selective relation, said member having the projections adapted to be shifted whereby said projections may be caused to selectively engage different openings in the other of said members
15 for changing the relative positions of one member with respect to the other.

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