Nov. 27, 1923. 1,475,557

F. M. ALBRECHT

TAPPET SILENCER

Filed Sept. 14, 1923

Fig. 2

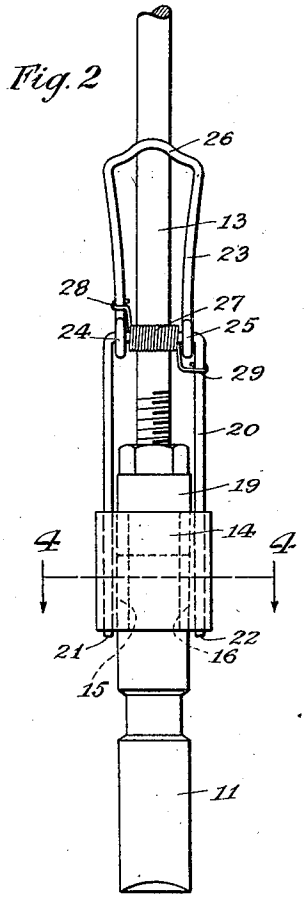


Fig. 1

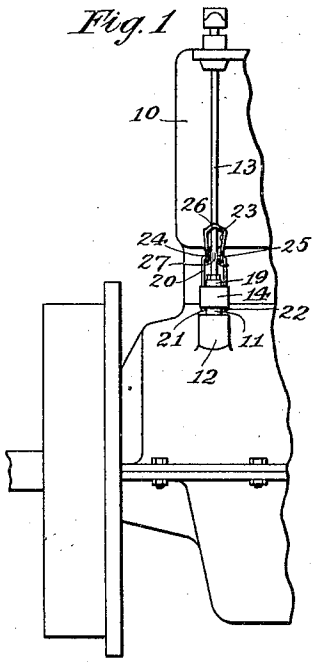


Fig. 3

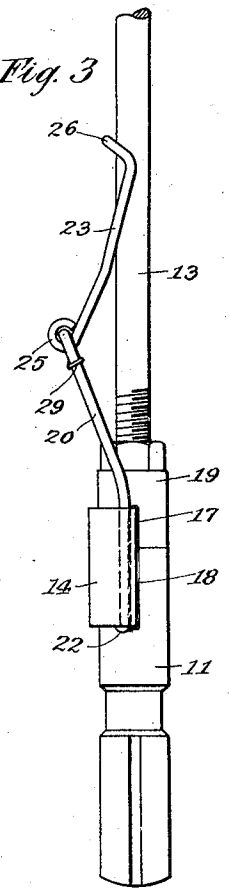


Fig. 4

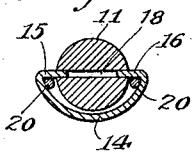
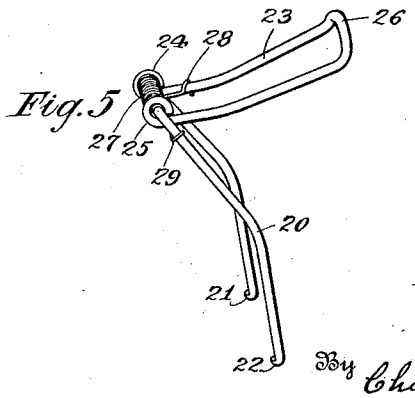


Fig. 5



Inventor

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Patented Nov. 27, 1923. 1,475,557

UNITED STATES PATENT OFFICE.

FREDERICK M. ALBRECHT, OF STRATFORD, CONNECTICUT.

TAPPET SILENCER.

Application filed September 14, 1923. Serial No. 662,605.

To all whom it may concern:

Be it known that I, FREDERICK M. ALBRECHT, a citizen of the United States, and resident of Stratford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Tappet Silencers, of which the following is a specification.

The present invention relates to a valve tappet silencing device, and has for an object to provide a simple and effective means to eliminate the noise resulting from looseness in the connections and bearings of the push rods and plungers of valve tappet mechanisms.

In certain types of motors the push rods are provided with a clamping device to align and prevent relative rotation of the valve push rod and push rod plunger or lifter, and this connection becomes worn in use, with the result that the parts become loose and a disagreeable noise is set up. Also the efficiency of the motor is impaired, and the valve timing becomes inaccurate due to the push rod plunger not being struck squarely by the revolving cam.

A further object of the invention, therefore, is to provide a silencing device which may be connected to the clamping means with facility, and which will maintain the parts in their proper relation, reducing and compensating for wear, and preventing looseness and the resultant disagreeable noise.

Another object is to provide such a device which will maintain the alignment of the push rod and push rod plunger, so that the revolving cam will accurately engage the plunger. A still further object is to provide a device which will not shift in position, or become accidentally disengaged.

With the above and other objects in view, an embodiment of the invention is shown in the accompanying drawings, and this embodiment will be hereinafter more fully described with reference thereto, and the invention will be finally pointed out in the claims.

In the drawings:

Fig. 1 is a side elevation of a portion of a motor, showing a device, according to the present embodiment of the invention attached thereto;

Fig. 2 is an enlarged front view showing the device and the cooperating parts of the push rod and plunger;

Fig. 3 is a side view thereof;

Fig. 4 is a transverse horizontal sectional view taken along the line 4—4 of Fig. 2; and

Fig. 5 is a perspective view of the device.

Similar reference characters indicate corresponding parts throughout the several figures of the drawings.

Referring to the drawings, the engine 10 is provided with a push rod plunger or lifter 11, operating through the bearing 12, and adapted to be engaged and lifted periodically by its cam on the cam shaft, in the usual manner to raise the push rod 13, which in turn opens the valve. The plunger and push rod are connected by a clamping device in the form of a semi-circular clamp 14, having vertical side flanges 15 and 16 that fit into vertically disposed registering slots 17 and 18 formed in the adjusting nut 19 at the lower end of the push rod and in the plunger, so that relative rotation of the parts is prevented. A space is provided between the inner surface of the clamp and the nut 19 and plunger.

The silencing device, according to the present embodiment of the invention, comprises a U-shaped lower member 20 formed from wire, having a slight angular bend intermediately its ends, and provided at its lower extremities with locking shoulders 21 and 22. This member is adapted to engage in the space between the clamp and plunger in the corners formed by the flanges 15 and 16, the shoulders 21 and 22 engaging the lower end of the clamping device and thereby retaining the member against disengagement.

A U-shaped upper member 23 is provided at its ends with eyes 24 and 25 which are hingedly engaged upon the transverse portion of the member 20, the transverse portion of the member 23 being bent, as at 26, in a manner to embrace the push rod. The member 23 is furthermore provided with a slight angular bend intermediate its ends, so that the side portions extend for a portion of their length along the sides of the push rod.

The two members are held tightly and resiliently in engagement with the clamping device and the push rod by means of a coil spring 27, provided on the transverse portion of the member 20, and having its ends 28 and 29 bent about the opposed side portions of the two members.

The device, it will be noted, constantly exerts yielding pressure on the clamp 14, and furthermore maintains the alignment of the plunger and push rod, so that rattling and looseness are prevented, and the parts are maintained in their proper relation for efficient operation. It may be conveniently attached without disconnecting or changing the adjustment of the push rod, is self-adjusting to compensate for wear, and is free of any parts that will readily break or get out of order.

I have illustrated and described a preferred and satisfactory embodiment of the invention, but it will be obvious that changes may be made therein, within the spirit and scope thereof, as defined in the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. The combination with a valve push rod, a lifter plunger, and a clamp member connecting them together, of a silencing device comprising a member connected to said clamp member, a member hingedly connected thereto and engaging the side of said push rod, and spring means adapted to yieldingly press said members into relation with said clamp member and push rod.

2. The combination with a valve push rod, a lifter plunger, and a clamp member connecting them together, of a silencing device comprising a U-shaped member having its ends engaged with said clamp member, a second U-shaped member having its ends hingedly connected to the transverse portion of said first member and having its transverse portion bent to embrace said push rod, and spring means adapted to yieldingly press said members into relation with said clamp member and push rod.

3. The combination with a valve push rod, a lifter plunger, and a clamp member connecting them together, of a silencing device comprising a U-shaped member having its ends engaged with said clamp member, a second U-shaped member having its ends hingedly connected to the transverse portion of said first member and having its transverse portion bent to embrace said push rod, and a coil spring coiled about said transverse portion and having its ends bent into engagement with said respective members to yieldingly press them into relation with said clamp member and push rod.

4. The combination with a valve push rod, a lifter plunger, and a clamp member of semi-circular form having vertical side flanges engaging registering slots in said push rod and plunger, of a silencing device comprising a member having side portions engaged within said clamp member in abutting relation to said side flanges, and spring pressed means engaging said push rod and exerting pressure against said side portions within said clamp member.

5. The combination with a valve push rod, a lifter plunger, and a clamp member of semi-circular form having vertical side flanges engaging registering slots in said push rod and plunger, of a silencing device comprising a member having side portions engaged within said clamp member in abutting relation to said side flanges, shoulders at the lower ends of said side portions engaging beneath the lower edge of said clamp member, and spring pressed means engaging said push rod and exerting pressure against said side portions within said clamp member.

6. The combination with a valve push rod, a lifter plunger, and a clamp member of semi-circular form having vertical side flanges engaging registering slots in said push rod and plunger, of a silencing device comprising a U-shaped member having substantially parallel side portions engaged within said clamp member in abutting relation to said side flanges, a second U-shaped member having its ends hingedly connected to the transverse portion of said first member and having its transverse portion bent to embrace said push rod, and spring means adapted to yieldingly press said members into relation with said clamp member and push rod.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut this 28 day of July, A. D., 1923.

FREDERICK M. ALBRECHT.

Witnesses:

LEONARD E. HOLMES,

DAVID J. DINAN.