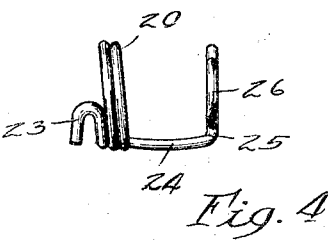
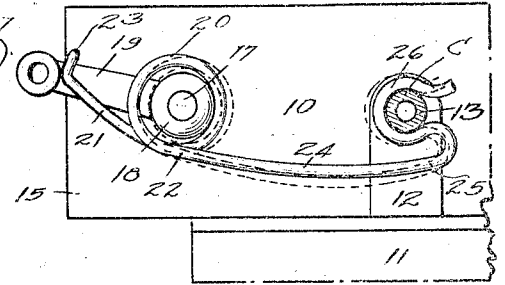
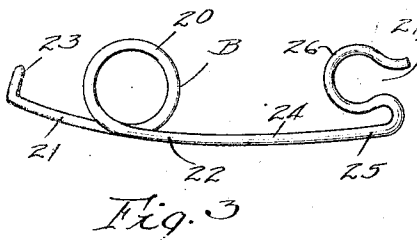
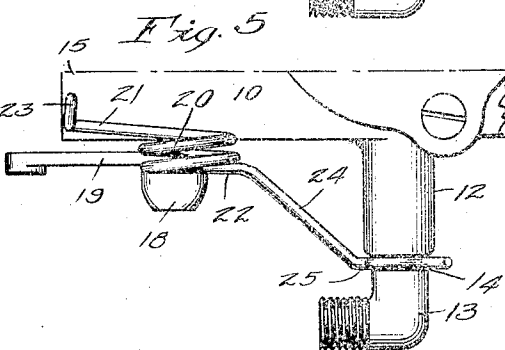
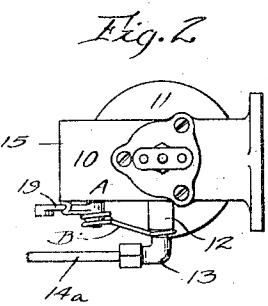
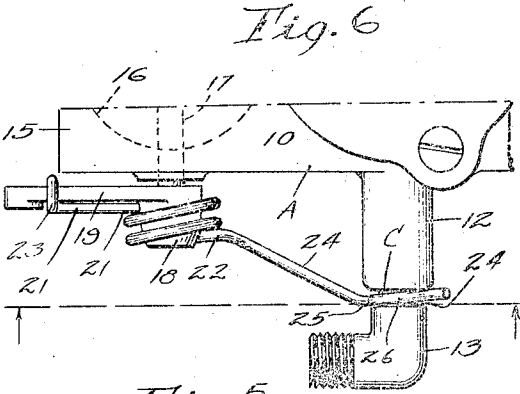
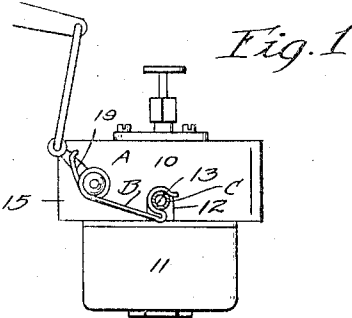


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J. E. MESSENGER  
SPRING FOR CHOKER VALVES  
Filed July 9, 1923



Witness  
Lynn Latta

Inventor  
J. E. Messenger  
By Bair & Freeman  
Attys

# UNITED STATES PATENT OFFICE.

JACK E. MESSENGER, OF DES MOINES, IOWA.

SPRING FOR CHOKER VALVES.

Application filed July 9, 1923. Serial No. 650,248.

*To all whom it may concern:*

Be it known that I, JACK E. MESSENGER, a citizen of the United States, and a resident of Des Moines, in the county of Polk and State of Iowa, have invented a certain new and useful Spring for Choker Valves, of which the following is a specification.

The object of my invention is to provide a spring of simple and inexpensive construction for yieldingly holding open the choker valve of the carburetor on a Ford automobile.

More particularly, it is my object to provide such a spring, having its parts so shaped, constructed and arranged that the spring may be installed on a carburetor without the use of screws or other fastening means in such manner as to be held in place by its own tension.

A further object is to provide such a spring so constructed and arranged as to be readily assembled on the variety of makes and forms of carburetors used on Ford cars, and which will retain its position and perform its function when assembled on any of such carburetors.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claim, and illustrated in the accompanying drawings, in which:

Figure 1 shows a side elevation of a carburetor equipped with a choker valve spring embodying my invention.

Figure 2 shows a top or plan view of the same.

Figure 3 shows a side elevation of the spring.

Figure 4 shows a rear elevation of the spring.

Figure 5 shows a top or plan view of a portion of a carburetor illustrating the spring partially installed in position.

Figure 6 shows a similar view with the spring completely installed; and

Figure 7 shows a detail, sectional view taken on the line 7-7 of Figure 6.

In the accompanying drawings, I have used the reference numeral 10 to indicate generally the body of a carburetor, having the float chamber 11 and having the later-

ally projecting lug or the like 12, in which is drilled a hole for the passage of fuel oil.

Connected with the passage in the lug 12 is an elbow nipple or other fitting 13, which varies somewhat in form in different types of carburetors and is designed to be connected with the feed line 14.

The nipple 13 always in practically all cases has a shoulder 14 (see Figure 6) near the lug 12 and slightly spaced therefrom. This shoulder is more pronounced in some carburetors than in others.

The carburetor 10 has the air inlet passage 15 in which is an ordinary butterfly valve 16 shown for instance in dotted lines in Figure 6, having the stem 17 projecting through the wall of the passage. The valve 16 is the choker valve.

Mounted on the stem 17 outside the passage 15 is a hub or the like 18 from which projects an arm 19 for controlling the choker valve.

In different forms and makes of carburetors used on Ford cars, the hub 18 varies substantially in shape and size but in all installations of which I am aware, there is some such hub and there is the choker valve with its stem and an arm 19 or its equivalent.

In the carburetors as made and originally installed, there is usually provided a spring inside the hub 18, which is connected with the hub and with the frame of the carburetor for yieldingly holding the choker valve open.

These spring frequently become broken and it involves considerable labor and trouble and expense to replace them.

It has been my purpose in making my present invention to devise a spring of such shape that it could be installed from the outside without disassembling the carburetor or parts thereof, and could be readily and quickly mounted on practically any carburetor now used on Ford cars.

For this purpose, I have provided the spring device shown in the drawings.

The spring, which I have indicated generally at B comprises a short spiral coil 20, one end of which, as at 21, extends in one direction from the lower part of the coil and the other end of which, as at 22, extends in substantially the opposite direction from the coil for a short distance, as illustrated in Figure 5.

The end at 21 of the spring terminates in a downwardly opening hooked-shaped member 23 extending away from the member 21 at substantially a right angle thereto and in the opposite direction from the coil 20, as shown in Figures 3, 4, 5 and 6 for instance.

The end or portion 22 has connected with it a portion 24 extending away from the portion 22 and inclined outwardly therefrom, when the spring is in position for installation as shown in Figure 5, and terminating in a portion 25 projecting away from the portion 24 in position substantially parallel with the extended axis of the portion 22, whereby the portion 25 and the yoke 26, hereinafter mentioned are offset from the coil 20 and the portion 22.

Assuming that the spring is viewed in side elevation in its position as shown for instance in Figure 7 and in Figure 3, it will be seen that the portion 25 terminates in a C-shaped receiving member or yoke 26 located above the portion 25 and having the contracted neck 27.

The spring B is so constructed that when it is viewed from above in its position shown for instance in Figure 5, the portion 21 is extended normally tangentially away from the coil portion 20 toward the left as shown and also in the direction, such that when the coil 20 is assembled on the hub 18, the portion 21 has to be sprung in a direction for winding up the coil in order to fit the hook member 23 over the arm 19.

In different makes of carburetors used on Ford cars, the distance from the hub 18 to the lug 12 varies. It is also true that the distance or degree of offset between the point where the coil 20 is designed to stand and the point where the yoke 26 is designed to stand varies.

As result of these variations, it follows that there is a variation in different carburetors in the total distance between the coil 20 and the yoke 26 when installed.

It thus becomes necessary to provide a standard size of spring, which can be installed on any of the various makes of carburetors under consideration. This is true because it is desirable that the dealer shall be required to keep on hand only one standard spring instead of different springs for different carburetors.

The peculiar design of my spring is such that it will fit any of these makes of carburetors. This result is accomplished by the arrangement of the yoke 26 offset from the coil 20.

After the yoke has been snapped on the portion C, the spring is sprung to slip the coil 20 over the hub 18 to its position shown in Figures 6 and 7, and thereafter the hook 23 is sprung over the arm 19.

Thereupon the spring will be held in posi-

tion by tension and the shape of the spring is such that there is constant tension pressing the coil 20 over the hub 18 toward the wall A of the carburetor.

At the same time, the rearward part of the yoke 26 presses against the rear part of the shoulder 14 and the forward part of the yoke 26 ordinarily presses against the lug 12, as illustrated in Figure 6.

The peculiar shape of the portions 22, 24 and 25 of the spring is of considerable importance in adapting the spring for convenient use with different makes of carburetors in which the distance from the portion C to the wall A may vary and in which the distance from the portion C to the hub 18 may vary.

By having the portions 22 and 25 arranged as shown in parallel planes and the inclined portion 24 connecting them, it will be seen that if the distance of the portion C and the hub 18 from the wall A varies, the spring may still be installed and will be installed with the yoke 26 frictionally gripping the nipple 13 and with the hook 23 on the arm 19 and with the coil 20 on the hub 18, with the coil 20 under tension pressing it toward the carburetor, regardless of variations in the distance between the hub 18 and the nipple 13 and regardless of the distance of offset between the hub 18 and the outer end of the lug 12.

In the actual installation of my improved spring B on the carburetor, the yoke 26 is slipped over the portion of the nipple 13 between the shoulder 14 and the lug 12 from the rear. That portion of the nipple 13 is a standard size, larger than the restricted neck 27 and of the size to be snugly received within the yoke 26.

When the yoke 26 is snapped over the portion of the nipple 13 just mentioned, which is indicated for instance at C in Figure 6, it will be seen that the yoke 26 will be held against movement to the right or left of its position shown for instance in Figure 5.

The tension of the yoke will prevent its being pulled rearwardly off the portion C of the nipple 13.

The shoulder 14 and the end of the lug 12 prevent any movement of the yoke 26 inwardly or outwardly with relation to the carburetor. When the yoke 26 is placed in position on the portion C, the shape of the spring is such that the coil 20 stands just above the hub 18 and accomplishes its function.

Similarly, if the hub 18 and the lug 12 are closer together or farther apart in different makes of carburetors, still the spring having the normal shape shown for instance in Figures 3 and 5 will always fit, will always have tension pressing the coil 20 toward the wall A, and will always frictionally engage

the portions C and the arm 19 under tension.

I performed a large number of experiments and made springs in a great variety of shapes and sizes before I was able to devise one which was readily adapted for use with the various structures of carburetors used on Ford cars.

It will be noted that when the arm 19 is swung forwardly from its position shown for instance in Figure 7, for closing the choker valve, the coil 20 is tightened and reduced in diameter and that there is a tendency to pull the portions 24 and 25 and the yoke 26 rearwardly.

On account of the reduced neck 27, however, I find that the spring will not be pulled from the portion C.

It will be noted that the yoke 26 opens away from the coil and that the portion 25 extends to the forward part of the yoke, I have found this a necessary construction in order to allow for installation on the different carburetors mentioned and to permit the free movement of the arm 19 for closing the choker valve. If the yoke were made with its open end toward the coil, I find that the spring, when installed on certain carburetors, tightens up when the arm 19 is moved for closing the valve and prevents the full closing of the valve.

It will therefore be seen that I have provided a very simple and inexpensive spring structure which can be used for holding open under tension a choker valve in a variety of makes of carburetors.

It will be noted that I have provided a spring which will retain its tension and its grip on the parts on which it is assembled regardless of considerable variation of size and arrangement thereof and particularly even though there is variation in the distance between the hub 18 and the portion 26 from each other and in the relative distances from the wall A.

The spring can be mounted on any of the various makes of carburetors used on Fords without the use of tools and will always remain firmly in place under substantial tension. At the same time, the construction is such that the arm 19 can be operated for increasing the tension of the spring without releasing it at either end or from the hub 18. The hub 18 in most instances forms a central bearing for the coil 20. In one or two instances, the hub 18 is so short that the coil 20 simply bears against its face.

I claim as my invention:

1. A choker valve spring comprising a resilient coil having one end projecting away from the coil tangentially thereto, the other end of the coil being extended away from the coil and having a portion inclined substantially from the tangential terminating

in a portion parallel with the tangential line and having formed thereon a yoke-shaped portion with a reduced neck, the yoke-shaped portion and the coil being in different parallel planes and being both located above their connecting parts.

2. A choker valve spring comprising a resilient coil having one end projecting tangentially away therefrom and terminating in a hook extending from said end in the opposite direction from the coil, the other end of the coil having a portion substantially offset from a tangential line substantially as shown and terminating in a yoke-shaped portion with a reduced neck.

3. A choker valve spring comprising a resilient coil having one end projecting tangentially away therefrom and terminating in a hook extending from said end in the opposite direction from the coil, the other end of the coil having a portion substantially offset from a tangential line substantially as shown and terminating in a yoke-shaped portion with a reduced neck, and a portion adapted to frictionally engage an intake pipe.

4. A choker valve spring comprising a resilient coil having one end projecting tangentially away therefrom and terminating in a hook extending from said end in the opposite direction from the coil, the other end of the coil having a portion substantially offset from a tangential line substantially as shown and terminating in a yoke-shaped portion with a reduced neck, opening away from the coil.

5. A choker valve spring comprising a resilient coil having at one end a member for engaging an arm on a valve stem and having at its other end a portion offset from the coil terminating in a yoke-shaped portion opening away from the coil and having a reduced neck with diverging ends.

6. A choker valve spring comprising a resilient coil having one end projecting tangentially away therefrom and terminating in a hook extending from said end in the opposite direction from the coil, the other end of the coil having a portion substantially offset from a tangential line substantially as shown and terminating in a yoke-shaped portion with a reduced neck, opening away from the coil, the yoke being formed between the extreme end of the spring and the coil.

7. A choker valve spring comprising a resilient coil having at one end a member for anchoring the same to an arm on a valve stem, and having at its other end a portion offset from the coil terminating in a yoke-shaped portion, opening in a direction with relation to the coil to exert a thrust away from the coil, said yoke-shaped portion having a reduced neck.

8. A choker valve spring comprising a resilient coil having its ends extended in substantially opposite directions from the coil, one of said ends having a member thereon  
5 for anchoring the same to an arm on a valve stem, and the other end terminating in a yoke-shaped portion opening in a direction  
with relation to the coil to exert a thrust away from the coil, said anchoring member and said yoke-shaped portion being arranged 10 in different horizontal planes.

Des Moines, Iowa, April 18, 1923.

JACK E. MESSENGER.