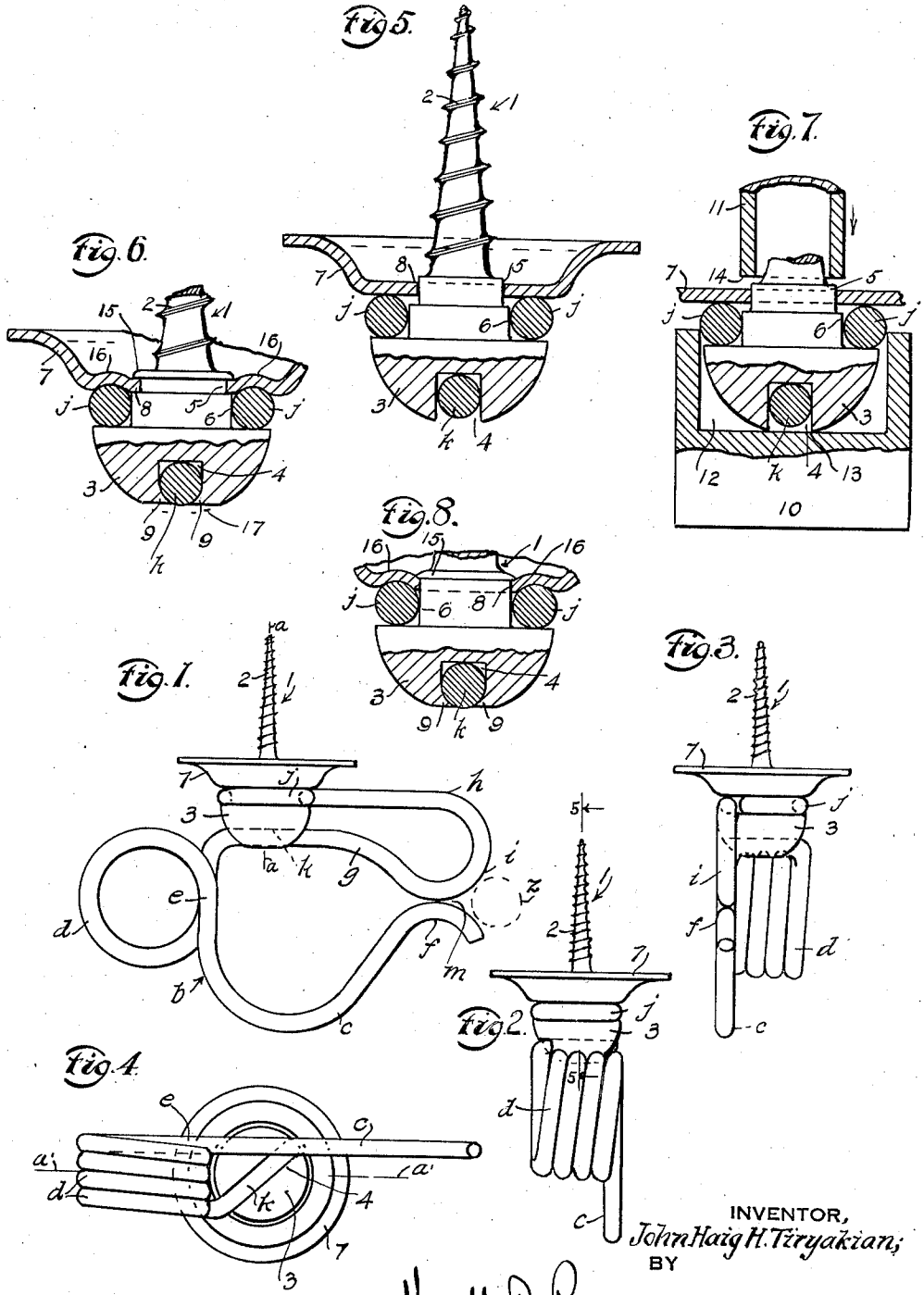
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CUP HOLDING HOOK

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CUP HOLDING HOOK

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The present invention relates to an improvement in cup-holding hooks, of the type set forth in my copending U. S. application Serial No. 683,756, filed August 5th, 1933, for Hooks, and allowed on August 7th, 1934.

The present improvement comprises the utilization of three of the components parts of the structure to coact with each other to firmly combine each other in rigid, operative assembly, this being accomplished with a minimum number of parts and operations, thus creating a cup-hook of great efficiency and at an effective economy, in manufacture.

A further advantage in the present improved structure is that the spring hook of the present structure is so firmly assembled to its shelf attaching screw, as to enable the user to operate the said hook, as a wing, to screw the attachment to a shelf, exactly as a wing-nut on a screw is utilized.

The foregoing, and other features of advantage will be understood, as the herein description proceeds, and it is obvious that modification may be made in the structure herein without departing from the spirit hereof or the scope of the claims.

In the drawing, all enlarged for better showing,

Fig. 1 is a side view of my device;

Fig. 2 is a rear view, as viewed from the left hand side of Fig. 1;

Fig. 3 is a front view as viewed from the right hand side of Fig. 1;

Fig. 4 is a bottom view, looking upwardly from the lower end of Fig. 1;

Fig. 5 shows an enlarged, fragmentary sectional view taken on the line 5—5, Fig. 2, looking in the direction of the arrows, showing the first assembly of the coacting parts;

Fig. 6 is a view similar to Fig. 5, showing the parts after they have been locked together in staked assembly;

Fig. 7 discloses a longitudinally sectioned means showing one method of staking the assembled parts of Fig. 5 together; and Fig. 8 is a view similar to Fig. 7, of a modification.

As in Fig. 1, the present device comprises a threaded, button headed metallic wood screw, generally denoted by 1, comprising a threaded shank 2, a button or filister head 3, the latter being slotted across as at 4, Fig. 5, and at *a*, Fig. 1. The head as in Fig. 5, is provided with two stepped, cylindrical shoulders 5 and 6, located between said head 3 and threaded portion 2.

The resilient, cup-handle holding resilient wire hook generally denoted by *b*, Figs. 1 to 4, comprises a convoluted single piece wire member having, as viewed in all figures, except Fig. 4, an upper round loop, or eye *j*, which when in assembly, is mounted to rest on the ledge of and surround cylindrical shoulder 6, of the screw 1, Fig. 5.

From the loop *j* the wire is bent downwardly, forming a downwardly curved portion *h* and then is bent into a curved mouth forming portion *i* and then curved upwardly and backwardly as at *g*, Fig. 1, to and into the screw head slot 4, and then, bent at an angle and located in said slot relative to the said loop *h*, *i*, and *g*, as at *k*, Fig. 4.

The angular portion *k* of the hook entering the slot 4 is for offsetting the wire from portion *g*, over to the rear, outer, lowermost coil *d*, as viewed in Fig. 4, to form the first loop of the coil of spring loops *d*, so that when the plural loops *d* are formed, they are disposed offset from the screw axis *a*, Fig. 1, but are substantially, geometrically disposed, relative to the longitudinally located axial line *a'*—*a'*, Fig. 4.

After the completion of the plural coils *d*, and as in Fig. 4, the wire is bent into a curve *e*, downwardly, and then in an upward curve, as at *c* and then, terminating in a down curved lip *f*, Fig. 1 with a resilient openable contact, at the mouth, or entrance junction *m*, thus forming, with curve *i*, of the rigid loop *h*, *i*, and *k* an easily openable cam like entrance for the handle of a cup, or similar article, as shown dotted at *z*, Fig. 1.

As viewed in Figs. 2, 3, and 4, the loops *h*, *i*, *g*, and *c* are offset from the axis of the screw 1.

After the spring hook *b* is fabricated, and as it is to be understood that the hook portion *b* is made up separately, it is then assembled to the screw, as will now be described. To fasten the ferrule 7, the screw 1 and the hook element *b* together, in firm rigid assembly, the spring eye *j* is placed over the cylindrical step 6, Fig. 5, as previously outlined, and the angular portion *k* of the spring *b* is snapped into the slot 4 of the screw head 3.

Then the cup-like, metal ferrule 7, is provided with a central bore to snugly fit over the upper, smaller cylindrical step 5, Fig. 5, and thus rest upon the upper face of the eye *j*, as in Fig. 5.

Then the step of assembling all three pieces is done, as in Fig. 7, wherein the assembly of parts, as in Fig. 5, are introduced into the interior chamber 12 of a bottom die block 10, said die block having its chambered face flat, as at 13. Then a hollow staking punch 11, with a staking front edge or face 14, is brought down upon the

upper face of the step 5, and pressure brought to bear upon the said upper face of shoulder 5, thus deforming said upper face and staking or riveting it over the inner annular edge 8 of ferrule 7, as in Fig. 6, by the overflow of the deformed top edge 15 of shoulder 5, in addition, this staking action causes the ferrule 7 to be deformed as at 16—16, by the eye *j* of the hook *b*. Simultaneous with the above action, the edges of the screw slot 4, are also deformed, as at 9—9, Fig. 6, enclosing about the exposed face of the angled wire portion *k*, thus staking it firmly into the slot 4. The foregoing operation may be done with one stroke in a punch press.

The amount of deformation of the slot end of the screw head is shown relatively, by the dot and dash construction at 17, Fig. 6, which is the outline of screw head before the staking of *k* in the slot 4 takes place.

As thus described, it is obvious that the staking or riveting operations thus assembles the three components of the cup-hook in rigid assembly, such operation being performed at a single blow.

It will be noted that the portions *j*, *h*, *i*, *g*, and *k* of the hook are non-resilient, and form an upper striking guard for a cup handle when in the hook and when inadvertently struck upwardly.

The remaining portions of the hook, such as *c*—*e* and *d* are resilient and are supported in resilient cup handle receiving and removing position, by the non-resilient portions thereof, when in operation assembly upon the threaded screw 1 and the under side of a shelf.

Fig. 8 is a view similar to Fig. 7 and in most features is identical with the exception that the eye *j* is fitted about a plain cylindrical post 6, without steps and the upper edge portion thereof is rolled or riveted over the eye portion *j* as at 15, Fig. 8, thereby to lock the ferrule 16 in position.

Having thus described the invention what is claimed is:

1. A cup-hook assembly comprising a convoluted cup holding wire hook, having a resilient portion and a non-resilient portion, a headed screw secured to said non-resilient hook portion and a ferrule on said screw, said ferrule being affixed to said screw to secure said non-resilient hook portion to said screw.

2. A cup-hook assembly comprising a convoluted cup holding wire hook, having a resilient portion and a non-resilient portion, said non-resilient portion having an eye on one end, a headed screw having a slot therein, said non-resilient hook portion being secured to said screw by said slot and said eye and a ferrule on said screw, said ferrule being affixed to said screw to secure the eye of said non-resilient hook portion, in part, to said screw.

3. A cup-hook assembly comprising a convoluted, resilient cup-holding wire hook, one end of said hook having an eyelet formed thereon, a headed screw having a slot in said head, said head having stepped cylindrical shoulders near its headed end, said hook eyelet being located upon one of said shoulders, and a ferrule located upon the other of said shoulders, said ferrule being superposed upon said eyelet, and secured to its associate shoulder.

4. A cup-hook assembly comprising a convoluted, resilient cup-holding wire hook, one end of said hook having an eyelet formed thereon, a threaded, headed screw having a traversing slot in said head, said head having two stepped cylindrical shoulders between its threaded and head ends, said hook eyelet being located upon one of said shoulders with a portion of said hook resting in said slot, and a cupped, apertured ferrule located upon the other of said shoulders, said ferrule being superposed upon said eyelet and being staked upon its associate shoulder thereby to hold said eyelet upon its associate shoulder, the portion of the hook in said slot being staked therein.

5. A cup-hook assembly comprising a convoluted, cup-holding wire hook having a resilient and a non-resilient portion, the latter portion of said hook having an eyelet formed thereon, a threaded, headed screw having a traversing slot in said head, said head having two stepped cylindrical shoulders between its threaded and head ends, said hook eyelet being located upon one of said shoulders with a part of said non-resilient hook portion located in said slot, and a cupped, apertured ferrule located upon the other of said shoulders, said ferrule being superposed upon said eyelet, and being staked upon its associate shoulder thereby to hold said eyelet upon its associate shoulder, the part of said non-resilient portion being staked in said slot.

6. A cup-hook assembly comprising a convoluted, cup-holding wire hook having contacting resilient and non-resilient portions, the latter portion of said hook having an eyelet formed thereon and an angular portion adjacent said eyelet portion, a threaded, headed screw having a traversing slot in said head, said head having two stepped cylindrical shoulders between its threaded and head ends, said eyelet being located upon one of said shoulders with said angular portion located in said slot, and a cupped, apertured ferrule located upon the other of said shoulders, said ferrule being superposed upon said eyelet, and being staked upon its associate shoulder thereby to hold said eyelet upon its associate shoulder, the said angular portion being staked in said traversing screw slot.

7. A cup-hook assembly comprising a piece of wire including an upper horizontal ring, a depending cup holding hooked portion; a screw including a shank having a base cylinder coaxial with the ring; said wire having a straight central portion disposed in the kerf of the screw, and an annular shoulder projecting outwardly from said cylinder above the ring.

8. A cup support comprising a piece of wire having one end formed into a ring, the other end of the wire forming a cup-hook and being disposed vertical to the plane of the ring; a headed screw including a shank having an expanded base cylinder, said ring having one of its sides disposed on the face of the screw head at the cylinder; said wire having a straight central portion held in the kerf of the screw, there being part of the boundary wall of the kerf riveted over said portion, and an annular shoulder projecting from said cylinder at the other side of said ring.

9. In a cup-hook assembly, a headed wood screw, a piece of wire having one of its ends forming a cup holding hook opposite the head of the screw, a ring formed on the other end of the wire and having one of its sides on the face of said head around the screw shank, annular means rigid with said shank and cooperating with the opposite side of said ring in holding relation therewith; said wire including medial manipulable bends and having a central straight portion in the kerf of said head, said bends being

extended and on opposite sides of the head, whereby the assembly may be turned as a single unit for operating said shank.

10. An assembly comprising a piece of wire including a medial coil and having ends extending therefrom and forming a cup holding hook comprising a resilient portion and a coacting non-resilient portion; said latter portion including a loop and having a terminal annular eye; and a headed screw attached to said non-resilient portion, said screw having the base of its stem disposed in the eye, and there being a portion of said loop fitted into the kerf of the screw head.

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