Dec. 9, 1924. 1,518,307

G. W. COOKE

FAUCET

Filed April 18, 1922

Fig 1

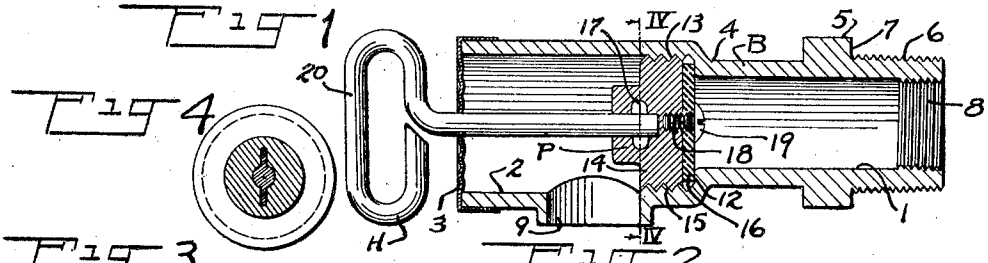


Fig 4

Fig 3

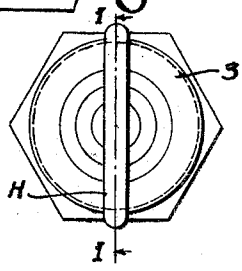


Fig 2

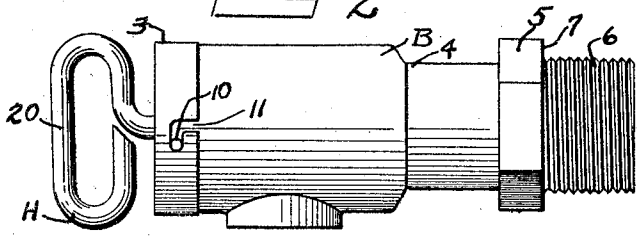


Fig 7

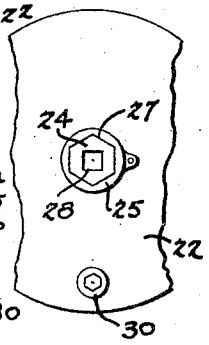


Fig 6

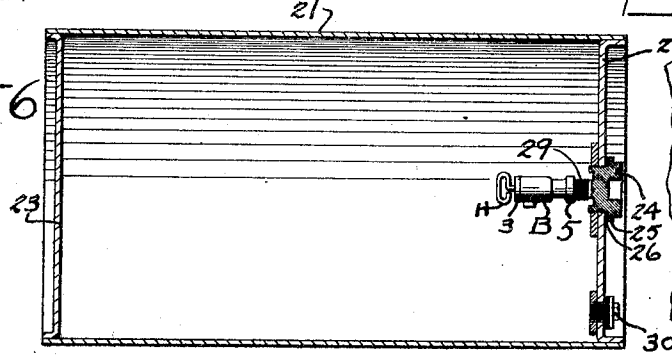


Fig 8

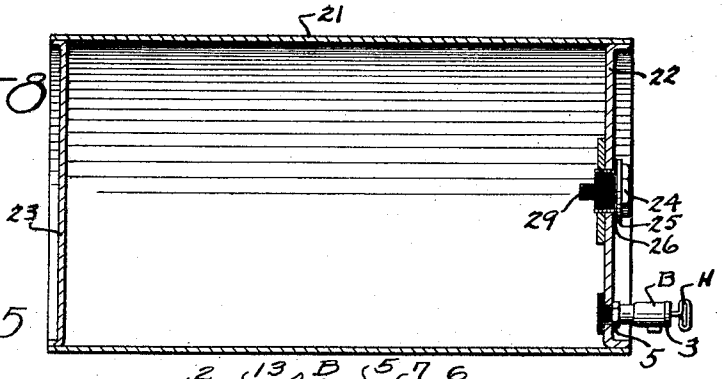
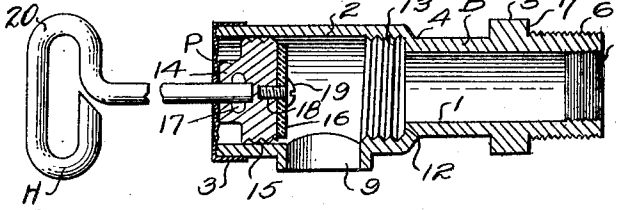


Fig 5



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UNITED STATES PATENT OFFICE.

GEORGE WINTHROP COOKE, OF JAMAICA, NEW YORK, ASSIGNOR TO GEORGE W. COOKE CO., INC., OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

FAUCET.

Application filed April 18, 1922. Serial No. 555,145.

To all whom it may concern:

Be it known that I, GEORGE WINTHROP COOKE, a citizen of the United States, and a resident of the city of Jamaica, in the county of Queens, in the State of New York, have invented a new and useful Faucet, of which the following is a specification.

This invention relates to faucets.

The principal object of this invention is the production of satisfactory faucets at a minimum cost.

Other objects and advantages will appear as the description of the particular physical embodiment selected to illustrate the invention progresses, and the novel features of the invention will be particularly pointed out in the appended claims.

At the present time, fluids such as oils are being transported about this country and exported to foreign countries in barrels or barrel like containers. It has been found unprofitable and undesirable by the shippers to receive back the emptied barrels or containers, and consequently they generally now refuse to so do.

For reasons unnecessary to mention, it has been found desirable for each barrel or container to be supplied with a faucet for the convenience of the receiver in withdrawing the contents thereof. It is quite obvious that the faucet should not and practically cannot be shipped with the barrel or container in place, that is, projecting from the barrel or container in the position which would be most desirable or suitable for use in emptying the barrel of its contents. It is obvious, recalling to mind the proper position and best arrangement of such a faucet in place, that it would project from the barrel or container in such wise as to seriously interfere with the maximum use of the shipping space by keeping the barrels too far apart and, furthermore, would be subject to being broken off when moving the barrels or containers about.

In order then, to supply a faucet shipped with the barrel, it appears most convenient and desirable to ship the faucet inside of the barrel, but in such a manner that it may be readily and conveniently removed and placed in position for withdrawing the contents of the barrel. Furthermore, as the faucet like the barrel is not returnable to the shipper, it is necessary that all of the instrumentalities employed in holding the faucet in proper place in the barrel, including the faucet, be simple, inexpensive and easy to manipulate to withdraw the faucet from the barrel and place it in position to withdraw the contents thereof.

Applicant's faucet together with the instrumentalities employed therewith were devised and invented with the object in view of satisfactorily satisfying the conditions to be met with as outlined hereinbefore.

In describing the invention in detail, and the particular physical embodiment selected to illustrate the invention, reference is had to the accompanying drawing, wherein I have illustrated a particular preferred physical embodiment of the invention, and some appropriate variations thereof, and wherein like characters of reference designate corresponding parts throughout the several views, and in which:

Figure 1 is a longitudinal sectional view of my faucet on the plane indicated by the line I—I of Fig. 3; Fig. 2, is a plan view of my faucet; Fig. 3, is a left-hand end view of the faucet shown by Fig. 2; Fig. 4, is a transverse sectional view on the plane indicated by the line IV—IV of Fig. 1; Fig. 5, is a view similar to Fig. 1, but with the faucet, opened, in the position for allowing liquid to flow therethrough; Fig. 6, is a view of a conventional container with my faucet in place therein in position for shipping; Fig. 7, is a fragmentary right-hand end view of Fig. 6; Fig. 8, is another view of the same arrangement as shown by Fig. 6, except that the barrel has been prepared so that the contents thereof may be emptied by means of my faucet.

Referring particularly to Figs. 1 to 5 inclusive, B designates the body or shell of my faucet. This shell is formed with a bore 1 of one diameter and a bore 2 of larger diameter. Each bore communicates with the other at one end thereof and each is open at the other end. The right hand end of bore 1, as viewed in Fig. 1, is intended to communicate with the body of fluid or oil in the barrel or container and the left hand end of bore 2, as viewed in Fig. 1, is closed by a thin metal cap 3, to be hereinafter more fully described.

The body B, about midway of its length is reduced in external diameter, as at 4; this

saves material and better allows the formation of the periphery as a hexagon nut, as at 5, thus providing a proper and convenient means for the application of a wrench to screw the faucet into a barrel or container as will hereinafter be more fully described.

The body B on the right hand end as viewed in Fig. 1, has a thread formed on its external surface for a distance roughly equal to the external diameter at that point. This external diameter at this point being approximately equal to the external diameter of the reduced portion 4.

By reducing the external diameter of the body on both sides of the hexagon nut 5, material is saved, the hexagon nut is made to stand out from the body B, of the faucet, so that a wrench is more conveniently applied and the surface 7, of the nut will serve to prevent leakage if the faucet is screwed into a threaded hole which is so large that the externally threaded portion 6 enters completely therein, without becoming tight, because in such case, by forcing the surface 7 against the surface of the container, a tight joint therebetween is formed sufficient to prevent the leakage of fluid from the container around the threads 6.

Within the bore 1, of the body B, at the righthand end thereof, for a distance about equal to the internal diameter of the bore 1, an internal thread 8, is formed for a purpose to be hereinafter more fully described. This internal thread having a diameter, at the bottom of the thread, not greater than the diameter of bore 1.

An orifice 9 is formed in the body B. This orifice is of a diameter at least equal to the diameter of the internal bore 1 at the threaded end and preferably, as shown in the drawing, slightly larger. By having the diameter of the orifice of the size mentioned all fluid which runs into the bore 1 even if under the slight head of the fluid in a full container of the size of an ordinary oil barrel, will so freely pass through orifice 9, that there will be no pronounced tendency for the oil to accumulate in bore 2 and tend to flow out around cap 3, although as hereinafter described, even if this tendency exists, the effect will be nullified.

The body B, at the left hand end as viewed in Fig. 1, has formed, preferably integral, therewith, pins or projections, as 10, at diametrically opposite points on the external periphery of the larger portion of body B, one only of which appears. These pins serve as a retaining means for cap 3, which is suitably formed with the bayonet joint groove 11, for coaction with the pins 10.

As bore 1 is smaller than bore 2, a shoulder is formed at 12, which forms a seat for a plunger to be hereinafter described.

Adjacent the shoulder 12, upon the internal surface of bore 2, is formed a thread 13, which serves to coact with another member to be hereinafter described to hold a plunger firmly against seat 12. The diameter at the bottom or root of the thread 13 is not greater than the diameter of bore 2.

The body B, as hereinbefore described, is as is evident, so formed that it may be die cast as a single unitary body. When taken from the die, its cross section would be just as shown in Fig. 1, including the pins, as 10, no machining whatsoever being necessary. As die casting when compared to machine work is a relatively inexpensive method of forming an article, applicant is consequently enabled to produce the unitary body B at a comparatively small cost.

It should be particularly noted that applicant has by his construction enabled a solid core to be used to form the bores 1 and 2 and the threads therein by making the diameter of the bottom of the threads not greater than the diameter of the bore in which they occur.

In order to make the body B by die casting, it is necessary to select a material of suitable melting point which will also have the necessary properties to serve as a faucet. Applicant has discovered that a most appropriate material for this purpose is an alloy of lead, antimony, copper and tin and the preferable composition is 70 per centum of lead, 20 per centum of antimony, 5 per centum of copper and 5 per centum of tin. This alloy has been discovered to have the necessary hardness due to the antimony; the necessary tenacity due to the copper and the necessary fluidity and sharpness running in the mold due to the tin and the lead forms a suitable body. This alloy further forms a faucet which is not corroded by oils or ordinary fluids and has sufficient ductility, approximating that of lead, so that the body when screwed into a threaded hole as by thread 6, forms its own gasket, so to speak, that is a comparatively slight rotative force on hexagon nut 5, causes the threads 6 to so tighten against the threads of the body into which they are being screwed that a fluid tight joint is formed and this can be usually accomplished even by the force exerted by the hand alone on hexagon nut 5 so that a wrench is not always absolutely necessary. Further, when in use the orifice 9 should point downwardly. If the body B, were made of a metal such as say, cast iron, then it might well happen that the threads 6 would come to a tight fit in the barrel threads with the orifice 9 pointing in some direction other than downwardly, in such case it would be necessary, as is well understood, to continue turning body B, until orifice 9 points downwardly, but to do this an inordinate force would be required, in some cases quite impossible to apply. When

applicant's faucet is used, however, this difficulty is of no moment because, due to the ductility of the alloy of which the body is composed, the body may very easily be rotated even a whole turn after it has come to a close and fluid tight fit in the body into which it is being screwed, so that the orifice 9 may easily be positioned as desired.

In order to permit or restrain the flow of fluid from bore 1, to bore 2 and thus to orifice 9, I employ a plunger P. This plunger includes a valve closure body portion 14, formed with external threads 15, properly engageable with internal threads 13, formed on the body. By suitably rotating body portion 14, it is moved backwardly and forwardly in the bore 2. In order to effect this rotation a plunger handle H is attached to body portion 14. When the plunger P is rotated so as to move bodily to the right as viewed in Fig. 1, it abuts the shoulder or seat 12, thereby restraining a flow of fluid from bore 1 to bore 2. In order that a fluid tight contact between plunger P and seat 12 will be formed, I prefer to face the plunger P with a resilient washer, disc or gasket 16, and I have found that leather is a suitable material of which to form the gasket, as many of the other materials commonly used as aids to fluid tight contacting surfaces are disintegrated and destroyed by fluids such as oils, but leather on the other hand is merely rendered properly soft and pliable, thus increasing its efficacy as a means for securing a fluid tight joint.

The body portion 14 of the plunger P is made of exactly the same alloy as that used to make body B and it is formed together with the threads by die casting. The handle H is formed with ears 17 and the alloy is cast about the ends of the handle bearing the ears so that a thoroughly trustworthy and reliable connection is made between the handle H and the plunger P.

When the body portion 14 of plunger P is die cast a cavity 18 is formed in one face. This cavity is for the reception of a screw 19 which is the means preferably used by me to hold gasket 16 in place. I form no thread in cavity 18 before inserting screw 19 therein, because I have discovered that the consistency of the alloy used to form the body portion 14 of the plunger, P, is such that I may, by forcibly rotating screw 19 into the cavity cause it to form its own thread in the body portion 14 of the plunger P.

The cap 3 is corrugated so as to render it stiff and is formed by a blanking and a punch press operation and is placed on handle H before the ears 17 are formed and after the somewhat elliptical portion 20 of the handle is formed by a punch press bending operation so that the cap 3 being retained between the portion 20 of the handle H and the body portion 14 of the plunger P can never become lost or misplaced in use even if it is removed from the left hand end of body B.

Applicant's faucet it is evident can be constructed throughout by the comparatively inexpensive operations of casting and punch presses thereby greatly reducing the cost of manufacture to such an extent that it is economically feasible to use the faucet as a means for emptying the contents of one container only and then discarding it.

Fig. 1 shows applicant's faucet in the closed position that is in the position in which the flow of fluid from bore 1 to bore 2 is restrained. In order to permit fluid to flow from bore 1 to bore 2, the handle H is, in the preferable form, given one and one half turns, which entirely frees it from threads 13 and is then drawn to the left as viewed in Fig. 5. The pitch of threads 13 is such that the plunger may be quickly released from those threads, as stated, in the preferred form only one and one half turns of handle H being required, then the plunger may be instantly drawn to the position, as shown in Fig. 5. In this position the top of the threads of body portion 14 of plunger P just touch the internal surface of bore 2 and make a slight rubbing fit therewith so that the threads would act if necessary to prevent the flow of oil to cap 3 and around the edges thereof, but this function is seldom if ever necessarily operative, because when the plunger P is drawn to the left as far as possible the cap 3 acts as a stop and the plunger is of such dimensions that when it is resting against cap 3, the right hand end just clears the edge of orifice 9, best shown in Fig. 5, so that an unrestricted path for fluid exists to and through orifice 9 and as orifice 9, as hereinbefore stated is at least equal in diameter to the right hand end of bore 1, even if there is the slight head due to the level of the fluid in the container there will be no appreciable tendency for fluid to collect in bore 2 and tend to flow out around threads 15 and cap 3.

In Fig. 6, applicant has shown one way of shipping the faucet in a container. For the purpose of illustration, applicant has merely shown a conventional form of container 21 having heads as 22 and 23. Screwed into head 22 in any suitable or appropriate manner is a suspension plug 24, rendered fluid tight in any suitable or appropriate manner, as by flange 25 and gasket 26, and being formed in any appropriate or suitable manner rendering convenient the screwing in or out of the plug, such for instance as the hexagon periphery 27 or the square depression 28. The plug 24 has depending therefrom a threaded stem 29, preferably formed integral therewith. This threaded stem just fits the threads 8 of the faucet. After the

container is filled preferably through the orifice for receiving suspension plug 24, the faucet is screwed onto the stem 29 and then the suspension plug is screwed into place. It is obvious that the relation between the diameter of the orifice into which the suspension plug is screwed and the transverse dimensions of the faucet are such that this can be done. When the container arrives at its destination, the suspension plug is removed, the faucet removed therefrom and the suspension plug then returned to place. Plug 30 is then removed and the faucet screwed into the threaded orifice formerly occupied by plug 30, so that the container will then appear as in Fig. 8, ready to be emptied of its contents.

Although I have particularly described the construction of one physical embodiment of my faucet and several specific physical embodiments of its use in combination with a container, and explained the operation and principle thereof, nevertheless I desire to have it understood that the form selected is merely illustrative, but does not exhaust the possible physical embodiments of the idea of means underlying my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. As a faucet body, the combination of a body formed hollow and open at both ends of a corrugated sheet metal cap formed with an orifice in its center attached to one end.

2. As a faucet body, the combination of a body formed hollow and open at both ends of a corrugated sheet metal cap having an orifice and positioned over one end and attached thereto by a bayonet joint.

3. As a faucet body, the combination of a body formed hollow, open at both ends and with integral pins adjacent one end, of a corrugated sheet metal cap having an orifice and formed with upturned edges formed with bayonet joint grooves positioned over the said end and attached thereto by the said pins and grooves.

4. As a faucet plunger, the combination of a cast valve closure body formed with a cavity and with a thread on its periphery, and faced at one end with a resilient material, a threaded screw rotatively forced into said cavity holding the said resilient material to said body and a handle formed of relatively stiff and high melting point material compared to the material of said body about the end of which the body is cast.

5. In a faucet, in combination; a body portion formed with two longitudinal communicating bores of different diameter and concentric; and with a transverse orifice opening into the bore of larger diameter of a diameter at least equal to the bore of the smaller diameter; a shoulder at the junction of the two bores; a thread formed on the surface of the bore of larger diameter adjacent the shoulder and extending only as far as the near edge of the transverse orifice, the diameter at the root of the thread being not greater than the diameter of the bore of larger diameter; a plunger formed with an external thread engaging the thread of the bore of larger diameter and formed with a seat for abutting the shoulder; a handle attached to the plunger; a cap attached to the end of the body at the termination of the bore of larger diameter and formed with an orifice guiding the handle and through which the handle passes and against which cap the plunger may abut for limiting the movement, the plunger being of such dimensions that when the plunger abuts the cap the orifice is completely uncovered and an external thread formed on the end of the body remote from the end to which the cap is attached.

6. In a faucet, in combination; a body formed with a bore and a transverse orifice opening therein; a seat intermediate the ends of the bore; a plunger for abutting the seat; threads for a portion of the length of the bore adjacent the seat and extending only as far as the near edge of the transverse orifice; a co-operating thread on the periphery of the plunger, the outside diameter of the said thread being not greater than the internal diameter of the bore; a handle attached to the plunger for causing a rotative movement thereof and a longitudinal movement thereof whereby when the thread of the bore and the thread of the plunger are engaged a rotative movement will be imparted causing a relatively slow longitudinal movement of the plunger and when the threads are disengaged the plunger is adapted to have a relatively fast longitudinal movement imparted thereto and means for limiting the longitudinal movement of the plunger whereby the transverse orifice is completely uncovered only when the plunger has been limited by the said means.

GEORGE WINTHROP COOKE.