Jan. 23, 1940. C. W. SWEITZER 2,187,868

LIQUID DISPENSING APPARATUS

Filed March 24, 1938 3 Sheets-Sheet 1

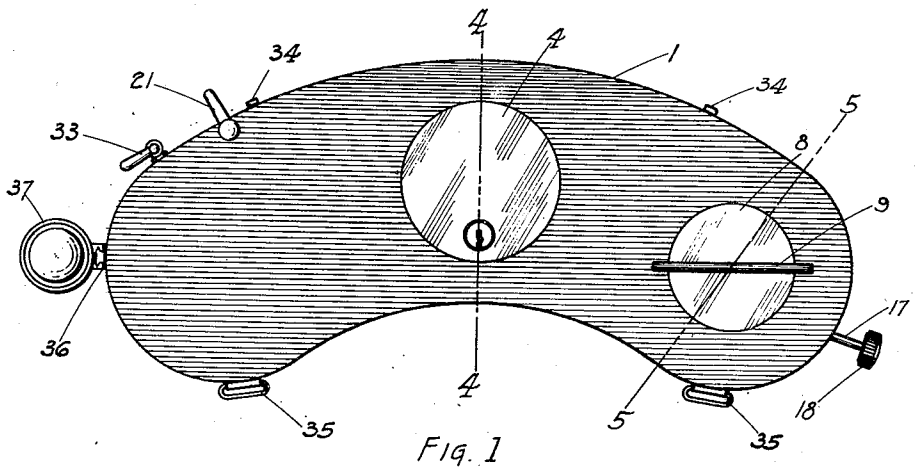


FIG. 1

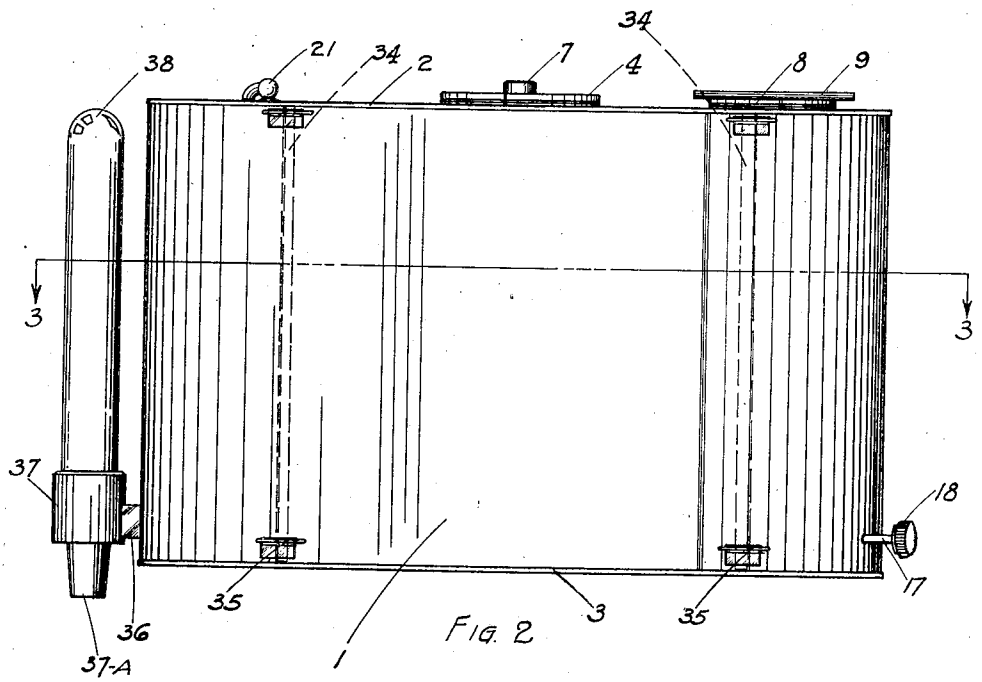


FIG. 2

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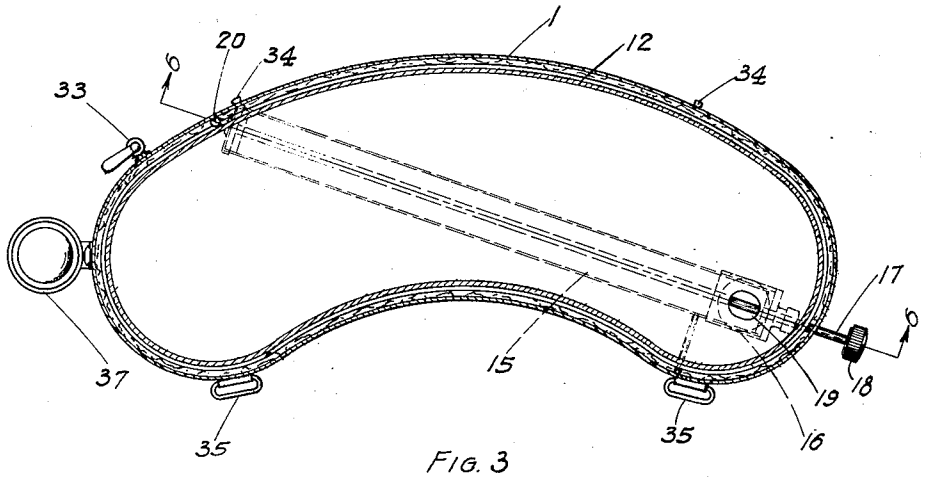


FIG. 3

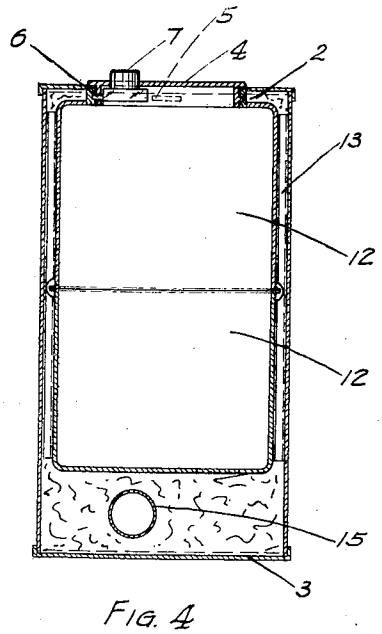


FIG. 4

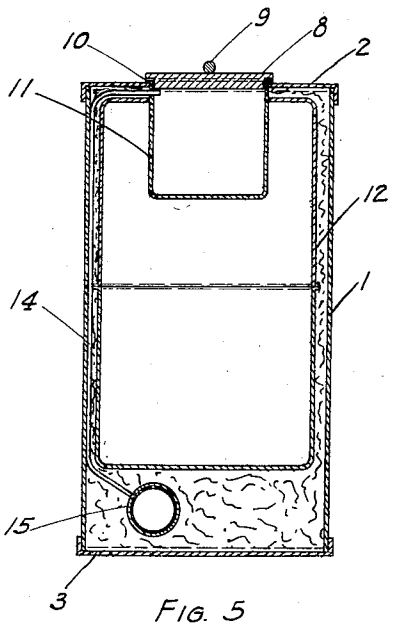


FIG. 5

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Jan. 23, 1940. C. W. SWEITZER 2,187,868

LIQUID DISPENSING APPARATUS

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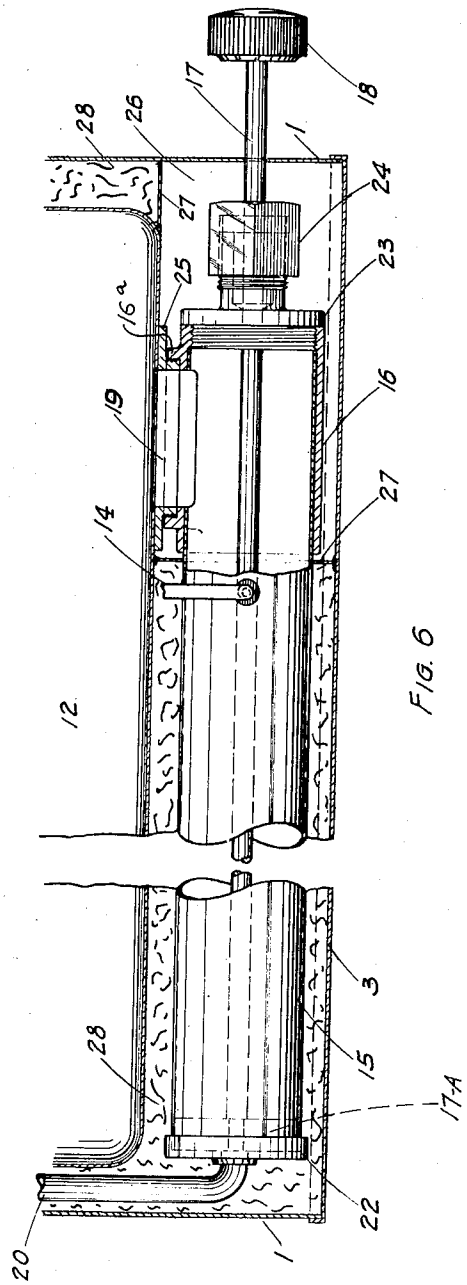


FIG. 6

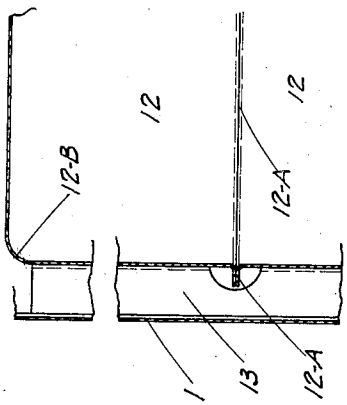


FIG. 8

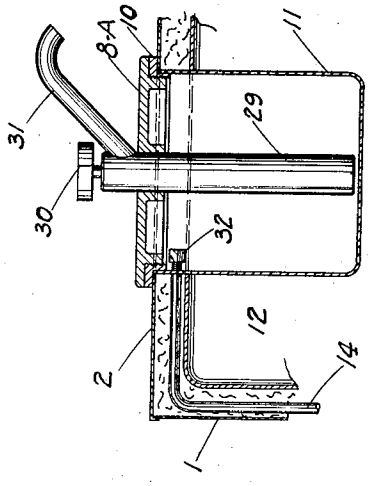


FIG. 7

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Patented Jan. 23, 1940 2,187,868

UNITED STATES PATENT OFFICE

2,187,868

LIQUID DISPENSING APPARATUS

Charles W. Sweitzer, Shawnee, Okla.

Application March 24, 1938, Serial No. 197,918

8 Claims. (Cl. 225—28)

This invention relates to liquid dispensing apparatus, and it is primarily an object of the invention to provide a dispenser of this kind which is readily portable as by being supported upon the body of a person.

It is also an object of the invention to provide an apparatus of this kind which can be employed with equal facility in the dispensing of carbonated or uncarbonated liquids as well as liquids of different temperatures ranging from cold to hot.

The invention has as a further object to provide a pump for discharging liquid from the apparatus and wherein provision is made for delivering to the liquid within the pump carbon dioxide for carbonating the liquid and for lowering the temperature thereof so that the liquid when delivered from the dispenser or apparatus will be suitable as a cooling beverage for human consumption.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved liquid dispensing apparatus whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of my invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a view in top plan of a dispensing apparatus constructed in accordance with an embodiment of my invention;

Figure 2 is a view in rear elevation of the dispenser or apparatus as illustrated in Figure 1;

Figure 3 is a sectional view taken substantially on the line 3—3 of Figure 2 looking in the direction of the arrow;

Figure 4 is a transverse sectional view taken substantially on the line 4—4 of Figure 1 with certain of the parts in elevation;

Figure 5 is a transverse sectional view taken substantially on the line 5—5 of Figure 1;

Figure 6 is an enlarged view partly in section and partly in elevation illustrating detailed features of the pump and the means for maintaining the pump in desired working position;

Figure 7 is an enlarged fragmentary sectional view illustrating a slightly modified form of invention;

Figure 8 is a fragmentary view partly in section and partly in elevation illustrating certain details of construction of the container.

As disclosed in the accompanying drawings, 1 denotes a container of desired capacity and which is preferably of a relatively narrow elongated type curved from end to end providing a convex front wall and a concaved rear wall to facilitate the container being carried in suspension from the shoulders of a person. The rear wall of the container adjacent to its opposite ends and also closely adjacent to its top and bottom is provided with the loops or brackets 35 permitting desired connection with the container of shoulder straps.

While I refer to the container 1 as being adapted to be carried by a person, I do not wish to be understood as limiting myself in this respect as the container may be readily and conveniently supported in various ways without departing from the scope of the invention.

The walls of the container are of a double type and are maintained in desired assembled relation as disclosed in the accompanying drawings by the interposed spacer strips 13. The double walls have a filler 28 of desired insulation material, such as spun glass, rock wool or the like. The central portion of the top wall 2 of the container 1 is provided with a filling opening defined by an annular member 6 and with which coacts a removable lid or plug 4. This lid or plug 4 interlocks in a conventional manner with an interrupted threaded lug 5 carried by the inner face of the annular member or rim 6. The lid or plug 4 carries a suitably positioned key operated lock for coaction with the annular member or rim 6 for holding the applied lid or plug 4 against unauthorized removal.

Extending within the container 1 through the top wall 2 thereof and preferably adjacent to an end of the top wall is a cup-like receptacle 11. The upper or open end portion of this receptacle 11 is fixed to a surrounding collar 10 which may be welded or otherwise rigidly secured to the outer surface of the top wall 2 and surrounding the opening in the top wall through which the receptacle 11 is inserted. The upper open end of the receptacle 11 has threading therein or otherwise engaged therewith a removable closure member or lid 8. The outer face of the closure member or lid 8, as herein illustrated, carries a bar 9 extending radially thereacross to facilitate the application or removal of the closure member or lid 8.

The receptacle 11 may be welded or otherwise securely fixed to the collar 10 and, as is particularly illustrated in Figure 7, the collar 10 has

a flanged portion extending within the upper open end of the receptacle 11 to provide increase surface for threaded engagement with the applied closure member or lid 8 or 8A.

Positioned within the bottom wall 3 of the container 1 is a pump cylinder 15 of desired dimensions and in which is mounted for rectilinear movement a piston head 17A, said head being carried by the operating rod 17. This rod 17 extends through the rear head 23 of the cylinder or barrel 15 and has associated therewith a conventional type of gland packing 24. This rod 17 also extends outwardly beyond the adjacent end of the container 1 and said extended portion carries a knob 18 or the like whereby the piston 17A may be operated when desired.

In Figure 6 of the drawings, it is to be noted that the portion 26 of the interior of the bottom wall 3 surrounding the gland packing 24 and for a desired distance inwardly therefrom, is free of the filler 28. Suitably positioned plates 27 are provided to assure this compartment or chamber as the portion 26 may be termed.

In communication with the front end 22 of the cylinder or barrel 15 is a pipe line or tube 20 which extends up through the top wall 2 and which upper portion is provided with a discharge spout 21 extending outwardly in advance of the front or convex wall of the container 1. The rear portion of the cylinder or barrel 15 is engaged and held within a sleeve 16 with which the head 23 hereinbefore referred to has direct engagement. The top portion of this sleeve 16 is formed to provide an upstanding annular flange 16A for threaded engagement with a flanged plate 25 brazed or otherwise secured to the under surface of the inner plate of the bottom wall 3. By this means the cylinder or barrel 15 is effectively maintained in applied or working position.

Disposed through the inner plate of the bottom wall 3 of the container 1 and through the plate 25 and the sleeve 16 is an opening 19 of desired dimensions and which affords communication between the interior of the container 1 and the interior of the cylinder or barrel 15. When the piston 17A is fully retracted the opening 19 permits the liquid within the container 1 to flow into and fill the cylinder or barrel 15 in advance of the piston and, of course, upon forcing the piston 17A toward the front end of the cylinder or barrel 15 the liquid therein will be caused to discharge out through the spout 21.

Delivering within the cylinder or barrel 15 at a point in advance of but in close proximity to the opening 19 is a tube or pipe line 14 leading from and in communication with the upper portion of the receptacle 11. This pipe 14 is housed within the walls of the container.

When it is desired to dispense a cool carbonated beverage, a supply of dry ice is placed within the receptacle 11 and the CO_2 gas resulting from the evaporation of the dry ice will pass through the pipe or tube 14 into the cylinder or barrel 15 to charge such fluid whereby the same is effectively carbonated and its temperature materially reduced so that when the beverage is discharged out through the spout 21 a refreshing beverage particularly suitable for warm weather will be delivered.

It is to be particularly noted that the liquid is charged while in the cylinder or barrel 15. This is highly important as it has been fully determined through use that the dry ice will last for a considerable period longer (about five times as long) as dry ice placed in a receptacle discharging direct into the container such as is disclosed in Patent #2,105,339 which issued January 11, 1938.

To prevent the gas delivered within the cylinder or barrel 15 also passing up through the opening 19 to charge the liquid within the container 1, it is only necessary, after the piston 17A has been fully retracted for a period sufficient to allow filling of the cylinder or barrel 15, to move the piston 17A to a position between the opening 14 and the point of communication between the line or tube 14 and the cylinder or barrel 15. This position of the piston 17A also serves to provide a means to prevent complete filling of the cylinder or barrel 15 until it is desired to dispense the beverage.

As is particularly illustrated in Figure 7, the line or tube 14 extends a slight distance within the receptacle 11 and such portion is threaded to allow the application thereto of a screw cap 32 to shut off the communication between the receptacle 11 and the line or tube 14. This is of particular advantage when it is desired to use the container 1 in the dispensing of uncarbonated liquids and when used for such purpose the pump is not used but the contents of the container 1 are discharged through a suitably positioned spigot 33 of any desired or preferred type. When the container 1 is used for the dispensing of coffee the receptacle 11 can be used to hold a supply of cream. When so used the lid or closure member 8A will carry a conventional pump 29 embodying an operating member 30 and delivery nozzle 31. The receptacle 11 can, of course, be used to contain other desired commodities for use in connection with uncarbonated liquids and in which event the cap 32 will be applied.

The outer or convex face of the container 1 at points spaced lengthwise thereof and extending substantially between the top and bottom is provided with guide members 34 to provide means to retain a placard or other advertising display matter in a position upon the container 1 whereby it will be conspicuous to the observer.

As is particularly illustrated in Figure 8, the inner shell of the walls of the container is preferably made into two sections, the adjacent ends of which are defined by outstanding butting flanges 12A welded or otherwise fixedly connected. The vertical spacer strips 13 are suitably cut away or notched to compensate for these flanges 12A.

Soldered, welded or otherwise fixedly secured to the outer surface of the container 1 and preferably at an end thereof closely adjacent to the bottom wall 3 is a bracket or adapter 36 with which is engaged in a conventional manner a cup dispensing rack 37 of any preferred construction and from which a paper cup 37A can be readily withdrawn to receive the liquid as dispensed from the container 1. This rack comprises the usual glass tube or housing 38 for the cup stack to maintain the same clean and sanitary.

It is to be noted that the walls of the receptacle 11 are imperforated so that the CO_2 gas as given off by the dry ice is not received within the interior of the container 1 but such gas is delivered only to the portion of the liquid within the pump cylinder or barrel 15.

Should it be desired to carbonate the liquid within the container 1 it is only necessary to fully retract the piston 17A so that the interior of the container 1 and the cylinder or barrel 15 are in communication through the opening 19.

It is also to be stated that with the apparatus supported upon the body of a person, during the time such person is walking the resultant motion of the apparatus imparts a sloshing effect or action to the contents of the container 1 which further contributes to the carbonating effect of the dry ice in the body of the liquid carried by the container. Furthermore, the receptacle 11 being within the container 1, allows during such sloshing action a considerable amount of the contents of the container to be drawn into intimate contact with the outer surface of the receptacle 11 resulting in a cooling effect upon such liquid. In other words, the ordinary walking movement of a person carrying the apparatus assists both in carbonating and cooling the liquid in the container.

From the foregoing description it is thought to be obvious that a liquid dispensing apparatus constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice except as hereinafter claimed.

I claim:

1. A liquid dispensing apparatus comprising a container, a pump for drawing off the liquid within the container comprising a barrel having one end portion in communication with the container and the opposite end portion having a discharge, a piston working in the barrel, a receptacle for dry ice, and means for delivering the gas resulting from the evaporation of said dry ice within the barrel of the pump at a point between the discharge of the barrel and the communication of the barrel with the container.

2. A liquid dispensing apparatus comprising a container, a pump for drawing off the liquid within the container comprising a barrel having one end portion in communication with the container and the opposite end portion having a discharge, a piston working in the barrel, a receptacle for dry ice, and means for delivering the gas resulting from the evaporation of said dry ice within the barrel of the pump at a point between the discharge of the barrel and the communication of the barrel with the container, the delivery point of the gas within the barrel being closely adjacent to the communication between the barrel and the container.

3. A liquid dispensing apparatus comprising a container, a pump for drawing off the liquid within the container comprising a barrel having one end portion in communication with the container and the opposite end portion having a discharge, a piston working in the barrel, a receptacle for dry ice, and means for delivering the gas resulting from the evaporation of said dry ice within the barrel of the pump at a point between the discharge of the barrel and the communication of the barrel with the container, said piston when in one position allowing liquid to flow into the barrel and when in a second position shutting off such flow.

4. A liquid dispensing apparatus comprising a container, a receptacle for holding a supply of dry ice, a pump including a barrel, a piston working therein, and means for connecting the barrel to a wall of the container, said connection being so constructed and arranged to provide communication between the container and the barrel, said barrel having a discharge, and a pipe line leading from the receptacle to the pump barrel and communicating therewith at a point intermediate the communication between the barrel and the container and the discharge for the barrel.

5. A liquid dispensing apparatus comprising a container, a receptacle for holding a supply of dry ice, a pump including a barrel, a piston working therein, means for connecting the barrel to a wall of the container, said connection being so constructed and arranged to provide communication between the container and the barrel, said barrel having a discharge, and a pipe line leading from the receptacle to the pump barrel and communicating therewith at a point intermediate the communication between the barrel and container and the discharge for the barrel, said receptacle extending within the container.

6. A liquid dispensing apparatus comprising a container, a receptacle for holding a supply of dry ice, a pump including a barrel, a piston working therein, means for connecting the barrel to a wall of the container, said connection being so constructed and arranged to provide communication between the container and the barrel, said barrel having a discharge, a pipe line leading from the receptacle to the pump barrel and communicating therewith at a point intermediate the communication between the barrel and container and the discharge for the barrel, said receptacle extending within the container, and means within the container for closing the same against flow therethrough.

7. A liquid dispensing apparatus comprising a container, a receptacle for holding a supply of dry ice, a pump including a barrel, a piston working therein, means for connecting the barrel to a wall of the container, said connection being so constructed and arranged to provide communication between the container and the barrel, said barrel having a discharge, and a pipe line leading from the receptacle to the pump barrel and communicating therewith at a point intermediate the communication between the barrel and the container and the discharge for the barrel, the pipe line leading from the receptacle to the pump barrel being free of communication with the container except when the piston working within the barrel has been substantially fully retracted or advanced to a position beyond the point of communication between the pipe line and the barrel.

8. A liquid dispensing apparatus comprising a container, a receptacle for holding a supply of dry ice, a pump including a barrel, a piston working therein, means for connecting the barrel to a wall of the container, said connection being so constructed and arranged to provide communication between the container and the barrel, said barrel having a discharge, and a pipe line leading from the receptacle to the pump barrel and communicating therewith at a point intermediate the communication between the barrel and the container and the discharge for the barrel, the pipe line leading from the receptacle to the pump barrel being free of communication with the container except when the piston working within the barrel has been substantially fully retracted or advanced to a position beyond the point of communication between the pipe line and the barrel, the connection between the pump barrel and the container being adjacent to one end of the barrel and the discharge being at the opposite end portion of the barrel.

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