No. 774,986. PATENTED NOV. 15, 1904.

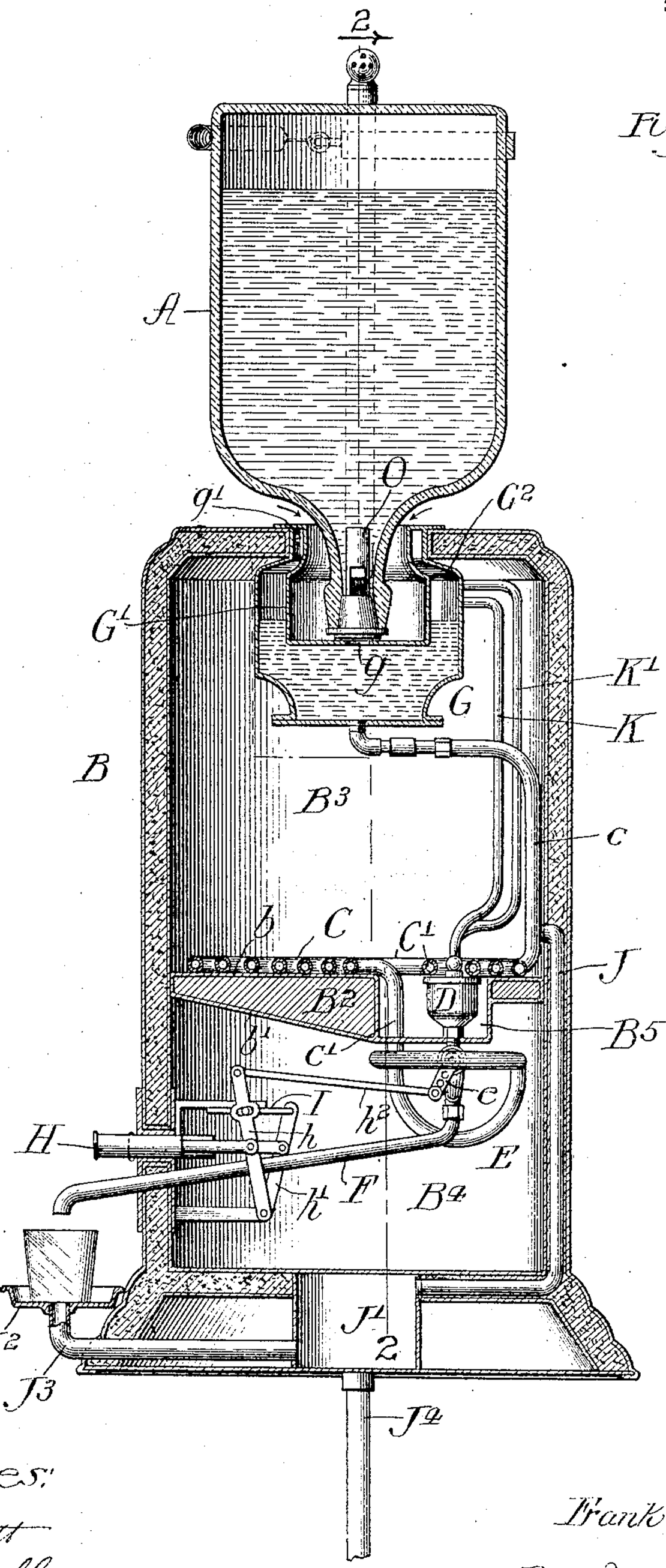
F. G. KAMMERER.

LIQUID DISPENSING APPARATUS.

APPLICATION FILED NOV. 9, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1



Witnesses:

H. G. Barrett

W. V. Stall.

Inventor:

Frank G. Kammerer

By Poole & Brown

Att'ys.

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2

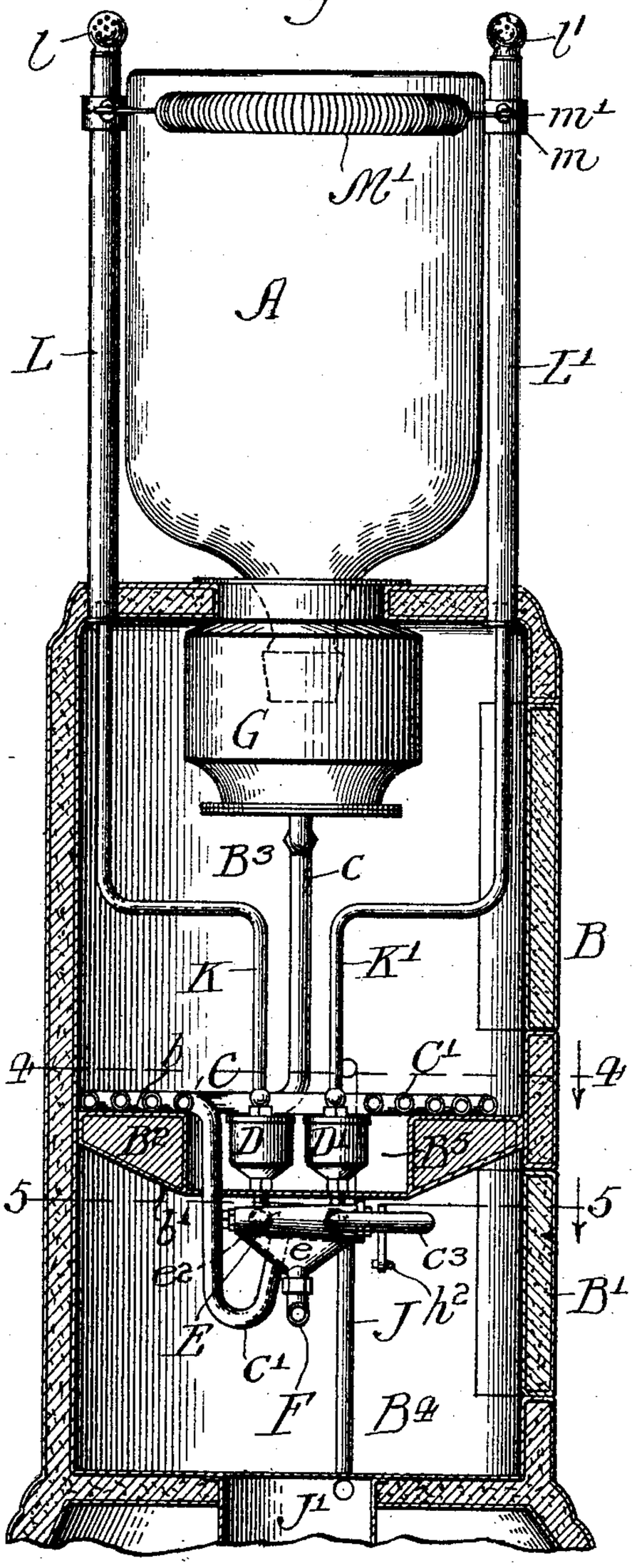


Fig. 3

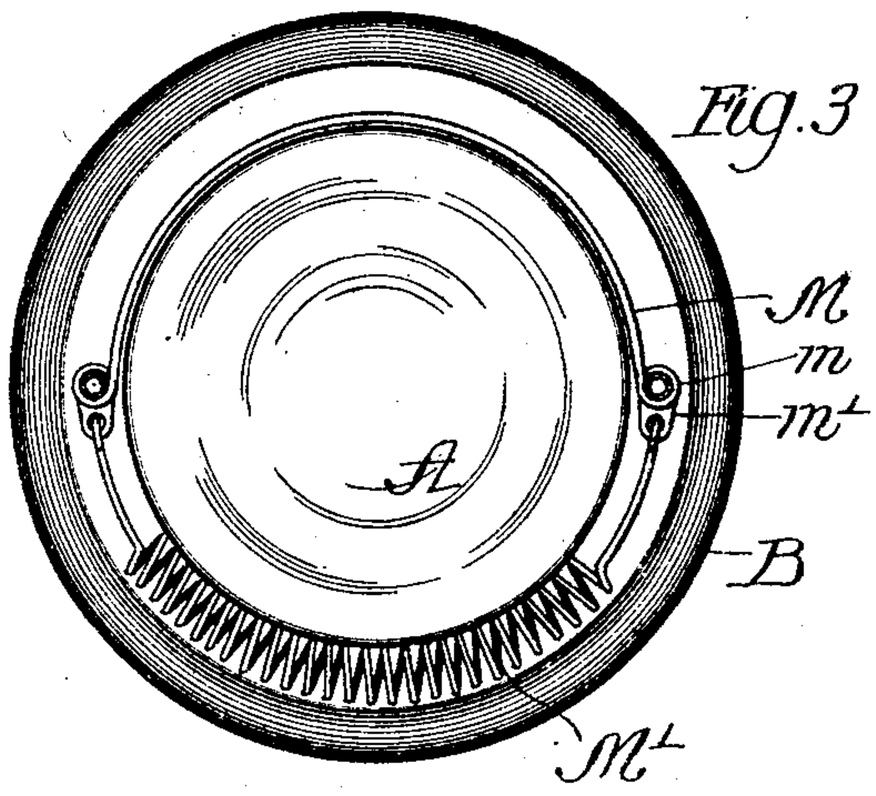


Fig. 4

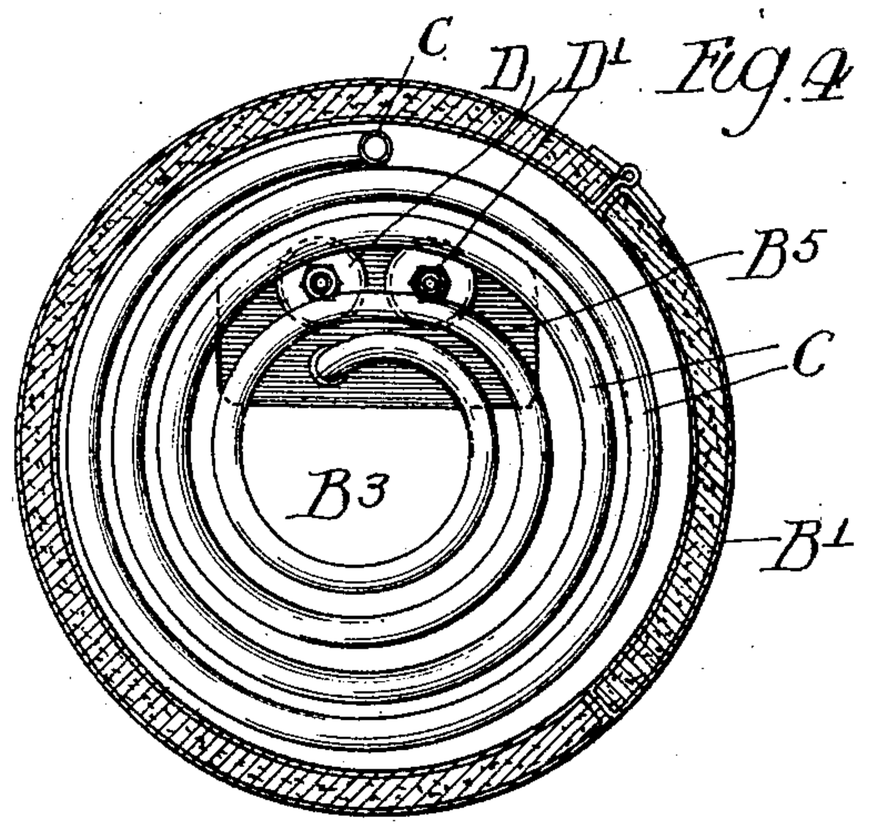
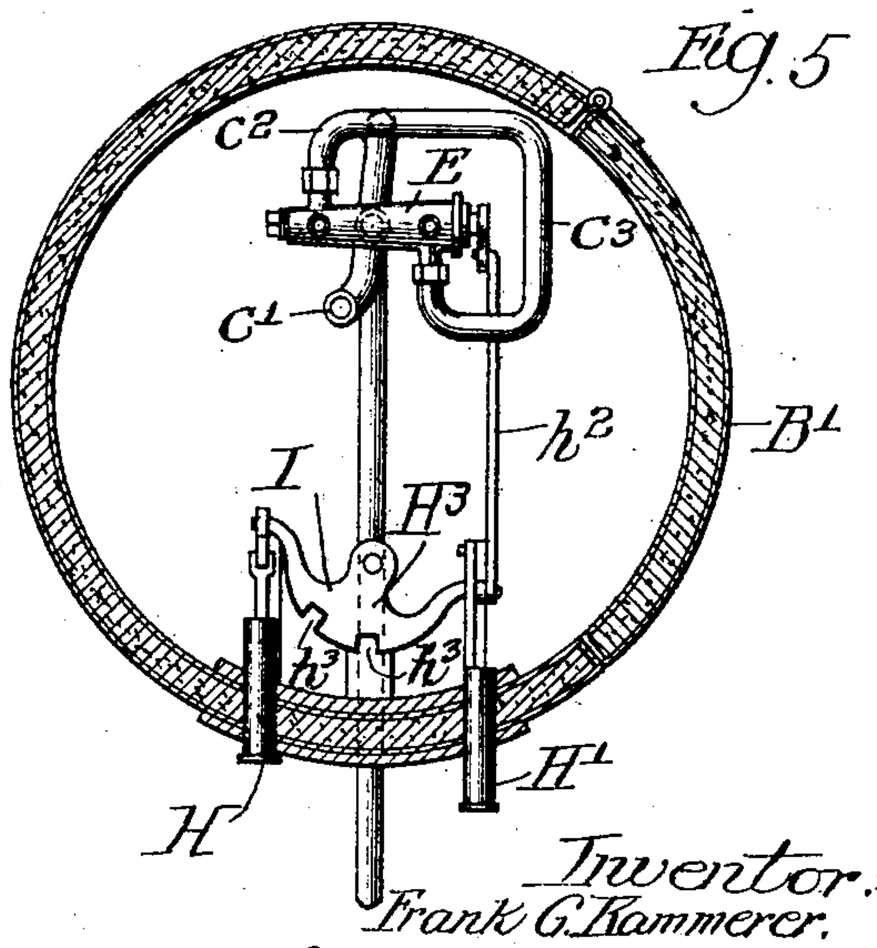


Fig. 5



Witnesses
H. G. Barnett
W. Hall

Inventor:
Frank G. Kammerer.
By Poole & Bruce his Attys

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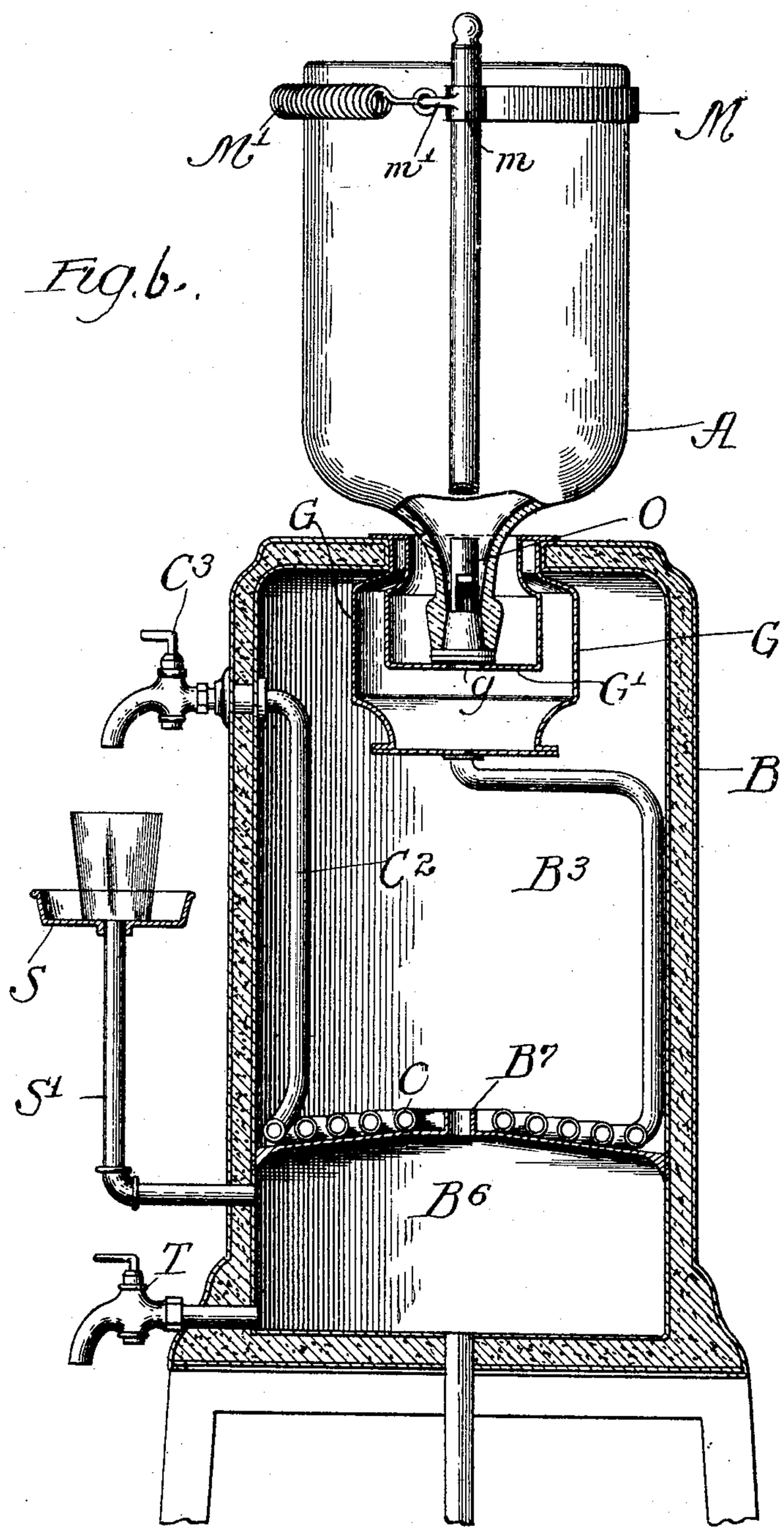
NO MODEL. 3 SHEETS—SHEET 3.

Fig. 6.



Witnesses:
H. G. Barnett
W. L. Hall.

Inventor
Frank G. Kammerer.

By Poole & Brown
his Attys

No. 774,986. Patented November 15, 1904.

UNITED STATES PATENT OFFICE.

FRANK G. KAMMERER, OF CHICAGO, ILLINOIS.

LIQUID-DISPENSING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 774,986, dated November 15, 1904.

Application filed November 9, 1903. Serial No. 180,312. (No model.)

To all whom it may concern:

Be it known that I, FRANK G. KAMMERER, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Liquid-Dispensing Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to an improved apparatus for dispensing beverages, and more especially to devices embracing a supply vessel or bottle in which is contained the water or other liquid, means for cooling the liquid before it is furnished to users, and means for supplying the liquid in measured quantities.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the accompanying drawings, illustrating my invention, Figure 1 is a sectional elevation of an apparatus embodying my invention, the section being taken in a vertical plane passing through the delivery-pipe of the apparatus. Fig. 2 is a like section taken on the section-line 2 2 of Fig. 1, but showing the liquid-supply bottle and parts immediately connected therewith in elevation. Fig. 3 is a top plan view of the apparatus. Fig. 4 is a detail plan section taken upon line 4 4 of Fig. 2. Fig. 5 is a like section taken upon line 5 5 of Fig. 2. Fig. 6 is a view corresponding generally with Fig. 1, but illustrating a liquid-dispensing device which is without any measuring attachment.

As shown in said drawings, A indicates a supply vessel or bottle which is made of glass or like material and is arranged in an inverted position at the top of the apparatus, and B indicates a refrigerator at the top of which the vessel A is supported and which contains a cooling-pipe C, through which the water is drawn before it is used. The refrigerator may be of any usual or preferred construction, but is, as herein shown, made cylindric in form and provided with a door B, through which ice may be inserted therein for the purpose of keeping cool the cooling-pipe located within the refrigerator.

The bottle A is removable or detachable from the apparatus and is such a bottle as is commonly used for shipping and storing mineral waters and the like, the bottle being detachable, so that renewal of the supply of liquid to the apparatus may be effected by merely substituting a filled bottle for an empty one.

As herein shown, the refrigerator is divided by a partition B^2 into two compartments, of which the upper one, B^3, constitutes the refrigerator proper and in which the cooling-pipe C is located and which contains the ice. The lower compartment B^4 is adapted to contain devices for controlling the delivery of the liquid from the apparatus. The said cooling-pipe C, as herein shown, is arranged in form of a flat coil which rests on the bottom of the refrigerating-chamber and constitutes a support for the ice. The bottom of said chamber is formed by the upper wall *b* of the two walls *b* and *b'*, which constitute said partition. D D' indicate two measuring cups or measures; E, a valve, by which the liquid is delivered to and discharged from said measuring cups, and F a discharge-pipe which leads from the valve E to the outside of the casing of the apparatus and there terminates in a downwardly-directed discharge-nozzle.

The cooling-pipe C has a rising part *c*, which is connected at its upper end with a receptacle G, into which the liquid is discharged from the bottle A. Said coil C is provided with a descending part *c'*, which passes downwardly through the partition B^2 and is connected with the valve E by branch pipes c^2 c^3, as clearly seen in Fig. 5. The said valve E embraces a valve-casing containing a rotative valve-plug and provided with two sets of ports or passages through which the entrance of liquid to and its discharge from the two measuring-cups D D' is controlled, the branch supply-pipe c^2 leading to the ports connected with the cup D' and the supply-passage c^3 with the ports or passages connected with the cup D. The valve E is constructed in a manner heretofore well known and is not herein illustrated in detail in the accompanying drawings.

Devices in the chamber B^4 for actuating or operating the valve E consist of two push-buttons H H′, which protrude through the front part of the casing and the inner ends of which are connected with two levers *h h′*, which are pivoted at their lower ends, so that they swing in vertical planes, and the upper ends of which are connected with a centrally-pivoted oscillatory yoke-plate H^3. One of the said levers, *h*, is connected at its upper end by a connecting-rod h^2 with the actuating-arm *e* of the valve E. These parts are so arranged that when one push-button is thrust inwardly the yoke-plate will be rocked on its pivot, so as to carry the other push-button outwardly and at the same time turn the valve to one limit of its movement and bring the valve-ports into position to discharge the contents of one of the measuring-cups. The yoke-plate H^3 is shown as provided with two notches h^3 h^3, which may be engaged with the locking-detent of a coin-actuated locking mechanism in case such mechanism be used in connection with the device to form a liquid-vending machine or apparatus.

The wall *b*, which constitutes the bottom of the refrigerator-chamber B^3, is made flat or level, and the coil C′, which rests thereon, may in the absence of any other support itself form a supporting-surface for the ice. The refrigerating-chamber is provided with an overflow-pipe J, the upper end of which is located somewhat above the level of the bottom of the chamber and above the level of the coil C′, so that water from the melting ice will accumulate in the chamber above the coil, and the latter will be constantly immersed in the cold water from the melting ice.

In the partition B^2 is formed a well B^5, which extends below the level of the bottom wall *b* of the refrigerating-chamber and in which the measuring-cups D D′ are located. Said well B^5 being always filled with water from the melting ice, the cups are constantly immersed therein, and the contents thereof is always kept cool, while at the same time the cups are out of the way of the ice within the refrigerating-chamber. Moreover, the coil C′ being flat and resting on the top surface of the bottom wall *b* extends over the top of the well B^5 and over the measuring-cups D D′, located therein, so that said cups while within the refrigerating-chamber are below and out of the way of the said coil.

K K′ are vent or air pipes which are connected with the measuring-cups D D′ and rise through the refrigerating-chamber to the top of the casing, where they are connected with two hollow or tubular standards L L′, which rise from the top of the casing and serve to support or hold in place the upper part of the bottle A, said standards being open at their upper ends, so as to afford free communication between the external air and the tops of the measuring-cups. The air-passages formed by the pipes K K′ and hollow standards L L′ are required in order to enable the liquid to flow freely from said measuring-cups. The hollow standards L L′ are shown as provided at their upper ends with perforated caps or knobs *l l′*.

The receptacle G is supported from the top wall of the casing B and depends within the upper part of the refrigerating-chamber. Within said receptacle G is located a cup G′, which is open at its top and extends downwardly within the upper part of said receptacle, said cup being adapted to receive the neck of the bottle A when the same is in an inverted position over the casing. Said cup G′ is provided in its bottom with an inlet-aperture *g*, through which liquid passes from the bottle to the receptacle G. Said bottle when in position for the discharge of liquid therefrom rests on the bottom of the cup G′, while its upper portion is held in place by suitable connections with the standards L L′.

The drawings illustrate an improved construction in means for holding in position the upper part of the bottle placed between the standards, the same embracing, in general terms, a band which is connected with the standards and extends around the bottle, a a part of which between two of the standards is flexible or elastic, so that it may be stretched around the bottle after the same is in place. In the particular construction shown the bottle-supporting device consists of a metal strip M, which is attached at its ends to collars *m* on the standards and extends around one side of the bottle, the same being curved in semicircular shape to fit the form of the bottle, together with a spirally-coiled spring M′, the ends of which are loosely connected to lugs *m′* on the collars *m*, to which the ends of the strip M are also attached. The device embracing the strip M and the spring M′ enables the bottle to be conveniently put in place, it being obvious that the said spring M′ may be lifted and swung backwardly before the neck of the bottle is placed within the cup G′ and that after the neck has been placed within the cup and the bottle swung backwardly with its upper part in contact with the strap M the spring M′ may be then distended and carried over the forward part of the bottle, when by its contraction it will hold the bottle firmly in place.

Now referring to the receptacle G and cup G′, said receptacle and cup are so made as to constitute between the upper parts of the cup and receptacle an annular air-chamber located above the inlet-aperture *g*, as indicated in the drawings by G^2. Said air-chamber is closed at its top by a plate *g′*, which connects the upper margin of the cup G′ with the upper margin of the receptacle G.

The advantage gained by the employment of an air-chamber, whether said air-chamber be formed between the walls of an annular re-

ceptacle G and an annular cup G′ or by some other construction in these parts, is that as the liquid flows downwardly from the bottle into the receptacle through the aperture *g* the air which is confined or trapped within the air-chamber G^2 will be placed under compression corresponding with the head of liquid within the bottle, and such air-pressure acting upon the liquid within the receptacle and the cooling-pipe C connected therewith will insure a prompt flow of liquid through the cooling-pipe to the measuring-cups. The above may be better understood by consideration of the fact that downward flow of liquid from the bottle to the receptacle G may not be uniform, but may fluctuate to greater or less extent as the external air-pressure forces the air-bubbles into the bottle to take the place of the descending or outflowing liquid, which passes therefrom to the said cup G, and that the air-pressure in the said air-chamber G^2 gives a practically constant pressure on the liquid within the pipe C notwithstanding such fluctuation in the flow of liquid from the bottle. It will of course be understood that as the liquid flows from the bottle air enters the bottle through the open upper end of the cup G′ and between the bottom surface of the cup and the neck of the bottle.

While the device will be operative if the bottle A be without any stopper or valve at its orifice and is merely placed in an inverted position, with its mouth resting on the bottom of the cup G′, provided that there be such irregularity in the contact-surfaces of the bottom of the cup and the neck of the bottle as to permit the inflow of air to the bottle as the liquid descends, but to prevent water being spilled from the bottle when it is inverted preparatory to placing its neck within the cup G′, a closure may be used having a spring-actuated valve—such, for instance, as is shown in my pending application for United States Letters Patent, Serial No. 200,620, filed March 29, 1904, and which is a division of this application—or of any other desired or preferred form.

The casing B, as clearly shown in Figs. 1 and 2, is provided in its bottom or base below the chamber B^5 with a receptacle J′ for waste water, with which the lower end of the waste-pipe J from the refrigerating-chamber is connected. The casing is also shown as provided below the exit end of the delivery-pipe with a drinking-cup support J^2, which is supported by a drain-pipe J^3, that leads through the base to the receptacle J′. Said receptacle is shown as provided with a waste-pipe J^4, which may lead therefrom to a house drain-pipe or sewer.

Fig. 6 illustrates a liquid-dispensing apparatus which is like that shown in the preceding figures, with the exception that the devices for delivering the liquid in measured quantities is omitted. In this instance the cooling-pipe C is arranged in the same manner as before described; but it terminates in an upwardly-extending part C^2, which rises on the inside of the refrigerating-chamber, passes through the upper part of the side wall of the same, and is connected with a faucet C^3, attached to said side wall. The casing C in this instance is provided in its lower part below the refrigerating-chamber B^3 with a receptacle B^6 for receiving overflow water from the refrigerating-chamber, which latter is provided with an overflow-pipe B^7. In this instance, moreover, the casing is provided with a drinking-cup support S, which is upheld by a drain-pipe S′, which discharges into the receptacle B^6. Said receptacle is shown as provided with a faucet T, by which the waste water may be drawn therefrom.

So far as the principal features of the invention are concerned the employment of a cooling-pipe within the refrigerator made in the form of a coil, as shown, is not essential, and in carrying out my invention a vessel or receptacle for the water to be cooled, located in the refrigerator and having other shape than a coil, may obviously be used.

I claim as my invention—

1. A liquid-dispensing apparatus embracing a refrigerating-chamber the bottom of which is provided with a well, a support for ice resting on the said bottom and extending over the well, and measuring-cups located in said well.

2. A liquid-dispensing apparatus embracing a refrigerating-chamber the bottom of which is provided with a well, a support for ice resting on the bottom and extending over the well, measuring-cups located in said well, and a pipe which extends through the said chamber and is adapted to connect a supply vessel with said measuring-cups.

3. A liquid-dispensing apparatus embracing a refrigerating-chamber provided in its bottom with a well, a cooling-pipe having the form of a flat coil resting on the bottom of said chamber, and measuring-cups located in said well below the level of said coil.

4. A liquid-dispensing apparatus embracing a casing having a refrigerating-chamber in its upper part and a compartment beneath the same, the bottom wall of said refrigerating-chamber being provided with a well, measuring-cups located in said well, a valve in the lower compartment for controlling the flow of water to and from said cups, a cooling-pipe in the refrigerating-chamber connected with the said valve, and a discharge-pipe connected with the valve.

5. A liquid-dispensing apparatus embracing a casing having a refrigerating-chamber in its upper part and a compartment beneath the same, the bottom of said refrigerating-chamber having a well, measuring-cups in said well, a valve in the lower compartment for controlling the flow of water to and from

the said cups, a cooling-pipe consisting of a coil which rests on the bottom of the refrigerating-chamber and is connected with the said valve, and a discharge-pipe connected with the valve.

6. A device for dispensing liquids from an inverted bottle comprising a receptacle provided with an interior cup which extends downwardly into the receptacle, said cup having in its bottom an inlet-aperture and the receptacle and cup together forming an air-chamber above the level of the said inlet-aperture, and a liquid-discharge pipe leading from the lower part of said receptacle.

7. A device for dispensing liquids from an inverted bottle comprising a receptacle provided with an interior cup which extends downwardly into the receptacle, said cup having in its bottom an inlet-aperture and the receptacle and cup together forming an air-chamber above the level of the said inlet-aperture, a liquid-discharge pipe leading from the lower part of said receptacle, measuring-cups, and a valve connecting said discharge-pipe with the said cups.

8. A liquid-dispensing apparatus comprising a liquid-supply bottle, a pipe through which the liquid is discharged from the bottle, a receptacle with which said pipe is connected, and a cup which extends downwardly into said receptacle and is provided with an inlet-opening adapted to coincide with the discharge-orifice of the bottle, the said receptacle and cup being adapted to form an air-space above the level of the inlet-opening in the bottom of the cup.

9. A liquid-dispensing apparatus embracing a casing containing a refrigerating-chamber, a liquid-receptacle located at the top of the refrigerating-chamber and provided with a cup which extends downwardly into the said receptacle, said cup having an inlet-aperture in its bottom and the receptacle and cup forming an air-chamber above the level of said inlet-aperture, a pipe extending from said receptacle downwardly through the refrigerating-chamber, measuring-cups in the refrigerating-chamber, a valve and valve-operating means located in the casing below the refrigerating-chamber, and a discharge-pipe leading from the said valve and discharging outside of the casing.

10. A liquid-dispensing apparatus embracing a casing containing a refrigerating-chamber, a receptacle provided with a cup which extends downwardly into the said receptacle, said cup having an inlet-aperture in its bottom and the receptacle and cup forming an air-chamber above the level of said inlet-aperture, a cooling-pipe extending from said receptacle downwardly through the refrigerating-chamber and provided with a flat coil which rests on the bottom of said chamber, measuring-cups in the refrigerating-chamber, a valve and valve-operating means located in the casing below the refrigerating-chamber, and a discharge-pipe leading from the said valve and discharging outside of the casing.

11. A liquid-dispensing apparatus embracing a casing, supporting means for an inverted bottle embracing two standards which rise from the top of the casing, measuring-cups in the casing and air-pipes leading from said measuring-cups, said pipes being connected with said standards, which latter are tubular and form upward extensions of said air-pipes.

12. A liquid-dispensing apparatus embracing a casing containing a refrigerating-chamber, supporting means for an inverted bottle embracing two standards which rise from the top of the casing, measuring-cups in the lower part of the refrigerating-chamber, a cooling-pipe leading from the bottle through the refrigerating-chamber to the measuring-cups, and air-pipes leading upwardly from said measuring-cups, said pipes being connected with said standards, which latter are tubular and form upward extensions of said air-pipes.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 30th day of October, A. D. 1903.

FRANK G. KAMMERER.

Witnesses:

C. CLARENCE POOLE,

GERTRUDE BRYCE.