Dec. 7, 1937. W. G. KOERBER 2,101,029

APPARATUS FOR PREVENTING BEER SETTLING

Filed Nov. 21, 1935

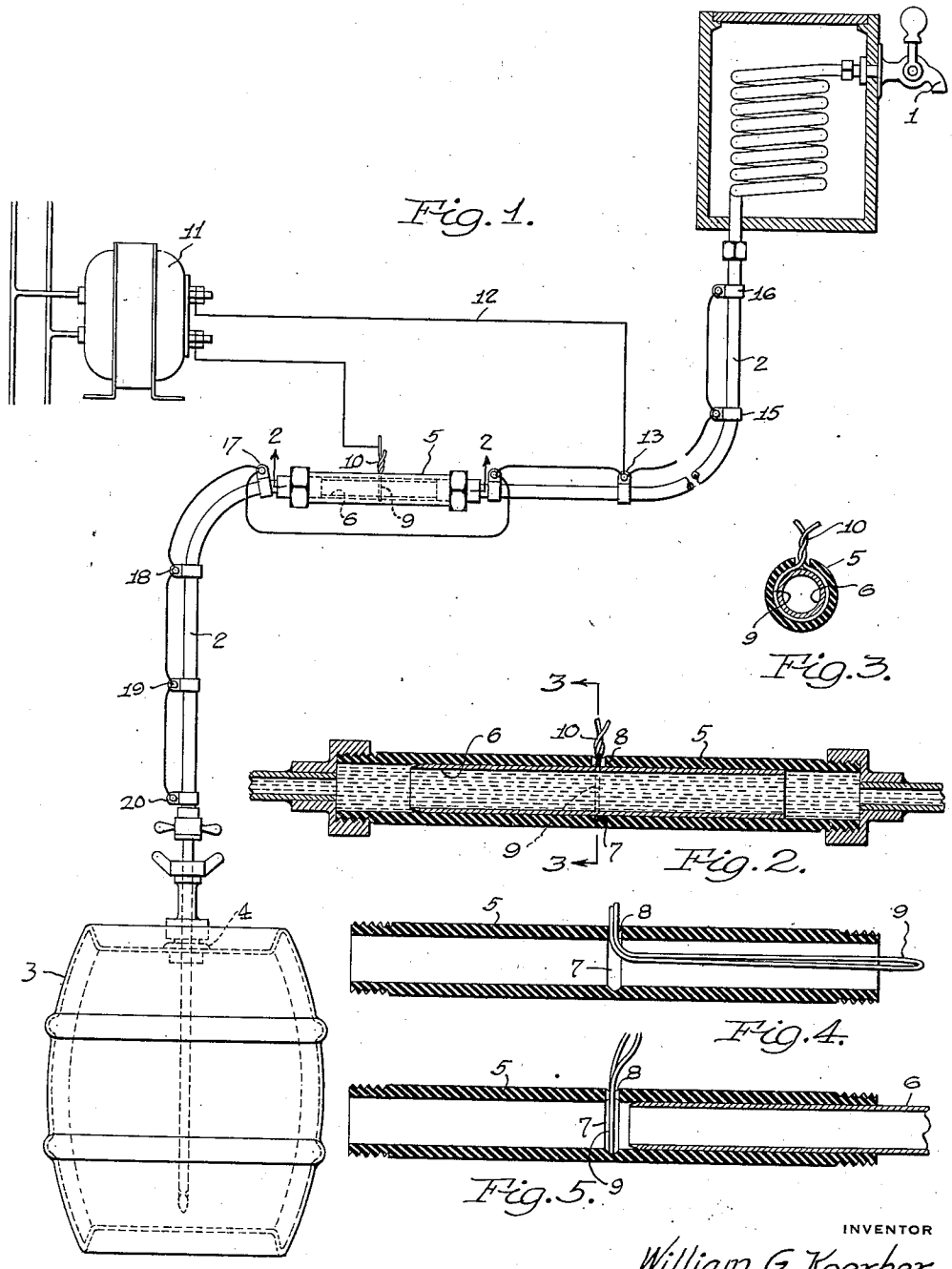


Fig. 1.

Fig. 3.

Fig. 2.

Fig. 4.

Fig. 5.

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Patented Dec. 7, 1937 2,101,029

UNITED STATES PATENT OFFICE

2,101,029

APPARATUS FOR PREVENTING BEER SETTLING

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Application November 21, 1935, Serial No. 50,823

7 Claims. (Cl. 204—26)

This invention relates to apparatus for drawing beer from a keg or other retainer and has for its object to provide means for improving the quality of beer available at the outlet thereof.

When draft beer is stored at some distance from the faucet it is well known that the pipes spanning the distance, known as the "coil", become coated interiorly with a sediment. In other words, heavy particles settle out of the beer and deposit themselves on the walls of the coil. These particles soon impart a sour taste to the beer passing therethrough. It is common practice to disconnect the coil and to clean it about once a week but it can be readily understood that the quality of the beer becomes progressively adulterated from the day the coil is cleaned until the next cleaning and that the sour taste becomes progressively worse during that period.

The principal object of this invention is to provide a coil apparatus such that the inside of the coil will be continuously clean for an indefinite period of time, thereby preserving the taste and quality of the beer until it reaches the customer.

A specific object of my invention is to provide a source of electric power and to connect this source of power to the coil in such manner that heavy particles will not adhere thereto but will pass therethrough. Other objects and advantages will become hereinafter more fully apparent as reference is had to the accompanying drawing wherein my invention is illustrated and in which—

Figure 1 is a diagrammatic illustration of my improved dispensing equipment;

Fig. 2 is a section longitudinally through a pipe section taken along the line 2—2 of Fig. 1;

Fig. 3 is a transverse section taken along the line 3—3 of Fig. 2, and

Figs. 4 and 5 are sections showing the method of installing a conductor in the pipe section as shown in Figs. 2 and 3.

1 indicates a spigot attached to a coil 2 connected into a keg or container 3 for beer by an insulating connection 4. The coil 2 is generally made of metal known as "block tin" which is a conductor of electricity. Interposed in this coil 2 at some suitable point is a coil section 5 of fiber, hard rubber or other nonconductive material. Within this section 5 is a metallic conductor sleeve 6 preferably made of silver. The section 5 has an internal groove 7 and an opening 8 through the wall so that a wire loop 9 may be inserted into the tube as shown in Figs. 4 and 5. The sleeve 6 which closely fits the interior of the section 5 is forced into the section through the loop 9. The ends of the loop are then twisted at 10 and connected to a lead line from a low voltage generator 11. The other lead line 12 is connected to the conductive sections of the coil 2 at 13. The coil 2 may be of very considerable length in which case I recommend that the line 12 be connected to the coil 2 at a plurality of points 15, 16, 17, 18, 19, 20 because the coil material is rather a poor conductor.

The generator 11 is suitably connected to a suitable source of alternating current. With the arrangement as indicated there is no sediment anywhere in the coil 2 and this is true of that portion of the coil externally of that length between the connections 16 and 20.

As will be understood, the arrangement of the flow-path for the beer presents a number of characteristics. For instance, structurally, the line which carries the flow-path is made up of a succession of tubular sections which are insulated from each other, the insulation being provided by the non-metallic section 5; thus the flow path is uninterrupted. While section 5 is of insulating material, it carries the internal tubular terminal, the ends of which are spaced from the ends of the section, so that while the terminal is of extended length, it does not extend to a point where it could be considered as a continuation of the sections 2 in providing a current flow-path; in other words, the sections are not only insulated from each other structurally, but are also insulated from each other electrically, but with each section capable of being operatively connected with a source of electrical energy. Since one side of the electrical circuit is connected to the insulated section 5, with the other side connected to the adjacent sections 2—thus providing conditions of opposite polarity as between the insulated section and the adjacent sections—it can be understood that when the flow-path is empty the circuit is necessarily broken. Hence, the circuit is and must be completed by the content of the flow-path.

These conditions provide certain definite characteristics. The line itself, although providing a continuous flow-path, is zonal in type, especially electrically, with the zones insulated from each other. In the zones, considered individually, there is no circuit characteristic transversely of the flow path, and yet, in each zone there is a tubular terminal characteristic of extended length and which must be traversed by the flowing content. Consequently, the completion of the electrical circuit must be provided in the

direction of length of the flow-path instead of transversely of such path. And since the polarity of the intermediate zone **5** differs from that of the adjacent zones **2**, it can be understood that the direction of flow of the current through the path content is in one direction during flow to the intermediate zone **5** and in the reverse direction after leaving such zone, with this action taking place on a content which flows in but one direction.

We thus have the conditions that the content when passing through the first of the sections **2**, is being subjected to the action of current flowing in the same general direction (if of direct current type) with the current flow in the opposite direction when in the second zone **2**; if of alternating current type, the fact that both zones **2** are of the same phase, provides a similar effect for each of the alternations. And since the current flow must pass within the content itself to complete the circuit, and the terminals are themselves of extended length, it is evident that throughout the combined length of the successive sections there is current flow through the content although it may vary as to value as the distance between points on the terminals varies.

There is thus present the condition that the content is flowing through a zone in which the polarity of the current is opposite that of the succeeding zone, and that the conditions do not change while within the zone. Then follows the flow through the zone **5** where the opposite polarity characteristic is present, and then through the second zone **2** in which the original polarity status is present, but with the flow of current in the reverse direction. As a result the content of the flow-path is subjected to a succession of electrical activities which are individual to the zone but vary as between zones.

The effect of these activities on the content itself is found in the fact that it is unnecessary to provide the usual cleansing of coils that has been necessary with the usual coil structures, the content remaining constant as to flavor, etc., after extended periods of service. The detailed reasons for securing the result have not been definitely determined, but it is evident that the usual deposits that have been previously found, are no longer present when the present invention is in service, so that the usual settling of the content is prevented; whether it is by destroying sediment, or by simply preventing its deposit, or some other effect produced, has not been definitely determined.

What I claim is:—

1. The combination of a storage container for beer, a beer delivery means remote from said container, a tube connecting said container and said delivery means, said tube being composed of metallic sections with a non-metallic section interposed therebetween, an electric terminal internally of said non-metallic section in spaced relation with said metallic sections, and electric lines connected to a source of electrical energy, one of said lines being connected to said terminal, the other of said lines being connected to at least one of said metallic sections.

2. The combination of a storage container for beer, a beer delivery means remote from said container, a metallic tube having a non-metallic section interposed in its length, said tube connecting said delivery means and said container, an electrical conductor within said non-metallic section spaced from said metallic sections, and electric lines connected to a source of electrical energy, one of said lines being connected to said conductor, the other of said lead lines being connected to both of said metallic sections.

3. In beer dispensing apparatus, and in combination, a storage container, a dispensing means remote from said container, a coil connecting the container and said dispensing means, said coil including successive linear zones providing a continuous flow-path for the content through the coil but with one zone insulated from the adjacent zones with said zone carrying an internally-exposed electrode in insulated relation to the remaining zones of the coil, and means for connecting said coil to a source of electrical energy, the connections being operative to connect the electrode to one side of the electrical supply and with an adjacent zone of the coil operatively connected to the opposite side of the line.

4. Apparatus as in claim 3 characterized in that the connections for the zones before and after the electrode-carrying insulated zone are of the same polarity.

5. Apparatus as in claim 3 characterized in that the connections for the adjacent zones are at spaced points in the length of such zones but of similar polarity throughout the length of such zones.

6. As an article of manufacture, a beer coil composed of spaced linear metallic sections with a non-metallic linear section within the spacings of the metallic sections and completing the flow-path through the coil, electrical terminal means internally of the non-metallic section and insulated from the remaining sections, and means for connecting the circuit lines of a source of electrical energy to said sections, said means being arranged to operatively connect the metallic sections to one side of the line and the internal terminal of the non-metallic section to the opposite side of the line.

7. The method of preserving the cleanliness of the inside walls of a beer delivery line which consists in establishing a linear flow-path for the beer through the line with the flow path presenting successive and spaced linear zone characteristics, and subjecting the flowing beer to the action of a source of electrical energy while passing through the succession of zones with the energy of adjacent zones of opposite polarity.

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