

M. SROKA & L. KALISH.
BEER COIL CLEANING MACHINE.
APPLICATION FILED APR. 24, 1911.

1,049,163.

Patented Dec. 31, 1912.

3 SHEETS—SHEET 1.

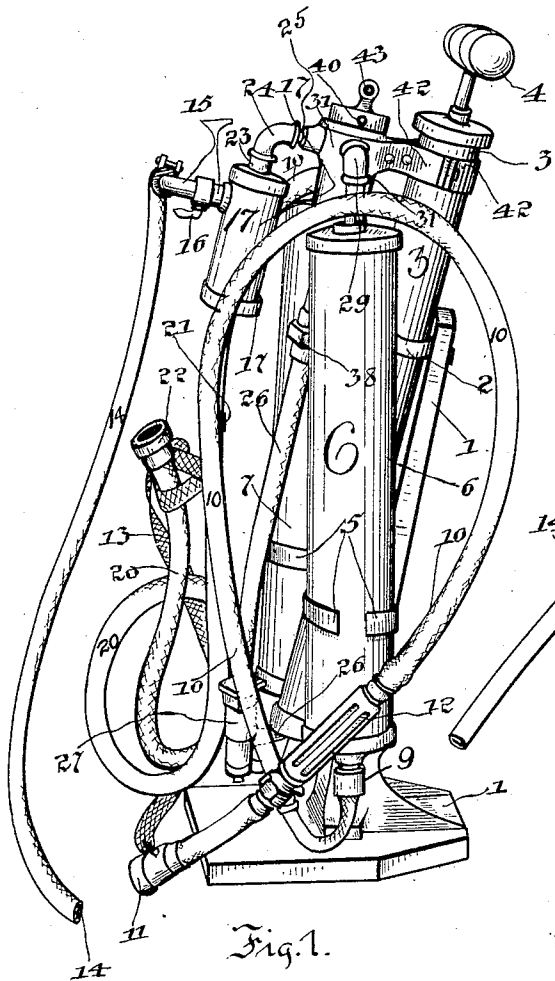


Fig. 1.

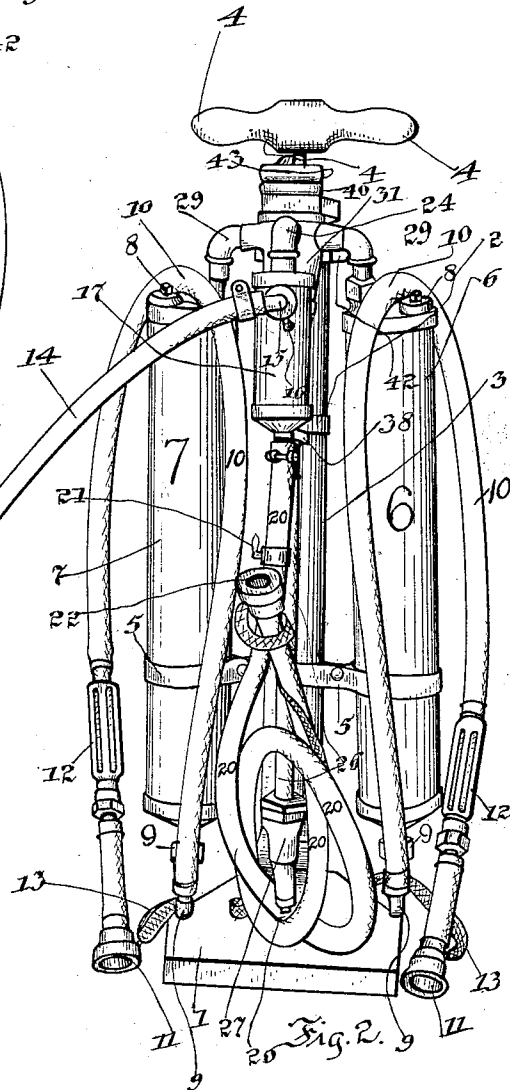


Fig. 2.

Witnesses
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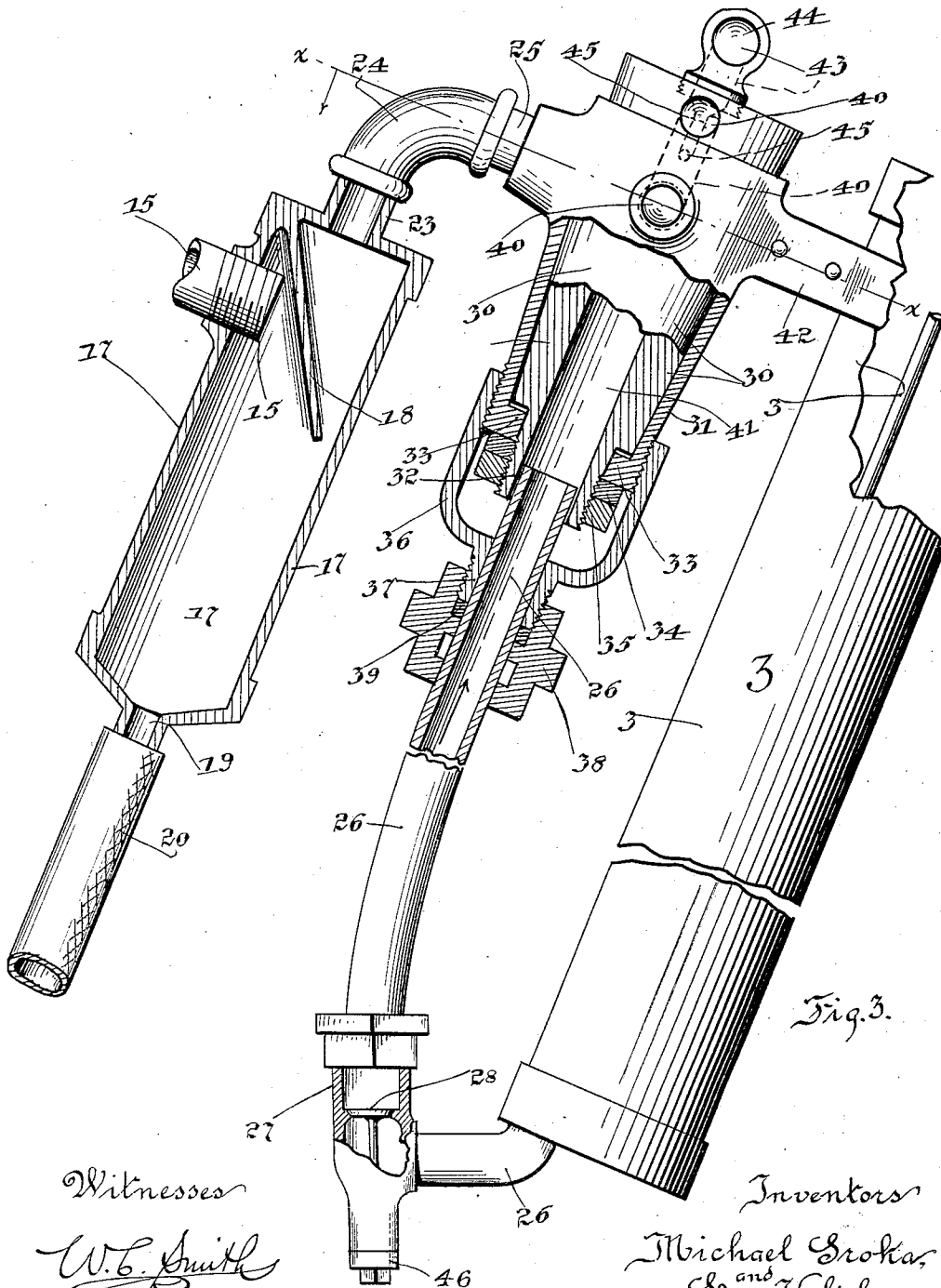


Fig. 3.

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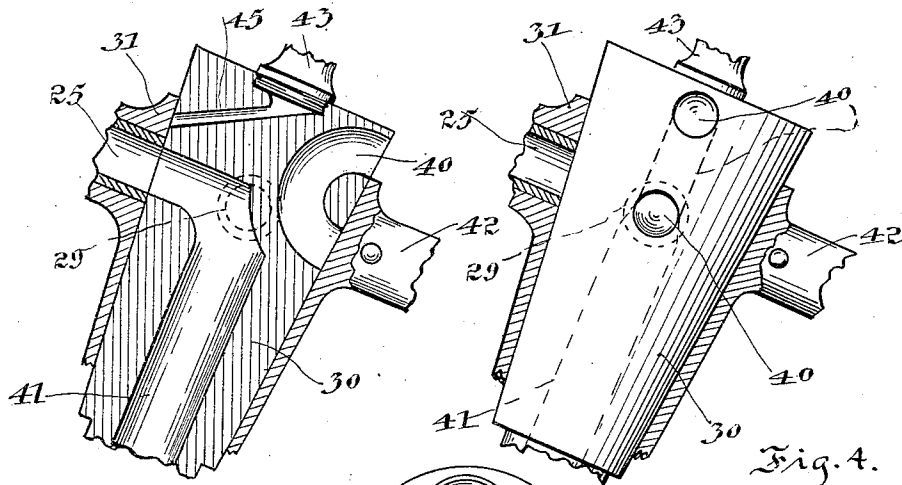


Fig. 5.

Fig. 4.

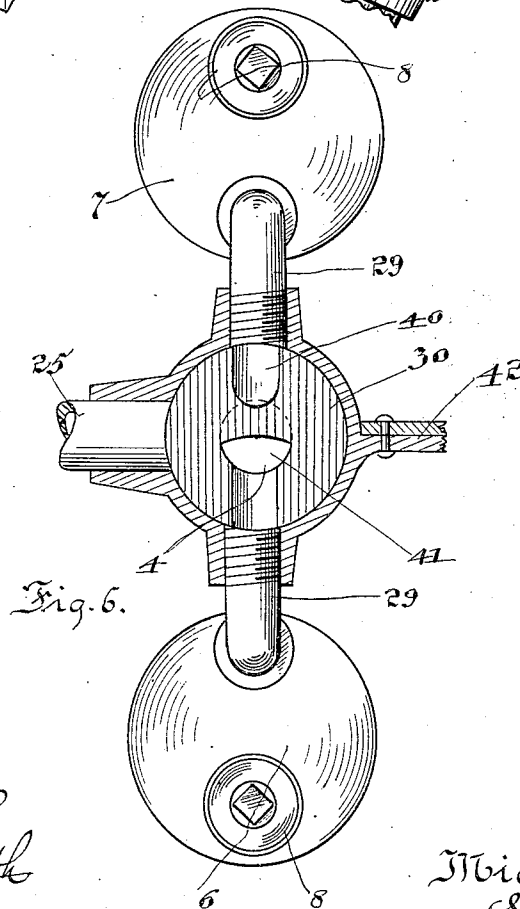


Fig. 6.

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UNITED STATES PATENT OFFICE.

MICHAEL SROKA AND LEO KALISH, OF CHICAGO, ILLINOIS.

BEER-COIL-CLEANING MACHINE.

1,049,163.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed April 24, 1911. Serial No. 623,103.

To all whom it may concern:

Be it known that we, MICHAEL SROKA and LEO KALISH, citizens of the United States, and residents of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Beer-Coil-Cleaning Machines, of which the following is a specification.

Our invention relates to improvements in beer coil cleaning apparatus or machines and has for its object the provision of a durable machine of this character which may be readily connected up with the coil of a beer pipe and which when so connected may be operated so as to force a cleansing compound through the coil.

A further object of our invention is to provide a beer coil cleaning machine of such construction that the cleaning fluid and water may be forced alternately first in one direction and then in the other through the beer pipes, thereby facilitating the removal of sediment accumulated in the pipes which if not removed clogs or interferes with the flow of beer and renders the same unsanitary and impure.

Other objects will appear hereinafter.

With these objects in view our invention consists in a beer coil cleaning apparatus or machine as above mentioned and in certain details of construction and arrangements of parts as will be hereinafter fully described and more particularly pointed out in the appended claims.

Our invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figures 1 and 2 are perspective views of a beer coil cleaning machine embodying our invention, Fig. 3 is an enlarged view showing a portion of an air-pump in elevation and other operative parts of the machine in section, Fig. 4 is a detail view showing one position of a three-way valve employed in the machine, Fig. 5 is a detail sectional view showing another position of said three-way valve, and Fig. 6 is a partial top plan view and section taken on line $x-x$ of Fig. 3.

The preferred form of construction of our invention as illustrated in the accompanying drawings comprises a pedestal or base 1 to which is rigidly secured by means of a band 2 an air-pump 3 having an operating handle 4. Arranged on either side of the air-pump 3 and connected rigidly thereto

by means of bands 5 are cylindrical reservoirs 6 and 7 adapted to contain a chemical cleaning compound or solution which is introduced thereinto through openings closed by screw filler plugs 8. The lower ends of the reservoirs 6 and 7 are provided with hose pipe couplings 9 from which extend hose pipes 10 which terminate in beer faucet couplings 11, there being sight tube sections 12 provided in said hose pipes by means of which the direction of flow of fluid there-through is readily determined. Straps or tapes 13 are provided on the couplings 11 for facilitating the connections thereof with the dispensing beer faucets, the manner in which these straps are fastened being readily understood by those familiar with machines of this character.

A hose pipe 14 is provided for supplying water to the apparatus, the free end of the same being readily attached to any water faucet. The hose pipe 14 is coupled to a pipe 15 in which is inserted a valve 16 for controlling the flow of water. The pipe 15 is screwed into a cylindrical chamber 17 in which is provided an inclined deflector plate 18 arranged in front of the inner terminal of the pipe 15, whereby fluid flowing into said chamber through the pipe 15 will be deflected downwardly toward a pipe connection 19 formed in the lower end of the chamber 17. A pipe 20 is attached to the pipe connection 19 and is provided with a shut-off cock 21. The free end of the pipe 20 is provided with a coupling 22 for connection with the dispensing beer faucets. Arranged coaxially with the chamber 17 and extending upwardly therefrom is a tubular end 23, there being an elbow 24 which connects said tubular end with a pipe 25 leading into the three-way valve of the machine.

The three-way valve is arranged intermediate the chemical reservoirs 6 and 7 and is connected to the air pump 3 by means of a pipe 26 having a check-valve chamber 27 inserted therein. The check-valve 28 seated in the chamber 27 is arranged to operate in such a manner as to prevent a return flow of air to the air-pump 3 through the pipe 26 from the three-way valve. The reservoirs 6 and 7 are connected to the three-way valve by means of elbows 29, said elbows being disposed diametrically opposite with relation to said three-way valve. The three-way valve comprises a tapered plug 30 which is fitted into the valve casing 31 as

clearly illustrated in Fig. 3. In order to adjust the plug 30 in the casing 31 for taking up wear between these two elements a reduced threaded extension 32 is provided in the lower end of the plug 30, said extension passing through an inwardly extending circumferential flange 33 formed at the lower end of the casing 31. A bearing washer 34 of suitable yieldable material is screwed onto the reduced extension 32 in such a manner as to abut the lower end of the casing 31, there being a lock-nut 35 which is screwed against the washer 34 to render the adjustment thereof secure. A bell shaped support 36 is provided for the reception of the casing 31 and the same terminates at its lower end in a reduced threaded extension 37 for the reception of a packing nut 38, the latter carrying suitable compressible packing 39 as illustrated in Fig. 3. This construction of the three-way valve is strong and durable and consequently the valve cannot readily be put out of commission.

The details of the three-way valve and the three operative positions thereof are shown in Figs. 4, 5 and 6, the position shown in Fig. 4 being necessary to establish a communication between the reservoir 7 and the air-pump 3 and to provide an opening to atmosphere for the reservoir 6, the curved passage-way 40 provided in the plug 30 serving to establish said opening to atmosphere. In the position shown in Fig. 5 the cylindrical bore 41 of the plug 30 is arranged in communication with the pipe 25 by means of which compressed air from the pipe 3 enters the chamber 17. In Fig. 6 the plug 30 is shown in a position at an angle of one hundred and eighty degrees from that shown in Fig. 4, thus cutting off the communication of the elbow 29 of the reservoir 7 with the air-pump 3 and establishing such communication with the elbow 29 leading from the reservoir 6.

The casing 31 of the three-way valve is reinforced by connecting members 42 which surround the cylindrical air-pump as shown in Fig. 1. Into the top end of the plug 30 is screwed an axially disposed plug 43 having a radial opening 44 for the reception of an operating rod (not shown) which is inserted in said opening for turning the valve whenever desired. To alleviate friction between the exterior surfaces of the plug 30 and the interior surfaces of the casing 31 an oil lead 45 may extend downwardly and radially from the plug 43 for conducting lubricating oil to said surfaces. This oiling device may however be omitted, it not being an essential part of the machine.

The mode of operation of the machine is as follows: Assuming that the beer coils and pipes leading to the two beer dispensing faucets or taps to which the machine is

to be connected are detached from their respective beer packages or barrels and properly connected together for free circulation of the cleaning compound therethrough; then the couplings 11 are attached to said faucets and rigidly reinforced by the tie straps 13. One of the chemical reservoirs is now partially filled with the cleaning solution, a filler plug 8 being removed for this purpose. Supposing that the reservoir 6 is partially filled with the cleaning solution then the filler plug 8 thereof is screwed into position after the filling process. The three-way valve plug 30 is now turned to the position as shown in Fig. 6, in which position the bore 41 of said plug is in communication with the reservoir 6. The air-pump 3 is now manipulated by the operator which causes compressed air to be forced past the check-valve 28 and into the reservoir 6. The chemical solution now in the reservoir 6 is forced into the pipe 10 connected with the reservoir and thence through the coupling 11 into the beer faucet to which said coupling is connected. The cleaning solution is forced through the beer pipes and coils by the pneumatic pressure produced by the air-pump, the air ahead of the solution being forced through the coils and pipe 10 connected with the reservoir 7 and thence through an elbow 29 into the three-way valve where it escapes to atmosphere through the curved passage-way 40. The cleaning solution follows the air above described and when it has passed through the beer pipes and into the pipe 10 connected with the reservoir 7 it is detected by close observance of the sight tube 12 provided in said pipe 10. The pumping operation is now stopped for if it were continued the cleaning solution would follow the air in pipe 10 and reservoir 7 and escape through the curved passage-way 40 in the three-way valve the same as the air preceding it. In this operation the air first forces the solution downwardly through the first coil and upwardly into the second coil. When substantially all of the solution is thus passed upwardly in the second coil, the air tends to bubble upwardly through the solution to some extent and thus forms a foam or lather which assists the action of the solution besides thoroughly aerating the coils. However, the coil pipe has a comparatively small bore so that sufficient air to destroy the pressure behind the solution cannot thus escape and the solution, nevertheless, will be forced upwardly through the second coil. It has been found that the efficiency of the cleaning operation is enhanced by passing the solution through the pipes first in one direction then in the other, the sediment or lodged particles which accumulate in the pipes being in this manner more easily loosened. In order to accom-

plish this return movement of the solution through the pipes it is only necessary to turn the three-way valve plug 30 a half a revolution whereupon the reservoir 7 comes into communication with the bore 41 and hence the air-pump 3. It is seen that the reservoir 6 will now perform the same function as the reservoir 7 did in the preceding operation, namely to direct air forced through the pipes to the curved passage-way 40 and thence to atmosphere. The air-pump 3 is again worked until the cleaning solution is seen to enter the pipe 10 connected with the reservoir 6 whereupon the pumping is stopped. If desired, the first operation may be repeated, and we usually do repeat the operation a number of times, but if the pipes are deemed to be sufficiently cleaned the cleaning solution is removed from the system, and the coils thoroughly flushed and rinsed.

The important operation of flushing and rinsing the coils is accomplished in the following manner: The three-way valve plug 30 is turned in such a position that water may not enter the tube 26 from the pipe 25. The pipe 14 is attached to a water supply faucet. The couplings 11 are now withdrawn from the beer faucets and the coupling 22 is applied and screwed to one of the faucets, both faucets being open. The water faucet and the cock 16 in the water supply pipe 15 now being opened water enters the chamber 17 under the pressure within the water supply system. The valve 21 is also opened and thus water passes through the pipe 20 and coupling 22 into one of the beer coils. It is to be understood that the two coils which are simultaneously being cleaned are still joined by the temporary connection hereinbefore referred to. The water pressure being sufficient the two coils are filled with water and some of the impurities loosened by the motion and dissolving properties of the cleansing fluid issued from the other beer dispensing faucet with the water coming therefrom. The amount of impurities thus flushed from the coils, however, is comparatively insignificant and in order that the coils may be thoroughly cleaned it is necessary to apply pressure, which, in our improved device, is supplied by the air pump 3. Before beginning the operation of the air pump the supply of water is entirely cut off at the valve 16 and the three-way valve is turned in the direction shown in Fig. 5. It will now readily be seen that by pumping air into the pipe 26 and thence into the pipe 25 through the three-way valve the water in the chamber 17 will be forced, together with that in the coils, onward through the coils and eventually issue from the free beer dispensing faucet hereinabove referred to. The pressure supplied by the air pump causes the

water in the oils to move with a strong current and large quantities of the sediment and loosened impurities are thrown out. We have found, however, that the pipes cannot be thoroughly cleaned with one charge of pure water and accordingly this flushing operation is repeated several times and until the water issuing from the faucet is seen to be pure and clean. We preferably change the direction of the flushing current from time to time, merely attaching the coupling 22 to the other beer faucet for this purpose. We sometimes also prefer to disconnect the two coils being operated upon and flush each of them separately by attaching the coupling 22 to each of the two beer faucets in turn. Should the pipe 26 be found to contain water, by any chance, the same is easily removed by unscrewing the cap 46 and slightly raising the check valve disk 28.

A beer coil cleaning machine of the construction set forth is easy of manipulation and due to its lightness and compactness is readily transported from place to place.

While we have illustrated and described the preferred form for carrying our invention into effect, this is capable of variation and modification without departing from the spirit of the invention. We therefore do not wish to be limited to the precise details of construction set forth, but desire to avail ourselves of such variations and modifications as come within the scope of the appended claims.

Having described our invention what we claim as new and desire to secure by Letters Patent is:

1. The combination of a rotatable valve plug having a bore opening at one end and one side of said plug; a passage in said plug having one end opening at one side of said plug in the same plane of rotation as and diametrically opposite to the side opening of said bore and its other end communicating with the atmosphere; and a valve casing having two ports in the same plane of rotation, said ports being diametrically opposite each other and in positions to register with the diametrically opposite openings in said valve plug, substantially as described.

2. The combination of a rotatable valve plug having a bore opening at one end and at one side of said plug; a passage in said plug having one end opening at one side of said plug in the same plane of rotation as and diametrically opposite to the side opening of said bore and its other end communicating with the atmosphere; and a valve casing having three ports in the same plane of rotation, two of said ports being diametrically opposite each other in positions to register with the diametrically opposite openings in said valve plug and the third situated between these two in the same lateral plane.

3. The combination of a rotatable valve plug having a port opening at one end and at one side of said plug; a passage in said plug having one end opening at one side of said plug in the same plane of rotation as and diametrically opposite to the side opening of said bore and its other end communicating with the atmosphere; a valve casing having three ports in the same plane of rotation, two of said ports being diametrically opposite each other and in positions to register with the diametrically opposite openings in said valve plug and the third situated between these two in the same lateral plane; and a passage connecting the two diametrically opposite ports in said valve casing in a manner to allow a fluid to be passed through such passage in alternately opposite directions upon rotation of said valve plug, substantially as described. 15 20

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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LEO KALISH.

Witnesses:
HELEN F. LILLIS,
JOSHUA R. H. POTTS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents Washington, D. C."