

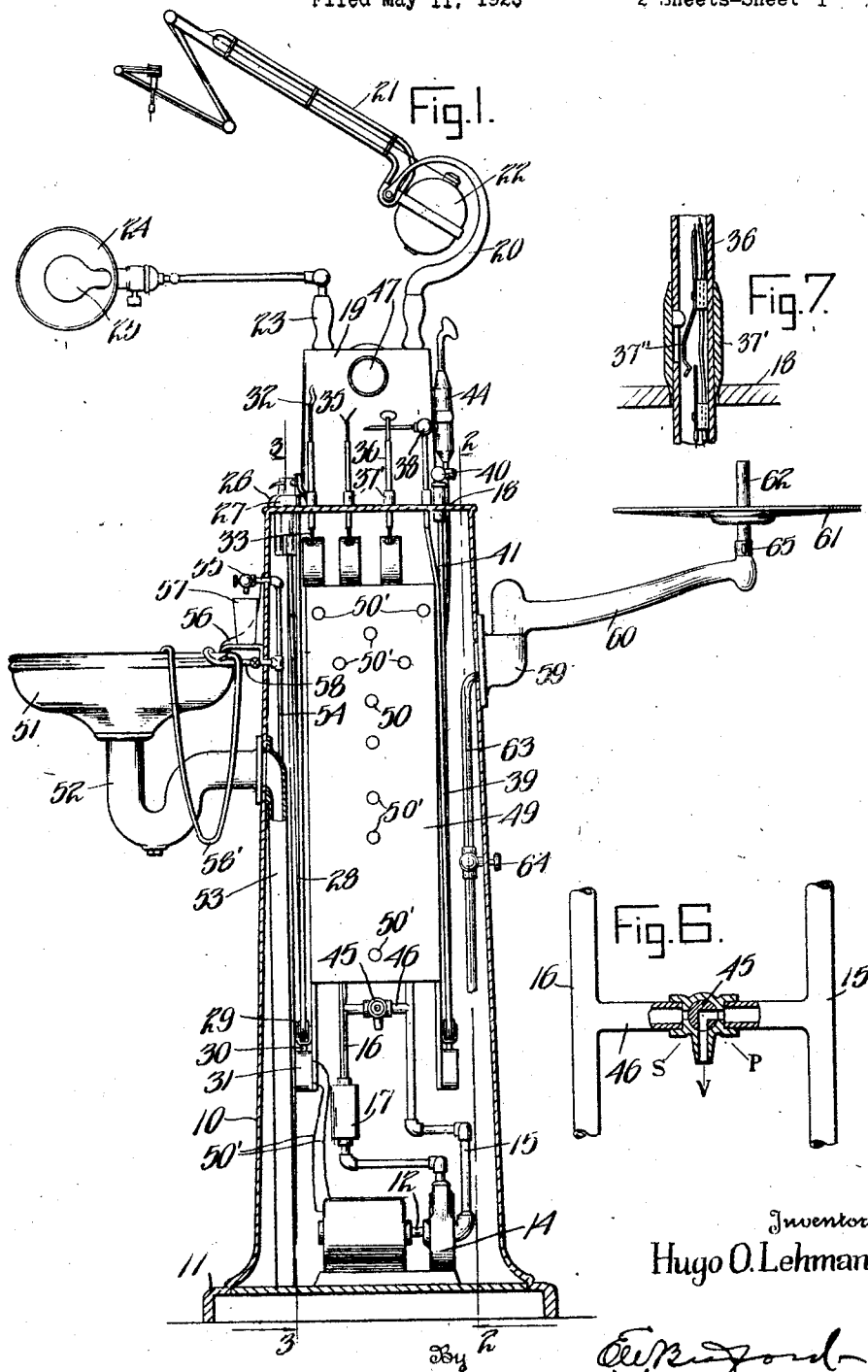
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H. O. LEHMAN
THERAPEUTICAL STAND

Filed May 11, 1923

2 Sheets-Sheet 1



Inventor
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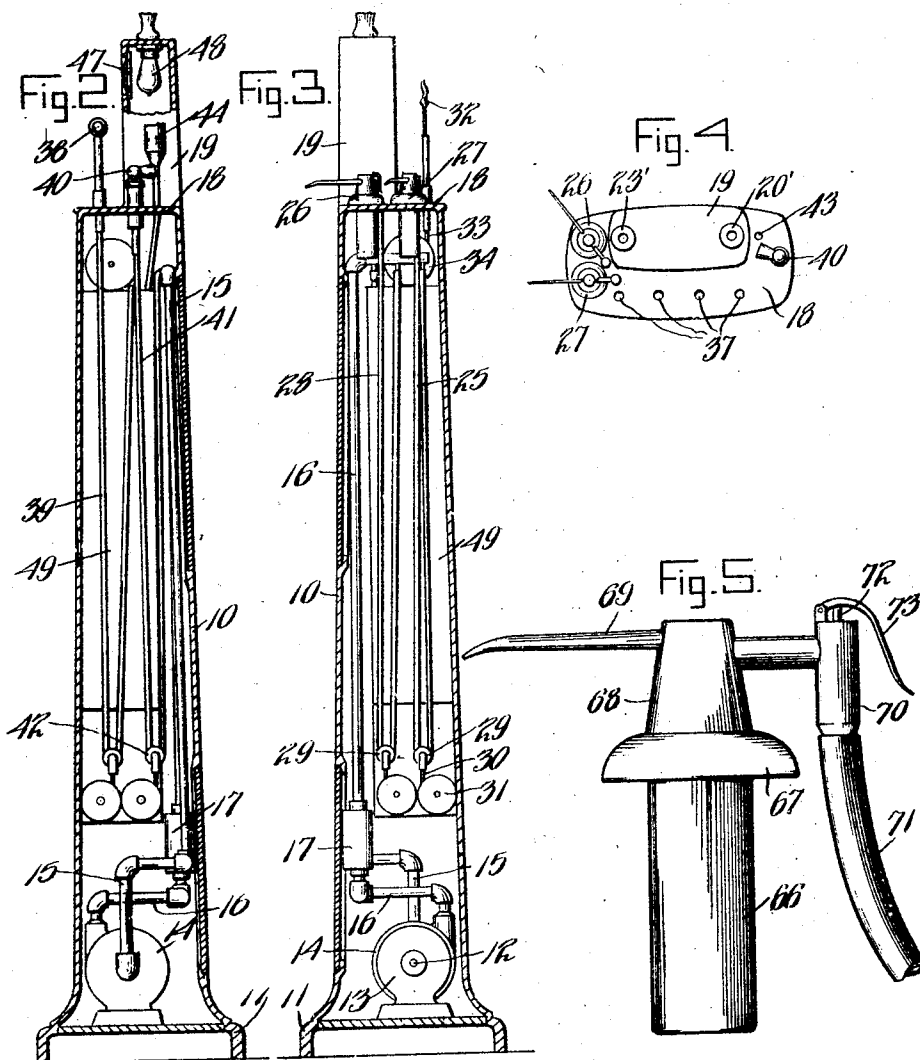
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

HUGO O. LEHMAN, OF WASHINGTON, DISTRICT OF COLUMBIA.

THERAPEUTICAL STAND.

Application filed May 11, 1923. Serial No. 638,417.

To all whom it may concern:

Be it known that I, HUGO O. LEHMAN, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Therapeutical Stands, of which the following is a specification.

My said invention relates to a therapeutical stand and it is an object of the invention to provide such a stand with improved and convenient supporting and operating means for the various instrumentalities located on the stand.

Another object is to provide a stand which can readily be arranged for use as a dental stand, or for use of physicians, chiropractors or others having occasion to utilize various electrical or massaging devices.

Referring to the accompanying drawings, which are made a part hereof and on which similar reference characters indicate similar parts—

Figure 1 is a front elevation of the device of my invention with part of the outer casing broken away,

Figure 2, a vertical section on line 2—2 of Figure 1,

Figure 3, a vertical section on line 3—3 of Figure 1,

Figure 4, a plan with parts omitted,

Figure 5, an enlarged view of a spray bottle,

Figure 6, a detail of a valve shown in Figure 1, and

Figure 7, a sectional detail of a handle in Figure 1.

In the drawings reference character 10 indicates the hollow body of the stand which is oblong in horizontal section and is supported on a base 11. Near the bottom of the body is a door which gives access to the lower part of the body, said lower part containing shaft 12 driven by a motor 13. The shaft drives a rotary pump in a casing 14 having a suction pipe 15 connected axially thereto and a pressure transmitting pipe 16 connected to the periphery of the casing. The latter pipe has an air strainer 17 above the pump.

A flat ledge 18 is provided near the top of the stand for supporting various instruments and at the rear side of the ledge there is a hollow upward extension 19 spaced from the front and from the sides of the stand.

An engine bracket 20 is located upon the

top of extension 19 which has an outlet 20' (Figure 4) and supports a dental engine 21 of well-known type, driven by a motor 22. Another bracket 23 at light outlet 23' (Figure 4) on top of the extension carries a reflector 24 with an electric bulb 25 centrally supported therein.

The instruments on the stand include a pair of spray bottles 26 and 27 connected by flexible tubes 28 to pipe 16. The tubes 28 are each fast at one end to a branch of pipe 16 and at the other to a spray bottle. The intermediate part depends in a long loop or bight and at the lower end of each loop is a pulley 29. The pulleys are connected by flexible bands or cords 30 to spring reels in casings 31 and as a spray bottle is lifted the cord 30 will be unwound and the spring in the drum wound up. Preferably the spring drums are provided with ratchets and pawls similar to those used in window shades, so that the spray bottle can remain in elevated or withdrawn position so long as desired after which a slight upward jerk will release the ratchet and permit the spring to unwind and thereby wind up the cord. The ledge 18 has a seat for each instrument and preferably the tension of the spring is such as to draw the instruments nicely down on their seats and hold them there with a very slight tension or none at all.

A cautery 32 is located on a seat at the front of the stand next to the spray bottles and a cord 33 extends downward therefrom to a spring drum 34 similar to those above described. An instrument 35 for plastic work on gutta-percha and the like and a mouth mirror 36, are arranged in a row with cautery 32 in seats 37 along the front of the ledge 18. Each of these devices has a rod-like body or holder surrounded by a collar 37' inside which is a spring 37'' arranged to be moved manually in a direction to close a circuit by which the appliance per se is heated, but when the instrument is returned to its seat the collar engages the ledge and is moved contrary to the movement of the body so as to break the circuit. A hot and cold air syringe 38 is arranged in the last seat 37 and is connected by a tube 39 to pipe 16 in similar manner to the spray bottles 26 and 27.

A connector 40 at the righthand side of ledge 18 serves for attachment of instru-

ments for exerting suction or vibratory action on the body as in massaging. This connector has a tube 41 extending down about a tension pulley 42 and thence up to the upper part of pipe 15.

The final seat 43 on ledge 18 is intended to receive a high frequency handle 44 for holding the various applicators used in connection with high frequency currents.

A three-way valve 45 is located in a connection 46 between pipes 15 and 16. The valve may be turned to bring the indicator to the position marked S when the pump will exert a suction effect through connector 40; the valve may be turned to position P (shown in Figure 6) when the effect of the pump will be to cause pressure in pipe 16 and the parts connected thereto; or, finally, it may be turned to a midway position when it will cause vibration in a part on the connector 40; e. g., the well-known massage implement in which a transverse diaphragm is caused alternately to advance and retreat by change of air pressure or in other ways. This effect is due to the suction or compression action of the pump on the diaphragm when the connection to the atmosphere is shut off by turning the valve to the midway position where no branch registers with any of the passages in the valve casing and is uniformly produced in actual practice in the operation of a device made in accordance with the drawings of this application.

At the front side of extension 19 and near its upper end there is a window 47 in the form of a convex lens with an electric light 48 located at the rear thereof. This light is intended to serve as a pilot light to indicate that the current is on and also as a signaling means whereby a maid or assistant may transmit signals to the operator in an inconspicuous manner by opening and closing a switch in the circuit.

Within the casing is a switchboard 49 with a plurality of switches including a master switch 50 provided with a key to lock all the electrical parts out of action, thus making it safe to leave the stand in charge of persons unskilled in electricity. When this switch is turned on the pilot lamp 48 is lighted. By operating this switch or a wall switch interposed in the circuit the pilot lamp may be used for signaling. The remaining switches 50' control various parts and electrical instrumentalities on the stand, or special electrical devices may be provided with fuse-plugs to be inserted in appropriate sockets on the board. By appropriate provision of electrical devices, all the electrical modalities known to the medical art may be had with the use of this device, such as high frequency, D'Arsonval, sinusoidal, diathermic, auto-condensation, etc., and the electric cur-

rent may be used in its various applications for therapeutical and analogous purposes. The electrical modalities will be supplied or omitted according to the use to be made of the stand in question. By providing independent switches for each of the various devices, danger of shock to the operator or attendant is avoided, this being a serious objection to medical and dental stands hitherto in use.

Preferably also an electric circuit is so arranged by means of wires 50'' and circuit closers operated by rotation of the spring reels that when either of the spray bottles is raised or when the air syringe or the suction and vibration attachment is lifted the circuit will be closed through the pump motor by rotation of any one of the spring reels, so that the pump will start on elevation of the parts mentioned.

A bowl or cuspidor 51 is attached to one side of the stand in a manner to be quickly detachable as by inserting the externally threaded end of pipe 52 through the wall of the stand and screwing it into an internally threaded pipe-section 53 which has connections leading to the sewer. A pipe 54 has a spigot 55 at one end for drinking water and a shelf 56 is detachably secured to the stand said shelf draining into the bowl 51 and adapted to support a tumbler 57. A pipe 58 is connected to pipe 54 and is provided at its free end with a rubber tube 58' carrying a saliva ejector.

At the opposite side of the stand from the bowl a support 59 is secured to the stand in a manner to provide for ready disconnection, both this support and the bowl (with connected and coacting parts) being intended to be omitted when the stand is used by others than dentists, e. g., nose and throat specialists, these elements being useful mainly to dentists and adding to the expense of the device besides taking up room, so that they will be omitted unless specifically necessary. The same pedestal may, however, be used in all cases, the openings left by omission of the parts named being covered by plates or the like in any convenient manner. The support 59 has an arm 60 pivoted thereto carrying at its outer end a table 61 with a Bunsen burner 62 at the center of the table above the end of the arm. A gas pipe 63 having a cock 64 projecting from the wall of the stand extends into the pivoted arm and is connected to the burner about which the table may revolve or not as preferred. A valve 65 provides for admission of a regulated proportion of air as usual.

In Figure 5 I have shown in enlarged form a spray bottle such as is indicated at 26 and 27. This bottle has a cylindrical body 66 to fit in a like opening in the ledge 18, a flange 67 to seat thereon and a tapered top

68 with a nozzle 69 extending through it. A valve casing 70 at the rear end of the pipe has a reduced end to receive the rubber pipe 71 and a valve 72 in the casing is moved down to open the passage by means of a thumb-lever 73. It will be seen that so long as the pump is working on the pressure pipe 16 a spray may be ejected and cut off instantly by manipulation of the thumb-lever, the valve being closed by a spring. This does away with any need for stopping and starting the pump every time the spray is needed, and is a matter of great convenience, particularly where the current is turned on by the lifting of the bottle as described.

It will be evident that I may connect my spray bottles by permanent connections as 71 to a source of fluid pressure other than the pump shown in the drawings.

In some buildings compressed air is supplied to all offices from a common source and this would render the pump of my device superfluous, the connection to the spray bottles or other pressure-operated devices being made to the common pressure supply. Various other changes will occur to those skilled in the art and therefore I do not limit myself to what is shown in the drawings and described in the specification but only as indicated in the appended claims, in which the true scope of the invention is set forth.

It may be noted also as an important practical feature of my device that the cuspidor is provided with a self-contained trap, so that no special plumbing is required within the stand in making it up for dental use.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a therapeutical stand, a hollow upright body oblong in cross-section having a ledge near its upper end, an upward extension on the ledge spaced from the side and front edges of the ledge, instruments on the extension, seats on the ledge for vacuum instruments and instruments using air under pressure, and means concealed in the stand for selectively producing a vacuum in relation to instruments of one set or for compressing air for use in instruments of the other set, substantially as set forth.

2. In a therapeutical stand, a hollow upright body oblong in cross-section having a ledge near its upper end, an upward extension on the ledge spaced from the side and front edges of the ledge, instruments on the extension, seats on the ledge for vacuum instruments and instruments using air under pressure, a pump concealed in the stand, and connections from said pump to said instruments to compress air for certain of said instruments or to produce a vibratory effect in certain other instruments, substantially as set forth.

3. In a therapeutical stand, a hollow up-

right body oblong in cross-section having a ledge near its upper end, an upward extension on the ledge spaced from the side and front edges of the ledge, instruments on the extension, means on the ledge for supporting an instrument holder, a pump in the stand and connections from the pump to the holder for exerting either a vacuum effect or a vibratory effect on instruments carried by said holder, substantially as set forth.

4. In a therapeutical stand, a hollow upright body, vacuum instruments and air-pressure-operated devices on the stand, a pump concealed in the stand, pipes leading from the pump to the vacuum and pressure devices respectively, a connection between said pipes, and a three-way valve leading to the free air in the interior of the stand adapted to be turned to produce air pressure or a vacuum or a vibrating effect as desired in the respective instruments, substantially as set forth.

5. In a therapeutical stand, a hollow upright body oblong in cross-section having a ledge near its upper end, an upward extension on the ledge spaced from the side and front edges of the ledge, instruments on the extension, seats on the ledge for additional instruments, spring reels within the stand, connections from the reels to the instruments on the ledge permitting them to be raised from their seats and automatically returning them, and means for holding the reels temporarily in partly unwound position, substantially as set forth.

6. In a therapeutical stand, a hollow upright body oblong in cross-section having a ledge near its upper end, an upward extension on the ledge spaced from the side and front edges of the ledge, instruments on the extension, seats on the ledge for additional instruments, a cuspidor detachably affixed to the casing at one side, a bracket for a tray-supporting arm detachably secured to the opposite side, a waste-pipe leading from the cuspidor through the interior of the stand, a ledge for a tumbler secured to the casing above the cuspidor and discharging into the same, a spigot above the ledge, and a water pipe in the stand having a projecting end carrying said spigot, substantially as set forth.

7. In a therapeutical stand, a hollow upright body oblong in cross-section having a ledge near its upper end, an upward extension on the ledge spaced from the sides and front thereof, instruments on the extension, seats on the ledge for additional instruments certain of said instruments being operated by air pressure, means within the stand permitting withdrawal of the instruments from said seats but serving to return them automatically to place, a motor for driving the air-compressing means, and a switch in the motor circuit closed by movement of an in-

strument into operative position and broken on restoration of the same, substantially as set forth.

8. In a therapeutical stand, a support, 5
seats thereon for appliances certain of which
operate by suction, means in the stand for
creating a suction effect in such appliances,
an electric motor for operating the same,
and a switch adapted to be operated by a re-
ciprocating element to make and break the
circuit through the motor upon the removal
and replacing of a suction appliance on its
seat, substantially as set forth.

9. In a therapeutical stand, a support, 15
seats thereon for appliances certain of which
operate by vibration, means in the stand for
creating a vibration effect in such ap-
pliances, an electric motor for operating the
same, and a switch adapted to be operated
by a reciprocating element to make and
break the circuit through the motor upon
the removal and replacing of a vibration
appliance on its seat, substantially as set
forth.

10. In a therapeutical stand, a hollow up- 25
right body oblong in cross-section, a ledge
near its upper end, an upward extension on
the ledge spaced from the sides and front
thereof, instruments on the extension, seats
on the ledge for one or more pneumatic in-
struments, a pump concealed in the stand, a
motor for the pump also concealed in the
stand, spring reels for holding the instru-
ments on their seats, and means operated by
movement of a reel for making and break-
ing the motor circuit, substantially as set
forth.

11. In a therapeutical stand, a support, 40
seats thereon for appliances certain of which
operate pneumatically, means on the stand
for creating pneumatic effects in such ap-
pliances, an electric motor for operating the
same, and a switch adapted to be operated

by a reciprocating element to make and
break the circuit through the motor upon
the removal and replacing of an appliance
on its seat, substantially as set forth. 45

12. In a therapeutical stand, a hollow up-
right body oblong in cross-section having a
ledge near its upper end, an upward exten-
sion on the ledge spaced from the side and
front edges of the ledge, instruments on the
extension, seats on the ledge for one or more
pneumatic instruments, means concealed in
the stand for producing pneumatic effects
in such instruments, a motor for driving
said last-named means, and a switch in the
motor circuit closed on movement of an in-
strument into operative position and auto-
matically broken on the automatic restora-
tion of the same to its seat, substantially as
set forth. 50 55 60

13. In a therapeutical stand, a hollow up-
right casing having seats on the ledge for
one or more pneumatic instruments, a pump
concealed in the casing and connected to said
instruments, a motor therefor, spring reels
for holding the instruments on their seats,
and means operated by movement of a reel
for making and breaking the motor circuit,
substantially as set forth. 65 70

14. In a therapeutical stand, a support,
seats thereon for appliances certain of which
operate by vibration, pneumatic means in the
stand for creating a vibration effect in such
appliances, an electric motor for operating
the same, and means operated by removal
of a vibration appliance from the seat for
closing the motor circuit, substantially as
set forth. 75 80

In witness whereof I have hereunto set
my hand and seal at Washington, District
of Columbia, this 9th day of May, A. D.
nineteen hundred and twenty-three.

HUGO O. LEHMAN. [L. S.]