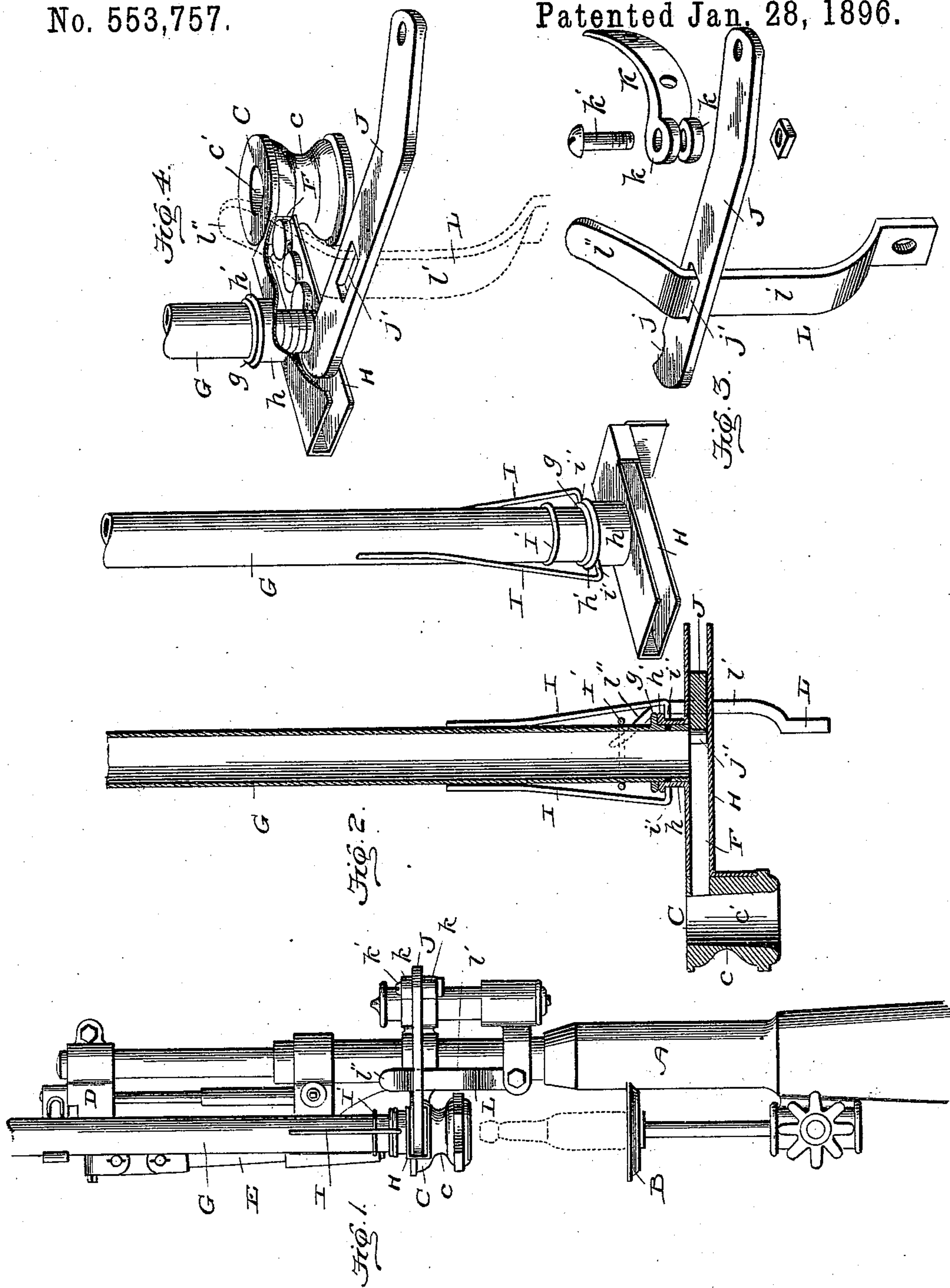


(No Model.)

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FEEDING MECHANISM FOR BOTTLE SEALING MACHINES.

No. 553,757.

Patented Jan. 28, 1896.



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UNITED STATES PATENT OFFICE.

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FEEDING MECHANISM FOR BOTTLE-SEALING MACHINES.

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To all whom it may concern:

Be it known that we, WILLIAM LIPPHARDT and JULIUS BLUMENBERG, citizens of the United States, residing at Martin's Ferry, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Feeding Mechanism for Bottle-Sealing Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is a magazine-feed mechanism for machines for inserting seals into the mouths of bottles, and is more particularly designed for use on that class of machines which employ two reciprocating heads, one of which is adapted to descend upon and fit around the mouth of the bottle, and the second cross-head serving as the guide for the plunger which forces the seal from the first cross-head into the bottle.

Hitherto in machines for inserting seals into bottles it has been the practice to place the seals by hand one after the other in position on the lower cross-head beneath the driving-plunger; but this method of supplying the seals has been found objectionable in that it exposes the attendant's hands to liability to injury by being caught in the machine, and, furthermore, the process is a slow one, as the speed of the machine depends upon the ability of the attendant to feed seals to the machine.

The object in view is to overcome the objections above noted by the provision of a simple contrivance which acts automatically to feed the seals to proper position beneath the plunger as rapidly as required.

Our feed mechanism is constructed to direct or guide the seals in a correct proper position beneath the plunger so as to avoid any twist or angular placement of the seals relative to the plunger, which is advantageous in that each seal is properly forced into the bottle and obviates one of the objections to the old hand method, in practicing which the seals were sometimes improperly placed beneath the plunger, with the result that the seal was not properly forced into the bottle and the operation had to be repeated.

To the accomplishment of the objects here-

in enumerated, the invention consists in the combination, with a reciprocating head provided with a bottle-guide, of a magazine carried by said head, a vibrator also carried by said head and operating to move the seals in said magazine one at a time to the bottle-guide, and a fixed cam engaging with said vibrator and arranged to shift the same back and forth across the magazine as the cross-head is reciprocated.

In the preferred embodiment of the invention the cross-head is constructed with a side or lateral feedway in which the seals are introduced from the magazine and by which the seals are held, guided, and directed in proper flat position over the opening in the bottle-mouth, whereby the seals are prevented from twisting or tilting and being presented edgewise or angularly with relation to the plunger; but on the contrary the seals are fed in flat positions at right angles to the plunger so as to be forced on the descent of the plunger through the bottle-guide and into the mouth of the bottle. The vibrator is in the form of a horizontal arm hinged at one end to the cross-head and with its other arm arranged in said foot and across the lower end of the magazine. Said vibrator has a slot formed in it, in which slot is fitted the fixed cam, the latter being in the form of a bent or angular bracket-shaped strap that is rigidly fastened in a vertical position to a stationary part of the machine, so that as the magazine and vibrator are moved vertically with the cross-head in its reciprocating movements the vibrator will play or move over the fixed angular cam-bracket, and thus the vibrator is operated in synchronism with the cross-head and the plungers to feed the seals at the proper times beneath the plunger for forcing into the bottles, the operations being entirely automatic.

The invention further consists in the novel combination of devices, and in the construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand the invention, it is illustrated in the accompanying drawings, for the sake of convenience, as applied to a machine of the class known to the trade as a "De La Vergne sealing machine," although it is not intended by this illustra-

tion to confine the feed mechanism to use on this particular type of machine, because the invention can be used on other kinds of sealing-machines without departing from the spirit of the invention.

In the drawings which form a part of this specification, Figure 1 is an elevation of the improved seal-feeder mechanism applied to a bottle-sealing machine. Fig. 2 is a vertical sectional view of the magazine-feeder and a part of the reciprocating cross-head to which it is applied. Fig. 3 is a detail perspective view of the preferred embodiment of the magazine-tube and its foot. Fig. 4 is a perspective view, partly in section, showing the magazine, the vibrator, and the cam-bracket. Fig. 5 is a detached perspective view of the fixed cam-bracket, the vibrator-arm, and the huge plate by which the vibrator-arm is hung on the reciprocating cross-head.

Like letters of reference denote corresponding parts in all the figures of the drawings.

The type of bottle-sealing machine well known to those familiar in the art as the "De La Vergne machine" is shown in Fig. 1, in which A represents the standard; B, the rest or platen on which the bottle is to be placed. C is the lower reciprocating cross-head. D is the upper reciprocating cross-head, and E are the plungers which are guided by said upper cross-head. The construction and mode of operation of this machine are too well known to require a detailed description thereof in this specification, and we will therefore content ourselves with this brief reference to the same.

In applying our automatic feed mechanism to this kind of a machine, and in order to properly feed the seals in a flat position beneath the plunger, we have found it advisable to modify the construction of the cross-head C somewhat. As is usual, this lower cross-head C has a pendent mouth or guide *c*, which is pierced by a vertical passage *c'*, the lower end of which passage is flared somewhat to receive the top edge of the bottle. We take this cross-head and cut or produce a lateral feedway or channel F therein. This channel or way is cut horizontally in the head C or the guide *c* thereof, and said channel or way extends from the vertical passage through the side of the head or guide *c*, as shown by Fig. 2. This channel or way F may be drilled in the cross-head to provide top, bottom and side walls, as in Fig. 2, or it may be cut in the top face of the head, so as to present an open top side; but in either case it should have the side walls and bottom, which are so arranged as to form a channel in which the seals are guided and directed to present them properly over the opening *c'* in the path of the plunger.

G is the magazine. The preferred construction of the magazine is shown by Fig. 2 as consisting of a foot or base H and a tubular receiver G. These parts are preferably united or coupled together by a separable coupling, to permit the tube G to be detached

from the foot or base H, for the purpose of refilling the tube with the seals to be supplied to the machine. The foot or base H is fastened laterally to the head C in line with the guide or channel F, such fastening being effected in any suitable way—as, for instance, by means of screws, bolts, soldering, &c. The foot is made hollow, with an open side and end for the accommodation of the vibrator, and at its upper side the foot has a vertical nipple *h*, formed with an annular flange *h'* at its top edge.

The magazine-tube G is of suitable diameter to accommodate the disk-like seals, and it is adapted to be fitted in the nipple *h* of the foot or base, the descent of the tube being limited by the external collar *g* thereof coming into contact with the upper edge of the nipple *h*. The lower end of the tube is formed with openings or slots *i i*, arranged diametrically opposite to one another, and on the outside of this tube are fastened the spring-jaws I I. These jaws have one end fastened in a suitable way to the tube, and the other ends of the jaws are bent to form the prongs *i'* which extend inwardly. These prongs of the jaws are adapted to enter the holes or slots *i* of the tube, when it is detached for the purpose of filling it with seals, and the prongs then serve to prevent the seals from dropping out of the tube. When the tube is to be fitted to the base or foot, it is placed in a vertical position, with its lower end in the nipple *h*, and the sliding collar I' (arranged in the tube) is moved upward so as to force the jaws outward and withdraw the prongs *i'* from beneath the stack of seals, after which the tube is forced down firmly into the nipple *h* and the prongs of the spring-jaws take over the flange *h'*, whereby the magazine-tube is firmly held in position on the foot or base H.

The vibrator J consists of a flat bar or plate, of appropriate length and width. It is arranged in a horizontal position, extending from one side of the magazine, one end of said vibrator being fitted in the hollow foot or base H, in the open side and end of which the vibrator operates. This vibrator has a notch *j* cut in one edge of that part thereof which works in the foot or base H, and at an intermediate point of its length the vibrator has a transverse slot *j'* cut therein, the side walls of the slot being beveled or inclined. This vibrator is attached to the cross-head C, to be carried by it and to be movable with it, and said vibrator is hung by a pivot or joint to enable it to swing in a horizontal plane. In the drawings we have shown this joint embodied by a hinge-plate K, which is curved or otherwise shaped to snugly fit to the cross-head, to which head the plate K is securely fastened in any suitable way—as, for instance, by screws or bolts. The free offstanding end of this plate K is forked to provide ears *k*, between which is fitted the outer end of the vibrator-bar, and a vertical pivot-bolt *k'* is

passed through these ears and the vibrator to pivotally connect the parts together.

The cam-shaped bracket L is preferably in the form of a bent or curved bar or strap, one end of which is fastened securely to a fixed part of the machine—as, for instance, by the bolt l. The bracket is bent to form the substantially-straight part l' and the inwardly-curved end l'', and the bracket is placed so that the upper part l' l'' will fit and work in the slot j' of the vibrator-bar. We do not, however, strictly confine ourselves to making the slot in the vibrator and to fitting the bracket-cam in the slot, because we are aware that the bracket may be formed with a cam slot or groove to receive the vibrator or a projection thereon.

This being the construction of our magazine-feeder, the operation is as follows: The magazine-tube is filled with seals by placing or stacking them one on top of the other therein, and the tube is applied to the foot or base H in the manner described. The lowermost seal of the stack rests upon the vibrator, and when the machine is in proper working condition two or more seals rest in the channel or way F in advance of the vibrator J. When the cross-head C descends, it carries with it the magazine and the vibrator, and as the vibrator descends over the cam-bracket k it is moved outward by the angular or curved part l' until it reaches the straight part l'', down which it glides without any substantially-horizontal deflection. As the vibrator is moved outward by the part l' of the cam-bracket, the lowermost seal of the stack drops down upon the bottom of the foot H into the path of the vibrator. After the cross-heads C D have been lowered and the plungers have descended to force a seal into the bottle on the rest or platen, the cross-heads are raised, and during the ascent of the lower cross-head, and with it the magazine and vibrator, the said vibrator is moved by the cam-bracket L beneath the magazine-tube, and it operates to shove the seals in front of it in the way or channel F along said channel so as to force the foremost seal over the opening c' and in the path of the plunger, where by another seal is presented for forcing into the next bottle on the next downstroke of the plunger. The operation of supplying seals to the passage c' in the cross-head is thus automatically and continuously effected so long as the machine is in operation, and the seals are guided and directed by the walls of the channel or way in a manner to prevent them from being turned or tilted, but to be presented in flat horizontal position proper to be forced into the bottle.

A number of the magazine-tubes may be provided to enable one or more to be filled with seals while one is in use on the machine, and when one tube has become empty the attendant at the machine can quickly and easily take off the empty tube and replace it with one filled or charged with the seals.

Our improved feed mechanism entirely overcomes the liability of injury to the attendant due to feeding seals to the machine, enables us to dispense with the services of more than one attendant at each machine, and increases the capacity of the machine.

We are aware that many changes in the minor details of construction and form and proportion of parts herein shown and described as an embodiment of our invention can be made by a skilled mechanic without departing from the spirit or sacrificing the advantages of our invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination with a reciprocating head, of a magazine carried thereby, a pivoted vibrator also carried by the head and operating across the magazine to move bottle-seals from the magazine to the head, and a stationary cam engaging with said vibrator and serving to move the latter as it is reciprocated with the head, substantially as and for the purposes described.

2. The reciprocating head provided with a horizontal feed channel or way bounded by side and bottom walls arranged to direct seals in proper position over the vertical opening c', combined with a magazine, a vibrator, and means for moving said vibrator, substantially as and for the purposes described.

3. The combination with a reciprocating head, of a hollow foot or base carried by said head, a magazine-tube detachably connected to said foot or base, a slotted vibrator hung on the head and having its free end working in the foot or base below the open end of the magazine, and a cam-bracket fitted in the slotted vibrator, for the purposes described, substantially as set forth.

4. The combination of a reciprocating head provided with a side feed channel or way, a foot or base rigid with said head and in line with the feed channel or way therein, a magazine detachably attached to the foot or base, a pivoted vibrator fitted in the foot or base and a cam with which the vibrator engages, substantially as and for the purposes described.

5. The combination of a reciprocating head, a foot or base rigid with the head and carrying a magazine-tube, a vibrator pivoted to the head and movable vertically with the same, and a stationary cam with which the vibrator engages, substantially as and for the purposes described.

6. The combination of a reciprocating head, a magazine carried by said head and arranged to feed to the side thereof, a vibrator fitted to the bottom of the magazine and pivotally connected to the head, to move vertically therewith while having a horizontal swinging movement independently of the head, and a stationary cam-track engaging with said vibrator, substantially as described, for the purposes set forth.

7. The combination of a reciprocating head,
a magazine, a slotted vibrator pivoted on the
head and movable vertically therewith, and
a bent or curved cam-bracket fixed to the ma-
chine and fitted in the slotted vibrator, sub-
stantially as described.

8. The combination with a reciprocating
head, of a foot or base carried by said head
and provided with a flanged collar, a maga-
zine-tube fitted to said collar, movable jaws
connected to the magazine-tube and engaging

with said flanged collar, a vibrator fitted in
the foot or base, and a cam to actuate said
vibrator, substantially as and for the purposes
described. 15

In testimony whereof we affix our signa-
tures in presence of two witnesses.

WILLIAM LIPPHARDT.
JULIUS BLUMENBERG.

Witnesses:

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