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LOTION APPLICATOR

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Fig. 1

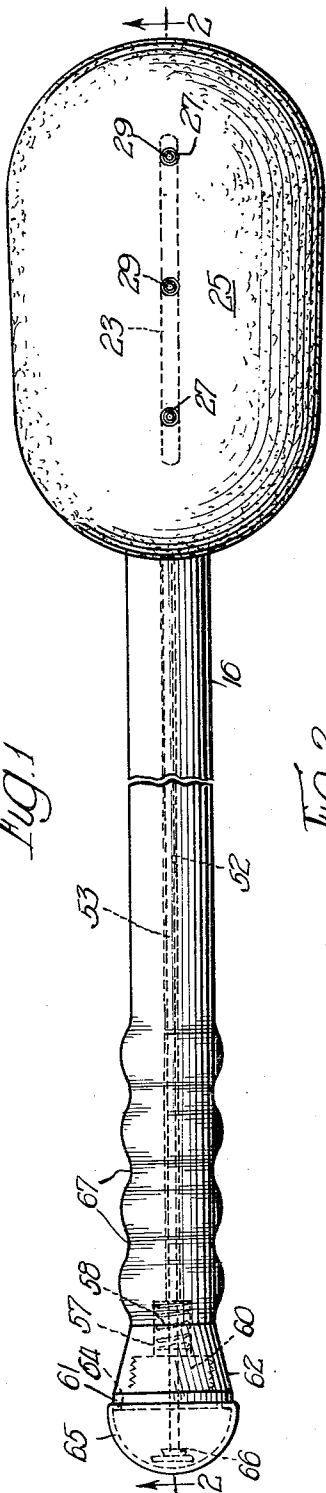


Fig. 2

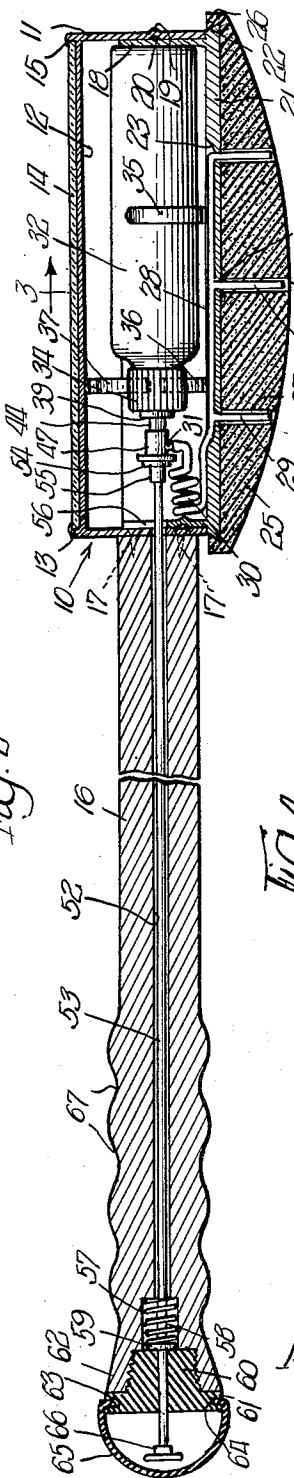
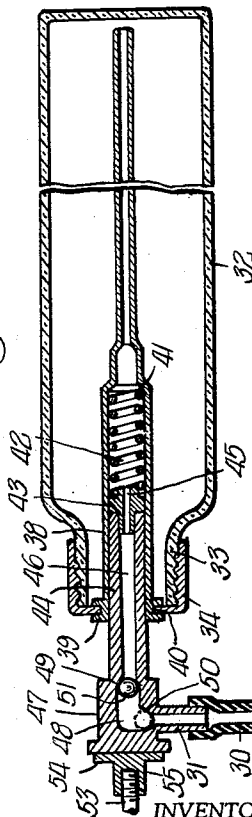


Fig. 4



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LOTION APPLICATOR

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7 Claims. (Cl. 15—547)

The present invention relates to lotion applications, and has for its main object the provision of a lotion applicator whereby lotion may be applied with ease to the parts of a person's body, such as the back, which normally are difficult to reach for applying lotion by hands.

A still further object of the present invention is the provision in a lotion applicator of a casing with an oblong handle rigidly connected therewith, said casing being capable of supporting a lotion containing flask, provided with an ejector pump, with means extended through the handle, and manually operable at the free end of the latter for actuating the ejector pump to induce the ejection of the lotion from the flask, the casing being provided with a pad upon which the ejected lotion may be spilled and whereby the same may be applied to a person's body.

Another object of the present invention is the provision in a lotion applicator of the type hereinabove indicated of a soft pad removably supportable upon one wall of the casing aforesaid, with means connected with the pump nozzle and passed through the pad in a transverse relation, whereby, on actuation of the ejector pump the lotion may be forced through the pad to spill upon the body contacting surface of the pad for applying the lotion to the person's body when the outer face of the pad is maintained in contact therewith and when the ejector pump is actuated by the means supportable in the handle aforesaid.

With the above general objects in view and others that will appear as the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawing and pointed out in the appended claims.

In the drawing forming a part of this application, and in which like designating characters refer to corresponding parts throughout the several views:

FIG. 1 is a plan elevational view of the present device;

FIG. 2 is a longitudinal cross sectional view, taken on line 2—2 of FIG. 1;

FIG. 3 is a transverse cross sectional view, taken on line 3—3 of FIG. 2; and

FIG. 4 is an enlarged, longitudinal, cross sectional view of the lotion containing flask and the cooperating ejector pump for ejecting the contents of the flask when the pump is actuated.

Referring in detail to the present drawing there is shown therein a casing, generally indicated by 10, generally of a substantially oval form, although the same may be made in any other desired shape. Said casing includes a side wall 11, one end of which is closed by the end wall 12, the latter being spaced from the outer end termination of said side wall 11 defining flange 13 within which mirror 14 is receivable in a contactual relation with the outer face of said end wall 12.

A plurality of lips 15 may be formed at the outer edge of said flange 13, and bent over the edge of mirror 14 for maintaining the latter in a rigid operative position with the adjacent end of said casing 10.

Connected with one end of said side wall 11 is an oblong, generally cylindrical handle 16. If said handle 16 is made of metal, then the same by its one end may be either soldered to or integrally formed with said side wall 11. Otherwise, if said handle 16 is made of plastic or wood, said side wall 11 may be affixed to the end of the former

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by means of a plurality of screws 17 or any other suitable fastening means.

Receivable through the opposite, open end of said side wall 11, in a telescopic relation, is sleeve 18. Said side wall 11 is provided with one or more outwardly directed indents or bulges 19, and said sleeve 18 is provided with outwardly directed indents or bulges 20, the two sets of bulges 19 and 20 defining snap fasteners for interengaging said sleeve 18 with said side wall 11 when the former is fully extended into said side wall 11 in an operative relation, as seen in FIG. 2.

Integrally formed with the outer end of said sleeve 18 and depending therefrom is a closure plate 21, the edge of which extends beyond the perimeter of said sleeve 18 and effects a flange which comes in contact with the adjacent end of said side wall 11, when said sleeve 18 is in an operative position therewith, as is seen in FIGS. 2 and 3. Laterally said flange is filed to define bevel 22, which flares away from said side wall 11 and said sleeve 18.

Made upon the inner face of said closure plate 21, along the longitudinal axial center thereof, is groove 23, with which a plurality of spaced openings 24, made transversely of said closure plate 21, communicate.

Disengageably attachable to said closure plate 21 is pad 25, the outer face of which is arcuate, both transversely and longitudinally of said pad 25. Made upon the inner face of said pad 25 is a depression of a shape substantially corresponding to the shape of said closure plate 21, said depression defining a raised, perimetral flange 26, the inner edge of which is bevelled to correspond to the bevel 22 made upon the lateral edge said closure plate 21. By virtue of this construction pad 25, by its flange 26 may be engaged with or disengaged from said closure plate 21. Said pad 25 is made of pliable soft material such as sponge rubber so that its flange 26 easily snaps on or off from the bevelled edge 22 of said closure plate 21.

In an axial longitudinal relation said pad 25 is provided with a plurality of spaced transverse bores 27, which, by their inner ends are in an aligned communicating relation with said openings 24 made in said closure plate 21, as aforesaid.

It is noted that although the body of said pad 25 is made of a soft, pliable material, such as sponge rubber, all the surfaces thereof, including the outer, arcuate, body-contacting surface, the inner surface, contacting the outer face of closure plate 21, surfaces along flanges 26, and the surfaces defining said bores 27, are made of skin-like lining, which renders the pad impervious to air and fluid. Due to this nature of the pad the same is incapable of absorbing the lotion which the pad by its outer, body-contacting surface spreads upon a person's body or when the same imparts massaging action thereto.

Positionable in said groove 23 is tube 28, from which a plurality of lateral branch tubes 29 extend. Said branch tubes 29 are insertable within said bores 27 through said openings 24. Said tube 28 includes a coil 30 from which the former extends, while the opposite end of said coil connects with ejector nozzle 31.

Coil 30 acts merely as an extension of tube 28, so that when closure plate 21 is removed from the casing by shifting sleeve 18 out of side wall 11, the coil end connected with said nozzle 31 would not disengage therefrom if such a result was not intended. Said coil 30 facilitates insertion or withdrawal of tube 28 and branch tubes 29 into or out from groove 23 and bores 27, respectively, on disengagement of the closure plate 21 and sleeve 18 from the casing, if at the same time it was not desired to disconnect the tube coil end from nozzle 31.

Receivable and supportable within the casing as hereinabove defined is a lotion containing flask 32, which at

one of its ends is provided with neck 33 threadedly engageable by cap 34. The opposite end of said flask 32 is in contact with and bears against the outer end of said sleeve 18, as seen in FIG. 2.

For supporting flask 32 laterally a pair of clamping arms 35 is provided. The ends of said clamping arms 35 may be soldered or otherwise rigidly connected to the inner face of closure plate 21, one on each side of groove 23, as is seen in FIG. 3. A pair of similar clamping arms 36, extending from said closure plate 21, is provided to engage said cap 24, while another pair of clamping arms 37, dependent from end wall 12, engage said cap 24 from the opposite peripheral portion thereof. Due to the action of said pairs of clamping arms 35, 36 and 37 flask 32 is maintained in a rigid immovable position within the casing. Of course, on withdrawing closure plate 21 clamping arms 35 and 36 will become disengaged from flask 32 and cap 34, respectively. Replacement of said closure plate 21 to its operative position will snap said arms 35 and 36 in engagement with flask 32 and cap 34, respectively.

The pump for intermittently ejecting the contents of flask 32 and feeding the same into tube 28 and branch tubes 29, through nozzle 31, includes a tubular member 38, the outer end of which a circumferential flange 39, the latter provided with a circumferential recess 40. The outer end of cap 34 is provided with an opening. The body portion of the end of the cap, adjacent the opening, is positioned within recess 40. The inner end of said tubular member 38, extends toward the bottom of flask 32, and effects shoulder 41 which provides a seat for coil spring 42. The opposite end of said coil spring 42 engages the reduced end of plunger head 43 which is frictionally engaged with the inner end of plunger tube 44. Coil spring 42, pressing against plunger head 43 tends to maintain said plunger tube 44 in its operative retracted position. Both said plunger head 43 and tubular plunger 44 are provided with central communicating bores 45 and 46, respectively, which in turn are communicating with the inner, reduced end of tubular member 38.

The outer end of said plunger tube 44 rigidly connects with valve head 47. Located within said valve head 47 is valve passage 48, which is substantially of an L-shaped formation, with the major longitudinal portion thereof in a longitudinal relation with said plunger tube 44 and said valve head 47. One end of said passage 48 communicates with a valve seat cavity 49, with which the adjacent orifice of bore 46 is in communication. At the opposite end of said valve passage 48, adjacent the inner orifice of the bore in nozzle 31, there is a valve seat cavity 50. Positioned within the valve, for alternate seating within one or the other of said valve seat cavities 49 and 50 is ball 51, which in diameter substantially corresponds to the diameters of said valve seat cavities 49 and 50. The diameter of said passage 48, intermediately of said valve seat cavities 49 and 50, is slightly larger than the diameter of ball 51.

Assuming that the device, including flask 32, is held in a vertical position with relation to the longitudinal axis thereof, ball 51, due to gravity, will normally be seated within valve seat cavity 49. Pressure imparted to the valve head 47 in a downward direction will bring about the downward shifting of plunger tube 44 against the action of coil spring 42, depressing the latter. The downward shifting movement of said plunger tube 44 will increase the air pressure within the flask and bore 46, causing ball 51, due to the air pressure from therebelow, to spring into valve seat cavity 50, dotted lines position in FIG. 4, for shutting off the escape of air or the flask contents through nozzle 31 into coil 30 and tube 28. As the pressure at the valve head 47 and the downward shifting movement of the plunger tube 44 continue the air in bores 45 and 46 and the valve passage 48 will be forced through the tubular member 38 into flask 32, causing the forced air to escape through the inner open

end of said tubular member 38. The air thus forced will bubble through the liquid or semi-liquid contents of flask 32 to find itself above the surface of the flask contents in order to exert pressure upon the latter, to eventually force the same through said tubular member 38 into valve passage 48.

On release of the pressure at valve head 47 plunger tube 44 will shift in an upward direction due to the action of coil spring 42 thereagainst. This will engender suction upon ball 51 causing the same to shift out of valve seat cavity 50 into the valve passage 48. Ball 51 will shift in said passage 48 and float through the volume of lotion liquid therewithin to eventually assume the seated position within valve cavity 49. Since the diameter of said valve passage 48 is greater than the diameter of said ball 51, the lotion contents in said valve passage 48 will not prevent ball 51 to sink in the lotion contents of valve passage 48 in order to assume the operative position of the valve seat cavity 49.

Immediately upon the release of pressure at head 47, and before the plunger tube 44 has returned to its fully retracted position, due to the operation of coil spring 42, some of the contents in the valve passage 48 will spill themselves through the valve seat cavity 50 and nozzle 31, to pass into tube coil 30 and tube 28, to be distributed from the latter into branch tubes 29. The flow of the lotion contents from valve passage 48 into said tube coil 30 will continue as long as the air pressure within flask 32 has not become dissipated, that is during the interval between the inwardly shifted position of plunger tube 44 and its retracted position.

On said plunger tube 44 reaching its fully retracted position, the contents of flask 32 will continue to flow past ball 51, lifting the latter from the valve cavity 49 and finding itself within passage 48, until the air pressure in flask 32 has fully dissipated due to the full retraction of plunger tube 44.

On full retraction of the plunger tube 44 the contents of the flask will not fully fill passage 48. There still will be some air left at the upper end of said passage 48.

On repeating the exertion of pressure at head 47 some of the lotion and air contents in passage 48 will be forced out through valve seat cavity 50 and nozzle 31, due to the action thereon by ball 51 as it shifts upwardly and assumes blocking position within cavity 50. Some of the contents of said passage 48 will however pass past said ball 51 to again find itself within bores 46 and 45 to eventually pass through the inner end of tubular member 38 into flask 32, the air rising through the contents of the flask above the surface of the contents.

Note is made of the fact that the lotion preparation in flask 32 is viscous, and therefore the air is more readily sucked into passage 48 than the lotion from nozzle 31, when ball 51 moves out of valve cavity 50 when the retraction of the plunger tube 44 commences, thereby assuring at all times a quantity of air within passage 48 to be forced into flask 32 at the inception of the inward shifting movement of the plunger tube 44.

Intermittent impartation of pressure at head 47 to shift said plunger tube 44 inwardly of the tubular member 38, against the action of spring 42, and intermittent release of the pressure to permit retraction of said plunger tube 44 by the action of spring 42, will intermittently eject small quantities of the lotion preparation from flask 32 into nozzle 31, into tube coil 30, tube 28, and branch tubes 29, to be spilled from the latter through their open ends upon the outer face of pad 25, to be applied by the latter upon a person's body.

No claim per se is made to the particular construction of the ejector pump hereinabove described. Various forms of ejector pumps for use in connection with cosmetic preparations are well known in the art.

Handle 16 is provided along its axial center with bore 52 for reception therewithin of plunger rod 53 for a longitudinal shifting movement. Contacting with the outer

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end of said valve head 47 is a plunger head 54, with which an inwardly threaded stem 55 is rigidly formed, for engaging in a threaded relation the inner end of said plunger rod 53.

For permitting unobstructed insertion into or removal from side wall 11 of said sleeve 18, the latter at one of its ends is provided with slot 56 for accommodating there-within of said plunger rod 53.

Made adjacent the outer end of handle 16, and centrally thereof, is an enlarged bore 57 for seating there-within of coil spring 58 which is in an encompassing relation with said plunger rod 53. One end of said coil spring 58 contacts the body portion of said handle 16 defend by the bottom of said bore 57, while the opposite end of said coil spring 58 bears against a circular stop 59 for maintaining said plunger rod 53 in a normally retracted position, said stop 59 being rigidly connected with said plunger rod 53.

The outer end of said handle 16 is provided with a socket for receiving therewithin, in a threaded relation, plug 60.

Extending from the outer end of said plug 60 is annular flange 61, the outer face of which remains flush with the circumferential face of the enlarged outwardly flaring end 62 of said handle 16.

Provided at said flange 61 is a circumferential recess 63 for receiving therewithin an inwardly extending annular flange 64 which is provided at the rim of semi-spherical bulb 65, which encloses the outer end of plunger rod 53 and head 66 carried thereby.

Both said flange 64 and said bulb 65 are made of elastic rubber, permitting depression of the latter when manual pressure is imparted thereagainst in order to press upon head 66, and permitting said bulb 65 to assume its normal semi-globular inoperative position when the pressure thereagainst is released, as is seen in FIGS. 1 and 2. By virtue of the elasticity of said flange 64 and bulb 65 the former readily snaps on or off from flange 61.

To operatively position plunger rod 53 within the handle 16, the former is extended by its inner end into the casing defined by said side wall 11 and end wall 12. Thereupon plunger head 54 is applied to the inner end of said plunger rod 53 by threadedly engaging stem 55 therewith. During this operation closure plate 51 and sleeve 18 are removed from the casing. Thereupon plug 60 is passed over the outer end of said plunger rod 53, and is screwed into the socket defined by the outer end of said handle 16. Prior to these operations coil spring 58 was inserted over said plunger rod 53 and in contact with stop 59.

Thereupon head 66 is threadedly engaged with the outer end of said plunger rod 53. Thereupon bulb 65 is placed in its operative position by engaging its flange 64 with recess 63 at the flange 61.

During the retracted position of said plunger rod 53 stop 59 remains in contact with the inner end of plug 60, due to the action of both coil spring 58 and spring 42 in the ejector pump, the latter maintaining the valve head 47 in its retracted position and in contact with plunger head 54.

For imparting an intermittent shifting movement to the valve head 47 and the plunger tube 44 for rendering the ejector pump operable, as was hereinabove described, intermittent pressure by an operator's thumb is applied to head 66 through bulb 65, against the action of coil spring 58 as well as against the action of the pump spring 42. Intermittent release of the pressure at said head 66 will cause the intermittent retraction of said plunger rod 53 as well as of the valve head 47 and plunger tube 44, for thereby actuating the ejector pump and causing the intermittent ejection of the lotion contents in flask 32 through nozzle 31, and ultimately through the open ends of branch tubes 29.

As was already mentioned, the tube coil 30, being extensible, permits withdrawal of sleeve 18 from side wall

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11, without necessarily disconnecting the tube coil 30 from nozzle 31 or withdrawal of tube 28 and branch tubes 29 from recess 23 and bores 27 respectively. The extensibility of the tube coil 30 permits shifting of valve head 47 in either direction, without disturbing the connection of said tube coil 30 from nozzle 31.

From the hereinabove description it will be readily apparent that flask 32, after the contents thereof have been used up, is readily replaceable, on withdrawal of sleeve 18 from side wall 11 and the disconnection of tube coil 30 from nozzle 31.

Tube 28 is readily removable from recess 23, and branch tubes 29 are readily removable from opening 24 and bores 27 for the purpose of washing the casing, including said closure plate 21 and pad 25.

The disconnection of pad 25 from closure plate 21 permits washing or replacement of said pad 25.

The outer face of handle 16, adjacent the outer end of the latter, is provided with a plurality of circumferential undulations 67 for facilitating manual grasping of the handle by the operator's hand and finger.

In order to render the ejector pump workable neck 33 and cap 34 are air-tight. The same is true with the connection between flange 39 and the adjacent end of cap 34. Likewise plunger head 43 is made air-tight with the tubular member 38.

It is observed that the contents of flask 32 may be dispensed by the application of the well-known aerosol means instead of the air pressure engendered in the flask and illustrated in FIG. 4. In the aerosol ejecting means of the contents of flask 32 would still require plunger tube 44 and head 48 connected with the outer end of the plunger tube 44, and nozzle 31 through which the flask contents would flow on application of pressure on head 47. Whichever means for ejecting of the flask contents is employed, the flow of the contents of the flask through nozzle 31 would be brought about by the application of intermittent pressure upon head 47 brought about by intermittent shifting of plunger rod 57 induced by the manual actuation of head 66. Since no claim per se is made to the particular means of ejecting the contents of flask 32 through nozzle 31, it does not matter what particular means to accomplish that object is employed, as long as the flow of the contents of flask 32 through nozzle 31 is induced by the intermittent reciprocating motion of head 47 and plunger tube 44, which in turn is induced by the intermittent reciprocating shifting motion of plunger rod 53 as it intermittently bears against said head 47 through said plunger head 54.

While there are described herein preferred embodiments of the present invention, it is nevertheless to be understood that minor changes may be made therein without departing from the spirit and scope of the invention as claimed.

What I claim as new is:

1. In a device of the class described, a casing, said casing including an end wall, a side wall extending from said end wall in a perpendicular relation, a closure plate, a sleeve extending from said closure plate in a perpendicular relation therewith, telescopic interconnection between said side wall and said sleeve, on disengagement of said telescopic interconnection said closure plate being adapted for removal for providing access into said casing, a flask removably supported in said casing, said flask being capable of receiving fluid contents, means associated with said flask for causing intermittent ejection of comparatively small amounts of the contents of said flask, a handle rigidly connected by one of its ends with said side wall, a plunger rod supported in said handle for a longitudinal shifting movement, one end of said rod entering said casing, means for imparting a reciprocating shifting movement to said rod for inducing the operation of said first named means, an applicator pad made of soft material, means for removably engaging said applicator pad with the outer face of said closure plate, and means

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for spilling the contents of said flask upon the outer face of said applicator pad as said contents are intermittently ejected.

2. The structure defined by claim 1 wherein said last named means including a flexible tube connected by one of its ends with said flask, said closure plate and said applicator pad being provided with transverse, aligned openings, the opposite end of said tube being extended through said openings.

3. In the structure defined by claim 2, and means carried by the inner face of said closure plate for engaging a portion of said tube intermediately of the ends thereof.

4. In the structure defined by claim 3, wherein said last named means including a groove within which the intermediate portion of said tube is receivable, said openings being in communication with said groove.

5. The structure defined by claim 1, wherein said means for removably engaging said applicator pad with the outer face of said closure plate including a bevelled flange made along the perimeter of said closure plate, said applicator pad having upon one of its outer surfaces a depression of a shape substantially corresponding to the shape of said closure plate wherein the latter being receivable, said depression defining in said applicator pad a raised, perimetral flange, the inner edge of said last named flange being grooved for defining a bevelled sur-

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face capable of engaging in an overlying relation the bevelled flange made along the perimeter of said closure plate for thereby disengageably supporting said applicator pad upon said casing.

6. In the structure defined by claim 1, the opposite end of said rod extending outwardly of the opposite end of said handle, and tensioning means in said handle for normally urging said rod to a retracted inoperative position.

7. In the structure defined by claim 6, and a depressible, substantially semi-globular bulb engaged with said opposite end of said handle for defining an enclosure for the said opposite end of said rod.

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