

(No Model.)

2 Sheets—Sheet 1.

S. L. GILLETT.
BOTTLE WASHER.

No. 539,384.

Patented May 14, 1895.

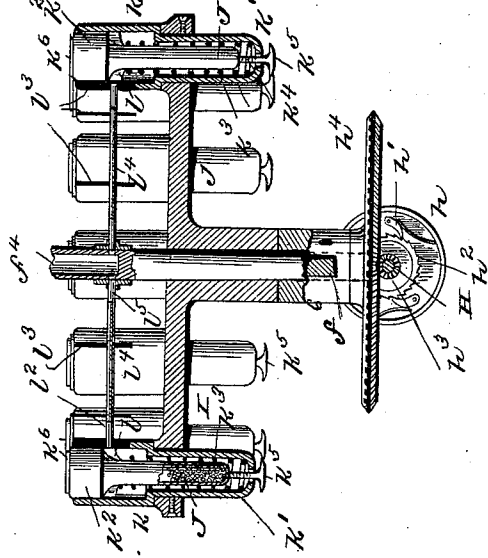
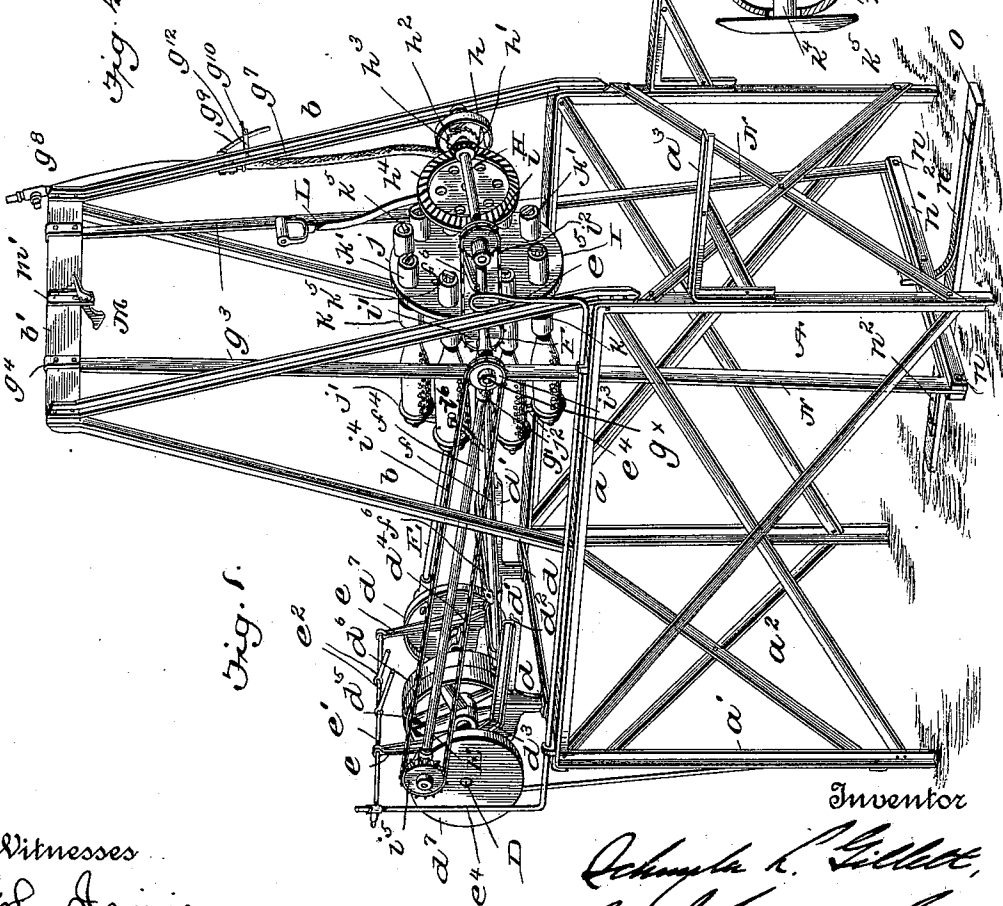
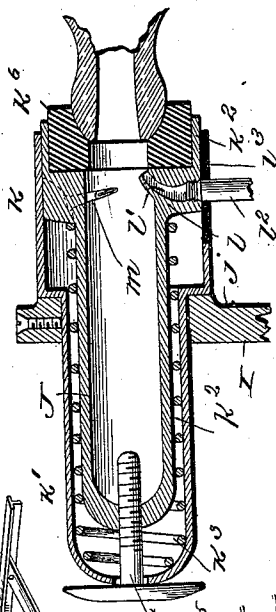


Fig. 5.



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2 Sheets—Sheet 2.

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Fig. 3.

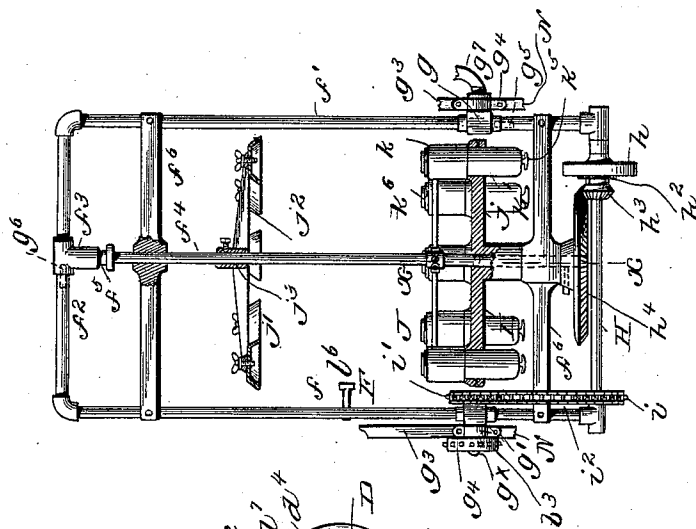
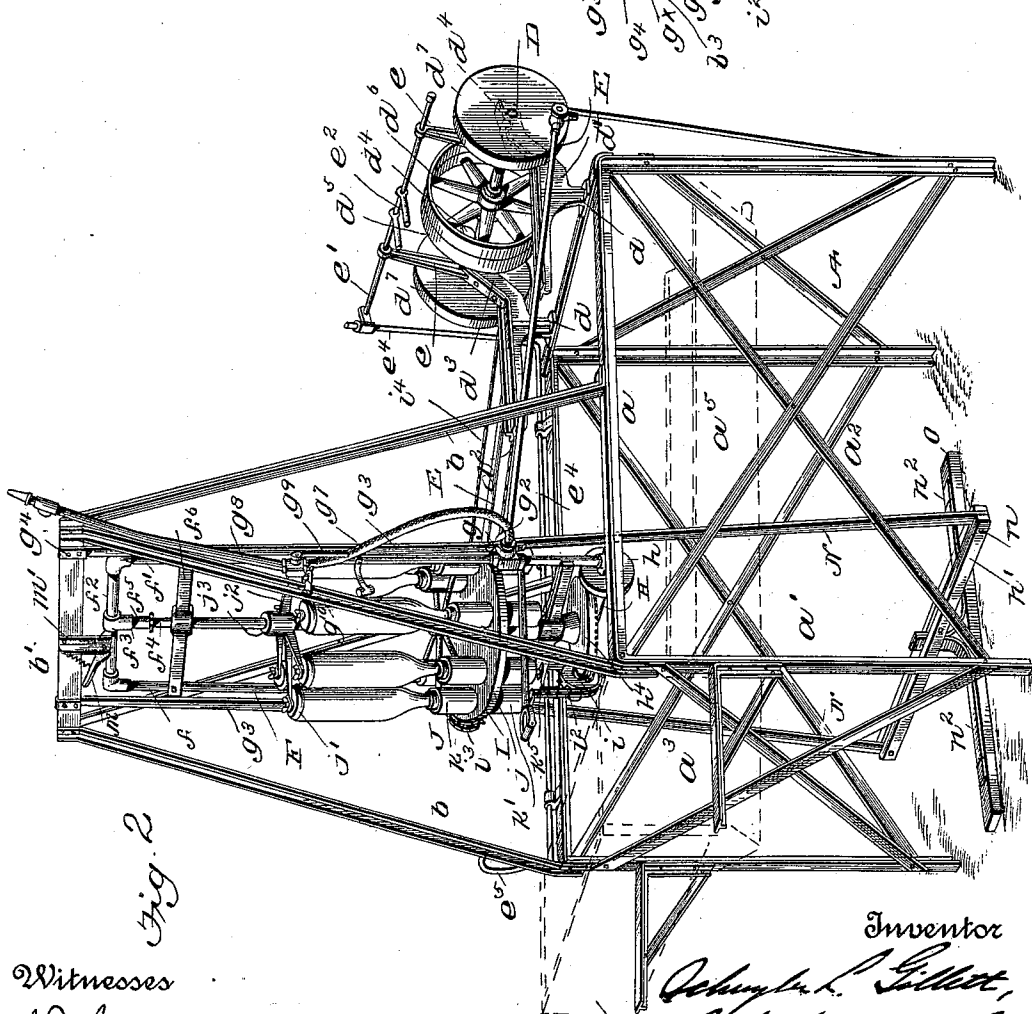


Fig. 2.



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UNITED STATES PATENT OFFICE.

SCHUYLER L. GILLET, OF LIMA, NEW YORK.

BOTTLE-WASHER.

SPECIFICATION forming part of Letters Patent No. 539,384, dated May 14, 1895.

Application filed July 3, 1894. Serial No. 516,480. (No model.)

To all whom it may concern:

Be it known that I, SCHUYLER L. GILLET, of Lima, in the county of Livingston and State of New York, have invented certain new and useful Improvements in Bottle-Washing Machines; and I 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 contemplates certain new and useful improvements in bottle washing machines and is specially designed as an improvement on the machines shown and described in Letters Patent No. 370,693 and No. 434,628, issued to me on September 27, 1887, and August 19, 1890, respectively.

The present invention has for its object to simplify the construction and increase the efficiency of the machines shown and described in said patents, and also to insure the ready feeding or supply of water to the bottles to be cleaned.

A further object is to relieve the frame of the machine as much as possible of the jarring or concussion occasioned by the vibratory action of the reel supporting carriage, and at the same time to cause the cleansing medium in the bottles to have proper contact with the interior of each bottle.

A further object is to so mount the reel-supporting carriage that the same can be easily manipulated and controlled by the operator.

A further object is to provide simple and efficient means for supplying water to the bottles.

To these ends the invention comprises the novel features of construction, and also the detail, arrangement and combination of parts, substantially as hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figures 1 and 2 are views in perspective of my improved bottle-washing machine, the former showing the carriage lowered and the latter with the same raised. Fig. 3 is a transverse sectional view taken through one end of the reel-supporting carriage. Fig. 4 is a sectional view on the line *x x*, Fig. 3. Fig. 5 is an enlarged longitudinal sectional view of one of the shot-cups.

Referring to the drawings, A designates the main frame, which is preferably composed of upper horizontal bars *a*, end vertical bars *a'*, and diagonal brace-bars *a²* which serve to strengthen the frame. To the two vertical bars at the rear of the frame are secured right-angular brackets *a³* designed to support a box or receptacle *a⁴* for holding the bottles to be washed. This box is indicated in dotted lines, as is also the V-shaped trough *a⁵* for catching the drippings from the bottles after the latter have been cleansed. This trough is supported by the diagonal braces at the ends of the frame. To the sides of the frame are secured the lower ends of two pairs of inclined bars *b*, between the upper ends of which is firmly held a cross-bar *b'*. To the forward cross-bar of frame A are secured lower depending portions *d* of angular-bars *d'* having each a lower horizontal flanged portion *d²*, forming guide-ways, an upwardly inclined portion *d³*, and an upper horizontal portion *d⁴*. These latter portions, *d⁴*, form bearings for a drive-shaft D upon which, at the center, are two pulleys, *d⁵*, *d⁶*, one fast, the other loose, while at the ends of said shaft are crank-wheels *d⁷*, to projecting pins of which are secured the forward ends of two pitmen E. To the inclined portions *d³* of these guide bars are connected the lower ends of uprights *e*, through openings in the upper ends of which is passed a rod *e'*, carrying parallel arms *e²*, the same constituting a belt shifter. A rocking-bar *e⁴* loosely held to one side of the frame A is connected at one end to this shifting rod, its other end *e⁵* being convenient to the hand of the operator.

F is the shaker or carriage carrying a bottle-supporting reel which is given a rotary movement concurrent with a back and forth or reciprocating movement of the carriage. This carriage has its two parallel sides and forward end preferably composed of hollow tubes or pipes *f*, *f'*, and *f²*, respectively, the pipe *f²* being connected to the ends of the side-pipes *f*, *f'* by elbow joints. To a T-coupling *f³* projecting from the center of pipe *f²* is connected a hollow shaft *f⁴* by a stuffing box *f⁵*. This shaft extends parallel with the side pipes *f*, *f'*, and is supported by two corresponding cross-pieces *f⁶* connected at their ends to said side pipes. From the side pipes of the carriage,

near the rear end of the latter, project two short hubs or shafts g, g' , the former being made hollow and designed to communicate with the pipe f' to which it is secured. These hubs or shafts are encircled by the lower ends g^2 of spring hanger straps g^3 depending from cross-bar b' , the ends of said straps being held by nutted bolts g^4 . The pipes f', f^2 are plugged, respectively, at g^5 , and g^6 , so that water fed through hollow hub g will travel through pipes f', f^2 , to the hollow shaft f^4 , the supply to said hub being preferably effected through a flexible hose g^7 leading from a water supply-pipe g^8 . In the end of the latter is a suitable valve which is opened and closed by a hand-lever g^9 , the movement of which is limited by an adjustable screw g^{10} working in a rigid arm g^{12} .

The inner ends of the side-pipes of the shaker or carriage support a transversely disposed shaft H upon which is keyed a disk h carrying three spring-pressed pawls h' constantly held in engagement with the toothed or ratchet hub h^2 of a beveled pinion h^3 loose on said shaft. This beveled pinion is constantly in engagement with a beveled gear wheel h^4 whose hub is keyed fast on the rear end of the hollow shaft f^4 . The object of the plurality of spring-pressed pawls carried by the disk is to insure engagement with the toothed or ratchet hub and prevent any back movement. Upon this shaft H is a sprocket wheel i around which and a second sprocket-wheel i' on a small shaft g^x fitted in hub or shaft g' , is passed a chain i^2 . On the outer end of this short shaft g^x is a third sprocket wheel i^3 which is engaged by a chain i^4 passed around a fourth sprocket-wheel i^5 rigidly mounted on the wrist-pin of one of the crank-wheels d' . The pitmen E are loosely connected at their rear ends to these hubs or shafts g, g' . When the shaker or carriage is lowered the forward corners thereof rest in the guide-bars d' .

I is the bottle-supporting reel. The same comprises a circular disk j rigidly mounted on shaft f^4 and supporting the shot-cups J , and the series of holding cups j' corresponding to said shot-cups, said holding cups having their arms j^2 projecting from a hub j^3 adjustable on said shaft f^4 . The shot-cups consist each of an outer cup k open at both ends and having a reduced cylindrical portion k' which is inserted through a corresponding opening in the disk j , and an inner cup k^2 , which is normally held pressed outward by a coil-spring k^3 . From the closed end of this inner cup k^2 projects a screw rod k^4 which works in an opening therein, and is provided at its outer end with an elongated head k^5 which is designed to engage the end of the outer cup. By adjusting this screw-rod the extent of outward movement of the inner cup can be regulated, the head of said screw-rod acting as a stop for said inner cup. In the outer enlarged end of this inner cup is packing k^6 , preferably of rubber, forming a bear-

ing for the mouth of the bottle. Adjacent to this enlarged end of the cup is an inner web or enlargement l having an angular hole or passage-way l' therein, coincident with the outer end of which is a short tube l^2 which is screwed into the thickened wall of the cup. This tube extends through a slot l^3 in the outer cup and is connected by a flexible tube l^4 to a corresponding short tube l^5 projecting from the hollow shaft f^4 . The angular hole or passage-way directs the flow of water into the neck of the bottle. To overcome this difficulty I provide each of the inner cups with an air-vent, which consists of a short tube m of tapering form, fitted in an opening in the wall of the cup, or it may be made integral therewith, and having its inner end extending to about the center of the bore of the cup. This vent-tube permits the air in the bottle to readily escape and prevents splattering of the water at or around the neck of the bottle. By extending this vent-tube to about half across the bore of the cup very little, if any, water will pass therethrough before a sufficient supply has been had to the bottles.

A jarring is given to the bottles by a soft mallet l^6 secured to side-pipe f by a spring arm. As one bottle passes beyond this mallet the latter flies back and strikes the next following bottle.

The shaker or carriage can be raised or lowered by a suitable handle-bar L connected to one of the side-pipes thereof. When placed in a vertical position the cross-pipe f^2 of the carriage is engaged by a spring-held hook M pivoted on a plate m' depending from the bar b' .

N, N , designate two spring bars which at their upper ends are secured to the lower ends of the hanger straps g^3 by the nutted bolts g^4 , said bars at their lower ends being secured to any suitable rocker, that is, they are so mounted or secured at their lower ends that they can move back and forth with the carriage to which their upper ends are connected. These bars are shown as being held by nutted bolts n between two corresponding horizontal clamping bars n' , between which latter, at their centers, are firmly secured the inner, free ends of two straps n^2 . These straps are preferably of belt or sole leather, and their secured ends are attached to a board O , which is held fast by being fastened to the floor.

In practice each cup is supplied with a sufficient quantity of shot, which when the carriage is in a perpendicular position will rest at the bottom of the inner cups. The bottles are positioned in the reel by depressing or forcing inward the inner spring-pressed cups. When the reel has been supplied with its quota of bottles, the operator disengages the spring-pressed hook and allows the forward end of the carriage to lower on to the side-bars a^3 , at the same time gradually opening the water inlet valve allowing each bottle to be about, or nearly, one-half filled, after which the valve is closed. As the bottles are thus being sup-

plied with water and the shot is falling into said bottles the operator moves the belt-shifter throwing the belt on to the fast pulley, causing the revolution of the operating shaft and with it the turning of the crank-wheels, which through the agency of the pitmen will effect a back and forth movement of the carriage as against the action of the spring-bars of the tension mechanism, the operation of said shaft also effecting the revolution of the reel through the agency of the sprocket wheels and chain and the described bevel-gear connection. Thus as the bottles are made to travel back and forth with a jerky movement and also to be gradually revolved the shot in the bottles will be constantly in contact with the interior surfaces of the latter and caused to move from end to end thereof, thus resulting in the thorough cleansing of the bottles. When this has been accomplished the carriage is thrown into a perpendicular position as the belt is shifted onto the loose pulley. The operator then removes the bottles, allowing the water to fall into the lower V-shaped trough, the shot having previously fallen back into their respective cups. The operator can freely turn the reel without interfering with the operating mechanism, the pawl and ratchet connection between the fast disk and loose pinion permitting the reel to be revolved without turning the shaft H.

The advantages of my invention are apparent.

A bottle-washing machine constructed as herein described is extremely simple, is strong and durable, effective in operation and not liable to readily get out of order or be deranged.

I claim as my invention—

1. In a bottle washing machine, the combination with the frame, of the shaker or carriage, means for imparting a reciprocating movement thereto, depending hanger straps supporting said carriage, and perpendicular spring bars held at their lower ends and secured at their upper ends to said hanger straps, substantially as set forth.

2. In a bottle washing machine, the combination with the frame, of the shaker or carriage, means for imparting a reciprocating movement thereto, depending hanger straps supporting said carriage, spring bars secured to said hanger straps, and a yieldingly secured rocker to which said spring bars are connected at their lower ends, substantially as set forth.

3. In a bottle-washing machine, the combination with the frame, of the shaker or carriage, means for imparting a reciprocating movement thereto, depending hanger straps supporting said carriage, spring bars secured to said hangers, a lower clamp to which said spring-bars are connected, and flexible straps connected to said clamp at the center thereof, said straps being held fast at their outer ends, substantially as set forth.

4. In a bottle washing machine, the combi-

nation with the frame, of the carriage, means for imparting a reciprocating movement thereto, supports for said carriage, a lower clamp, straps connected to the center thereof and held fast at their outer ends, and upright spring bars connected at their upper ends to said carriage, their lower ends being secured to said clamp, substantially as set forth.

5. In a bottle-washing machine, the combination with the frame, of the guide-bars secured thereto, the carriage designed to move in said guide-bars and having hubs or shafts extending from its sides, the depending hanger straps holding said hubs or shafts, means for operating said carriage, and spring-bars fast at one end and secured at their other ends to the lower ends of said hangers, substantially as set forth.

6. In a bottle-washing machine, a carriage formed of hollow pipe, a central hollow shaft communicating with said pipe, a reel supported by said shaft having shot cups, a series of corresponding holding cups, connections between said hollow shaft and said shot cups, and feed-water connections with the hollow pipe of one side of said carriage, substantially as set forth.

7. In a bottle-washing machine, a carriage having one of its sides and end made hollow, a coupling extending from said hollow end, a hollow shaft fitted in said coupling, a reel carried by said shaft having a series of shot-cups and a corresponding series of bottle-holding cups, connections between said shot cups and said shaft, hubs or shafts extending from said carriage, one of which is hollow and communicating with said hollow side of said carriage, and a flexible supply-pipe connected to said hollow hub or shaft, substantially as set forth.

8. The combination with the frame, of the carriage having hubs or shafts projecting therefrom, depending hanger straps supporting said hubs or shafts, angular arms secured to said frame having guide-ways for the forward end of said carriage, an operating shaft mounted on said arms having crank-wheels at its ends, pitmen connected to said crank-wheels and also to said hubs or shafts, and upright straps fast at their lower ends and secured at their upper ends to the lower ends of said hangers, substantially as set forth.

9. The combination with the frame, of the carriage having a transverse shaft at its inner end, a longitudinal shaft having the bottle-supporting reel, a beveled gear-wheel on the inner end of said longitudinal shaft, a beveled pinion loose on said transverse shaft, and having a toothed hub, a disk fast on said latter shaft having one or more spring-pressed pawls engaging said toothed hub, the main operating shaft having crank-wheels, and the described series of sprocket wheels and chains connecting one of said crank-wheels to said transverse shaft, substantially as set forth.

10. The combination with the main frame,

of the carriage having hubs or shafts projecting from its sides, hangers holding said hubs or shafts, two sprocket-wheels on one of said hubs or shafts, a transverse shaft at the inner end of said carriage having a sprocket-wheel thereon, a chain encompassing said latter-wheel and one of said wheels on said hub or shaft, a bevel pinion on said transverse shaft, a longitudinally disposed shaft carrying the bottle-supporting reel, a bevel gear-wheel on said longitudinal shaft engaging said bevel pinion, the operating shaft having crank-wheels, pitmen connecting said crank-wheels to said hubs or shafts, a sprocket-wheel carried by one of said crank-wheels, and a chain encompassing said latter sprocket-wheel and the other one of said wheels on said hub or shaft, substantially as set forth.

11. In a bottle-washing machine, a bottle-support having cups comprising, each, an outer stationary cup, an inner spring-pressed cup, and an adjustable stop carried by said inner cup and engaging one end of said outer cup through which it is passed, substantially as set forth.

12. In a bottle-washing machine, a bottle-support having cups comprising, each, an outer stationary cup open at its ends, an inner spring-pressed cup, and an adjustable threaded rod projecting from said inner cup through one end of said outer cup and hav-

ing an elongated head for engaging the latter, substantially as set forth.

13. In a bottle-washing machine, a bottle-support having cups consisting, each, of an outer stationary cup open at its ends, an inner spring-pressed cup having a water inlet and an air-vent, and a threaded rod extending from said spring-pressed cup through one end of said stationary cup and having an elongated head bearing against said latter end of said cup, substantially as set forth.

14. In a bottle-washing machine, a bottle-support having shot cups consisting, each, of an outer stationary cup open at its ends and provided with a slot, an inner spring-pressed cup having a headed rod extended through one end of said outer cup, an air-vent tube extending into said inner cup, and an angular water-passage in said inner cup, and a tube coincident therewith extending through the slot in said outer cup, and a series of cups for receiving the closed ends of the bottles substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

SCHUYLER L. GILLETT.

Witnesses:

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