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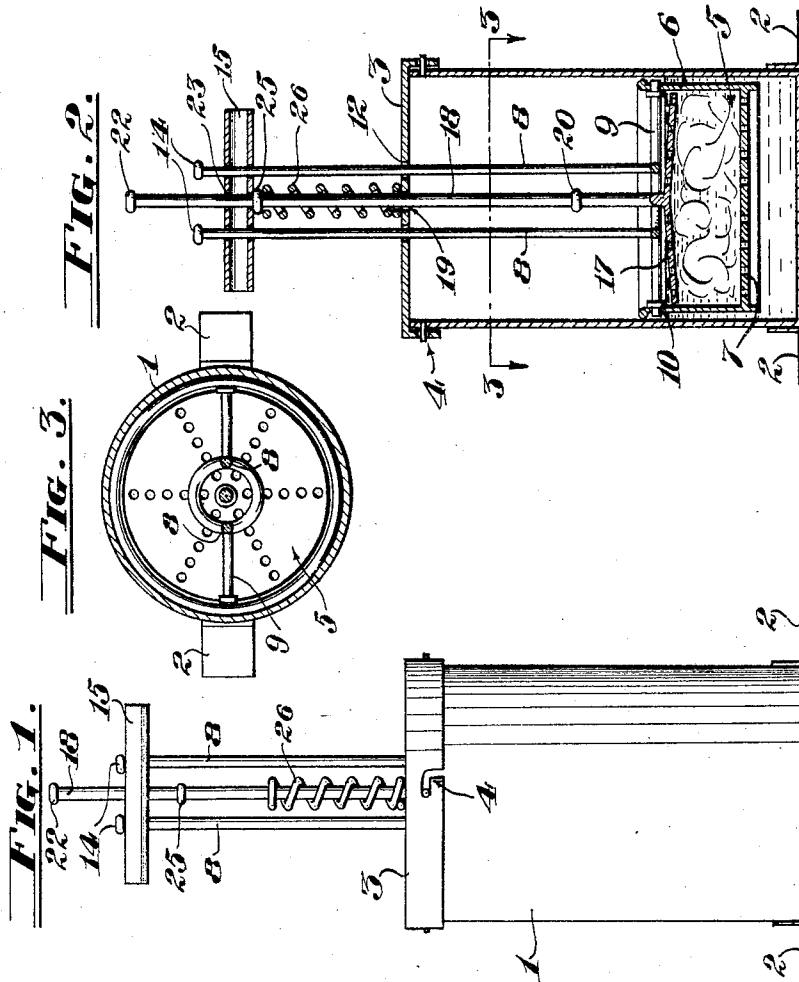
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1,900,927

CLOTHES CLEANING MACHINE

Filed Aug. 24, 1931

3 Sheets-Sheet 1



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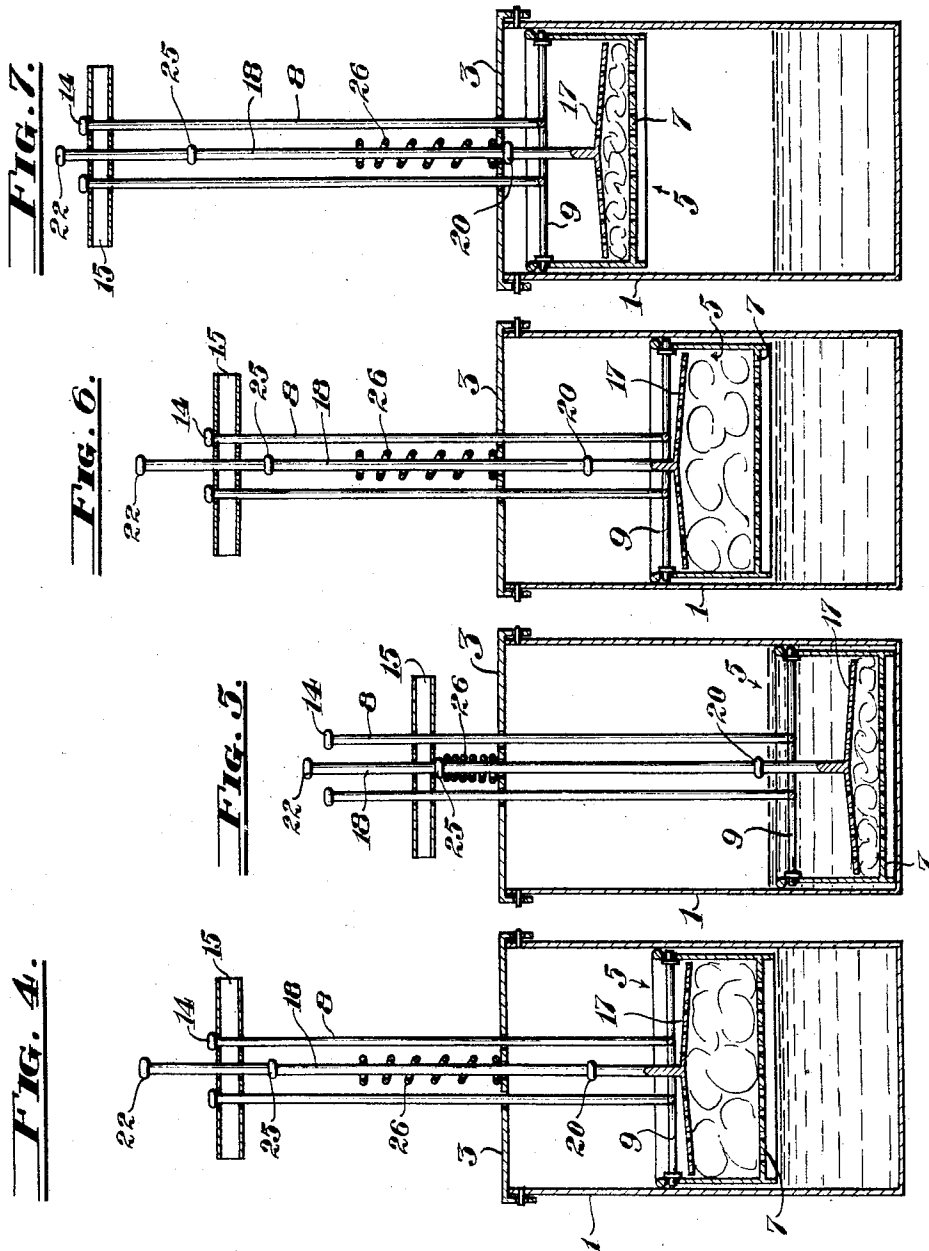
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3 Sheets-Sheet 2



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Fig. 9.

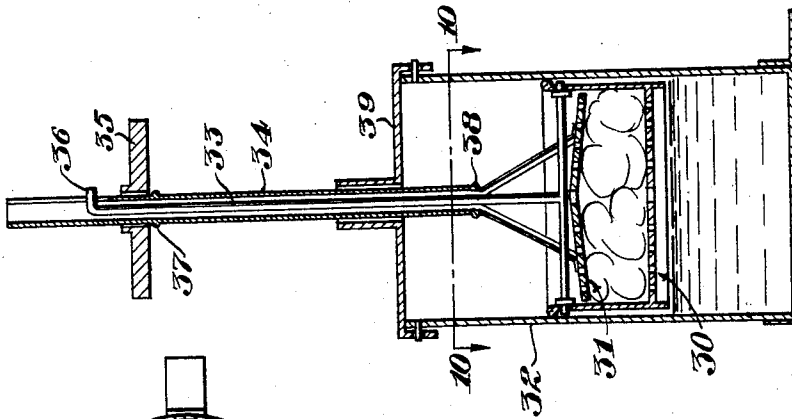


Fig. 10.

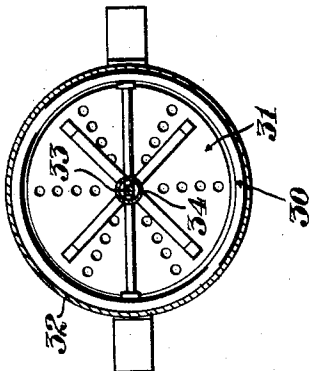
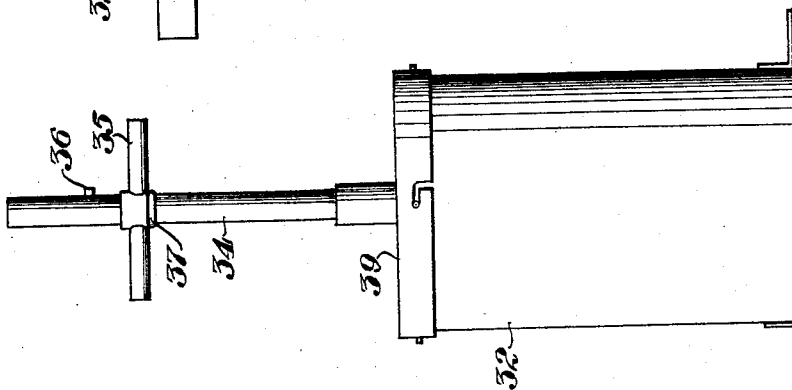


Fig. 8.



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CLOTHES CLEANING MACHINE

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This invention relates to machines for cleaning and washing clothes, and more particularly to a machine for cleaning garments and other pieces made of silk and other delicate fabrics, with gasoline or similar cleaning fluids.

An object of this invention is to provide a small, compact and inexpensive household clothes cleaner with which garments of silk or the like as well as garments and pieces of other delicate fabrics may be thoroughly cleaned in a particularly safe, economical, easy and expeditious manner, and also without causing an appreciable liberation of the noxious fumes of the fluid, or spilling, splashing or otherwise dangerously exposing the fluid during the cleaning operation.

Another object is to provide a cleaning machine wherein the clothes to be cleaned and the cleaning fluid are housed in a closed container and wherein a means operable manually from a point exteriorly of the container provides for forcibly moving the clothes into and out of fluid and for squeezing the clothes without removing the clothes from said container or exposing the cleaning fluid or the clothes to the atmosphere during the cleaning operation.

Yet another object is to provide a cleaning or washing machine such as described wherein the clothes may be squeezed while submerged in the cleaning fluid and while lifted clear of said fluid and also moved into and out of the fluid, all, in such manner as to insure a thorough forcing of the fluid through and an expulsion of the dirt from the clothes with a minimum of manual effort.

With the foregoing objects in view, together with such other objects and advantages as may subsequently appear, the invention resides in the parts and in the combination, construction and arrangement of parts hereinafter described and claimed and illustrated by way of example in the accompanying drawings, in which:

Figure 1 is a side elevation of the machine of this invention;

Figure 2 is a vertical sectional view of the machine showing the parts in the normal

position assumed preliminary to a cleaning operation;

Figure 3 is a cross section taken on the plane of line 3—3 of Figure 2;

Figures 4 to 7, inclusive, are vertical sectional views showing respectively the different positions assumed by the parts during a complete cleaning operation cycle;

Figure 8 is a side elevation of a modified form of the machine;

Figure 9 is a vertical sectional view of the machine shown in Figure 8;

Figure 10 is a sectional view taken on line 10—10 of Figure 9.

The machine of this invention as shown in detail in the accompanying drawings, comprises a portable cleaning tank 1 adapted to be rested on the floor or other support and having foot rests 2 on opposite sides whereby the operator may hold the tank in place during the operation of the machine. In the present instance the tank is cylindrical and comparatively small with its upper end fully open but adapted to be closed by a flanged cover 3 which is removably held in place by a bayonet joint lock arrangement 4. It should be noted that the shape and dimensions of the tank may be varied as desired although for ordinary household uses a small cylindrical tank has proven highly satisfactory.

Vertically reciprocally mounted in the tank is a suitable reticulated clothes basket or container 5 of cylindrical form and of such dimensions that it will have a loose sliding fit in the tank and may be lifted clear of the level of the cleaning fluid indicated at A, without removing the cover 3. In the present case the tank may have a cleaning fluid content of approximately one-third the cubic content thereof and the clothes basket is of less height than the depth of the fluid whereby the basket may be fully submerged or raised into the upper part of the tank above the level of the fluid. As here shown the basket 5 has imperforate sides 6 and perforate bottom 7 disposed above the plane of the lower end thereof to insure unrestricted passage of fluid therethrough, and prevent contact thereof with bottom sediment. However, the basket

may be otherwise reticulated if desired. Spaced parallel operating rods 8 for the basket 5 are fixed upon a cross bar 9 the ends of which are adapted to be seated in openings 10 in opposite sides of the basket. To insert or remove this bar the sides of the basket are sprung apart sufficient to permit of insertion or removal of said bar from the openings 10.

The operating rods extend through openings 12 in the cover 3 and have stops 14 at their upper ends. A handle 15 is freely slidably mounted on said rods so that it may be grasped at its ends on opposite sides of the rods and moved up or down relative to the latter. However, when the handle engages the stops 14 the rods will be lifted upon lifting the handle.

To provide for retaining the clothes in the basket 5 and for squeezing the clothes therein, a perforated plunger plate 17 is reciprocally mounted within the basket beneath the cross bar 9, it being placed in the basket on top of the clothes therein before affixation as aforesaid of said bar to the basket.

To provide for operation of the plunger and the basket also, a plunger rod 18 similar to one of the rods 8 is fixed to the center of the plunger plate 17 and extends upward through an opening 19 in the cover 3 parallel to and between the rods 8, it being slightly longer than the latter.

At a point near its lower end the plunger rod 18 has a stop 20 thereon arranged to engage the cover 3 to limit the upward movement of the plunger plate and basket to the extent shown in Figure 7. At its upper end the rod 18 has a stop 22 corresponding to the stops 14 on the rods 8, it being noted that the rod 18 passes through an opening 23 in the center of the handle 15. A short distance below the stop 22 and below the handle 15, the rod 18 has another stop 25 which permits of downward movement of the basket and plunger plate from positions shown in Figure 4 to positions shown in Figure 5. The stop 25 also engages the upper end of a helical expansion spring 26 arranged on the rod 18, said spring acting to elevate the plunger from the position shown in Figure 5.

To wash or clean clothes or the like, cover 3 is removed and the entire operating structure may be lifted with the cover clear of the tank 1. Next the sides of the basket 5 are sprung apart and the bar 9 is removed from the basket and thereby permits of removal of the plunger plate 17. The proper amount of fluid is now placed in the tank and the clothes are then placed in the basket after which the plunger plate 17 is placed upon the clothes and bar 9 is fitted back in place. The operating unit is now placed in the tank and the cover 3 locked in place by the bayonet lock means 4, the parts then assuming the position shown in Figure 2. The operator now grasps the handle 15 while placing the feet on the

foot rests 2 and lifts the handle whereby to bring the parts to position shown in Figure 4.

On now lowering and pushing the handle 15 the basket is lowered into the fluid, the downward push being effective through the plunger rod 18 and plate 17 when the handle engages the stop 25. The last part of the downward push of the basket, it will be noted, is against the action of the spring 26 which is engaged by the stop 25 and partly compressed in order to bring the basket to the lowermost position as shown in Figure 5. However, when the basket 5 touches the bottom of the tank the plunger plate 17 is still subject to downward movement against the body of clothes in the basket whereby to squeeze the clothes against the bottom of the basket while the clothes are submerged in the fluid. This squeezing action is effected by continuing the downward pressure of the handle until the parts assume the position shown in Figure 5.

Following this the operator lifts the handle and is aided by the spring 26 which in expanding lifts the plunger plate 17 and frees or loosens the clothes so as to allow free saturation thereof on the upstroke of the basket. The lifting of the basket takes place only when the handle 15, which for the most part is lifted by the spring 26 through the stop 25, engages the stops 14 on the rods 8. Further lifting of the handle now lifts the basket and plunger entirely through the rods 8 and when the basket is lifted clear of the fluid to the position shown in Figure 6, the washing operation may be repeated. However, if it is desired to squeeze the clothes while they are suspended above the fluid, the lifting of the handle is continued past the point necessary to raise the basket, as shown in Figure 6, to the point shown in Figure 7.

This squeezing action is effected when the stop 20 engages the under side of the cover 3 and limits upward movement of rod 18 and plunger plate 17, because the further lifting of the handle at such time transmits a lift to the basket through the rods 8 and the clothes are squeezed between the bottom of the basket and the plate 17. After this operation the handle is pushed down to repeat the cleaning operation. It will now be seen that in the operations just described, the clothes are alternately squeezed in and out of the cleansing liquid and also freed or loosened between each squeezing operation.

This squeezing of the clothes while out of the cleansing liquid serves to remove therefrom at least in most part the liquid absorbed thereby together with the foreign matter contained in the liquid dissolved from the clothes, thus rendering the washing action more rapid and effective. But a few operations such as described are ordinarily required to thoroughly clean the clothes. It should be noted that the squeezing operations are optional, inas-

much as up and down rinsing of the clothes may be effected if desired with pushing the handle down or raising it sufficiently to effect the squeezing actions. These actions may be varied as desired as to the extent of squeezing dependent on the nature of the garment or fabric being cleaned. However, squeezing of the clothes on upward stroke of the basket is desirable since this action occurs when the basket and its contents are out of the cleansing liquid and accordingly permits squeezing a major portion of the liquid out of the clothes, either preliminary to removing the latter from the machine or to again submerging the clothes in the liquid, thus obtaining an action similar to that employed in washing clothes by hand where the goods are submerged in the cleansing liquid, lifted out, wrung or squeezed, and the operations repeated until the washing action is completed when a final wringing or squeezing is effected.

It should also be noted that while the machine hereof is especially designed for cleansing clothes with gasoline and like fluids, it could be used in washing small garments of delicate fabrics, in soap and water in the manner of the ordinary washing machine.

In Figures 8, 9 and 10, I have shown a modified form of the machine wherein the same operations are provided with slightly different operating means. In this form of the invention the basket 30, plunger plate 31 and tank 32 are the same in construction and arrangement as are the corresponding parts of the first described machine. However, a single rod 33 is provided for operating the basket, and a tubular rod 34 operates the plunger plate 31, the rod 34 telescoping and extending above the rod 33. A handle 35 is slidable on the rod 34 and engages a stop 36 on the upper end of rod 33 when moved upward and a stop 37 on the rod 34 when moved downward.

To effect the downward squeezing action with this machine, the downward push is transmitted to the plunger plate through the rod 34 when the basket rests on the bottom of the tank. To effect the squeezing action when the basket is raised, the operator lifts the plunger rod 34 until the stop 38 thereon engages the cover 39 and thereafter by continued lifting of the handle against the stop 36 lifts the basket whereby to squeeze the clothes between the bottom of the basket and the plate 17. In all other respects the reciprocating washing or rinsing action is the same as provided in the other form of the invention.

I claim:

1. In a clothes cleaning machine, a tank adapted to contain a cleaning fluid, a basket mounted for vertical reciprocal movement within said tank and adapted to contain clothes to be cleaned, a plunger plate mounted in said basket for limited vertical reciprocal

movement above the clothes therein, a cover closing said tank, means for reciprocating said basket, and plate, and means for moving the basket upward further than said plate to squeeze the clothes therein.

2. In a clothes cleaning machine, a tank adapted to contain a cleaning fluid, a basket mounted for vertical reciprocal movement within said tank and adapted to contain clothes to be cleaned, a plunger plate mounted in said basket for limited vertical reciprocal movement above the clothes therein, a cover closing said tank, and means operable exteriorly of said tank for simultaneously and relatively reciprocating said basket and plunger, said basket having a perforated bottom disposed above the plane of the lower end of the basket to prevent contact of the bottom with sediment in the bottom of the tank.

3. In a clothes cleaning machine, a tank adapted to contain a cleaning fluid, a basket within said tank adapted to contain clothes to be cleaned, a plunger plate within said basket arranged to extend above clothes in the latter, said basket and plate being mounted for vertical reciprocal movement in said tank, means for limiting downward movement of said basket in said tank, means for limiting upward movement of said plate relative to the basket, and means for collectively raising and lowering said basket and plate including means for advancing said plate downwardly relative to said basket at the terminus of the down stroke of the latter, and also including means for effecting upward movement of said basket relative to said plate at the terminus of the upstroke of the latter.

4. In a clothes cleaning machine, a tank, a clothes receiving basket in said tank, a plunger plate in said basket, means for vertically reciprocating said basket and plate, and means for limiting upward movement of said plate relative to upward movement of said basket; said basket and plate reciprocating means including means for advancing said plate downwardly relative to said basket, and means for advancing said basket upwardly relative to said plate beyond the limit of upward movement of the latter.

5. In a clothes washing machine, a tank, a cover for said tank, a basket mounted in said tank for vertical reciprocable movement therein, an operating rod connected to said basket extending upwardly through said cover, a plunger plate mounted in said basket for vertical reciprocable movement relative thereto, a plunger rod connected to said plate extending upwardly parallel with said operating rod, a handle slidably carried on said rods, a projection on said operating rod engageable by said handle on upward movement thereof, a projection on said plunger rod engageable by said handle on downward move-

ment thereof, and means for limiting upward movement of said plunger rod to arrest movement of said plunger plate during upward movement of said basket.

5 6. In a clothes cleaning machine, a tank, a cover thereon, a basket within said tank, a vertically reciprocable operating rod connected to said basket leading upwardly through said cover, a stop on the upper end
10 of said operating rod, a handle slidable relative to said rod longitudinally thereof and adapted to engage said stop on upward movement of said handle, a plunger plate within said basket, a vertically reciprocable plunger
15 rod connected to said plate leading upwardly through said cover and passing freely through said handle, and a stop on said plunger rod beneath said handle arranged to be engaged by the latter on downward movement there-
20 of.

7. In a clothes cleaning machine, a tank, a cover thereon, a basket within said tank, a vertically reciprocable operating rod connected to said basket leading upwardly
25 through said cover, a stop on the upper end of said operating rod, a handle slidable relative to said rod longitudinally thereof and adapted to engage said stop on upward movement of said handle, a plunger plate within
30 said basket, a vertically reciprocable plunger rod connected to said plate leading upwardly through said cover and passing freely through said handle, a stop on said plunger rod beneath said handle arranged to be en-
35 gaged by the latter on downward movement thereof, and means for limiting upward movement of said plunger rod relative to said operating rod.

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