

## A HYGIENE CLOTH DISPENSER WITH A VERTICAL MOTION DRIVE MULTI-CYLINDER CARTRIDGE

5

### TECHNICAL FIELD

The invention is related to a hygiene cloth dispenser with a vertical motion drive multi-cylinder cartridge which provides increasing the low tablet numbers in the hygiene cloth dispensers and extends the cartridge filling time.

10

### STATE OF THE ART

In the document titled as the tabletop hygiene cloth dispenser with the application No TR2017/11970, a dispenser having a mechanism which allows simultaneous movement of the hygiene cloth and the solution stored in different areas by means of a single mechanism, enables the tablets included in a single cartridge holder into the liquid chamber. Since the dispenser comprises a single cartridge holder (cartridge), replacement of the cartridge is required in a frequent manner.

The invention No TR2016/04906 is related to a tissue dispenser which is used as a tabletop tissue distributor generally used in social living spaces such as restaurant, cafe etc.; which has, an inner liner having a lower base, an outer liner which is mounted on said inner liner by means of fitting thereon, a spring centered in said inner liner, a plate which is located on said spring and is connected with the spring, a cover which closes said outer liner and the inner liner; in the assembly of said outer liner to the inner liner; comprises a nail formed on the edge portion of the outer liner, a nail housing formed on the edges of the inner liner, a hinge tongue which enables said cover to work with a rotational movement on the inner liner; is formed on the cover, a flexible lug formed on the inner liner on which the hinge tongue will be located, a slit formed on the outer liner, a stroke channel formed on the inner liner in order to determine the stroke of the spring-plate assembly and an "L" formed stroke hook formed of the plate, a four-sided advertisement which can be attracted between the inner liner and the outer liner.

In the Turkish patent No TR2016/04906, a box with a rectangular prism shape provides the spring located on the base portion thereof and the tissues located thereon to be pushed towards the upper portion of the box by means of the compressive force of the spring.

5

US9629509 is related to a wet towel dispenser which comprises a container, an upper portion with a wipe outlet hole, a wipe support for holding an inclined wet towel stack in order to move thereof upwardly and at least one wet wipe dispenser apparatus comprising at least one suppository of the container for applying wetness to the towels of the stack.

10

In the American patent No US9629509, the tissues are ascended upwardly by the compressive force of the spring and at this time they get wet.

## 15 **DEFINITION OF THE INVENTION**

The present invention is related to a hygiene cloth dispenser with a vertical motion drive multi-cylinder cartridge which is developed in order to eliminate the abovementioned disadvantages and to bring new advantages to the relevant technical field.

20

An aim of the invention is to provide at least one preferably four cylindrical cartridge holders (cartridge) which has a cylindrical base that can rotate around its own axis and located in a vertical manner on this cylindrical base for creating an opportunity for using a plurality of cartridge holders (cartridge).

25

It comprises drive gear which enables the drive of the cylindrical base and is located and/or coupled under this base.

It comprises a drive gear which receives motion from the presser shaft that moves in a downward and upward manner in order to give motion to the located and/or coupled drive gear, transforms the motion received from the vertical to a circular motion.

30

## Drawings

The embodiments of the present invention which are above summarized in brief and discussed in detail herein below can be understood by means of referring to the exemplary embodiments of the invention which are illustrated in the attached drawings. However it shall be noted that the attached drawings hereto only  
5 illustrate the typical embodiments of this invention, and for this reason this invention may permit other equally effective embodiments, it shall be mentioned that these are not considered as limiting the scope of the invention.

- 10 Figure 1 is an isometric view of the dispenser base portion
- Figure 2 is an isometric view of the table gear
- Figure 3 is an isometric view of the gear portion which transforms the vertical motion into an axial rotation motion
- Figure 4 is an isometric view of the table gear
- 15 Figure 5 is a bottom view of the housing portions on the base
- Figure 5 is a top view of the housing portions on the base
- Figure 6 is the drive and solution discharge knob
- Figure 7 is the button housing
- Figure 8 is the button cap
- 20 Figure 9 is the top view of the depot cover
- Figure 10 is the isometric view of the depot section
- Figure 11 is the isometric view of the depot pressure shovel
- Figure 12 is a top isometric view of the hygiene cloth discharge mechanism
- Figure 13 is a bottom isometric view of the hygiene cloth discharge mechanism
- 25 Figure 14a is a top isometric view of the cartridge fixing closure
- Figure 14b is a bottom isometric view of the cartridge fixing closure
- Figure 15a is an isometric view of the cartridge frame
- Figure 15b is a top view of the cartridge frame
- Figure 16 is an isometric view of the cartridge shaft
- 30 Figure 17 is an isometric view of the cartridge assembly
- Figure 18 is a solution discharge pipe
- Figure 19 is an isometric view of the dispenser upper cover

Figure 20 is an isometric view of the dispenser base portion together with the gear mechanism

Figure 21 is an isometric view of the dispenser base portion gear mechanism and hygiene cloth discharge mechanism

5 Figure 22 is an isometric view of the cartridge assembly on the dispenser base portion

Figure 23 is an isometric view of the fully assembled cartridge on the dispenser base portion

10 Figure 24 is a front isometric view of the fully assembled cartridge on the dispenser base portion

Figure 25 is an isometric view of the dispenser with all its elements together with the realized assembly of the upper cover

15 For facilitating understanding, in referring to the common equivalent elements in the drawings, where appropriate, identical reference numbers are used. The figures are not scaled and they are simplified for clarity. It is considered that the elements and characteristics of one embodiment can be incorporated into other embodiments in a beneficial manner without requiring additional explanation.

## 20 Description of the References

10- Base

10a- Centering shaft

11- Depot housing

25 12- Mechanism housing

13- Button

13a- Button container

13b- Button fixing extension

13c- Button vertical motion transfer end

30 13d- Button cover

13e- Solution discharge channel

14- Motion transfer shaft

15-Pool

|    |                                            |
|----|--------------------------------------------|
|    | 16- Depot pressure flag shaft              |
|    | 17- Depot pressure flag shaft housing      |
|    | 18- Fixing housing                         |
|    | 19a- Motion transfer arm shaft housing     |
| 5  | 19b- Motion transfer arm motion gap        |
|    | 20- First gear                             |
|    | 20a- First gear stage                      |
|    | 21- First gear shaft                       |
|    | 22- Gear cover                             |
| 10 | 23- First gear housing                     |
|    | 24- Second gear housing                    |
|    | 25- Transfer part                          |
|    | 26- Motion transfer housing                |
|    | 26a- Stopper wall                          |
| 15 | 26b-Inclined path                          |
|    | 26c- Starting region                       |
|    | 27a- Second gear                           |
|    | 27b- Second gear shaft                     |
|    | 27c- Second gear stage                     |
| 20 | 28- Drive and solution discharge arm       |
|    | 28a-Drive and solution discharge arm shaft |
|    | 28b- Motion transfer end                   |
|    | 28c- Stem                                  |
|    | 29- Gasket                                 |
| 25 | 30- Depot section                          |
|    | 31- Depot cover                            |
|    | 32- Solution transfer end                  |
|    | 32a- Transfer hose                         |
|    | 33- Depot chamber                          |
| 30 | 34- Depot pressure flag                    |
|    | 35- Depot pressure flag shaft housing      |
|    | 40- Hygiene cloth pusher                   |
|    | 41- Push rod                               |

- 42- Orientation wall  
43- Pusher connection gap  
50- Fixing closure  
50a- Discharge opening  
5 50b- Friction region  
50c- Abutment wall  
50e- Abutment region  
51- Cartridge Frame  
50d- Fixing closure upper surface  
10 51a- Cartridge housing  
52- Cartridge shaft  
53- Cartridge  
53a- Hygiene cloth housing  
60- Dispenser cover  
15 61- Cartridge cover  
62- Depot cover opening  
63- Button section  
70- Hygiene cloth

20

**DETAILED DESCRIPTION OF THE INVENTION**

In this detailed description, the preferred alternatives of the inventive tabletop hygiene cloth dispenser configuration is described only for clarifying the subject matter such that no limiting effect is created.

25

The subject of the invention is related to a dispenser which has a motion transfer mechanism formed with gears and channels located on a base (10) and solution and hygiene cloth (70) discharge configuration.

- 30 The inventive dispenser comprises; a hygiene cloth (70) mounted between a base (10) and a dispenser cover (60) and a solution discharge mechanism.

The base (10) contains a depot housing (11) and a mechanism housing (12), a pool (15), a button (13), a button container (13a), a button fixing extension (13b), a Button vertical motion transfer end (13c), and a solution discharge channel (13e) above. The depot chamber (33) is mounted by means of fitting into the depot housing (11).  
5

The mechanism housing (12) accommodates the first gear (20) and the second gear (27a) which are fitted therein and provide motion transfer. The gears are located in the housing by means of the centering shaft (10a) found in the mechanism housing (12). After the first gear (20) and the second gear (27a) are positioned in the housing, the mechanism housing is mounted by closing the gear cover (22) thereon.  
10

The gear cover (22) has a first gear housing (23) and a second gear housing (24) on it at the level of the gears. These housings allow the first gear stage (20a) and the second gear stage (27c) located on the gears to extend in the form of protrusions creating a stage for the rotatable mechanisms mounted on them. The first gear (20a) enables an opening which is left between the hygiene cloth pusher (40) and the gear cover (22) by preventing the hygiene cloth pusher (40) which is mounted on it and makes a rotational motion with a 90 degree angle each time the button (13) is pressed, residing directly on the gear cover (22). This opening prevents the gear cover (22) from being damaged due to the friction caused by each rotation of the hygiene cloth pusher (40) when the mechanism is working.  
15  
20

After the gear cover (22) assembly, the hygiene cloth pusher (40) is mounted to the section by passing through the first gear shaft (21) in a manner such that it fits onto the first gear stage (20a) on the first gear (20).  
25

The hygiene cloth pusher (40) together with fitting the first gear shaft (21) on the pusher connection opening (43) found in the bottom connection portion of the push rod (41) located on it, is mounted on the first gear stage (20a) on the first gear (20). The hygiene cloth pusher (40) has orientation walls (42) on it which push the circular hygiene cloths (70) which are fed from the cartridge (53) into the  
30

pool (15) through the discharge opening (50a) each time the button (13) is pressed.

The hygiene cloth pusher (40) has 4 different tasks and functions in the system.

5 These task and functions are as follows:

- 1- Pushing the hygiene cloth (70) into the pool (15).
- 2- Rotating the battery.
- 3- Putting forward the hygiene cloth (70) at the back for the next used by passing over the hygiene cloth (70) in the channel.
- 10 4- Not rotating frictionally due to the distance formed between the gear cover (22) and its base by its fitting on the gear stage (27c) from its base and eliminating the effects which may give harm to the parts due to friction such as abrasion, heating etc.

15 After the assembly of the hygiene cloth pusher (40), a fixing closure (50) which remains fixed by preventing dispensing of the hygiene cloths (70) with the rotational motion located on the hygiene cloth pusher (40), at the same time by fitting the abutment wall (50c) located on the bottom portion of the hygiene cloth pusher (40) while rotating into the abutment region (52) which corresponds to it on  
20 the dispenser cover (60), has a discharge opening (50a) which creates an opening that enables the hygiene cloth (70) to fall into the pool (15) section, is mounted on the pusher. The fixing closure (50) has a cartridge opening (50d) which forms a housing for the cartridge frame (51) on its upper portion, a friction region (50b) which eliminates the heat formed due to the friction occurred while  
25 the system operates in a manner of sequentially linear frequent gaps on its lower portion. The cartridge housing (51) fits into this cartridge opening (50d) and has an abutment wall (50c) in this section which enables the cartridge housing (51) to remain stable while rotating. The hygiene cloth (70) among the overlapping hygiene cloths (70) located in the cartridge (53) hygiene cloth housing (53a) to be  
30 discharged in the pool (15) when the button is pressed is located between the orientation wall (42) on the hygiene cloth pusher (40). When the button (13) is pressed, the hygiene cloth pusher (40) pushes the hygiene cloth (70) on it by rotating to the orientation wall (42) discharge opening (50a) and drops into the

pool (15). The next hygiene cloth (70) in the hygiene cloth housing (53a), simultaneously with this process, comes onto the hygiene cloth pusher (40) at the next pressing on the bottom (13) for discharge by means of passing over the hygiene cloth (70) in the channel, over the upper surface of the fixing closure  
5 (50d).

The cartridge frame (51) has cartridge housings (51a) on it which enables mounting the cartridges (53) comprising hygiene cloths (70) in it by means of matching thereof with the discharge system. The cartridge frame (51) is mounted  
10 on the fixing closure (50) by the cartridge shaft (52).

The cartridge (53) section has hygiene cloth housing (53a) having bilateral opening which both enable feeding and discharge of the hygiene cloths (70). Each cartridge (53) hygiene cloth housing (53a) receives 15 hygiene cloths (70). The  
15 cartridge (53) fits into the cartridge housings (51a) located on the cartridge frame (51) by the cartridge shaft (52). The integral structure consisting of the cartridge (53), cartridge frame (51), cartridge shaft (52), fixing closure (50) and hygiene cloth pusher (40) is called the battery which is formed after the cartridge (53) fits on the cartridge frame (51). Each battery has 4 cartridges (53) and contains 60  
20 hygiene cloths (70) in total. Each cartridge (53) is manufactured from paper or a paper derived material and does not contain any plastic material. The feeding opening of the hygiene cloth (70) is closed with the cartridge cover (61) and thus the foreign material inlet is prevented.

25 A second gear (27a) is fitted into the second gear housing (24) opening. A second gear (27a) is mounted by means of fitting a transfer part (25) on it from the second gear housing (24) section. The transfer part (25) transforms the vertical motion formed when the button is pressed to the rotational motion and transfers to the second gear (27a) at the same time when this motion formed by means of  
30 pressing the button (13) is transferred to the drive and solution discharge arm (28) and thus this allows for the motion of the mechanism which enables to pull the solution within the depot chamber (33) by the pressure difference. When the button (13) is pressed, the button container (13a) moves in a vertical manner

downwardly and together with the button container (13a) the button vertical motion transfer end (13c) slides along the inclined path (26b) from the starting region (26c) of the motion transfer housing (26) and enables circular motion of the transfer part (25) until it abuts to the stopper wall (26a) and thus enables the  
5 second gear (27a) to run the below drive mechanism by means of rotating. When the user releases the vertical pressure applied on the button (13), the button passes to the starting region (26c) of the next motion transfer housing (26) following the vertical motion transfer end (13c) by sliding in an upward manner throughout the orientation wall (26d) and thus it takes its initial position.

10

The rotational motion of the second gear (27a) is transferred to the first gear (20). The first gear shaft (21) also rotates together with the rotation of the first gear (20). The rotation of the first gear shaft (21) also rotates the hygiene cloth pusher (40) thus the fixing closure (50) on it. The rotation of the fixing closure (50) rotates  
15 the cartridge frame (51) located on it and the matching of the discharge end of the cartridge (53) and the discharge opening (50a) is provided. Together with this matching, the hygiene cloth (70) falls from the discharge opening (50a) and it falls onto the hygiene cloth pusher (40) by slipping through the upper surface of the fixing closure (50d). The hygiene cloth (70) located on the hygiene cloth pusher  
20 (40) falls into the pool (15) and combines with the solutions by the rotational motion and pushing of the orientation wall (42). This motion is repeated every time button (13) is pressed.

The button (13) section consists of the button container (13a), button fixing extension (13b), vertical motion transfer end (13c) and the button cover (13d). The  
25 button container (13a) can move in a vertical manner downwardly by the spring system located at the bottom portion when the button (13) is pressed. It transfers this vertical motion to the rest of the mechanism by the vertical motion transfer end (13c) on it.

30

The depot section (30) consists of the depot cover (31), solution transfer end (32), transfer hose (32a), depot chamber (33) and gasket (29). The gasket (29)

prevents the leakage of the solution by being positioned inside the depot cover (31).

The motion transfer shaft (14) has a motion transfer arm motion gap (19b) which  
5 constitutes the housing of the drive and solution discharge arm (28) element stem  
(28c) section on the upper portion and a motion transfer arm shaft housing (19a)  
constituting the motion transfer arm shaft (28a) section housing. The discharge  
and solution discharge arm (28) is connected to the button (13) section from the  
stem (28c) section and is in contact with the end portion of the depot pressure flag  
10 (34) from the motion transfer arm (28b) section. When the user starts a vertical  
motion by applying a pressure on the button (13) in a vertical direction, the stem  
(28c) will move vertically in a downward manner however since the motion  
transfer arm shaft (28a) is fixed within the motion transfer arm shaft housing  
(19a), the motion transfer arm (28b) end will move in an upward manner and will  
15 push the depot pressure flag (34).

The depot pressure flag (34) is connected with the depot pressure flag shaft (16)  
from the depot pressure flag shaft housing (35). Therefore, the pushing motion  
coming from the motion transfer arm (28b) pushes the end portion in a forward  
20 manner; the depot pressure flag shaft (16) is rotated. When the depot pressure  
flag shaft (16) rotates, the pressure difference mechanism within the depot  
chamber (33) activates and the solution within the chamber is pulled to the  
solution transfer end (32) and passes through the transfer hose (32a) and finally  
pours into the pool (15) through the discharge channel (13e) and combines with  
25 the hygiene cloth (70).

## CLAIMS

- 1- This invention is related to a tabletop hygiene cloth dispenser mechanism  
5 having a mechanism for feeding the solution to the system with pressure difference of the solution by transferring motion by means of the depot section (30), button section (63) and the drive and solution discharge arm (28), **characterized in that**; it is a hygiene cloth dispenser structure which comprises the following;
- 10 - a base (10) which has a motion transfer mechanism which is formed by the gears and channels on it,
- a transfer part (25) which allows transferring the vertical motion formed when the button is pressed by means of transforming it into a rotational motion,
- 15 - a gear cover (22) which has a first gear housing (23) and a second gear housing (24) on it at the level of the gears, allows for fitting a mechanism on it while it covers the top portion of the gear mechanism,
- a gear mechanism which enables the rotational motion transfer,
- a battery which is an integral structure of the mechanism which contains  
20 the hygiene cloths (70) and enables transfer of the hygiene cloths (70) to the pool (15) section respectively,
- a dispenser cover (60) which is mounted over the base to protect the dispenser mechanisms in a manner such that it covers the top portion of the mechanisms.
- 25
- 2- The invention is a hygiene cloth dispenser structure according to claim 1, **characterized in that**; It is a base (10) which comprises
- a depot housing (11) in which the depot section (30) is fitted,
- a mechanism housing (12) for the gear mechanism which enables  
30 transferring the rotational motion,
- a pool (15) in which the discharged solution and the hygiene cloth (70) are dropped and combined,

- a button (13) which drives the mechanisms within the system by the pressing motion applied on it,
- a solution discharge channel (13e) which creates a path for transferring the solution coming from the depot section (30) into the pool (15).

5

3- The invention is a hygiene cloth dispenser structure according to claim 1, **characterized in that;** It is a transfer part (25) which comprises the following;

10

- at least one motion transfer housing (26) which allows for transforming the vertical direction motion into a rotational motion,
- A starting region (26c) which keeps the button vertical motion transfer end (13c) as a part of the system together with the button container (13a) when the button (13) is pressed within the motion transfer housing (26),

15

- an inclined path (26b) where the rotational motion by sliding of the button vertical transfer end (13c) to the button (13),

- a stopper wall (26a) which forms a support for the vertical motion transfer end (13c) to stop thereof in order to terminate the rotational motion,

20

- an orientation wall (26d) which enables passage of the button vertical motion transfer end (13c) to the starting region (26c) of the next motion transfer housing (26) when the user releases the vertical pressure applied on the button (13).

4- The invention is a hygiene cloth dispenser structure according to claim 1, **characterized in that;** It is a battery which comprises the following;

25

- a hygiene cloth pusher (40) which makes a rotational motion with 90 degrees each time the button (13) is pressed,
- a fixing closure (50) which allows for dropping the hygiene cloth (70) into the pool (15) and combines with the solution and remains stable when the system rotates,

30

- a cartridge frame (51) which has a rotatable structure and forms a body to the cartridge structure which fits on the fixing closure (50) and contains the hygiene cloths (70),

- a cartridge shaft (52) which provides the fixing closure (50) to remain stable while transferring the rotational motion to the cartridge frame (51) that is received while passing through the cartridge frame (51),
- at least one cartridge (53) with open-ends on two sides which contains overlapping hygiene cloths (70).

5

5- The invention is battery structure according to claim 4, **characterized in that**; it is a hygiene cloth pusher (40) comprising the following;

10

- A push rod (41) which enables to mount rotatable elements with cartridges on it and allows for transferring the rotational motion to these elements,
- A pusher connection gap (43) which is located at the bottom connection section of the push rod (41) and is mounted by passing through the first gear shaft (21) for receiving the motion of the first gear (20),
- the hygiene cloth pusher (40) which has orientation walls (42) on it that push and direct the hygiene cloths (70) fed from the cartridge (53) into discharge opening (50a) each time the button (13) is pressed.

15

6- The invention is battery structure according to claim 4, **characterized in that**; it is a fixing closure (51) comprising the following;

20

- a discharge opening (50a) which forms a gap that enables the hygiene cloth (70) into the pool (15) section,
- a cartridge opening (50d) which forms a housing for the cartridge frame (51) on its upper portion,
- a friction region (50b) which eliminates the heat formed due to the friction occurred while the system operates in a manner of sequentially linear frequent gaps on its lower portion,
- an abutment wall (50c) which enables itself stable when the cartridge housing (51) on it fits into the abutment region (50e) corresponding to it while rotating.

25

30

7- The invention is battery structure according to claim 4, **characterized in that**; it is a cartridge frame (51) which has cartridge housings (51a) on it

which enables mounting the cartridges (53) comprising hygiene cloths (70) in it by means of matching thereof with the discharge system.

5 8- The invention is battery structure according to claim 4, **characterized in that;**

- it is a cartridge (53) which has at least one hygiene cloth housing (53a) with open ends in both sides which enables both feeding and discharge of the hygiene cloths (70), is manufactured from paper or paper-derived material.

10

9- The invention is a hygiene cloth dispenser structure according to claim 1, **characterized in that;** It is a dispenser cover (60) which comprises the following;

15

- An abutment region (50e) which is a region for the abutment wall (50c) located on lower portion of the hygiene cloth pusher (40) of the fixing closure (50) which is while rotating located on the upper portion,

- A cartridge cover (61) which closes the feeding gap of the hygiene cloth (70) and prevents foreign material to enter,

20

- A depot cover opening (62) which allows for engaging the depot cover (31) with the depot section (30),

- A button section (63) which moves in a vertical manner downwardly with the pressure applied on it and transfers this motion to the rest of the system, turns back to its initial position when the pressure on it is released by means of the spring system in it.

25

10-The invention is a hygiene cloth dispenser structure according to claim 1, **characterized in that;** it is a gear mechanism comprising the following;

- the first gear (20) and the second gear (27a) which are fitted into the mechanism housing (12) and provide motion transfer.

30

- a centering shaft (10a) which enables the gears to locate in the mechanism housing (12),

- wherein after the first gear (20) and the second gear (27a) are positioned in the housing, the mechanism housing is mounted by closing the gear cover (22) thereon.
- the first gear stage (20a) which enables an opening which is left between the hygiene cloth pusher (40) and the gear cover (22) by preventing the hygiene cloth pusher (40) which makes a rotation with 90 degrees angle each time the button (13) is pressed to fit directly on the gear cover (22) and prevents giving damage to the gear cover (22) due to friction by means of this gap each time the mechanism operates and the hygiene cloth pusher (40) rotates.

11-The invention is a hygiene cloth dispenser according to claim 1, **characterized in that**; it is a hygiene cloth (70) which is transformed into a tablet folded and compressed from the paper material, transforms into a wet towel when it is combined with the solution.