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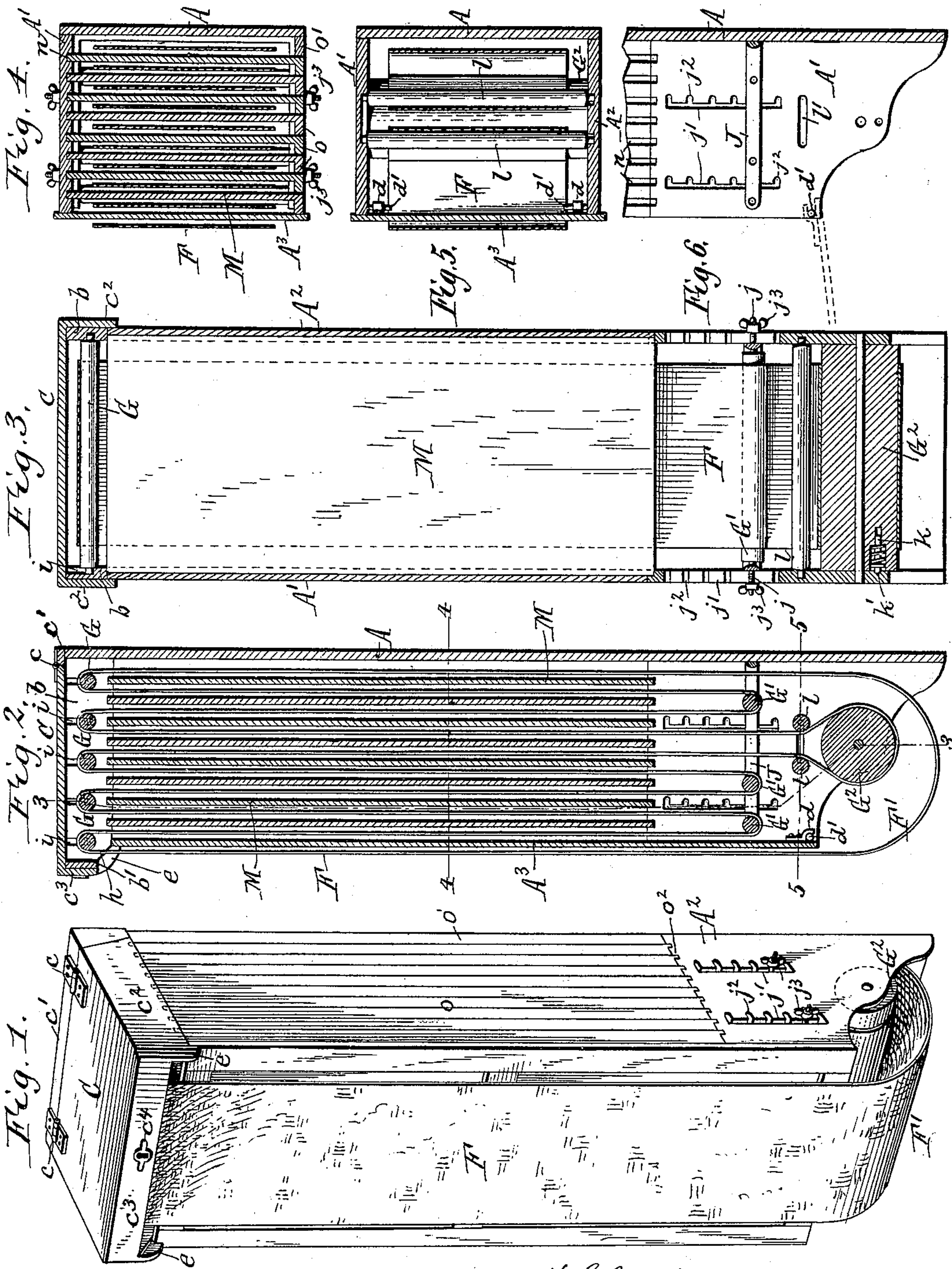
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H. C. McDONALD.

TOWEL RACK.

(Application filed Feb. 13, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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TOWEL-RACK.

SPECIFICATION forming part of Letters Patent No. 629,458, dated July 25, 1899.

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To all whom it may concern:

Be it known that I, HOWARD C. McDONALD, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Towel-Racks, of which the following is a specification.

This invention relates to a rack for supporting a towel, consisting of an endless band or strip of material.

The principal object of my invention is the provision of a compact rack which will support an endless towel of considerable length in a small compass, so that the towel will last a comparatively long time, saving the time and trouble of frequently changing the towels, which is an important consideration in factories and other buildings where a large number of towels are daily used.

My invention has the further object to so construct the rack that the towel can be conveniently applied and removed, to render the towel-supports easily adjustable, so that more or less slack may be left in the exposed outer portion of the towel, and to provide simple means for keeping the towel out of contact with the sides of the casing to prevent binding of the same.

In the accompanying drawings, Figure 1 is a perspective view of my improved towel-rack. Fig. 2 is a vertical central section thereof at right angles to the towel-supporting rollers. Fig. 3 is a vertical section in line 3 3, Fig. 2. Figs. 4 and 5 are horizontal sections in the correspondingly-numbered lines in Fig. 2. Fig. 6 is a vertical section of the lower portion of the rack, similar to Fig. 2, with the towel, its guide and supporting rollers, and the partitions removed.

Like letters of reference refer to like parts in the several figures.

The upright casing or cabinet of the rack is rectangular in form and preferably comprises a back A, extending from top to bottom of the rack, side walls A' A², a movable front plate or door A³, a top frame composed of side bars b, secured at their rear ends to the back A, and a cross-bar b', connecting the front ends of said bars, and a vertically-swinging top lid C, hinged at c to a strip c', which is secured to the upper end of the back A. This top lid is provided with depending side

flanges c², which overlap the side walls of the rack, and with a depending front flange c³, which overlaps the cross-bar b' and to which the lid may be normally locked by a lock c⁴ of any suitable construction. The front plate A³ is provided at its lower end on its inner side with hooks or open bearings d, whereby it is pivotally supported on horizontal pins d', projecting from the inner sides of the side walls A², as shown in Figs. 2 and 5. The hooks d and pins d' form a hinge connection which permits the front plate to swing outwardly and downwardly to the position shown by dotted lines in Fig. 6. The free upper end of the front plate is held in its normal position by depending lugs e, formed on the side flanges of the top lid C and overlapping the plate, as shown in Figs. 1 and 2.

F is the endless strip of toweling, which passes in a zigzag or sinuous course over the upper side of a number of guide or supporting rollers G, journaled in the upper portion of the casing, and around the under side of one or more similar rollers G' G², journaled in the lower portion of the case, as shown in Fig. 2, by which arrangement an endless towel of considerable length is supported in a comparatively small space. The outermost portion of the towel is arranged on the front side of the front plate A³ and passes through an aperture h, formed between the cross-bar b' and the upper end of the front plate, said cross-bar being arranged to overhang the top plate for forming this aperture, as shown in Figs. 1 and 2. As shown in Fig. 2, the outermost of the upper series of guide-rollers G is arranged to project beyond the front plate for bringing the front portion of the towel outside of the casing. From the front side of the casing the endless towel extends downwardly in a loose loop under the lower series of guide-rollers G' G² and ascends between the innermost of these rollers and the back of the casing, whence it passes over the innermost guide-roller of the upper series, thence under the innermost roller of the lower series, thence upwardly over the succeeding upper guide-roller, and so on over and under the remaining rollers. By this arrangement the extreme inner and outer portions of the towel hang in a long loose loop F' from the innermost and outermost rollers of the upper se-

ries, leaving ample slack in the exposed front portion of the towel to permit the same to be seized and used like an ordinary endless towel hanging from a single supporting-roller. The remaining looped portions of the towel are comparatively taut. When the exposed slack portion of the towel becomes soiled, the same is simply pulled down for bringing an unsoiled portion on the front side of the cabinet, this movement causing the towel to pay out at the top of the rack and return through the open bottom thereof in an obvious manner.

The upper guide-rollers G are journaled at one end in closed bearings formed in one of the side bars b of the stationary top frame and at their other ends in vertical slots or open bearings i , formed in the opposite side bar and extending to the upper edge of the latter, as shown in Figs. 2 and 3, so that after raising the top lid C said rollers can be readily removed from their bearings for applying and removing the towel.

The lower guide-rollers G' are preferably supported in a vertically-adjustable frame J , so that the intermediate loops of the towel passing around said rollers can be lengthened or shortened by raising or lowering said frame for increasing or diminishing the amount of slack in the loose loop F' of the towel. In the construction shown in the drawings the frame J is U-shaped and adjustably supported in the lower portion of the casing by horizontal bolts j , secured to the side bars of the frame and projecting through vertical slots j' , formed in the side walls of the casing. These slots are provided at one side with a vertical series of notches or seats j^2 , in one of which the bolts j rest and in which they are confined by clamping-nuts j^3 , applied to the bolts and bearing against the outer sides of the casing. In adjusting the frame J these clamping-nuts are loosened, the frame is shifted laterally to withdraw the bolts j from their seats, and the frame is raised or lowered to the desired position, after which it is again shifted in the opposite direction to engage its bolts with the adjacent seats j^2 , and the clamping-nuts are again tightened. The remaining lower roller G^2 is preferably arranged below the plane of the rollers G' and made of somewhat larger diameter. This roller is provided with a retarding device, which checks the rotation of the roller when the same has been partially or completely turned by the movement of the towel, so as to offer a certain amount of resistance after the exposed portion of the towel has been shifted, say, twelve or fifteen inches, thereby discouraging an extravagant use of the towel. The checking device shown in the drawings consists of a spring bolt or catch k , arranged in a recess formed in one end of the large lower roller G^2 and adapted to engage in a recess or depression k' formed in the opposing side wall of the casing, when the bolt arrives opposite said recess by the rotation of the roller, as shown in Fig. 3. The head of the bolt is rounded or beveled, so as not to

form a positive lock, but allow the bolt to disengage itself from the recess of the casing upon applying sufficient force to the towel for the purpose.

l represent a pair of horizontal idlers or rollers arranged above the checking-roller G^2 and bearing against the outer sides of the loop of toweling which passes around said roller. These idlers are arranged so closely together that they keep the sides of said loop out of contact with the adjacent loops which pass around the guide-rollers G' . The idlers are preferably journaled at one end in closed bearings and at their other ends in a horizontal slot l' of sufficient length to permit the removal of the rollers by sliding the same toward one end of the slot. They are normally held at the extremities of the slot by the tension of the towel. These guide rollers or idlers are arranged inwardly beyond the front and rear sides of the large towel-roller G^2 , so that the sides of the adjacent loop of toweling converge toward said guide-rollers, thereby causing said loop to pass around about three-fourths of the circumference of the towel-roller and to hug the same closely by reason of the inward deflection of the sides of the loop and the tension of the same. This increases the frictional contact between the loop and said towel-roller and causes the loop to maintain its central position on the roller after having been centered thereon. When the endless towel comes in contact with the sides of the casing, its edge is liable to be turned over or doubled, which shortens the towel and causes it to run hard over the rollers. By employing a pair of deflecting-rollers l in connection with one of the towel-rollers, preferably the large roller G^2 , the adjacent loop is held centrally on said roller, and this causes the remaining loops to follow the first-named loop and run centrally on their supporting-rollers, thereby preventing the above-mentioned objection and always insuring the easy rolling of the towel.

M represents upright partitions or division-plates which are removably arranged in the casing between the adjacent portions of the various loops of the towel and which keep the same out of contact with each other to prevent the used portions of the towel from soiling the clean portions. These partitions are arranged parallel with the back of the casing and extend from the top frame b b' to within a short distance of the lower rollers G' . The partitions M are loosely fitted at one of their upright edges—say their left-hand edges—in corresponding grooves n , formed in the adjacent side wall of the casing, as shown in Fig. 4. At their opposite edges the partitions are provided with angular flanges or strips o , which extend from end to end of the partitions and together form the portion of the adjacent side wall of the casing arranged opposite said partitions, as shown in Figs. 1 and 4, the remaining lower portion of said wall being permanent and terminating

at the lower ends of said strips. As shown in Fig. 4, the outer faces of these strips are flush and the front edge of each strip, except the foremost one, bears against the back of the partition immediately in front of it. The space between the back A and the rearmost partition-strip is closed by a permanent strip o' , as shown in Figs. 1 and 4. The strips are provided at their upper and lower ends with tongues o^2 , which enter corresponding grooves formed in the upper end of the permanent side wall A and the lower edge of the right-hand side bar b of the top frame. The partitions are held in place by the right-hand side flange of the top lid, which overlaps the upper ends of the strips o .

In removing the towel from the rack the top lid is first unlocked and raised to release the front plate and the partitions, after which the latter are withdrawn laterally from the casing and the front plate is swung down to the dotted position shown in Fig. 6, the exposed front portion of the towel being moved aside to clear the front plate. The upper guide-rollers G' are then removed from the bearings and withdrawn from the upper loops of the toweling, and the idlers l are also removed, which allows the various loops to become disengaged from the lower guide-rollers G' G^2 and drop through the open bottom of the casing. In applying a towel to the rack the top lid is raised and the front plate lowered. The towel is then looped and passed under the large lower roller G^2 and upwardly between the back A and the rearmost lower roller G' , after which one of the removable upper rollers is passed through the loop and placed in the rearmost upper bearings. The towel is then again looped and passed upwardly between the rearmost lower roller G' and the rear side of the checking-roller G^2 and a second removable roller passed through said loop and placed in the second set of bearings. The towel is again looped and passed upwardly between the front side of the checking-roller G^2 and the intermediate lower roller G' and the third removable upper roller passed through the last-named loop and placed in the third set of bearings, and so on with the remaining loops and rollers. After applying the towel in this manner the idlers are put in place, the partitions M are inserted in the case, the front plate is closed, and the top lid is lowered and locked, placing the rack in condition for use.

My improved rack, while permitting the use of a towel of considerable length which lasts a comparatively long time, enables the towel to be handled as conveniently as an ordinary endless towel suspended from a single roller. It saves the time required to frequently change towels in buildings in which they are used in large numbers and also avoids the loss of towels, which is liable to occur when a number of ordinary towels are furnished at short intervals.

In the drawings five upper and four lower

guide-rollers for the endless towel are shown; but my invention is not limited to the use of that particular number of rollers, but a greater or less number may be employed, according to the length of towel desired. The advantages of my invention are obtained in a rack which has at least one lower roller and two upper rollers, although I prefer to employ a larger number of rollers. In any of these cases the outer slack loop of the towel passes loosely underneath the lower guide roller or rollers and extends upwardly on the front and rear sides of the inner taut loop or loops.

I claim as my invention—

1. In a towel-rack, the combination with an upright case having an open bottom and provided in its front wall near its top with an aperture, of guide-rollers journaled in the upper and lower portions of the case, and an endless towel passing in a sinuous course over said rollers and comprising one or more inner taut loops and an outer slack loop which extends from the foremost upper guide-roller through the top aperture of the case and downwardly on the front side of the case, thence underneath the lower guide-rollers and thence upwardly through the open bottom of the case and between the back of the case and the adjacent taut loop to the rearmost upper roller, substantially as set forth.

2. In a towel-rack, the combination with a rectangular case having one of its side walls arranged to terminate at a distance from the end of the case, of guide-rollers for the towel journaled in the upper and lower portions of the case, and removable partitions arranged in the case between the upper and lower series of guide-rollers and provided at one edge with angular flanges or strips which together form the remaining portion of said side wall of the case, substantially as set forth.

3. In a towel-rack, the combination with a case which is closed at one side and open at its opposite side, of guide-rollers for the towel journaled in the upper and lower portions of the case, partitions arranged in the case between the upper and lower series of guide-rollers and extending transversely from the closed side of the case to the open side thereof, and a lid applied to the top of the case and overlapping the exposed edges of said partitions, substantially as set forth.

4. In a towel-rack, the combination with a case having an open side and having the wall opposite said open side provided with internal vertical grooves, of guide-rollers journaled in the upper and lower portions of the case, removable partitions arranged in the case between said upper and lower series of rollers and fitted at one edge in the grooves of said side wall and provided at their opposite edges with flanges or strips which together close the open side of the case, and a lid applied to the top of the case and overlapping the upper portions of said partition-flanges, substantially as set forth.

5. In a towel-rack, the combination with a

case provided in its side walls with vertical slots each having a series of lateral recesses or seats, of upper guide-rollers journaled in the case, a vertically-movable roller-frame arranged in the lower portion of the case and provided with horizontal bolts which pass through said slots, and clamping-nuts applied to said bolts and bearing against the outer side of the case, substantially as set forth.

6. In a towel-rack, the combination with a support or casing, of two or more horizontal towel-rollers journaled in the upper portion of said support and one or more similar rollers journaled in the lower portion of the support, an endless towel having one or more inner loops which pass around the under side of said lower roller or rollers and over said upper rollers and an outer slack loop which passes loosely underneath said lower roller or rollers and extends upwardly on the front and rear sides of said inner loops, and a pair of deflecting-rollers arranged adjacent to one of said towel-rollers and bearing against the outer sides of the loop of toweling which runs around said roller, the opposing sides of said deflecting-rollers being located inwardly beyond the front and rear sides of said towel-

roller, for causing the sides of said loop to converge toward said deflecting-rollers, substantially as set forth.

7. In a towel-rack, the combination with a support or casing, of towel-rollers journaled in the upper and lower portions of the support, one of said lower rollers being of comparatively large diameter and arranged below the other lower rollers, an endless towel having one or more inner loops which pass around the under side of said lower rollers and over said upper rollers and an outer slack loop which passes loosely underneath said lower rollers and extends upwardly on the front and rear sides of said inner loops, and a pair of deflecting-rollers arranged immediately above said large lower roller and inwardly beyond the front and rear sides thereof and bearing against the outer sides of the loop of toweling which passes around said roller, substantially as set forth.

Witness my hand this 9th day of February, 1899.

HOWARD C. McDONALD.

Witnesses:

JNO. J. BONNER,
ELLA R. DEAN.