June 17, 1941. J. GROSSER 2,246,248

MOP WRINGER

Filed Sept. 8, 1938

Fig. 1

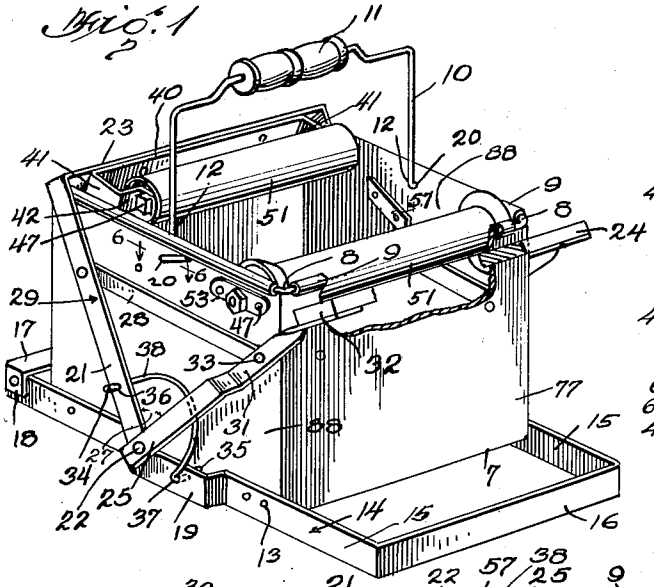


Fig. 4

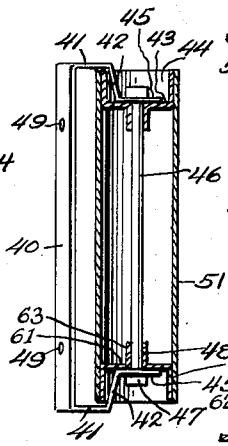
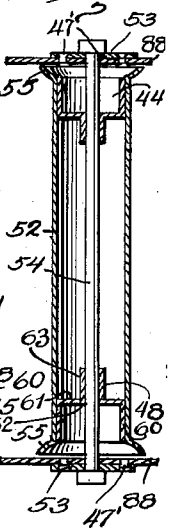


Fig. 5



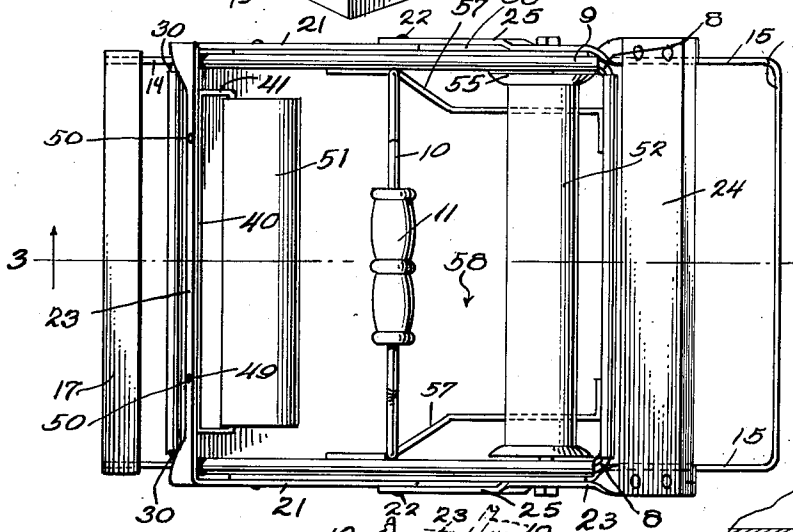


Fig. 2

Fig. 6

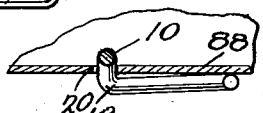
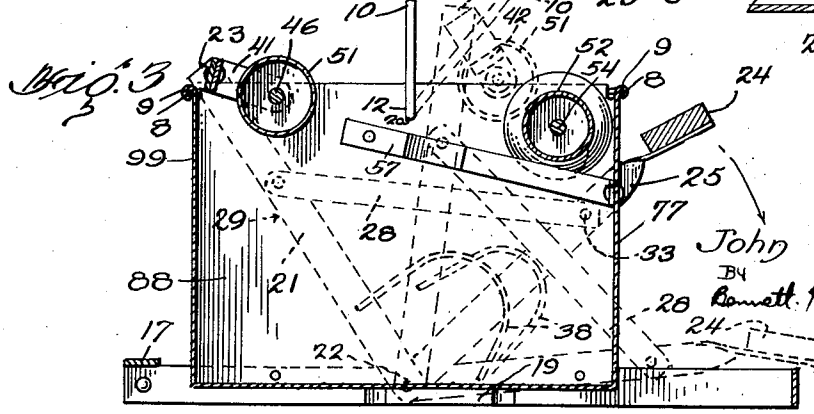


Fig. 3



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2,246,248

MOP WRINGER

John Grosser, Boston, Mass.

Application September 8, 1938, Serial No. 229,006

6 Claims. (Cl. 15—262)

This invention relates to devices for extracting fluid from a material by the application of pressure. More specifically it pertains to a means for subjecting a pliable material to a compressive action, such as by the combinative association of rollers, to extract or remove the fluid content which may be retained by the said material either inherently or as a result of saturation. While the invention is obviously of broad application, a primary embodiment thereof involves a device peculiarly adapted to function as a mop wringer, which expression is herein intended to embrace the wringer means or association of rollers per se as well as the combination of the wringer means with the container and stand.

A conventional mop wringer assembly involves a combination of rollers, one of which is fixedly positioned, as by attachment to a mounting frame or stand or to a receptacle, and the complementary roller is movable to a position of proximity relative to the first. In accordance with the prior art practice, the rollers are affixed to a shaft and this unitary assembly is journaled for rotation. Considerable difficulty, however, has been experienced in the usage of the prior art devices.

One of the principal shortcomings has been the excessive wear at the points at which the roller shafts are journaled, which is probably attributable to the manner in which the shafts are mounted for rotation either on the supporting frame or receptacle as well as to the details of affixing the roller to the shaft. The conventional mounting lends itself to a lateral or sidewise movement of the shaft during the course of its rotation; after a comparatively brief interval, this results in considerable wear at the journal seat of the shaft and manifests itself by the wobbly rotation of the roller as well as its misalignment.

This condition is aggravated by the usual manner of affixing the roller to the shaft; this involves pinning the roller through a hole in its side. During the pressure functioning of the roller a substantial force is effected at this point of its attachment. This eventually causes an uneven enlargement of the hole, and the sharp edges produced have a tendency to bite into the shaft, causing considerable premature injury thereto.

A further contribution to the mechanical difficulties experienced with the wringers of the prior art has been in the use of pins to affix rollers to their supporting brackets. The constant wetting of the pins when the rollers manifest their compressing function serves to loosen the said pins, thereby supplying an additive cause for the wobbling and misalignment resulting from the structural weaknesses described above.

It requires no detailed elucidation to show that as the relative wobbling and misalignment of the rollers becomes enlarged, the efficiency of the wringer action diminishes. The attendant increase in friction and irregular path of rotation eventually assumes such a proportion that the pressure drying becomes ineffective, and the force essential to draw a mop, for example, between the rollers retained in their normal pressure relationship position, increases to such an extent as to render the wringer action extremely difficult if not impossible.

Another important difficulty experienced in the utilization of known wringers resides in the tendency of the mop to become fouled, especially with the roller shafts at the journal seat. The result thereof is to tangle, mat and tear the mop, thereby reducing its effectiveness and period of usage.

It is an object of my invention to obviate such diffculties and uncertainties as hereinabove referred to by an improved structural design of the device and combination of parts.

An additional object is to attain a rugged device which will withstand the rigors of usage to which wringers are usually subjected without any impairment in its efficient operation for comparatively long periods of time.

Another object is to provide an association of pressure rollers which are per se and in combination mounted in such a manner as to completely obviate any possibility of fouling of the mop, thereby avoiding damage thereto as well as to the rollers.

An extremely important object of the invention is to mount the rollers in a manner to obtain a freeness of rotation and sturdiness of roller alignment not heretofore attainable in devices of this type, thereby enhancing the pressure extraction or drying action, rendering it less burdensome, and materially prolonging the longevity of wringer and mop.

Still another object is to provide a base for the mop wringer which stabilizes the device, at the same time facilitating the operation of the frame upon which a movable roller and a foot pedal are combinatively mounted for movement of the said roller toward another roller of fixed position and independent mounting.

A further object of the invention is to provide a bail for a receptacle or container which functions in a particularly expedient manner, especially when adapted to a mop wringer device.

Other features of my invention will become apparent from the following description to be read in connection with the accompanying drawing, in which similar elements are designated by like numerals:

Fig. 1 presents in perspective a specific embodiment of my invention, showing the base frame in combination with the movable mount-

ing for the rear roller and foot pedal, the association of the rollers to each other, and the relation of the bail to the combination.

Fig. 2 is a plan view indicating the relative position and size of the rollers when in their normal position prior to the lowering of the foot pedal.

Fig. 3 is a side elevation partly in section taken along the line 3—3 of Fig. 2; the dotted showing indicates the relative position of the rollers, bail, and pivoted supporting mounting when the treadle has been depressed.

Fig. 4 is a detailed fragmentary section showing the smaller or rear roller attached to its bracket mounting and the cup-shaped bearings affixed to the roller, the integral assembly being adapted for rotation upon a shaft.

Fig. 5 is a similar sectional view of the front roller indicating its flared ends and the cup-shaped bearings pressed therein, the resultant assembly adapted for rotation about the fixedly positioned shaft.

Fig. 6 is a detail partly in section taken along the line 6—6 of Fig. 1.

Referring more particularly to the details of the specific adaptation of my invention shown in the drawings, 7 designates a suitable vessel or receptacle in which a mop is to be rinsed and subjected to wringer pressure. A beaded rim is provided by bending an appropriate rod 8 to assume the shape of the top of the said vessel or container; in accordance with the preferred construction, the sides of the container are bent over at their top to closely fit the said shaped rod 8, thereby providing the vessel with a smooth, reinforced, beaded top rim 9, devoid of sharp edges.

While the vessel as shown assumes the form of a rectangle or square in its sectional views, it may be made in accordance with any preferred shape and by any conventional manner. Similarly the sizes of the said vessel is determined as a matter of preference or expediency. To facilitate the following consideration, 77 denotes the front wall of the container, 88 indicates either side, and 99 designates the rear wall or panel.

A handle 11 is provided for bail 10, and the free ends 12 of the said bail are bent at substantially right angles to the vertical portions and into close proximity to the sides 88 of the vessel so as to furnish a frictional contact, as shown in Fig. 6. When in vertical carrying position as in Fig. 1, the said bent free end portions 12 of the bail are wedged under the aforesaid beaded rim 9, which functions as a stop to prevent the rotation of the bail, in the direction of rear wall 99 or rear roller 51, beyond its vertical or upright position. Thus the motion of the bail is limited to a maximum of 90 degrees from its upright position in the direction of front roller 52 or front wall 77 of the vessel. By virtue of this bail design, the wringer vessel filled with its fluid contents may be carried with a minimum amount of the oscillation characteristic of the conventional bails pivoted to rotate 180 degrees.

A frame broadly designated by 14, functions as a stabilizing base for the vessel and is designed in a manner to provide the maximum degree of equilibrium and stability. This frame comprises a unitary U-shaped bar member, the sides of which are spaced apart sufficiently to embrace, as a good fit, the side walls 88 of the container; it should be noted that the U member rests upon its narrow edges, whereas the wide face of its sides 15 serve as the container enclosure. The base 16 of this U member is positioned to project to a substantial distance from the front 77 of the container; by way of a preferred illustration, this distance may be in the vicinity of 4½ inches from the front of the vessel. The U member sides 15 are affixed along their wide faces to the side walls 88 of the vessel along its bottom, and extend beyond the rear wall 99 a distance of approximately 2 inches. A cross-bar 17, with its ends bent to form legs 18, is fitted over and affixed to the ends of the said U member sides 15, to provide a suitable means for retaining the assembly in fixed position by foot pressure applied to 17 during the course of the wringer action. The manner of affixing the U-shaped member 14 to the vessel, or the cross-bar member 15 to the U-shaped member 14 is of little significance and may be accomplished in any conventional manner by means 13.

It should be noted that a portion 19 of the U-shaped member is bent outwardly so as to provide a space therebetween and the side wall 88 of the container. The portion 19 extends from a point somewhat beyond the front 77 of the vessel, say approximately 2½ inches from the said front, to a point which embraces the imaginary vertical median of the side wall, the said median extending through the openings 20 provided for the ends 12 of the bail. A pivot means 22 is centered on portion 19, along the aforementioned median, through an appropriate hole or opening.

A movable mounting frame broadly designated as 29 comprises a U-shaped bracket 21 having its base portion 23 bent to a suitable angle so as to project somewhat inwardly of the beaded rim 9 of the rear wall 99, and the wide face of the base 23 of the said U-shaped member extends in a plane substantially parallel to the wall 99, on the inside thereof. The ends of the said U-shaped member 21 are provided with openings which align with the openings in offset portion 19 of the base frame 14 when the aforesaid bent base 23 of the U-shaped member rests on the bead rim 9 at the corners 30 of the vessel 7; the members 21 are seated on the said pivot means 22 which extends through the aligned openings and is free to rotate. It is of interest to observe that in this preferred embodiment, the sole point of contact of mounting frame 29 with the vessel 7, when the former is in its normal position prior to the application of pressure to treadle 24, is at the corners 30. A bar element 25 is provided with an opening near one end which is similarly adapted for alignment with the opening on 19 and is likewise positioned on the pivot means 22, passing through this opening; said means 25 is aligned on the outside of the said U-shaped bracket 21 to which it is fixedly attached by link member 28 as a result of bolt, rivet or equivalent means 33, forming a suitable angular disposition 27 relative to U 21, with its wide face parallel to the side wall 88. To facilitate the unitary linking with bracket 21, element 25 is bent into portion 31 which is in essentially the same plane as the side element of said means 21; on approaching the front 77 of the container, bar 25 is given an additional twist so that the remainder 32 of this element, will have its wide surface facing upwardly to provide an appropriate seat for foot pedal or treadle 24. It will thus be seen that the U-shaped element 29, and the element 25 are combined to form an integral V-shaped

lever mounting which is fixedly attached to and rotatable with pivot means 22, the latter means extending to the inner faces of said offset portions 19. The said means 22 may assume the form of a bolt, threaded at its end, on which members 21 and 25 may be screwed; similarly a riveting or equivalent attachment may be utilized. It is accordingly apparent that the said unitary lever mounting means is rotatable about a horizontal axis which is parallel to the longitudinal axis of shafts 46 and 54.

A spring element 38 of conventional curvilinear shape is bent to form end portions 34 and 35, which project in opposite directions to each other and fall in a plane at right angles to the plane of the main body of the spring. End 34 is passed through opening 36 of bracket 21 from the space between it and the side wall 88 of the container, whereas 35 is passed through the opening 37 from the outside of the base frame 14 into the space between its portion 19 and side wall 88.

While the above description has been largely limited to various means as seen from only one view, it is obvious, as shown in the drawing, that these parts necessarily occur on two sides of the container 7 to obtain a symmetrical device of utility. This is particularly applicable to the elements of lever mounting 29 and bail 10.

Referring particularly to the rear roller assembly of Fig. 4, a U-shaped bracket arm, its base portion referred to as 40 and the sides as 41, of a size to be positionable laterally within the container 7, is bent along the said sides 41 into a plane to form portions 42 which are roughly parallel to the base portion 40 of the bracket. These portions 42 extend a sufficient distance to closely approach but not contact the bottoms 43 of bearing cups 44; and are then bent parallel to cup bottom 43 to form legs 45. The said legs 45 and cup bottoms 43 are provided with alignable openings of a suitable size to accommodate the shaft member 46 which is sufficiently long to project through these aligned openings and provide a sufficient extension for a fixed attachment to the legs 45. Any conventional means may be resorted to for fixing the shaft to elements 45 in the manner described; one suitable manner is by nuts 47 which are threaded and riveted to the ends of the shaft. The predetermined shaft length is such that the said shaft ends and means 47 are completely housed and substantially within the recesses of bearing cups 44; thus shaft 46 is entirely embraced within roller 51.

Merely by way of illustration, in the case of a container having its approximate internal dimensions 10" x 10¾" x 8" (depth), a specific embodiment of the wringer means utilizes a front roller somewhat greater than 9¾" in length and a rear roller approximately 8¼" long, both having an approximate interior diameter of between 1¾"–2"; elements 41 may be between 1"–1¼" in length; bearing cups 44 may be approximately ⅞" deep, the bottom 43 approximately $\frac{1}{16}$" in thickness and the cup sides a thickness of 18-gauge. Obviously these dimensions are essentially variable and dependent upon the design of bracket arm and dimensional specifications of the rollers, which in turn are determined by practical expediency in the light of the specific usage and the size of container to which the assembly is to be adapted.

Bearing structures 44 are broadly cup-shaped and comprise an open cylindrical portion 60 and a hub portion 63. The cylindrical portion has a bottom 61, provided with an opening 62 of sufficient dimension to permit a shaft 46 or 54 to pass therethrough. Hub portion 63 is integral with the bottom 61 of cylindrical portion 60, its internal passage being aligned with an extension of opening 62; the inner surface of hub portion 63 is bearing surface 48, encircling the roller shaft.

The cup-shaped bearing members 44 are fixedly attached to the inside of rear roller 51 in any desirable manner to provide a cooperating bearing surface with its shaft 46. It has been found preferable to machine press the said cups into the respective ends of the preferably hollow roller 51, the size of the cylindrical portion 60 being such as to form a permanent glove-like or snug fit on the inside of the roller from the end thereof to hub portion 63; as a matter of fact, the roller is very slightly spread by the snugness of the fit, thereby obviating any possibility of a disattachment of bearing-cup from roller. Hub 63 extends inwardly of the roller from the said cylindrical portion, its bearing surface 48 encircling the shaft. The actual bearing surfaces designated by 48, it will be noted, provide substantial contact area to avoid any cutting effect and to sustain sizable pressure loads resulting from the combinative utilization of the assembled rollers; a suitable length for these areas, based upon average mop wringer usage has been found to be $\frac{3}{16}$". The openings in the bearing-cups, determining the bearing surface seats, are slightly over-size relative to the diameter of shaft 46, to permit free rotation of the integral assembly of roller and bearing-cups about the said shaft. Openings 49 are provided in the base portion of 40 of the bracket arm alignable with corresponding openings 50 in the base of 23 of the U-shaped mounting 29, at which points the two members are permanently affixed to each other.

The front preferably hollow roller 52 is mounted on container 7, near the top thereof and adjacent to wall 77. While the length of this roller is intended to embrace substantially the complete internal width of vessel 7, and, therefore, its shaft 54, it must be free from any actual contact with the vessel walls. Reenforcing plates 53 are provided on the side walls 88 to which the respective ends of the shaft 54 are permanently attached by appropriate bolts or rivets 47. The openings of the plates 53 and side walls 88 through which the shaft 54 passes may be slightly oversize, even to the extent of permitting some rotation of the shaft, and shaft 46 may be similarly mounted. However, it is an essential requisite of my invention that the rollers freely revolve on their respective shafts, and my preferred embodiment contemplates the retention of shafts 54 and 46 stationary by appropriate means 47, and if desired, by a close fit relative to the above mentioned openings. As indicated above, the over-all length of roller 52 is substantially that of the width of vessel 7, with sufficient allowance being made for rotation of the roller on its shaft without any frictional obstruction by the sides 88 of vessel 7. Both ends of roller 52 are preferably provided with flared portions 55 which may conveniently be $\frac{7}{16}$", but are subject to variation in accordance with one's preference. It should be noted that the edge of the flare extends somewhat above the bead rim 9 of the container. Front roller 52 is otherwise constructed similarly to rear roller 51, being integrally provided with machine pressed cup-

bearings 44 having bearing surfaces 48 to cooperate with shaft 54. It will be seen that the said front roller 52 is free to rotate on its bearing surface 48 about shaft 54, which may conveniently be $\frac{5}{16}$'' in diameter, similarly to shaft 46.

When the rollers have been assembled on their respective mountings in accordance with the specific embodiment described herein, the front roller 52 is spaced from the front wall 77 approximately ½'' while the rear roller 51 is about 2'' from rear wall 99.

A pair of appropriately shaped mop guide means 57 are attached on one end to a side wall 88, and on their other end to front wall 77 somewhat below roller 52. They are so designed and positioned as to form a zone 58 between them, in proximity to the front roller 52, of which the dimension across is somewhat less than the length of rear roller 51. In the specific embodiment above described, this zone may conveniently extend from the front wall for about 4'', thereby embracing a convenient space between the two rollers.

It is obvious that the material of which the various parts are fabricated has no critical bearing on this invention and will doubtless be determined from expediency and preference, in view of the specific use to which the device is to be applied. For mop wringer usage, the bearing cups 44 may satisfactorily be made of 18-gauge cold rolled steel, and the bearing surfaces may be of the same material as the body of the cup. Likewise the rollers and shaft may suitably be produced from the same material; however, the rollers should preferably be an electro-galvanized stock in order to minimize rusting.

In the utilization of the specific embodiment of my device, its operation is as follows. Assuming all parts are in the normal position shown in Fig. 1, a mop fabric, for example, is inserted in the fluid content of the container 7 between bail 10 and rear roller 51 wherein it is sluiced and reciprocated several times to thoroughly saturate and wash the fabric. Then, holding the handle portion of the mop in such a position that upon contact of the rollers the fabric will be subjected to the desired wringer action, foot pedal 24 is pressed downwardly for the purpose of pivoting the mounting lever assembly 29 about pivot means 22 until rear roller 51 is brought into proximity with front roller 52. Should bail 10 have been in a vertical position as shown in Fig. 1, that portion of base 23 of the mounting lever 29 which extends between U-shaped bracket side 41 and the side 88 of the container will contact the vertically extended portion of the bail, rotating it through an arc less than 90 degrees and out of interfering position with the wringer operation in a direction away from rear roller 51, said rotation being about a horizontal axis parallel to the longitudinal axis of the rollers. As a result of the frictional association between elements 12 and the side 88 of container 7, the bail will not fall over to a substantially horizontal position; it will assume a partially upright position angularly displaced from the vertical and sufficiently removed from the zone in which the pressure function of the rollers is manifested, thereby avoiding contact with the fluid content of the container and facilitating an easy grasp of the dry bail handle.

With the rear roller 51 assuming a pressure relationship relative to the front roller 52, the mop fabric being positioned therebetween, it should be noted that the guide means 57 will have concentrated the mop fabric within a zone 58 commensurate with the length of the said rear roller 51. The mop fabric is then pulled, presumably by an appropriate mop handle, from between the rollers. The roller shafts being substantially fixed and the respective rollers mounted for free rotation relative to their respective shafts, said rollers will spin in opposite directions, thereby facilitating the fluid extraction from the mop fabric. Upon release of the pressure on treadle 24, the lever mounting 29 will return to its normal position shown in Fig. 1 by virtue of the tendency of spring element 38 to obviate its state of compression relative to the base frame. The normal position of the mounting lever 29 is determined by the stop action manifested by corners 30 of the container 7 against the base 23, of the U-shaped bracket 21, at the point of its curvature into a plane somewhat parallel to the rear wall 99 of the container. It should be noted that during the depression of the mounting lever into position for obtaining and performing the wringer action, a foot may be maintained on the cross-bar 15 of the base frame to maintain the device in a completely stable position.

It is apparent that the particular mounting rollers involved in the applicant's invention entirely obviate any possibility of the fabric or material, which is subjected to the wringer action, becoming fouled with any rotating parts of the device. This will obviously increase the longevity of the fabric so treated.

By utilization of the cup-shaped bearing surfaces of sizable area and in view of the general sturdiness of construction and design of the device, the predetermined accurate parallel alignment of the rollers may be retained unaffected for comparatively long periods of time, thereby attaining an increased efficiency and uniformity of pressure drying performance for a duration considerably greater than has been possible heretofore.

Moreover the facility of performing the wringer action is substantially increased by virture of the roller-cup bearing assembly design, since the enlarged bearing surface permits a freeness of rotation not obtainable by the shaft rotation devices of the prior art. As a result of this cup-bearing surface contact and elimination of pins from the device, any tendency of the shaft becoming cut and out of alignment is substantially eliminated, as the result of which the useful life of the mop, the shafts, the rollers, and the device generally is substantially increased.

It will thus be seen that the device forming the basis of the invention provides an expeditious means for effectively applying pressure between rollers in order to abstract fluid from a material saturated therewith, the device affording facility and efficiency in operation as well as sturdiness of construction.

While I have described my invention in accordance with a specific embodiment, it is obvious that many changes and modifications may be made in the details of construction and in the combination and arrangement of parts without departing from the spirit of invention as defined in the following claims.

I claim:

1. In a device for application of roller pressure, a container, a first shaft supported within and extending completely across the container at

an upper portion thereof between opposing walls, a roller mounted for rotation on the said shaft and of a length substantially completely embracing said shaft within the container, whereby its ends are in close proximity to said opposing container walls, a second roller mounted for rotation on a second shaft aligned parallel to said first shaft and normally retained at a predetermined distance from said first shaft, said second shaft being substantially less in length than its respective roller and completely embraced therein, said shafts and rollers having cooperating bearing surfaces spaced inwardly from the ends of said rollers, and mounting means for supporting said second shaft internally of said second roller, said mounting means being pivoted for reciprocative movement of said second shaft and its respective roller toward and away from said first roller to provide a pressure cooperating association between the said rollers.

2. In a device for application of roller pressure, a container, a first shaft supported within and extending completely across the container at an upper portion thereof between opposing walls, a roller, completely disposed below the top edges of said container and having flared ends, mounted for rotation on the said shaft and of a length substantially completely embracing said shaft within the container, whereby the flared ends are in close proximity to said opposing container walls, a second roller mounted for rotation on a second shaft aligned parallel to said first shaft and normally retained at a predetermined distance from said first shaft, said second roller being of such length and so positioned that it will substantially engage said first roller intermediate the flared ends when moved into proximate relation thereto, said second shaft being substantially less in length than its respective roller and completely embraced therein, said second shaft and second roller having cooperating bearing surfaces spaced inwardly from the ends of said second roller, and mounting means for supporting said second shaft internally of said second roller, said mounting means being pivoted for reciprocative movement of said second shaft and its respective roller relative to said first roller.

3. In a mop wringer device for extracting fluid by application of roller pressure, a container, a first shaft supported between opposing walls of said container at an upper portion thereof, a hollow roller mounted for rotation on said shaft and of a length substantially completely embracing said shaft within the container, a second hollow roller mounted for rotation on a second shaft aligned parallel to said first shaft and normally retained at a predetermined distance from said first shaft, said second shaft being substantially less in length than its respective roller and completely embraced therein, said respective rollers and shafts having cooperating bearing structures spaced inwardly from the ends of said rollers, each of said bearing structures comprising a cylindrical portion and a hub portion having a common opening at their adjacent ends, said cylindrical portion snugly fitted internally of the roller from the end thereof to said hub portion and said hub portion extending further inwardly from said cylindrical portion and encircling the corresponding shaft, mounting means pivoted on an axis parallel to said shafts for non-rotatably supporting said second shaft internally of said second roller, said mounting means being adapted for reciprocative movement of said second roller relative to said first roller to provide a pressure cooperating association between the said rollers.

4. In a device for extracting fluid from a material by application of roller pressure, a container, a stabilizing base frame completely surrounding the base of said container and rigidly secured thereto, the said frame having substantially parallel side bars extending a substantial distance to the front of the said container and also extending to the rear thereof, the said side bars being provided with portions along the sides of the container which are off-set outwardly from the plane of the adjoining portions, said frame including a cross bar forming the rear element of the said base frame and adapted for use as a foot rest, a unitary means for mounting a pressure roller and a treadle, the said unitary means being pivotally attached to the said base frame on a horizontal axis by pivots attached to the said off-set portions, a first pressure roller parallel to said horizontal axis fixedly positioned relative to the said container and extending across the latter, a second pressure roller parallel to said first roller and positioned on the said unitary mounting means, and a treadle affixed to the said mounting means, whereby upon pivoting the said unitary support means by application of pressure to the treadle, the said second roller is brought into proximate association with the said first roller.

5. In a device for application of roller pressure, a container, a first roller mounted for rotation between opposing walls of said container, a second roller aligned parallel to said first roller, a supporting means for said second roller pivoted on an axis parallel to said first roller and adapted for reciprocative movement to carry said second roller into engagement with said first roller, a bail mounted on an axis parallel to said rollers at approximately the middle part of said container, means carried by said bail and engaging said container for providing a frictional association between the said last means and the container whereby the said bail is movable only as a result of a direct application of force thereto, the said second roller supporting means comprising a portion adapted to engage and thereby rotate said bail in a direction away from said second roller into a zone of non-interference with the functioning of the rollers.

6. In a device for application of roller pressure, a first roller mounted for rotation on a fixedly positioned shaft and substantially completely embracing said shaft, a second roller mounted for rotation on a second shaft normally retained at a predetermined distance from said first shaft, the second second shaft being of less length than and completely embraced within the said second roller mounted thereon, the said second shaft and second roller having cooperating bearing surfaces spaced inwardly from the ends of said second roller, and mounting means for supporting said second shaft internally of said second roller, the said mounting means being adapted for reciprocative movement of said second shaft and roller assembly toward and away from said first roller to provide a pressure cooperating association between the said rollers.

JOHN GROSSER.

CERTIFICATE OF CORRECTION.

Patent No. 2,246,248. June 17, 1941.

JOHN GROSSER.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 5, second column, line 60, claim 6, for "second second" read --said second--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 12th day of August, A. D. 1941.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.