Feb. 17, 1953

F. F. WAGNER

2,628,611

MASSAGING DEVICE

Filed Dec. 4, 1950

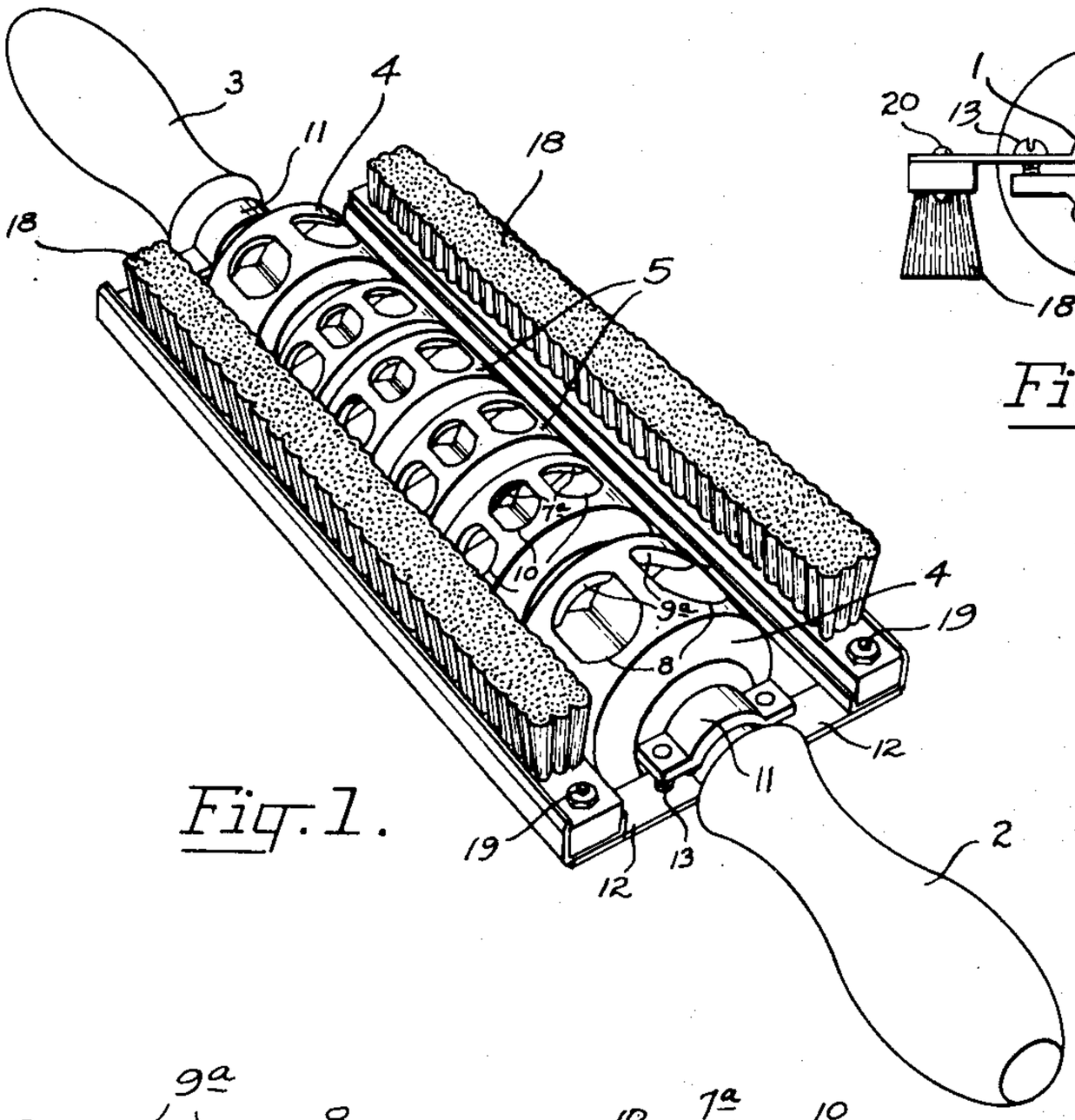

Fig. 1.

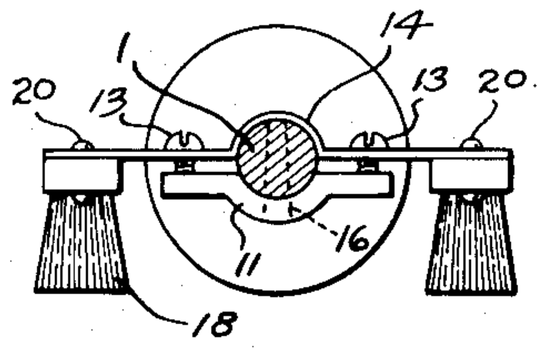

Fig. 5.

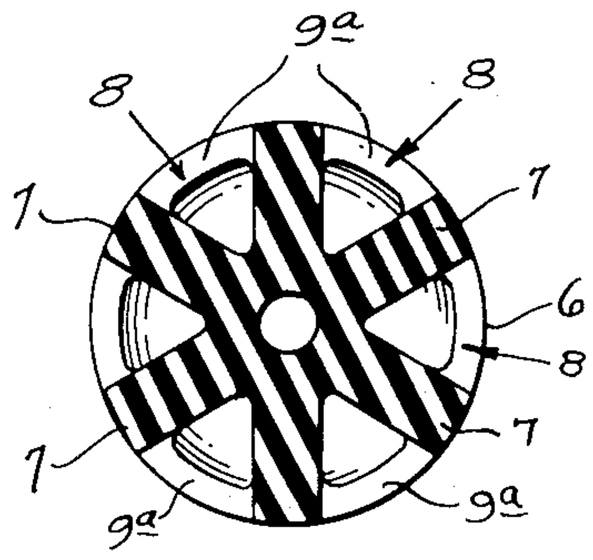

Fig. 2.

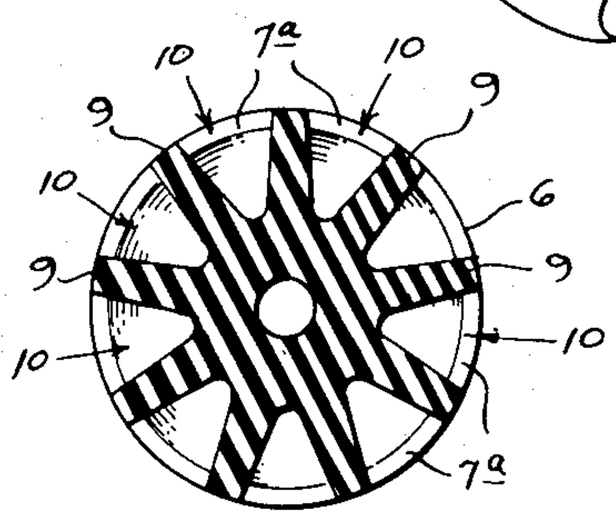

Fig. 3.

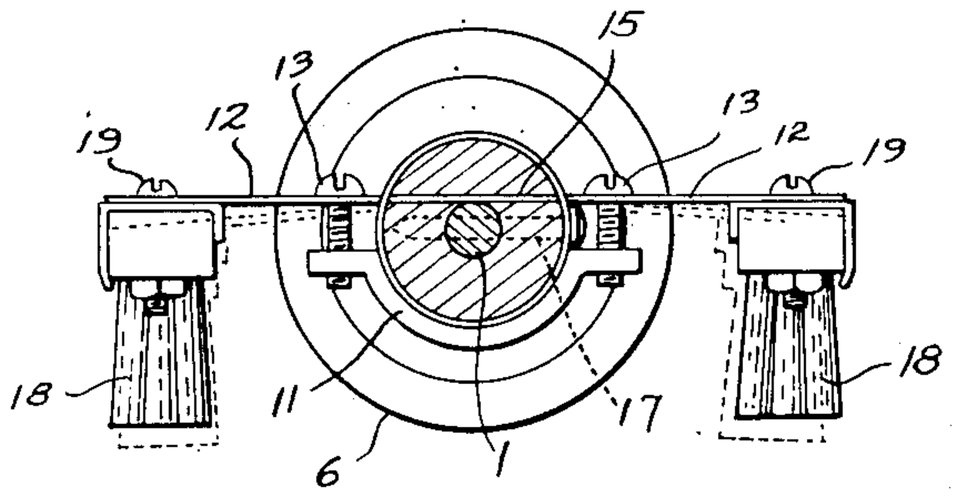

Fig. 4.

INVENTOR.

Felix F. Wagner

BY

Atty.

Patented Feb. 17, 1953 2,628,611

UNITED STATES PATENT OFFICE

2,628,611

MASSAGING DEVICE

Felix F. Wagner, Bremen-Oberneuland, Germany

Application December 4, 1950, Serial No. 198,926
In Germany December 22, 1949

5 Claims. (Cl. 128—57)

1

This invention relates to a roller-type massage device wherein the structural disposition and proximity of a suction cup roller and a pair of brushes have been correlated in a novel manner to effect a kneading and a brushing action, in rapid succession, upon the subcutaneous and cutaneous tissue, respectively. Such a novel coaction produces an overall uniform massage hitherto unattainable with a roller-type massage device or a brush alone.

One object of my invention is to provide, in combination with a plurality of elastic massage rollers mounted upon a common axle and having a plurality of suction cups recessed therein, a pair of massage brushes disposed one on each side of the rollers so as to lie in a common plane which is substantially tangential the peripheral surface of the rollers. Thus, operation of the device causes the rollers and suction cups to knead and manipulate the subcutaneous tissue while, at the same time, the brushes rub and frictionally engage the skin or cutaneous tissue all to the end of effecting a novel uniform massage action.

Massage, as a therapeutic process, has been practiced from time immemorial in all parts of the world. Even today, it is enjoying a revival and is employed extensively in the therapeutic treatment of such physical conditions as sprains, contractions, obesity, muscular rheumatism, sciatica, and other neuralgias, chronic and subacute affections of the joints, local veinous congestions, and various forms of paralysis and muscular wasting. In general, manipulative massage is a passive process (from the patient's viewpoint) in which an operator rubs and brushes the skin or cutaneous tissue and kneads, rolls, and manipulates the deeper or subcutaneous tissues.

A thorough massage involves several separate but overlapping processes, such as (1) stroking, (2) kneading, (3) rubbing, (4) tapping, (5) percussion, and (6) friction. Great importance is attached to the application of a particular process in a particular way. However applied, the treatment acts essentially to increase circulation by dilation of the subcutaneous and peripheral capillary tubes and to increase muscle tone by rolling and flexing the muscle tissues. It is a well-known fact that an increased volume of blood flows through the subcutaneous and cutaneous tissues during and after massage. The effects of this increased physiological activity are numerous. For example, functional ability is restored to exhausted muscles by the removal of fatigue products and the introduction of a fresh blood supply; congestion and collection of serous fluid are dispersed; secretion and excretion are stimulated; the muscular, tendonous, and cutaneous end organs are stimulated; nervous irritability is soothed; the muscle fibers gain good muscle tone; and the entire system is invigorated. Furthermore, by stimulating circulation and the flow of lymph and by clearing the tissues

2

of accumulated waste and increasing their nutrition, massage has the effect of clearing, refining, and lending tone to the skin and muscles.

The revival of massage in Europe and America has called into existence a considerable number of professional operators who may be regarded as forming a branch of the nursing profession. These operators or masseurs practice a diversified varity of massage methods. For example, a Swedish massage includes a physical moving of the leg, arm, and neck joints, to flex and lend tone to the muscles therein. The Finnish method, on the other hand, involves a series of alternate very hot and very cold baths supplemented by a physical application of switches. Still other methods of massage are practiced by hand and these include rubbing, as with a Turkish towel, pounding, stroking, and rolling the skin and subcutaneous tissues. By inventive experimentation and study, I have found that the essential processes of each and all of these massage methods may be classified under three main headings. These are: (1) a physical kneading to effect something akin to a crushing and dislodgement in the subcutaneous tissue; (2) a manipulation, suction-like pull, or exercise of the subcutaneous tissue and muscle fiber to lend muscle tone; and (3) a brushing, rubbing, frictional engagement, or heating of the skin to increase capillary flow and effect a "pinking" of the skin as by peripheral capillary dilation.

Accordingly, one object of my invention is to provide a mechanical massage device which will concurrently and by cooperative coaction effect all three of the processes above mentioned whereby a complete and uniform massage action can be accomplished with a minimum of manual labor and skill.

Another object of my invention is to provide, in combination, a plurality of elastic rollers for effecting the kneading process of massage, a plurality of peripheral suction cups to effect the manipulation, suction-like pull, or exercise process of massage, and a pair of brushes lying tangential to the roller and suction cup surfaces to effect the brushing, rubbing, frictional engagement, or heating process of massage.

These and other objects and advantages of my invention will hereinafter be set forth in the following detailed description taken in conjunction with the accompanying drawings, wherein:

Fig. 1 as a perspective view taken from the underside of my massage device and showing the spaced disposition of those rollers which carry large suction cups and those rollers which carry small suction cups;

Figs. 2 and 3 are related sections through a roller carrying large suction cups and a roller carrying small suction cups, respectively, to more particularly indicate the imperforate partitions and overhanging webs which bound each cup;

Fig. 4 is an end view, partially in section and

taken with the handle removed, more particularly indicating the flexible lateral arms which support the brushes and showing, in dashed outline, a typical flexure or adjustment of the brushes; and

Fig. 5 is also an end view, partially in section and similar to Fig. 4, but showing a somewhat different mounting for the flexible lateral arm.

The main structural element of my massage device is an elongated axle member 1 having a pair of gripping handles 2 and 3 secured to the terminal ends thereof. In axial alignment along the axle member 1, I journal a plurality of elastic massage rollers 4 and 5. These rollers may be made integral so as to rotate as a unit or may be formed separately so the end rollers 4 rotate independent of the medial rollers 5. In any event, the roller material should be elastic and pliable, such as soft rubber, and the peripheral surfaces thereof should be smooth as shown at 6 in Figs. 2 and 3. Thus, it is the function of the rollers themselves to practice the massage process which I have classified as a deep kneading or a physical crushing and dislodgement of the subcutaneous fat, muscle, and other tissue.

Turning now to the related section views of Figs. 2 and 3, I have therein shown the undercut suction cup structure which forms, in effect, a plurality of cups open to but recessed inwardly from the smooth surface 6 on each roller. For example, Fig. 2 is a section through one of the end rollers 4 wherein a plurality of diametrically disposed imperforate partitions 7 intersect to define a plurality of large undercut suction cups 8. Each partition 7 is of uniform thickness and the elastic lip between each pair of partitions protrudes out over the corresponding cup 8 to define a flexible web portion 9*a*. Similarly, Fig. 3 is a section through one-half of one of the medial rollers 5 (each medial roller carries two rows of suction cups) indicating the small imperforate partitions 9 which are of uniform thickness and which define the small undercut suction cups 10 having similar elastic and flexible webs 7*a*. It will be noted that the webs 9*a* and 7*a* give the mouth of each suction cup a substantially circular outline. I deem the flexible and elastic webs 9*a* and 7*a* to be of particular importance since they serve to restrict the mouth area of each suction cup at the peripheral surface 6 as will be described in detail hereinafter.

In relation to the function of my massage device, it is the suction cups 8 and 10 which effect the manipulation, suction-like pull, or evercise process of massage to enhance the "tone" of the muscle and other tissue. Furthermore, the webs 9*a* and 7*a* are made flexible and pliable so as to yield somewhat as they roll over the skin. This allows the peripheral mouth of each suction cup to accommodate itself to the skin contour to promote a stronger suction action. Such magnified suction is correlated to the conventional action of a suction cup to manipulate deeply the subcutaneous tissue. Thus, substantially all tissue, whether muscle tissue or otherwise, and substantially all capillary tubes are more or less flexible. When an operator grasps the handles 2 and 3 and exerts a push as he rolls my massage device back and forth across the skin of a patient, the suction cups 8 and 10 tend to flex the subcutaneous tissue and the capillary tubes to enhance "tone." The large suction cups 8 are aided by the webs 9*a* to effect a deep manipulation and exercise whereas the small suction cups 10 and webs 7*a* act in a more shallow manner. For

example, with reference to a reducing massage, the smooth surfaces 6 on the rollers tend to crush the fatty tissue while the suction cups 8 and 10 tend to dislodge and physically move this tissue. In a similar manner, the suction cups 8 and 10 will manipulate, pull upon, and exercise the patient's muscle fibers to lend muscle tone thereto.

Referring more particularly to Fig. 4, I have therein shown the mounting and adjustment structure for my massage brushes. To this end, a pair of semi-collars 11 gird the inner peripheries of the handles 2 and 3 to hold in place a pair of flexible lateral arms 12. Each lateral arm 12 is held to its companion semi-collar by means of two adjustment screws 13. In addition, each arm 12 may either bend around the axle member 1 as shown at 14 in Fig. 5 or may be threaded through an aperture formed in the handle, as is shown at 15 in Fig. 4. If the former, I prefer to secure the semi-collar 11 to the axle 1 by means of a tapered pin 16. If the latter, I prefer to secure the handle to the axle 1 by means of a screw 17 (see Fig. 4). Whichever construction is utilized, I deem the flexible or springy nature of each lateral arm 12 to be of critical importance to the production of an effective massage action.

A pair of longitudinal massage brushes 18 is mounted, as by screws 19 (see Fig. 4) or rivets 20 (see Fig. 5), across companion terminal ends of the flexible lateral arms 12. Fig. 4 best illustrates the critical disposition of the brushing surfaces of the brushes 18 so as to lie in a common plane which is substantially tangential to the peripheral surfaces of the rollers 4 and 5. This critical tangential and common plane disposition of the brushing surfaces and roller peripheries correlates the massage action of the brushes to the massage action of the rollers and suction cups. This, the brushing, rubbing, frictional engagement, and heating of the skin to increase peripheral capillary flow will take place at the same time as the kneading and manipulation of the subcutaneous tissue and muscle fiber.

In order to vary the massage action of the brushes 18, I have provided a means for adjusting and fixing the positions thereof relative to the aforementioned tangential plane. This means includes the aforementioned screws 13 and the flexible lateral arms 12. With reference to Fig. 4, I have therein shown, in dashed outline, one position to which the brushes 18 may be adjusted, as by tightening the screws 13. If such an adjustment is made, the brushing surfaces of the brushes 18 will lie somewhat below although still substantially within the aforementioned tangential plane. This will increase the frictional contact between the skin and brush surface as my massage device is operated. Optionally, the brushes 18 may be provided in varying degrees of stiffness such as hard, medium, and soft. When it is desired to change the massage action of the brushes 18, a softer or harder brush may be substituted by a mere detachment and reassembly of the screws 19. With such a provision, of course, it will usually not be necessary to employ the adjustment screws 13 since such an exact nicety of brushing friction control will not be required.

In a typical operation of my massage device, the structure is inverted from the position shown in Fig. 1 and the operator grasps the two handles 2 and 3. Thereafter, the massage device is rolled back and forth across the skin of the patient while the operator presses down either lightly or

with force as the particular affliction may dictate. During operation, the rollers 4 and 5 effect the physical kneading process of massage to crush and push upon the subcutaneous tissue; the suction cups 8 and 10 together with the web portions 7*a* and 9*a* manipulate, pull upon, and exercise the subcutaneous tissue and the muscle fiber to enhance muscle tone; and the brushes 18 frictionally brush against, rub, and heat the skin to increase the capillary flow, to spread the effect of the rollers and cups, and to effect a "pinking" of the skin as by peripheral capillary dilation. At this point, a further functional utility for the brushes 18 becomes evident. For example, were the rollers and suction cups per se employed in a massage action, the skin would take on a mottled appearance due to the necessary spacing of the suction cups 8 or 10 one from another about the roller peripheries. Since, however, the brushes 18 follow immediately after the suction cup action to rub over and heat the skin, the brushes may be said to erase or disperse this mottled effect. That is to say, the brushes 18 spread and make uniform the massage action of the rollers and suction cups by increasing the peripheral circulation wherever they rub. This novel coaction of the three massage processes produces an overall uniform massage hitherto unattainable with a roller-type massage device or with brushes alone.

It will now be seen that I have served the objects of my invention by providing, in combination, a plurality of elastic rollers for effecting the kneading process of massage, a plurality of peripheral suction cups for effecting the manipulation, pull, or exercise process of massage, and a pair of brushes lying tangential to the roller surface to effect the brushing, rubbing, frictional engagement, or heating process of massage. Furthermore, I have provided the several suction cups with differing internal capacities and orificial areas to promote different degrees of suction action as the roller is moved over a surface in massaging. Still further, I have disposed the brushing surfaces of my brushes in a common plane which is substantially tangential to the peripheral surfaces of the rollers and I have provided means by which the flexible lateral arms may be adjusted and fixed relative to this tangential plane. This allows the massage action of the brushes, selectively, to be increased or decreased, as desired. By increasing physiological activity, my massage device helps restore exhausted muscle fiber by removing fatigue products and by inducing a fresh blood supply therein; it disperses congestion; and it promotes muscle tone and stimulates the tendonous and cutaneous end organs to sooth the nervous system and stimulate circulation.

I claim:

1. A massage device, comprising a plurality of elastic rollers journaled upon a common elongated axle member and having smooth peripheral surfaces thereon, each said roller surface having a plurality of suction cups open thereto but recessed inwardly therefrom, a pair of lateral arms secured in parallel relationship one adjacent each end of said axle, and a pair of longitudinal brushes disposed on opposite sides of said rollers and carried adjacent the terminal ends of said lateral arms, the brushing surfaces of said brushes lying in a common plane substantially tangential the peripheral surfaces of said rollers.

2. A massage device, comprising an elongated

axle member having a gripping handle fixed to each end thereof, a plurality of elastic massage rollers journaled in axial alignment along said axle member and having smooth peripheral surfaces thereon, each said roller surface having a plurality of undercut suction cups open thereto but recessed inwardly therefrom, a pair of flexible lateral arms secured in parallel relationship one adjacent each end of said axle, a pair of longitudinal brushes disposed on opposite sides of said rollers and carried adjacent the terminal ends of said lateral arms so as to flex therewith, the brushing surfaces of said brushes lying in a common plane substantially tangential the peripheral surface of said rollers, and means on each said lateral arm for adjusting the position of one or both said brushes relative to said tangential plane whereby the massage action thereof may be weakened or strengthened as desired.

3. In combination with a rotatably mounted elastic roller having a plurality of suction cups recessed inwardly from and spaced about the smooth peripheral surface thereof, a pair of elongated massage brushes secured adjacent opposite sides of said roller substantially parallel to the axis of rotation thereof, the brushing surfaces of said massage brushes lying in a common plane substantially tangential the peripheral surface of said roller to cooperate therewith in effecting a massage action.

4. In combination with a rotatably mounted elastic roller having a plurality of suction cups spaced about the smooth peripheral surface thereof, a pair of elongated massage brushes adjustably mounted adjacent opposite sides of said roller substantially parallel to the axis of rotation thereof, the brushing surfaces of said massage brushes lying in a common plane substantially tangential the peripheral surface of said roller to cooperate therewith in effecting a massage action, each said massage brush being carried upon two spaced flexible arms whereby the same may flex and give with the corresponding movements of said elastic roller during operation.

5. In combination with a rotatably mounted elastic roller having a plurality of massage action suction cups recessed inwardly from and spaced about the smooth peripheral surface thereof, a pair of elongated easily detachable and replaceable massage brushes secured at opposite sides of said roller and extending substantially parallel to the axis of rotation thereof, the brushing surfaces of said massage brushes lying in a common plane substantially tangential the peripheral surface of said roller to cooperate therewith in effecting a massaging action.

FELIX F. WAGNER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,605,856	Serva	Nov. 2, 1926
1,688,764	Trankowski	Oct. 23, 1928
1,724,893	Baginski	Aug. 20, 1929
1,755,144	Arranz	Apr. 15, 1930

FOREIGN PATENTS

Number	Country	Date
74,399	Switzerland	July 2, 1917
277,485	Great Britain	Sept. 22, 1927