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MASSAGING MACHINE

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Fig. 1.

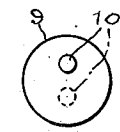
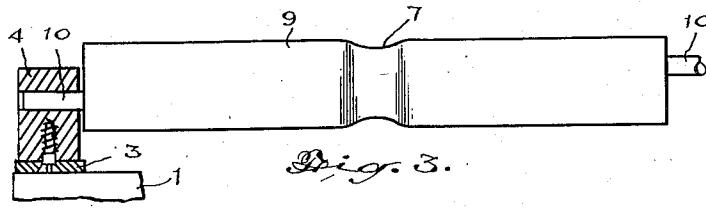
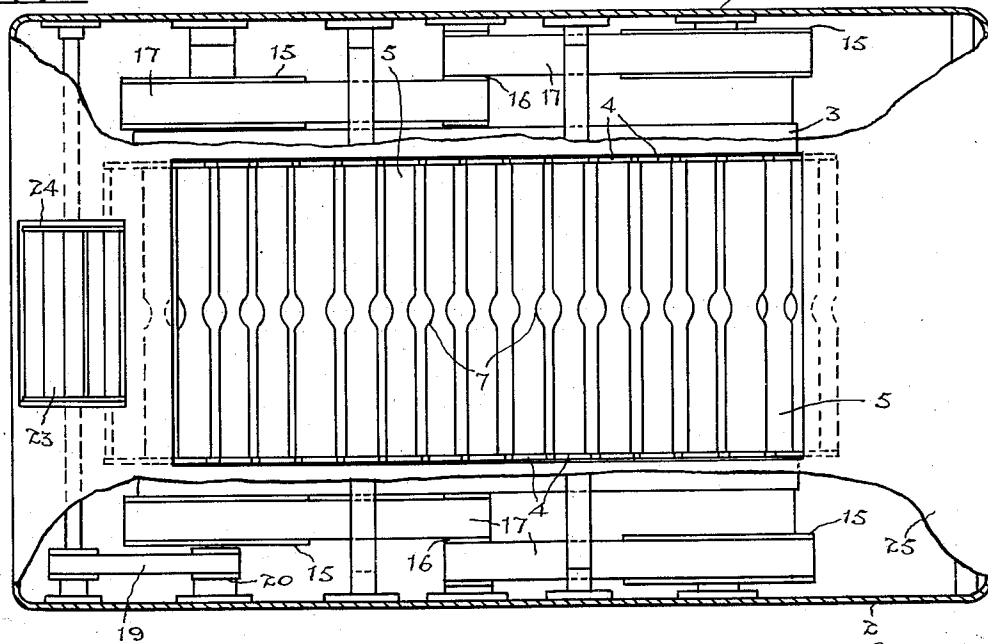
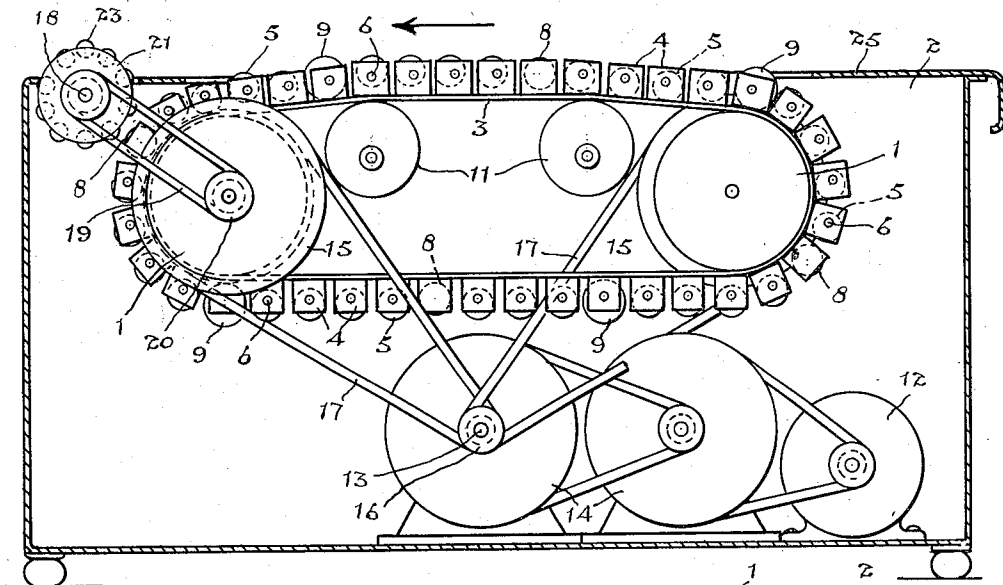


Fig. 3.

Fig. 2.

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## UNITED STATES PATENT OFFICE

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## MASSAGING MACHINE

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This invention relates to a massaging machine and the principal object of the invention is to provide a simple and extremely effective and beneficial machine particularly adapted for flexing the muscles and nerves adjacent the spine from the base of the skull to the coccyx in a manner to loosen and relax the muscles and nerves, releasing nerves impinged or pinched by contracted muscles and greatly increasing circulation to produce a very desirable stimulating effect.

A further and important object is to provide a massaging machine which will beneficially exercise the vertebrae without jarring or other harmful or detrimental effects.

The principal feature of the invention consists in providing a roller table comprising positively driven endless series of eccentrically journalled rollers adapted to rotate with an eccentric motion under the weight of a patient and provided with central grooves to receive the spinal column and prevent jarring of same.

A further important feature consists in arranging a positively rotated drum at the head of the table and mounting a plurality of eccentrically journalled rollers around the periphery of the drum to massage the neck of the patient.

A further and important feature consists in arranging a plurality of large eccentrically journalled rollers beneath the upper reach of the endless series of rollers to form a supporting surface for same providing a rise and fall of the roller table in accordance with the rotation of the enlarged rollers.

A still further feature consists in providing at least some of the endless series of rollers of different size than the adjacent rollers and at least some as non-rotating rollers to provide a glide stroke in the massaging action.

A still further feature consists in providing some of the eccentric rollers with different eccentricities at opposite ends to provide a lateral tilting motion during the massaging.

Referring to the accompanying drawings,

Figure 1 is a side elevational view of a massaging machine embodying my invention with the side panel removed.

Figure 2 is a plan view of the machine of Figure 1.

Figure 3 is an elevational detail of one of the eccentrically journalled rollers having different eccentricities at opposite ends.

Figure 4 is an end view of the roller of Figure 3.

During the normal contraction or tightening of the muscles of the back the nerves and blood vessels associated with the nerves and feeding the spinal cord become pinched producing harmful effects and reducing circulation. Normal physical exercise will not counteract this natural contraction of the muscles which require exercising at frequent intervals to retain them in a relaxed healthful condition.

I have found through careful experiment that

my machine produces the desired kneading and massaging action to thoroughly relax and loosen the muscles releasing cramped nerves and associated blood vessels and permitting materially increased circulation. I have also found that my machine enables the exercising of the vertebrae to thoroughly relax a patient without in any way producing jarring or harmful effects.

The action of my machine will be understood on reference to the accompanying drawings in which I show a pair of spaced drums or rollers 1 rotatably supported between the sides of a casing 2 adjacent the top thereof.

Extending between and passing over the periphery of the drums 1 are two spaced flat endless belts 3, and secured to each of these belts is a plurality of journal blocks 4.

Extending between opposing pairs of journal blocks are rollers 5 provided with eccentric shaft extensions 6 which are journalled in the journal blocks. Thus the rollers 5 are eccentrically journalled between the journal blocks and rotate with an eccentric action.

Each of the rollers 5 is provided with a circumferential groove 7 adjacent the centre to receive the spinal column of a patient placed on the roller table as formed by the endless series of rollers 5.

Preferably a fixed or non-rotating rib 8 is arranged at spaced intervals between groups of rollers 5 and rollers 9 having shaft extensions 10 of different eccentricities at the opposite ends, as shown in Figure 3, are arranged at intervals between the rollers 5.

Both the ribs 8 and rollers 9 are provided with central grooves corresponding to the circumferential grooves 7.

Arranged at spaced intervals beneath the upper reach of the flexible belts 3 are a pair of enlarged rollers 11 which are eccentrically supported between the side walls of the casing 2. These rollers normally support the upper reach of the endless rollers under the weight of a patient.

Arranged at the bottom of the casing 2 is a motor 12 which drives a shaft 13 through suitable speed reducing pulleys 14. This shaft 13 extends between the sides of the casing 1 adjacent the centre and beneath the lower reach of the endless series of rollers 5.

Each of the drums 1 is formed with enlarged pulleys 15 at the ends thereof and extending between these pulleys and reduced pulleys 16 on the central drive shaft 13 are suitable V-belts 17. Both drums 1 are thus positively rotated at a relatively slow speed and cause the endless series of eccentrically journalled rollers to travel across the open top of the casing in the direction of the arrow Figure 1.

Extending between the walls of the casing at the head of the machine is a shaft 18 which is driven by a suitable V-belt drive 19 from a reduced pulley 20 on the shaft of the drum 1.

Mounted on the shaft 18 is a drum 21 having

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a plurality of rollers 23 of a size smaller than the rollers 5 eccentrically journalled around the periphery of its end flanges 24.

It will be noted that the drum 21 and rollers 23 carried thereby extend somewhat above the upper reach of the endless series of rollers 5 and in the normal operation of the machine the patient is placed on the upper reach of the rollers 5 with his neck resting on the rollers 23.

In the operation of my machine the patient lies on the roller table as formed by the upper reach of the endless rollers 5 with his neck on the rollers 23 as described, and with the rollers 5 extending to adjacent the base of his spine or coccyx and with his legs extending over the edge of the machine or preferably with his knees drawn up and his feet placed on the platform 25, as provided by the casing 2.

The weight of the patient's torso is thus acting to depress the upper reach of the rollers 5 and to force same downwardly to contact the enlarged rollers 11 arranged beneath the belts 3.

With the motor 12 operating the drums 1 are positively rotated through the V-belts 17 and the flat belts 3 are operated in the direction of the arrow.

The rollers 5 and the enlarged rollers 11 rotate under the weight of the patient with the eccentricity of the rollers 5 acting to knead and massage the muscles of the back as they move beneath the patient, while the enlarged rollers 11 amplify the effects of the smaller rollers and also cause a tilt of sections of the roller table and a subsequent fall of the roller table to exercise the vertebrae.

Thus all the muscles of the back are being kneaded and exercised gently yet efficiently while the backbone, which lies in the circumferential central groove 7 of the rollers is prevented from jarring. Similarly the muscles adjacent the base of the skull or in the neck are being exercised by the rotation of the drum 21 carrying the rollers 23, which again, due to their eccentric movement, effect massaging and kneading action.

With the provisions of the fixed ribs 8 spaced at intervals between the rollers 5 a periodic gliding stroke down the patient's back is provided and this action has been found to materially increase the kneading and flexing of the muscles.

A further beneficial motion is obtained with the rollers 9 which have different eccentricities at opposite ends. These rollers 9 are preferably larger than the rollers 5 and provide a pronounced lateral tilt and fall to the table as they progress under the patient's back.

With the various arrangements of eccentric rollers described the muscles are subjected to a thorough kneading and flexing and become loose and pliable in an extremely short time, allowing free circulation and releasing pinched or impinged nerves, alleviating harmful and often painful conditions of the back and beneficially exercising the vertebrae.

With the double belt drive to each drum an economical and satisfactory friction drive is obtained. It will be appreciated however that other types of drives may be utilized and flexible chains may be readily used in place of the flat flexible endless belt 3.

It will also be understood that various other arrangements of eccentric rollers may be provided without departing from the scope of my invention as set forth in the appended claims.

What I claim as my invention is:

1. In a massaging machine, a pair of endless

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flexible belts, an endless series of rollers, eccentrically journalled between said belts to rotate on eccentric axes with the axes of rotation at opposite ends of the rollers being eccentric, the upper reach of said endless series of rollers forming a roller table, means for driving said endless roller series to rotate said rollers under the weight of a patient placed thereon to massage the muscles of the back from adjacent the neck to the coccyx, and a peripheral groove formed centrally in said rollers to receive the spinal column.

2. A massaging machine comprising a pair of endless flexible belts, journals carried by said belts, an endless series of rollers formed with peripheral grooves adjacent the centre and having eccentric pin extensions mounted in said journals with the axes of said pin extensions at opposite ends of said rollers being eccentric, the upper reach of said endless roller series forming a roller table, means for driving said endless roller series, and enlarged roller means eccentrically journalled beneath the upper reach of said roller series to raise and lower portions of said roller table upon rotation.

3. In a massaging machine, a pair of endless flexible belts, journals carried by said belts, an endless series of rollers each formed with a peripheral groove adjacent the centre and having eccentric pin extensions mounted in said journals with the axes of said pin extensions at opposite ends of said rollers being eccentric, means for driving said endless roller series, enlarged rollers eccentrically journalled beneath the upper reach of said endless roller series, rotatable means arranged at one end of the upper reach of said endless roller series, eccentrically journalled rollers carried by said rotatable means to receive the neck of a patient lying on the upper reach of said endless roller series, and means for effecting the rotation of said rotatable means.

4. A device as claimed in claim 3 in which some of the rollers of said endless roller series are of a size larger than the adjacent rollers.

5. In a massaging machine, an endless series of rollers journalled at their ends for rotation, the upper reach of said rollers series forming a roller table, means for driving said endless roller series to translate each roller longitudinally of the table beneath and longitudinally of the back of a patient lying on the table, at least some of said rollers being eccentrically journalled at the ends with the eccentric axes of rotation at opposite ends being out of alignment to produce a longitudinal tilting motion of said latter rollers transversely of the table while being translated longitudinally of said table, and each of said rollers being formed with a central groove to define a groove running longitudinally and centrally of said table to receive the patient's spinal column to prevent jarring thereof by said rollers having composite motion of translation, rotation and longitudinal tilting.

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