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Apparatus for treating spinal disorders of an animal particularly those of a horse ✓

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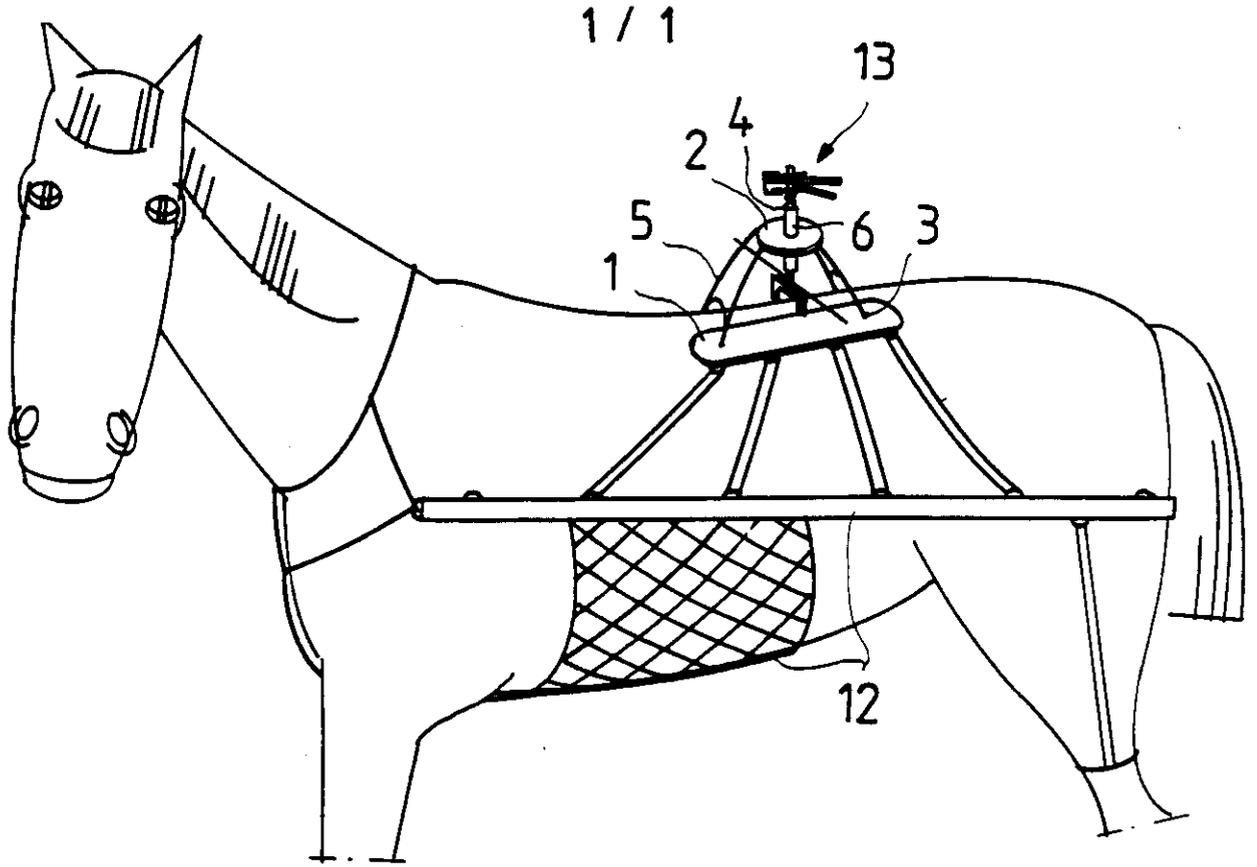


Fig. 1

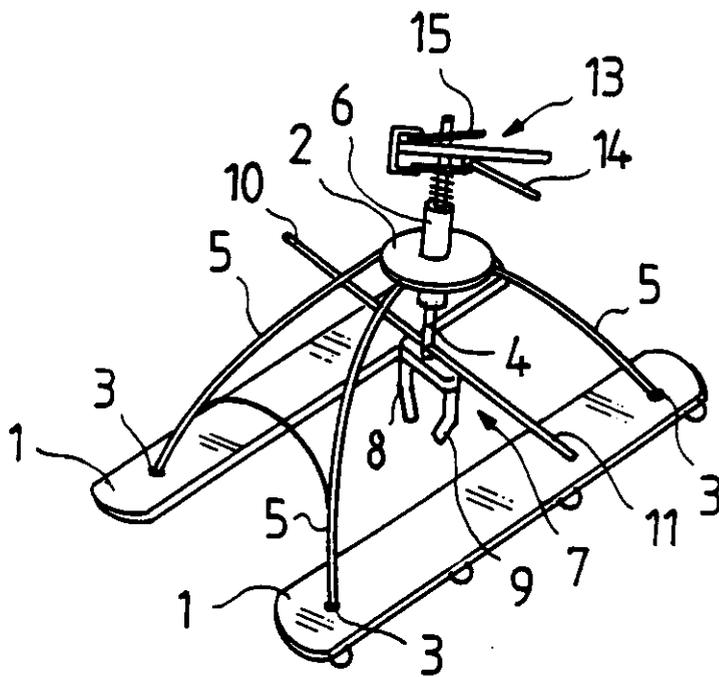


Fig. 2

APPARATUS FOR TREATING SPINAL DISORDERS OF AN ANIMAL
PARTICULARLY THOSE OF A HORSE

5 The present invention concerns an apparatus for treating
spinal disorders of an animal particularly those of a
horse, said apparatus comprising fixing means such as a
strappable harness or belts suited for mounting the
apparatus on the animal's back and a fork-shaped element
10 acting on the back.

Horses in particular are subject to spinal disorders. Such
disorders are typically evidenced as a certain type of
limping and changes in the gait. The horse may shorten its
15 gait, poorly distributes the weight on its legs or hesitate
to flex its back when running in the bends. A spinal dis-
order lowers the horse's performance.

The horse's spine has above and below strong, large muscles
20 that may rupture in motion. The spine is formed by verte-
brae whose processes rise higher from the spine as can be
felt by moving a hand over the horse's back along points
where the tips of the processes are thicker. Adjacent
vertebral processes can cause compression of nerves leaving
25 the sacral canal through the intervertebral foramina,
whereby pain occurs at the flexing of the back. Due to the
thickness of the spinal muscles, conventional radiographic
examination of the spine fails to provide sharp images even
if the horse is anaesthetized. The radiographic examination
30 reveals only major changes such as fractures and ruptures,
not any lesser changes in the vertebrae themselves.

Spinal disorders are conventionally treated by rest, and
occasionally, by drugs administered to the horse. Small
35 changes in the vertebrae can possibly be mended surgically
to relieve compression on the nerve roots. In the case of a
chronic disorder in the region of the sacrum and ileum,

rest will be of little help; rather, the horse should be rehabilitated by a stepwise more arduous schedule of training, thereby strengthening the rear trunk muscles supporting the spine. Obviously, a great number of
5 different approaches are available for treating spinal disorders with varying results.

It is an object of the present invention to achieve an apparatus suited for treating a certain category of spinal
10 disorders. These disorders include those causing muscular tension and spasms. The apparatus serves to the end of relaxing such muscular tensions. According to the invention the fork-shaped element is mounted for movement in a direction essentially perpendicular to the animal's back and
15 the apparatus further incorporates a rotatable element coupled to the fork-shaped element such that the fork-shaped element can be rotated about an axis essentially perpendicular to the back and be simultaneously pressed against the back.

20 In a preferred embodiment of the invention the rotatable element comprises manually rotatable lever arms connected to the fork-shaped element.

25 In another embodiment of the invention, for the purpose of moving the fork-shaped element with respect to the apparatus in the direction perpendicular to the spine of the animal, a metal rod is connected to the fork-shaped element so as to be movable within a pipe incorporated in the device and, for
30 the purpose of transferring the rod toward the spine, said metal rod is complemented with a mechanism triggerable by a quick-release latch after the transfer operation.

In a further embodiment of the invention the fork-shaped
35 element is rotatable by means of the

metal rod about the rod axis oriented perpendicular to the animal's back.

The apparatus according to the invention can be applied for
5 treating the following objects: cervical vertebrae,
thoracic vertebrae, lumbar vertebrae, sacral vertebrae,
caudal vertebrae, atlas, axis, etc. Treatment by the
apparatus relieves nerve rami from compression and muscles
from tension; the treatment enhances blood circulation and
10 removes stresses imposed on articulating facets and lamina,
thus allowing the tissues to recover rapidly from loads
caused by incorrect posture. Further, the apparatus can be
used for applying manipulating treatment on tens of acu-
puncture, shiatsu and other sensitive points communicating
15 widely around the nervous network. The apparatus can be
employed for relaxing painful spasms and single-sided
tensions and reflected nerve pains.

In the following, the invention will be examined in
20 more detail by means of the preferred exemplifying embodi-
ments with reference to the attached drawing, in which

Figure 1 shows an apparatus according to the invention
mounted on the back of a horse,
25

Figure 2 shows the apparatus according to the invention in
a larger scale.

In Fig. 1 the apparatus according to the invention is
30 mounted on a horse's back. Horse acts herein only as an
exemplifying animal. The apparatus can equally well be used
in the treatment of any vertebrate animal, even man. The
apparatus is mounted on the horse's back in this exempli-
fying embodiment by means of a strappable harness 12 as
35 shown in Fig. 1. The actual structure of the harness or
other fixing arrangements is nonessential. The only

important requirement is that the apparatus must stay firmly fixed during the entire treatment.

5 The body of the apparatus in the illustrated embodiment comprises a metal frame 2 and metal arcs 5 attached to it. The lower ends of the metal arcs carry at points 3 pivotally mounted support plates 1 the number of which is two: one on each side of the horse's spine. The above-mentioned mounting harness 12 is further attached to said
10 support plates 1.

Essentially to the center of the frame 2 of the apparatus is made a hole to accommodate the mounting of a metal pipe 6 or similar tubular element. Through the pipe is inserted
15 an iron rod 4 which is movable toward and retractable from the horse's back. To the lower end of the iron rod 4 is attached a fork-shaped element 7 acting on the horse's back, said element comprising two essentially identical, in this case blunt pegs 8, 9. The pegs or at least their tips
20 are movable at a closer or wider mutual distance. For this purpose, an adjustment mechanism is adapted not illustrated in the drawing to a greater detail. Any competent craftsman familiar with mechanism constructions can easily devise such adjustment means. The reason for the need to move the
25 pegs 8, 9 is the requirement of correct mutual distance and position adjustment on the horse's back prior to the actual treatment.

The apparatus further comprises lever arm or arms 10, 11
30 which advantageously are detachable. This property is implemented by, e.g., providing the iron bar 4 with threaded holes into which the lever arms 10, 11 are inserted by screwing. Obviously, any suitable construction of the lever arm is possible such as, e.g., a single straight bar
35 passing through the iron rod 4. Advantageously, however, the lever arm is mounted closest possible to the fork-shaped element 7, whereby actual rotation operation about

the iron rod 4 is more efficiently possible without causing unwanted lateral movements.

5 The apparatus according to the invention is mounted on the back of the animal suffering from a spinal disorder, a horse in the exemplifying case, with the help of the harness 12 so that the fork-shaped element 7 is aligned above the actual point of disorder or pain. After the straps of the harness are fitted and tightened and the apparatus is solidly fixed in place, the fork-shaped element 7 is lowered at the end of the iron rod 4 to rest against the back. At this stage the pegs 8, 9 are still kept maximally outdistanced from each other. When the fork-shaped element is vertically properly aligned above the correct point, the fork-shaped element is adjusted until the pegs 8, 9 are closed between the desired spinous processes. Next, the lever arm or arms 10, 11 are grabbed, a push and rotating movement is performed thus aligning the spinous processes in their correct positions, whereby the muscular spasms are relaxed.

Besides manually the push can be performed mechanically, in particular if muscles are stiff due to a spasm, because pressure cannot be applied steadily against the back by manual methods. One advantageous pressure applying mechanism is illustrated in the drawings. Thus, the iron bar 4 has a transfer mechanism 13 which can be implemented as, e.g., the advance and release mechanism known in the art from a putty cartridge ram pistol. In short, the downward pushing of the iron bar by means of this mechanism takes place by pressing the trigger 14 as many times as is necessary to achieve the desired depth. In this manner the transfer mechanism tightens the fork-shaped element 7 against the back for the duration of the treatment. The compressive pressure is released by tripping the mechanism by pressing the quick-release latch plate 15 at the completion of the treatment. This illustrated embodiment

serves as an example of the multiple applications and constructions possible for the apparatus.

CLAIMS

1. An apparatus for treating spinal disorders of an animal, said apparatus comprising fixing elements for mounting the apparatus on the animal's back; a fork-shaped element (7...9) which is thereby mounted for movement in a direction essentially perpendicular to the animal's back and a rotatable element (10,11) coupled to the fork-shaped element such that the fork-shaped element (7...9) can be rotated about an axis essentially perpendicular to the back and be simultaneously pressed against the back.
2. An apparatus as defined in claim 1, wherein the rotatable element comprises manually rotatable lever arms (10,11) connected to the fork-shaped element (7...9).
3. An apparatus as defined in claim 1 or 2, wherein for the purpose of moving the fork-shaped element (7...9) with respect to the apparatus in the direction perpendicular to the spine of the animal, a metal rod (4) is connected to the fork-shaped element (7...9) so as to be movable within a pipe (6) incorporated in the apparatus and, for the purpose of transferring the rod toward the spine, said metal rod is complemented with a mechanism for driving the rod toward the spine, said mechanism being triggerable by a quick-release latch (15) after the transfer operation.
4. An apparatus as defined in claim 3, wherein the fork-shaped element (7...9) is rotatable by means of the metal rod (4) about the rod axis oriented perpendicular to the animal's back.

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Title APPARATUS FOR TREATING SPINAL DISORDERS OF AN ANIMAL PARTICULARLY THOSE OF A HORSE

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