DE 3221544 discloses a device of this type wherein a disc with permanent magnets is driven by a motor and it is located in a support foot.

In examining these background devices, it is revealed that the means generating the magnetic field are located at a point on the stretcher or the like, or they move along a fixed trajectory with respect to the stretcher or treatment table under the patient, and therefore the patient must be moved according to the surface of the patient's body where it is desired to apply the treatment.

Disclosure of the invention

So that the patient does not have to be moved from one area to another on the surface of the treatment table or stretcher where he is sitting, the solution has been adopted where the head generating the magnetic field is moved in guided fashion above or under, in front of or behind the patient or around the patient, always facing an area to be treated using successive, repeated steps with the head.

According to an aspect of the present invention, ~~the preceding solution~~ there is provided medical equipment comprising ~~that is the object of the invention has been developed, which comprises~~ a magnetic field generator intended to be applied to a patient and a support structure ~~(2, 14)~~ for said patient, wherein ~~and it is characterised in that~~ it comprises, associated to said support structure, a head generating a magnetic field, with said head being able to move, gradually and repeatedly in a guided manner and/or manually, in a position at a distance from, and directly facing, the body of the patient, describing a trajectory defined by a supporting guide attached to said support structure, with said trajectory running in the transversal and/~~or~~ longitudinal direction along the surface of the body of the patient, wherein said head generating a magnetic field comprises a support that includes magnets emitting magnetic fields with defined polarity, said support is assembled on a rotary shaft related to a motor element, and said head comprises a plurality of magnets arranged with their magnetic axis orientated so that it is perpendicular to the emitting face of said head, where part of said magnets have their north pole on said emitting face and the remaining magnets have their south pole on said emitting face ~~to be treated with said magnetic field~~.

In some preferred embodiments, said support structure is associated to a stretcher structure, preferably to a stretcher suitable for inverting the patient.

Preferably, said supporting guide, intended to allow the mechanical movement along it of said head generating the magnetic field, consists of a resistant element that can be positioned in front of any surface on the patient's body and which has a longitudinal

In other embodiments, said support structure in which said supporting guide is installed is a vertical support structure where the patient is located in the upright or seating position.

Preferably, said head generating a magnetic field is configured to project a magnetic emission with a value between 500 and 2800 gauss.

Preferably, the medical equipment according to embodiments of the invention is configured so that said support that includes the magnets can rotate with a rotation speed between 0 and 1500 rpm.

Preferably, said magnets are from the group comprising neodymium magnets, ferrite magnets and electromagnets, considered individually or in technically feasible combinations thereof.

Preferably, said head generating a magnetic field is associated with means for rolling on said supporting guide, which are likely to be associated with controlled movement motor means along said supporting guide.

Preferably, said head generating a magnetic field is provided with a gripping handle for manual use which is free of rolling means, motors and the supporting guide.

Preferably, said head comprises a plurality of magnets arranged with their magnetic axis orientated so that it is perpendicular to the emitting face of said head, where part of said magnets have their north pole on said emitting face and the remaining magnets have their south pole on said emitting face.

In some preferred embodiments, said head has a plurality of pairs of magnets, preferably four magnets, arranged in a circle, where each of said magnets that has its north pole on said emitting face has adjacent to it two of said magnets that have their south pole on said emitting face.

Preferably, the medical equipment according to embodiments of the invention comprises a plurality of said heads generating a magnetic field associated to said support structure.

In the equipment according to embodiments of the invention, the head can include a magnetic configuration with very different shapes and can include permanent magnets, electromagnets or combinations of both. In this description and in the claims the term "magnet" or "magnets" is used to indicate any of the above possibilities.

Brief description of the drawings

To facilitate the understanding of the expounded ideas, while also disclosing various construction details, an embodiment of this invention is described below with reference to the drawings accompanying this specification, which given their essentially illustrative purpose, must be interpreted as not limiting in any way the scope of legal protection sought. The drawings show as follows:

Fig. 1 represents a top perspective view of a inverting stretcher structure that includes the medical equipment that is the object of the invention, during the treatment of a patient.

Fig. 2 represents a side elevation view of the stretcher in the preceding figure in its inverted position, in which the treatment can be carried out once the medical equipment has been installed appropriately.

Fig. 3 represents a side elevation view of an embodiment of the head generating the magnetic field assembled in cantilever arrangement on a tubular supporting guide.

Fig. 4 represents a top perspective view of a possible embodiment of the medical equipment wherein the support structure consists of a vertical bar or column that supports, at the height required in each case, the supporting guide of the head generating the magnetic field. In the figure, the patient receives the treatment in the standing up position, but could also be in the sitting position.

CLAIMS

1.- Medical equipment comprising a magnetic field generator intended to be applied to a patient and a support structure ~~(2, 14)~~ for said patient, wherein it comprises, associated to said support structure ~~(2, 14)~~, a head ~~(6, 16)~~ generating a magnetic field, with said head ~~(6, 16)~~ being able to move, gradually and repeatedly in a guided manner and/or manually, in a position at a distance from, and directly facing, the body of the patient, describing a trajectory defined by a supporting guide ~~(5)~~ attached to said support structure ~~(2, 14)~~, with said trajectory running in the transversal and longitudinal direction along the surface of the body of the patient, wherein said head ~~(6, 16)~~ generating a magnetic field comprises a support ~~(10)~~ that includes magnets ~~(11)~~ emitting magnetic fields with defined polarity, said support ~~(10)~~ is assembled on a rotary shaft related to a motor element, and said head ~~(6, 16)~~ comprises a plurality of magnets ~~(11)~~ arranged with their magnetic axis orientated so that it is perpendicular to the emitting face of said head ~~(6, 16)~~, where part of said magnets ~~(11)~~ have their north pole on said emitting face and the remaining magnets have their south pole on said emitting face.

2.- Medical equipment according to claim 1, ~~characterized in that~~wherein said support structure ~~(2)~~ is associated to a stretcher structure ~~(1)~~, preferably a stretcher suitable for inverting the patient.

3.- Medical equipment according to one of the claims 1 or 2, wherein said supporting guide ~~(5)~~, intended to allow the mechanical movement along it of said head ~~(6, 16)~~ generating a magnetic field, consists in a resistant element that can be positioned in front of any surface on the patient's body and which has a longitudinal constitution, with an arrangement belonging to the group comprising a curvilinear shape, a rectilinear shape and combinations thereof, with said resistant element being arranged so that it extends facing, on its face nearest the patient and irrespective of whether this is rectilinear or concave, a part of the surface on the patient's body that must be treated with the magnetic field.

4.- Medical equipment according to any of the claims 1 to 3, wherein said head ~~(6, 16)~~ generating a magnetic field runs via said supporting guide ~~(5)~~ so that its face emitting the magnetic field is always orientated towards the surface of the patient's body to be treated.

5.- Medical equipment according to any of the claims 1 to 4, wherein said head ~~(6, 16)~~ generating a magnetic field is provided with means for moving along the trajectory defined by said supporting guide ~~(5)~~, which belong to the group comprising autonomous means and external means, either considered individually or in technically feasible combinations thereof.

6.- Medical equipment according to any of the claims 1 to 5, wherein said supporting guide ~~(5)~~ is provided with means for installing it at chosen points on said support structure ~~(2)~~ where the patient is located in the stretched out position, with said support structure being one from the group comprising a conventional stretcher and an inverting stretcher, considered individually or in technically feasible combinations thereof.

7.- Medical equipment according to any of the claims 1 to 5, wherein said support structure ~~(14)~~ which said supporting guide ~~(5)~~ is installed is a vertical support structure wherein the patient is located in the upright or sitting position.

8.- Medical equipment according to any of the claims 1 to 7, wherein said head ~~(6, 16)~~ generating a magnetic field is configured to project a magnetic emission with a value between 500 and 2800 gauss.

9.- Medical equipment according to claim 1, wherein it is configured so that said support ~~(10)~~ that includes magnets ~~(11)~~ can rotate at a rotation speed between 0 and 1500 rpm.

10.- Medical equipment according to claim 1, wherein said magnets ~~(11)~~ are ones from the group comprising neodymium magnets, ferrite magnets and electromagnets, considered individually or in technically feasible combinations thereof.

11.- Medical equipment according to any of the claims 1 to 10, wherein said head ~~(6)~~ generating a magnetic field is associated with means for rolling on said supporting guide ~~(5)~~, which are likely to be associated to motor means for a controlled movement along said supporting guide ~~(5)~~.

12.- Medical equipment according to any of the claims 1 to 10, wherein said head ~~(16)~~ generating a magnetic field is provided with a gripping handle ~~(21)~~ for manual use which is free of rolling means, motors and the supporting guide.

13.- Medical equipment according to claim 1, wherein said head ~~(6, 16)~~ has a plurality of pairs of magnets ~~(11)~~, preferably four magnets ~~(11)~~, arranged in a circle, where each of said magnets ~~(11)~~ that has its north pole on said emitting face has adjacent to it two of said magnets ~~(11)~~ that have their south pole on said emitting face.

14.- Medical equipment according to any of the claims 1 to 13, wherein it comprises a plurality of said head ~~(6, 16)~~ generating a magnetic field associated to said support structure ~~(2, 14)~~.