

July 5, 1955

A. S. ROGELL  
ELECTRICAL BANDAGE  
Filed April 3, 1953

2,712,591

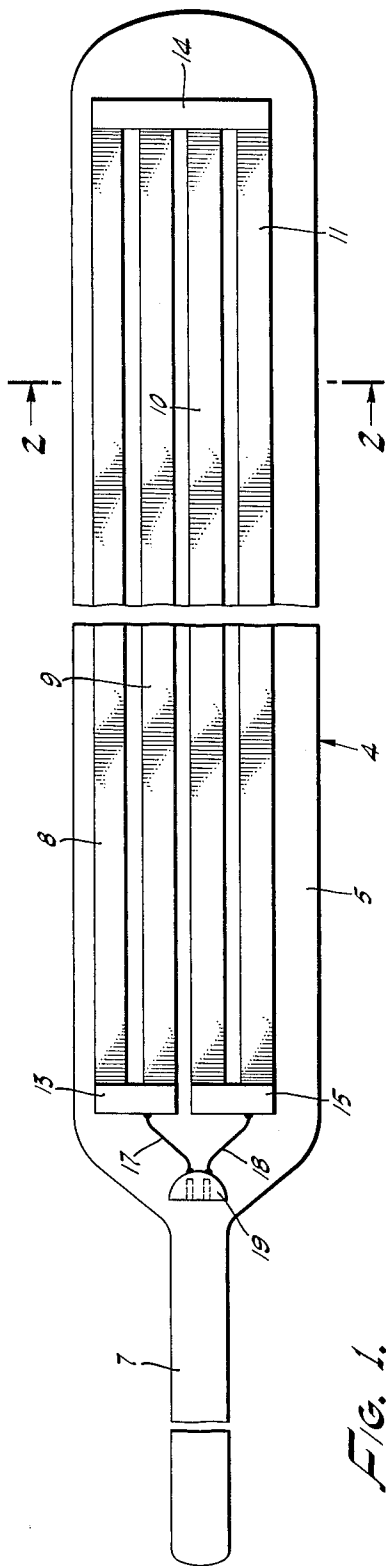


FIG. 1.

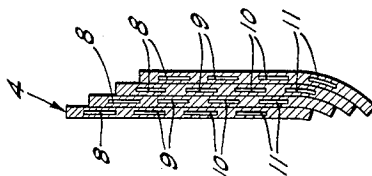


FIG. 4.

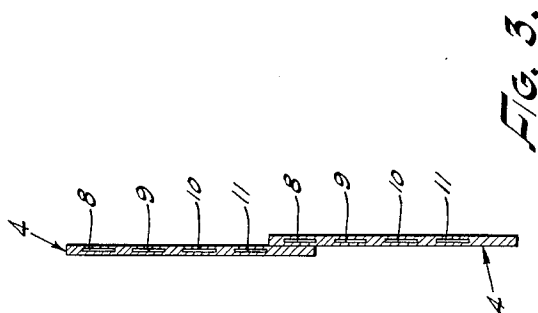


FIG. 3.

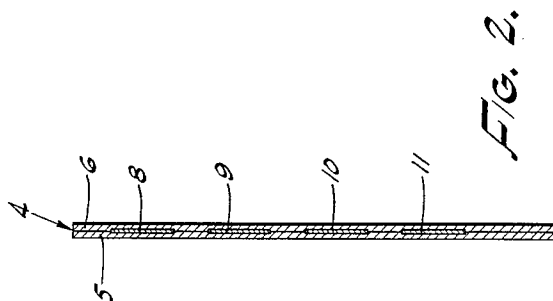


FIG. 2.

ALBERT S. ROGELL  
INVENTOR.

BY *W. R. Goshaw*  
ATTORNEY

1

2,712,591

## ELECTRICAL BANDAGE

Albert S. Rogell, Beverly Hills, Calif.

Application April 3, 1953, Serial No. 346,599

5 Claims. (Cl. 219—46)

This invention relates to heat therapy applicators, and particularly to an electric bandage wrap adapted to be applied to different portions of living tissue for the controlled heating thereof.

In my co-pending U. S. application, Ser. No. 263,766, filed December 28, 1951, there is disclosed and claimed an over-all system of heat therapy, which has been found to be particularly efficacious in the treatment of many ailments of animals, particularly the lower parts of their legs, such as the knee, hock, cannon, ankle, and pastern. The specific form of applicator or electrical bandage disclosed in this co-pending application utilizes a gum rubber latex strip in which are embedded Nichrome heating wires connected in parallel across bus bars at the ends of the wrap. The bus bars are then connected either to a source of alternating or direct current and the amount of current through the wires controlled in accordance with the prescribed heating cycle. One of the features of the wrap is that it can be wound so as to provide uniform heating over a predetermined area of tissue, or it can be overlapped so as to provide a graduated application of heat over a particular tissue. It also permits various degrees of tightness to be applied to the tissue to be treated.

The present invention is directed to an improved form of electrical bandage wrap applicator, wherein the wrap itself is made of neoprene and the electrical conductors are in the form of narrowly spaced current conducting ribbons. In this manner, a still better control of the application of heat to the tissue is obtainable, this being found to be particularly important in the treating of many ailments of the legs of animals, especially race horses.

The principal object of the invention, therefore, is to facilitate the treatment of living tissue, especially that of animals.

Another object of the invention is to provide an improved method of and system for providing heat to living tissue.

A further object of the invention is to provide an improved electrical bandage wrap applicator for uniformly and also gradually applying heat to various sections of living tissue.

Although the novel features which are believed to be characteristic and this invention will be pointed out with particularity in the appended claims, the manner of its organization and the mode of its operation will be better understood by referring to the following description, read in conjunction with the accompanying drawings, forming a part hereof, in which:

Fig. 1 is a plan view of a bandage wrap embodying the invention.

Fig. 2 is a cross-sectional view of the wrap taken along the line 2—2 of Fig. 1.

Fig. 3 is a cross-sectional view of the appearance of two turns of the wrap when uniform heating is provided, and

Fig. 4 is a cross-sectional view of four turns of the wrap

2

showing the method of obtaining a certain graduated application of heat.

Referring now to the drawings, the wrap 4 is composed of two one-sixteenths of an inch thick neoprene strips approximately three and three-fourth inches wide, and having an approximate over-all length of eight feet, as shown at 5 and 6. A narrow tail end 7 approximately two feet long and one-half inch wide is provided at one end of the wrap for locking or holding the wrap in position when placed on the tissue to be treated. The main body of the wrap is, therefore, approximately six feet long, although it is to be understood that the wraps may be longer or shorter than eight feet.

Before the strips are welded together by a cold bond, four electrical strips or conductors 8, 9, 10, and 11 of Nichrome ribbon, approximately one-half inch wide by .0056 of an inch thick, spaced one-fourth of an inch apart, are laid between the strips 5 and 6. The two strips 8 and 9 have one pair of their ends connected to a bus bar 13, and their other ends connected to a bus bar 14. The strips 10 and 11 have one pair of their ends connected to a bus bar 15 and the other pair of their ends to the bus bar 14. Bus bars 13 and 15 are connected by conductors 17 and 18, respectively, to an electrical plug 18, which is free of the unit.

It will be noted that the upper edge of ribbon conductor 8 is spaced approximately three-eighths of an inch from the upper edge of the wrap, while the lower edge of ribbon conductor 11 is spaced approximately five-eighths of an inch from the lower edge of the wrap. This aids in applying the wrap to certain tissues, such as the legs of animals.

As shown in Fig. 3, the wrap may be wound on the tissue so that the heating strip conductors 8 and 11 are separated the same distance from each other as strips 8, 9, and 10 within the wrap. In this manner, uniform heating over the area covered is obtainable, the narrow separation of wide heating conductors aiding to obtain a particularly uniform application of the heat.

In Fig. 4, the maximum degree of overlapping of the turns is shown. In this amount of overlap, the conductor 8 on the second turn is spaced between the conductors 8 and 9 on the first turn, the conductor 8 on the third turn is spaced between the conductors 8 and 9 on the second turn, and the conductor 8 on the fourth turn is spaced between the conductors 8 and 9 on the third turn, and so on for the other conductors in the respective turns. It is obvious that the heating obtained over a central area of the tissue wrapped in this manner will be maximum and will taper off under the end sections of the wrap. A lesser degree of overlap of the turns will produce a different rate of heat gradation over the tissue.

It has been found that this particular form of obtaining a variation of heat application to tissue is very effective in the treatment of certain tissue ailments, and the use of two flat, parallel connected conductors in a loop has been found particularly effective. The heat is applied very uniformly both at a constant rate or at a tapered rate. Thus, this form of wrap, together with the current control disclosed in my above mentioned co-pending application, provides excellent heat therapy results.

I claim:

1. An electrical bandage wrap heat applicator comprising an elongated resilient strip of insulating material having imbedded therein a plurality of parallel arranged flat conducting ribbons slightly spaced apart, and means for connecting a current source to said ribbons, said ribbons being four in number and approximately one half inch wide and spaced approximately one quarter inch apart, two of said ribbons being connected in parallel, said connecting means being connected to adjacent ends of two of said ribbons, the edge of one outer ribbon being ap-

3

proximately three eighths inch from one edge of said insulating material, and the edge of said other outer ribbon being approximately five eighths inch from the other edge of said insulating material.

2. An electrical bandage wrap heat applicator in accordance with claim 1, in which said strip is approximately three and three-fourths inches wide having one narrowed end section, said strip being formed of two cold bonded strips of neoprene approximately one-sixteenths of an inch thick.

3. An electrical bandage comprising an elongated flexible insulating strip having imbedded therein a plurality of parallel arranged thin flat current conducting ribbons equally and slightly spaced apart, and means for conducting current to certain ends of said ribbons, all of the ends of one group of said ribbons adjacent one another being connected together, the other ends of said ribbons being connected to said last mentioned means to form an electrical loop in said strip, the outer edge of one of said outer ribbons being spaced approximately three eighths inch from one outer edge of said strip and the

4

outer edge of the other outer ribbon being spaced approximately five eighths inch from the other outer edge of said strip.

4. An electrical bandage in accordance with claim 3, in which said strip is approximately three and three-fourths inches wide, eight feet long, and said ribbons are of Nichrome approximately one-half inch wide and six feet long.

5. An electrical bandage in accordance with claim 4, in which said strip has a narrow end section of approximately two feet long and one-half inch wide.

#### References Cited in the file of this patent

#### UNITED STATES PATENTS

|           |                    |               |
|-----------|--------------------|---------------|
| 718,896   | Ames et al. -----  | Jan. 20, 1903 |
| 1,384,467 | Homan -----        | July 12, 1921 |
| 1,860,934 | Malone -----       | May 31, 1932  |
| 1,992,593 | Whitney -----      | Feb. 26, 1935 |
| 2,503,457 | Speir et al. ----- | Apr. 11, 1950 |