(No Model.)

2 Sheets—Sheet 1.

S. H. PARKES.

COMPOUND MAGNET.

No. 329,768. Patented Nov. 3, 1885.

FIG. 2.

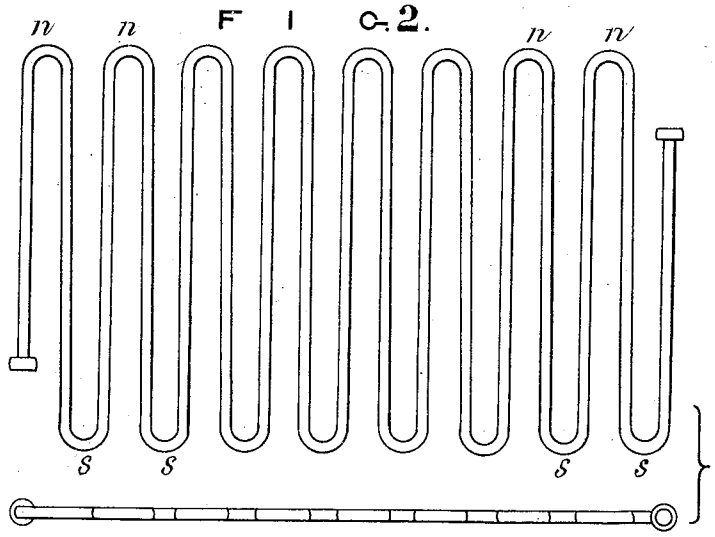
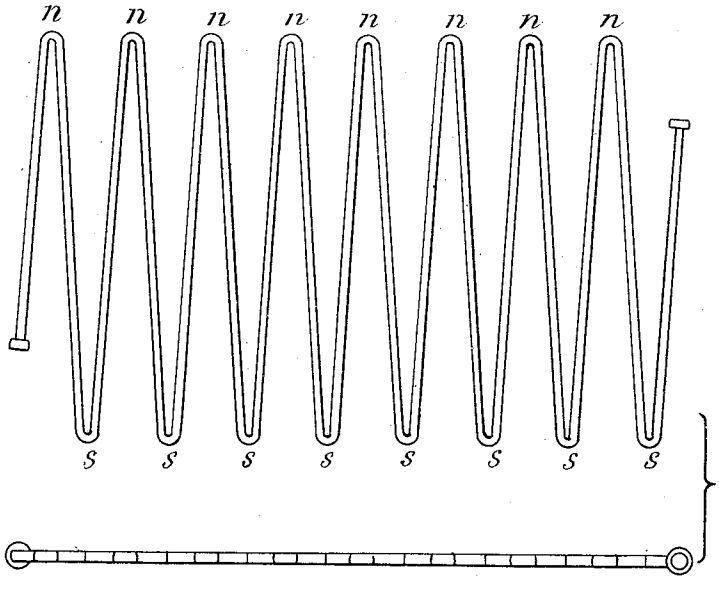


FIG. 1.



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(No Model.) 2 Sheets—Sheet 2.

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FIG 3

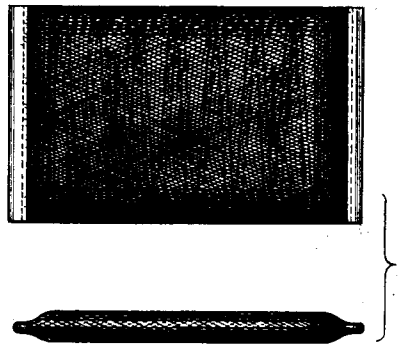


FIG 4



FIG 5

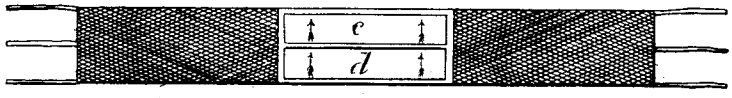


FIG 6

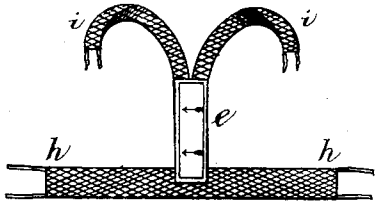
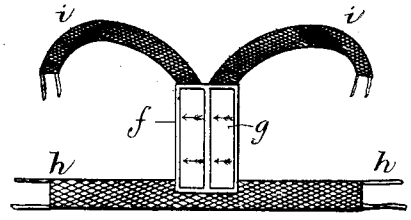


FIG 7



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UNITED STATES PATENT OFFICE.

SAMUEL HICKLING PARKES, OF BIRMINGHAM, COUNTY OF WARWICK, ENGLAND.

COMPOUND MAGNET.

SPECIFICATION forming part of Letters Patent No. 329,768, dated November 3, 1885.

Application filed May 19, 1885. Serial No. 166,003. (No model.) Patented in England February 28, 1884, No. 4,107.

To all whom it may concern:

Be it known that I, SAMUEL HICKLING PARKES, of Birmingham, in the county of Warwick, England, mathematical-instrument maker, a subject of the Queen of Great Britain, have invented an Improvement or Improvements in Compound Magnets, (for which I have obtained a patent in Great Britain, No. 4,107, bearing date February 28, 1884,) of which the following is a specification.

In constructing a compound magnet according to my invention, I take a wire or rod of steel and bend it into a symmetrical zigzag form. The bends may either be angular or curved. When the bends are angular, the intermediate parts are inclined at a small angle to each other. When the bends are curved, the intermediate parts are parallel or nearly parallel. I magnetize the zigzag wire or bar either by a powerful steel magnet or by an electro-magnet, the exciting-magnet being so applied to and moved upon the zigzag that all the adjacent angles or curves at one edge of the zigzag are operated upon by one pole of the exciting-magnet, and all the adjacent angles or curves at the other edge of the zigzag by the other pole of the magnet. There is thus produced a compound magnet in the form of a flat zigzag, each angle or curve at one edge having north polarity, and each angle or curve at the other edge having south polarity. A magnet of this kind is much more powerful than a magnet made of the same length of steel wire or rod employed in the ordinary way. It is very flexible and elastic. It can be expanded or contracted longitudinally within certain limits, and also bent into a curved plane within certain limits without permanent change of figure or disturbance of the magnetic polarity, and is hence particularly suited for use in such magnetic appliances as are used for medical purposes. By coiling up the zigzag into the form of a tube a powerful compound tubular magnet is produced, all the magnetism of the bends or angles having north polarity being situated at one end of the tube and the magnetism of the bends or angles having south polarity at the other.

Figure 1 of the accompanying drawings represents in side elevation and edge view a compound magnet constructed according to my invention, the bends of the flat zigzag steel wire or rod of which the magnet is formed being angular. Fig. 2 represents a similar compound magnet in which the bends of the flat zigzag steel wire or rod are curved instead of angular.

In the compound magnet, Fig. 1, the parts of the magnet between the bends are inclined at a small angle to each other, as represented; but in the compound magnet, Fig. 2, the said parts are parallel or nearly parallel, as represented.

The flat zigzag steel wire or bar, which may be made of any length, is magnetized, so as to convert it into a compound magnet, in the manner hereinbefore described, each angle or curve *n* at one edge having a north polarity, and each angle or curve *s* at the other edge having a south polarity. When the flat zigzag or compound magnet, Fig. 1 or Fig. 2, is bent or rolled up into a tube, a tubular compound magnet is formed the magnetism of the bends or angles at one end having north polarity, and the magnetism of the bends or angles at the other end of the tube having south polarity.

Compound magnets constructed according to my invention may be used for various purposes; but they are particularly applicable to magnetic appliances for medical purposes. I do not, however, limit myself to any particular application of the said compound magnets.

Fig. 3 represents in elevation and edge view one of the compound magnets inclosed in a pocket or bag of flannel or other fabric to form a magnetic pad.

In using this pad it is tied upon the part of the head or face or person to which magnetism is to be applied.

The points of the arrows in the several figures indicate the position of the north poles of the compound magnets.

Figs. 4 and 5 are diagrams of magnetic armlet, waist, back, or stomach bands containing compound magnets constructed according to my invention. In Fig. 4 the parts of the band containing the compound magnets are marked

a b, and are arranged at a short distance apart on the strips of flannel or fabric of the band, and in Fig. 5 the parts of the band containing the compound magnets are marked *c d*, and are arranged in pairs.

Figs. 6 and 7 are diagrams illustrating combined waist and back bands to which my improved compound magnets are applied. In Fig. 6 one of the compound magnets at *e* is used for the back, and the waist belt or band *h* may contain one or more compound magnets. In Fig. 7 a pair of magnets at *f g* is used for the back, the waistband *h* containing one or more compound magnets. The bands *i i*, which pass over the shoulders, may be connected by buckles or otherwise to the waistband *h*.

Having now particularly described and ascertained the nature of my invention and in what manner the same is to be performed, I declare that what I claim is—

1. The compound magnet herein described, consisting of a steel wire, rod, or bar bent in opposite directions into a series of parallel or slightly divergent sections of substantially the same length, all the adjacent curves or angles of one edge of the series being of one polarity, and all the curves or angles of the other edge of the series being of the opposite polarity, substantially as and for the purpose described.

2. The compound magnet herein described, consisting of a steel wire, rod, or bar bent in opposite directions into a zigzag, the bends being either curved or angular, said wire being magnetized and rolled up into tubular form, substantially as described.

SAMUEL HICKLING PARKES. [L. S.]

Witnesses:
GEORGE SHAW,
RICHARD SKERRETT.