

New or improved adjustable self-acting or automatic supports for superseding ordinary crutches and other surgical instruments, and for improved pads or cushions to be used in combination therewith or with ordinary crutches and like appliances / [Clyde Bannister Brown].

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PROVISIONAL SPECIFICATION.

New or Improved Adjustable Self-acting or Automatic Supports for Superseding Ordinary Crutches and other Surgical Instruments, and for Improved Pads or Cushions to be Used in Combination therewith or with Ordinary Crutches and like Appliances.

I CLYDE BANNISTER BROWN of Beverly House Southgate Park, Friern Barnet in the County of Middlesex Gentleman do hereby declare the nature of this invention to be as follows:—

My improved supporting instrument or crutch is designed to support persons suffering from paralysis (partial or otherwise) or other diseases or defects which require the use of an artificial support or supports.

The first part of my invention is designed as an improvement upon all other instruments or supports constructed and employed for the above purposes in so much that it allows the wearer using the instrument or support full play of all the muscles and limbs usually brought into action and also when made of steel tube as hereinafter explained gives great strength with lightness and smallness of dimension.

1. In carrying out my improvements the instrument or support is connected with the foot and passes upwards to the armpit being jointed and so constructed that when the person wearing it is walking (and the weight of the body is thrown upon the weak side) it becomes locked and rigid thereby giving the required support but directly the foot is raised from the ground as in the action of walking the rigid joint or joints of the instrument become free to bend and thus permit the limbs and muscles to have their free action.

2. The instrument can be adjusted to any desired length thus saving the cost of a new one rendered necessary in certain cases owing to the growth of the user, and a swivel joint is also combined at the hip joint so as to freely allow a turning movement.

In cases where the lower limb from the knee joint only requires support then the upper part of the instrument may be dispensed with.

The instrument is constructed advantageously of steel tubes from the arm pit to the hip joint from the hip joint to the knee joint and from the knee joint downwards and is so applied that it can be entirely screened by the ordinary clothing of the user. These improved instruments or supports can be applied to either one or both sides of the user as may be required.

According to another part of my improvements the pads or cushions for the arm pits and other parts are made of suitable form and inflated with air being thus rendered more healthy and afford greater ease and comfort to the user of my improved support and to other like surgical instruments requiring pads or cushions when in use.

Dated this 17th day of April 1889.

TONGUE & BIRKBECK,

34, Southampton Buildings, London, W.C., Agents for the Applicant.

Brown's Adjustable Self-acting Supports for Superseding Ordinary Crutches, &c.

COMPLETE SPECIFICATION.

New or Improved Adjustable Self-acting or Automatic Supports for Superseding Ordinary Crutches and other Surgical Instruments, and for Improved Pads or Cushions to be Used in Combination therewith or with Ordinary Crutches and like Appliances.

I CLYDE BANNISTER BROWN of Beverly House Southgate Park Friern Barnet in the County of Middlesex Gentleman do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

My improved supporting instrument or crutch is designed to support persons 5 suffering from paralysis (partial or otherwise) or other diseases or defects which require the use of an artificial support or supports.

The first part of my invention is designed as an improvement upon all other instruments or supports constructed and employed for the above purposes in so much that it allows the wearer using the instrument or support full play of all the muscles 10 and limbs usually brought into action and also when made of steel tubes as hereinafter explained gives great strength with lightness and smallness of dimension.

In carrying out my improvements the instrument or support when used as a crutch is connected with the foot and passes upwards to the armpit being jointed and so constructed that when the person wearing it is standing or walking (and the weight or 15 pressure of the body is thrown upon the weak side) it becomes locked and rigid thereby giving the required support but directly the foot is raised from the ground or the pressure taken off as in the action of walking the rigid joint or joints of the instrument become free to bend and thus permit the limbs and muscles to have their free action. 20

The instrument can be adjusted to any desired length in any suitable manner as will be readily and easily understood thus saving the cost of a new one otherwise rendered necessary in certain cases owing to the growth of the user and a swivel joint or joints is or may be also combined at the hip joint or elsewhere so as to freely allow a turning movement. 25

In cases where the lower limb from the knee joint only requires support then the upper part of the instrument may be dispensed with.

The instrument is constructed advantageously of a steel tube or tubes from the armpit to the hip joint from the hip joint to the knee joint and from the knee joint downwards and is so applied that it can be entirely screened by the ordinary clothing 30 of the user. This improved instrument or support can be applied to either one or both sides or legs of the user as may be required.

The pads or cushions for the armpits and other parts are made of any suitable form and construction for instance they may be inflated with air being thus rendered more healthy and afford greater ease and comfort to the user of my improved support but I 35 do not limit myself thereto.

And in order that my present invention may be easily understood and readily carried into practice I will proceed to further describe same with reference to the accompanying sheet of drawings.

DESCRIPTION OF THE DRAWINGS. 40

Figure 1 is a view of a surgical support to act as a crutch made in accordance with my improvements.

Figure 2 is an enlarged front view of the flexible spring joint which becomes rigid when weight or pressure of the body is put on same.

Figure 3 is a side view of Figure 2.

Figure 4 is a vertical section of the joint—flexible. 45

Figure 5 is a vertical section of the joint—rigid.

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Referring to Figure 1 of the drawings *a* is that part of the instrument from the arm-pit pad or support *b* to the hip joint *c*.

d is that part of the instrument from the hip joint *c* to the knee joint *e*.

f is the part connected or secured below the joint *e* to the foot (or otherwise) of the wearer.

g g are any suitable straps or fastenings (elastic padded or otherwise) to suitably secure the instrument—either under the clothes or not—to the body of the wearer.

h is any suitable padding between the instrument and the wearer.

The parts *a* and *d* as represented are made of four small steel tubes which I have found to be convenient as they combine lightness with strength but I do not limit myself thereto in any way whatever.

The flexible joint or joints are represented in detail in Figures 2 to 5 and for the sake of brevity I will describe the hip joint *c* (Figure 1) it being understood that a similar joint or joints either with or without the addition of a swivel joint can be applied at the knee or other part or parts of such support or instrument as desired.

The part *a* is rigidly secured to the piece *i* which is secured by means of a swivel joint (as shown in section in Figure 4) to the joint piece *j*.

This joint piece *j* is pivoted or hinged to the lower joint piece *m* which latter is arranged and combined with a spring *n* so as to be capable of sliding in the socket *o* which latter is rigidly attached to the part *d*.

The operation is as follows :—

When the weight or pressure of the body is taken off the joint then the spring *n* forces the sliding joint into the position shown in Figure 4 and the part *i* or *o* can either or both be freely and readily moved on the pin *z* in the direction of the arrows *x* one side of the socket *o* being cut away or formed as shown in Figures 2 to 5 so as to allow of this taking place.

If now weight or pressure from the wearer be put upon the joint then the parts *i j* and *m* sink down into the socket *o* and compress the spring *n* as shown in Figure 5 and as it is now impossible to bend the parts *a i* out of a straight line with the parts *o d* the part *m* being rigidly held by the socket *o* the joint is thus rendered inflexible as though *a* to *d* (Figure 1) were all one part and no joint existed—thus affording the support required at the right moment while when no support is required such joint leaves the limbs and body of the wearer free to turn or bend as desired so that the wearer can sit at ease and comfort without the appearance of wearing any instrument of this character.

The parts of the instrument may be curved or shaped to fit the contour or particular shape of the body or limb of the wearer as desired.

The addition of a swivel joint or joints (illustrated in Figures 4 and 5)—either in conjunction with or independently of my locking joint—forms an important part of my present invention as it enables the wearer of an instrument or support of this hereinbefore described character to turn the body or limbs freely and when used in conjunction with my said locking joint enables the wearer to move the limbs quite in the ordinary way.

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

1. An adjustable self acting or automatic crutch support or instrument for supporting the body or limbs of any person requiring same consisting of a series of parts and joints which joints automatically lock and unlock themselves as required substantially in the manner and for the purposes set forth.

2. In a surgical instrument or support to act as or like a crutch I claim the use and application of a flexible joint or joints which by the weight or pressure of the wearer become locked and inflexible and again automatically become unlocked and flexible when such weight or pressure is withdrawn substantially as and for the purposes hereinbefore set forth.

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3. I claim the use and application of the jointed parts *ij* and *m*—either with or without the interposition of a swivel joint—in combination and acting in conjunction with a spring *n* and a socket such as *o* substantially in the manner and for the purposes hereinbefore described and illustrated in the drawings hereunto annexed.

4. I claim the use and application of a swivel joint or joints substantially in the 5 manner and for the purposes hereinbefore set forth.

Dated this 17th day of January 1890.

TONGUE & BIRKBECK,

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Fig. 1.

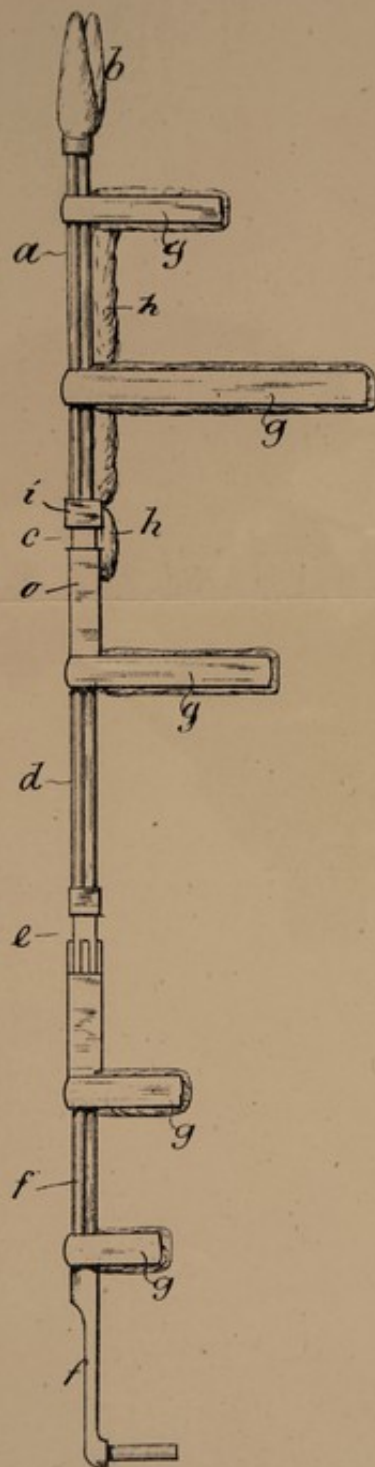


Fig. 2. Fig. 3.

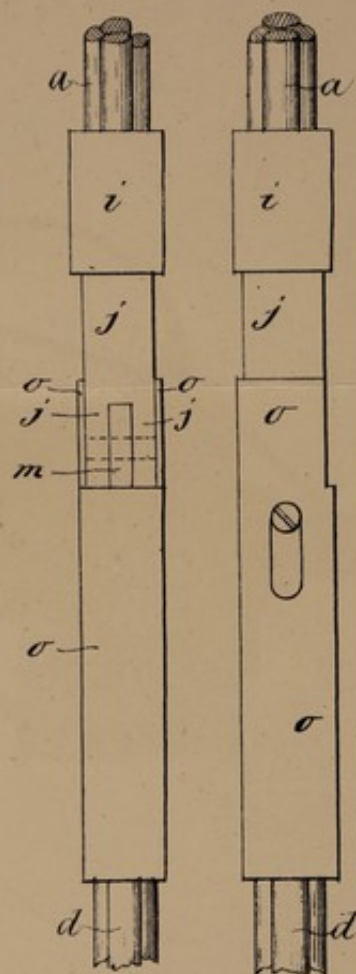


Fig. 4.

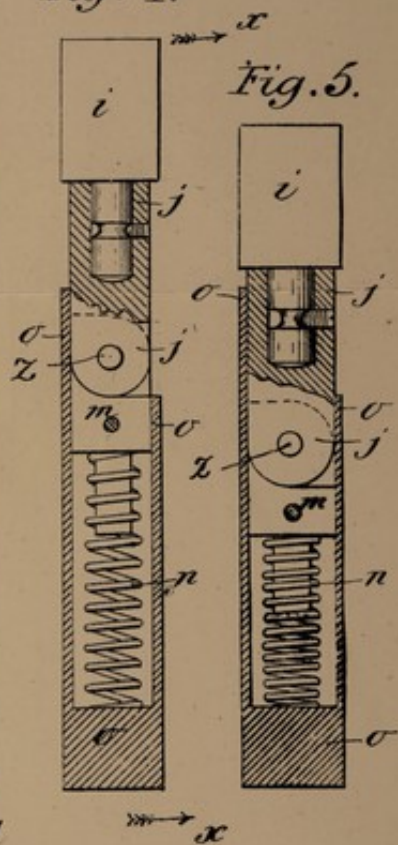


Fig. 5.

