Specification of Henry Newson : trusses.

Contributors

Newson, Henry.

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A.D. 1848 . . . . . N° 12,336.

SPECIFICATION

OF

HENRY NEWSON.

TRUSSES.

LONDON:
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A.D. 1848 . . . . . N° 12,336.

Trusses.

NEWSON'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, HENRY NEWSON, late of Smethwick (near Birmingham), in the County of Stafford, but now of Clapham, in the County of Surrey, Engineer, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent under the Great Seal of the United Kingdom of Great Britain and Ireland, bearing date at Westminster, the Twenty-third day of November, in the twelfth year of Her reign, did give and grant unto me, the said Henry Newson, my exors, admors, and assigns, Her especial licence, full power, sole privilege and authority, that I, the said Henry Newson, my exors, admors, and assigns, should and lawfully might make, use, exercise, and vend my Invention of "AN IMPROVEMENT OR IMPROVEMENTS IN TRUSSES," within England, Wales, and Berwick-upon-Tweed, the Islands of Jersey, Guernsey, Alderney, Sark, and Man, and also all Her said Majesty's Colonies and Plantations abroad, during the term of fourteen years from the day of the date of the said Letters Patent; which said Letters Patent contain a proviso, requiring that I, the said Henry Newson, should particularly describe and ascertain the nature of my said Invention, and in what manner the same is to be performed, by an instrument in writing under my hand and seal, and cause the same to be enrolled in Her said Majesty's High Court of Chancery within six calendar months next and immediately after the date of the said in part recited Letters Patent, as, reference being thereunto had, will more fully and at large appear.

NOW KNOW YE, that in compliance with the said proviso, I, the said Henry Newson, do hereby declare that the nature of my said Invention, and the manner in which the same is to be performed, are particularly described and ascertained in and by this present Specification thereof, reference being had to the several Drawings hereunto annexed, and in which said several Drawings similar parts are marked and referred to with or by similar letters or characters (that is to say):—

My said Invention of an improvement or improvements in trusses consists of an improved mode or modes of constructing the instruments called trusses which are worn upon the human body by persons afflicted with hernia, or for any other cause requiring the support or pressure produced by such instruments upon any part of their bodies; and I construct a truss, according to my said Invention, of a spring, with a pad, button, or disk firmly attached to each end thereof, the spring being made of a rod or piece of steel, which is round, or as nearly so as conveniently may be.

The object with which I construct a truss in this manner is to obtain a spring which may be bent with equal facility in every direction, so that it may accommodate itself to all the ever varying positions of the body of the wearer, without materially diminishing the pressure of the instrument upon that part of the body which it is designed to support or protect. In order to manufacture a truss according to my Invention, I take a piece of ordinary cast steel wire, but of the best quality and of the requisite thickness, the thickness depending upon the length of the intended spring, and the degree of pressure to be applied by means of the instrument. Thus, if a truss be required for an adult of the average size, afflicted with inguinal hernia, the thickness or diameter of the spring necessary to be employed in making the truss will be about three-sixteenths of an inch, or about No. 8 of the ordinary wire guage. The length of the spring to be used in making one of my trusses will of course depend upon the size of the person by whom it is to be worn, and the part of the body to which it is be applied, and if the wearer be a person of the average size and requires the truss for an inguinal hernia, the length of spring will be about twenty-two inches. Having obtained a piece of steel wire of the proper length and thickness, I heat each end of it and then flatten these ends by hammering, or in any other convenient manner, for receiving the rivets by means of which they are to be attached to the pads, buttons, or disks, but in some cases, in which the pads or disks are not to be attached by means of rivets, the ends of the wire are not to be flattened in this way. I next anneal the wire by heating it in the manner ordinarily practised for that purpose, and whilst hot I punch a hole in each end to receive the rivets by which

the pads or disks are to be attached, and after the wire becomes cold I bend it into the required shape by hammering, pressure, or in any other convenient manner. The shape must of course in every case depend not only upon the size of the person for whom the truss is intended, but also the part of the body and purpose to which it is to be applied, and the spring should be bent in such a manner that when in action it will fit comfortably upon that part of the body upon which it is to be worn. The wire must also be bent in such direction and manner that the ends of the spring and their pads or disks shall fit upon or press against the proper parts of the body, that is to say, the part of the body to be supported or protected, and the part of the body which is to sustain the counterpressure, or by or upon which the opposite end of the spring is to be supported, and it is desirable when that object can be conveniently accomplished to make each leg of the spring of the same length. Peculiar constructions of body and other causes, however, frequently operate so as to prevent the accomplishment of this object, as is well known to makers of trusses, and in such cases all that can be done is to adopt the best form practicable, taking care as far as possible to regulate the bending of the wire which is to form the truss so as to obtain the required pressure in the direction which will be most effective and useful, so that the wearer may not be subject to the action of any greater amount of pressure than shall be absolutely necessary. The degree of power or pressure which the truss is to be capable of exerting is to be regulated not only by the size or thickness of the wire used in forming the spring, but also the extent to which the wire is bent beyond the position which it will occupy when put upon the body. The wire or piece of steel which is intended to form the spring being thus bent into the requisite form, it is then to be hardened in the ordinary manner, care being taken during that process not to alter the shape into which the wire has been bent. If I harden the whole length of the piece of wire or steel in this way, I afterwards heat about an inch at each end of the wire, so as to render those parts soft and capable of being bent or twisted; but I more frequently in hardening the piece of wire (which is done by plunging it in a heated state into cold water) avoid hardening about an inch at each of the two ends by plunging the whole of the piece of heated wire except those parts into the cold water. These ends are made or kept soft in this manner for the purpose of enabling the person who wears the truss to bend or twist them with their pads or disks in such a manner as to cause them to fit accurately and comfortably against the parts upon which they are to be worn. I then proceed to polish and brighten the piece of steel wire, after which I temper the hardened part of it in the usual manner adopted in

tempering steel springs, either by passing a heated bar of iron gradually along it, or in any other convenient manner, the requisite effect being well known to be obtained upon production of what is commonly called the "blue tint."

The size and shape of the pads or disks to be attached to the ends of a spring will depend not only upon the particular parts of the body to which they are to be applied, but also to the degree of pressure which is intended to be applied to the part of the body to be supported or protected; in a great majority of cases round pads or disks of about two inches in diameter, and slightly convex on their sides, which are to be applied to the body, will be found to be proper and convenient. The pads or disks may, however, be made of an oval, or any other shape necessary or proper for the purpose of causing them to fit most conveniently to the parts of the body to which they are to be applied, and they may also be made with any degree of convexity which may be requisite for the same purpose; and if the particular part of the body to be supported or protected should happen to require a pad or disk to be made so as to present a concave surface to the part to be supported or protected (as in the case of some irreducible hernias) I alter the construction of the pad accordingly.

In many cases I deem it most advisable to give the pads or disks a slight covering or cushion upon their sides which are to be presented to the body, but in some cases it may be found desirable, for the sake of economy, or otherwise, to apply the pad or disk to the body without covering, and in other cases to attach to them soft or stuffed cushions of any description usually applied to the pads of trusses. If a pad or disk is intended to have a cushion applied or attached to the face of it, it may be necessary to make the face of the pad or disk flat, or even concave, so as the better to fix or secure the cushion or stuffing to be placed upon it. The pads or disks to be attached to a spring are to be rivetted to the ends of it, or attached to the ends by means of screws, or in any other convenient manner, and in some cases it may be found more convenient to cause the ends of the spring to be bent and threaded, as shewn in Figure 10 of the Drawings hereunto annexed, so as to form screws to be screwed into nuts or bosses affixed to the backs of the pads or disks, as shewn in section in Figure 11, and this may be found convenient for enabling a person fitting a truss upon the body to attach to a spring of the requisite length and strength such pads or disks as may be best adapted to suit the circumstances of the particular case.

The whole truss made in the way which I have described may be covered with leather or any other covering which may be preferred, in the usual way adopted by truss makers, or the truss (exclusive of the cushion, if any,) may be

japanned, varnished, plated, or in any other manner protected from rust or injury.

By constructing a truss in the way which I have described for a person afflicted with inguinal or femoral hernia I am enabled to make the spring pass round the side of the body opposite to the ruptured side, and so obtain such a length of spring as to make the action of the instrument easy and comfortable to the wearer, and in a great majority of cases, at least, I am also enabled in making such trusses to dispense with the application of any band or cord to retain them in their places. This mode of constructing my trusses also enables me in making a truss for a case of hernia of the description I have just mentioned, and some others, to make each leg of the spring of the same length or nearly so, and thus to cause the pad or disk which is to be worn on the back to sustain the counterpressure to be placed upon a part of the back which is immediately behind or opposite to although a little higher up than the place at which the front pad or disk presses upon the part of the body to be supported, or nearly so, for the purpose of causing the pressure applied to the part to be supported or protected to be given in the proper direction. In every case in which a pad is to be applied to the back I take care, if practicable, to place the pad upon a part a little to one side of the spine, so as to prevent the injurious effects which might be produced by a pressure upon that part of the body.

In making the spring of a truss to fit any particular part of the body it is most important to bend it into such a form as to cause it to lie as close to the body as conveniently may be without impeding the action of the spring, and, as far as practicable, to cause the spring to pass round such part of the body as will not only enable the wearer to have the benefit of the free and easy action of a long spring, but it will also enable the wearer to dispense with the application of any band or cord for keeping the truss in its place. It is also most important to bear in mind, that the leg of the spring, to one end of which is attached the pad or disk to be applied to the part to be supported, should be bent in such a way that that leg, or the greater part of it at least, may be free from any pressure against the body which can impede the action of the spring upon the pad or disk. Although I believe that in a vast majority of cases, my trusses will not need bands, straps, or cords to keep them in their places, yet if such bands, straps, or cords should in any cases be found to be convenient or necessary, they may be attached to them at the backs of the pads or disks, or in any other convenient way, and in like manner as such bands, straps, or cords are usually attached to trusses worn for the same or similar purposes.

In order to illustrate the preceding description, and make it more clear, I will, with the aid of several Figures contained in the Drawings hereunto annexed, shew the manner in which I make, according to my said Invention, trusses which are intended to be worn by persons afflicted with inguinal or femoral hernia. Figures 1, 2, and 3 of the said Drawings shew several views of a truss without covering or cushion, which is constructed according to my said Invention, and which may be worn for an inguinal or femoral hernia on either side of the body. Figure 1 shews the form of the truss before it is placed upon the body; Figure 2 shews the form which the truss assumes when it is placed upon the body; and Figure 3 represents a side or edge view of the truss when slung by its middle in a vertical position. In these Figures, *a* is the front leg of the spring, having its pad or disk *b* rivetted upon the side of it, and the leg of the spring is bent in such a manner that it will pass over the projection of the abdomen without touching it, so as to impede the action of the spring; *c* is the other or back leg of the spring, having its pad or disk rivetted upon the end of it; and as this leg of the spring is to pass across the back it has been less bent than the front leg, because the same degree of curvature is not necessary for keeping this leg of the spring free from contact with the back. The pad or disk *b* is shewn in these Figures as being larger than the pad or disk *d*, because in many cases it is desirable, if not necessary, to make the front pad or disk which is to be applied to the part of the body to be supported somewhat larger than the back pad or disk which is to be placed upon that part of the back which is to sustain the counterpressure.

Figure 4 is a view of a similar truss constructed according to my Invention, but the spring of which is formed or bent somewhat askew; so as to use for sustaining the counterpressure a part of the body which is a little higher up than the part to be supported, a truss having a spring thus bent being suitable to be applied for an inguinal or fermoral hernia on the right side of the abdomen. If this kind of truss is intended for a hernia on the left-hand side of the abdomen it should be formed askew in the opposite direction to that represented in Figure 4.

Figures 5 and 6 represent views similar to those shewn in Figures 1 and 2, but of a truss which has been covered with chamois leather and stuffed in the ordinary way. The construction of a truss in manner or upon the principle herein-before described will by reason of the form of the spring allow each leg of the spring to be pressed outwards from the body, or in any other direction which may be required, by the motions of the body or the changes in its position. Thus, the front leg of the spring of a

truss such as shewn in Figures 1, 2, 3, and 4, and its pad or disk, may by motions or changes in the positions of the body be bent or twisted into positions similar to those shewn by dotted lines in Figure 4, and the back leg of the spring with its pad or disk may in like manner be bent or twisted into positions similar to those shewn by dotted lines in Figure 3. Whilst the elasticity of the spring thus allows the truss to accommodate itself to the various motions and changes in the positions of the body without the aid of a ball and socket or any other joint, the pads or disks are held firmly in their proper positions upon the ends of the spring, and the spring continues to press the front pad or disk against the part of the body which it is intended to support or protect. If a truss has been made in the manner already described and so as to fit the body of the wearer, the ordinary motions and changes in the positions of the body will rarely cause the truss to press anywhere except where pressure is required, viz^{t}, at the pads or disks; and in order to cause the truss to act in this satisfactory manner, particular care should be taken in fitting the truss, if necessary, to bend or twist the flexible or softened end of each leg of the spring, so as to prevent any part of it from pressing against the body, and also to cause the pad to fit as accurately as may be to the part against which it is to press. I deem it important to attend carefully to the matters I have just mentioned, inasmuch as the pressure of the truss on any other portion of the body than those which are intended to be pressed and to sustain the counterpressure is unnecessarily inconvenient to the wearer of the truss, and if the pressure operates at all upon the contents of the abdomen such pressure will tend to force out the contents at the ruptured part, and thus, in some measure at least, to counteract the object for which the truss is worn. The difficulty which has hitherto frequently been found in causing trusses to operate properly in this respect will, I believe, be considerably lessened, if not entirely removed, by constructing trusses in the manner I have described.

Figures 7, 8, and 9 of the said Drawings shew the manner in which my trusses are to be applied and worn in cases of inguinal and femoral hernias on either of the sides of the abdomen. If for an inguinal or femoral hernia on the right-hand side of the abdomen, the truss is to be applied and worn as represented in the front view of the abdomen of a male in Figure 7, in which Figure is shewn the position of the front leg of the spring and the pad or disk of the truss when placed upon the front of the body, and also in dotted lines the position of the back leg of the spring and pad or disk of the truss as applied to the back. If the truss be worn by a person afflicted with inguinal or femoral hernia on the left-hand side of the abdomen, the truss is to be applied and worn as represented in the front view of the abdomen of

a female in Figure 8, in which Figure is shewn the position of the front leg of the spring and pad or disk of the truss when placed upon the front of the body, and also in dotted lines the position of the back leg of the spring and pad or disk of the truss as applied to the back.

Figure 9 represents a back view of Figure 8, and shews the manner in which the back pad or disk is placed upon the back of the person about two inches from the spine, that being a place which I deem to be the best for sustaining the counterpressure in cases of inguinal or femoral hernia.

It will be found that trusses of this description may be placed upon the body and removed with great facility and it is hardly necessary to observe that if the hernia is on the right side of the abdomen the truss (the spring being held open for that purpose) must be put upon the body from the left side, and that if the hernia is upon the left side of the abdomen the truss must be in like manner put upon the body from the right side. The trusses which I have shewn in the said Figures and before described as fit to be used by persons afflicted with inguinal or femoral hernia, are trusses which are applicable to cases in which such persons have only one such hernia; but in case any person should happen to be afflicted with such a hernia on each side of the abdomen, such person may either wear two trusses of the description herein-before mentioned, or may use a double truss constructed in a manner similar to the truss shewn in Figures 12, 13, 14, 15, and 16 of the said Drawings hereunto annexed.

Figure 12 is a top view of a double truss made according to my said Invention, as it appears before it receives any covering, cushion, or stuffing. It consists in effect of two single trusses connected together by means of a piece of webbing or flexible material *x*, (shewn separately in Figure 16) attached to the backs of the two pads or disks *d*, *d*, as shewn in Figures 12, 13, and 14.

The chief difference between the construction of each of these single trusses together forming a double truss and the trusses before described consists in this, that each of their legs are shorter than the legs of those before described, and the back pad of each of these single trusses is furnished with a return or raised part, to which the piece of webbing already mentioned is to be attached.

Figure 13 is an edge or front view, and Figure 14 a back view of the same double truss; and Figure 15 is a top view of a similar double truss furnished with cushions and covered in the ordinary manner.

Figure 17 is a front view of the abdomen of a male person, shewing the mode of applying the truss (shewn in a covered state) to the body in a case in which the person is afflicted with a hernia on each side of the abdomen; and

Figure 18 is a view of part of the back of the same person, shewing the mode in which the truss is placed upon the back.

Although I have shewn this particular mode of connecting the two halves of a double truss together, any other convenient mode of connecting them may be adopted, and the shape of the back pads or disks *d*, *d*, may be altered according to circumstances, as before mentioned.

For the purpose of more clearly explaining the nature and application of my said Invention I have represented in the said Drawings and herein-before described such trusses constructed as are to be worn for ruptures on either side or both sides of the abdomen only, yet I do not intend thereby to limit the application of my said Invention to these kinds of trusses, but I intend also to apply my said Invention to the construction of trusses to be worn by persons afflicted with "ruptured navel," or any other description of hernia, or by persons who for any other cause require such a pressure as can be given by means of such trusses upon any parts of their bodies, constructing such trusses in every case according to my said Invention, as herein-before described.

Having now described the nature of my said Invention, and the manner in which the same is to be performed, I hereby declare that I claim as of my Invention the mode or modes of constructing trusses of the description herein-before mentioned, of springs made round, or as nearly so as conveniently may be, and of pads or disks attached thereto, in manner herein-before described.

In witness whereof, I, the said Henry Newson, have hereunto set my hand and seal, this Twenty-third day of May, in the year of our Lord One thousand eight hundred and forty-nine.

HENRY (L.S.) NEWSON.

AND BE IT REMEMBERED, that on the Twenty-third day of May, in the year of our Lord 1849, the aforesaid Henry Newson came before our said Lady the Queen in Her Chancery, and acknowledged the Specification aforesaid, and all and every thing therein contained and specified, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute made for that purpose.

JEFFERSON.

Enrolled the Twenty-third day of May, in the year of our Lord One thousand eight hundred and forty-nine.

LONDON:
Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1857.

A.D. 1848, Nov. 23. N°12,336.
NEWSON'S Specification.

SHEET 1.
[2 SHEETS]

FIG. 1.

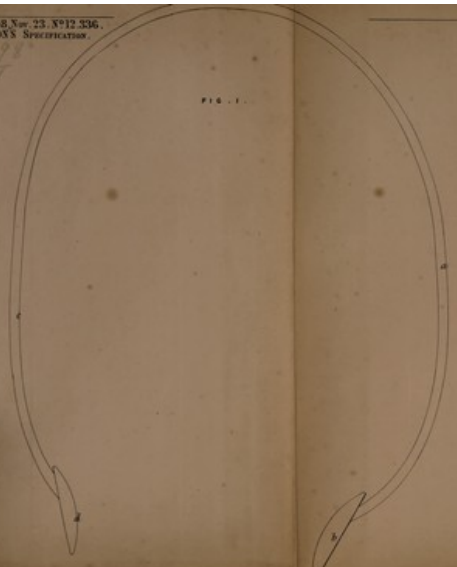

FIG. 3.

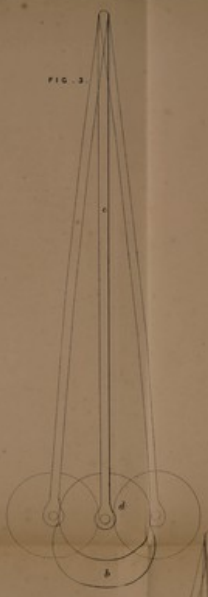

FIG. 5.

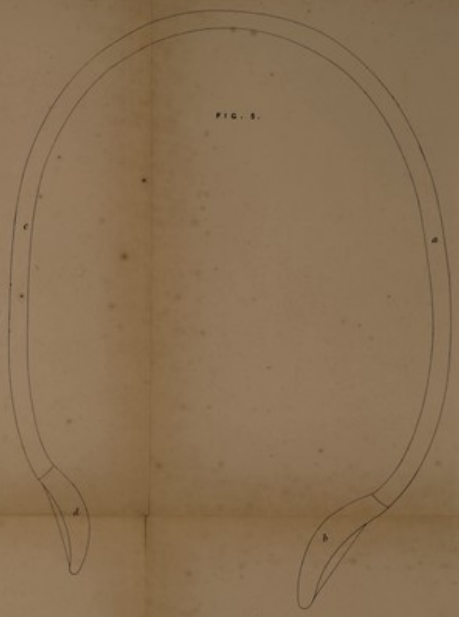

FIG. 6.

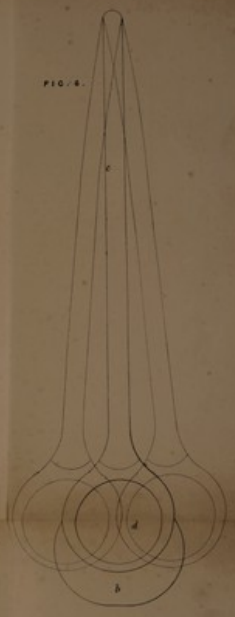

FIG. 2.

FIG. 4.

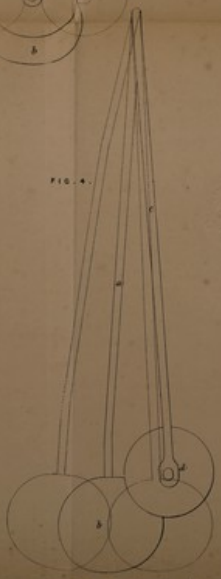

FIG. 7.

FIG. 8.

FIG. 9.

The enrolled drawing is partly colored.

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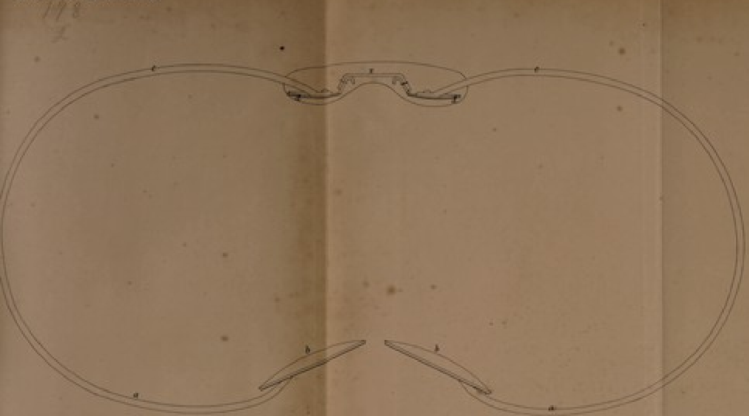
Printers to the Queen's most Excellent Majesty. 1848.

Drawn on Stone by Kelly & Son



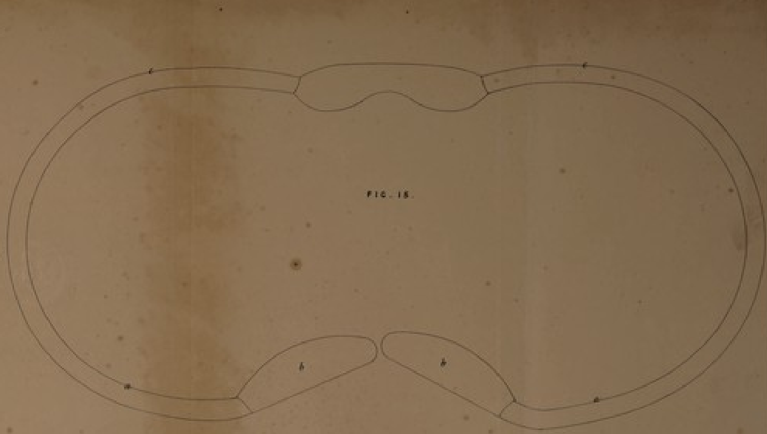


FIG. 15.

FIG. 16.

FIG. 10.

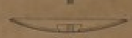


FIG. 11.

FIG. 13.

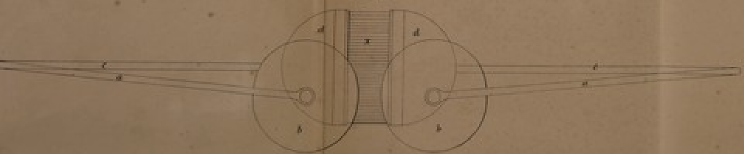


FIG. 14.

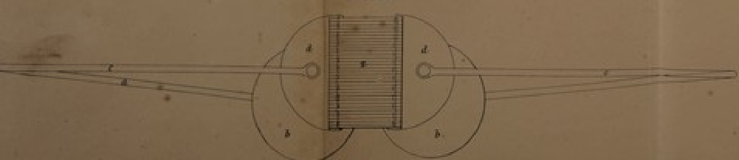


FIG. 17.

FIG. 18.

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