Specification of William Edward Newton : truss supports.

A.D. 1867, 28th FEBRUARY. N° 569.

SPECIFICATION

OF

WILLIAM EDWARD NEWTON.

TRUSS SUPPORTS.

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Truss Supports.

LETTERS PATENT to William Edward Newton, of the Office for Patents, 66, Chancery Lane, in the County of Middlesex, Civil Engineer, for the Invention of "IMPROVED APPARATUS TO BE USED AS SPINAL, ABDOMINAL, AND PELVIC TRUSS SUPPORTS."—A communication from abroad by Edmund Prior Banning, of New York City, in the United States of America.

Sealed the 6th August 1867, and dated the 28th February 1867.

PROVISIONAL SPECIFICATION left by the said William Edward Newton at the Office of the Commissioners of Patents, with his Petition, on the 28th February 1867.

I, WILLIAM EDWARD NEWTON, of the Office for Patents, 66, Chancery Lane, in the County of Middlesex, Civil Engineer, do hereby declare the nature of the said Invention for "IMPROVED APPARATUS TO BE USED AS SPINAL, ABDOMINAL, AND PELVIC TRUSS SUPPORTS," to be as follows:—

This Invention relates to an apparatus to be employed by persons afflicted with weakness of the chest or spine, derangements of the abdominal and pelvic organs, for the cure of which either a brace or support may be applied. The apparatus is so constructed and arranged that relief may be received by a patient for all these affections simultaneously in cases of complication, and on the cure of each, portions of the apparatus may be dispensed with as the need for a particular part ceases, or a special part of the apparatus may be applied separately for a single complaint, such as spinal weakness or

curvature, abdominal and thoracic weakness, hernial lesions, hemorrhoids, or uterine prolapsus and obliquities.

The apparatus consists of a strong back spring which represents the back bone or spine of the body and carries all the other parts. At the upper end is a bow or cross spring piece which carries two cups or plates corresponding to the blade bones. At the lower end of the back spring is another cross piece which carries two discs or plates which bear on the posterior region of the body or rear part of the hips ; there is also another pair of plates attached to the back spring for the purpose of pressing on the lumbar region. By means of two vertical bars or ports parallel or nearly so to the back spring, and extending down from the bow spring or upper cross piece, the apparatus is conveniently and comfortably supported by the hips, a pair of curved main bow springs being fitted to the hip bones for the purpose; these bow springs form the mainsprings of the apparatus, and support an adjustable horizontal bar which carries the various parts which are intended to cure femoral, umbilical, or other hernia, prolapsus uteri, and other diseases of the pelvic organs.

The apparatus for preventing prolapsus uteri is secured to a spring plate which is attached to the horizontal bar, and extends down over the pelvic bone and passes between the limbs.

The pads for the cure of hernia are attached to springs connected to any convenient part either of the adjustable horizontal bar or the cross bar, and all these parts are attached and held in their places by screws so that they may be detached when required. Thus this improved combined and universal brace and truss supports constitute together a complete unitary mechanism adapted to the human organism for the relief and cure of the several muscular weaknesses and affections referred to either by a general or partial application as may be necessary.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said William Edward Newton in the Great Seal Patent Office on the 28th August 1867.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, William Edward Newton, of the Office for Patents, 66, Chancery Lane, in the County of Middlesex, Civil Engineer, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-eighth day of February, in the year of our

Lord One thousand eight hundred and sixty-seven, in the thirtieth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said William Edward Newton, Her special licence that I, the said William Edward Newton, my executors, administrators, and assigns, or such others as I, the said William Edward Newton, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVED APPARATUS TO BE USED AS SPINAL, ABDOMINAL, AND PELVIC TRUSS SUPPORTS," being a communication from abroad, upon the condition (amongst others) that I, the said William Edward Newton, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said William Edward Newton, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement, reference being had to the Drawing hereunto annexed, and to the letters and figures marked thereon (that is to say) :—

This Invention relates to an apparatus to be employed by persons afflicted with weakness of the chest or spine, derangements of the abdominal and pelvic organs, for the cure of which either a brace or support may be applied. The apparatus is so constructed and arranged that relief may be received by a patient for all these affections simultaneously in cases of complication, and on the cure of each malady portions of the apparatus may be dispensed with as the need for a particular part ceases; or a special part of the apparatus may be applied separately for a single complaint, such as spinal weakness or curvature, abdominal and thoracic weakness, hernial lesions, hemorrhoids, or uterine prolapsus and obliquities. Thus this improved combined and universal brace and truss supports constitute together a complete unitary mechanism adapted to the human organism for the relief and cure of the several muscular weakness and affections referred to, either by a general or partial application as may be necessary.

The Drawing represents the apparatus combined and connected for its various applications and uses, the parts being so constructed that they may be readily detached and applied to separate and distinct purposes.

Newton's Improved Truss Supports.

In the accompanying Drawings B, B, represent springs which are arched or curved in the manner shewn, and either formed in one piece with the horizontal bar C or securely attached thereto by screws, or in any other suitable manner. The bar C passes through a loop formed on the lower end of a bar A, and is firmly fastened therein by a screw. The curved springs B, B, may be made exactly conformable to or fitted to the arch of the innominata or side bones of the hips, and when adjusted to the person and employed in connection with the other parts of the apparatus to be described these springs exert a regular and even pressure at the sides and upon the front and hinder parts of the body throughout their entire extent, their position when adjusted being just above and inside of the crest of the hip bones. At their front ends or the ends opposite those conjoining the bar C the springs B, B, may be connected bars C^1, C^2, which occupy about the same horizontal plane as the bar C, and cross the body at a point, say, one and a half or two inches above the pubes. The bars C^1, C^2, may in like manner with the bar C be formed in one piece with the springs B, B, or separately, as may be preferred, and they are adapted to be turned open to any extent to admit of the application of the springs B, B, to the body, and form what may be termed a slip lock, the bar C^1 being provided with projecting catches c^1, which enter either of a series of corresponding apertures or slots c^2 in the bar C^2, whereby the springs B, B, may be securely retained in any position in which it is desired to adjust them. To the rear bar C are attached hip pads C^3, C^3, by means of short perpendicular springs C^4, C^4, which are so curved inward as to adapt the pads C^3, C^3, to press upon the gluter muscles in such manner as to prevent the bar C from squeezing or chafing the hips; these pads C^3, C^3, constitute the rear bearing points of the mainspring's power, and they not only protect the bones, vessels, nerves, and muscles from the pressure of the bar C, but by their firm pressure upon the belly of the gluter muscles they greatly support and aid in walking precisely as a person when fatigued receives support and rest by pressing the hands upon the hips. When the springs B, B, are adjusted to the hips they are not liable to accidental displacement, the hips constituting such firm bearings for them to rest upon that they will be uninfluenced by any movement of the body whatever, and from their peculiar construction and adaptation are capable of sustaining a great amount of weight even the weight of the whole body without causing pain, strangulation, or impediment in walking. As hitherto constructed the horizontal bands or braces which pass around and outside of the hips are very defective, as they are caused to assume lower positions under pressure or weight and constantly compress the muscles, strangulate the vascular and nerve circulation, and are

perpetually slipping as the patient bends or shifts his weight from one foot to the other, thereby depriving the wearer of any firm or reliable support, thus producing uneasiness, numbness, and dissatisfaction generally. It is evident that by this Invention these difficulties are altogether obviated. To the upper end of the bar A and capable of vertical adjustment by means of a screw is secured a shoulder bow or brace D, which may be made flat or round as desired, and which is formed or curved in such manner as to exactly fit the various planes of the shoulder blade, axillæ, and chest, over which it passes. The end of the lever A is passed through and secured in a loop affixed to the back of the bow D. The point at which this brace crosses the back may be either over or upon the scapulæ near their inferior and prominent angles or below them, and passing under the respective arm-pits ascends in front of the breast at each side as high as the head of the humerus where the ends of the brace are deflected in an outward and upward direction in such a manner that the tuber of each humerus will be covered by the respective circular caps or cups D^1, D^1, secured upon the extremities of the brace D; these caps D^1, D^1, may be constructed of horn, or any other suitable substance, may be fastened by screws, rivets, or otherwise to the ends of the brace D, and are each formed with a delicate depression or concavity corresponding to the convexity of the tuber humeri, which in connection with the peculiar elastic action of the spring adapts the caps to maintain a firm yet easy and undisturbed position during all motions of the arms or body; in manufacturing it the bow or spring D is so set before being tempered that when adjusted upon the patient no uncomfortable pressure will be exerted upon the scapular or large pectoral muscles, or upon any of the nerves or vessels, and instead of discommoding the wearer or imparting a feeling of restraint the action of the bow D has a strong tendency to relieve the wearer while retaining the members in their proper natural positions, and enabling their functions to be performed in a much more facile and satisfactory manner. The points upon which the spring D acts are at the inner edges of the inner scapula on the back, and the heads of the humeri in front, consequently when on the body its action is purely that of a lever turning in and causing the respective outer faces of the scapula to occupy about the same vertical plane and rolling out and back the humeri, thereby protruding the chest and tending to balance the body's apex behind its axis; in this it differs from all tissue shoulder braces, for as they have no fulcrum or lever their action is merely circular and not distal and fulcral, and in consequence they compress intermediate points, strangulate more or less the nervous and vascular circulation, and more especially tend to restrain a free action of the pectoral muscles. For the same reasons the brace also differs

from all metallic bows hitherto employed, for they act merely as a band or hoop, having no particular points or fulcra from which to act, besides none of them cover the tuber humeri and thus roll back the drooping and advancing shoulders, but on the contrary press upon the pectoral muscles and upon the ribs just under the collar bone, thus interfering with perfect fullness of inspiration, their only service being that of a crutch for the body to settle upon. If the springs or braces B, B, and D were employed alone the action of the instrument would be very incomplete, inasmuch as the drooping of the shoulders is more the result of the retreat of the spinal fulcrum or axis at about the point against which the middle part A^1 of the bar A acts when the instrument is adjusted to the body (thus compelling the upper part of the body to hang forwards) than of any primary weakness above; hence the only way in which the erect axial or centripetal bearing of the body may be restored consists in pressing or pushing up the part of the spine against which A^1 rests to the position of the true axis, which operation compels the previously injurious weight to become a remedy by hanging behind the axis; to this end I construct the bar A of tempered steel, rubber, or any other elastic material, and curve the same forward at A^1 to act upon the spine in the manner explained. This elastic bar A may be curved forward to a somewhat greater extent than the most natural and erect spine, and at the curvature A^1 are attached plates or pads A^2, A^2, adjustable by means of a slide A^3 and screw *a*, which slide A^3 may be made elastic so as to permit the pads A^2, A^2, to rock or turn in such manner as to exert an equal pressure upon the dorsal muscles in all positions of the body. E represents a plate or pad attached to the front bar C^1 at a point equidistant between the front ends of the mainsprings B, B, by means of a short and curved vertical spring E^1, which is looped over the bar C^1 and secured in position by a screw. The lower edge of the plate E is of such length and shape as to fit just inside of the bony boundary of the lower abdomen and through the medium of the curved spring E^1 and the elliptical or semi-elliptical springs E^2, E^2, which are secured to the bar C^1 by springs E^4, and are interposed between the lower end of said spring E^1 and the plate or pad E; the inner face of the latter is presented in such an upward and backward direction or position that when in contact with the body it has an almost exclusive lifting or upward action, and does not (as is the case with front plates of other supports) have to depend upon traversing the periphery or sweep of the long mainspring, in which case the upward movement exerted on the body by the plate is scarcely anything when compared with its backward movement which causes only a squeezing or pressing upon the bowels. In this apparatus the front plate E in turning

inward on its axis gives an elevating and supporting action not only upon the lower link of bowels but also upon the whole line of viscera; the value of this peculiar lifting action of the front plate E in the cure of affections of the spine, chest, abdomen, pelvis, and extremities will be apparent.

Though relief rendered to the spine by the devices already described is great, the tenderness and ulceration of the bodies of the virtebræ and their intervening cartilages (the result of undue and constant pressure upon them) is relieved by the weight of the body being transferred to another and sound point. The aching pain and weariness of the dorsal muscles and spinal ligaments from constant tension are relieved by the relaxation of these parts caused by the shortening of the posterior face of the spine effected by the pushing forward of the spine by the pads A^2, A^2. In a word, all the pressures on one part and all the tensions on the other are removed by means precisely similar to the individual and collective action of the abdominal muscles. With regard to the treatment of the spine, the effect of the action of one member alone of the apparatus would be beneficial to but a very slight degree, but by the combined action of the apparatus both the specific and the general action are secured. But if the inflammation, curvature, or irritation be great in any portion of the spine, then this combination (though perfect as far as it goes) will be too gentle and insufficient to accomplish all that may be done, for besides the influences exerted by the apparatus described the case may demand that a portion of the body's weight be absolutely lifted and permanently retained from the irritated, inflamed, or softened and curved point so as to place a quietus upon the excitants and provocations (which are weight) of the affection. For as soon as the pressure is diminished, if but to a small degree, the relief in many cases to every part of the body, as well as to the tender portion of the spine, is very immediate and complete, for the reason that the remaining organic forces are encouraged in the constant and inherent efforts to return to a normal state. To this end I next construct posts or bars K, K^1, K, K^1, which are looped over and secured respectively by screws to the springs D and B, B, in the position shewn in the Drawing, and which overlap each other so as to admit of variation in length, each bar K^1 being provided with a projection k^1 which hooks into either of a series of holes k in the bar K; these side posts or bars are attached in such a manner as to allow all motions of the body to be performed freely. When these posts K, K^1, are applied, in addition to the lifting of the vicera, the bracing or pushing forward of the curve and the drawing back of the shoulders simultaneously I obtain the advantage of a vigorous lifting of the body from the overtaxed muscles,

ligaments, and tender spine. It not only acts as a protection from pressure, but also as a contingent protection or break in case of any jolting of the body. The pads A^2, A^2, may be adapted for lateral adjustment, so as to cause one to press with more force than the other in cases where the spine has deviated in a lateral direction. The bow D is so cushioned as to render its strong pressure on the axillæ devoid of discomfort. The springs B, B, and the plate E may also be cushioned. In each of the lower corners of the plate E is formed a scallop about long and deep enough to receive the disc of a small egg, and at each end of the plate E is attached a short flat spring e, the outer end of which projects over into the vacancy made by the scallop, the outer end of the spring e^1 being adapted to be adjusted in contact with or at any desired distance in advance of the plate E by means of a thumbscrew e^2. To the outer end of each spring e^1 is attached a ball or pad e^3, which occupies the corresponding recess or scallop in the end of the plate E, and is adapted by the spring e^1 to receive a free rocking motion. The springs e^1 may be each formed in two parts, secured together by a clamp inserted in suitable slots or holes in the two parts of the spring, so as to permit the latter to be extended or contracted in length to adjust the height and position of the plate E. By these means either end of the plate may be set up or down independently of the other to meet the requirements of a rupture on either side. The plate E acts as an infallible retainer of inguinal hernia; this is accomplished, first, by the action of the plate in elevating and sustaining the weight of the viscera from the inguinal rings, thereby removing a great amount of pressure from the same; and, secondly, by the pressure of the balls upon the whole canal. The advantage of this combination over all others for the cure of hernia is, first, that it is self-adjusting, and must of necessity come to the right points by the innominata pressing and supporting on each side; secondly, the arched springs B, B, so fit the whole pelvis that they cannot move under the motions of the body, and consequently are not liable like other trusses to let the rupture down by its accidental displacement. A third, but radical advantage, of this feature of this Invention consists in what may be termed its "break-water" action upon the bowels when they are suddenly and violently descending upon the weak abdominal rings in jolting, falling, coughing, sneezing, or laughing, the whole plate E catching the descending bowels and throwing them up again before they can reach and protrude through the rings, the action being similar to that of springs under a vehicle, which break the jolt before it bruises the passenger. By this arrangement not half the steady pressure on the ring is necessary as a contingent power, and thus a vast amount of irritation, excoriation, and even suppuration, the consequence

of hard pressure, is avoided. An additional advantage of this combination is that in case of a single inguinal hernia the plate E by extending over and supporting the round side, and also holding or breaking weight from the ring, acts as a preventive of a rupture on that side; whereas it is a well-known fact that the very best trusses, which act only on the plug principle, greatly tend to produce a rupture on the opposite side by causing a crowding on the opposite ring commensurate with the pressure it exerts upon the ruptured side. By attaching the plate E to the bar C^1 by slotted and divided springs secured by clamp screws the plate E is rendered capable of vertical adjustment to any necessary extent. To the outer end of each of the respective front bars C^1, C^2, I attach a pendent spring F, which is formed with a loop at one end to admit of its ready application or removal, and when looped over its supporting bar the spring may be secured by a screw *f*; to the lower end of each of the springs F is attached a ball or pad F^1 of any desired size, form, or substance by means of a screw, whereby the position of the pad F^1 may be varied vertically, for which purpose the spring F may be provided with a series of apertures, as shewn in the Drawing; these balls F^1 press precisely upon the femoral rings below Poupart's ligament, and by so doing, aided largely by the lifting or breakwater action upon the viscera by the plate E, effectually retain and ultimately cure femoral hernia, which effect is attributable to the fact that as the mainsprings B, B, cannot move by the motions of the body the balls F^1 cannot become displaced, whereas there has never heretofore been constructed a femoral truss which will keep its place in every motion of the body. G represents a spring looped over and secured by means of a screw upon the bar C^1, and is of sufficient length to extend from the bar C^1 to the navel, and to its upper end is attached a plate G^1 of any required size, and formed either flat, convex, or concave to suit the emergency in the case of umbilical hernia. The spring G is curved in such a manner that when applied its upper extremity has an inward tendency, and is adapted to press the plate G^1 firmly upon the navel. The effect of the employment of the plate G^1 upon the largest and most obstinate cases of hernia is complete, because, first, the plate E sustains the bowels in such a manner as to give firmness to the parts and remove the slipperiness and squashiness of the ventral tumor, thereby enabling the plate G^1 to press firmly on the tumor; secondly, by the lifting action upon the whole viscera the great moveableness thereof is destroyed, and hard pressure upon the umbilicus is allowable without the usual pain and sense of sinking at the stomarch which is permitted by the dragging action of other trusses which plug up the ring, but do not support and compact from below; and, thirdly, the apparatus presses upon no

point but where it effects a good result; whereas other hoop trusses press lightly around the middle of the body, and not only squeeze downward but compress the whole abdomen at intermediate points, beside being always liable to slip up or down from its position, and thus leave the patient unprotected. The application of this improved combination of devices has been found to render the greatest relief in cases where the patient had been in a despairing condition for years.

In a modification of the spinal support the bar A is divided at the curved part A^1 so that two sections are thus formed. To the lower section is secured an adjustable curved plate, and to the upper section is secured a corresponding plate; these plates may be secured to the upper and lower sections by means of screws, and upon their respective outer ends are attached sockets in which work the ends of the screws, on each of which is secured a pad by means of a threaded clasp which adapts the pads by being rotated to be adjusted vertically to any desired extent; this form of spinal support is to be employed in cases of external protrusion, and the manner in which it operates will be readily understood. I represents a curved spring attached to the lower end of the curved vertical spring E^1, and is adapted to pass down over the pubis and extend back between the limbs to the posterior nares of the vulva. At the lower rear end of the spring I is supported a double pad I^1 by means of a screw J which may be secured in either of a series of apertures or slots in the spring I, and retained in an immovable position by jam nuts i^1. This pad or block I^1 may be likened in its shape to two fingers placed side by side, the two convexities thereof when the pad is applied pressing on the outer edges of each labia, and the depression between them or in the centre, protecting the inner edges from any pressure or opening action, but, on the other hand, the block closes the meatus extremities by pressing the labia together. It will be manifest that there is a cardinal difference between this device and the perinium supports hitherto employed, as they are invariably convex, and have a separating or opening effect upon the labiæ which is very prejudicial, as it increases the very weakness and falling through the vulva which it is desired to avoid. The pad I^1 has a deep niche cut out at both ends so as to allow of the passage of both urine and fæces without its removal. The spring I and block I^1 are designed to unite with the front pad E in relieving the prolapsus uteri, or of the bladder and anti-version of the uterus. Thus while the plate E raises the weight from the sinking womb and bladder the spring I and block I^1 impart the relief by gently lifting between the limbs and exciting the natural and relaxed boundaries to activity and strength, thus supporting and resting and stimulating by pressure. The screw or threaded stem J which supports the

pad I^1 is formed on the end of a rod J^1, which may be composed of hard rubber, gutta percha, metal, or other suitable substance. It may be curved in such a manner that when introduced into the vagina its convexity will just fit the concavity of the sacrum and the curve of the rectum without touching either of them, or the rod J^1 may be made straight or angular if desired; this rod J^1 when inserted into the vagina should reach about as high as the posterior fundus of the uterus, and in the top of the rod is attached a cross piece J^2, which may be either adapted to rotate upon the rod J^1 or fixed in a rigid position thereon and formed in one piece therewith; this cross piece when the rod J^1 is introduced passes behind the uterus and before the rectum, and carries the intervening and relaxed fold of the vagina upward before it, and in proportion as it does this so stretches it as to compel the os uteri to be drawn back from the axis of the inferior to that of the superior strait of the pelvis, while the top or cross piece J^2 crowds the fundus uteri forward from the axis of the inferior to that of the superior strait, in short lateral obliquity, retroversion, or anti-version is prevented, or a retroverted uterus is restored to its altitude and proper axis without touching the uterus or rectum, but simply by elevating the vaginal septum in the curve of the superior sacrum, and also prolapsus of the urinary bladder is removed; but to avoid danger of irritation or ulceration by a too steady pressure of the cross piece J^2 on the vaginal tissue I construct a stirrup cup J^3 of shape and size adapted to receive and fit the os uteri; this I attach to the curved rod J^1 by means of a sliding ring J^4 and adjust it to any desired position upon the rod J^1 by a set screw which passes through the ring J^4 and enters either of a series of small holes which may be formed in the rod J^1. The cup J^3 and ring J^4 are attached together by a hinge which is so formed as to allow the cup to fold up against the rod in introducing the uterine balance J^2 into the vagina and then allow it to fall to a horizontal position, or rather to a right angle with the rod, to cause it to assume which position a cord may be employed. When introduced the rod J, and cross piece J^2 restore the desired uterine axis and the cup J^3 lifts the whole uterine body, and hence the pressure is so divided between the cross piece J^2 and cup J^3 that there is no danger of irritation or ulceration, and the uterus is compelled to assume its position and retain it so long as the piece J^2 is supported to a proper height. To do this, and to prevent the uterine balance J^2 rotating in the vagina, the threaded protruding portion J of the rod J^1 is made flat at its sides like a tenon. The slot in the curved spring I, through which this tenon J passes, is made like a mortice, so that when inserted the rod J^1 is prevented from receiving any undue rotating movement. The spring I both crowds up the balance J^2 and

holds its convexity to the concavity of the sacrum. To prevent the too forcible ascent of the balance J^2 the block I^1 is slipped upon the tenon J previously to the insertion of the balance, and thus beside covering and supporting the vulva acts as a guard to regulate the desired depth of insertion. Thus by the joint lifting action of the plate E elevating the visceral weight up from the womb and cross piece J^2 and cup J^3 is accomplished the easy and comfortable removal of uterine retroversion, lateral obliquity, or anti-version, without injurious pressure on the bladder, rectum, or uterus, and without the least debilitating distension of the vagina, as is always produced by the usual globe ring, horse-shoe, and other pessaries. Hence it is manifest that neither the balance alone nor the plate E could accomplish the object in view, but the combined action of the two effect it perfectly. H represents a spring attached to the lower end of the spinal lever A, and is provided with a transverse slot at its upper end through which the lever A passes, and which adapts the upper end of the spring H to admit of a free vertical play upon the lever A; this spring H is curved to conform to the perpendicular or vertical curve of the sacrum, and extends forward between the nares and limbs to a point a little beyond the anus. To the forward end of this spring H is attached a round or oblong ball or pad H^1, the attachment being made by means of a screw which may be inserted in either of a series of apertures *h* in order to vary the position of the ball H^1. This ball fits and supports the anus and invariably keeps its proper position during all movements of the body, the slot in the upper end of the spring H permitting the spring to play up and down without moving the ball H^1. By this device as employed in connection with the other parts of the apparatus the two powers which act in the treatment of piles and prolapsus ani are, first, the elevating action of the plate E, whereby visceral pressure is held off from the hemorrhoidal veins (the first and perpetual cause of the affection); and, secondly, by the local pressure or support of the ball H^1.

An important use for which the combined brace is admirably adapted is the treatment of a fracture of the clavicle, for which purpose the bow D may be so constructed as to exert a greater degree of elastic force than when intended for the treatment of the ordinary cases or affections for which it may be employed. The supporting of the body by the elevation of the pelvis and the fixing of the body's centre perpendicularly to the base in the manner described permits the shoulders to be rolled back by the pads D, D^1, and the parts of the clavicle to be effectually held in opposition until the desired reunion takes place.

The apparatus above described may be likened to an imitation of the whole human trunk, and when it is applied to the body not only are all the local

supports given about the pelvis, but by the pushing force of the portion A^1 of the spring A on the retreated spine and the opening and drawing back action of the bow D upon the cups D^1, D^1, the weight of the upper body upon the pelvis will be removed and actually made to help to raise the internal organs by swinging behind the body's axis. This completes the whole arrangement as suggested by the combination and action of the three natural forces (that is to say), the abdominal muscles, the dorsal muscles, and the scapular muscles, all constituting in their combination a complete and single apparatus.

Having now described the Invention which has been communicated to me by my foreign correspondent as aforesaid, and having explained the manner of carrying the same into effect, I claim as the Invention secured to me by Letters Patent as aforesaid,—

First, the use and application of the shoulder bow D and pads D^1 to flatten the scapulæ and roll back the shoulders, as above explained.

Second, in combination with the aforesaid shoulder bow, constructed and operating as specified, and with the mainsprings B, B, I claim the lever A for attaching and supporting the shoulder bow D and pressing forward the spine, as explained.

Third, in combination with the aforesaid shoulder bow D, and with the mainsprings B, B, I claim one or more side posts K, K^1, for relieving tender diseased spines, as explained.

Fourth, the uterine balance J, J^1, J^2, J^3, constructed and operating as described.

Fifth, the cap or block I^1 constructed with two convexities and operating to support the vulva in the manner described.

Sixth, in combination with the spring B, B, and uterine balance J, J^1, J^2, J^3, I claim the curved spring I, adapted as explained to permit the ready attachment, removal, and adjustment of the balance.

Seventh, the scalloped front pad or plate E, E^2, E^3, in the described combination with inguinal pads e^3, e^3, attached by separate springs to the main springs B, B, and occupying the scallops in the plate E, as herein described.

Eighth, in combination with the scalloped front pad or plate E and inguinal pads e^3, e^3, I claim extensible springs constituting adjustable attachments for the inguinal pads independent of the attachments of the plate E.

Ninth, the combination of the mainsprings B, B, front pad or plate E, and femoral hernia pads F^1, F^1, constructed and adapted as herein specified.

Tenth, attaching the respective ends of the front pad or plate E by independent springs so as to admit of changing the height of either end of the plate without affecting the other end.

Eleventh, making the extension springs, which are attached by loops to the mainsprings, with slots working easily on guide pins or otherwise, so as to automatically extend and contract by the motion of the body and become adjusted in length with the surface on which the impact conforming in length to the linear extension due to the flexure of the body and rendering the instrument relatively permanent while the attachment is adjustable.

Twelfth, the apparatus herein described collectively in all its combinations and connections, constructed and arranged as and for the purposes specified.

In witness whereof, I, the said William Edward Newton, have hereunto set my hand and seal, the Twenty-seventh day of August, in the year of our Lord One thousand eight hundred and sixty-seven.

W. E. NEWTON. (L.S.)

Witness,

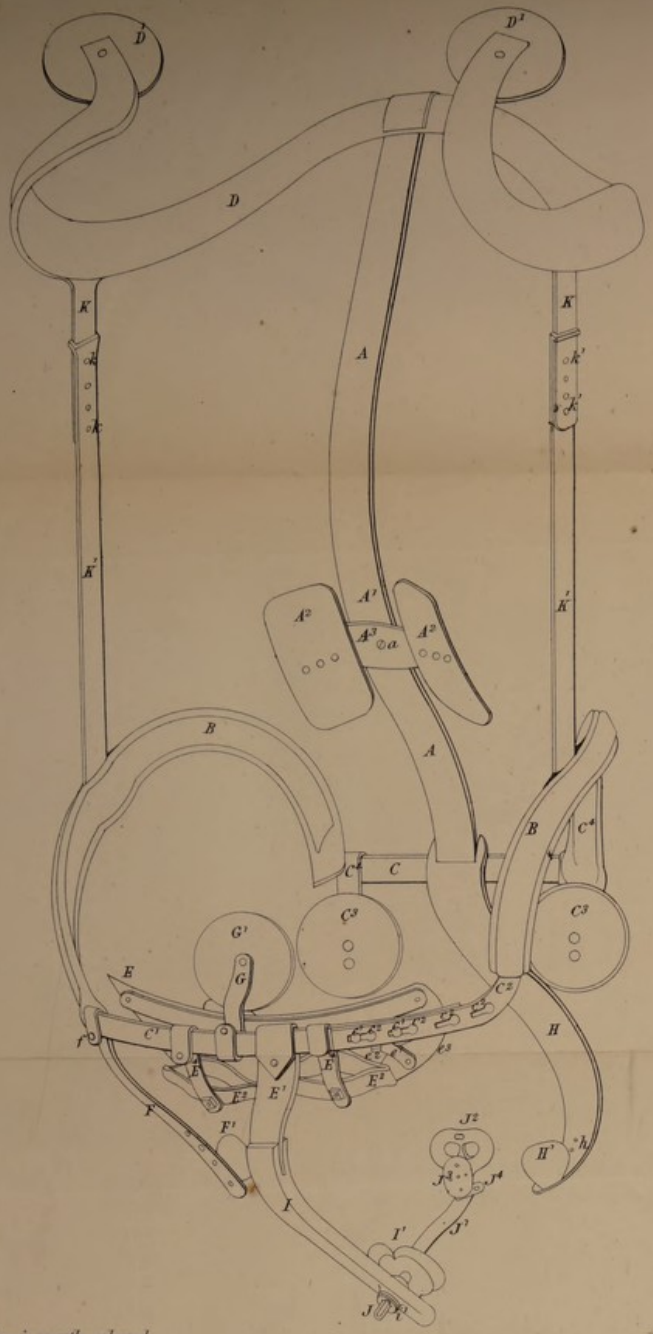
J. W. MOFFATT,

66, Chancery Lane.

LONDON:
Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1867.

A. D. 1867. Feb. 28. N° 569.
NEWTON'S Specification.

(1 SHEET.)



The filed drawing is partly colored.

Drawn on Stone by Malby & Sons

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