

## **Specification of William Newton : surgical chair bed.**

### **Contributors**

Newton, William.

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A.D. 1828 . . . . . N° 5605.



S P E C I F I C A T I O N

OF

WILLIAM NEWTON.

SURGICAL CHAIR BED.

LONDON:

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1856.









A.D. 1828 . . . . . N° 5605.

**Surgical Chair Bed.**

**NEWTON'S SPECIFICATION.**

**TO ALL TO WHOM THESE PRESENTS SHALL COME, I, WILLIAM NEWTON, of Chancery Lane, in the Parish of St. Andrew, Holborn, in the County of Middlesex, Civil Engineer and Mechanical Draftsman, send greeting.**

5 **WHEREAS** His most Excellent Majesty King George the Fourth, by His Letters Patent under the Great Seal of Great Britain, bearing date at Westminster, the Fifteenth day of January, in the Eighth year of His reign, did give and grant unto me, my executors, administrators, and assigns, His especial licence and authority, that I, the said William Newton, my executors,  
10 adñors, and assigns, or any other person or persons that I might authorize, and no others, during the term of years therein expressed, might make, use, exercise, and vend, within those parts of the United Kingdom of Great Britain and Ireland called England and Wales, of the Town of Berwick-upon-Tweed, an Invention, communicated to me by a certain Foreigner residing  
15 abroad, of "**AN IMPROVED SURGICAL CHAIR BED, WITH VARIOUS APPENDAGES, DESIGNED FOR USEFUL PURPOSES;**" in which said Letters Patent there is contained a proviso that if I, the said William Newton, shall not, within six calendar months next and immediately from the date of the said in part recited Letters Patent, particularly describe and ascertain the nature of the  
20 said Invention, by an instrument in writing, and cause the same to be inrolled in His Majesty's High Court of Chancery, that then and in that case the said Letters Patent, and all privileges and advantages thereby granted, shall



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utterly cease, determine, and become void, and as in and the same, reference being thereto had, will more fully and at large appear.

**NOW KNOW YE**, that in compliance with the said proviso, I, the said William Newton, do hereby declare the nature of the said Invention, and in what manner the same is to be constructed and used, the particulars of which 5 are set forth in the following description, reference being had to the Drawing hereunto annexed, that is to say :—

The Improved Surgical Chair Bed, with various Appendages, designed for Useful Purposes, invented by Monsieurs Rouet and Carpentier, of Paris, which has been communicated to me by a Foreigner residing abroad, consists of 10 certain arrangements of mechanical parts, which, being put together, form an easy chair, couch, or bed, for invalids, having various pinions, racks, pullies, and levers, and other contrivances for the purpose of allowing parts of the bed or couch to be occasionally raised or lowered, so as to convert it into an arm chair, or to open, raise, or remove certain parts for the purpose of getting more 15 convenient access to the patient in performing any surgical operation, or assisting the functions of nature, or relieving the patient from the fatigue of remaining long in one posture, by raising or lowering the ends or sides of the bed, and shifting parts of it, the particulars of which are fully set out in the following description, and exhibited in the several Figures of the accompanying 20 Drawing; (that is to say,) this bed or couch is designed for sick persons that may be deprived of the power of moving, or for wounded or other persons that require careful attention or surgical treatment.

The bedstead exhibited in Figs. 1, 2, and 3 is transversely divided into three parts. A is the external frame to which the mechanism is attached. The 25 part of the framework B for the feet is capable of descending, and being moved perpendicularly by the racks L. The part C in the middle is immovable, and serves as a seat. The part D for the head may be raised by a toothed segment H, which, being done, and the part B let down, the bed takes the form of an arm chair. In this position the pannel M at the feet of the bed 30 is turned down, and forms a step to assist the invalid in getting off the bed. The part of the framework D, described as forming the back of the arm chair, may be made fast, and instead of its being allowed to move, the parts represented in Figs. 17, 18, 19, 20, 21, 22, 23, 29, and 31 may be substituted. B is a square frame, upon which two transverse mattresses are deposited (see Fig. 3). 35 C is also a square frame, upon which a close stool box is placed with a mattress above it. D, the rising part of the frame with two mattresses. If it is required to lift up the sick person and to form the back of an arm chair, the pinions E must be turned, by the actions of which the racks I and L, and



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- the toothed segment H, will be moved. These pinions E are fixed to the transverse shafts G, and to the longitudinal shafts G, G. F, F, are crown wheels affixed to the shafts G, G, G, G, and are driven by the pinions E to give motion to the longitudinal shafts. Instead of these wheels other gear may
- 5 be substituted, as represented in Fig. 5. The longitudinal shafts G, G, are for effecting the movements of the racks I and L; and H is the toothed segment for raising the head frame D. I, ascending racks to the top of which the two lateral shafts R are affixed. Those shafts R are for distending the sacking of a bed, if required; and by means of the racks I, L, the suspended sacking may
- 10 be raised or lowered, the manner of distending the sacking being shewn in Fig. 4. L, L, descending racks to lower the framework of the foot part B. M, pannel at the foot, which, when lowered, forms a step, as before said. N, upright standards in which the racks slide. O, winch to give the rotatory movement to the transverse shafts G. P, catch or pall for stopping and fixing
- 15 the rack and frame in any position. Q, lateral pannel at the upper part of the exterior frame A, with hinges to lower them at pleasure. S, standard to support the shafts G and G, G. T, the transverse mattresses of the frames B, C, D, capable of being laid in a sloping position; elastic mattresses made with springs are to be preferred. U, coverings of the separations of the
- 20 mattresses, in place of which may be substituted in case of need a thin mattress. V, close stool mattress and box, which may be exchanged for two full mattresses when the sick person is not required to wear the drawers or breeches (8). \* elastic springs, which adapt the channel from the drawers to the opening of the close stool pan or chamber pot.
- 25 Fig. 4 is a horizontal representation of the sacking distended from the lateral rods or shafts. 1, lateral shaft marked R, R, Figures 1 and 2, to which are connected the suspension slips 7. (6) the cords for drawing tight the sacking (5). 2, transverse rods fixed at their centres to the transverse rods (3), which last mentioned are for holding the sacking at the ends,
- 30 the sides being distended by the shafts R. For these rods may be substituted the contrivances represented in Figs. 5 and 17. 4, counterholding bars of the rods (2), to which an additional sacking (5, 5,) is fastened by straps and hooks, if necessary. 5, the sacking held at one end by straps and hooks, and furnished at the other end with little pullies. It is intended by
- 35 means of the frame composed of the rods (2 & 4, Fig. 4), and 31 and 32, Fig. 17) to turn the sick persons from the right side to the left, and from the left side to the right. The auxiliary sacking 5, 5, is attached to the ordinary sacking by a longitudinal seam fixed in the centre in Fig. 4, or with eccentric joints (31 in Fig. 17); being thus adapted its section would be



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represented in Fig. 24) the parts of which may be folded together at pleasure; however the sacking (5) may be employed alone. 7, three suspension slips held by straps and hooks passed over the lateral shafts (1), Fig. 4, to the shafts 28, Fig. 17. Unhooking one of these suspension slips allows the sick person to be raised and placed in any position he might desire to take. To 5 the slips may be fastened the auxiliary sacking (5, 5). These parts of the sacking (5, 5, 5, 7,) are made of ticken or of linen, or of any other material that may be suited to the purpose, and to increase its strength straps may be introduced between the material if double, but if single they may be sewn at the back. These straps, placed one near to the other, may be used by them- 10 selves instead of a sacking, as in Figs. 32 and 34. Whatever material and form they may be of, it will be convenient to make use of the rods (9), and of the straps (10), or of the rods and hooks Figs. 32 and 34. The drawers or breeches (8) are to be laced, buttoned, or secured, by strings or clasps, or by any other means, about the person of the invalid, by a triangular seam, as in 15 Fig. 4. They are to be of ordinary or varnished leather, or of both, rendered waterproof. If it should be considered desirable, the bottom of the close stool seat, as represented in Fig. 6, may be adapted to the tube or opening of the close stool channel of the drawers, shewn in Fig. 3. In Fig. 5, 11 are transverse shafts put in rotation by a pinion driving the wheel (14), or by 20 bevel wheels, or by endless screws. 12, transverse bars bent with forks at their extremities, which are intended to support the transverse shafts (11), and to supply the place of the rods (3), see 33, Fig. 17. 13, pinions driving the wheel 14, which are intended at the same time to give motion to the transverse and lateral shafts. 15, bevel wheels to drive the machinery instead of the 25 pinions (13) and the wheels (14). One of these wheels may be of a larger or smaller diameter, according as it may be required to give greater or less tension to the sackings (5 & 7). Fig. 6 is the close stool seat, which is connected to the mattresses or to the sacking (5, or 5, 5). In order to render the surface of this seat even, rods may be introduced into the hems, by which 30 it is fastened to the mattresses, or to the sacking before mentioned. The close stool channel of this seat, as well as that of the drawers (8, Fig. 3), may be of the same piece or of several pieces, either sewn or twisted, and brought to meet the chamber pot. The parts surrounding the hole may be coated to a certain distance with waterproof linen, or with ordinary or varnished leather, 35 and in that case the close stool seat may be employed without any kind of channel. The channel of the close stool seat may be shut at its inferior opening and from the vase, and it may be fixed to the close stool seat or to any other part by an elastic spring. The inferior opening of this channel



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may be shut as well as that of the close stool seat, and may besides have a discharge valve or cock. This cock, as well as the valve, may be shut by a screw or spring, or by any other means. Figures 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, are variations of mechanism described in the former Figures. 16, 5 frame similar to A. 17, horizontal shafts as G, G. 18, ascending racks, as I. 19, descending racks, as L. 20, pinions similar to E. 21, bevel wheels intended as substitutes for the wheels F, or those represented in Figures 9 and 10, 12 and 13, with their ratchet. The contrivance in Fig. 11 does not differ from those four last mentioned, except that it has not a ratchet; the exterior 10 pinion and wheel of this Figure having a double catch similar to (74 and 75) in Figs. 29 and 30, both of them may be displaced according to circumstances, and be placed at the left or at the right side of the bed. All these wheels may be substituted by another wheel of about the same diameter and number of teeth, and having a little bevel pinion which gears in with that at 15 the end of the shafts G, G. 22 are supports, on which are to be placed the cross bars intended to support the mattresses T. These bars are substitutes for the square frames described at C, D. 23, frame intended as a substitute for the square frame B, to carry the inferior part of the mattresses T. 24, pulleys over which pass the cords (25) that are employed to bring the little 20 mattress intended as a substitute for that shewn at U into its proper position. 26, catch, described P in former Figures. 27, plate carrying the catches (26) to bear the shafts. G, suspended bed shewn in several parts in Figs. 17, 18, 19, 20, 21, 22, 23, and 24. 28, lateral shafts of the sacking, as substitutes for (1); by these moveable shafts the tension of the sacking (7) is produced. 25 One of these shafts is moved by a pin which is introduced in the coupling (51), and the other of these shafts is moved by the bevel wheels (45), driven by the transverse shaft (29) by a winch placed at the extremity of the shaft. 29, transverse shafts moved by the pinion (48), which is intended to give tension to the sacking (5). At the extremity of this shaft is the angular 30 pinion (45), and at the other the ordinary pinion (44). 30, rod, to which is fastened one of the ends of the sacking (5). This rod as at each of its extremities a cylindrical hole, in which is introduced the end of the lateral shafts 28, which prevents their slipping out. 31, rod in two parts, which are connected by joints to the joints to the rods (30 and 33). 32, are counter- 35 holding bars, like a swan's neck at one end, behind which is fastened the auxiliary sacking (5, 5). 33, an arm bent down with forks at its extremities, through one of which passes the shaft 28 on the left side. 34, bars to support the toothed segment (36). They are fixed by screws to the heads of the racks I. If the toothed segments are not adapted, the square frame (39) are



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fixed against the shafts (28), as shewn in the Figs. 19, 20, 21, 22. 35 is the fulcrum or joint of the toothed segment and of the square frame; 36, the toothed segment designed to lift up the square frame. The toothed segments are driven by the pinions (38, and may be stopped in their revolution by placing a screw or pin in the plates which form cheeks to the pinions. The 5 toothed segments may be fixed to the shafts (28), either within or without. Instead of the toothed segments, the contrivance represented at Fig. 23 may be adopted, which is driven by a cord passed over pullies, instead of the pinions (38), or by the means represented at Fig. 31. The toothed segment may be also placed at the side of the square frame 39. (37), 10 shaft of the toothed segment fixed by the standards to the forks of the arms (33; at each of its ends are the pinions (38); this shaft is put in motion by a winch. (38), pinions driving the toothed segment; they are mounted on each side on plates, and these plates are perforated to receive the screws or pins intended to stop the toothed segments in the required point of the 15 revolution. (39), square frame intended to form the back of the arm chair; it is connected with the toothed segment by means of a cross bar fixed with a box or screw. The point of support of this square frame is the same as that of the toothed segments. This frame may be taken off into three parts. 40, standards with coverings, and with cylindrical holes to receive the shaft of 20 the toothed segment (37). 41 semicircular part fixed to or connected with one of the forks of the arm (33). It is intended to hold up the shaft (42) and the catch (46). 42, little shaft of the pinion (43), put in motion by a winch. 43, pinion taking into the pinion (44) to give at the same rotatory movement with the shafts (28 and 29) by the means of bevel wheels (45), and 25 to extend by this mean and at the same time the sackings (5 and 7), supposing that these two sackings are used together; if these pinions (44 and 43), and the shafts (42), and the parts (41) are dispensed with, tension may be given to the sackings (5 and 7) by a winch placed at the ends of the shafts (28). 45, bevel wheels intended to communicate the rotative movement to the shaft 30 (29) and (28). Instead of the apparatus last described, that represented at (Fig. 5 and Figs. 12 and 13) may be employed, excepting the ratchett for those two latter Figures. (46), pall or catch of the pinion (43). 47, half oval with forks at its extremities. This oval is designed to contain in its centre a pulley, over which passes a cord, and the ends of the cord are fixed 35 to the counterholding bars (32), at the same time this oval serves as a point of support to the counterholding bars during their revolution. (48), cross bar to prevent the slipping out of the shafts (28). 49, little buttons at which are fastened the straps of the sacking. 50, sockets which cross one another at



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the head of the racks I, to stop the movement of the shafts 28 and 29, instead of the catch (46). 51, a cross perforating coupling, in order to produce a rotative motion to the shafts (28), instead of adapting a winch. 52, screw. 53, sacking connected with the square frame (39), to which it is fastened by 5 straps and hooks to form the back of the arm chair. (54), cords that assist the counterholding bars. The part of the suspended bed in the Nos. 2 and 4, in Fig. 4, and 31, 32, 41, 42, 43, 44, 46, 47, 48, 50, and 51, Fig. 17, may be dispensed with totally or partially as may be judged convenient. Fig. 25, 26, 27, exhibits other modes of adapting the suspended bed, Fig. 4 and 17, to an 10 ordinary bed. 55, frame representing the ordinary bed. 56, exterior frame to which the improvements are to be adapted, which frame is capable of being taken in four parts. It may be composed of the same materials as that described, A, Fig. 1 and 2. 37, horizontal shafts similar to G, G. 58, transverse shafts corresponding to G. 59, ascending racks same as 1. 60, pinions 15 like E. 61, wheels for the same purpose as F. 62, spur and bevel wheels to give rotatory motion to the shafts 57, and receive impulse from the pinion (63). 64, lateral shafts same as (1), Fig. 4, and (28), Fig. 17. 65, standard similar to S. 66, catch or pall as P. 67, upright beams and slides of the racks, represented at N. 68, screws to press the frame (56) against 20 the frame (55); by means of these screws the two frames are connected together in Figs. 28, 29, 30, and 31. 69 is another frame to be employed in adapting a suspended bed to an ordinary bedstead. Its lateral parts may be lengthened by means of the slides 72 and the bars (71), and are elongated or contracted by means of the screws (70), which are at the same time joining 25 screws connecting the sides and ends together. (71), bolts or pins passed through slots. (72), sliding parts for lengthening or shortening the frame. 73, shafts upon which are the two pullies (76). 74, pinions for driving the wheel 75; the axle of this wheel is united with the shafts (73). 76, pullies over which the cords (77) pass. These cords are to draw up the suspended 30 bed. 78, pullies (upper), over which the cords 77 pass. 79, frames to support the pinions (74) and the wheels (75). 80, winch. 81, side rods which passes underneath the shafts (1), Fig. 4, and (28), Fig. 17. At the ends of these side rods are guides in the form of a swan's neck, the forked extremity of which slide on the four columns of the frame (69). The cords (77) are fastened to these 35 swans' necks. The frame thus composed is intended to sustain the suspended bed. To prevent the parts slipping out, and to render them fast, they are united with the support (82). The suspended bed is exactly the same as it described, Fig. 4 and Fig. 17, only for the toothed segments may be substituted the contrivance shewn in Fig. 31. The whole thus put together may be employed



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with the arm-chair bed, as it is represented, Fig. 1, 2, 3, 4, &c. The last-mentioned frame and its appendages may be substituted by the contrivance represented at Figs. 32, 33, 34, and 35. 82, supports with cylindrical holes through which pass the shafts (1), Fig. 4, and 28, Fig. 17. These supports are connected with the lateral parts of the frame (81). 83, squares made use of to consolidate the frame 81. 84, sides of the square frame (39), intended, with the suspended sacking (53), to form the back of the arm chair. These sides form a slot, through which passes the upright beam (85); they may be fixed to the lateral parts of the frame (81), or of the supporting bars (34), or of the shafts (1), Fig. 4, and 28), Fig. 17. 85, upright beams that are heightened and lowered at pleasure; they are fixed to the same parts as the sides (84) of the square frame, and contain the pullies (86). These upright bars are pierced with several holes to receive the screws, which are placed underneath the sides (84) of the square frame to stop in any position. 86, pullies, over which pass the cords (87); they may be fixed before, behind, or at the side of the upright beam (85). These cords are to effect the movement of the square frame (84); they are fastened at one end to the frame; the other end, by passing over the pullies (86), is wound about the pullies (88), which are in place of the pinions (38) of the shaft (37) of the toothed segment. 89, screw to press the frame against the ordinary bed.

Figs. 32 and 33 exhibit another mode of constructing the suspended bed, which is especially designed for the purpose of enabling a sick person to be lifted up and placed in the arm-chair bed, or to transport him from one bed to another. 90, long square frame. 91, lateral cylinder to give tension to the straps 92, which cylinder is put in motion by a winch, and stopped by a catch. 92, suspension straps fastened at one end by thongs and hooks (93) to one of the sides of the frame (90), at the other end by similar thongs passed over the cylinder (91). This requisite tension being once effected, the straps may be retained by pegs or pins; the straps may be separately loosened, and again replaced. 94, rods that slide in the hem of the straps (92). (95), pegs or pins to retain the thongs (93). 96, buttons in which the thongs hang. 97, catches of the lateral cylinder (91), and of the transverse cylinders (99). 98, supports of the lateral cylinder and of the transverse cylinders 99, about which rolls the inferior sacking of the ordinary bed to suspend it. (99)\*, handle to lift up the arms of the frame (90). Figs. 34 and 35 exhibit a variation of the foregoing plan. No. 100, frame, having a cylindrical side. These frames may be elevated or depressed by the same means as exhibited in (81 and 90). The parts designed to form the back of the arm chair, if adapted, is to be the same as the frames (81 and 90).



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101, straps, as described before at 92. 102, rods, as 94. 103, hooks, increased in number according to the number of straps. 104, thongs of the hooks (103). Figs. 36, 37, 38, 39, and 40 shew another variation in the construction of the chair bed. 105 is the frame described A, Fig. 1, 2, & 3, without another  
5 joint than those uniting the parts of the side with the ends. The inferior end may be cut sloping to the level of the sides, to make by means of a step the descent from the bed easier to the patient. 106, racks similar to 1, Figs. 1, 2, and 3, but nearer to the extremity of the frame. 107, racks in place of L, Figs. 1, 2, 3, with this difference, that these racks may be fixed to the  
10 frame B. These racks, as well as all those designed for the same purpose, may be substituted by thongs or by cords, which being fixed at one end from below the frame B, roll at the other end about the shafts G, G. 108, horizontal shafts, described G, G, Figs. 1, 2, 3. 109, transverse shafts, described G in the same Figures. 110, upright beams and slides of the racks de-  
15 scribed N. 111, wheels similar to F. 112, pinions like E. 113, standard as S. 114, guides and slides of the racks 107. 115, supports of the transverse shafts (109). 116, transverse bars to give support (instead of the frame B, C, to the mattresses T, if they are divided only into two parts, and only C if the mattresses are divided into three parts (see Figs. 33 and 40). 117, toothed  
20 segments, similar to H, connected with the frame D, or, according to the Figures 1 and 2, with the frame A, in which they slide. If the toothed segment is fixed to the frame D, this frame ought to be united to C in the centre by a hinge, which forms at the same time the pivot or fulcrum of the toothed segment. Only one toothed segment may be sufficient if placed at the centre  
25 of the frame D, and that may be substituted by the means described at H. 118, elastic mattresses. 119, rack similar to L placed at the sides of the frame B. 120, hinges uniting the frame D with the frame C, or the head parts with the centre. Figs. 41 and 42 represent a mode of drawing away the sacking (5, 5, 5), or the inferior sacking from a bed without rubbing against  
30 the body of the sick, and without removing him. 121, frame similar to A. 122, sacking described 5, 5, 5. 123, shaft mounted in standards which carry the pullies (124), and is moved by a winch. The cords (125) are wound underneath. 126, pullies adapted to the frame (121), which pass the cords (125). 127, very thin slips made of metal, of wood, or of whalebone. The  
35 one of them is placed in the hem of the sacking (5), and the other is taken up by the sacking, which is folded about it.

Having thus particularly described various modes of constructing this improved apparatus, I wish it to be understood that I claim all the modes of



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constructing the same described above, and any substitution of parts of the same as an easy chair or bed, and variations in their arrangement.

In witness whereof, I, the said William Newton, have hereunto set my hand and seal, this Fifteenth day of July, One thousand eight hundred and twenty-eight.

5

WILLIAM (L.S.) NEWTON.

**AND BE IT REMEMBERED**, that on the Fifteenth day of July, in the ninth year of the reign of His Majesty King George the Fourth, the said William Newton came before our said Lord the King in His Chancery, and acknowledged the Instrument aforesaid, and all and every thing therein contained and specified, in form above written. And also the Instrument aforesaid was stamped according to the tenor of the Statute made in the fifty-fifth year of the reign of His late Majesty King George the Third.

DOWDESWELL.

Inrolled the Fifteenth day of July, in the year of our Lord One thousand eight hundred and twenty-eight.

15

## LONDON:

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Printers to the Queen's most Excellent Majesty. 1856.



FIG. 1.

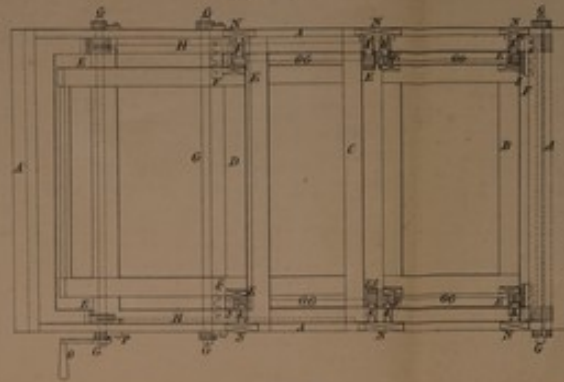


FIG. 2.

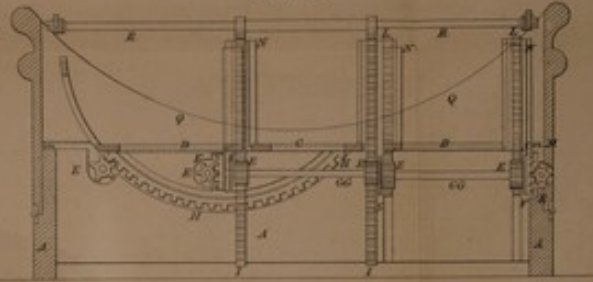


FIG. 3.

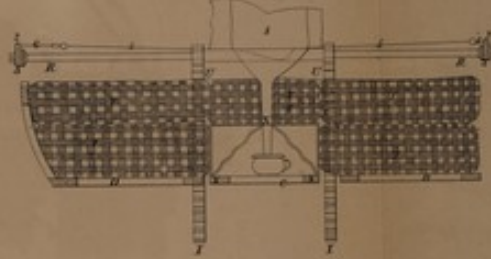


FIG. 4.

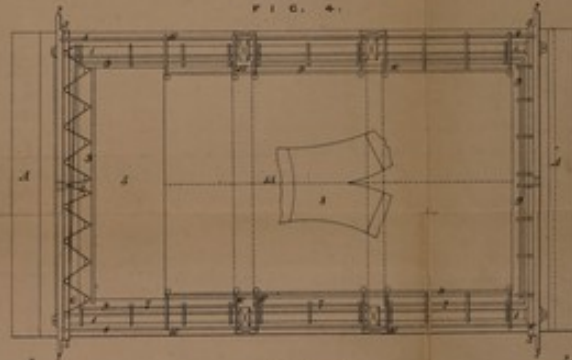


FIG. 5.



FIG. 6.

















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FIG. 19.

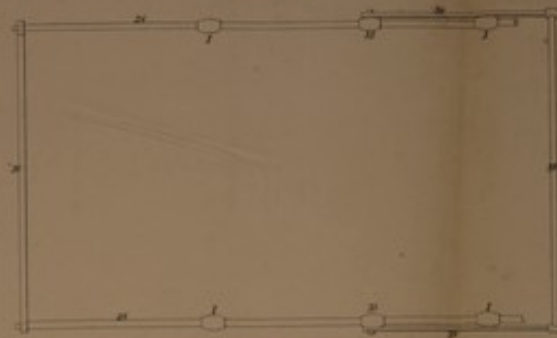


FIG. 21.



FIG. 25.



FIG. 26.



FIG. 28.

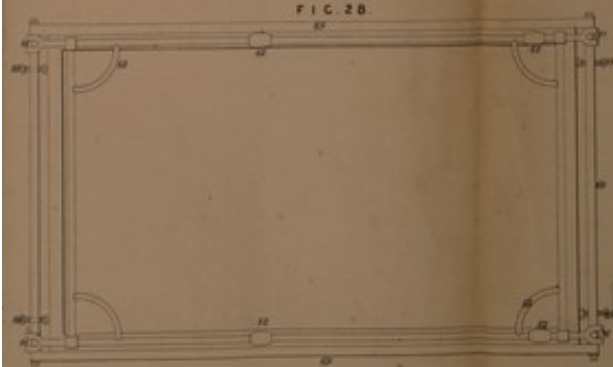


FIG. 27.

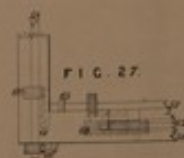


FIG. 31.

















FIG. 36

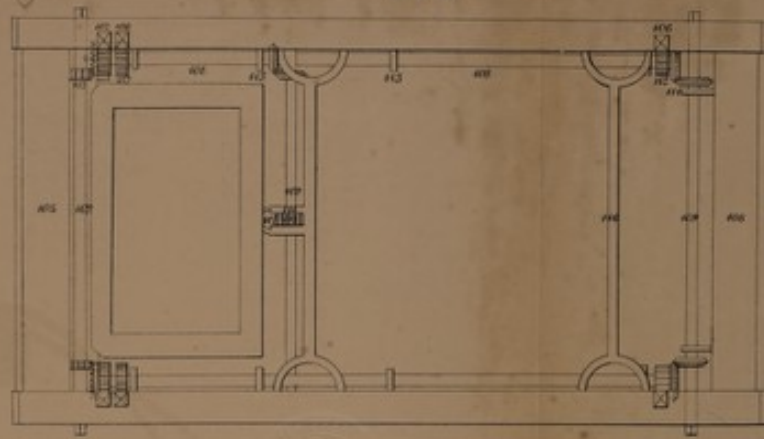


FIG. 37

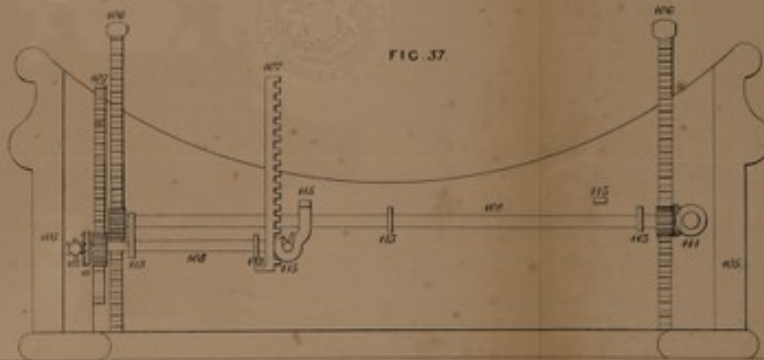


FIG. 38

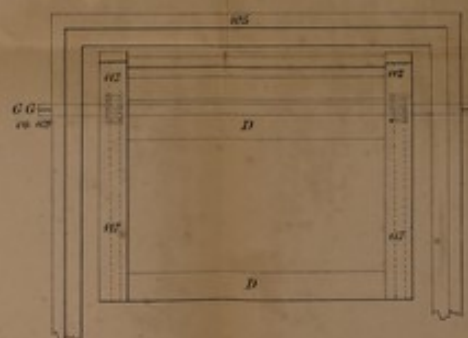


FIG. 40

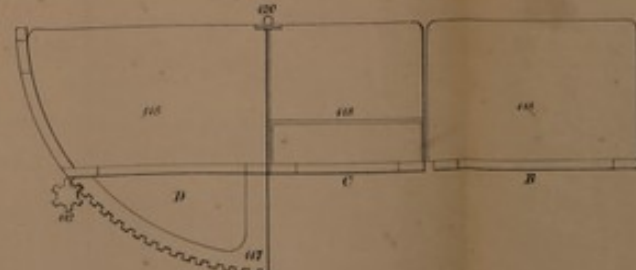


FIG. 41



FIG. 42

