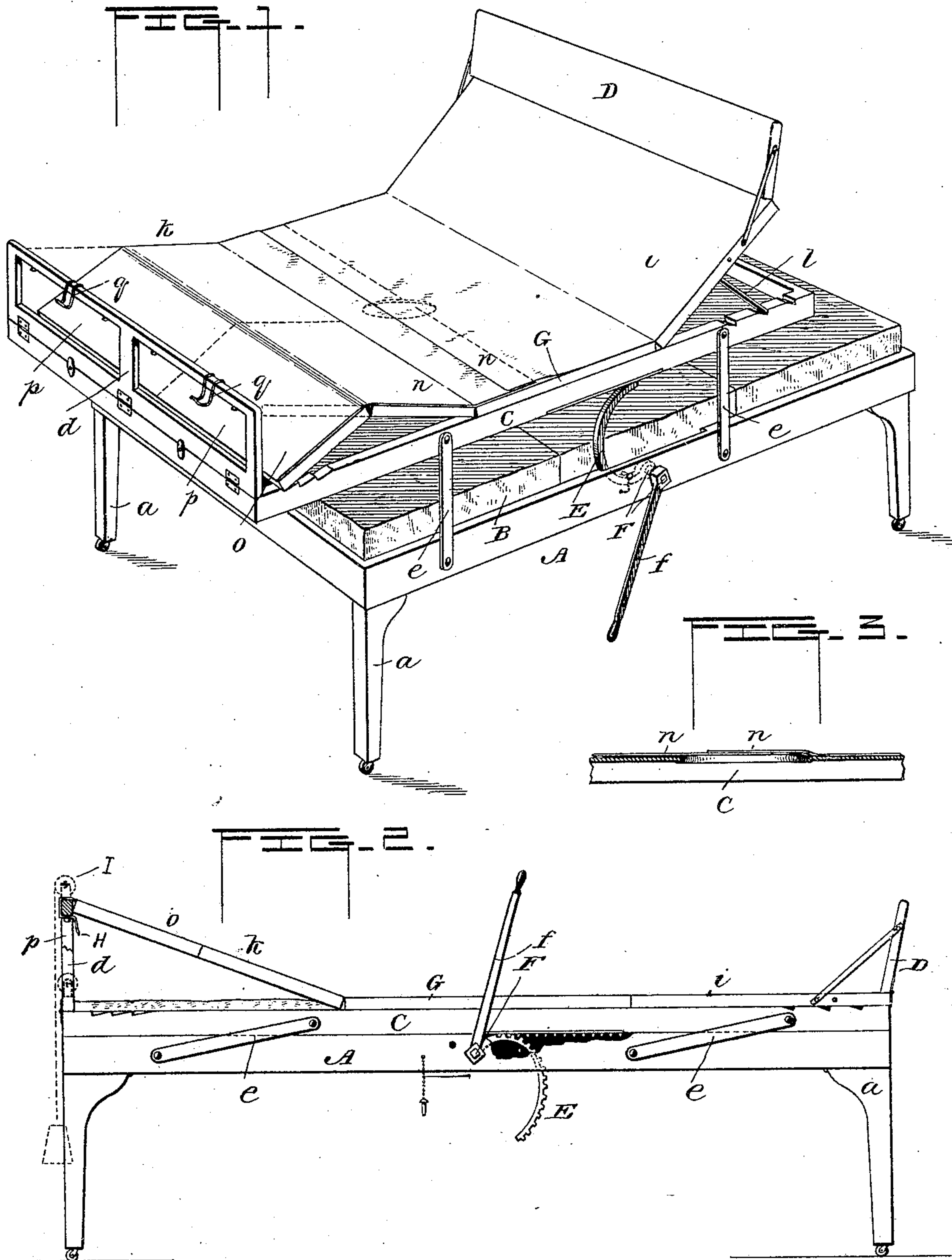


(No Model.)

W. T. WALKER.
COMBINED INVALID AND OPERATING BED.

No. 451,348.

Patented Apr. 28, 1891.



WITNESSES

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UNITED STATES PATENT OFFICE.

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COMBINED INVALID AND OPERATING BED.

SPECIFICATION forming part of Letters Patent No. 451,348, dated April 28, 1891.

Application filed October 22, 1890. Serial No. 368,910. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. WALKER, a citizen of the United States of America, residing at Lynchburg, in the county of Campbell and State of Virginia, have invented certain new and useful Improvements in Invalid and Operating Beds, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improvement in beds, and to that particular class of beds designed for the use of invalids. In beds of this character it is necessary to provide means whereby the operation of changing the bed-clothing and properly ventilating the bed may be carried on with a minimum amount of disturbance to the patient. Further, it is desirable to provide means whereby a commode or vessel other than the ordinary bedpan may be used by the invalid without any great inconvenience, such as is occasioned by his removal from the bed or in the use of the latter vessel.

Many invalid-bedsteads have up to the present time been invented and some have been put upon the market, but even those which have gone into use are defective in many ways, principally by reason of their complicated nature, their failure to be effective in operation, their expense, and the necessity which exists in their use of disturbing the patient.

It is the object of the present invention, therefore, broadly stated, to provide a construction in which the defects heretofore existing in such apparatus shall be remedied and an organization effected which shall be composed of few parts, but yet be very complete and efficient in operation and inexpensive to manufacture.

A further and very important object is to so construct the bed that it may be converted with scarcely any trouble into a surgeon's operating-table, upon which the patient may be treated for fractures and for such other ills as necessitate the performance of operations.

The invention, therefore, consists in the various matters hereinafter described, and pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of my invention, the upper part being raised and the position when

used as an operating-table being shown in dotted lines. Fig. 2 is a side elevation, the upper part being lowered into its normal position. Fig. 3 is a plan view showing the manner in which the sheets are secured together.

In the drawings, A represents the main or lower portion of the bedstead supported upon suitable posts *a a a a*. This part A is made of suitable length and width and is provided with slats or springs, as preferred, upon which the mattress B, preferably made in three parts to facilitate handling, is laid. The posts or legs *a a a a* preferably do not extend above the level of the frame, as customary, but merely serve as supports upon which the frame rests. They are adapted to fold up against the bottom of the bed for purposes of packing and are provided with the ordinary casters. Normally resting upon and supported by this lower frame A is a second frame C, of equal dimensions, upon which are placed the head and foot boards *D d*, the latter being herein shown as hinged to swing and adapted to be held in its upright position by buttons *u*, similar to ordinary door-buttons. To the side pieces of the upper frame C, upon either side, are pivoted at one end rods or links *e e*, which are pivoted at their opposite ends to the lower or main frame A of the bedstead. These rods are so pivoted that when the upper frame is in position upon the lower the rods will lie obliquely instead of horizontally, their vertical position being attained only when the upper frame is elevated to its greatest extent.

Passing through the side pieces of the lower frame A is a rod or shaft F, carrying near either end a cam or eccentric E, adapted to bear upon the under side of the upper frame C. This underside is preferably covered with an iron strip at the point where the cams bear against it to prevent the same from cutting into the wood. In order to provide for operating the cams, the ends of the shaft F are squared, so that a lever *f*, having a square hole in its end, may fit thereover and serve to rotate the shaft, and thereby elevate or depress the upper frame.

The side pieces of the lower frame are cut out upon the inside for the reception of the cam, with a shoulder corresponding in shape

to the outer surface of the cam, against which the same rests when in its elevated position, thus preventing forward movement; but in order to prevent backward movement of the same by reason of jarring when the frame is in its elevated position pins are adapted to be inserted through holes in the side pieces of the lower frame upon the inner side of the cam, thus acting as stops. Instead, however, of using a smooth cam, as above described, the same may be provided with a row of cogs upon its upper surface adapted to mesh with corresponding cogs upon the under side of the iron strip above referred to. It will be understood that the shaft is preferably passed through the lower frame at a point a little to one side of the middle and between it and the head-board at about the point where the center of gravity of the person would be located.

While I have shown herein a special form of apparatus for elevating and depressing the upper section of the bed, and while I desire to claim such construction specifically, it will be understood that so far as other features of the invention are concerned other means for elevating and depressing said upper section might be used—for instance, the upper section might be raised vertically by means of any suitable hoisting means, it not being deemed necessary to illustrate the same herein.

As a further and special improvement in apparatus of this class, I have designed a particularly suitable and effective form of construction for the upper frame C of said bedstead. Said upper frame C has a central portion G raised slightly above the other portions. The remainder of said frame is divided horizontally in such a manner as to leave this raised portion, thus leaving a lower rectangular frame upon which this raised portion rests. The parts upon either side of said central portion are hinged thereto, the part *i* carrying the head-board D and the part *k* being again divided into two sections hinged together. The part G and hinged sections *i* and *k* are provided with a covering of canvas, duck, or like material, which is unlikely to sag, suitably secured to the sides and ends of said sections.

Near the center of the raised portion G of the frame C is formed in the canvas a hole of suitable size bound around, whereby when the upper frame is elevated through the medium of the lever, shaft, and cam the patient may make use of a commode or vessel placed beneath him without having to be removed from the bed. To the under side of the part *i* is hinged a leg or legs *l*, adapted, when said part is elevated, to fit into notches in the side pieces of the frame, thereby holding the same in any desired position and the upper portion of the body of the patient at any suitable angle.

The section *k*, as above stated, is divided into two hinged sections corresponding with

the knee-joints of a patient. The outer section is hinged to swing downward and its end is adapted to enter notches in the frame C, thereby being held at the angle desired. This section *k* may also be divided longitudinally to give different positions for each leg.

In order to provide for any sagging of the canvas covering which may happen from long, continued use, any suitable means for taking up the slack may be used.

For the greater comfort of the patient sheets are placed over the upper frame and upon the canvas upon which he lies. These are preferably arranged as shown in Fig. 3 of the drawings. As therein shown, two sheets *n n*, folded in the middle, are placed upon the canvas, one coming below the middle of the hole in the center of the canvas and the other above the middle, thus overlapping each other and covering the hole completely. It will be seen that by this arrangement the sheets may be removed and clean ones substituted without disturbing the patient at all, thus overcoming the great difficulty now existing in beds of this class, it being necessary simply for the attendant to draw one sheet downward from the head and the other up from the foot. These sheets are fastened together in any suitable manner, but preferably by safety-pins, which may be easily removed and the sheets slipped back out of the way when the patient is desirous of using the commode.

As before stated, a very important feature of the present invention consists in the means whereby this bed is, with a minimum amount of trouble, converted into a surgeon's operating-table.

Heretofore it has been proposed to combine in one apparatus a lounge and medical operating-table, and I do not broadly claim any such combination, my invention being limited to important details, whereby the desired results are accomplished in the simplest and most effectual manner.

As above mentioned, the section *k*, hinged to the central portion G of the upper frame, is preferably divided into two parts hinged together. The lower section *o*, or that nearer the foot-board, is provided near either end with straps H H, adapted, when the said section *o* is elevated, as shown in dotted lines in Fig. 1, to be secured to the foot-board *d*, preferably by having holes in them which fit over buttons attached to the foot-board. The mode of fastening preferred by me is shown in Fig. 1, in which the foot-board *d* is provided with openings *p p*, formed therein at suitable positions, in the sides of which openings are fixed buttons, to which the straps are secured. In Fig. 1 are also shown fastened to the foot-board stirrup-irons *q q*, or straps extending down to a level with the feet of the patient, thus affording the supports for the heel which are required when any gynecological operation is to be performed. An adjustable pulley I is also provided upon the foot-board, over which a rope with weight attached may

be passed for use in case of fracture or other injuries. It will thus be seen that when the bed is in its normal position the patient lies upon a mattress and by inclining the section *i* the upper portion of the body can be placed at any desired angle, or by raising the part of the section *k*, nearer the central part *G* of the frame, and allowing the lower section *o* to fall into the notches in the upper frame, a double-inclined plane is formed corresponding to the knee-joint of the patient, thus affording him several changes of position without in the slightest degree disturbing his position. When, however, it is desired to give the patient proper ventilation, thus preventing bedsores, it is merely necessary to raise the upper frame. He can also make use of the vessel or commode when the upper frame is raised by merely moving back the sheets covering the same. When, however, it is desired to use the apparatus as an operating-table, the lower section *o* is raised by means of the straps and secured in the position shown in dotted lines in Fig. 1, thereby bringing the lower parts of the body upon an inclined plane into just the right height and position for operating, especially in gynecological operations. Furthermore, it will be observed that by this arrangement of hoisting the foot of the canvas-frame I secure an inclined plane elevated so as to cause the counter-extension while the weight over the pulley make the extension in injuries of the thigh, knee, and other portions of the leg. If, however, it is not desired to make use of the inclined plane and foot-board, the latter can be swung inwardly and a perfectly flat table formed.

I am aware that prior to my invention invalid-bedsteads have been invented in which the upper frame is adapted to be raised or lowered by a system of cams and shifting-levers, and, further, that other means have been devised for raising the upper frame upon which the patient rests for the purpose of changing the bed-clothing for ventilation or for the insertion of a commode beneath him. I am also aware that it is broadly old to combine a lounge or bed and a medical operating-table.

My invention differs from all others of which I have knowledge in various details of construction and arrangement of parts, whereby a simpler and less expensive organization than those heretofore used is produced, but more effective in operation and having a wider range of usefulness.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a combined invalid-bed and operating-table, a stationary lower section, a movable upper section, means for elevating and depressing the same, said upper section being composed of a lower rectangular frame carrying the foot-board extending above the horizontal plane of the bed, a central portion,

as *G*, secured on said frame, sections *i* *k*, hinged upon either side of said central portion, and connecting devices adapted to be attached at one end to the lower end of the hinged foot-section and at the other end adapted to be secured to the foot-board, whereby when said hinged section is connected to the foot-board by said devices it is elevated to an inclined position, substantially as described.

2. In an invalid-bed, a stationary lower section, a movable upper section, rods pivoted at each end to the same, a shaft passing through the lower section and provided with cams near either end adapted to bear against the upper section, the sides of the lower frame being cut out for the reception of the cams and having shoulders against which the outer surfaces of the cams bear when elevated, pins adapted for insertion in holes in said side pieces, whereby backward movement of the cams is prevented, and a lever for rotating the shaft.

3. In a combined invalid-bed and operating-table, a stationary lower section, a movable upper section, means for elevating and depressing the same, said upper section being composed of a lower rectangular frame carrying the foot-board extending above the horizontal plane of the bed, buttons secured on said foot-board, a central portion, as *G*, secured on said lower rectangular frame, and sections *i* and *k*, hinged upon either side of said central portion, the hinged foot-section *k* being provided at its lower end with straps, whereby when said hinged section is connected to the foot-board by said straps it is elevated to an inclined position.

4. In a combined invalid-bed and operating-table, a stationary lower section, a movable upper section, and means for elevating and depressing the latter, said upper section being composed of a lower rectangular frame, a foot-board carried thereby extending above the horizontal plane of the bed, said foot-board having apertures formed therein, buttons secured to the sides thereof, a raised central portion *G*, secured upon said rectangular frame, a section *i*, hinged to said central portion and carrying the head-board, a foot-section *k*, hinged to the opposite side of said central portion and composed of two parts hinged together, the lower section *o*, swinging in a direction opposite from the other, whereby a double-inclined plane is formed, and straps upon the lower end of said section *o*, whereby when the straps are secured to the buttons on the foot-board said section is elevated to an inclined position.

5. In the herein-described invalid-bed and operating-table, the following instrumentalities, to wit: a stationary lower section, a movable upper section comprising a lower rectangular frame, a raised portion *G*, secured thereto, a hinged head-section *i*, carrying the movable head-board, a hinged foot-section composed of two parts hinged to swing in op-

posite directions, means for elevating and depressing the upper section, a foot-board carried upon the lower end of said rectangular frame and having apertures formed therein, 5 buttons secured in the sides of said apertures, straps upon the lower part *o* of the hinged foot-section *k*, adapted when secured upon said buttons to elevate the entire foot-section to an inclined position, stirrup-irons, as *q q*, 10 removably secured upon the foot-board, and an adjustable weight-pulley also attached thereto.

6. In a combined invalid-bed and operating-table, a stationary lower section, a movable upper section, said upper section comprising a 15 lower rectangular frame having a hinged foot-board upon one end, a raised portion, as *G*,

secured upon said frame, a head-section *i*, hinged to the part *G*, a foot-section, as *k*, hinged to said part *G* upon the opposite side 20 from the section *i*, buttons upon said hinged foot-board, and straps upon the foot-section of the bed, whereby when the foot-board is swung above the horizontal plane of the bed and the straps secured on the buttons an inclined 25 plane is formed by said foot-section, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM T. WALKER.

Witnesses:

R. S. WALKER,

THOS. F. STEARNES.