E. HOLLOWELL.

UNIVERSAL BUCK EXTENSION.

APPLICATION FILED APR. 12, 1916.

1,213,373.

Patented Jan. 23, 1917.

2 SHEETS—SHEET 1.

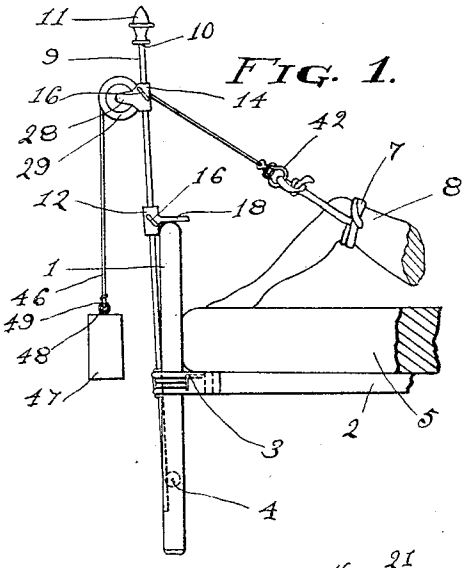


FIG. 1.

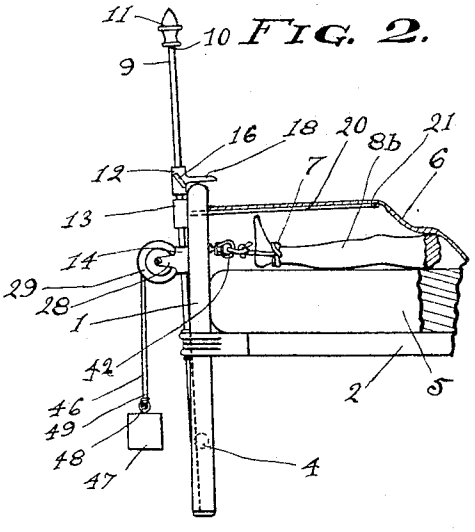


FIG. 2.

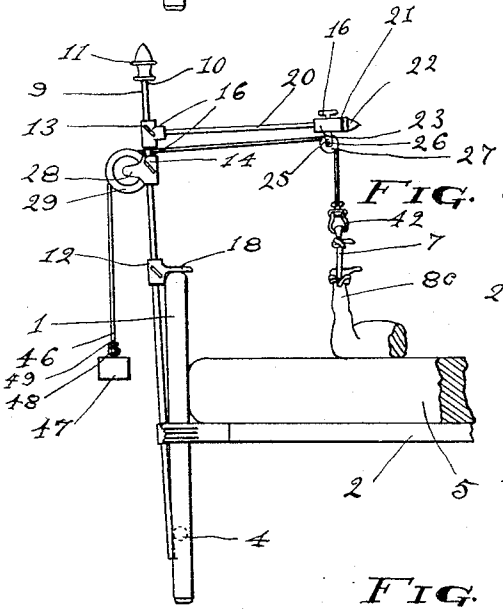


FIG. 3.

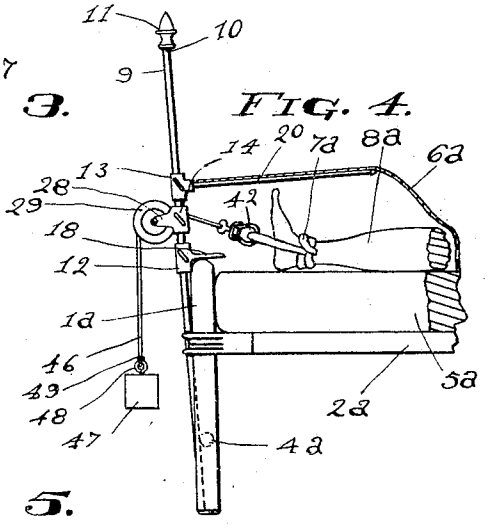
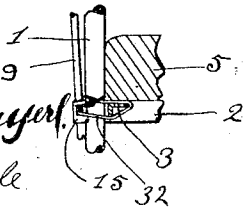


FIG. 4.

FIG. 5.



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2 SHEETS—SHEET 2.

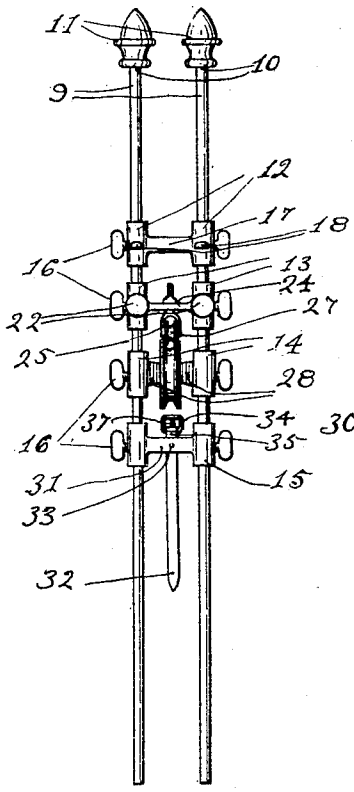


FIG. 6.

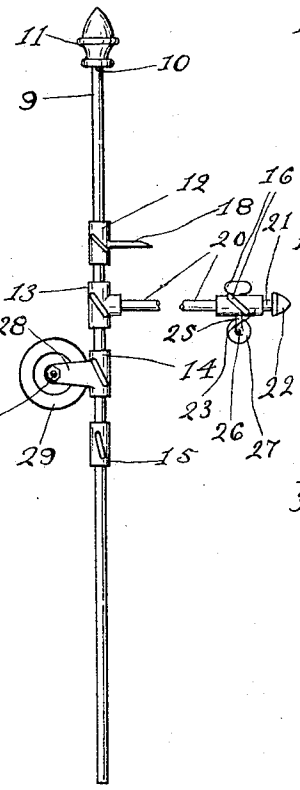


FIG. 7.

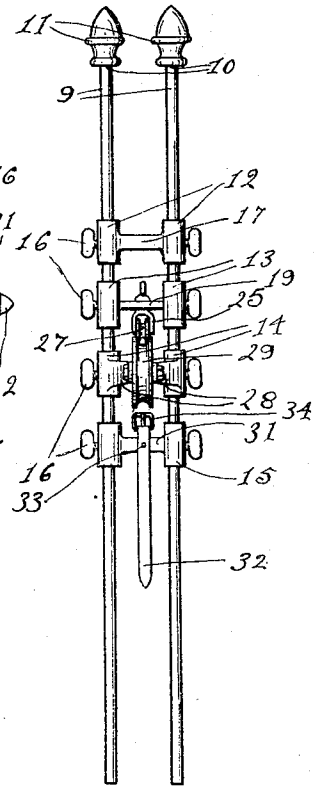


FIG. 8.

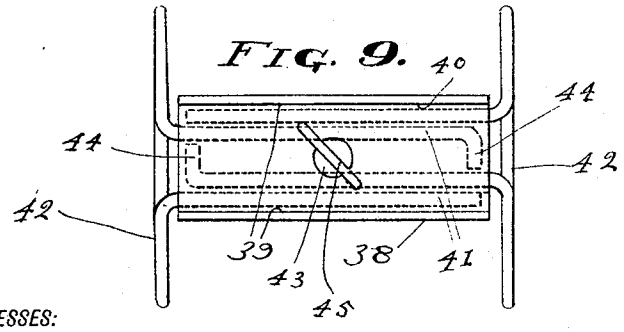


FIG. 9.

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UNITED STATES PATENT OFFICE.

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UNIVERSAL BUCK EXTENSION.

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To all whom it may concern:

Be it known that I, EVERT HOLLOWELL, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Universal Buck Extensions, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to buck extensions, and more particularly to a universal buck extension that is easily applied to the various forms and shapes of bed steads, cots and the like, and which is readily appliable to any angle of tension the surgeon may desire.

The use of the buck extension is well known to the surgeon, and the direction of the angle of tension both from the horizontal and vertical position is as variable as the condition of patients to which the buck extension is applied.

Many bed steads have a very low foot piece or none at all above the bottom of the mattress, while other foot pieces extend to a considerable height above the mattress, and the position toward which the patient must be stretched varies from a vertical direction directly over the patient throughout an angle of approximately ninety degrees to a horizontal level with the mattress.

It is essential that a buck extension be provided that can be quickly adjusted to accommodate all of these positions and directions of tension, and that can be easily and quickly shifted from place to place along the foot piece or side of the bed stead or cot, to which it is attached, it being desirable to change the angle of tension in every direction from time to time in many cases after the application of the buck extension to the patient.

The present invention seeks to provide an improved buck extension which can be easily and quickly applied in the desired position to a bed stead, cot and the like, and which is provided with means to exert a pulling tension in the direction of any desired angle from vertical to horizontal.

A further object of the invention is to provide means to support the bed clothes so that they will not bear upon and injure or worry the patient.

With these and other objects in view the invention consists in the improved features of construction, shapes, adjustments, combinations and arrangements of parts hereinafter set forth illustrated in the accompanying drawings and particularly pointed out in the appended claims.

In the drawings, Figure 1, is a view in elevation of the improved buck extension attached to a bed stead of medium height and illustrating an upwardly angular tension on the limb to which the hitch mechanism is attached, the bed stead and limb being shown in fragmentary view. Fig. 2, is a view in elevation of the buck extension, a medium height bed stead and a limb illustrating a horizontal tension on the limb, the bed stead and limb being shown in fragmentary view. Fig. 3, is a view in elevation of the buck extension, bed stead and limb, illustrating a vertical tension which is very essential in connection with infants, the bed stead being shown in fragmentary view. Fig. 4, is a view in elevation of the buck extension, a low foot piece bed stead and a limb illustrating a tension slightly upward from the horizontal, the bed stead and limb being shown in fragmentary view. Fig. 5, is a fragmentary view of the buck extension applied to the bed stead as in Fig. 1, with certain parts broken away to more fully illustrate the application. Fig. 6, is a view in elevation of the buck extension frame illustrating the side thereof that is applied next to the bed stead. Fig. 7, is a view in elevation of the buck extension frame illustrating the side thereof facing from the bed stead when applied. Fig. 8, is a view in elevation of the buck extension taken at a horizontal angle of ninety degrees from the view shown in Fig. 7. Fig. 9, is an enlarged view of the adjustable hitch to which the chain and bandages are applied.

The bed stead, foot pieces 1, frame members 2, 3 and 4, and mattresses 5, and bed cover 6 are of usual construction as are also the bed stead, foot piece 1^a, frame members 2^a, 3^a and 4^a, and mattress 5^a, and cover 6^a, the frame members 3^a and 4^a, and mattresses and covers being broken away because of well known construction and to save room in illustrating.

The rods 9 are positioned parallel and are as shown fitted on the upper ends 10 thereof with the ornamental knobs 11, the hubs 12, 13, 14 and 15 being fitted to slide freely on the rods and each provided with the thumb screw 16, by which the hubs are locked in

the desired position, all the thumb screws being duplicate.

The hubs 12 are connected by the integral connecting bar 17 by which they are spaced and held in relative position one with the other, the projecting arms 18 being also integral with the hubs and resting on the foot piece 1 and supporting the buck extension at the desired height.

The hubs 13 are connected and spaced and held in relative position by the integral connecting bar 19, the rods 20 projecting from the hubs and as shown in Fig. 3 the outer ends 21 have mounted thereon and secured by usual screw threads not shown, the knobs 22 which serve both as ornaments and as stops to prevent the bosses 23 from sliding from the rods, the bosses 23 being mounted to slide freely on the rods and connected by the integral bar 24 and having projecting therefrom the arms 25 between which is journaled by pin 26, the pulley 27, the bosses being held in the desired position by the thumb screws 16, all the thumb screws being duplicate.

Each of the bosses 14 has an arm 28, these bosses and arms being duplicate but mounted in reverse position on the rods 9, the pulley 29 being positioned between the arms and journaled on the pin 30.

The bosses 15 are connected by the integral bar 31, to which is secured the flexible strap 32 by the rivet 33, the strap being provided with the buckle 34 connected in the ordinary manner to the lug 35 thereof, the holes 36 being to engage the tongue 37 so that the strap may be buckled around variable distanced bed stead members.

The adjustable hitch member comprises the channel shaped plate 38, between the flanges 39 of which is loosely fitted the flat plate 40, the straight portion 41 projecting from the duplicate wire loops 42, fitting between the channel shaped plate and the flat plate and being clamped and bound together in the desired position by the screw 43, the wires ends 44 being bent to a right angle from the portions 41 so that the loops cannot be disengaged from the plates without removing the screw, the flat head 45 of the screw forming an eye or ring to which the chain 46 is connected, it being obvious that the loops 42 can be separated from the position shown, the loops forming a convenient means for the connection of the bandages 47.

In Fig. 1 the buck extension is shown connected to the foot piece 1, the arms 18 resting on the foot piece and the strap 32 being buckled around the angle shaped cross member 3, as shown in the fragmentary view Fig. 5, while the rods 9 rest against the round cross member 4, the strap and arms holding the rods 9 securely in this position. It will be noticed from the position of the rods that they can be raised to a greater elevation with reference to the foot piece and secured in the same manner as the arms 18 may easily be adjusted to any position on the rods by the set screws 16, it also being obvious that the arms can be raised to accommodate a foot piece of considerably greater height, all the parts being removable from the rods and the hubs 12, 13, 14 and 15 placed one above the other as the desired adjustment may demand. In this application the bosses 14 carrying the pulley 29 are above the bosses 12 from which project the supporting arms 18, the bosses 13, rods 20 and accompanying parts being removed from the rods 9, the bandages 7 are secured to the limb 8 and the wire loops 42 in any usual manner this being optional with the surgeon, and the chains connecting to the head 45 of the screw 43 is passed over the pulley 29 and the desired load in weights 47 placed on the eye bolt 48, the latter connecting to the end 49 of the chain, the eye bolt and the attachment of the weights being common and well known in connection with buck extensions. The view Fig. 1 is mostly to illustrate the adjustment and application of the buck extension for a high angular tension.

In Fig. 2 is illustrated the same bed as that of Fig. 1, the attachment of the rods 9 being the same excepting that they are shown lowered to a position that will meet any object upon which the foot piece 1 will rest, as a floor, the bosses 14 being next above the bosses 15, and the bosses 13, between the bosses 12 and 14, this adjustment accommodating a horizontal tension on the limb 8^b, and the rods 20 supporting the bed cover 7^b, this adjustment being for the lowest angle of tension required. It is obvious however that the same angle of tension can be secured from the attachment to the foot piece 1^a of Fig. 4 and that, were the portion of the foot piece 1 extending above the side rail 2, the same results can be obtained.

The view Fig. 3 illustrates the rods 9 applied to the foot piece 1 and members 3 and 4 of the bed stead in the same position as that of the view Fig. 1 with the bosses 13 and rods 20 in operative position above the bosses 14 and pulley 29, and the bosses 12 and arms 18 below the bosses 14, the bosses 23 being in position on the rods 20 and supporting the pulley 27, the bandage 7^c being attached to the limb 8^c and the chain 46 leading therefrom vertically to the pulley 27 and then over the pulley 29, the object of this adjustment being for infants and small children that will not lie quiet on the bed, the only means of applying tension in such cases being in an upward or vertical direction.

The view Fig. 4 is merely to show the adjustment of the parts to the low foot piece

1ª the bosses 14 and pulley 29 being secured to the rods 9 by the thumb screws 16 in a position that will allow the chain 46 to exert a tension on the limb 8ª in a horizontal direction.

From the foregoing it will be understood that the bosses 14 and arms 18, and the strap 32 will secure the rods 9 to any usual form of bed stead whether the foot piece be low or high, and that any angle of tension desired from the vertical to the horizontal can be applied to the limb by the hitch member, chain 46 and weights 47, the rods 20 being employed when desired to hold the cover free from the limb which is very desirable in many cases, especially when the limb is burned, it being common practice in leading hospitals at the present time to employ rough barrel hoops and boards to hold the cover from the patient.

All the various applications of the buck extension are made by the surgeon or attendant without confusion or loss of time, which is very advantageous, as time is valuable at times when a buck extension is required, the bosses 12, 13, 14 and 15 and accompanying parts being immediately removable from the rods 9 by slacking the thumb screws 16 and all the parts being securely held in the desired position by tightening the screws, the adjustments meeting every known desire of the surgeon as the buck extension is universal in application to the bed and the limb.

What I claim as new, and desire to secure by Letters Patent, is:—

1. In a universal buck extension, a plurality of rods positioned in parallel relations, a hub on each of said rods and fitted to slide freely thereon, means to lock said hubs on said rods, an arm projecting from each of said hubs, a pin connecting said arms, a pulley journaled on said pin, a supporting means projecting from said rods, and means slidably mounted on said rods to bind said rods to a bed.

2. In a universal buck extension, a plurality of rods positioned in parallel relations, a hub on each of said rods, said hubs fitted to slide freely on said rods, said hubs connected by a parallel integral bar, means to lock said hubs on said rods, means to support said rods, and a rod projecting from each of said hubs approximately at a right angle to the first mentioned rods.

3. In a universal buck extension, a plurality of rods positioned in parallel relations, a hub on each of said rods, said hubs fitted to slide freely on said rods, means to lock said hubs on said rods, means to support said rods, a rod projecting from each of said hubs approximately at a right angle to the first mentioned rods, a hub on each of said last mentioned rods, and fitted to slide freely thereon, means to lock said last mentioned hubs on said last mentioned rods, a bar integral with said last mentioned hubs, arms projecting from said last mentioned bar, and a pulley journaled between said last mentioned arms.

4. In a universal buck extension, a plurality of rods positioned in parallel relation, means slidably mounted on said rods and arranged to rest upon the foot piece of a bed stead, a strap connecting to said rods through connections fitted to slide upon said rods, a pulley journaled to said rods through connection fitted to slide thereon, and a bed cover supporting rod connecting to said rods through connection fitted to slide freely on said rods.

5. In a universal buck extension, a plurality of rods positioned in parallel relation, a supporting rest slidably mounted on said rods, a connectible strap mounted on connections slidably mounted on said rods, a pulley journaled to connections slidably mounted on said rods, a plurality of bed cover supporting rods projecting from connections slidably mounted on said first mentioned rods, and a pulley journaled to connections slidably mounted on said bed cover supporting rods.

6. In a universal buck extension, a plurality of rods positioned in parallel relation, means to secure said rods to a bed stead, a plurality of pulleys journaled in connection slidably mounted on said rods, said pulleys arranged to lead a chain from a limb supported by said bed stead to all angles from vertical to horizontal, a chain on said pulleys, a limb hitch member connected to one end of said chain, and weights connecting to the opposite end of said chain.

7. In a universal buck extension, a plurality of rods positioned in parallel relation, means to secure said rods to a bed stead, a pulley journaled to connections mounted on said rods, a chain on said pulley, weights connecting to one end of said chain, a hitch member comprising a pair of plates, a binding screw, a pair of loops, said loops movable to and from each other, and straight members projecting from said loops and fitting between said plates.

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

EVERT HOLLOWELL.

Witnesses:

REBECCA JOFFEE,

BERT J. SPENCER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."