May 31, 1927. 1,630,453

T. B. SMITH

BED ATTACHMENT

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Fig. 1.

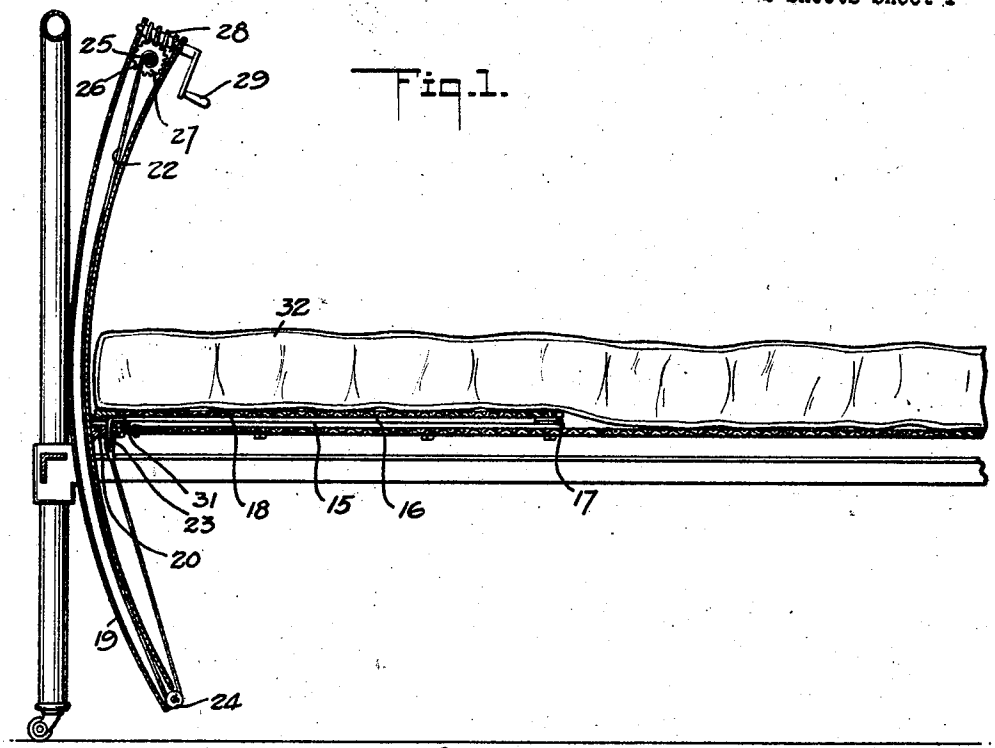
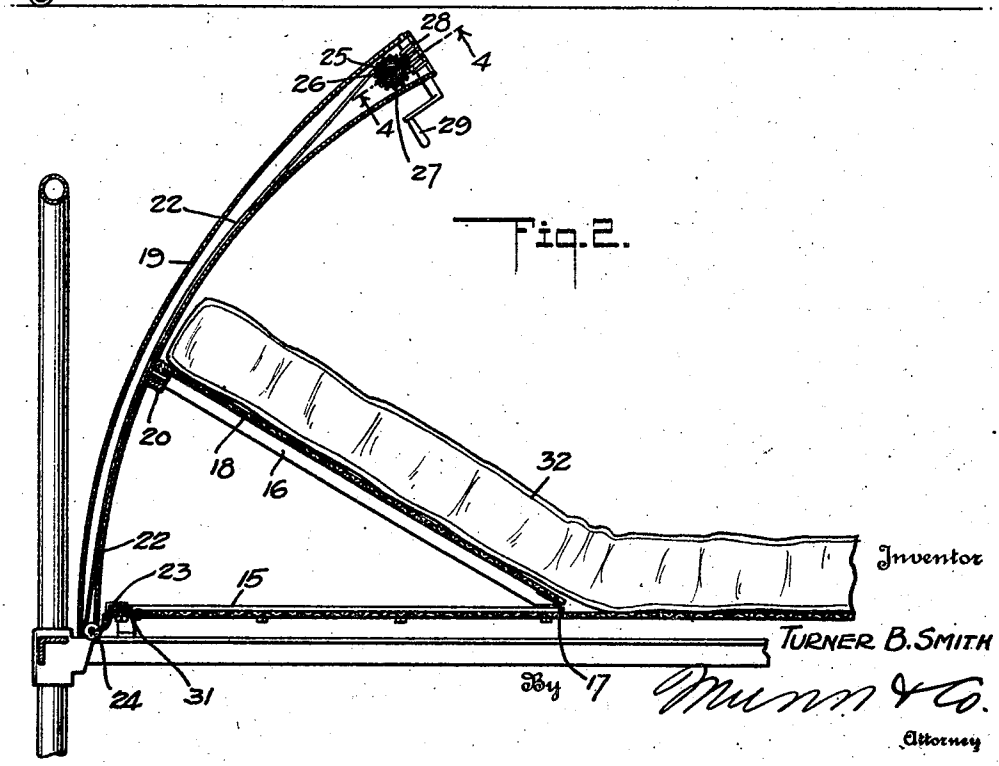


Fig. 2.



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Fig. 3.

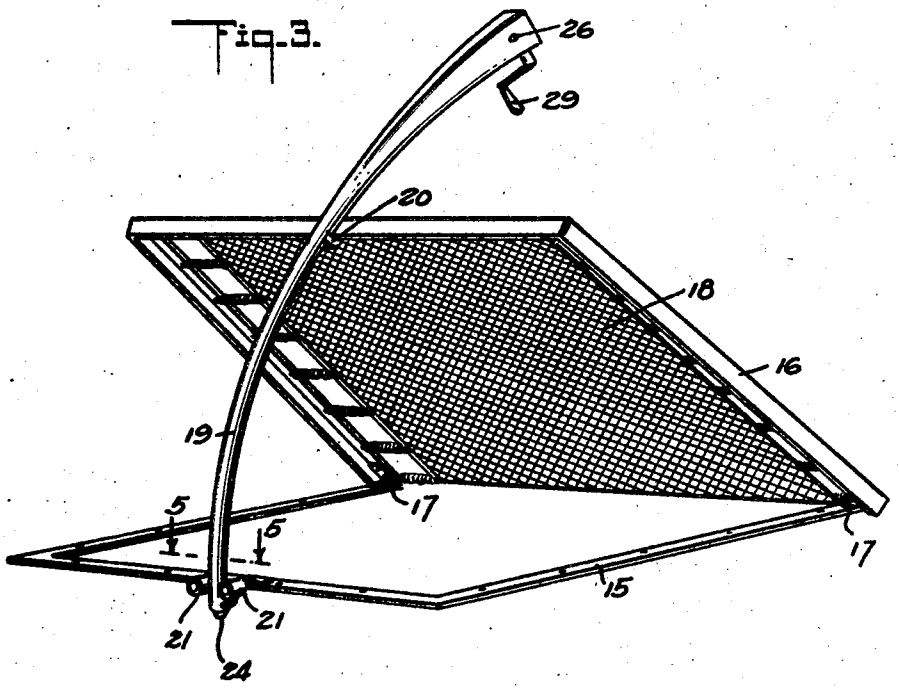


Fig. 4.

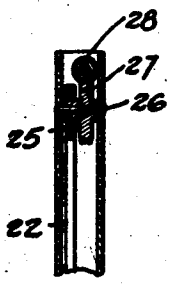


Fig. 5.

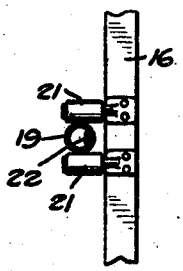
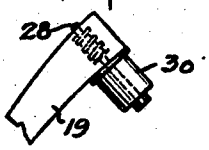


Fig. 6.



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Patented May 31, 1927. 1,630,453

UNITED STATES PATENT OFFICE.

TURNER B. SMITH, OF WILMINGTON, CALIFORNIA.

BED ATTACHMENT.

Application filed January 5, 1926. Serial No. 79,378.

My invention relates to attachments for beds by which the occupant of the bed can be supported in a sitting posture or in various intermediate inclined positions.

It is a purpose of my invention to provide a bed attachment of the above described character which, in its applied position to a bed, is capable of operation by the occupant of the bed to raise himself to any inclined position desired or to a sitting posture and whereby the necessity of other persons than the occupant of the bed to operate the attachment either in raising or lowering the occupant is eliminated.

It is also a purpose of my invention to provide a bed attachment of extremely simple, durable and inexpensive construction, and one capable of being applied to any bed spring frame of conventional form.

I will describe only one form of attachment embodying my invention and will then point out the novel features thereof in claims.

In the accompanying drawings,

Figure 1 is a view showing in vertical section one form of bed spring attachment embodying my invention in applied position to a bed;

Figure 2 is a view similar to Figure 1 showing the movable frame of the attachment in elevated position;

Figure 3 is a view showing in perspective the attachment shown in the preceding figures but detached from the bed;

Figure 4 is a sectional view taken on the line 4—4 of Figure 2;

Figure 5 is a sectional view taken on the line 5—5 of Figure 3;

Figure 6 is a view in side elevation of a portion of the arm showing a slightly modified form of my invention.

Similar reference characters refer to similar parts in each of the views.

Referring specifically to the drawings, my invention, in its present embodiment, is shown in Figure 1 as comprising a stationary frame 15 formed of metal or other suitable material and which is U-shaped, with a movable frame 16 also of U-form pivotally connected at its free ends to the free ends of the stationary frame by means of hinges 17 so that the movable frame is capable of upward swinging movement to occupy an upright position or intermediate inclined positions. This movable frame is provided with any suitable type of bed spring 18 in order that it may resiliently support the head end portion of a mattress.

A curved arm 19 is secured between its ends to the forward end of the movable frame 16 by means of a bracket 20, the curvature of the arm 19 being such that in its movement with the movable frame it will maintain operative engagement with a pair of spaced rollers 21 mounted on the forward end of the stationary frame 15. This arm is tubular in form, as clearly shown in Figures 1 and 2, and for the purpose of receiving flexible means adapted to be secured to the stationary frame and so operated as to effect elevation of the arm and, hence, the movable frame. This means, in the present instance, comprises a single length of flexible steel tape 22 secured by means of a bracket 23 at its lower end to the forward end of the stationary frame 15 at a point between the rollers 21. From this connection with the stationary frame, the tape passes around a roller 24 mounted on the lower end of the arm 19, and thence upwardly through the arm to a windlass or reel 25 to which it is secured and about which it is wound. This reel 25, as shown in Figure 4, is rotatably mounted upon a stub axle 26 secured in the arm, and formed integral with the reel is a worm gear 27 which constantly meshes with a worm shaft 28 journaled in the arm and provided at its outer end with a crank 29 by which the shaft can be manually rotated and through the medium of the worm gear effect rotation of the reel, as desired. As shown in Figure 6, the shaft 28 may constitute part of an electric motor 30, with the motor providing power operated means for actuating the shaft and, hence, for rotating the reel. In the applied position of the attachment, as shown in Figure 1, the stationary frame 15 is bolted or otherwise secured to a bed spring frame 31 with the movable frame positioned uppermost to permit elevation thereof and with it the head section of the mattress 32. With the attachment applied, the arm 19 is positioned at the head end of the bed and normally extends above the mattress but within reach of an occupant of the bed, so that he may readily grasp and operate the crank 29 to rotate the reel 25 to cause winding of the steel tape 22 thereon. As the lower end of the tape is secured to the stationary frame, it will be manifest that upon winding the tape upon

the reel an upward pull is exerted on the arm 19 to elevate the latter, and as the movable frame is secured to the arm it will likewise be elevated while the occupant is reposing on the mattress. It is to be particularly noted that the crank 29 occupies a fixed position with respect to the mattress so that it is at all times within reach of the operator. Thus by continued rotation of the crank the movable frame 16 may be elevated to any inclined position or to a substantially upright position in which the occupant occupies a sitting posture.

To lower the movable frame to its normal horizontal position, it is only necessary to rotate the crank 29 in the opposite direction, so as to unwind the tape from the reel and thereby permit lowering of the arm 19. It is to be understood that the cooperation of the worm wheel and worm shaft is such that the reel 25 is frictionally locked in any position whereby unwinding of the take from the reel is prevented, irrespective of the position of the movable frame. When employing the motor 30 to actuate the shaft 28, it will be understood that a switch (not shown) in the hands of the occupant may be closed to supply current to the motor, and in the use of alternating current for the motor, a pole changing switch can be provided.

Although I have herein shown and described only one form of bed attachment embodying my invention, it is to be understood that various changes and modifications may be made therein without departing from the spirit of the invention and the spirit and scope of the appended claims.

I claim as my invention:

1. A bed attachment comprising a frame adapted to be supported upon the spring frame of a bed, a frame hinged to the first said frame to tilt thereon on an angle to the head of a bed, an arcuate arm fixed between its ends to the free end of the hinged frame so that a portion of definite length of said arm is constantly extended above the hinged frame, and operating means fixed on the upper portion of the arm and connected to the first frame by which the arm and hinged frame may be raised or lowered.

2. A bed attachment comprising a frame adapted to be supported upon the spring frame of a bed, a frame hinged to the first said frame to tilt thereon on an angle to the head of a bed, an arcuate arm fixed between its ends to the free end of the hinged frame so that a portion of definite length of said arm is extended constantly above the hinged frame, and means between the upper portion of the arm and the first said frame for causing the arm to be respectively raised and lowered, said raising and lowering means comprising a rotary reel at the upper portion of said arm, and a tape wound about said reel and having one end secured thereto, and its other end secured to said first frame.

3. A bed attachment comprising a frame adapted to be supported upon the spring frame of a bed, a frame hinged to the first said frame to tilt thereon on an angle to the head of a bed, an arcuate arm fixed between its ends to the free end of the hinged frame so that a portion of definite length of said arm is constantly extended above the hinged frame, and means between the upper portion of the arm and the first said frame for causing the arm to be respectively raised and lowered, said raising and lowering means comprising a rotary reel at the upper portion of said arm, and a tape wound about said reel and having one end secured thereto and its other end secured to said first frame, the reel having a worm gear and a driven worm co-acting with said gear.

4. A bed attachment as embodied in claim 1 wherein non-friction means is provided for guiding the arm in its vertical movements in respect to the first frame.

TURNER B. SMITH.