

A. F. CRANDALL.
BED.

APPLICATION FILED SEPT. 20, 1909.

972,099.

Patented Oct. 4, 1910.

4 SHEETS-SHEET 1.

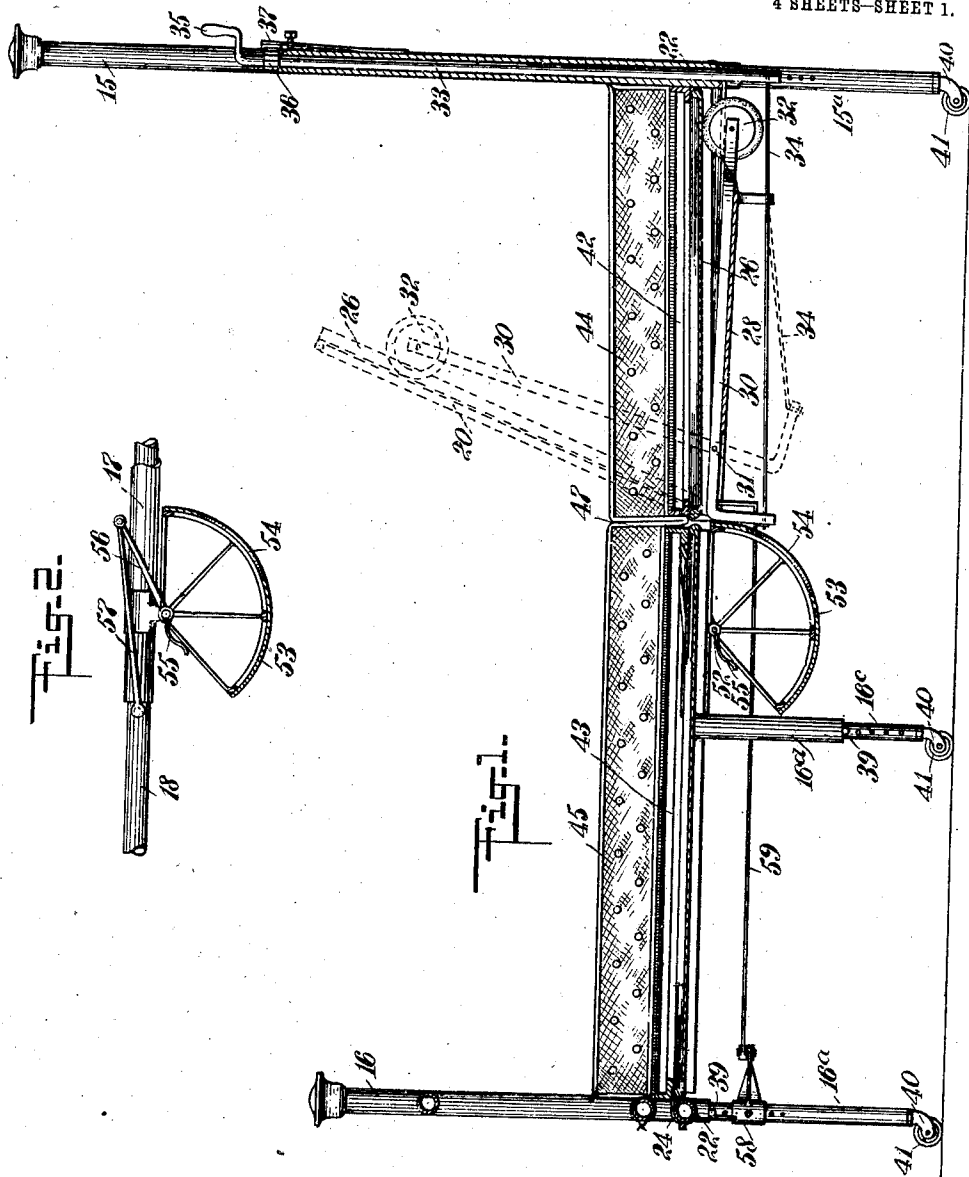


Fig. 2.

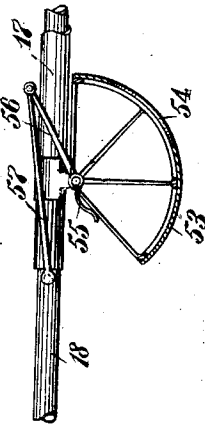


Fig. 3.

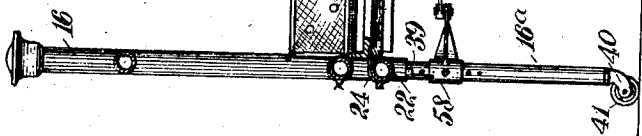
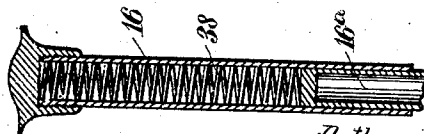


Fig. 4.



WITNESSES
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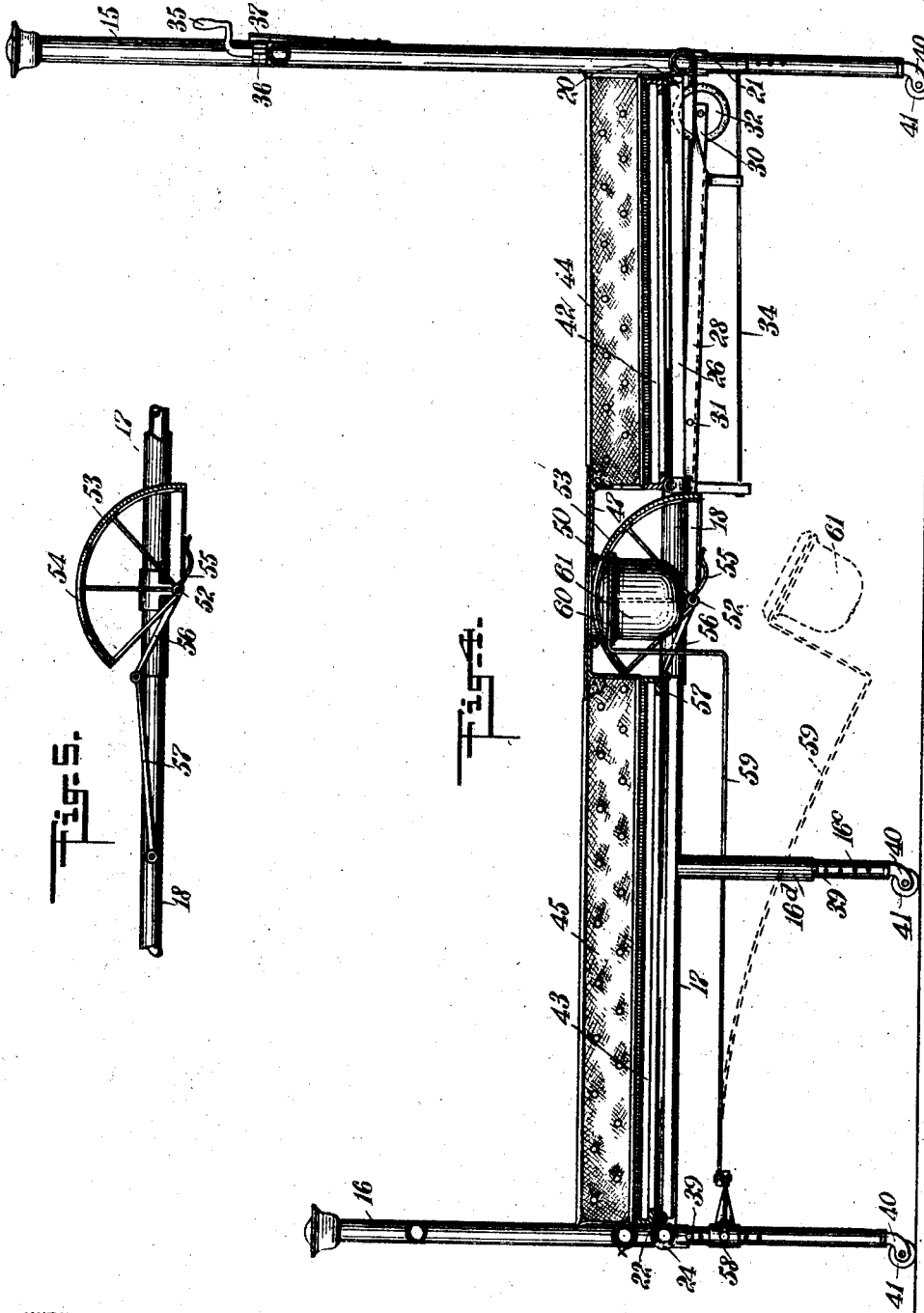
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

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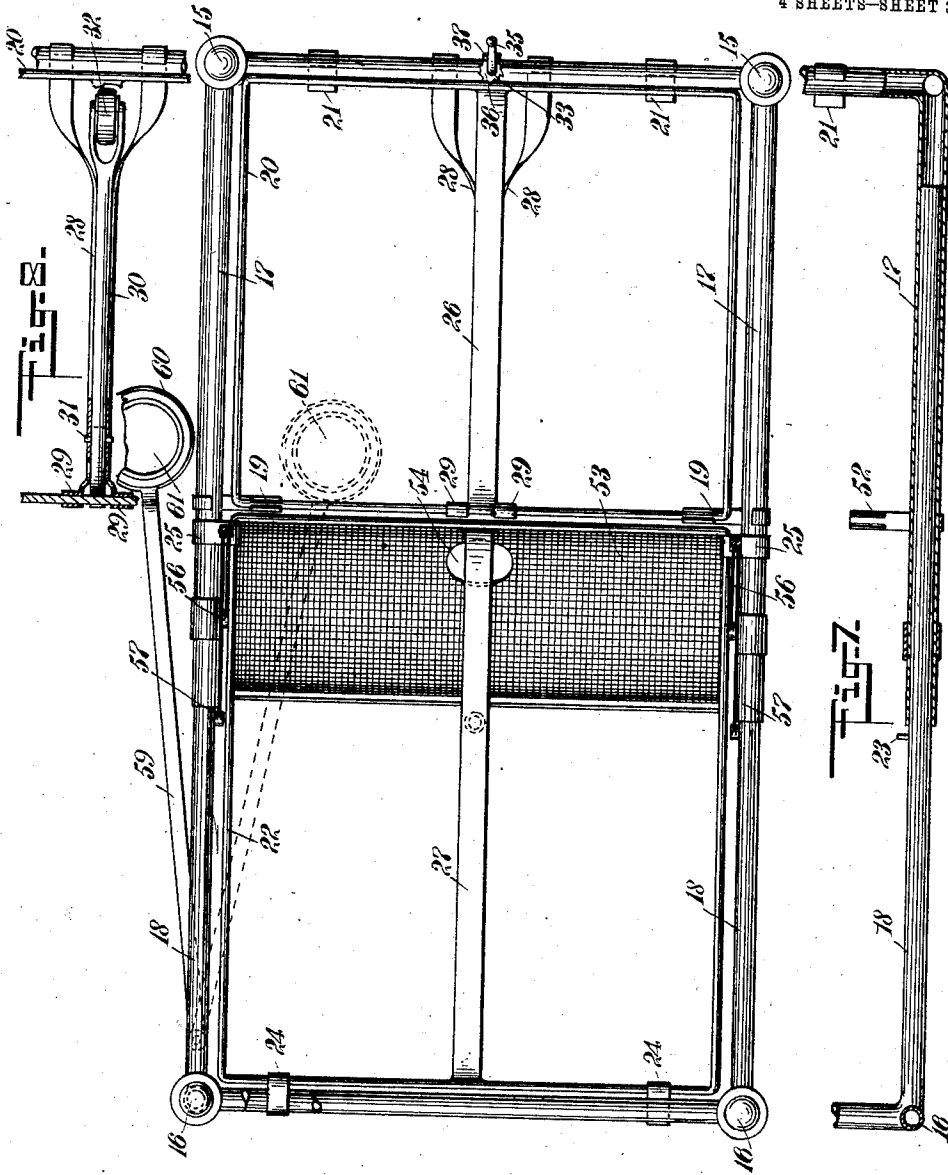


Fig. 6.

WITNESSES

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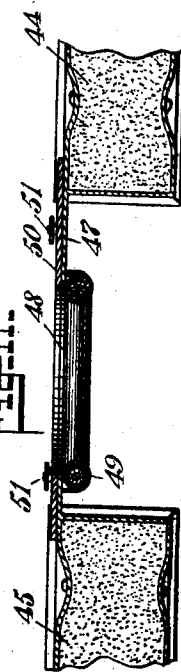
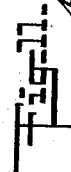
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4 SHEETS—SHEET 4.

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Fig. 10.

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UNITED STATES PATENT OFFICE.

ARTHUR F. CRANDALL, OF BERESFORD, SOUTH DAKOTA, ASSIGNOR OF ONE-HALF TO
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BED.

972,099.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ARTHUR F. CRANDALL, a citizen of the United States, and a resident of Beresford, in the county of Union and State of South Dakota, have invented a new and Improved Bed, of which the following is a full, clear, and exact description.

The invention is an improvement in beds for invalids and hospital use, the same being designed with a view of supplying all the necessities, conveniences and comforts in the care of a patient without the inconvenience of removing the patient from the bed for any purpose whatever.

To this end I construct the bedstead of a head and foot section relatively movable to and from each other, and when separated providing a space for the reception of a support on which the patient lying on the bed rests in the use of a commode, the support being mounted to swing into and out of said space and automatically actuated by the lengthening and shortening of the bedstead, the commode being supported to move vertically into the said space under the support and to swing from under the bed in a position convenient for removal and replacement; the bedstead is also preferably constructed with adjustable spring legs, and means to swing the spring support of the head section upwardly to support the patient in an inclined position.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a vertical longitudinal section through a bed constructed in accordance with my invention, the bed being shown with the parts in their normal position, as when the length of the bed is contracted, the head section of the spring support being shown in full lines in its normal horizontal position and in dotted outline in a raised inclined position; Fig. 2 is a fragmentary sectional view illustrating the means for actuating the support for the patient by the contraction and extension of the bed in the use of the commode; Fig. 3 is a vertical section through the upper portion of one of the bed posts; Fig. 4 is a sectional view of the bed, similar to Fig. 1, with the bed extended and the other parts in position, as when the commode is in use; Fig. 5 is a sectional view

similar to Fig. 2, showing the position of the support for the patient when the bed is extended; Fig. 6 is a plan of the bed, with the mattress and bed springs removed; Fig. 7 is a plan of one side of the bed frame partly in horizontal section; Fig. 8 is a plan view partly in section, showing the lifting lever for the head section of the bed spring support; Fig. 9 is a plan of the mattress when extended; Fig. 10 is an end view of the same; and Fig. 11 is a longitudinal section through the central portion of the mattress.

The frame of the bedstead proper is constructed of tubing having the head posts 15, 15, and foot posts 16, 16, with each set of posts rigidly connected together and provided with sectional side rails 17 and 18 respectively, with the side rail sections 18 telescoping with and slidable in the side rail sections 17, adapting the bedstead to be extended and shortened in length. Within the head section of the bed frame is fulcrumed on brackets 19 rigid with the side rail sections 17, a head section 20 of a bed spring supporting frame, the latter seating, when in a depressed horizontal position, on brackets 21 rigid with the connecting rail between the head posts 15. A foot section 22 of the bed spring supporting frame is arranged within the foot frame of the bed and extends to the head bed spring section 20 when the bed frame is shortened, the telescoping of the side rail sections 17 and 18 being limited by stop pins 23 carried on the side rail sections 18, as best shown in Fig. 7. The foot section 22 of the bed spring supporting frame is carried on brackets 24 rigid with the connecting rail between the foot posts 16, and supported at the opposite end near the center of the rail on brackets or runners 25 slidable on the side rail sections 17. The head and foot bed spring supporting frames are respectively reinforced by bars 26 and 27 arranged on the longitudinal center of the bed, each of these bars being preferably of channel form. A bar 28, as best shown in Fig. 8, of similar form, is arranged directly under the bar 26 and is forked at one end, where it is rigidly connected to the head frame of the bed, and at its opposite end is similarly forked and provided with bearings 29, in which the frame 20 is journaled. A lever 30 is pivotally supported on a pin 31 passing through the flanges of the bar 28 near the bearings 29,

and at its free end is forked and provided with a roller 32 adapted to rest in the head fork of the bar 28 and bear on the under side of the bar 26, the opposite end of the lever being downwardly turned and connected to the lower end of a vertical shaft 33 by a cable 34, the shaft 33 being journaled in the head frame of the bedstead, and at a convenient elevation for operation provided with a crank 35, and also with a ratchet-wheel 36 engaged by a spring pawl 37 operating to normally prevent the shaft from turning in a direction to permit of the unwinding of the cable, but adapted to be disengaged from the ratchet-wheel and permit of such revolution taking place when it is desired to lower the head section of the bed spring supporting frame, the raising of this section of the frame to a position to support the patient at an inclination, as, for example, shown in dotted outline in Fig. 3, being obviously carried out by winding up the cable. The bed posts instead of being extended to form the legs of the bed, terminate slightly below the bed spring supporting frame, and legs 15^a and 16^a respectively telescope therein and bear on springs 38 incased by the upper portions of the posts, each leg having a number of apertures along its length to receive a removable pin 39 adapted to engage the lower end of the post and support the bed at varying elevations, the leg having a caster 40 provided with a relatively large rubber tired roller 41, which, in connection with the springs 38, enables the bed to be extended and contracted without annoyance to the patient. A fifth leg 16^c telescoping with a tube 16^a rigid with the reinforcing bar 27 of the foot section 22 of the bed spring supporting frame, is constructed in all respects the same as the head and foot legs of the bed and supports the bed at an intermediate point. The bed springs are also made in two sections 42 and 43 respectively, conforming to and seating on the bed spring supports 20 and 22, the sections of the bed spring supporting the mattress sections 44 and 45. Both the sections of the mattress have at the opposite ends, strings 46 or other suitable fastenings for securing them to the head posts of the bed and thus prevent the mattress sections from sliding on the sections of the bed spring when the bed is extended. The top cover of the mattress has a connecting portion 47 between the two mattress sections, which is normally foldable between them and is provided with a commode opening 48 surrounded by a reinforcing and stiffening member 49, such as a rubber tube, arranged on the under side. The portion 47 of the cover at the top is provided with a waterproof covering 50 which is detachably applied by buttons 51 or other suitable means, the waterproof cover having an opening

registering with the opening 48. In the shortening of the bed, the unsupported portion 47 of the mattress cover and the waterproof covering 50 fold in between the mattress sections, as shown in Fig. 1.

The side rail sections 17 near the center of the bed have rigidly applied inwardly-projecting stub-shafts 52, on which is carried a rocking support 53, for the patient in the use of the commode, the support having a commode opening 54 arranged to register with the opening 48 when the bed is extended and the support revolved to its uppermost position, as shown in Fig. 4. In this position of the support the elastic annular stiffening member 49 seats thereon and relieves the covering between the mattress sections of the strain incident to the patient's weight. The support 53 is shown to be sector-shaped in cross-section, and extends approximately the full width of the bed, the support being normally forced upwardly by springs 55 coiled around the stub-shafts 52. At each side the support has an arm 56, with which it is rigidly connected, the arms being pivoted to links 57 fulcrumed to the inner sides of the rail sections 18, the disposition of the arms and links being such that when the two sections of the bed are slid together to their inward limit, the support 53 is rocked against the tension of the springs 55 from the position shown in Fig. 4 to the removed tilted or inclined position shown in Fig. 1.

Removably applied to one of the legs of the bedstead, ordinarily the foot leg at the outer side, is a bracket 58 adjustably secured at the elevation required through the apertures in the side of the leg, and supporting at its outer end to swing in an approximately horizontal plane, a relatively long spring arm 59, the latter having a ring 60 at its free end, in which a commode 61 is removably seated. Adjacent to the ring 60 the arm is offset upwardly, as best shown in Fig. 4, so as to carry the commode well up in the support 53 under the opening 54, as shown in Fig. 4. By depressing the spring arm the commode may be swung under or from under to one side of the bed respectively in the positions for use and removal.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. An extensible bedstead, and a support automatically raised by the extension of the bedstead into a position for the patient on the bed to rest in the use of a commode.

2. A bedstead composed of a head and foot section movable to and from each other, and a support for the patient on the bed to rest in the use of a commode, automatically movable into and out of the space between the two sections of the bed by the extension and contraction of the bed.

3. An extensible bedstead having head and foot sections movable to and from each other, a support mounted to rock between the said sections when the bed is extended, having a commode opening, and means to actuate the support by the extension and contraction of the bedstead.

4. A bedstead composed of a head and a foot section adjustable to and from each other, a support for the patient on the bed to rest in the use of a commode, mounted to swing into and out of the space afforded between the two sections of the bed when the bedstead is extended, and means to automatically actuate the support by the extension and contraction of the bedstead.

5. A bedstead having a head and foot section provided with telescoping side rails adapting the bed to be extended and contracted in length, a support carried on the side rail sections of one section of the bed and having a commode opening, and means to automatically move the support into the space between the bed sections when the said sections are separated.

6. A bedstead composed of a head and foot section having telescopic side rail sections adapting the bed to be extended and contracted, a bed spring supporting frame composed of a head and foot section respectively carried by the head and foot section of the bedstead, a support carried on the rail sections of one section of the bed and having a commode opening, said support being mounted to swing between and from the sections of the bed spring supporting frame, and means to actuate the support by the extension and contraction of the bedstead, operatively connected to the other rail sections.

7. A bed composed of a head and foot section having telescoping side rail sections, stub-shafts projecting inwardly from the side rail sections of one of the bedstead sections near the center of the bed, a support journaled on the stub-shafts and having a commode opening, and links operatively connecting the support to the rail sections of the other section of the bedstead.

8. A bed composed of a head and foot section adjustable to and from each other, a support mounted to rock from a tilted depressed position to an elevated upright position between and from the bed sections and having a commode opening, a spring tending to force the support between the bed sections, and means to retain the support in its inoperative position against the tension of the spring.

9. In a bed, a mattress composed of two sections having a connecting web foldable between them and provided with a commode opening, and an extensible bedstead supporting the mattress.

10. In a bed, an extensible bedstead hav-

ing a head and a foot section movable to and from each other, a mattress on the bed, having a head and foot section having an intermediate connecting web provided with a commode opening and foldable and extensible with the lengthening and shortening of the bedstead.

11. In a bed, an extensible bedstead composed of a head and foot section adjustable to and from each other, a mattress supported on the bedstead, composed of a head and foot section having an intermediate connecting web provided with a commode opening and extensible and foldable with the extension and contraction of the bedstead, a support for the web movable between the two mattress sections and having an opening adapted to register with the first mentioned opening, and means for actuating the support by the contraction and extension of the bedstead.

12. In a bed, an extensible bedstead composed of a head and foot section adjustable to and from each other, a mattress supported on the bed, composed of a head and foot section, a connecting web foldable and extensible between the sections of the mattress and having a commode opening, an annular elastic member reinforcing the edges of said opening and arranged on the under side of the web, a support for the annular member mounted to swing into the space between the two sections of the mattress when the bedstead is extended and having an opening adapted to register with the first mentioned opening, and means to automatically actuate the support by the extension and contraction of the bedstead.

13. An extensible bed having a support provided with a commode opening, means to automatically move the support into and out of an operative position by the extension and contraction of the bedstead, and a commode vertically movable under the support and mounted to swing to and from underneath the bed.

14. A bedstead composed of two sections movable to and from each other, a spring arm pivotally supported to swing to and from under the bedstead, and a commode carried by the spring arm, arranged to move vertically between the sections of the bedstead when the latter is extended.

15. In a bed, a bedstead composed of a head and foot section movable to and from each other, a bed spring supporting frame carried by the bedstead and composed of a head and foot section movable to and from each other with the sections of the bed, a mattress supported on the bed composed of a head and foot section, a web connecting the two sections of the mattress together, having a commode opening, a support for the web pivoted to swing in between the sections of the mattress when the bed is extended, a

spring arm pivotally supported to swing in an approximately horizontal plane to and from under the bed, and a commode carried by the spring arm, vertically movable therewith between the bed sections under the support.

16. A bed composed of a head and foot section movable to and from each other, a depressible spring arm pivotally supported at one corner of the bed to swing in an approximately horizontal plane, and a commode carried by the spring arm, arranged to pass underneath the bed when the spring arm is depressed and pass vertically between the sections of the bed when the said arm is released.

17. A bedstead having a head and foot section adjustable to and from each other and provided with side rails, a depressible

spring arm pivotally supported on the bed to swing in an approximately horizontal plane, and a commode carried by the spring arm and normally standing above the side rails, movable with said arm to and from under the bed between the bed sections.

18. In a bed, a bedstead having supporting legs, a bracket vertically adjustable on one of said legs, a spring arm pivotally supported on the bracket to swing in an approximately horizontal plane, and a commode carried on the free end of the spring arm.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR F. CRANDALL.

Witnesses:

ANDREW M. STRAND,
J. WM. SNOOTS.