

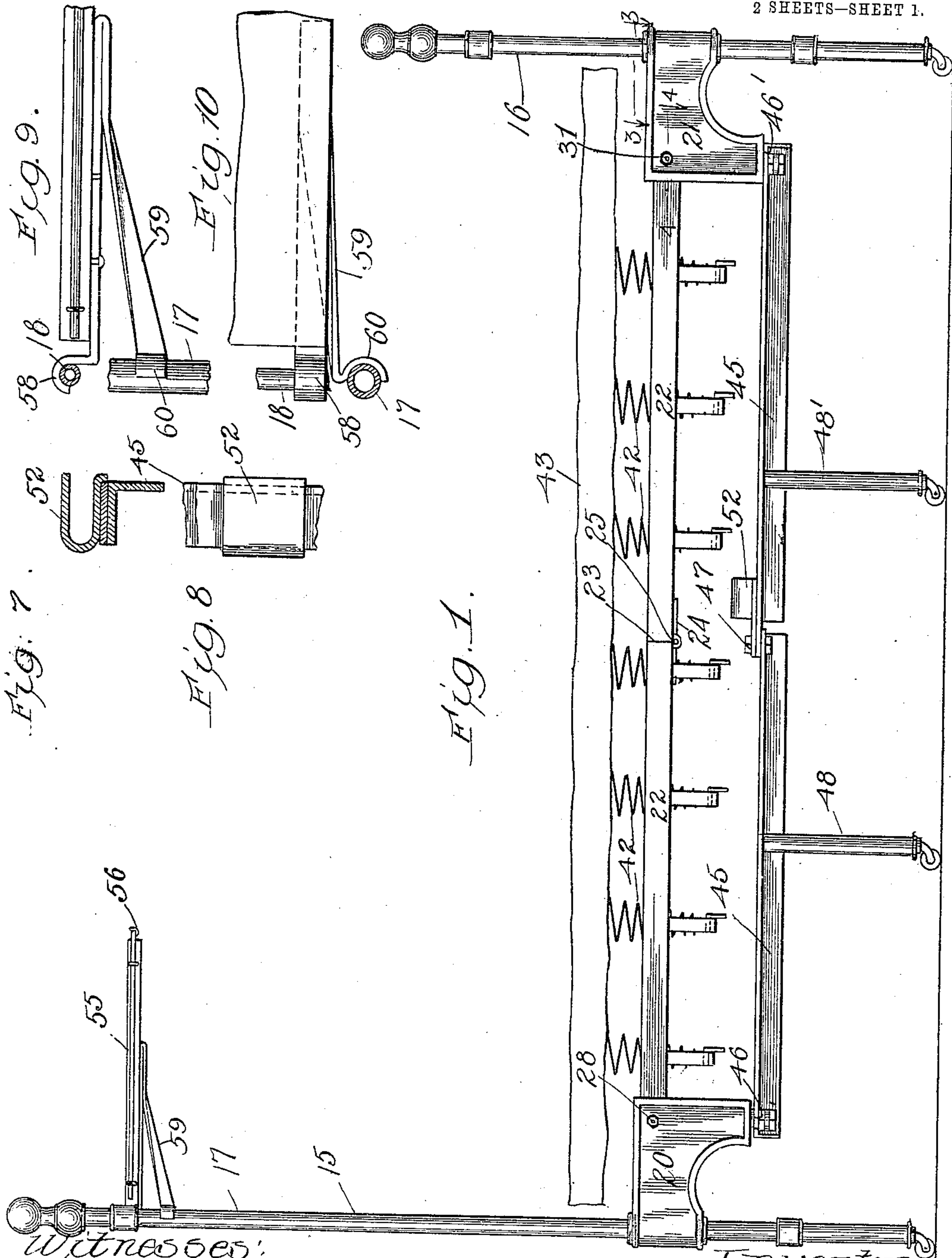
No. 841,341.

PATENTED JAN. 15, 1907.

C. T. RICE.
FOLDING BED.

APPLICATION FILED DEC. 26, 1905.

2 SHEETS—SHEET 1.



Witnesses:
Ray White.
Harry R. White.

Inventor
Charles T. Rice.

By
Forcé Bain & May
Attys.

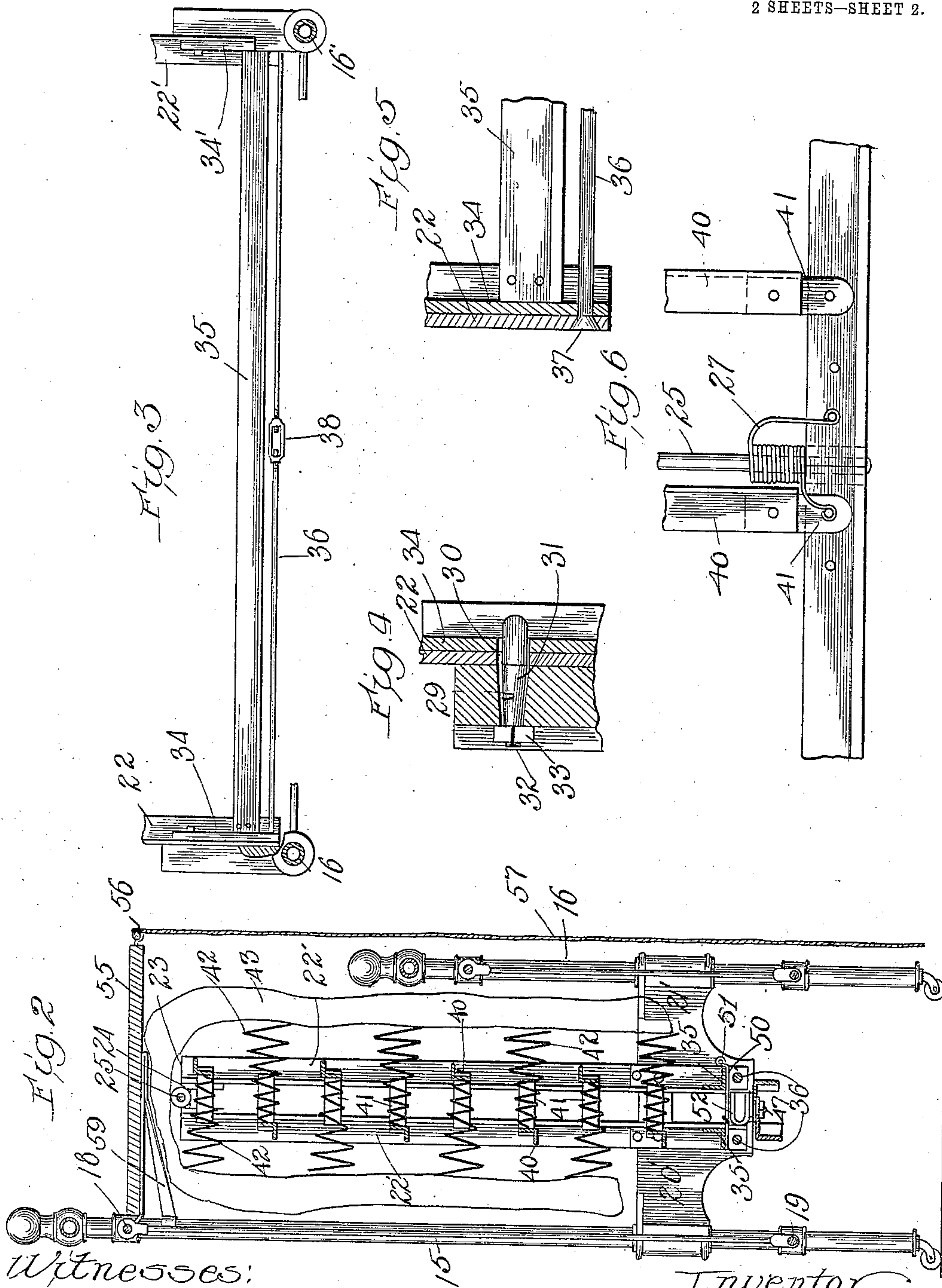
No. 841,341.

PATENTED JAN. 15, 1907.

C. T. RICE.
FOLDING BED.

APPLICATION FILED DEC. 26, 1905.

2 SHEETS—SHEET 2.



Witnesses:

Ray White.

Harry R. L. White

Inventor
Charles I. Rice.

By *Soree Bain & May*
Attorneys

UNITED STATES PATENT OFFICE.

CHARLES T. RICE, OF CHICAGO, ILLINOIS.

FOLDING BED.

No. 841,341.

Specification of Letters Patent.

Patented Jan. 15, 1907.

Application filed December 26, 1905. Serial No. 293,323.

To all whom it may concern:

Be it known that I, CHARLES T. RICE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Folding Beds, of which the following is a specification.

My invention relates to improvements in folding beds, and more particularly to mantel-beds of the type embodying head and foot members maintained continuously vertical and vertically-folding side rails adapted when folded to bring the head and foot members of the bed relatively close together in such relation that they may be covered by a superposed mantel or shelf and concealed by drapery attached to the mantel.

One of the primary objects of my invention is to provide a bed of this general character which may be folded into a small compass, so as to present when closed, whether draped or not, a neat and attractive appearance and which when open will have all of the strength and comfort of a rigid or non-folding bed.

A further object of my invention is to provide a bed of the character described wherein means are provided for facilitating the closing or folding of the bed, so that such operation may readily be performed by a relatively weak person.

Another object is to provide means for automatically latching the parts in folded position to prevent accidental opening of the bed.

Yet another object of my invention is to provide as part of the bed a spring structure particularly adapted for use in conjunction with the folding-bed frame which will give to it the comfort of a deep or box-spring bed, while permitting its closure into a small compass, as heretofore described.

Other and further objects of my invention are to provide various features of mechanical construction and arrangement of practical advantage and utility in the construction and use of the bed, but which may best be gathered from the following description, taken in conjunction with the accompanying drawings, wherein I have illustrated an operative embodiment of my invention.

In said drawings, Figure 1 is a side elevation of my improved bed in open position. Fig. 2 is a longitudinal vertical section there-through, showing the bed in closed position. Fig. 3 is a section on line 3 3 of Fig. 1. Fig. 4 is a sectional detail on line 4 4 of Fig. 1. Fig. 5 is a detail of one end of the turnbuckle ten-

sion-rod. Fig. 6 is a detail plan view of the hinged joint and spring of one of the side bars. Fig. 7 and Fig. 8 are sectional and plan details of a spacing member shown in Fig. 2. Figs. 9 and 10 are respectively sectional and plan views of the detachable mantel connections.

Throughout the drawings like numerals of reference refer always to like parts.

In general beds constructed in accordance with my invention provide a vertical head member 15 and a vertical foot member 16 of any usual or preferred construction, the head member 15 preferably providing metallic side posts 17 17', a top cross-rod 18, and a bottom cross-rod 19, between which cross-rods may be supported ornamental or strengthening metal work of any suitable configuration or character. To the head-posts 17 17' of the head are connected in any suitable manner the castings 20 20', and to the foot are connected the similar castings 21 21'.

22 22' indicate, respectively, the side rails of the frame, pivotally connected at their ends with brackets 20 21 and 20' and 21'. Each of these side rails is preferably composed of angle-iron arranged with its angle at the lower outer edge of the rail, and each rail is divided at its center, as shown at 23.

A hinge 24 connects the horizontal parts of the angular side rail, said hinge being of any suitable construction, preferably provided with a pintle 25, which may for convenience be in the form of a rod extending transversely across the frame for coaction with both side-rail hinges.

It will be apparent that when the bed is opened the side-rail sections aline and abutting squarely against each other are rigidly stopped against further movement.

In conjunction with the sections of each side rail 22 I provide a spring 27, adapted and arranged to exert a force tending to break the joint of the rail at the point 23 to cause the two sections of the rail to pivot upon their pintles 25. This spring may be of any suitable construction to effect the purpose; but I have found it convenient to employ a helical torsion-spring having its coils mounted upon the rod 25 and at its free extremities rigidly secured to the side rail at points suitably adjacent the pivotal connections.

It will be understood that the torsion-spring 27 is normally or when the bed is open under tension tending to elevate the adjoining ends of the side-rail section and that correspondingly said spring resists the move-

ment of the side-rail sections from position in angular relation to each other to position of alinement assumed when they are opened. Thus the spring exercises a dual function, lightening the effort necessary in raising the central part of the bed in closing or folding the same and in the opening operation governing or resisting the descent of the hinged ends of the side rails to alining position, so that they drop easily and without jar. In this manner the bed is made operable by women or children, and in addition the noise and wear incident to jarring of the rails in unfolding are practically eliminated.

It will be understood that to permit the folding of the side rail each section is connected at its outer extremity by a pivot-bolt 31 to the casting 20 or 21, as the case may be.

The four connections are all alike, so the description of one thereof is a description of each. I preferably provide in the bracket-casting an outwardly-tapering aperture 29 and form in the side-rail member a registering aperture 30. Through the aperture 30 and into the hole 29 I tightly insert a tapered headless bolt 31, having a threaded extremity 32, upon which I screw a nut 33.

It is unnecessary to provide a head upon the inner extremity of the bolt 30; for the reason that the side rails 22 22' are definitely spaced apart by means which I will now describe, and therefore cannot move away from the castings or disengage with the bolts 31.

Referring now to Figs. 3 and 5, 34 34' indicate reinforcing members for the outer extremity of the side-rail sections extending from the ends thereof to points beyond the pivot-bolt holes 30, and 35 indicates an end bar connecting the side-rail sections adjacent their outer ends. To provide against the inward or outward bending of the side rails adjacent their points of pivotal connection at the center of the span between the head and foot brackets and to permit of the truing of the bed-frame in general, I provide a tension-rod 36, preferably secured to the side rails of the bed by tapering heads 37, as shown in Fig. 5, the tension-rod 36 being at any suitable point divided and provided with a turnbuckle 38, whereby the divided sections may be drawn together or caused to separate. By the adjustment of the turnbuckle 38 to tighten or loosen the rod 36 a very effective truing of the side-rail sections wherewith the rod is connected may be effected and any tendency of the side rails to spread or bend in at their hinge-points overcome.

To give the bed in use the comfort of a box-spring bed and yet to permit it being folded in small compass, I employ a spring structure of peculiar arrangement and construction, which I will now describe.

Between the side rails 22 22', below the lower edges thereof when in open position, are hung spring supports or straps 40, ex-

tending transversely of the bed-frame, the said supports being spaced on opposite sides of the hinge-joints at unequal distances from the hinge-axis, so that when folded in the position shown in Fig. 2 said supporting-straps pass each other in interspaced relation. For convenience I prefer that the supporting-straps be secured at their outer ends to hangers 41, depending from and secured to the inner turned lower flanges of the angle-iron side rails. To the supporting-straps 40 are secured in any usual or preferred manner in transverse rows the spiral springs 42 42, at their free ends supporting the mattress and bedding 43 in the usual manner.

It will now be apparent that as the side rails are bent upward at their pivot-points and the bed condensed into its smallest compass, as shown in Fig. 2, the straps and their attached springs interfit or pass each other in interspaced relation, so that the bed-spring is condensed into a space smaller than the joint length of two springs. Thus long soft springs may be employed without increasing the size of the bed when folded, thereby securing the advantage of comfort incident to the use of box-springs without sacrifice of the compactness of the folded-bed structure.

To steady the bed while being folded, I provide steadying-arms 45 45, pivoted, as at 46 46', to the castings 20 21 and pivotally connected, as at 47, at their central point, substantially as and for the purpose described in my prior patent, No. 807,204, dated December 12, 1905.

I have found it advantageous, however, to modify the construction shown in said patent by providing two supporting-legs 48 48', one arranged intermediate the ends of each of the steadying-arms, the two legs being at different distances from the pivotal point 47. By this means I find the twisting strain is largely taken off the rails, friction is reduced at the pivotal point, and great steadiness and stiffness are imparted to the bed when open or closed.

For automatically latching the bed in closed position I provide a suitable latch, in the specific embodiment comprising a spring 50, secured to the end bar of the head-section of the frame and provided with a latching-head 51, arranged in such position that as the parts come into the folded relation shown in Fig. 2 said head 51 of the latch laps over the end bar 35 of the foot-section of the frame, thereby locking the parts together against accidental movement out of folded relation.

I also prefer to provide a spacer 52, carried by a steadying-arm at any point and arranged to abut against the end bars of the frame when the bed is folded, so automatically centering the steadying-arms. The spacer 52 may obviously be of any suitable

construction, that which I have herein shown comprising a U-shaped sheet-metal member secured to one of the steadying-arms 45 or 45', preferably adjacent the pivotal point thereof, as shown in Figs. 1 and 2.

It is often desirable when the bed is in folded position to conceal the lower portion thereof and to convert it into a convenient mantel, and to this end I provide the detachable mantel-shelf 55. The shelf proper, 55, may be of any suitable construction, of such width and length that when attached to the head of the bed at a suitable height it extends beyond the foot of the bed when in folded position, said mantel being preferably provided with hooks 56 or other means whereby suitable drapery 57 may be secured thereto to fall in front and conceal the lower portion of the bed, as shown in Fig. 2. For the convenient attachment of the removable mantel 55 I secure to said mantel attaching members comprising hangers 58, adapted to catch upon the cross-rod 18 of the head of the bed, and struts or braces 59, having at their ends curved fingers 60, adapted to coact with the posts 17 17' of the head of the bed to brace the mantel against downward pivotal movement about the cross-bar 18. Preferably each attachment member is made in a single piece of sheet metal bent to form the hanger part 58, a flat portion for attachment to the mantel-shelf, and then bent back upon itself and twisted into a vertical plane to form the strut 59, the extremity of the metal strap being then bent outward and curved to form the finger 60. In this way a very cheap and effective attaching member is provided, and it will be seen that the mantel may be instantly attached or detached, as the case may require.

For purposes of full disclosure of my invention in a very complete manner I have herein described in some detail a specific embodiment of my invention which I deem to be new and advantageous in many of its details; but I do not desire to be understood as limiting my invention in its broader aspect to such details of construction, as it will be apparent to those skilled in the art that numerous departures might be made from the specific construction herein shown without departure from the spirit and scope of my invention.

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

1. In a bed of the character described, a head member, a foot member, a side rail comprising two sections pivoted for vertical movement in folding, and a spring tending constantly to move said side rail to folded position.

2. In a bed of the character described, a head and a foot, a side rail pivoted at its ends to the head and foot, and centrally divided

into two sections hinged together, said sections being arranged to aline longitudinally when the bed is opened, and a spring tending to break the alinement of said sections of the side rails in the direction wherein the connected sections move in the closing operation of the bed.

3. In a bed of the character described, a head member, a foot member, a side rail comprising two sections at their outer extremities pivoted to the head and foot members respectively, a pivot-pin connecting the adjoining ends of the side rail, a spring carried by said pivot-pin and exerting an upward pressure on the rail-sections when the bed is open, tending to move the side-rail sections to closed or folded position.

4. In a bed of the character described, a head member, a foot member, two side rails each comprising two sections connected at their free ends respectively to the head and foot members, a pivotal connection for the adjoining ends of the sections of each side rail including a pivot-pin common to both joints, coiled springs mounted upon said pin and having their opposite ends secured to the opposite side-rail sections, whereby said springs exert tension, when the rails are in normal or open position, tending to force the side-rail sections to closed or folded position.

5. In a bed of the character described, a head member, a foot member, side rails each comprising two sections pivotally connected together at their adjoining ends and at their extremities pivoted to the head and foot structures respectively, springs tending constantly to move said side rails from pivoted position to folded position, and mattress-receiving springs supported from the side rails arranged to extend below the side rails when the bed is open, and disposed to overlap each other in interspaced relation when the bed is closed.

6. In a bed of the character described, a head member, a foot member, side-rail-supporting castings connected with said head and foot members on opposite sides, each of said castings having a hole therein tapering toward the outer side of the casting, side rails each comprising two sections, hinged joints for the adjoining ends of said sections, the free ends of said section having apertures therein for registry with the holes in the respective castings, means for spacing the opposite side rails apart and tapered pins taking through the apertures in the side rails into said holes in the casting.

7. In a bed of the character described, a head member, a foot member, side rails each comprising two sections hinged at their adjacent ends and pivotally secured to the head and foot members, an end bar extending between the side rails adjacent an end thereof, and means for truing the side rails comprising a divided rod connected to the

side rails between the end bar and the extremities of the side rails, and a turnbuckle connecting the adjacent ends of the said rod-sections.

5 8. In a bed of the character described, a head member, a foot member, sectional side rails, whereof the sections of each rail are hinged together and respectively pivoted to the head and foot members to move vertically in folding, steadying-arms moving in a

longitudinal plane, and a spacer carried by a steadying-arm arranged for interposition between the head and foot members when the bed is closed.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

CHARLES T. RICE.

In presence of—

MARY F. ALLEN,

GEO. T. MAY, Jr.