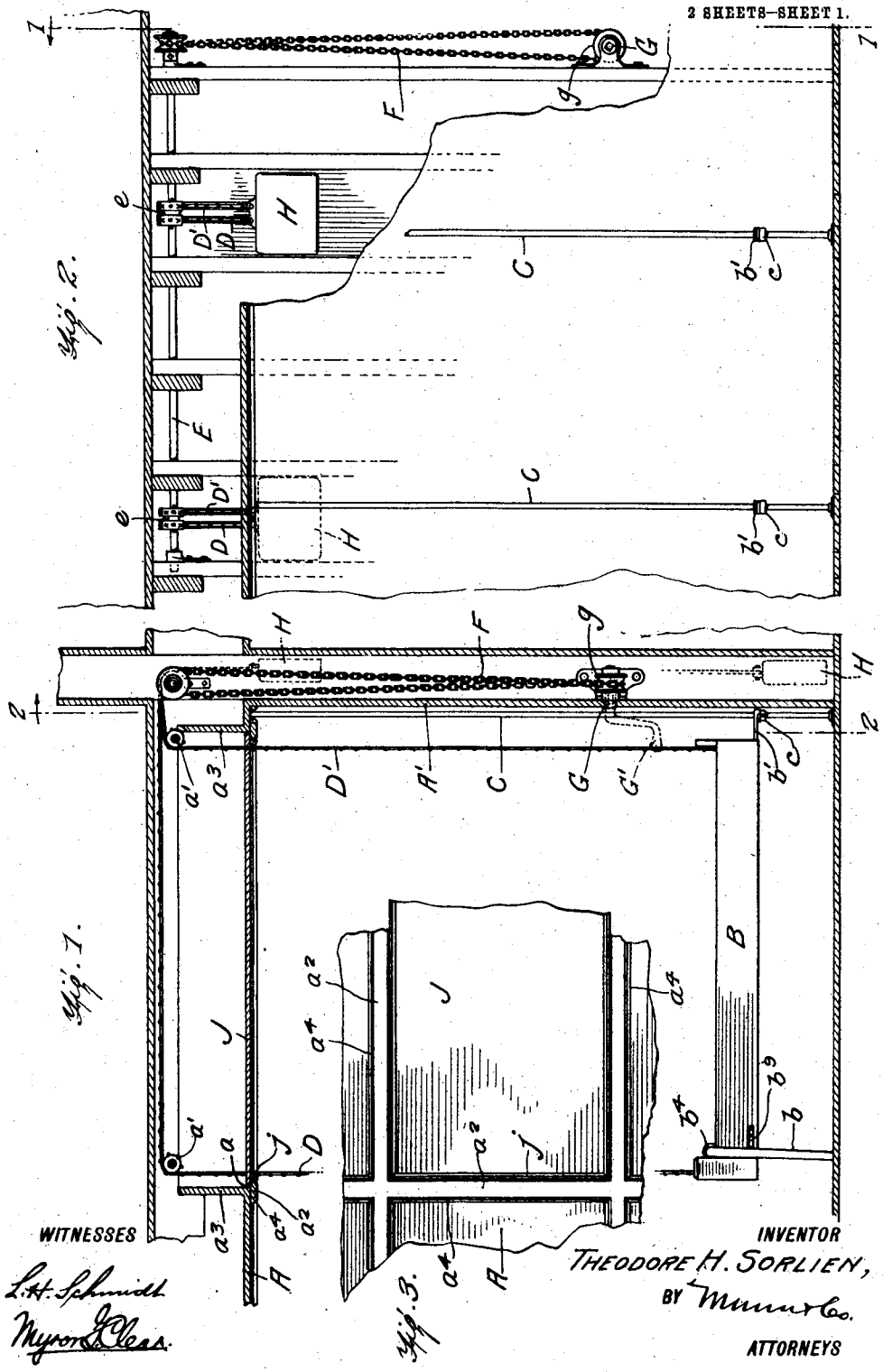
T. H. SORLIEN.

BED.

APPLICATION FILED OCT. 29, 1913.

1,109,476. Patented Sept. 1, 1914.

2 SHEETS—SHEET 1.



WITNESSES

L. H. Schmidt

Myron L. Cleas.

INVENTOR

THEODORE H. SORLIEN,

BY Munn & Co.

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

T. H. SORLIEN.

BED.

APPLICATION FILED OCT. 29, 1913.

1,109,476.

Patented Sept. 1, 1914.

2 SHEETS—SHEET 2.

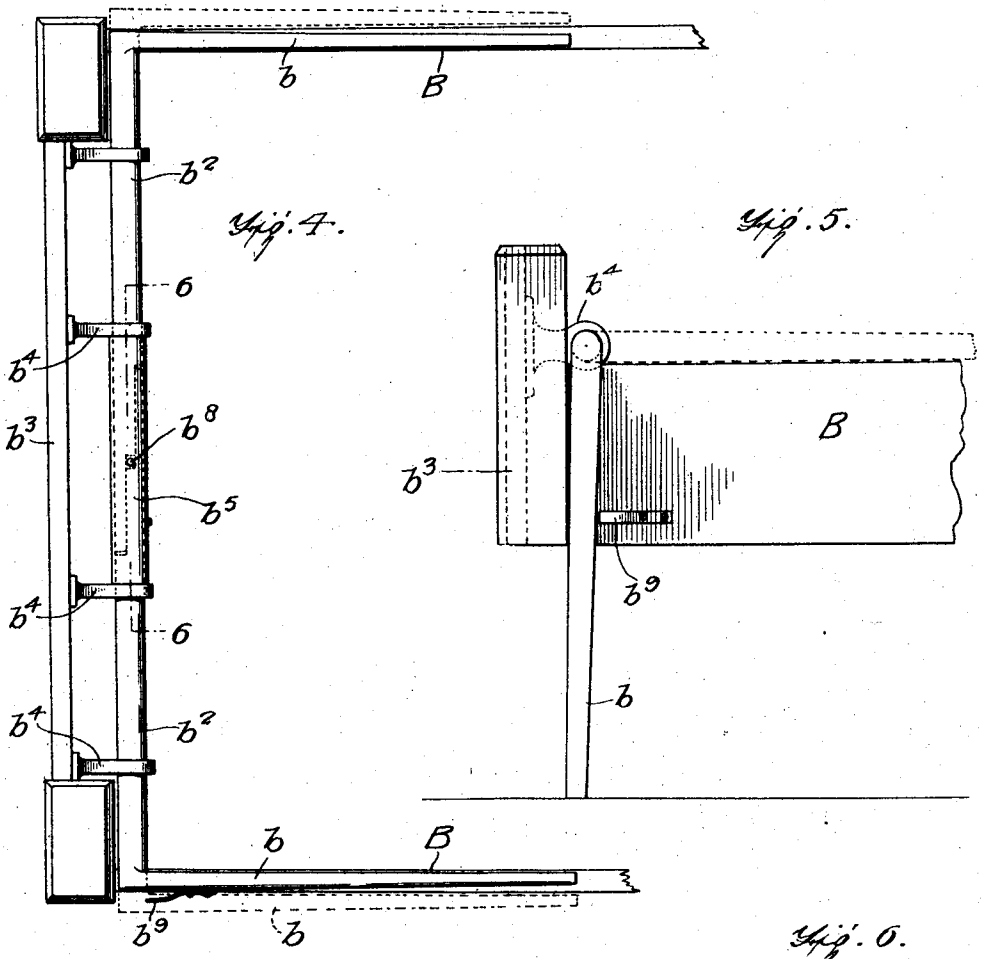


Fig. 4.

Fig. 5.

Fig. 6.

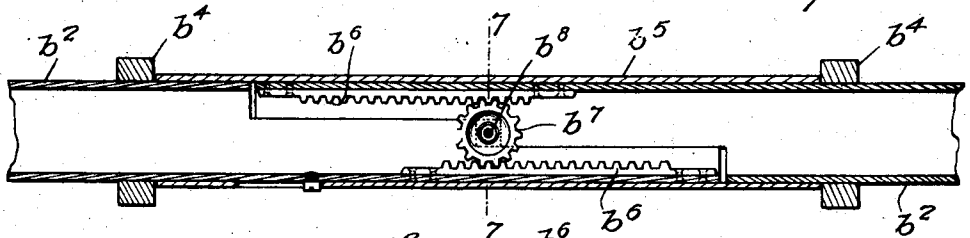
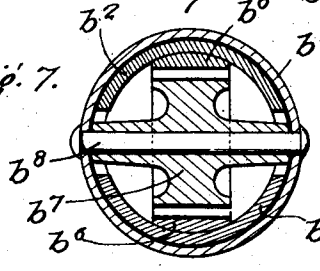


Fig. 7.



WITNESSES

L. H. Schmidt.

Myron G. Clear

INVENTOR

THEODORE H. SORLIEN,

BY Munn & Co.

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THEODORE H. SORLIEN, OF GRANITE FALLS, MINNESOTA.

BED.

1,109,476. Specification of Letters Patent. Patented Sept. 1, 1914.

Application filed October 29, 1913. Serial No. 797,996.

To all whom it may concern:

Be it known that I, THEODORE H. SORLIEN, a citizen of the United States, and a resident of Granite Falls, in the county of Yellow Medicine and State of Minnesota, have invented an Improvement in Beds, of which the following is a specification.

My present invention relates to an improvement in that class of beds designed to be elevated or raised into an opening in the ceiling when not in use so that they will not occupy any of the floor space in the room in which they are located, and more particularly to an improvement upon the above character of beds as described and claimed in my Patents, Numbers 1065740 and 1069585, respectively granted June 24, 1913 and August 5, 1913.

The object of my present improvements is to provide a sprocket chain connection between the crank shaft and the upper side wall shaft in order to do away with the vertical side wall shaft before proposed, and also to provide a certain structure around the ceiling opening and coöperating with the false ceiling part whereby to at once conceal the latter from observation when the bed is lowered and permit of its vertical movement without the necessity for the use of limiting chains.

Still further objects are directed toward the specific structure of the bed frame and will be better understood from the following.

In the accompanying drawing which illustrates my present improvements, Figure 1, is a vertical section taken through a room longitudinally of my improved bed operating therein. Fig. 2, is a vertical transverse section taken substantially on line 2—2 of Fig. 1. Fig. 3, is a bottom plan view of a portion of the false ceiling part and the surrounding ceiling. Fig. 4, is a plan view of the foot end of the bed frame showing the legs in inner raised position. Fig. 5, is a side elevation of the parts illustrated in Fig. 4, showing the legs in their outer lowered positions. Fig. 6, is a detail vertical section, taken on an enlarged scale, through the adjacent ends of the tubular leg extensions and their supporting and connecting tube, substantially on line 6—6 of Fig. 4, and Fig. 7, is a vertical transverse section, taken on an enlarged scale through these parts substantially on line 7—7 of Fig. 6.

Referring now to these figures, *a* represents an opening formed in the ceiling A of a room, preferably adjacent to one side wall A′ thereof, this opening *a* being adapted to receive the bed B therein. The bed B consists essentially of a frame, the lower surface of which I preferably decorate to conform to the decoration of the ceiling A to be hereinafter particularly referred to. The bed B is provided adjacent one end farthest away from the wall A′ with legs *b* adapted to be folded into its frame when the bed is raised within the ceiling opening. At its opposite end the bed is provided with guide members *b′* projecting longitudinally therefrom and slidably engaging and bearing on rigid uprights C, these uprights being secured at their lower ends to the floor of the room to upstand along its side wall A′, and being provided adjacent their lower ends with rigid stops *c* spaced a distance above the floor corresponding to the length of the legs *b* of the bed.

The bed is raised by means of chains D and D′ connected at their lower ends to the frame thereof and extending upwardly through the ceiling opening *a* and laterally over pulleys *a′* mounted above the ceiling opening, the opposite ends extending downwardly in the rear of the side wall A′ over sprocket wheels *e* mounted upon the horizontal side wall shaft E and connected to counter-balancing weights H. The side wall shaft E is also provided with a sprocket wheel actuated, by means of a chain F, extending vertically in the space in the rear of the side wall A′, which chain is connected at its lower end about a wheel *g* on a crank shaft G journaled through the side wall A′ and to which a crank G′ indicated at dotted lines in Fig. 1 may be fitted.

Referring now particularly to Figs. 1 and 3 it will be seen that I surround the ceiling opening *a* with a bearing strip a^2, secured to the lower surface of the ceiling A with its inner edge extending inwardly beyond the sides of the opening so as to receive thereon

the false ceiling part J, the size and shape of which are such that it fits slidably within the opening a and is confined in its vertical movement only by the side walls a^3 of the opening. I also preferably decorate the lower surface of the ceiling by forming the same with a plurality of panels divided by strips, of which the bearing strips a^2 before mentioned are a part, the other parts of the division strips being in the form of moldings a^4 arranged upon opposite sides of the strip a^2 so that by providing the lower surface of the false ceiling part J with a molding j' around its lower surface and near its outer edge, its lower surface will form one of the panels of the ceiling when lowered by lowering the bed to operative position. In this manner I do away with the necessity for a vertical shaft and its journals by the provision of the sprocket chain F and I do away with all connections for either guiding or limiting the movements of the false ceiling part J, and it should be stated that these features constitute material advantages in the practical use and application of beds of this character within completed houses.

Referring now to the particular construction of the bed B as illustrated in Figs. 4 to 7 inclusive, it will be seen that the legs b are each provided with inwardly projecting angular portions adjoining their upper ends and in the form of tubes b^2. The tubular portions b^2 of the legs just mentioned extend toward one another transversely of the bed and in a line parallel with the foot board b^3, and are journaled through brackets b^4 secured to said foot board. Between the inner brackets b^4 is disposed a supporting tube b^5, thus confined to prevent longitudinal movements, and adapted to telescopingly receive the inner adjacent ends of the tubes b^2, these ends being cut away and provided with inner opposing racks b^6 between and in engagement with which is a pinion b^7 carried by a transverse pin b^8, the ends of which are secured through the supporting tube b^5. Thus when one leg b is grasped and moved outwardly, the opposing leg b is given similar movement in order that the legs may be either disposed in a vertical operative position along the side of the bed and confined between the end posts of the bed frame and spring clips b^9 secured to the bed sides, or moved upwardly and thrust inwardly to rest in horizontal positions upon the upper edges of the bed sides, as particularly shown in Fig. 4, to permit the bed frame to be raised in the ceiling opening.

It is to be understood that I may employ either sprocket chains with sprocket wheels to form the flexible connections between the bed frame and the upper side wall shaft E and also between the latter shaft and the crank shaft G, or I may form these connections by means of ordinary link chains and wheels having pockets to receive the links of the chain, the first mentioned form of the flexible connection being shown at D and D′ and the latter form being shown at F. It is also to be understood that instead of providing the bed frame with guide rods C and guide pieces b', I may duplicate the leg structure before described with reference to Figs. 4 to 7 inclusive, providing such a structure at each end of the bed. It is also to be understood that in specifying paneled ceilings I include under this term what are generally known as beamed ceilings and that the bottom of the bed may be so proportioned and decorated with respect to the proportions and decorations of the ceiling as to form either one or more panels or divisions thereof. In addition to this I wish it understood that the vertical members C which form guides may be dispensed with in case a bed is desired to be located centrally within a room or at some distance away from any of the side walls, in which case it will of course be necessary to provide legs as shown at both ends of the bed instead of at one end only, as formerly described.

I claim:—

1. In combination with the paneled ceiling of a room having an opening of the size and shape of one or more of its panels and provided with division strips between its panels, certain of which are extended around the said opening with their inner edges projecting inwardly beyond the sides of the opening, of a bed flexibly suspended for movement within and out of the said ceiling opening, means for moving the bed, and a false ceiling plate freely movable in a vertical direction within the ceiling opening and adapted to rest at its side edges upon the inwardly projecting edges of the said division strip surrounding the opening, when the bed is lowered in operative position.

2. The combination with the ceiling of a room having an opening, of a bed flexibly suspended for movement within the said opening, comprising side and end walls and a base, legs movable to vertical and horizontal positions with respect to the side walls of the bed frame and having tubular transverse extensions at one end extending transversely of the bed in the same plane, brackets secured to the bed frame and through which the said tubular extensions are mounted to rotate and move longitudinally, a tube confined between certain of the brackets and in which the inner adjacent ends of the tubular leg extensions are disposed, said inner ends of said leg extensions being cut away and provided with inner

racks, a pinion disposed between and engaging the said racks at its opposite sides, a pin secured through the confined tube and upon which the pinion is journaled, whereby movement of one leg will be communicated to the other, spring clips for confining the legs in vertical operative position, and connections for raising and lowering the bed within and out of the ceiling opening, all for the purpose described.

THEODORE H. SORLIEN.

Witnesses:
O. A. KNUDTSON,
L. M. STREET.

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