This invention relates to new and useful improvements in ladders for sleeping cars so as to facilitate the climbing into the upper berth thereof. The primary object of the invention resides in the provision of a ladder structure that is permanently associated with an upper berth of a sleeping car and that may be readily folded and swung into the upper berth when the same is drawn up against the roof of the car so as not to be in the way when the berths are not being used.

A further and important object resides in the provision of a ladder of this construction that may be moved a predetermined extent throughout the length of the upper berth and that includes means for locking the ladder against collapsed condition when the same is in use.

A further and important object is to provide a ladder construction of this character that is relatively simple in construction, inexpensive of manufacture and one that may be readily associated with upper berths of sleeping cars in a simple and easy manner, and this without altering the construction of said berths to any extent whatever.

With the foregoing and other objects in view as the nature of the invention will be better understood, the same comprises the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawings and claimed.

In the drawings wherein like reference characters indicate corresponding parts throughout the several views:

Figure 1 is a front elevation of my improved ladder as actually associated with an upper berth of a sleeping car, the outer wall of said upper berth being partially broken away for more clearly disclosing the longitudinal supporting bar with which the upper end of the improved ladder is pivoted associated.

Figure 2 is a fragmentary transverse section through the upper berth structure for disclosing my improved ladder in side elevation.

Figure 3 is a front elevation of the ladder in collapsed and raised position just prior to being swung over into the upper berth unit.

Figure 4 is a side elevation of the upper berth disclosing the ladder in dotted lines having been swung over into position therein so as to facilitate the swinging of the upper berth against the car ceiling.

Figure 5 is a fragmentary transverse section through the outer side of the upper berth disclosing the ladder as having been swung into position therein.

Figure 6 is an enlarged fragmentary rear side elevation of the ladder structure for more clearly disclosing the means for securing the ladder against collapsing, there being supplemental to said means a swinging latch to facilitate the locking of the means so as to prevent the accidental collapsing of the ladder when in use.

Figure 7 is a perspective of one of the ladder bar attaching brackets for the inner face of the outer side wall of the upper berth structure.

Figure 8 is a fragmentary elevation of one side of the ladder for disclosing more clearly the swinging latch unit or securing the ladder locking element in operative position.

Figure 9 is a perspective of a modified means of attachment of the ladder to the upper berth.

Now having particular reference to the drawings, A designates generally a single upper berth frame of the conventional design of sleeping car with which the present ladder structure is associated. Arranged upon the inner face of the inner side wall of this upper berth frame is a pair of longitudinally spaced bracket plates 5—5, the upper edges of which are formed with inwardly extending longitudinal sleeves 6, within which are securely arranged the opposite ends of a horizontal ladder attaching bar 7. The ladder construction, per se consists of a pair of legs 8—8 of predetermined length and preferably of L-bar configuration as disclosed in the main view. These legs 8—8 are joined by metallic L-bars for providing spaced rungs 9, the opposite ends thereof being pivoted to the legs 8—8 so as to permit the said legs to be swung toward each other when it is desired to col
lapse the same, the outer ends of the back wall of these rungs being rounded as clearly disclosed in Figure 1 so as to facilitate their pivotal action with respect to the legs when said legs are folded.

Pivottally secured to the lower ends of these legs 8-8 are inwardly extending bracing straps 10-10 the extreme inner ends of which are bent downwardly for providing feet 10a formed upon the car floor adjacent the lower feet units B-B of the lower berth construction.

The invention further consists of a double goose neck 11, the inner single end being formed with a sleeve 12 for sliding engagement upon the horizontal berth frame carrying bar 7, the necks of this unit diverging outwardly and being pivoted to the inner side of the angle bar legs 8-8, as clearly disclosed in both Figures 1 and 2. The upper end of the outer side of one of the legs is formed with a slot 13 so as to permit this end of the leg to swing beyond its associated goose neck when the legs 8-8 are swung upwardly into the position disclosed in Figure 3. Obviously this particular attachment between the ladder and the frame A of the upper berth will permit the ladder to be readily moved longitudinally to the desired point with respect to the berth.

For maintaining the ladder against being collapsed, while in use there is pivotally attached to the leg 8 having its outer side slotted at its upper end an arm 14, which arm extends upwardly toward the upper end of the opposite leg 8 and is formed at this end with a forwardly extending finger 15 for engagement within an inclined slot 16 at the inner side of said leg as more clearly disclosed in Figures 1, 6, and 8. For locking this finger 15 within the slot 16 there is pivoted to the respective leg 8 a latch dog 17 notched at its lower end as at 18 for receiving the finger 15 of the arm 14 when the same is swung downwardly as indicated by the curved line in Figure 6. Obviously this dog will prevent the upward swinging of the arm 14 and the consequent disengagement of the finger 15 from the slot 16 in the leg 8 so that while in engagement therein it will be impossible to collapse the leg to the position disclosed in Figure 3.

After the ladder has been collapsed and extended into the raised horizontal position shown in Figure 3 by reason of the goose neck connection between the ladder and the horizontal supporting bar, the entire ladder together with the goose neck may be swung over into the frame A as indicated by the arrow in Figure 2.

In Figure 9 the berth attaching bar is designated 7' and the ends thereof are formed with inwardly offset attaching brackets 5'-5' for facilitating the attachment of the bar to the upper berth A in an obvious manner. Loosely slidable on this bar is a sleeve 10' formed with an upwardly extending plate 11' to which is rigidly secured a horizontal flat-like bar 12'. Rigidly secured to the opposite ends of this bar 12' are the inner short ends of a pair of goose necks 13'--13' which extend outwardly of the upper berth A and to the opposite ends of which are pivoted the upper ends of the ladder legs 8'-8'..

It will thus be seen that I have provided a highly novel, simple, and efficient ladder for the upper berths of sleeping cars that is well adapted for all the purposes heretofore designated. Even though I have herein shown and described the invention as consisting of certain detail structural elements it is nevertheless to be understood that some changes may be made therein without affecting the spirit and scope of the appended claims.

Having thus described the invention, what I claim is:

1. In a ladder for sleeping car upper berths, a horizontal supporting bar arranged within the upper berth adjacent the outer side thereof, a goose neck having one double end and one single end, a sliding and pivotal connection between the single end of the goose neck and said bar, a ladder including a pair of side legs pivotally attached at their upper ends to the double ends of said goose neck which extend over and out of the upper berth, rungs pivotally secured at their opposite ends to said legs for facilitating the upward swinging of the legs upon the goose neck and their movement toward each other; and readily releasable means for securing the legs against swinging movement with respect to said goose neck.

2. In a ladder for sleeping car upper berths, a horizontal supporting bar arranged within the upper berth adjacent the outer side thereof, a goose neck having one double end and one single end, a sliding and pivotal connection between the single end of the goose neck and said bar, a ladder including a pair of side legs pivotally attached at their upper ends to the double ends of said goose neck which extend over and out of the upper berth, rungs pivotally secured at their opposite ends to said legs for facilitating the upward swinging of the legs upon the goose neck and their movement toward each other; and readily releasable means for securing the legs against swinging movement with respect to said goose neck, said means consisting of an arm pivotally attached at one end to one of the legs, a relatively right angular finger upon the opposite end of the arm, the other of said legs being provided with an inclined slot with which said finger is engageable, and means associated with said other leg for locking said finger within said slot.

3. In a ladder for sleeping car upper berths, a horizontal supporting bar arranged
within the upper berth adjacent the outer side thereof, a goose neck having one double end and one single end, a sliding and pivotal connection between the single end of the goose neck and said bar, a ladder comprising a pair of side legs pivotally attached at their upper ends to the double ends of said goose neck which extend over and out of the upper berth, rungs pivotally secured at their opposite ends to said legs to facilitate the upward swinging of the legs upon the goose neck and their movement toward each other, readily releasable means for securing the legs against swinging movement with respect to said goose neck, said means consisting of an arm pivotally attached at one end to one of said legs, the other of said legs adjacent its upper end being provided with an inclined slot, a finger on said arm engageable with said slot, and a dog pivoted to said other leg and having a notch engageable with said finger for retaining the latter within said slot.

4. In a sleeping berth ladder of the character described, a pair of side legs, spaced rungs arranged between the side legs and pivotally secured at their opposite ends to the legs so as to facilitate the swinging of the legs toward each other, means for locking the legs against swinging movement, and means between the upper ends of the legs and the interior of the berth to permit the ladder to be swung into the berth when collapsed.

5. In a sleeping berth ladder of the character described, a pair of side legs, spaced rungs arranged between the side legs and pivotally secured at their opposite ends to the legs so as to facilitate the swinging of the legs toward each other, means for locking the legs against swinging movement, means between the upper ends of the legs and the interior of the upper berth to permit the ladder to be swung into the upper berth when collapsed, said means being further adaptable to permit the longitudinal movement of the ladder with respect to said berth.

6. In combination a pivotally and slidably mounted support, a ladder including a pair of legs pivoted in relatively spaced relation at one end to said support, rungs pivotally connecting said legs, and releasable means for securing said legs in spaced parallelism.

In testimony whereof I affix my signature.

WILLIAM S. GORDON.