

May 20, 1930.

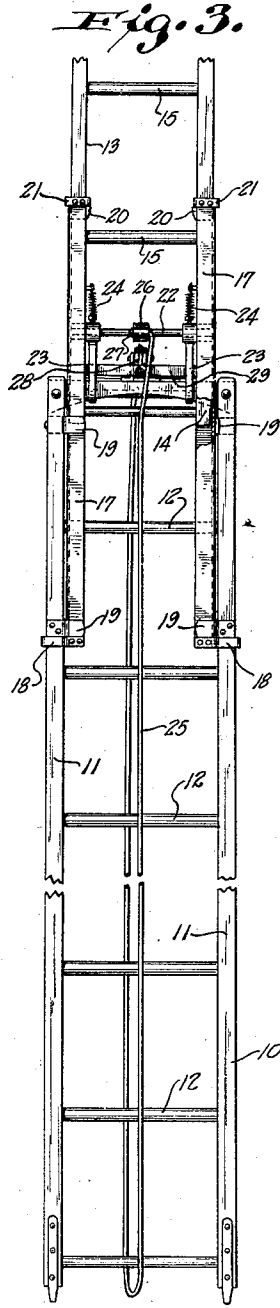
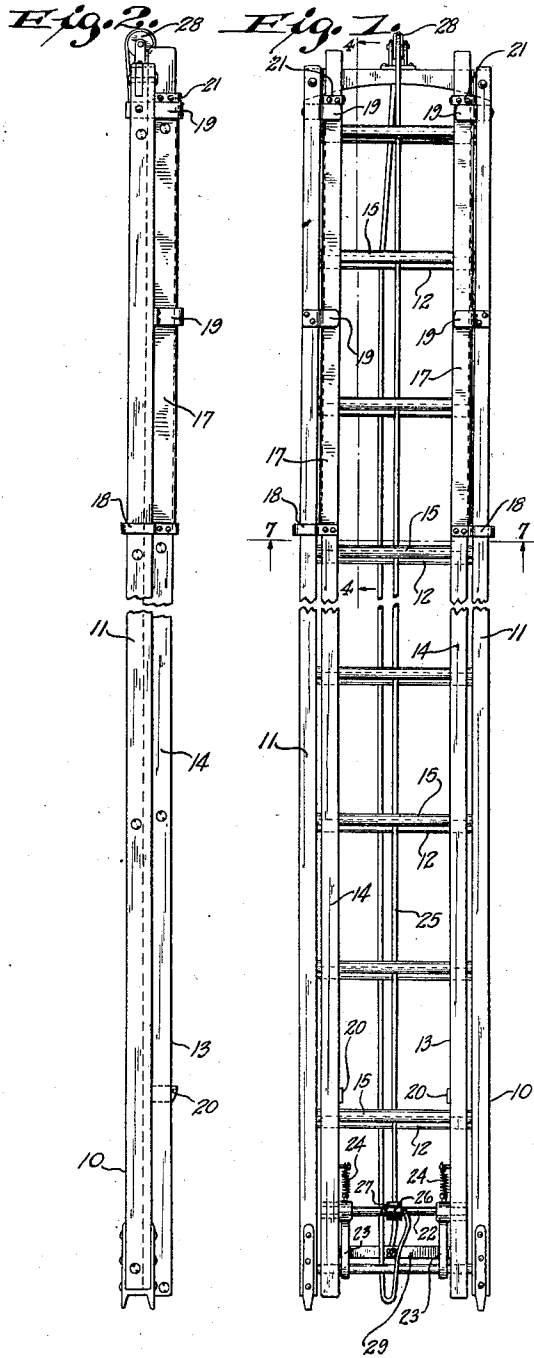
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1,758,969

FLOATING LAP LADDER

Filed Oct. 24, 1928

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 4.

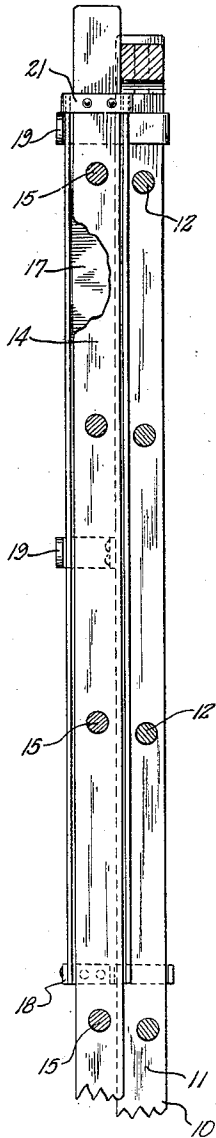


Fig. 5.

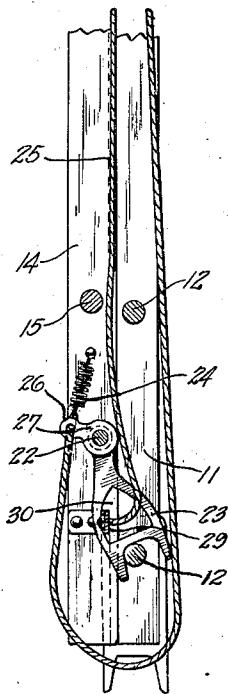


Fig. 6.

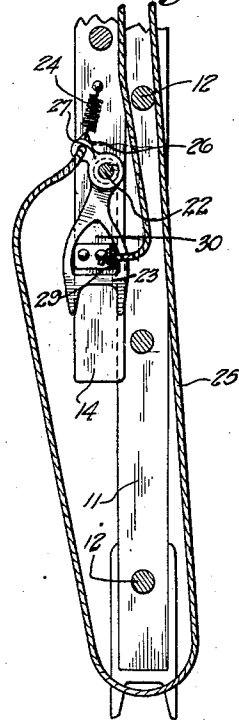
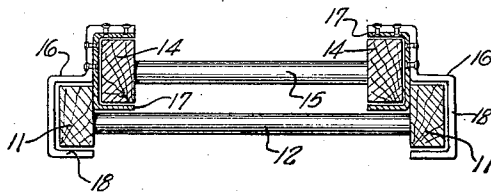


Fig. 7.



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UNITED STATES PATENT OFFICE

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FLOATING-LAP LADDER

Application filed October 24, 1928. Serial No. 314,659.

This invention relates to improvements in floating lap ladders.

It is the primary object of the present invention to provide an extension ladder which can be extended to double its normal length, the extension portion being arranged so as to be extended, with respect to the base ladder, its entire length, and does not, when so extended, overlap the base ladder.

A further object of the invention is to provide an extension ladder formed with a floating lap for supporting the extension section, the floating lap being loose and lodging completely within the ladder sections whereby the normal length of the ladder is not increased.

A further object of the invention is to provide a floating lap ladder of the class described which saves storage and carrying space, facilitates the carrying of the same on trucks and fire apparatus, and requires less lumber in building than other ladders of an equal length.

A further object of the invention is to provide an extension ladder of the class described which is lapless and in which the floating section for supporting the extension section is not a ladder section and which is practically disappearing when the entire ladder is in non-extended position.

A further object of the invention is to provide a floating lap ladder which is strong and durable, is easily operated, is of very simple construction, and is well adapted for the purposes set forth.

With the above the other objects in view the invention consists of the improved floating lap-ladder and its parts and combinations as set forth in the claims, and all equivalents thereof.

In the accompanying drawings in which the same reference characters indicate the same parts in all of the views:

Fig. 1 is a front view of the improved floating lap ladder with the parts unextended;

Fig. 2 is a side view thereof;

Fig. 3 is a fragmentary front view of the ladder with the extension section totally extended, portions being broken away and shown in section;

Fig. 4 is an enlarged detail sectional view, partly broken, taken on line 4—4 of Fig. 1;

Fig. 5 is an enlarged fragmentary detail sectional view showing one of the pivotal dog members of the extension section engaged with a rung of the base ladder;

Fig. 6 is a similar view showing the dog member disengaged; and

Fig. 7 is an enlarged cross-sectional view taken on line 7—7 of Fig. 1.

Referring now more particularly to the drawings, it will appear that the numeral 10 indicates a base ladder section formed of a pair of elongated parallel stiles 11 with spaced rungs 12 extended therebetween. The extension ladder section 13 is of a width to fit within the stiles of the base ladder section and is similarly formed of a pair of elongated parallel stiles 14 connected by spaced transverse rungs 15.

In order to permit the complete extension of the extension section of the ladder a pair of floating lap members 16 are provided. Each floating lap member comprises a pair of opposite metallic channels 17, as shown in Fig. 7, and said channels are of a substantial length, as shown in Figs. 1, 2 and 3. Secured to the lower portion of each channel is an angularly shaped bracket 18 which embraces on three sides and is slidable on the adjacent stile 11 of the base ladder section. Said floating lap members are slidably mounted, as described, on the upper end portions of the base ladder stiles, while the stiles of the extension ladder section are slidable within the metallic channels 17. The base ladder stiles carry pairs of spaced angled brackets 19 embracing the channels and forming guides and supports therefor.

When the extension section is to be raised it will first slide within the channels or with the channels on the stiles 11, depending on the friction between the parts. The ultimate extension of said channels with respect to the base ladder stiles is limited by the engagement of the brackets 18 on the channels with the lowermost brackets 19 on the stiles 11. In this position the floating laps are projected beyond the upper end portions of the base ladder about half their

lengths. When the extension section stiles slide within the channels, lugs 20 on said stiles ultimately engage enlarged rims 21 at the upper end of said channels, and thus when the extension of the channels is stopped, the extension of the extension ladder section with respect thereto is limited, the position of greatest extension of the parts being shown in Fig. 3 and in this position the extension section is extended substantially its entire length and is braced and supported by the floating lap members.

The lower end portion of the extension ladder section carries a revoluble transverse rod 22 on which are secured fast a pair of depending locking dogs 23 which are movable into and out of engagement with any of the rungs 12 to support the extension section in any extended position. Said dogs are movable against the tension of coiled springs 24 connected to the stiles 14 and which tend to hold the dogs normally out of rung engaging position.

For convenience in raising and lowering the extension section and operating the dogs 23, an elongated rope 25 is provided which is secured at one end to a lever 26 formed on a member 27 secured fast on an intermediate portion of the revoluble rod 22. Said rope is extended around a lower rung 12 of the base ladder and over a pulley 28 mounted at the upper end portion of the base ladder, and is connected at its other end portion to the medial portion of a bar 29 secured between the lower end portions of the stiles 14 of the extension ladder 13, it being noted that said bar extends through the open portions 30 of the dogs 23 and limits their pivotal movement in both directions. Thus, when the rope is pulled in one direction, the extension section will be raised and the springs 24 pulling on the dogs 23 will keep the same from engaging the rungs 12. When the extension section is at the desired height, a downward pull on the forward portion of the rope will cause the dogs to be rearwardly pivotally moved against the tension of the springs 24, permitting the dogs to be releasably engaged with a rung 12, as in Fig. 5, to support the extension section in a desired raised position.

From the foregoing description it will be seen that the improved floating lap ladder is of simple and novel construction, and is well adapted for the purpose set forth.

What is claimed as the invention is:

1. An extension ladder, comprising a base ladder section, a lap member slidably mounted on the upper end portion thereof, and an extension ladder section slidable within said lap member and extensible longitudinally of the base ladder section its entire length, and forming an uninterrupted climbing continuation of the base ladder section.

2. An extension ladder, comprising a base ladder section formed of a pair of parallel stiles with spaced rungs connecting the same, an extension ladder section formed of a pair of parallel stiles with spaced rungs connecting the same, the extension ladder section being longitudinally movable within the stiles of the base ladder section, a channel member slidably mounted on each stile of the extension ladder section, guide brackets carried by said channel members and slidably engaging the stiles of the base ladder section, bracket members carried by the stiles of the base ladder section and engaging said channel members, the guide brackets and the bracket members forming means for limiting the extension of said channel members with respect to the base ladder section stiles, and means for limiting the extension of the extension ladder section with respect to said channel members, said extension ladder section being extensible longitudinally of the base ladder section its entire length and forming an uninterrupted climbable, direct continuation of the base ladder section.

3. A device for effecting the complete extension of one ladder section with respect to an adjacent ladder section, comprising a main ladder section, an extension ladder section, and a floating member slidably mounted on one of said ladder sections and slidably embracing the other ladder section, the extension ladder section being movable in and with the floating member so that its entire length is extended with respect to the main ladder section and forming in a position of extension a direct, uninterrupted climbable continuation of the main ladder section.

In testimony whereof, I affix my signature.

PETER PIRSCH.