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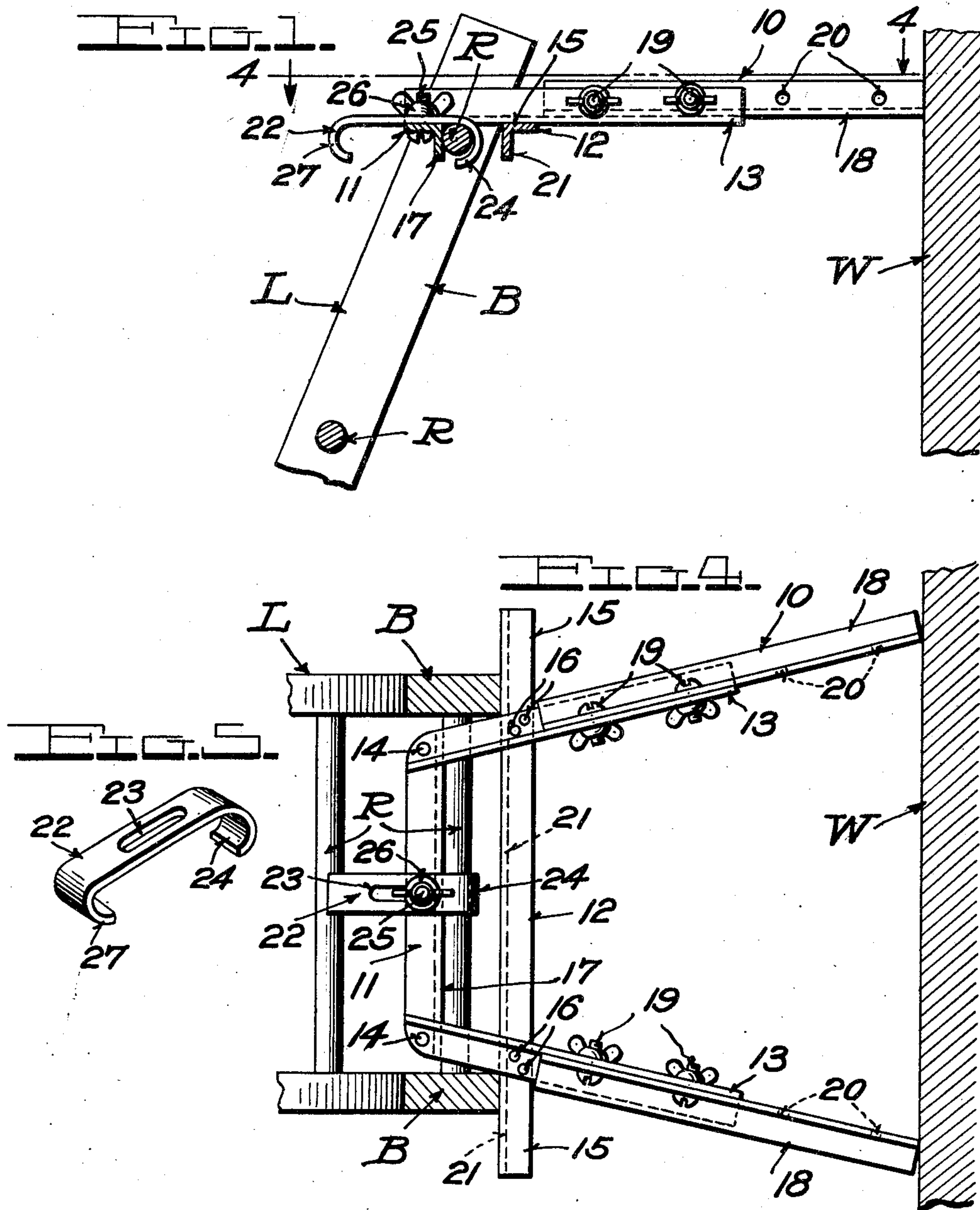
P. A. TELECH

2,710,129

LADDER SUPPORTING ATTACHMENT

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2 Sheets-Sheet 1



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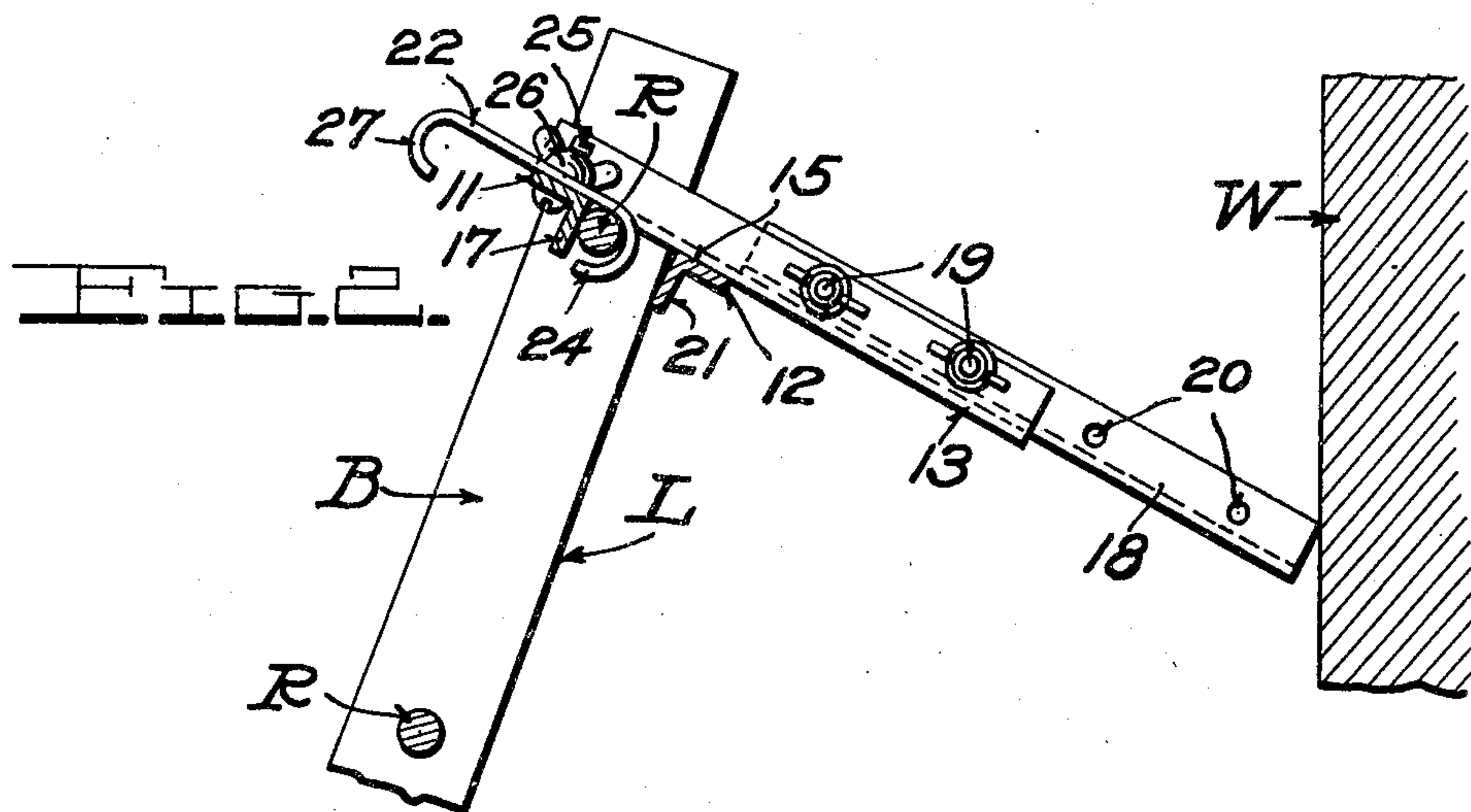


Fig. 3.

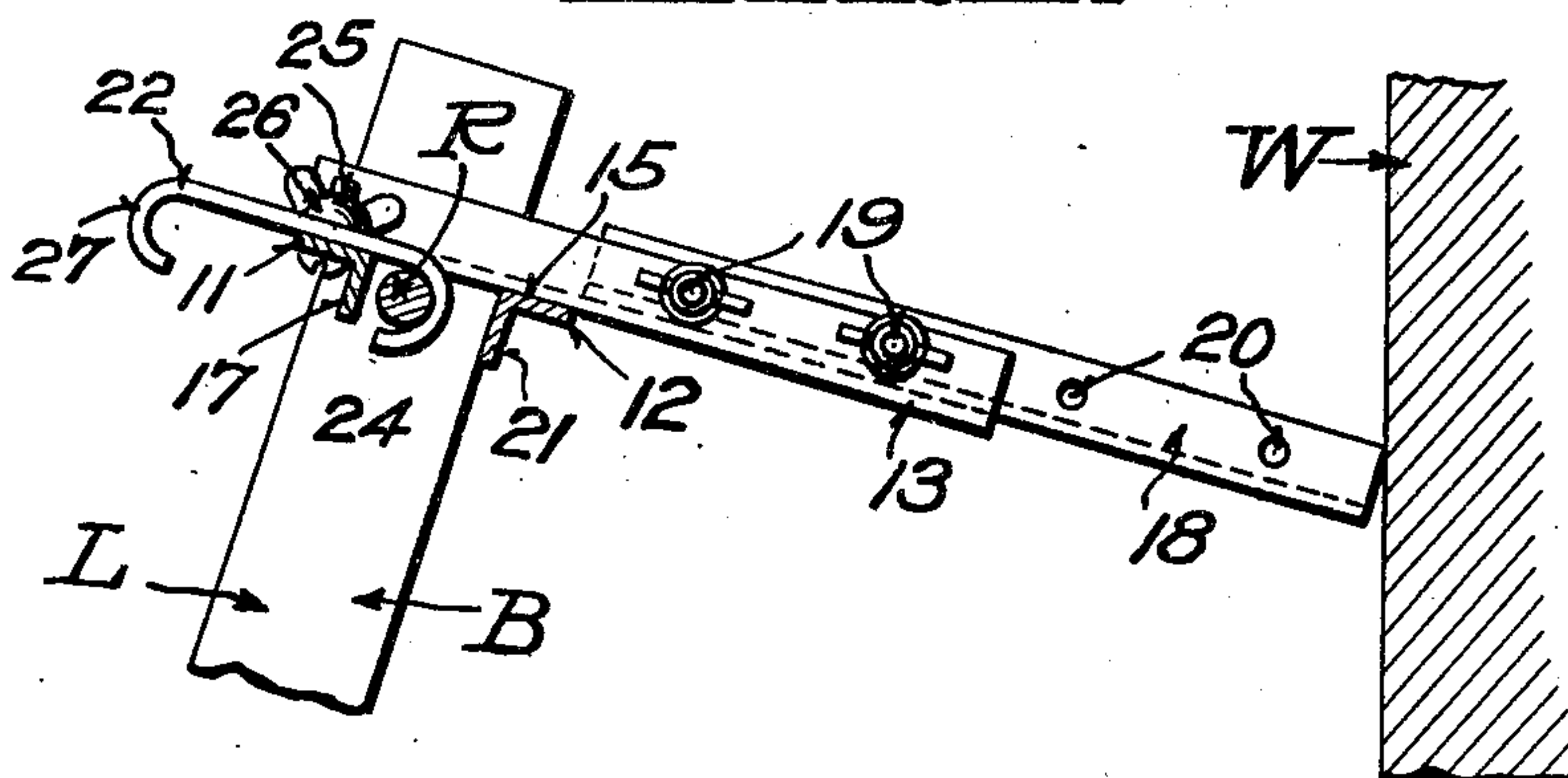
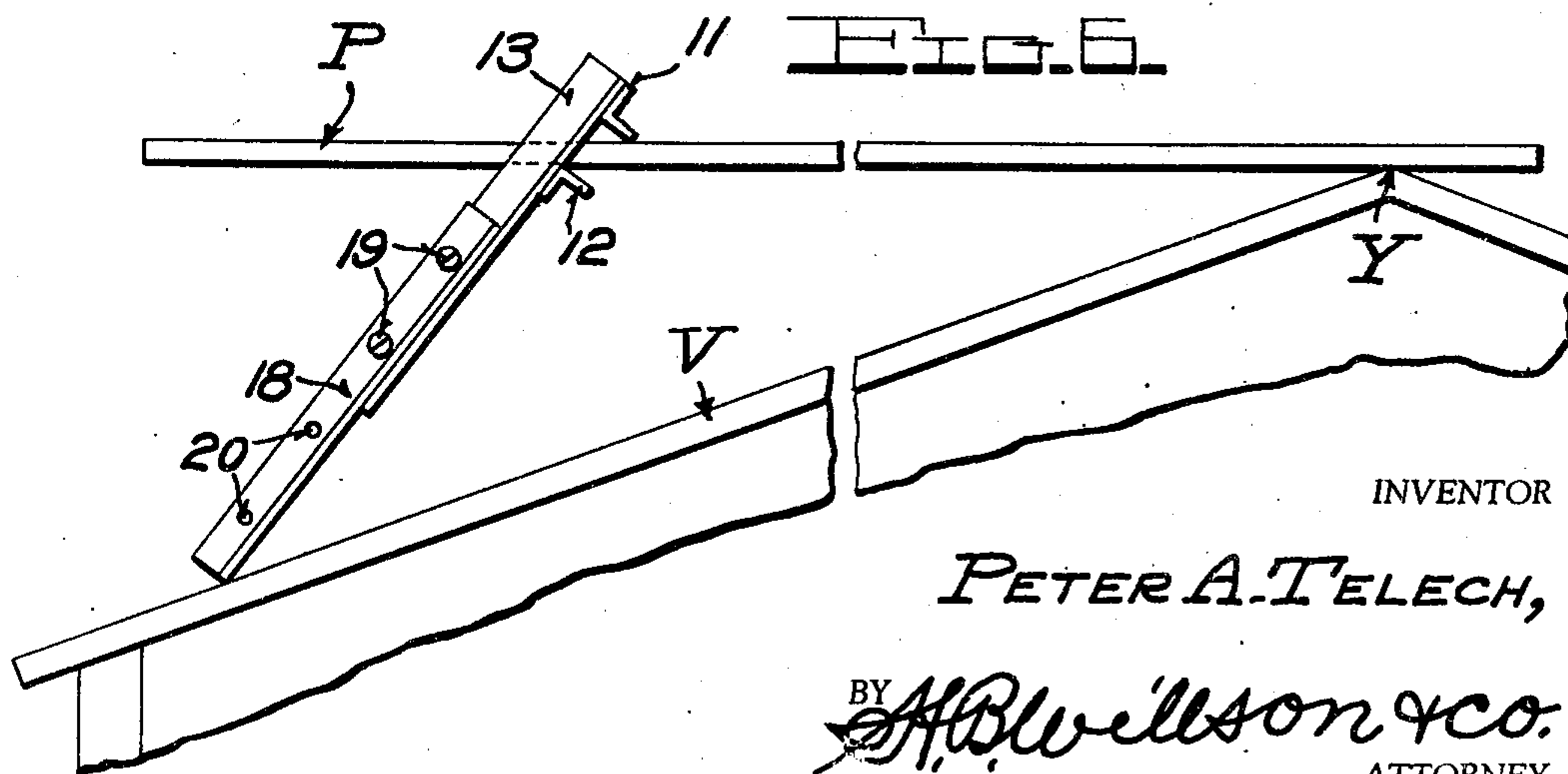


Fig. 6.



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LADDER SUPPORTING ATTACHMENT

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5 Claims. (Cl. 228—60)

The invention relates to ladder attachments to be used for holding the upper end of a ladder away from the wall of a building and for other purposes.

The principal object of the invention is to provide an extremely simple and practical ladder support or prop which may be quickly and easily applied to the ladder and as readily removed, and which at the same time will be entirely safe in use.

Another object of the invention is to provide a device of this character in which the parts are rigidly connected so that it may be applied to and removed from the ladder as a unit, no supporting chains or links being necessary.

Another object is to provide a device which by reason of its construction, will be self-locking when placed on the ladder, although a simple clamp-like retaining means may be used if desired as an additional safety feature.

Another object is to provide a device of this character which has diverging wall-engaging arms and which is so engaged with the ladder that the arms may have a limited vertical swinging movement, thereby permitting the user while on the ladder to "jump" it to change the points of contact of the arms with the wall, thus enabling a painter to paint the former resting points without descending from the ladder and shifting its position on the ground.

Another object is to provide a ladder supporting prop which may also be used without change to support one end of a platform board in a substantially horizontal position on an inclined roof.

With the above and other objects and advantages in view, the invention resides in the novel combinations and arrangements of parts and the novel features of construction hereinafter described and claimed, and illustrated in the accompanying drawings which show the present preferred embodiment of the invention.

In the drawings:

Fig. 1 is a vertical front to rear sectional view through the device applied to the upper portion of a ladder to hold it spaced outwardly from a building wall;

Fig. 2 is a view similar to Fig. 1 but showing the device in a different position;

Fig. 3 is a detailed view of a portion of Fig. 1 with the device in a third position and showing the manner of setting the clamp or retaining member.

Fig. 4 is a horizontal sectional view taken on line 4—4 of Fig. 1, and showing the top of the device;

Fig. 5 is a perspective view of a clamp or retaining means that may be used on the device;

Fig. 6 is a diagrammatic view showing another use of the device.

Referring more in detail to the drawings, the letter W represents conventionally a portion of a building wall or any other upright structure, and L a portion of a standard form of ladder having stiles or side rails B connected by the usually cylindrical rungs R.

The improved support or prop embodies a unitary and substantially U-shaped frame-like structure generally indicated by the numeral 10 and consists of two straight,

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parallel, laterally-spaced gripping bars 11 and 12 connected by two outwardly or rearwardly diverging supporting or propping arms 13. The bars or members 11 and 12 are so spaced and constructed that they may be arranged in gripping engagement either with portions of a ladder, as shown in Figs. 1, 2 and 4 or with the opposite faces of a platform board, as shown in Fig. 6. The gripping members or cross bars 11 and 12 are preferably made from angle bars of a strong and light weight metal, the front bar 11 being relatively short and having its ends rigidly fastened at 14 to the converging ends of the spaced arms 13. The bar 12 is considerably longer extending across and beyond the arms 13 to provide outwardly or laterally projecting end portions 15. Suitable fastening means 16 rigidly connect these parts where they cross. The arms 13 are also preferably made of angle bars of the same kind of metal, and the fastening means 14 and 16 may be rivets which unite contacting flanges of the angle bars, although these parts may be welded together or otherwise fastened.

It will be noted that the device comprises a substantially U-shaped unitary frame for insertion, while in a horizontal position, between the ladder rails and then lowered upon a rung, the frame including laterally spaced arms with free rear ends and a connecting portion from which depends a longitudinal flange 17 to engage the front of the rung and also flange means such as 21, the end portions of the latter projecting beyond the arms and the ends of the longitudinal flange for engagement with the rear edges of the rails; and that due to the depths or heights of the flanges and their spacing, the device will be self supported in an operative position on the ladder without the need of any supporting links, chains or the like.

The device is primarily intended to support the top portion of a ladder away from a wall and when used as shown in Figs. 1, 2 and 4, the smaller front end of the unit is inserted between the side bars or rails B of the ladder so that the projecting ends 15 of the long rear bar 12 engage the rear edges of the rails B and the depending flange 17 of the short bar is disposed at the front of the top or one of the upper rungs R, the bottoms of the arms 13 resting on that rung. While the device may be used on ladders of different sizes, the spacing of the front portions of the arms 13 is preferably such that their outer edge portions will engage the opposed inner faces of the rails B when the device is applied to the standard 36-foot extension ladder commonly used by painters. The device will thus be prevented from shifting transversely of the ladder to any substantial extent.

The supporting or propping arms 13 may be of any desired length, and their angular relation may vary, but it is desirable that their rear ends engage the wall W at points spaced further apart than the distance between the rails of the ladder to prevent any tendency of the ladder to rock or tilt when a workman on the ladder reaches outwardly beyond the sides of the same. If desired the arms 13 may be relatively short as shown in the drawings and made adjustable by the use of removable extension sections 18. The latter may be angle metal bars to fit in the angles of the arms 13 and fastened therein by pairs of bolts 19 with wing nuts. The extension arms or sections 18 are formed with rows of holes 20 so spaced that they may be aligned with the bolt holes in the arms 13 when the extensions 18 are adjusted to the desired positions according to the distance it is desired to support the top of the ladder from the wall.

When the device is applied to a ladder as shown in Fig. 1, it is in a generally horizontal position so that the flange 17 of the short front bar extends downwardly. The corresponding flange 21 of the longer rear bar 12 is

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similarly positioned. The other two flanges of the right-angled bars 11 and 12 project in opposite directions and are fastened to the horizontal flanges of the arms 13. The flanges 17 and 21 are of a width greater than the diameters of the rungs R, and their opposed faces are so spaced from each other that when a ladder rung is between them the device may have a limited swinging or tilting movement in a vertical direction, as will be understood on reference to Figs. 1 and 2. When the device is horizontal as in Fig. 1, it will be slightly upwardly inclined with respect to the longitudinal axis of the ladder, and the upper edge of the flange 21 will grip the rear edges of the ladder rails B while the rear face of the flange 17 is engaged with the rung R. The thrust or weight of the ladder against the end portions 15 will hold the device in position against the wall to space the top of the ladder from the wall. The worker on the ladder may, by "jumping" the ladder or by thrusting his hand or foot against the wall, remove the weight of the ladder from the ends of the bar 12 and thus permit the device to pivot on the rung and drop to the position shown in Fig. 2, thus changing the points of contact of the arms 13 with the wall. When the device is in the position shown in Fig. 2, the lower edge of the flange 21 will grip the rear edges of the rails B while the flange 17 remains hooked over the rung, thus holding the device on the ladder while it spaces the ladder from the wall. The opposed faces of the bars 11 and 12 or of the flanges 17 and 21, when angle metal is used, are perpendicular to the plane of the device, and the spacing of those faces is slightly greater than the distance from the rear edge of the rail B to the far side of the rung R. The spacing referred to will be apparent on reference to Fig. 3 from which it will be noted that the flange members 17 and 21 are spaced apart substantially or approximately the distance between the rear edge of the rail B and the far side of the rung R so that the prop has only a very limited swinging movement while supported on the rung. The extreme positions of the prop are shown in Fig. 1 in which the upper edges of the flange members engage the rail and Fig. 2 in which the lower edge of the flange members 21 engage the rail. In each of these positions, the prop is in a usable ladder supporting position and cannot fall off of the ladder even when the latch device 22 is not used. To fall off the prop must fulcrum about the lower edge of the flange members 21 and that movement cannot take place because the rung is in the arcuate path through which the flange member 17 would have to move. By that spacing and by making the flange 17 of greater width than the diameter of the rung, the device will be self retained on the ladder when it is in an upright position and the arms 13 are not engaged with the wall. The ladder with the device thereon may thus be moved from place to place along the wall by shifting or changing the position of the ladder on the ground. It is to be noted that the device may be simply dropped onto or lifted off of a rung and when on will be held at all times in a ladder-propping position without the use of any movable links, levers, chains or the like.

As an additional safety feature I may use on the device the clamp or locking member 22 shown in Fig. 5. It consists of a flat metal bar formed with a longitudinal slot 23 and having at one end a semi-circular hook 24 the diameter of which is preferably a little larger than that of the rung R. The member 22 is placed cross-wise on the top flange of the front bar 11 at its center so that its slot receives a screw-stud 25 fixed to the flange. A wing nut 26 is threaded on the stud to clamp the member in adjusted position. The hook 24 is opposed to the flat rear face of the flange 17 and coacts with the rung R to prevent any possibility of the device dropping off of the ladder. In setting the member or bar 22 for the above described use of the device, the flat front face of the flange 21 is pressed flat against the flat rear edges of the rails B, as shown in Fig. 3 and the hook 24 moved to

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engage the rung. The nut 26 is then tightened. That leaves a small space between the flange 17 and the opposed portion of the rung, such space being sufficient to permit the above described limited swing movement of the device about the rung as a pivot. The size and shape of the hook when so adjusted will prevent the device from falling off of the ladder or being lifted off until the member 22 is loosened and shifted rearwardly. The removable member or bar 22 may have its front end bent to form a second hook 27 which may be used to engage a suitable support to hang the device up in a shop when it is not in use. While the member 22 is primarily used as a safety locking means for the device, it may be used as a clamp to hold the rung tight against the flange 17 by properly adjusting it on the bar 11.

Another use of the device is shown in Fig. 6 in which a platform plank P is shown disposed in the space between the bars 11 and 12 and between the arm bars 13. The latter are shown as resting on a roof V having a low pitch so that the plank is supported in a substantially horizontal position. The device is positioned near one end of the plank, the other end of which may rest on the ridge Y or other high point on the roof. It will be seen that the edges of the flat opposed faces of the bars or the flanges 17 and 21 will grip the opposite side faces of the plank to securely hold it. When used in this manner the extension arms 18 may be adjusted according to the pitch of the roof.

The device is useful not only to painters but to others such as carpenters, roofers, glaziers, and window washers who have to do work on the upper part of the exterior of a house or other structure. The device is light in weight and since it is a unitary structure it may be quickly and easily applied to or removed from the ladder. When it is dropped into position on the ladder it securely holds itself thereon without the need for supporting chains or links. While the member 22 is not necessary for the ordinary use of this device, it may be used as an extra safety precaution to give the workman confidence and to permit the ladder to be carried about with no possibility of the device being knocked off. When the device is in either of its positions shown in Figs. 1 and 2, the top of the ladder is held firmly and rigidly in spaced relation to the wall, and the workman may reach out to a great distance from each side of the ladder with no danger of the ladder slipping or rolling or turning over. By making the supporting arms 13, 18 of angle metal with their ends cut at right angles to their lengths, it is not necessary to point the ends since the angular disposition of the arms would cause their rear ends to effectively grip the wall and prevent slipping even on wet painted walls. The device may be shifted from its position in Fig. 2 to that in Fig. 1 by the workman on the ladder jerking his weight back momentarily while pushing upwardly on the intermediate portion of the device. The device enables a workman directly in front of a window to easily, quickly and safely complete his work on the entire window whether it is painting, washing, puttying or repair work, and without moving the ladder. The device enables a tinsmith or other workman to comfortably work on the edge of a roof, on gutters, above the cornice, etc. since there is ample room under his ladder because it is held out away from his working area. If the device is placed on the top rung he can place the bearing points just under the cornice to allow him to stand on the top rung and reach over the edge of the roof with no ladder part in his way. Another advantage of the device is that when it is in use on a ladder, it has no parts disposed on the fronts of the rails in which the clothing of a workman might be caught with the possibility of a resulting accident.

From the foregoing, taken in connection with the accompanying drawing, it will be seen that novel and advantageous provision has been made for carrying out the objects of the invention, and while preferences have been

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disclosed, attention is invited to the possibility of making variations within the scope of the invention as claimed.

I claim:

1. An attachment of the character described comprising a generally U-shaped unitary frame for substantially horizontal disposition between the upper portion of an inclined ladder and a wall, said frame including a pair of laterally spaced arms rigidly united by a connecting portion and disposed in the same plane, the rear ends of the arms being free to engage a wall at spaced points, the front of said frame being reduced and having a length less than the distance between the ladder rails to enable the frame while horizontally disposed to be inserted between the rails above the rung and then lowered vertically while in a horizontal position upon the rung, a longitudinal flange extending along the length of the reduced front of the frame and depending from said connecting portion for disposition in front of the rung on which the frame rests, said flange having its rear rung-engaging face flat and disposed in a plane perpendicular to the plane of said arms, and flange means on the frame in rear of said longitudinal flange and depending from said connecting portion, said flange means including longitudinally-aligned flange portions with flat front faces disposed in a plane parallel with the plane of the flat rear faces of said longitudinal flange and projecting outwardly beyond the ends of said longitudinal flange for engagement with the rear edge of the rails, said longitudinal flange and said flange portions having a height greater than the rung and projecting below the plane of said arms, the spacing between the plane of the rear face of said longitudinal flange and the plane of the front faces of said flange portions being substantially the same as the distance between the rear edges of the rails and the front of the rung, whereby when the front of the frame is inserted while in a horizontal position between the rails and then lowered vertically while horizontally disposed, into engagement with the rung with said longitudinal flange in front of the rung, the frame will be self-supported in a usable ladder propping position on the ladder rung solely by the engagement of it and said longitudinal flange with the rung and the engagement of said flange portions with the rear edges of the rails, the spacing between the opposed parallel faces of the longitudinal flange and the flange portions permitting the device to have a limited swinging movement about the rung as an axis, the upward swinging movement of the frame being limited by the engagement of the upper longitudinal edges of the flange portions with the rear edges of the rails and the downward swinging movement of the frame being limited by the engagement of the lower longitudinal edges of the flange portions with the rear edges of the rails.

2. The structure of claim 1 together with a safety latch device to prevent accidental disengagement of the frame from the rung, said latch device having a movable part carried by the frame and engageable with the under portion of the rung which supports the frame.

3. An attachment of the character described comprising a generally U-shaped unitary frame for substantially horizontal disposition between the upper portion of an inclined ladder and a wall, said frame including a pair of substantially straight laterally spaced arms of angle metal, each arm having an inner flange projecting upwardly, the other flanges of said arms being in the same plane and extending outwardly, a front short cross bar of angle metal having one flange turned forwardly and rigidly secured at its ends to the front ends of said other flanges of the arms, the other flange of said front cross bar extending downwardly in a plane perpendicular to the plane of said arms and having a height greater than the diameter of a ladder rung, the length of said front cross bar being less than the distance between the ladder rails to permit the front of the frame, while horizontally disposed, to be inserted between the rails and then lowered to dis-

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pose the perpendicular flange in front of a rung, and a rear long cross bar of angle metal in spaced parallel relation to said front cross bar and having one flange directed rearwardly and rigidly secured to said other flanges of the arms, the other flanges of said rear cross bar extending downwardly in a plane perpendicular to said arms and being disposed in opposed relation to the perpendicular flange of the front cross bar, the end of said rear cross bar projecting beyond the said arms to dispose the end portions of its perpendicular flange for coaction with the rear edges of the rails, the spacing between the perpendicular flanges of the two cross bars being only slightly greater than the distance between the rear edges of the rails and the front of the rung, whereby when the front of the frame is inserted, while in a horizontal position, between the rails and then lowered vertically while horizontally disposed to position the arms on a rung with the front cross bar at the front of the rung, the frame will be self supported in a usable ladder propping position on the ladder solely by the engagement of the arms and the perpendicular flange of the front cross bar with the rung and the engagement of the perpendicular flanges of the rear cross bar with the rear edges of the rails, the spacing between the perpendicular flanges of the two cross bars permitting the device to have a limited swinging movement about the rung as an axis, the upward swinging movement of the frame being limited by the engagement of the upper longitudinal edges of the perpendicular flange of the rear cross bar with the rear edges of the rails and the downward swinging movement of the frame being limited by the engagement of the lower longitudinal edges of the perpendicular flange of the rear cross bar with the rear edges of the rails.

4. The structure of claim 3 together with a safety latch device to prevent accidental disengagement of the frame from the rung, said latch device having a movable part carried by the frame and engageable with the under portion of the rung which supports the frame.

5. A prop device for spacing the upper portion of a ladder from a wall and mountable in an operative position on a ladder without the use of bolts or other fastenings by merely inserting one end of the device between the ladder rails and then lowering it upon a rung, said device comprising a unitary frame having a reduced front end for insertion between the rails, the rear portion of the frame having laterally spaced arms for engagement with the wall, a rung-engaging flange member at the front end of the frame and depending from the plane of the frame, said flange member having a flat front face perpendicular to the plane of the frame for engagement with the front of a rung, and rail-engaging flange elements at the sides of the frame and depending from the plane of the frame, said flange elements having flat rear faces disposed in a plane perpendicular to the plane of the frame and parallel to the plane of the perpendicular front face of the said rung-engaging flange member, said opposed perpendicular faces having a height greater than the diameter of a rung and being laterally spaced from each other a distance slightly greater than the distance between the rear edges of the rails and the front of the rung, whereby when the front of the frame is inserted, while in a horizontal position, between the rails and then lowered vertically, while horizontally disposed, to position the frame on a rung with the said flange member in front of the rung, the frame will be self-supported in a usable ladder-propping position solely by the engagement of the frame and the flange member with the rung and the engagement of said flange elements with the rear edges of the rails, the spacing of the opposed perpendicular faces of the flange member and the flange elements permitting the device to have a limited swinging movement about the rung as an axis, the upward swinging movement of the frame being limited by the engagement of the upper longitudinal edges of the flange elements with the rear edges of the rails, and the downward swinging

movement of the frame being limited by the engagement of the lower longitudinal edges of the flange elements with the rear edges of the rails.

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