

No. 640,354.

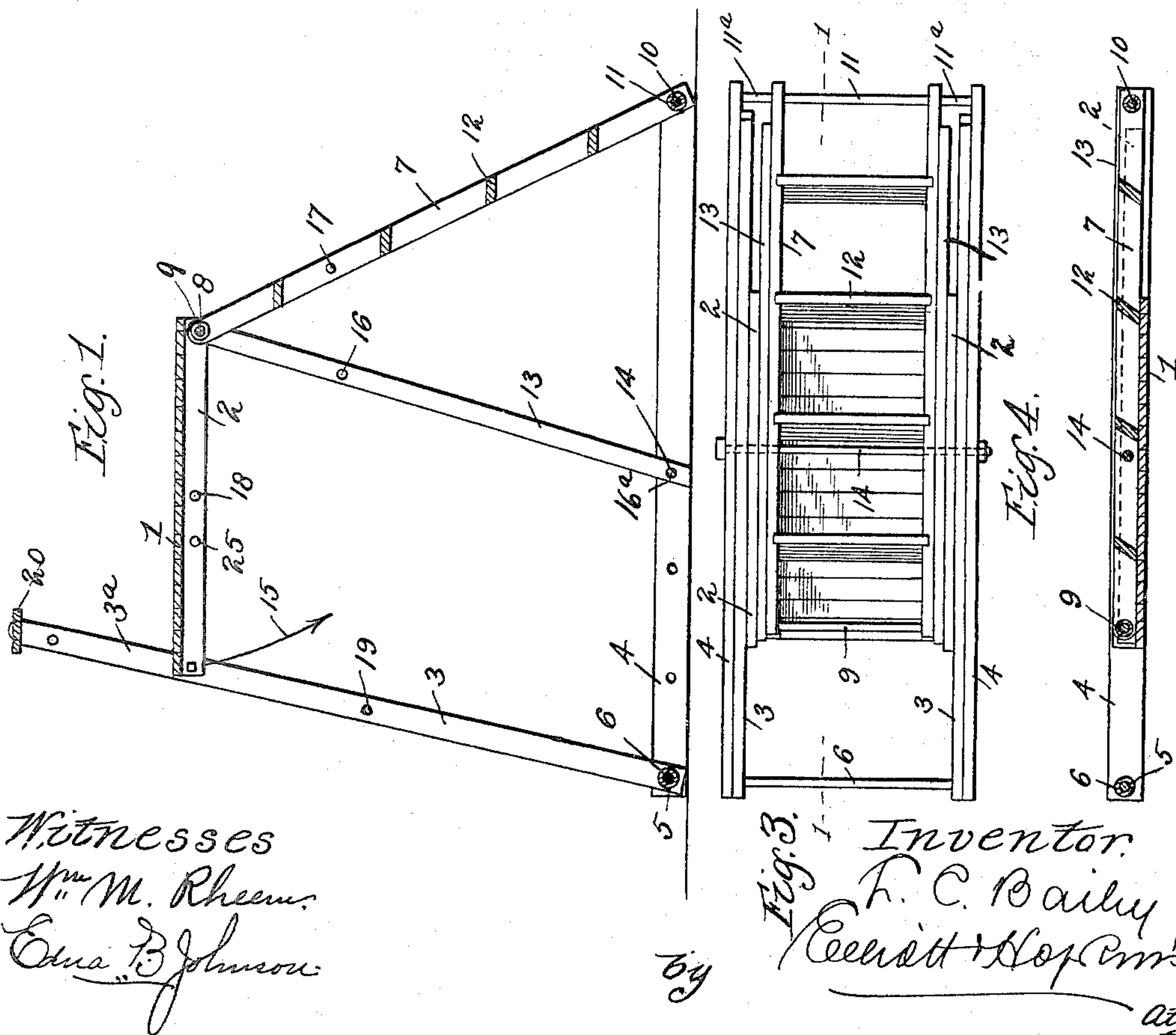
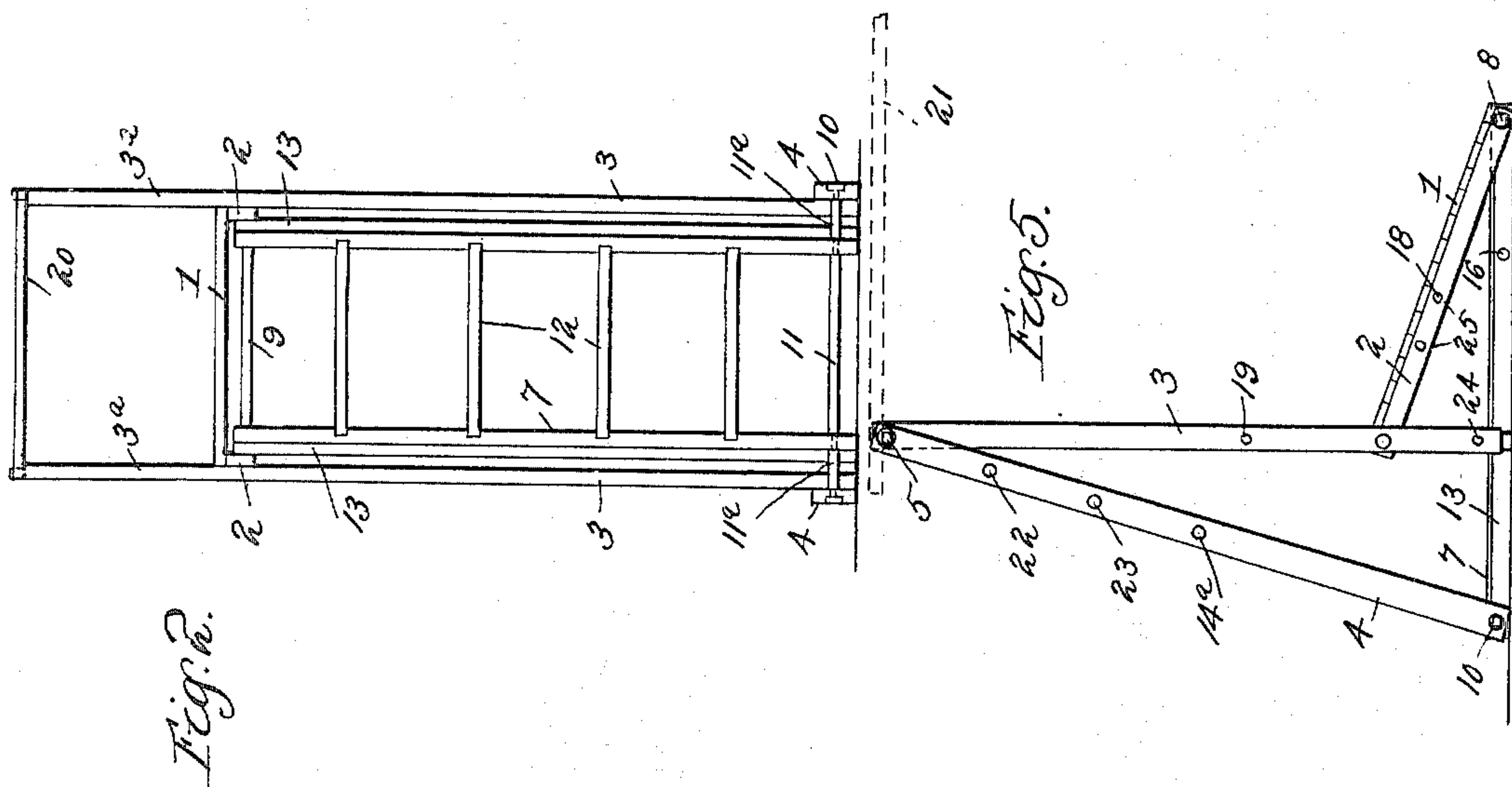
Patented Jan. 2, 1900.

L. C. BAILEY.
LADDER AND TABLE.

(Application filed Dec. 3, 1898.)

(No Model.)

2 Sheets—Sheet 1.



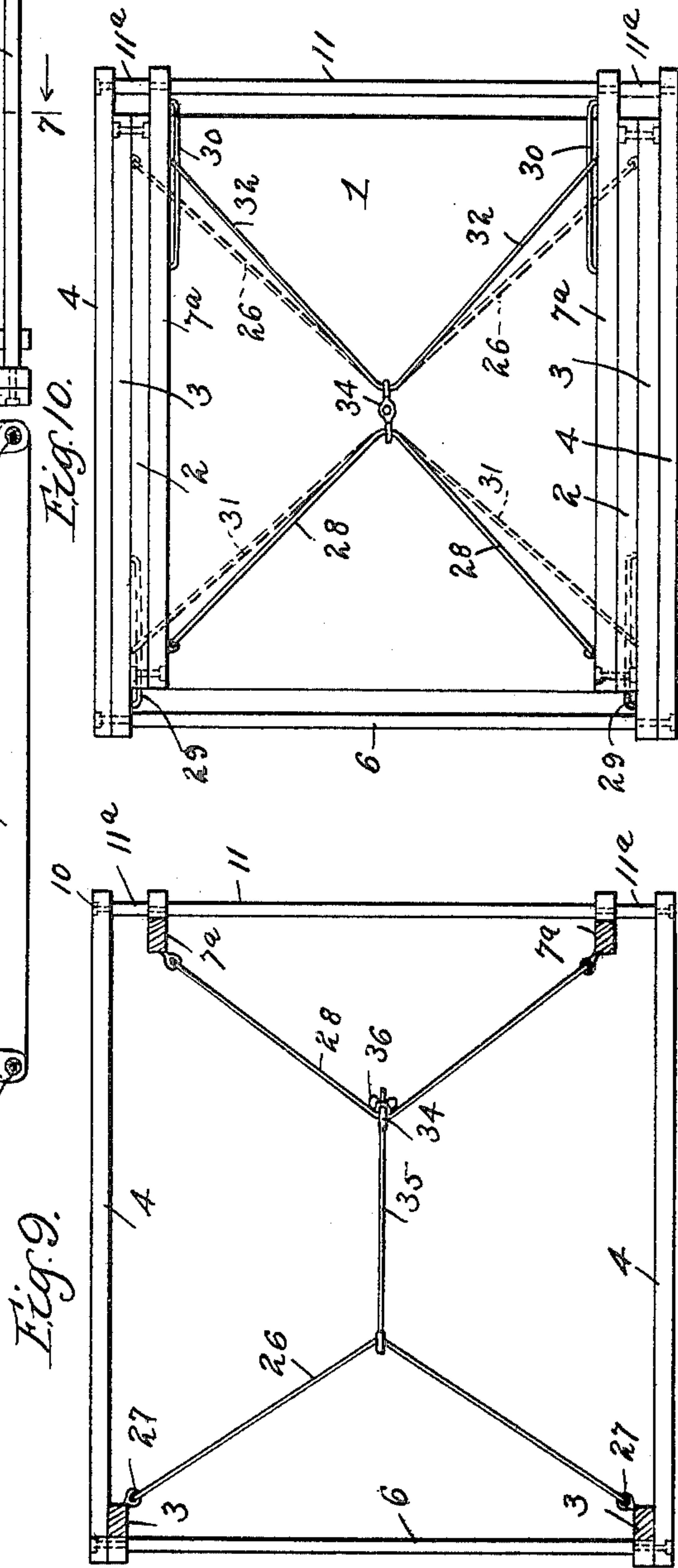
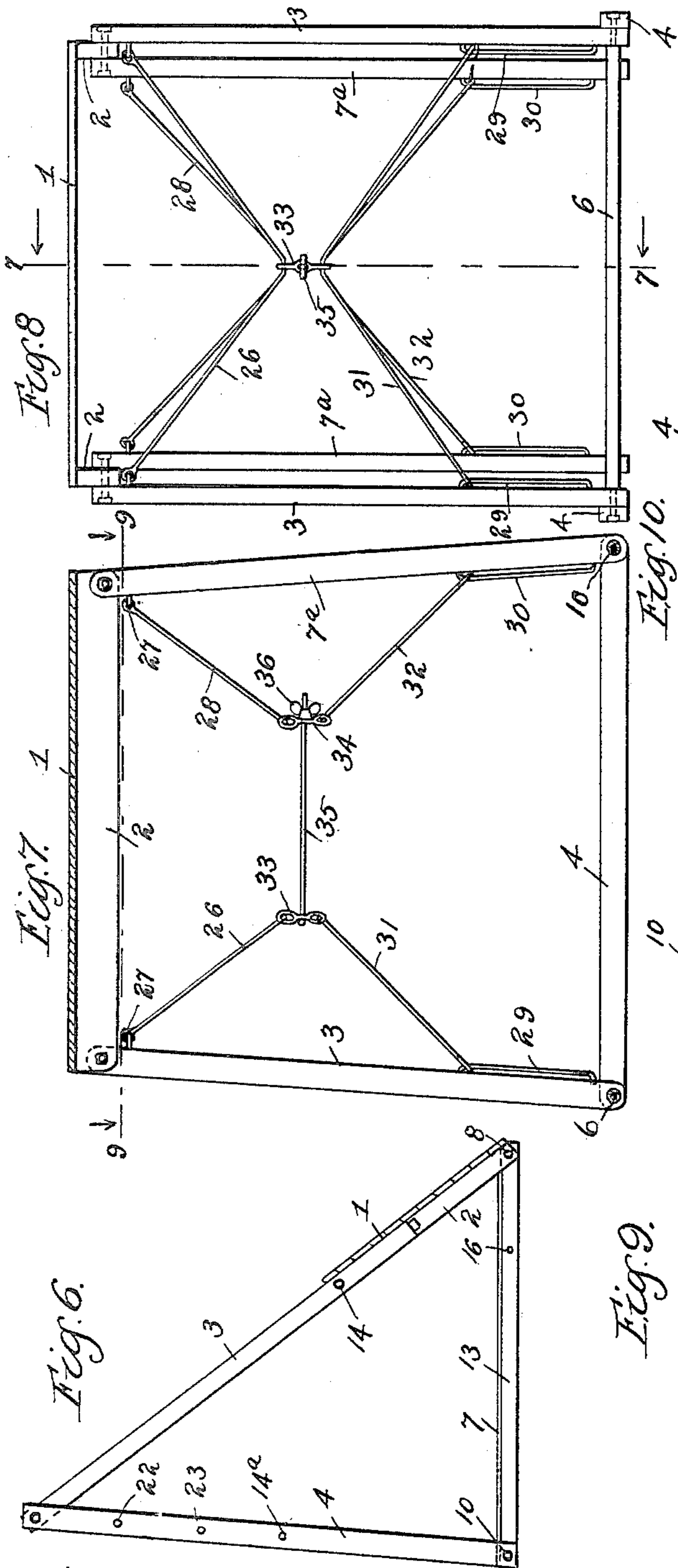
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

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LADDER AND TABLE.

SPECIFICATION forming part of Letters Patent No. 640,354, dated January 2, 1900.

Application filed December 3, 1898. Serial No. 698,135. (No model.)

To all whom it may concern:

Be it known that I, LEONARD C. BAILEY, 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 Ladders and Tables, of which the following is a full, clear, and exact specification.

My invention relates to tables and ladders, and the improvements have more especial reference to means for bracing the device when in use and for permitting it to be folded into compact form when not in use.

The primary object of my invention is to provide a platform with folding supports and braces, whereby the whole may be folded together in a strong and compact form when not in use, and which shall be especially adapted for use in the construction of a folding platform-ladder or folding tables.

Another object of my invention is to so combine and arrange the parts of a folding ladder that the same may be readily converted into a support for staging.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a vertical longitudinal section of my invention embodied in the form of a platform ladder, showing the ladder open or set up. Fig. 2 is an end or front view thereof. Fig. 3 is a plan view showing the ladder folded up. Fig. 4 is a longitudinal sectional view of the ladder folded, taken on the line 1 1, Fig. 3. Fig. 5 is a side elevation of the ladder stood up to be used as a support for staging, one end of the staging being shown in dotted lines. Fig. 6 is a side elevation of the ladder stood up in a different form for use as a staging-support. Fig. 7 is a vertical sectional view of a table embodying my invention. Fig. 8 is an end elevation thereof. Fig. 9 is a plan section, and Fig. 10 is a bottom plan, of the table folded.

The principal feature of my invention is the fold, whereby I am enabled to employ a platform of considerable area for use either

as a ladder-platform or a table platform or top and which at the same time may be folded together with the standards or supports and braces in a compact and durable form. The same manner of folding is followed in both instances, and the essential construction differs only in the degree of inclination of the legs, standards, or other supports for the platform, which in one instance may be used as a surface to stand upon and in the other as a table-top.

I will first describe the improvements as applied to folding ladders. (Shown in Figs. 1 to 6, inclusive.)

1 represents the platform, which is here shown as rectangular and along each side of which is secured a beam 2, to which the boards of the platform may be secured when boards for its construction are employed. To one end of each of the beams 2 and to the outer side thereof is pivoted a standard or support 3, whose lower end is in turn pivoted to one of a pair of beams 4, arranged substantially parallel and connected together at one end by a rod 5, which passes through the standards 3 and the beams 4 and has sleeved thereon a tube 6, against the ends of which the standards 3 abut, thus holding the standards apart and constituting, with the beams 4, a base-frame for the ladder. To the opposite end of the platform is pivoted a pair of standards 7, which constitute a support for that end, one of the standards 7 being pivoted by a bolt or rod 8, contiguous to the inner side of each of the beams 2 of the platform, so that the pivot at the upper ends of the standards 7 will be below the platform and the standards will be between the beams 2. The bolt 8 preferably extends entirely across from one beam 2 to the other and has sleeved thereon between the standards 7 a tube or sleeve 9, which holds the upper ends of the standards 7 apart and imparts rigidity to the structure when the bolt 8 is tightened up. The lower ends of the standards 7 are carried outwardly away from the platform and pivoted to the beams 4 of the base-frame by means of a bolt or rod 10, a tube or sleeve 11 being sleeved thereon between the lower ends of the standards 7 for holding the latter apart. The standards 7 are provided with steps or rungs 12, whereby the same may be utilized as a ladder

for mounting the platform 1. The rear standards or supports 3 are also preferably inclined toward the platform, as shown in Fig. 1, so that the weight upon the platform will not impart thereto a tendency to tip forward. This tendency, however, may be absolutely prevented and the structure rendered exceedingly rigid and firm by means of a pair of braces 13, secured at their upper ends to the platform or to one pair of the standards, while their lower ends may rest upon the floor or, what is more preferable, may be secured to the base-frame. The upper end of one of these braces is pivoted on each end of the pivot rod or bolt 8 at a point between the outer side of one of the standards 7 and the inner side of one of the platform-beams 2, and the lower ends of these braces 13 may be secured to the beams 4 of the base-frame by means of a transverse bolt or rod 14 passing there-through, the braces 13 being of sufficient length to form an inverted V with the standards 7 when the ladder is set up.

The parts of the described structure are so proportioned that the combined length of the platform 1 and the standards 3 from the point where the platform is pivoted thereto will be less than the combined length of the standards 7 and side beams 4 of the base-frame, so that in the construction shown when the bolt 14 is removed the end of the platform may be swung downwardly in the direction of the arrow 15 and the movement of its pivot at that end continued toward the base until the platform becomes completely inverted and the standards 7 and braces 13 assume a horizontal position parallel with the side beams 2 of the platform and with the side beams 4 of the base-frame, the standards 7 and braces 13 lying on top of the inverted platform, and the standards 3 lying between the beams 4 and 2 when the parts are in such folded position, as clearly shown in Fig. 3. After the parts have been folded together in the compact form, shown in Figs. 3 and 4, with all of the parts lying substantially in the same plane, they may be firmly secured together for transportation or storage by means of the bolt 14, which is passed through the perforations 14^a in the side beams 4 and perforations 16, 17, 18, and 19, formed in the braces 13, standards 7, beams 2, and standards 3, respectively. When it is desired to set the ladder up, the front end of the platform may be raised by means of the sleeve 9, causing the platform and standards 3 to first straighten out into line. These parts then bend at an angle as the pivot at the upper end of the standards 3 is moved upwardly and to the left, and before the standards 7 move back from right to left to their former position (shown in Fig. 1) the braces 13 may be pulled toward the standards 3 and the parts then allowed to settle to their proper position, whereupon the rod 14 may be passed through the registering perforations 14^a 16^a in the beams 4 and braces 13, as described.

The base-frame of the ladder, which is constituted by the side beams 4, sleeves 6 and 11, and washers 11^a, and the bolts passing through said sleeves and washers, is of sufficient dimensions to contain all of the other parts when folded together, as shown in Fig. 3, the space between the side beams 4 and the lower ends of the standards 7 being filled by the elongated washers 11^a on the rod 10 to provide for the tightening of such rod without compressing the side beams 4 against the parts between them.

If desired, the upper ends of the standards 3 may be provided with extensions 3^a for the support of an additional step or shelf 20, which may be removed when the ladder is folded.

Should it be desired to utilize the ladder as a support for a staging, (shown at 21 in dotted lines,) the step or shelf 20 is removed and the entire structure tilted to the right until the standards 7 lie flat and the beams 4 are erect, the upper extensions 3^a of the standards 3 being brought down to the floor and stood thereon, thus forming an inverted V, which is braced on one side by the platform 1, the sleeve 6 being utilized as a support for one end of the staging 21. Should it be desired to support the staging at a lower elevation, the rod 14 may be passed through any one of the perforations 14^a, 22, and 23 in the beams 4 of the base-frame and the staging supported on such rod.

In order to make a higher and more substantial support for the staging, the platform may be raised at its upper end until a perforation 24 in each of the extensions 3^a coincides with a perforation 25 in each of the side beams 2 of the platform, whereupon the bolt or rod 14 may be passed through them, and thus hold the side beams 4 in a more nearly perpendicular position, whereby they will be better able to withstand the strain, the standards 3 and beams 2 serving in this instance as an inclined brace, as shown in Fig. 6.

Referring now to Figs. 7 to 10, inclusive, which show the application of my improvements to a folding table, the platform or table-top 1, although of less length than the side beams 4 of the base-frame, as described with reference to the ladder, which is essential in order to permit of the table or platform being inverted when folding downwardly, is made as near the length of the side beams 4 of the base-frame as possible without defeating this end. The standards or legs 3, whose upper ends are pivoted to the outer sides of the beams 2 of the platform, are pivoted at their lower ends adjacent to the inner sides of the side beams 4 of the base-frame and are held apart by the sleeve or tube 6. The standards or legs at the opposite end of the table, which in the construction shown in Figs. 1 to 6 are utilized for carrying the steps of the ladder, are indicated at 7^a and are pivoted at their upper ends adjacent to the inner sides of the beams 2 and at

their lower ends on the rod 10 at a slight distance from the side beams 4, as shown in Fig. 9, so as to afford room for the standards 3 between them and the side beams 4 of the base-frame when the upper ends of the standards 3, with the platform pivoted thereto, are carried downwardly to the right as viewed in Fig. 7.

As a brace for making the table construction rigid I prefer to employ four V-shaped yokes attached to the upper and lower ends of the legs or standards, respectively, and brought together under the table by a suitable turnbuckle or other similar device. One, 26, of these yokes has its ends pivoted by means of eyes 27 to the upper end of each of the standards 3, while the standards 7^a have connected to their upper ends in a similar manner a similar yoke 28. At the lower end of each of the standards 3 is provided an elongated link or slip-joint 29, while at the lower end of each of the standards 7^a is provided a similar link or slip-joint 30, and to these links 29 30 are secured, respectively, the ends of the two other links 31 32. The crutch of the yoke 31 is connected to that of the yoke 26 by a double link 33, while the yokes 28 32 are similarly connected by a link 34, and passing through these links is a binding-rod 35, having a thumb-nut 36, whereby the yokes may be pulled together and all four corners of the table drawn toward a central point.

When it is desired to fold the table, the rod 35 is removed and the yokes 31 32 allowed to slip down in their slip-joints or links 29 30 until the yokes 26 31 on one side lie in a plane against or substantially parallel with the inner faces of the standards 3 and the yokes 28 32 on the other side occupy a similar position with reference to the standards 7^a. If now the upper left-hand end of the platform 1 or table-top is forced downwardly to the right until the standards 3 come parallel with the base-frame 4, the table-top will be inverted and presented face downwardly against the floor, while the standards 7^a will rest on top of the inverted table or on the surface which will be the bottom of the table-top when in use. This action will also bring the yokes 26 31 to a position under the table-top or between the table-top and the floor, while the yokes 28 32 will rest over the inverted table-top, and in these positions the yokes would subserve the further useful function of protecting the table-top from damage.

It will be seen that in both constructions or forms of my invention illustrated in the accompanying drawings the distance between the hinge which connects the upper ends of the standards or hinged supports at one end of the horizontal member (which in one instance is the platform of the ladder and in the other instance the table-top or any other support) and the hinge at the lower ends of the other standards or hinged supports along the

first-named standards and base-frame is greater than the distance from the first said hinge to the last said hinge along the platform and the other standards, thus enabling me to fold the platform downwardly, as indicated by the arrow in Fig. 1, and invert it in the act of folding without detaching any of the hinges.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The combination of a horizontal member, an upright support hinged to each end thereof, of a base-frame for holding the lower ends of said supports in place and a brace for holding said supports from turning on their hinges, the distance between the hinge at the upper end of the support at one end of the horizontal member and the hinge at the lower end of the support at the other end of the horizontal member being greater along the base-frame and support at one end than it is along said horizontal member and the support at the other end, whereby the horizontal member and supports may be folded together and the horizontal member inverted in the act of folding, substantially as set forth.

2. The combination of a platform, a standard hinged to each corner thereof, a base-frame hinged to said standards and means for bracing the platform and standard, the combined length of the platform and standard at one end being less than the combined length of the base and the standard at the other end, whereby the platform may be swung downwardly and inverted in the act of folding up the device, substantially as set forth.

3. The combination of a platform, a rectangular base-frame of greater dimensions than said platform and within which said platform is adapted to rest, supports or standards hinged at their lower ends to said base-frame and at their upper ends to said platform and being located within and of less length than said base-frame, substantially as set forth.

4. The combination of a platform, a base-frame, standards hinged at their upper and lower ends to said platform and base-frame respectively, a downwardly-extending brace hinged at its upper end concentrically with the hinge at the upper end of one of said standards, and said base-frame, brace and standards, having registering perforations when folded together, and a rod adapted to pass through said perforations, substantially as set forth.

5. The combination of a platform, a base-frame, standards hinged at their upper and lower ends respectively to each end of said platform and base-frame, the standards at one end of said platform being provided with an extension above said platform, a removable step on said extension, and means for bracing said standards, substantially as set forth.

6. The combination of a platform, a base-frame, standards hinged to said base-frame and inclining toward and being hinged to op-

posite ends of said platform at their upper ends and a brace hinged at its upper end concentrically with the hinge of one of said standards, and being connected at its lower end to
5 said base-frame, the distance between the hinge at the upper ends of the standards at one end and the hinge at the lower ends of the standards at the other end being greater along the standards and base-frame than

along the platform and standards at the other end, whereby the standards, platform and base-frame may be folded together and the platform inverted in the act of folding, substantially as set forth.

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