(No Model.) 3 Sheets—Sheet 1.

J. RICHSTINE.

ADJUSTABLE SCAFFOLD SUPPORT.

No. 371,279. Patented Oct. 11, 1887.

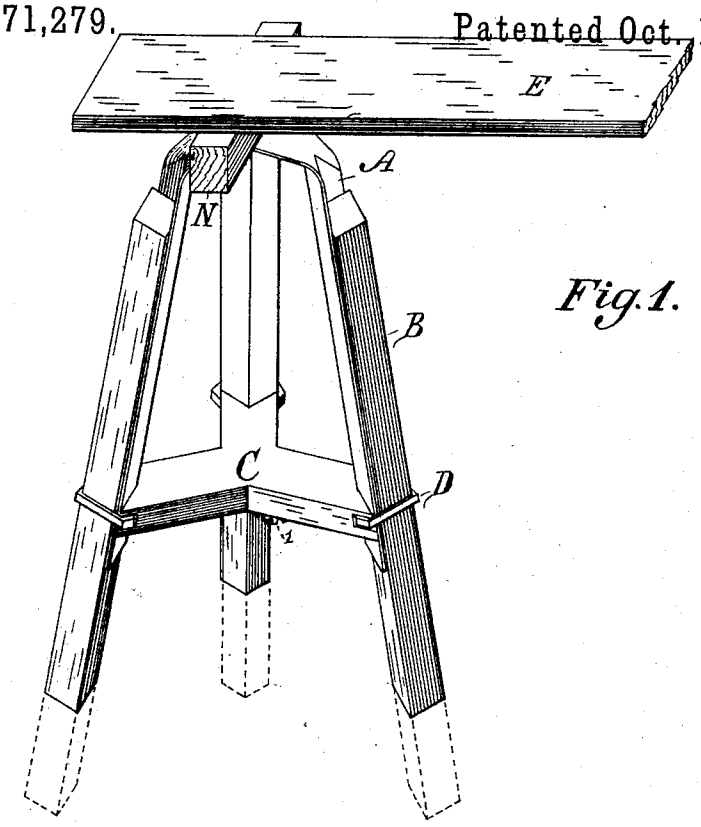
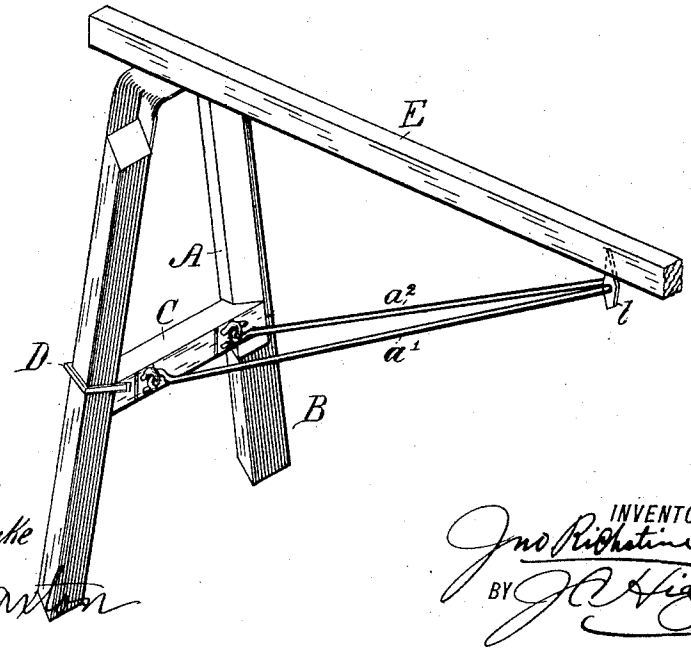


Fig. 1.

Fig. 2.



WITNESSES:
Richd. W. Yake
Geo. B. Dawson

INVENTOR,
Jno Richstine
BY J. A. Higdon
ATTORNEY.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 2.

J. RICHSTINE.

ADJUSTABLE SCAFFOLD SUPPORT.

No. 371,279. Patented Oct. 11, 1887.

Fig. 3 a.

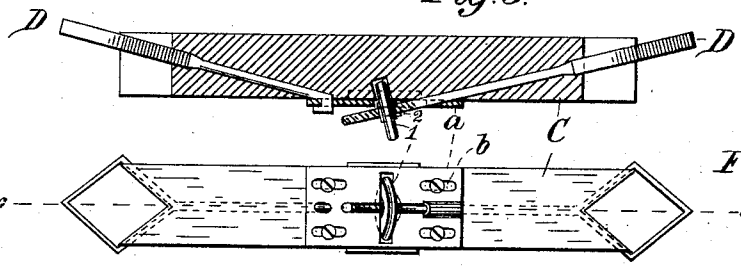


Fig. 3 b.

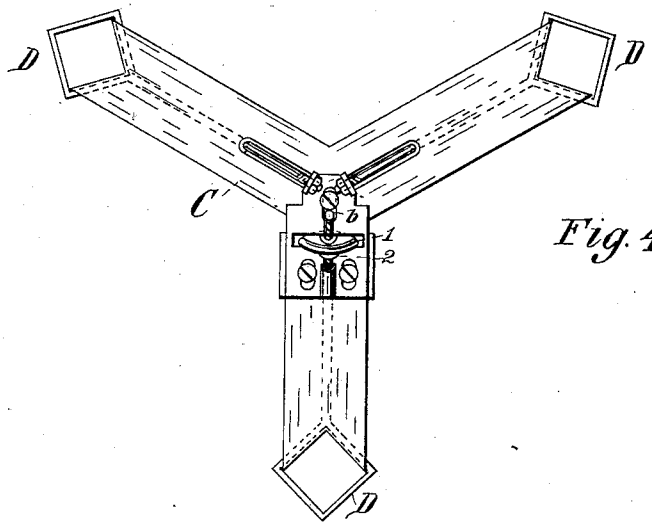


Fig. 4.

Fig. 5.

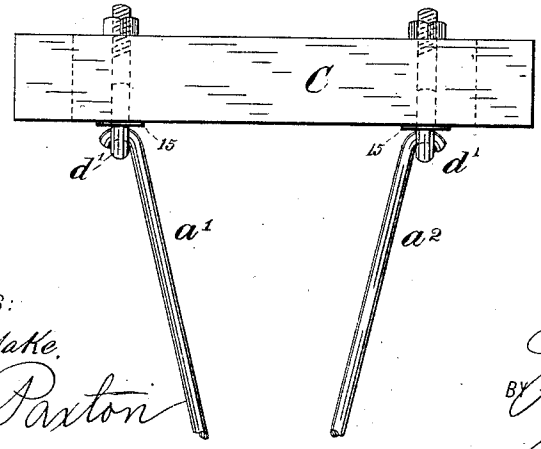
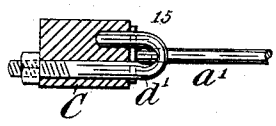


Fig. 6.



WITNESSES:

Richd W. Wake.

Geo. B. Paxton

INVENTOR,

Jno. Richstine

BY J. V. Higdon

ATTORNEY.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.)

3 Sheets—Sheet 3.

J. RICHSTINE.

ADJUSTABLE SCAFFOLD SUPPORT.

No. 371,279. Patented Oct. 11, 1887.

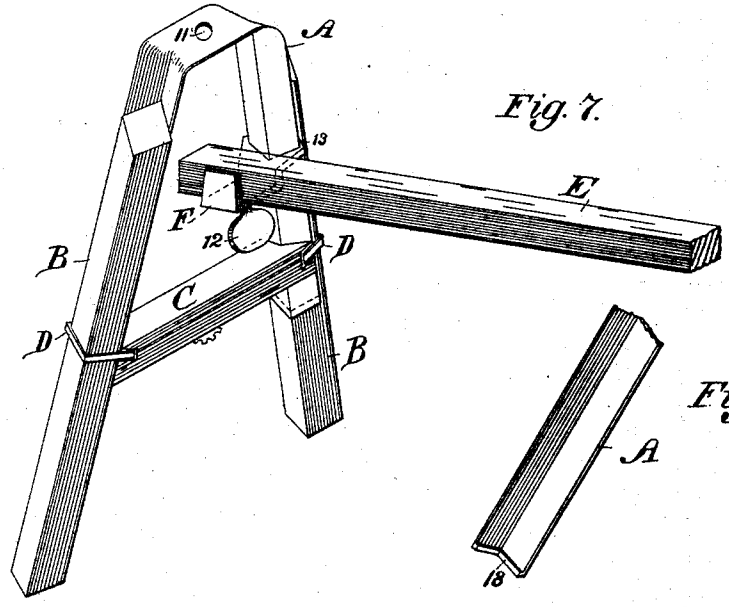


Fig. 7.

Fig. 8.

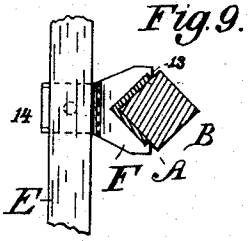


Fig. 9.

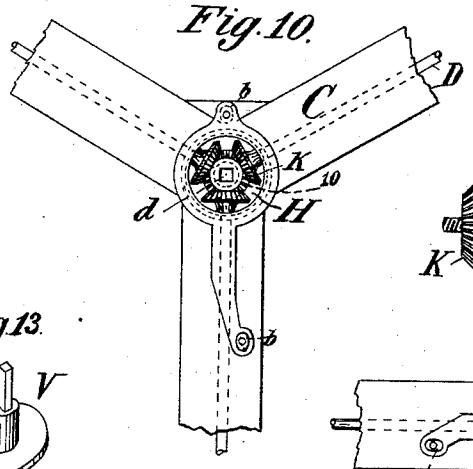


Fig. 10.

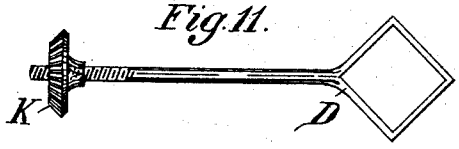


Fig. 11.

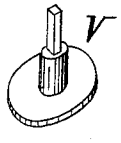


Fig. 13.

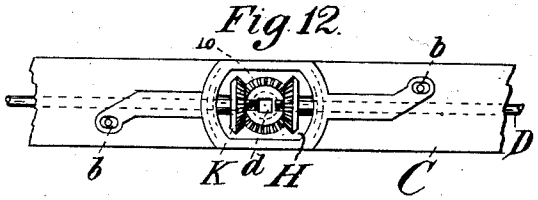


Fig. 12.

WITNESSES:

Richd. W. Hake.

Geo. B. Paxton

INVENTOR,

Jno. Richstine

BY J. C. Higdon

ATTORNEY.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JOHN RICHSTINE, OF KANSAS CITY, MISSOURI.

ADJUSTABLE SCAFFOLD-SUPPORT.

SPECIFICATION forming part of Letters Patent No. 371,279, dated October 11, 1887.

Application filed January 6, 1887. Serial No. 223,542. (No model.)

To all whom it may concern:

Be it known that I, JOHN RICHSTINE, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Adjustable Scaffold-Supports, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

The object of my invention is to provide a ready-built adjustable scaffold for the use of plasterers, paper-hangers, calciminers, and painters that will be strong, rigid, durable, and convenient for use.

The invention may be said to consist in the devices and the combination and arrangement of devices hereinafter set forth, and pointed out in the claims.

In the drawings, which illustrate the manner of carrying out my invention, Figure 1 is a perspective view of one of my improved supports in tripodal form. Fig. 2 is a like view of a two-legged support. Fig. 3ª is a section through the cross-bar used in the two-legged support on longitudinal line *x x*, and Fig. 3ᵇ is a plan view of the under side of said bar. Fig. 4 is a plan view of the under side of the cross-bar used in the tripodal support. Fig. 5 is a detail view of the upper side of the cross-bar used in the two-legged support, and showing the manner of adjustably attaching the braces thereto. Fig. 6 is a transverse section through the last-mentioned cross-bar at a point where a brace is attached. Fig. 7 is a perspective view of one of my supports with the self-clamping bracket attached thereto. Fig. 8 is a detail view of the lower end of a metallic section. Fig. 9 is a detail view showing the manner of securing the bracket to the leg-section. Fig. 10 is a view of the under side of the cross-bar used in the tripodal support, showing a variation in the clamp-operating devices therefor. Fig. 11 is a detail view of a clamp having a gear-wheel located on its shank. Fig. 12 is a view of the under side of a cross-bar for the two-legged support, showing a variation in the clamp-operating devices therefor, and Fig. 13 is a perspective view of a key for such devices.

At the beginning of this description I will say that the tripodal or three-legged form of support may be used as a complete trestle itself, or two of them may be employed to form a trestle, as may be desired. When two are to be used, a block of wood, N, should be permanently secured upon the flat surface formed by the upper ends of the metal sections A, and a plank, E, of suitable dimensions should then be located on the block of wood and extend from one support to the other. This plank I may term the "ledger" of the trestle so formed. In the case of the two-legged form, however, it is necessary that a pair of supports be used in all instances, as it is evident that a single one would not stand alone. The standards of each style of support are composed of an upper section, A, made of angle-iron that is L-shaped or rectangular in cross-section, and a lower section, B, of wood, which is preferably rectangular in cross-section, as shown, and one corner whereof engages the inner surface of said upper section. I provide a flat surface at the upper portion of the upper sections, which may be engaged by either the block N or the ledger E, by flattening out the angle-iron at that point. In Fig. 2 the upper section or sections are formed of a single piece of iron flattened at about the middle of its length and then bent to about the angle assumed by the legs of an ordinary trestle; but in the construction shown in Fig. 1 three separate pieces of angle-iron are employed in making up the upper sections of the support. The upper ends of said sections are flattened and secured together by means of bolts or rivets, or in any suitable way.

For holding the standard-sections at any desired point of adjustment I locate clamps D in or upon the cross-bar C. The head portions of the clamps are so made as to encircle both of the overlapping standard-sections, as shown. Said clamps consist of a rectangular hoop of iron or other metal, and having a shank of suitable length to reach the point on the cross-bar C where the clamp-operating devices are located, secured thereto and extending from one side thereof. The shanks on the clamps should be formed integral with their head portion, as indicated. Of course, in the tripodal arrangement before mentioned, the cross-bar C is provided with three arms and with a clamp for each arm.

Different devices may be used for causing the clamps D to press the sections B firmly against the sections A in adjusting the stand-

ards; and I do not desire to limit myself to any special form of clamp-operating mechanism. The arrangement shown in Figs. 3 and 4 is the one I prefer to make use of, and in the two-legged support it may be described as follows: The shank of one clamp is secured to center plate, *a*, in any desired way, and the other clamp (only two are used in this arrangement) has the inner end of its shank threaded and passed through an aperture in said plate, and a hand wheel or nut, 1, is located on the threaded end of the last-mentioned shank. The center plate, *a*, is loosely secured upon the under side of the cross-bar, so that it can move longitudinally thereon, by means of slots *b* and screws which pass through the slots into the bar.

When it is desired to tighten the standards in place after they have been adjusted, the hand-wheel 1 is revolved in the proper direction, and it thereby presses against the shoulder 2, which is raised from the surface of the plate *a* and draws inwardly the shank upon which it is mounted, and as it also presses against the said shoulder on the plate the plate will also be moved inwardly or longitudinally and the other shank, which is secured to the said plate, will also be drawn inwardly, thereby causing both standards of the support to be gripped by their respective clamping-bars simultaneously and to be locked in position.

In the arrangement of cross-bar for the tripodal form of support (shown in Fig. 4 more clearly) three clamps are used, and two of their shanks are provided with screw-threads and nuts, whereby they are secured to the center plate, while the remaining one carries the hand-wheel, as before described. The operation of this latter arrangement is much the same as the other, except that the two shanks having threads and nuts are located at an angle to each other, and will therefore be drawn a little to one side by the action of the hand-wheel during the tightening operation, which is not a detriment, as I have found that satisfactory results are obtained by its use. The metallic upper sections, A, can be made of iron that is semi-tubular or segmental in cross-section. In fact, the style of iron used may be of any desired cross section that will answer the purpose. It will be observed that the clamps are located at an angle to the body of the cross-bars—in other words, they are inclined downwardly from their head portions to their inner ends—and that said shanks extend from the standards at a right angle thereto, thereby permitting the heads of the clamps to grip said standards squarely.

In the modifications of cross-bar and clamping devices shown in Fig. 10 the inner end of the shanks of three clamps are threaded, as before described, and a small gear-wheel, K, is also threaded and one of them is mounted on the threaded end of each shank, and another gear, 10, having a rectangular aperture in its body, is mounted in a recess, H, in the bar and engages each of the other gears, as shown. The letter *d* indicates the aperture in the gear-wheel 10. The operation of this arrangement is as follows: When gear 10 is turned in any desired direction, each of the gears K will be revolved on its shank and the clamps D will be loosened or tightened, as the case may be. A suitable key or wrench, V, having a square end for engaging aperture *d* in gear-wheel 10, is employed to turn said gear-wheel.

The action of the clamping devices shown in Fig. 12 is substantially the same as that just described, with the exception that only two clamps are employed in it.

For the purpose of making the contact between the upper and lower standard-sections more secure, I turn the edge of the metal of which the sections A are constructed inwardly at the lower end, so as to form a bead or projection, 18, as shown more clearly in Fig. 8. The action of this bead or projection is to hold the section B at a little distance from the section A when the clamp is loose, and to sink into the surface of section B, and thereby make a securer joint, when the clamp is tightened up. If desired, I may accomplish the same result by securing a small strip or strips of metal to the end of section A by means of solder or rivets, to form said bead or projection. The plank or ledger E is to be secured or located directly on the flat surface at the upper end of the two-legged supports shown in Figs. 2 and 7, and it may be secured in place by means of thumb-screw 12, or other device, which is passed through an aperture, 11, in said flat surface and into said ledger.

In some cases it may be desirable to locate the ledger E quite low down upon the supports—in fact, lower down than it can be made to go by shortening up the standard. To permit this I provide a self-clamping bracket, F, and locate it on the upper section, A, as shown. The construction and action of this bracket are as follows: It is made of an integral piece of metal and has prongs 13 formed on one end, which engage opposite edges of the section to which it is attached, and the end opposite the prongs is turned upwardly, so as to form a flange or guard for preventing the ledger from slipping off the bracket. When weight is placed upon the bracket, its free end is somewhat depressed thereby, while the prongs or hooks 13 remain stationary and grip the edges of the standard-section, thereby exerting sufficient pressure at the points of contact to frictionally support the said bracket and the weight that is imposed upon it. If desired, the thumb-screw 12 may be passed through an aperture in the body of said bracket and screwed into the under side of ledger E, to more securely hold said ledger in place, as shown.

In the case of the two-legged support it will be necessary to provide a brace or braces, such as $a' a^2$, to hold the supports in proper relation to the ledger and to each other. This I do, as shown. The upper ends of said braces can be fastened to the ledger in any desired

way; but in order to secure them as quickly as possible, (which is to be desired in use,) and at the same time to do it securely, I locate a spike, *l*, at the upper end of the braces, which is pointed and can be driven into the under side of the ledger with a few blows from a hammer, and which can in a like manner be easily detached therefrom. The spike *l* is perforated for the passage of the brace-rod through its body, and the ends of said rods are then bent toward each other, as shown, and a hook or eye is formed on each end.

A pair of hook-bolts, *d'*, are provided with screw-thread and nut, and are passed through the cross-bar C, so that their heads will project some distance beyond the inner side of said bar, and the hooks or eyes on the ends of the braces a' a^2 are made to engage the hooks of the bolts *d'*. To prevent the end of the brace or braces from wearing into the surface of the cross-bar during use, I provide small metal plates 15 and locate them on the said hook-bolts between the cross-bar and the ends of the braces. In use the upper ends of the supports will be almost continuously vibrated, and considerable strain will be thrown on the braces, and the bearing-surfaces between the ends of said braces and the hook-bolts *d'* will gradually wear away. To take up this wear and to keep the braces tight at all times it will only be necessary to tighten the nuts on the outer ends of said hook-bolts from time to time, thereby drawing the ends of the braces firmly against the metal plates 15.

It should be clear that great strength will be embraced in my system of scaffold-supports when the weight of material used is taken into consideration.

The supports are especially for use on stairs or steps and inclined surfaces, the standards being adjustable in length independently of each other.

Having thus described my invention, what I claim is—

1. A scaffold-support provided with extensible standards having cross-bars connected with one of the sections thereof, in combination with clamps provided with inwardly-projecting shanks and devices secured to the inner ends of said shanks for forcing them toward or from a common center, for the purpose substantially as described.

2. A scaffold-support provided with extensible standards, the upper sliding sections of said standards being formed of material L or U shaped in cross-section and adapted to engage with the lower sliding sections, said L or U shaped sections having their upper ends joined and flattened, whereby a flat surface is formed on which a ledger or plank is adapted to rest, substantially as described.

3. In combination with the standards made in sections, one or more cross-bars connected to one of said sections, clamps carried by said cross-bars and provided with shanks projecting from one side thereof, and devices secured to the inner ends of said shanks for forcing them toward or from a common center, for the purpose and in the manner substantially as described.

4. In a scaffold-support provided with extensible standards made in sections, one or more cross-bars secured to one of said sections, in combination with the clamps carried by said cross-bars, each clamp being provided with a shank, one of which is provided with a screw-threaded end and suitable nut, said screw-threaded end loosely passing through a movable plate located on said cross-bars and the remaining shanks being secured to said plate, all adapted to operate substantially as described.

5. The combination, with ledger E and supporting-legs, of a brace connected at its lower end to said standards or to a cross-bar located between the standards, and a spike carried by the upper end of said brace to be driven into the under side of said ledger, as and for the purpose specified.

6. In combination with the standards or cross-bars of a scaffold-support or trestle, a brace carrying a hook or eye on its lower end, a hook-bolt provided with screw-thread and nut, and a metal plate located on said bolt between the cross-bar or standard and the end of said brace, as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN RICHSTINE.

Witnesses:
C. A. KENYON,
A. E. BURGESS.