No. 763,344. PATENTED JUNE 21, 1904.

E. S. BRYANT & W. C. MURDOCK.

ADJUSTABLE STANDARD.

APPLICATION FILED MAR. 30, 1903.

NO MODEL.

Fig. 1.

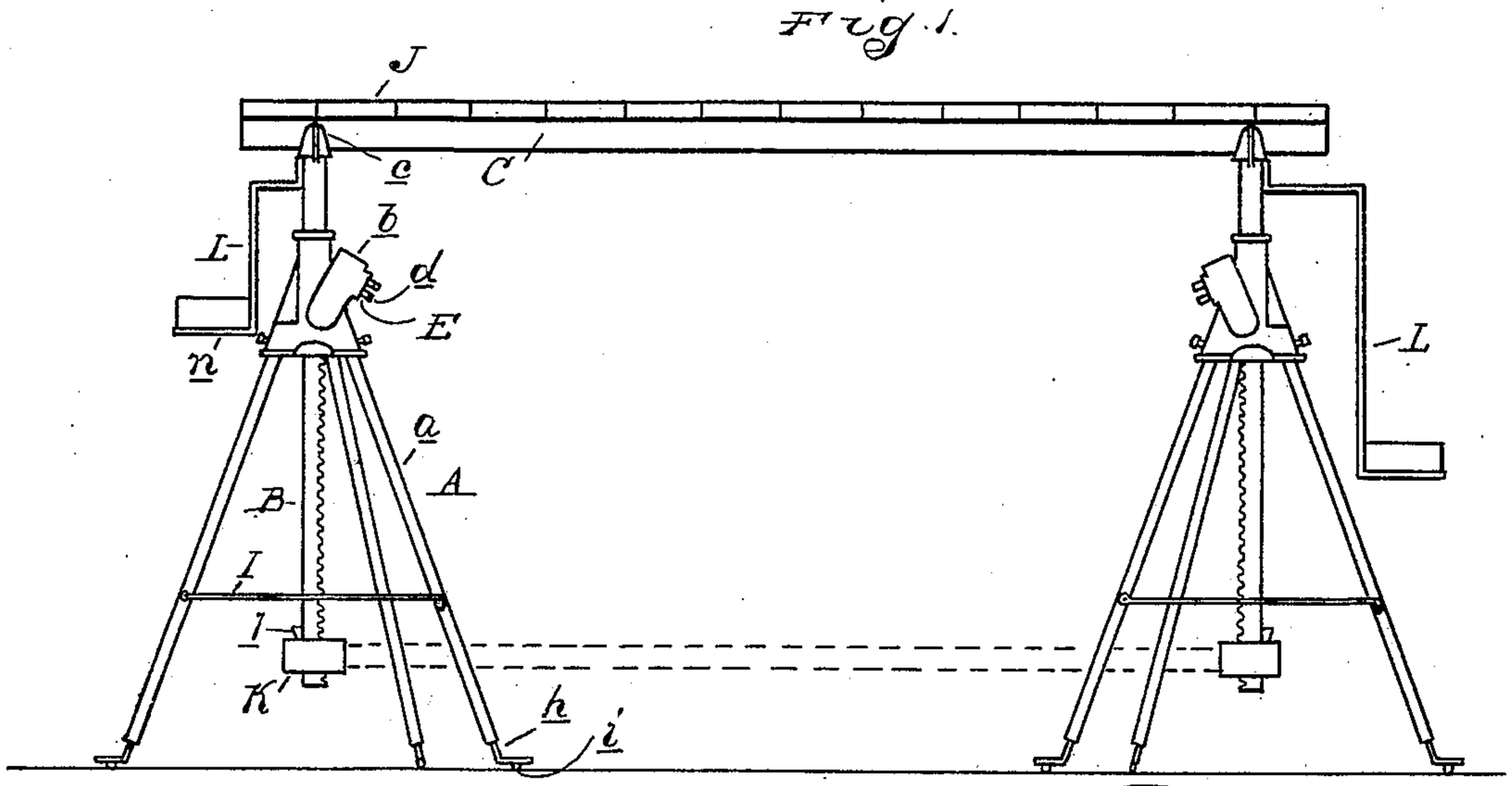


Fig. 2.

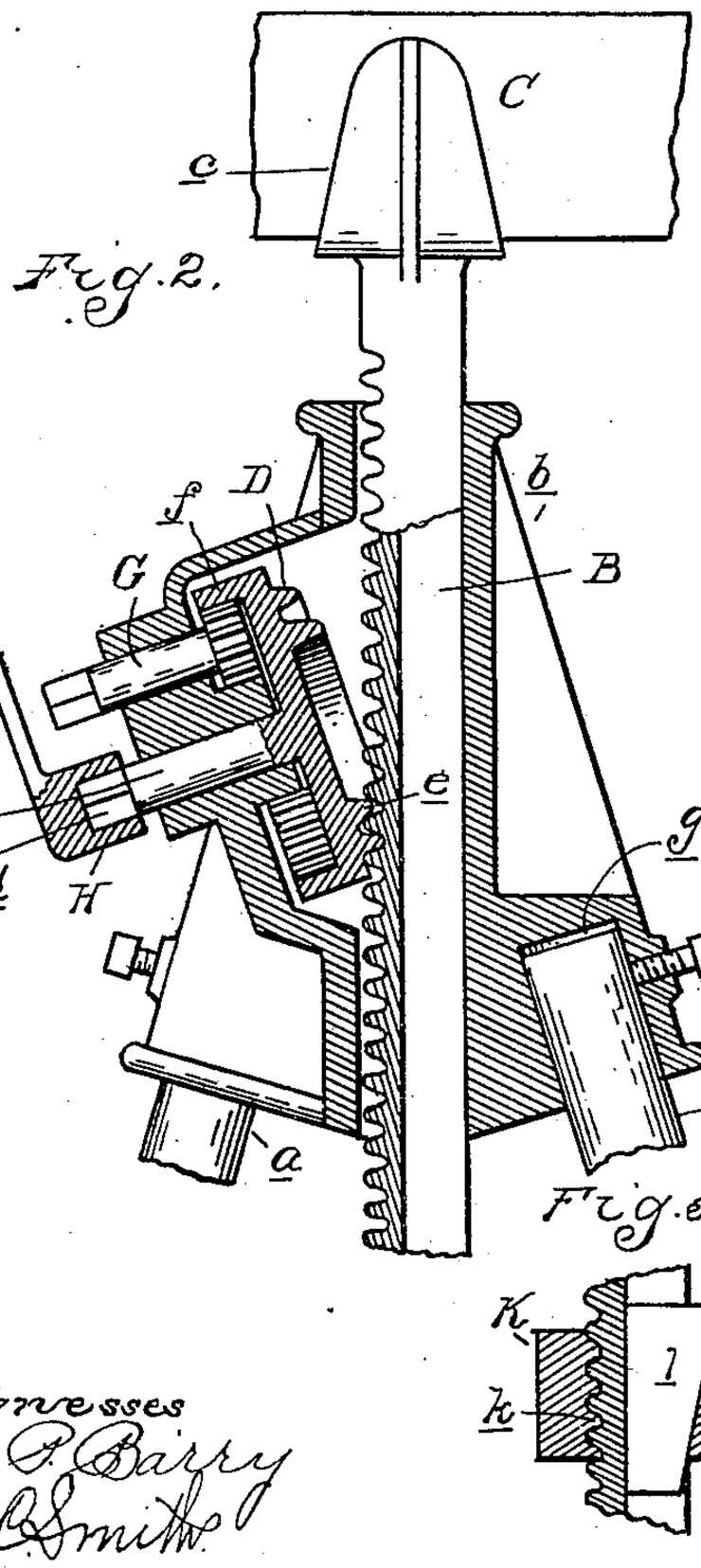


Fig. 3.

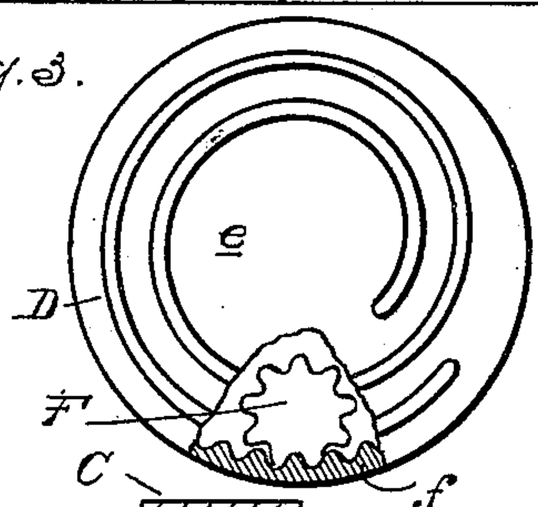
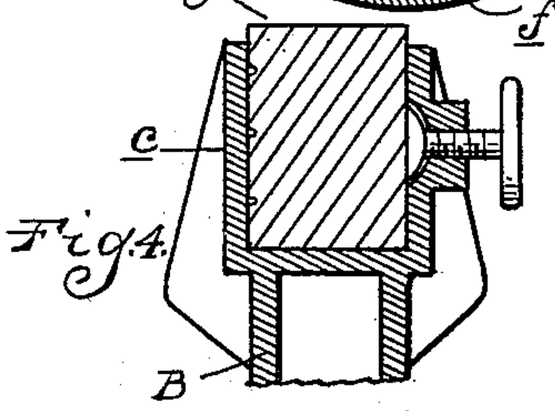


Fig. 4.



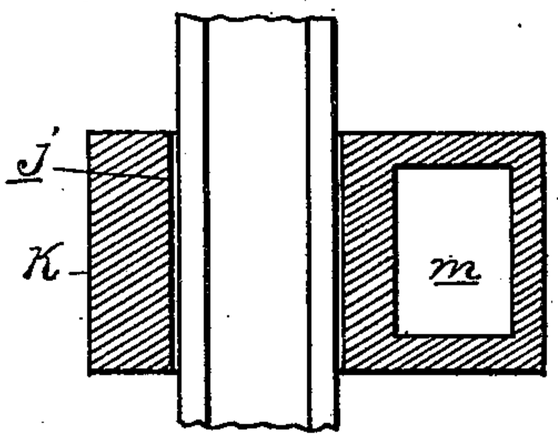


Fig. 5.

Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 763,344. Patented June 21, 1904.

UNITED STATES PATENT OFFICE.

ELLSWORTH S. BRYANT AND WILLIAM C. MURDOCK, OF DETROIT, MICHIGAN; SAID MURDOCK ASSIGNOR TO SAID BRYANT.

ADJUSTABLE STANDARD.

SPECIFICATION forming part of Letters Patent No. 763,344, dated June 21, 1904.

Application filed March 30, 1903. Serial No. 150,229. (No model.)

To all whom it may concern:

Be it known that we, ELLSWORTH S. BRYANT and WILLIAM C. MURDOCK, citizens of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Adjustable Standards, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to improvements in adjustable standards more particularly designed for use in supporting an adjustable scaffold.

The invention consists in the peculiar construction, arrangement, and combination of parts, as hereinafter set forth.

In the drawings, Figure 1 is an elevation of a scaffold constructed in accordance with our invention. Fig. 2 is an enlarged vertical section through the upper portion of the standard. Fig. 3 is an elevation of the spiral gear. Fig. 4 is a vertical sectional view, parts being shown in elevation and others being broken away; and Fig. 5 is a section at right angles to Fig. 4, illustrating the locking means for the hanger.

A is a standard of any suitable construction, but, as shown, consisting of a tripod having the legs *a* secured to a head *b*. The head *b* is centrally apertured for the passage of an adjustable standard B. This, as shown, is in the form of a rack-bar provided at its upper end with a head *c*, adapted to engage with the cross-bar C of the scaffold.

D is a spiral gear journaled in the head *b* and provided with an operating-shank E, which passes out from the head and has a square or polygonal end *d*. The axis of the gear D and shank E is inclined to the plane of the rack, so that the spiral rib *e* will engage with the rack on one side only of the center of said gear. As shown in Fig. 3, this spiral rib *e* is extended to form two complete convolutions, and, as shown in Fig. 2, the inner convolution is of greater height than the outer, so as to enter to substantially an equal depth in engagement with the teeth on rack B. The opposite side of the gear D has formed thereon an internal gear-flange *f*.

F is a pinion arranged to mesh with the gear-flange and having a stem G extending out from the head *b*. The outer end of this stem is of square or polygonal shape similar to the stem E.

With the construction as thus far described it will be understood that a rotation of the gear D will cause the longitudinal feeding of the rack B either upward or downward, according to the direction of rotation. The rotation of the gear may be accomplished by engaging a wrench or crank, such as H, with the end of either the stems E or G. When in engagement with the stem E, the gear is turned directly by the crank, and when the wrench engages with the stem G the gear is turned at slower speed and with greater power through the medium of the pinion F and internal gear-flange *f*.

The legs *a* may be secured to the head *b* by engaging sockets *g*, formed therein. To prevent springing, cross-ties I are arranged, which are pivotally connected to one leg and have a hook for engaging an eye upon the adjacent leg. If desired, the lower ends of the legs may be provided with tips *h*, which, as shown, have rubber bearings *i* thereon. Thus the standard may be placed upon a finished floor without in any way marring the same.

For extending the scaffold a pair of standards A are arranged a suitable distance apart and a cross-bar C placed in engagement with the head *c* of said standards. A similar pair of standards may then be arranged some distance away and planks J arranged to be supported by the cross-bar C. The platform thus constructed may be adjusted to different heights by means of the spiral gears D, before described. In order to provide a greater range of adjustment in height of the platform, we preferably provide a hanger K, which is adapted to be secured to the rack B at the lower end thereof and between the legs *a* at the center. As shown, the rack B is in the form of a channel-bar and the hanger K is provided with a socket *j*, through which the rack passes. One face of this socket has teeth *k* for engaging with the rack-teeth, and upon the opposite side a wedge *l* may be in-

serted in the channel of the bar B and in the socket *j*, thereby holding the teeth *k* in engagement with the rack. The hanger K is also provided with a socket *m* for engaging the cross-bar C. Thus where a lower platform is required the cross-bar C may be engaged with the hanger K and the platform arranged thereon. This platform may then be adjusted to different heights until the rack-bar B is raised to its highest point. The planking is then removed and the bar C placed at the upper ends of the rack-bars for engagement with the heads *b*.

It is desirable to have an auxiliary platform or plank arranged adjacent to the edge of the main platform, but on a lower level. This may be accomplished by means of hangers L, secured to the upper ends of the rack-bars and having the laterally-extending portions or steps *n* for supporting the plank. Similar devices may be arranged on both sides of the main platform, and the one auxiliary plank may be arranged at a different height from the other by altering the length of the hangers L.

While we have shown and described our invention as applied to an adjustable scaffold, it is obvious that the raising and lowering mechanism is adapted for other uses—as, for instance, in a jack—and we believe that such a construction is included in the broader scope of our invention.

What we claim as our invention is—

1. The combination with the standard, of an extension member therefor having a rack-shank, a spiral gear journaled in said standard and engaging said rack, the plane of rotation of said gear being inclined to the plane of movement of said rack, a central stem on said gear projecting outward from said standard and having a wrench-hold thereon, an internal gear-flange on said spiral gear, a pinion meshing therewith, and a shank for said pinion projecting outward parallel to the stem of said gear whereby said gear may be driven through the medium of either said stem or shank with different power.

2. The combination with the standard, of an extension member therefor having a rack-shank, a spiral gear journaled in said standard and engaging said rack, the plane of rotation of said gear being inclined to the plane of movement of said rack, a central operating-stem on said gear projecting outward from said standard, a peripheral gear on said spiral gear, and means independent of said central operating-stem operatively engaging said peripheral gear for actuating the same.

3. In a scaffold, the combination of a pair of standards each comprising a head, spreading legs, and an extension-bar passing vertically and centrally through said head, the upper ends of said extension-bar having bearings for engaging a cross-bar, means for raising and lowering said extension-bar in said head, and a hanger adapted to be secured to the lower end of said extension-bar between said legs forming a support for a cross-bar for a lower platform, in combination with means for securing the hanger to said lower end of the bar including means on the hanger adapted to engage the teeth of said bar, and means for locking the parts in engaged position.

4. In a scaffold, a standard comprising a head, spreading legs secured thereto, an extension-bar having a rack-shank passing centrally through said head, a spiral gear journaled in said head and engaging said rack having its plane of rotation inclined to the plane of movement of said rack, a bearing at the upper end of said extension-bar, and a hanger for detachably engaging the lowering end of said extension-bar, said bearing and hanger forming alternatively supports for the cross-bar of the platform, in combination with means for securing the hanger to said lower end of the bar including means on the hanger adapted to engage the teeth of said bar, and means for locking the parts in engaged position.

In testimony whereof we affix our signatures in presence of two witnesses.

ELLSWORTH S. BRYANT.
WILLIAM C. MURDOCK.

Witnesses:
JAS. P. BARRY,
ROSA LEONA MORGAN.