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Patented Dec. 25, 1900.

W. P. SMITH & A. TENNISON.
SCAFFOLD.

(Application filed Oct. 1, 1900.)

(No Model.)

2 Sheets—Sheet 1.

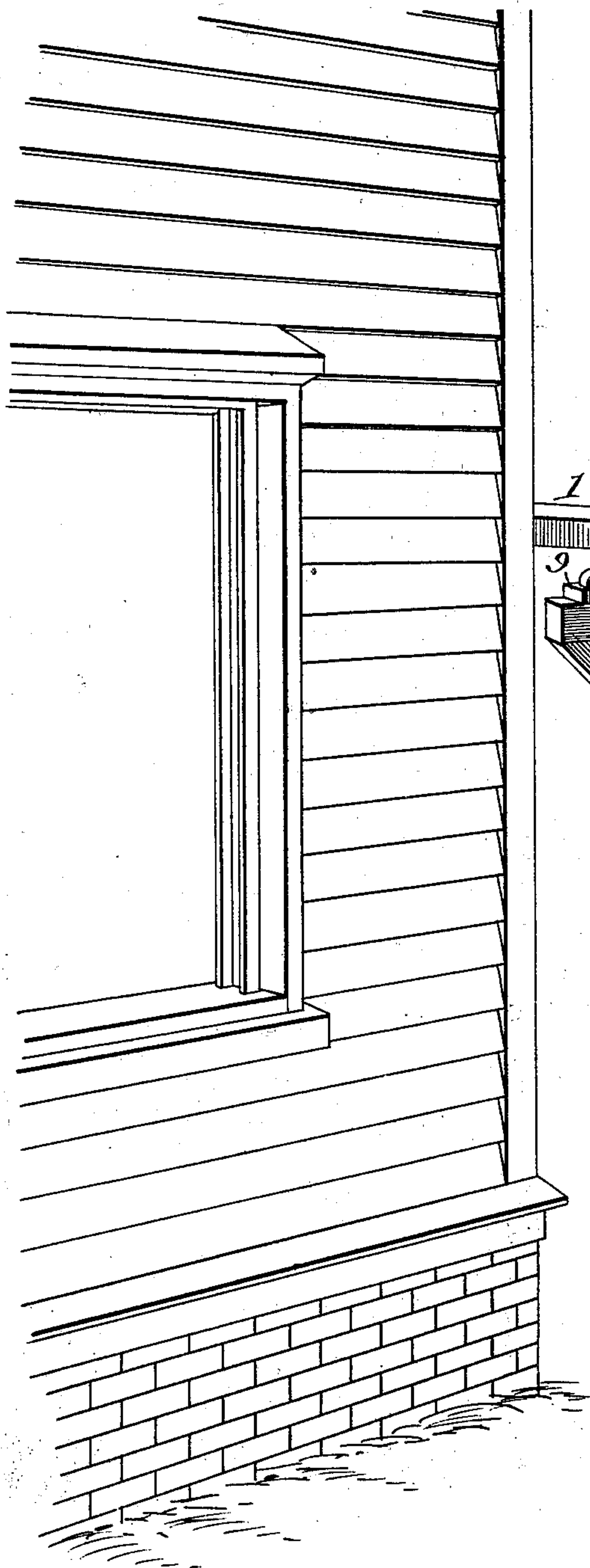


Fig. 1.

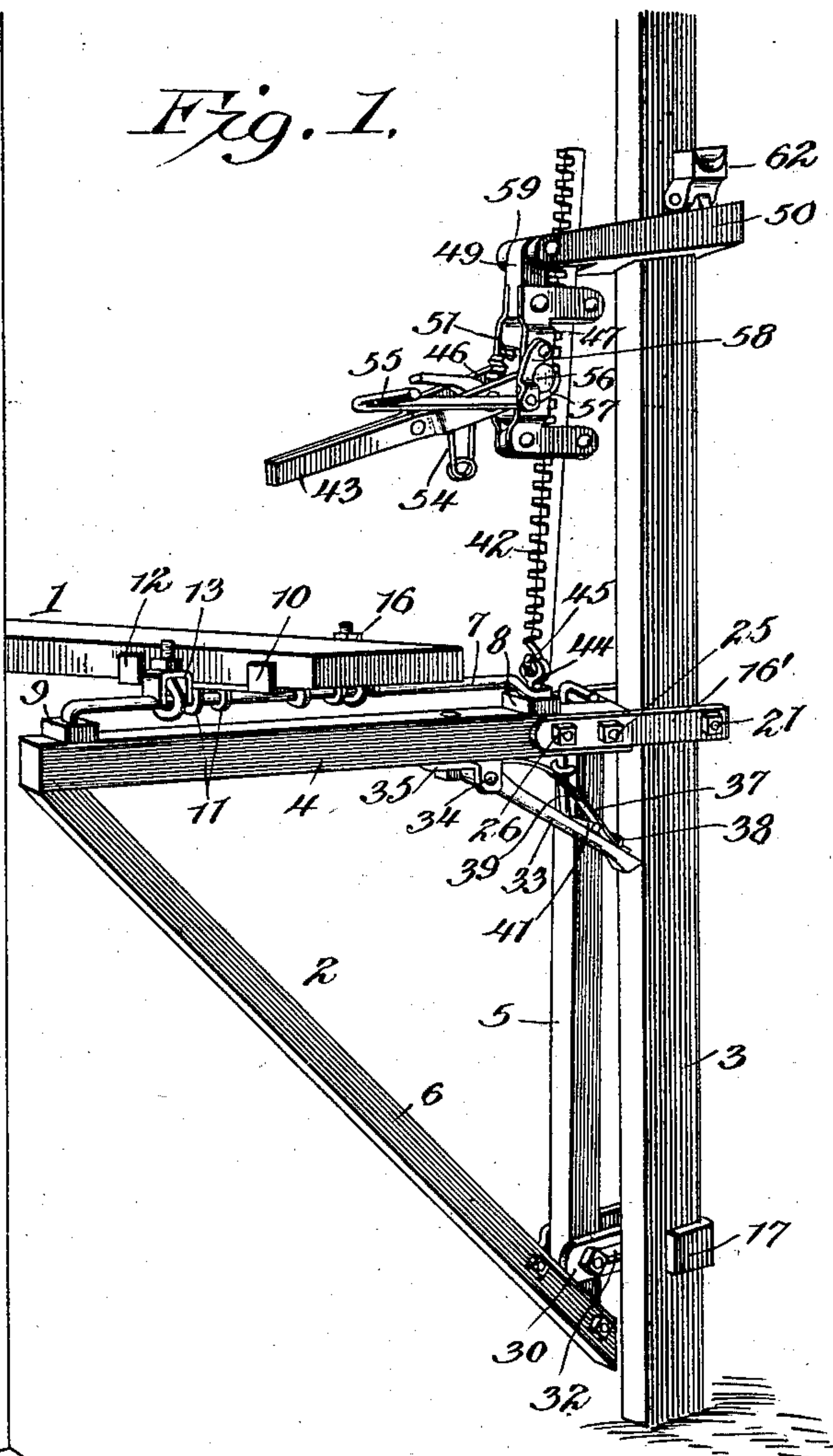
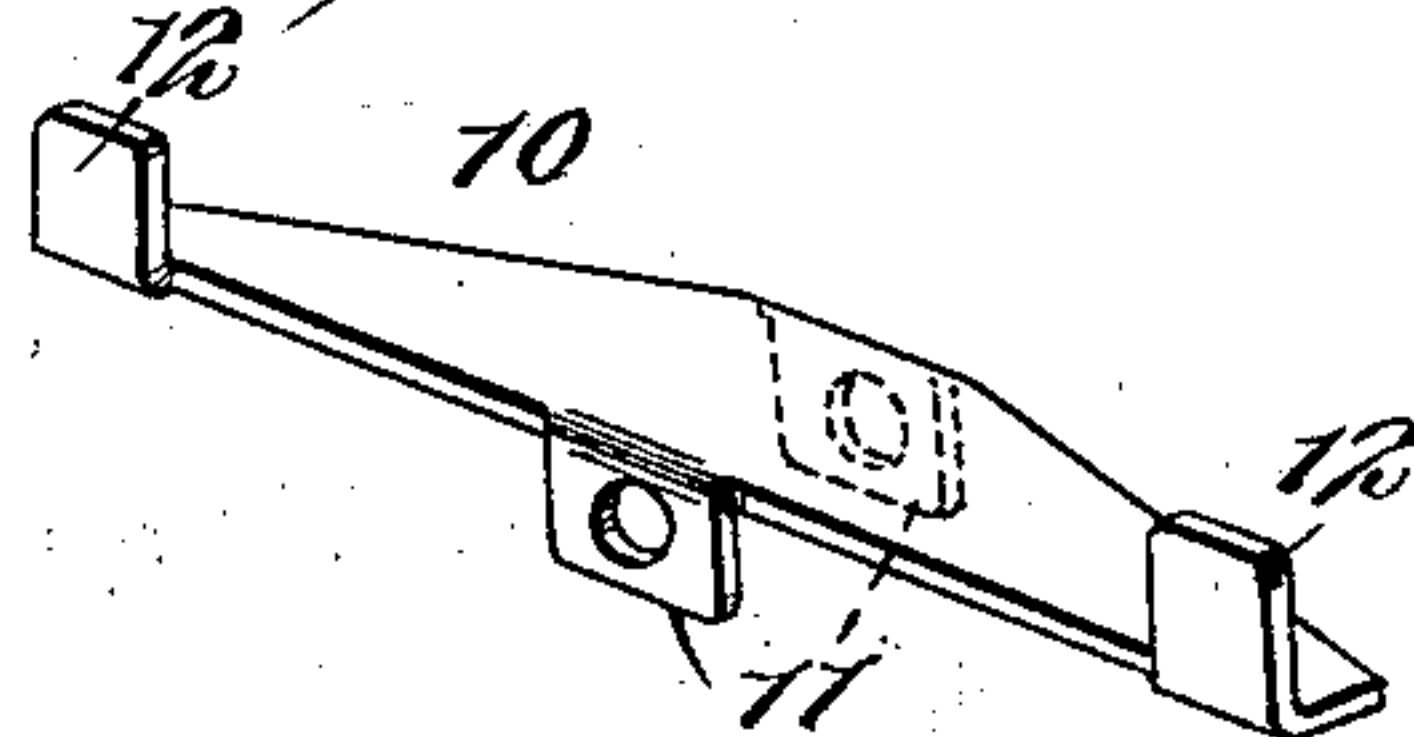


Fig. 7.



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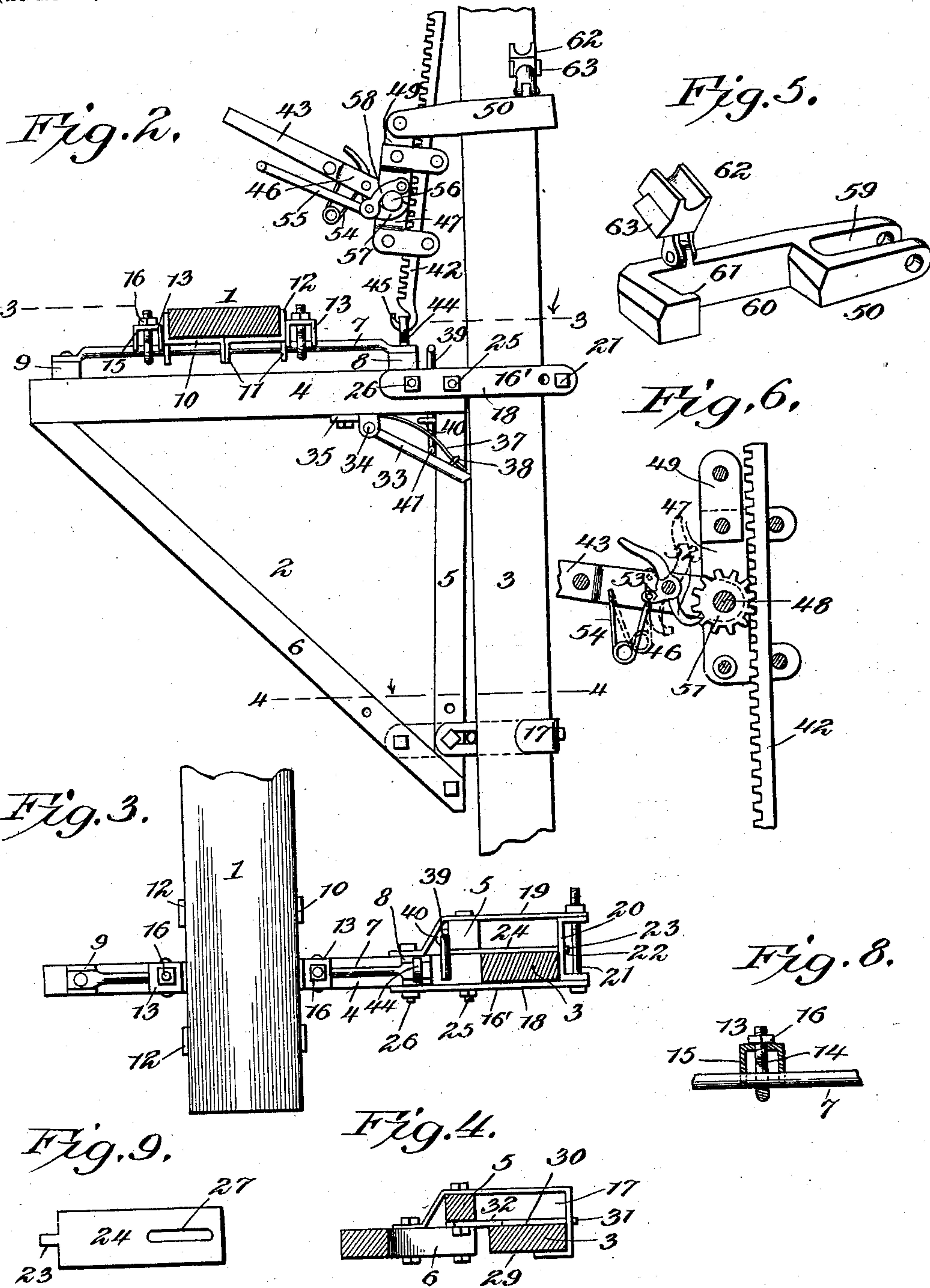
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SCAFFOLD.

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2 Sheets—Sheet 2.

(No Model.)



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UNITED STATES PATENT OFFICE.

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SCAFFOLD.

SPECIFICATION forming part of Letters Patent No. 664,508, dated December 25, 1900.

Application filed October 1, 1900. Serial No. 31,717. (No model.)

To all whom it may concern:

Be it known that we, WALTER P. SMITH and ALLEN TENNISON, citizens of the United States, residing at Clarksville, in the county of Butler and State of Iowa, have invented a new and useful Scaffold, of which the following is a specification.

The invention relates to improvements in scaffolds.

One object of the present invention is to improve the construction of scaffolds and to provide a simple and comparatively inexpensive one adapted to be readily erected adjacent to a structure and capable of being readily operated to raise and lower it quickly.

Another object of the invention is to provide a scaffold of this character adapted to utilize ordinary lumber for uprights and capable of enabling a platform of the desired width to be employed.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a portion of a scaffold constructed in accordance with this invention. Fig. 2 is an end elevation of the same. Fig. 3 is a horizontal sectional view on line 3 3 of Fig. 2. Fig. 4 is a similar view on line 4 4 of Fig. 2. Fig. 5 is a detail perspective view of the top clutch. Fig. 6 is a detail sectional view of the device for raising and lowering the scaffold. Fig. 7 is a detail perspective view of one of the adjustable jaws for engaging the platform. Fig. 8 is a detail sectional view illustrating the construction of the locking devices for securing the jaws at the desired adjustment.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

The scaffold comprises, essentially, a horizontal platform 1 and a substantially triangular bracket 2, arranged at each end of the platform and slidably connected with an upright or guide 3, which may consist of a piece of two-by-two, four-by-four, or four-by-six material and which is spaced from a house or other structure, as illustrated in Fig. 1 of the accompanying drawings. The uprights,

which form guides for the scaffold, are designed to be connected with the house or other structure at their upper ends by horizontal bars or pieces, and their lower portions may be similarly braced, if necessary. The triangular bracket consists of a horizontal top bar 4, a vertical bar 5, and an inclined brace 6, extending from the lower end of the vertical bar to the outer end of the horizontal bar.

The horizontal bar of the bracket supports a horizontal rod 7, spaced from the bar 4 by suitable blocks 8 and 9, arranged at the ends of the rod 7 and having the latter secured to them. The rod 7 forms a guide and a support for a pair of adjustable clamping-jaws 10, adapted to engage the platform 1 at opposite sides thereof, whereby the platform is rigidly connected with the brackets and is adapted to be constructed of one or more boards to provide a platform of the desired width. The jaw 10 is provided with a pair of centrally-depending perforated ears 11 to receive the rod 7, and it has a pair of upwardly-extending end lugs 12, forming jaws and engaging the side edges of the platform, as clearly illustrated in Fig. 2 of the accompanying drawings. The depending ears 11 are located at the inner and outer edges of the clamping-jaws 10, and the latter are held in engagement with the platform by means of locking devices 13, located at the outer sides of the jaws 10 and engaging the same. Each locking device consists of an eyebolt 14, a yoke 15, and a nut 16, arranged on the shank of the eyebolt and engaging the yoke. The rod passes through the eye of the eyebolt, which has its shank extended upward, as clearly shown in Fig. 8, and the yoke, which straddles the eye of the eyebolt, is provided at its top with a perforation to receive the threaded portion or shank of the said eyebolt. The lower ends of the sides of the yoke are recessed to conform to the configuration of the rod, and the nut engages the top of the yoke and forces the same and the eye tightly against the rod. As the rod is engaged by the eye of the eyebolt and the ends of the yoke, the jaws 10 are held firmly in engagement with the platform.

The bracket is provided at its top and bottom with horizontal projecting sliding loops

16' and 17, receiving the vertical guide or upright 3 and slidingly connecting the bracket with the same and adapted to be adjusted to vary the size of their openings to accommodate guides or uprights of different sizes. The upper guide-loop is composed of side bars 18 and 19 and a connecting end bar 20, secured to the outer ends of the side bars 18 and 19 by a bolt 21. The end bar 20, which has its ends bent at right angles and perforated to receive the bolt 21, is provided at its center with an aperture 22, adapted to receive the lug 23 of a bar 24, forming a partition for dividing the space inclosed by the upper guide-loop and adapted to be turned out of the way when the guide-loop is mounted on a piece of material of a size to practically fill it. The side bars 18 and 19 are secured to the bracket by transverse bolts 25 and 26, and the inner portion of the central bar 24 is provided with a longitudinal slot 27 to permit it to be moved longitudinally sufficiently to engage the lug 23 with the opening 22 and to disengage it therefrom. The side bar 19 has its inner end angularly bent around the vertical bar 5, and the outer ends of the side bars are provided with additional perforations for adjusting the end bar 20 to reduce the size of the opening of the guide-loop. The lower guide-loop, which consists of a single piece of metal, as clearly shown in Fig. 4, is open at one side at 29 to permit a brace to be secured to the lower portion of the upright or guide 3 without interfering with the vertical adjustment of the bracket. The lower guide is provided with a central longitudinal bar 30, constructed similar to the central bar 24 of the upper guide-loop and provided at its outer end with a lug 31 and having a slot 32 at its inner end. The lower guide-loop and the lower portion of the bracket are provided with perforations to permit the lower guide-loop to be adjusted inward and outward to vary the size of its opening.

The bracket is locked at any desired adjustment by means of an inclined spring-actuated dog 33, pivoted at its upper end at 34 to the lower face of the top bar 4 of the bracket in suitable bearings of a plate 35 and extending downward and normally engaging the upright or guide, and the lower guide-loop is designed to be of greater size than the guide or upright, whereby the weight upon the platform will operate to force the dog into the guide or upright to lock the bracket firmly at the desired adjustment. The dog is positively held in engagement with the upright, and it is also held in proper position for engaging the same by a spring 37, secured at its upper end to the bracket and having its lower end free and arranged in a guide 38 of the dog. The upper end of the spring is interposed between the plate 35 and the top bar of the bracket, and it is perforated for the reception of the fastening device, which secures the plate to the said bar. The guide 38 consists of an eye or loop arranged at the upper

face of the dog, near the outer end thereof, and the said dog is adapted to be readily disengaged from the upright for a purpose hereinafter described by means of a vertically-movable operating-rod 39, mounted in suitable guides 40 and having its ends bent at right angles. The lower end 41 is arranged at the upper face of the dog and is interposed between the same and the spring, and the upper end of the rod is adapted to be engaged by the foot of the operator, whereby the dog will be swung downward out of engagement with the guide or upright 3.

The bracket is elevated by means of a rack-bar 42, connected with said bracket, and a lever 43, provided with means for engaging the rack-bar and adjustably connected with the guide or upright 3. The bracket is provided with an eye 44, and the rack-bar 42 has a hook 45 at its lower end for engaging the said eye. The lever 43, which has its inner portion 46 bifurcated, is fulcrumed on a frame 47 by a spindle or pivot 48, which is journaled in suitable bearings of the frame 47. The frame 47, which is composed of two sides spaced apart, is provided at its top with a perforated extension or ear 49, which is pivoted to a clutch 50. The sides of the frame 47 are provided with arms which form guides or ways for the rack-bar, as clearly shown in Fig. 6, and a gear-wheel 51 is mounted on the pivot 48 and is arranged in the bifurcation of the lever, and it meshes with the teeth of the rack-bar. The gear-wheel is suitably fixed to the spindle or pivot 48, and the lever carries a spring-actuated pawl 52, which meshes with the gear-wheel and which is adapted to rotate the same when the lever is swung downward and to slide over the teeth of the said gear-wheel when the lever is swung upward, whereby the gear-wheel will be successively rotated when the lever is oscillated to cause the rack-bar to move upward for raising the bracket. The inclined dog, which locks the bracket against downward movement, does not interfere with the upward movement of the same.

The pivoted pawl 52 has a depending engaging portion and an upwardly-extending arm which forms a handle, and it is provided with a short centrally-arranged arm 53, which is connected with the spring 54, adapted to hold the depending arm of the pawl in engagement with the gear-wheel and capable of locking the pawl out of such engagement when it is swung over to the position illustrated in dotted lines in Fig. 6. The spring 54, which is substantially V-shaped, is provided at its apex with a coil, and it has the terminals of its sides secured in perforations of the arm 53 and the operating-lever.

When the inclined dog is disengaged from the upright or guide 3 and the spring-actuated pawl 52 is swung out of engagement with the gear-wheel, the bracket will descend freely, and this descent may be controlled by the operator by means of a brake consisting of a brake-lever 55 and a brake-wheel 56. The

brake-wheel 56 is formed integral with or otherwise connected to the pivot or spindle 48, and the lever 55, which has its end 57 curved to engage one side of the brake-wheel, is connected with the frame 47 by a curved link 58, which engages the opposite side of the brake-wheel. The link is pivoted at one end to the frame and at the other end to the lever 55, and it will be clear that by pressing downward on the outer end of the brake-lever the brake-wheel will be firmly clamped between the curved link 58 and the curved end 57 of the lever and that the rotation of the gear-wheel will be retarded to the desired extent.

The frame 47 is pivotally connected to one end of the clutch 50, which has one end 59 bifurcated to receive the projecting portion or ear 49 of the frame 47. The clutch is provided with a recess 60 to receive the upright or guide 3, and it has a flange 61 at one end thereof to overlap a portion of the said guide or upright to prevent the clutch from slipping laterally thereon when in engagement with the same. When it is desired to raise the bracket, the clutch is moved upward on the guide or upright to the upper end of the rack-bar, and the operating-lever is then oscillated to raise the bracket, and this operation is continued until the bracket is elevated to the desired height. The clutch is provided with a pivoted block 62, adapted to swing downward within the recess 60 to reduce the size of the same to fit a smaller upright or guide, and provided at one side with a lug 63, adapted to fit within the flange 61, whereby the block is supported in its engaging position. The block is provided at one side with a pair of ears and is pivoted to an ear of the clutch by a pintle passing through perforations of such ears.

It will be seen that the scaffold is exceedingly simple and inexpensive in construction, that it is adapted for a variety of purposes, and that it is capable of being readily erected and quickly operated to raise and lower it.

What we claim is—

1. In a device of the class described, the combination with an upright or guide, a bracket slidingly connected with the upright or guide and provided with a horizontal guide, a pair of jaws slidingly mounted on the horizontal guide and having approximately L-shaped portions arranged to support a platform and adapted to clamp the side edges thereof, and means for securing the jaws to the bracket, substantially as described.

2. A device of the class described comprising a vertically-movable bracket provided with a horizontal rod, a pair of adjustable jaws slidingly mounted on the rod and arranged to receive a platform, and locking devices arranged at the outer sides of the jaws and engaging the rod, substantially as described.

3. A device of the class described comprising

ing a vertically-movable bracket provided with a horizontal rod, a pair of jaws adapted to receive a platform and provided with upwardly-extending lugs for engaging the same, and having depending perforated ears arranged between their ends and receive the rod, and means for engaging the jaws, substantially as described.

4. A device of the class described comprising a vertically-movable bracket having a horizontal rod, a pair of jaws mounted on the rod, and locking devices located at opposite sides of the jaws and composed of eyebolts, yokes arranged on the eyebolts, and nuts engaging the threads of the eyebolts and bearing against the yokes, substantially as described.

5. A device of the class described comprising a bracket provided with upper and lower guide-loops having removable bars dividing the spaces inclosed by the loops, and means for raising and lowering the bracket, substantially as described.

6. A device of the class described comprising a bracket, upper and lower guides provided at their outer ends with openings, the central bars provided at their outer ends with lugs to engage the said openings, and having slots at their inner ends, and fastening devices passing through the guide-loops and through the slots of the said bars and securing the loops and bars to the bracket, substantially as described.

7. A device of the class described, comprising a bracket, an inclined dog mounted on the bracket, a spring fixed to the bracket and engaging the dog, and means for operating the dog, substantially as described.

8. In a device of the class described, the combination with an upright, of a bracket slidingly connected with the upright, a pivoted dog mounted on the bracket and arranged at an inclination and provided with an eye or loop, and a spring mounted on the bracket and extending through the eye or loop and holding the dog in engagement with the upright, substantially as described.

9. In a device of the class described, the combination of a bracket, an inclined dog pivoted to the bracket, a spring secured to the bracket and connected with the dog, and an operating-rod mounted on the bracket and provided with an arm located between the spring and the dog, substantially as described.

10. In a device of the class described, the combination of a bracket, a clutch adapted to engage an upright, a rack-bar connected with the bracket, a frame receiving the rack-bar and connected with the clutch, and operating mechanism carried by the frame for engaging the rack-bar, substantially as described.

11. In a device of the class described, the combination of an upright forming a guide, a bracket slidingly mounted on the upright, a clutch located above the bracket and detach-

ably engaging the upright, a frame connected with the clutch, a rack-bar received by the frame and connected with the bracket, and means carried by the frame for engaging the rack-bar, substantially as described.

12. In a device of the class described, the combination of a bracket, a rack-bar connected therewith, a frame receiving the rack-bar, a gear-wheel mounted on the frame and meshing with the rack-bar, a lever fulcrumed on the frame, a pawl pivoted between its ends to the lever and provided at the pivot with a short arm arranged to swing to either side of the pivot, and a spring connected with the pivot and with the frame and adapted to hold the pawl either in or out of engagement with the gear-wheel, substantially as described.

13. In a device of the class described, the combination of a bracket, a rack-bar connected therewith, a frame receiving the rack-bar, a spindle mounted on the frame and provided with a brake-wheel, a gear-wheel meshing with the rack-bar and fixed to the spindle, and means for operating the gear-wheel, a brake-lever engaging the brake-wheel, and a link connected with the lever and with the

frame and engaging the brake-wheel, substantially as described.

14. In a device of the class described, the combination of a bracket, a rack-bar connected therewith, a frame receiving the rack-bar, a clutch pivoted to the frame and adapted to engage an upright, and operating mechanism mounted on the frame for engaging the rack-bar, substantially as described.

15. In a device of the class described, the combination of a bracket, a clutch provided with a recess and having a flange at one end thereof, a pivoted block mounted on the clutch and arranged to swing within the recess and provided with a lug for engaging the said flange, and means for connecting the bracket and the clutch, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

WALTER P. SMITH.
ALLEN TENNISON.

Witnesses:

H. T. BORETON,
C. S. BUDLONG.