

No. 734,764.

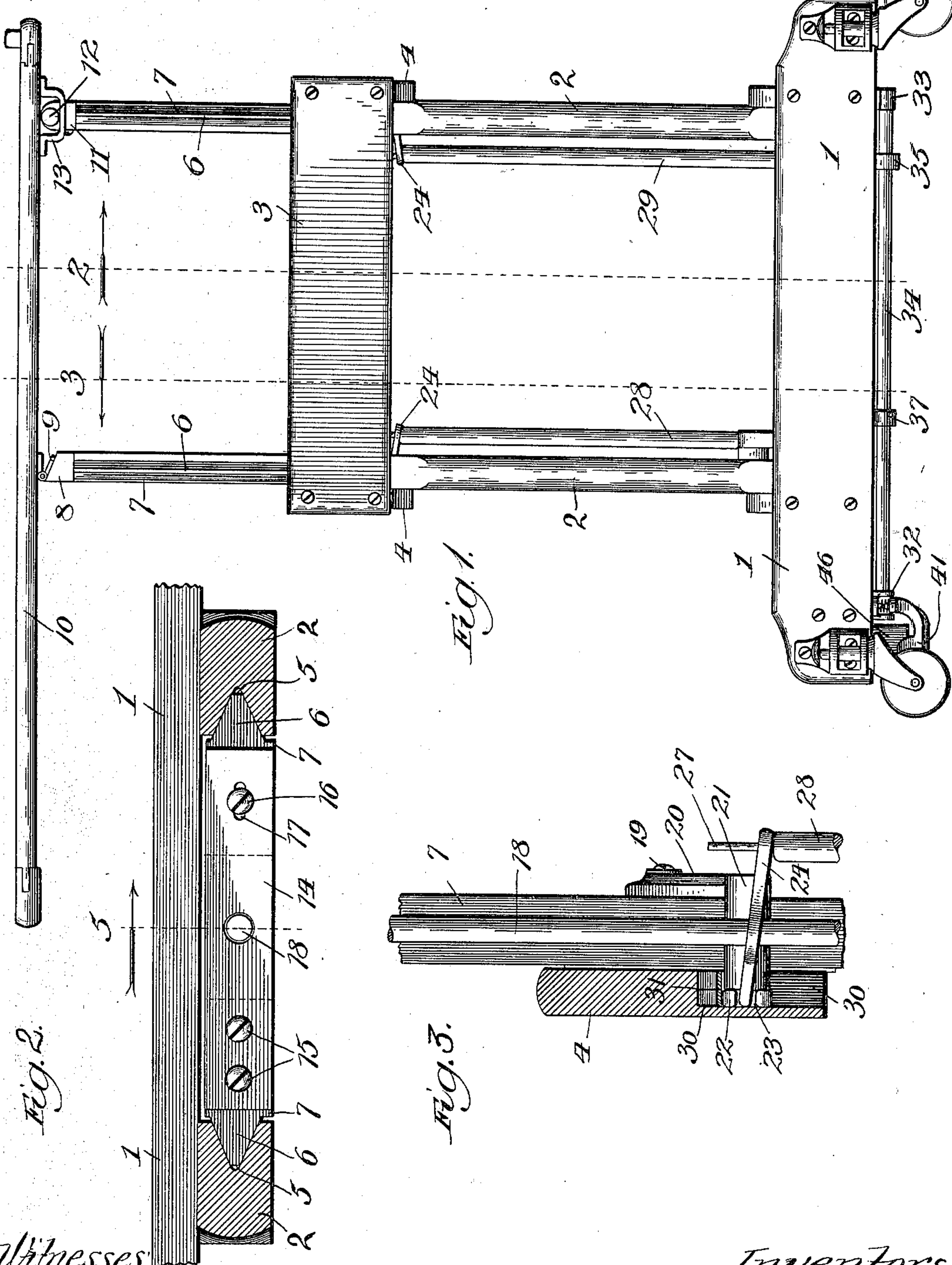
PATENTED JULY 28, 1903.

J. H. & J. A. SMITH.
CAMERA STAND.

APPLICATION FILED FEB. 24, 1903.

NO MODEL.

3 SHEETS-SHEET 1.



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James H. Smith
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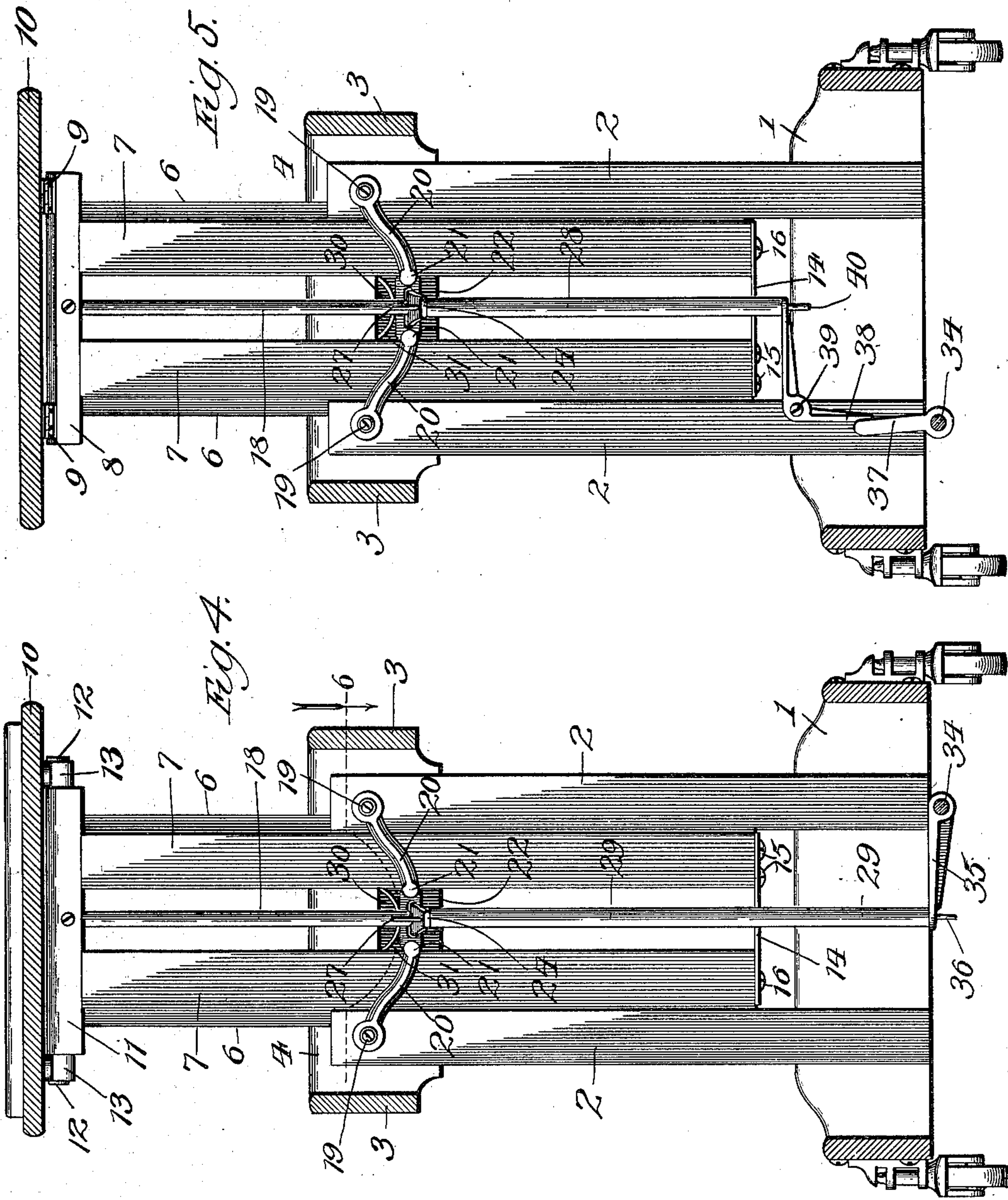
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3 SHEETS—SHEET 2.



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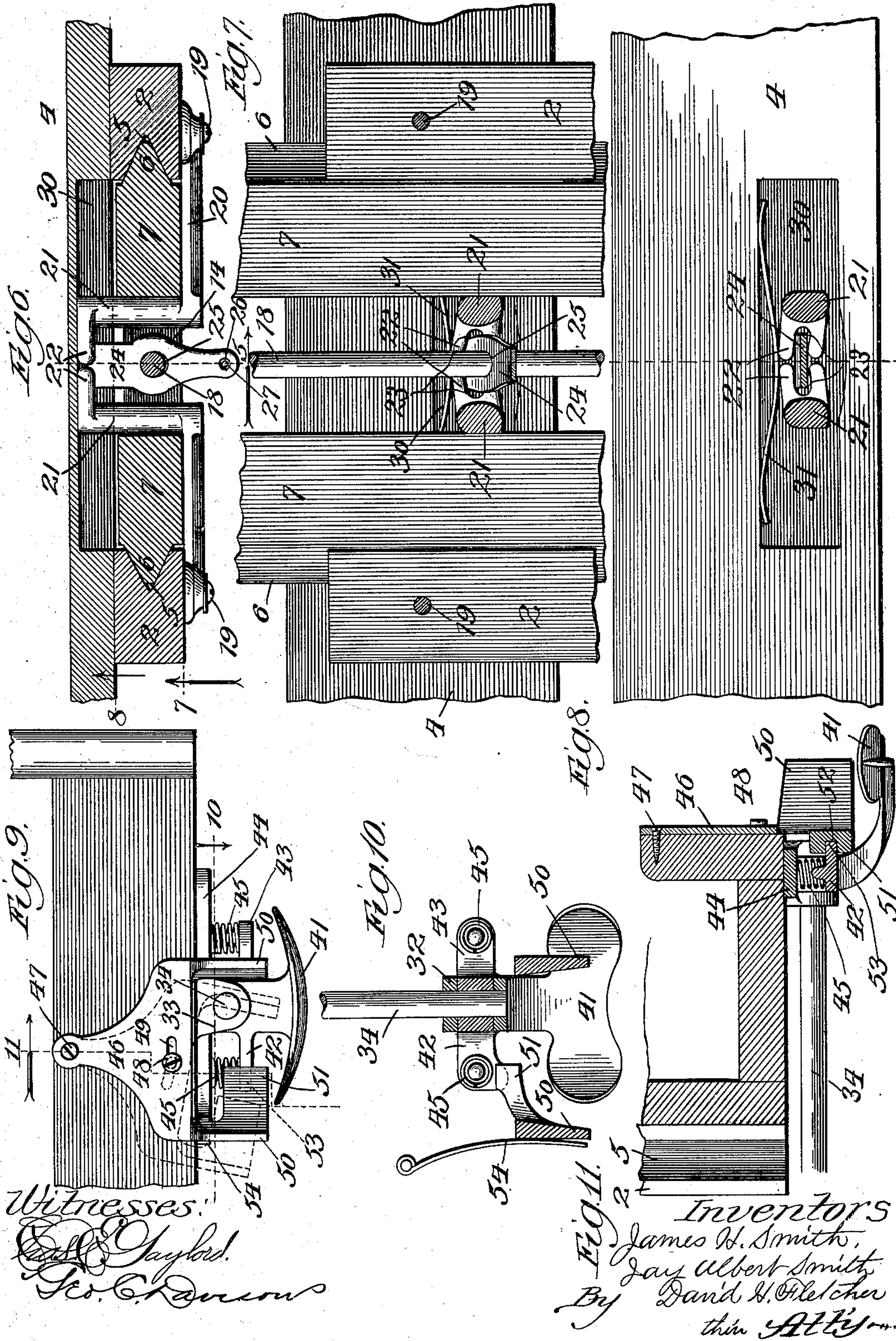
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CAMERA STAND.

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NO MODEL.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JAMES H. SMITH, OF CHICAGO, ILLINOIS, AND JAY A. SMITH, OF
HUNTINGTON, NEW YORK.

CAMERA-STAND.

SPECIFICATION forming part of Letters Patent No. 734,764, dated July 28, 1903.

Application filed February 24, 1903. Serial No. 144,816. (No model.)

To all whom it may concern:

Be it known that we, JAMES H. SMITH, of Chicago, in the county of Cook and State of Illinois, and JAY ALBERT SMITH, of Huntington, in the county of Suffolk and State of New York, have jointly invented certain new and useful Improvements in Camera-Stands, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Our invention relates to that type of camera-stand shown in Patent No. 702,749, issued to James H. Smith, June 17, 1902, in which the table is pivotally mounted at front and rear, respectively, upon sliding uprights secured in vertical guideways and supported by means of rods connected with automatic friction-clamps for the purpose of adjusting the height and incline of the table; and the object of our invention is to provide simple and positive automatic means for clamping the movable vertical uprights against the stationary standards in which they are guided, so as to render the camera-supporting table rigid, whereby jarring of the camera is prevented while making an exposure.

A further object is to provide means for automatically locking the treadle intended to actuate the clamp-releasing mechanism.

Said objects are accomplished in the manner hereinafter more particularly described and claimed.

In the drawings, Figure 1 is a side view of a camera-stand embodying the features of our invention. Fig. 2 is a bottom view in detail of the supporting-standards. Fig. 3 is a vertical sectional view of the clamping mechanism, taken upon the line 5, Figs. 2 and 6 to 8, inclusive, viewed in the direction of the arrows there shown, respectively. Fig. 4 is a transverse vertical sectional view thereof, taken upon the line 2, Fig. 1, viewed in the direction of the arrow there shown. Fig. 5 is a like sectional view taken upon the line 3, Fig. 1, viewed in the direction of the arrow there shown. Fig. 6 is a sectional plan view taken upon the line 6, Fig. 4. Fig. 7 is a vertical sectional view in detail taken upon the line 7, Fig. 6, viewed in the direction of the arrow there shown. Fig. 8 is a like sectional view taken upon the line

8, Fig. 6, viewed as indicated by the arrow there shown. Fig. 9 is a rear elevation of the treadle locking and releasing mechanism. Fig. 10 is a sectional view in plan taken upon the line 10, Fig. 9; and Fig. 11 is a sectional view taken upon the line 11, Fig. 9, viewed in the direction of the arrow there shown.

Corresponding numerals of reference in the different figures indicate like parts.

Referring to the drawings, 1, Figs. 1, 4, and 5, represents the base of a camera-stand mounted upon casters in the usual way. Rigidly attached to the base and extending upwardly therefrom are supporting posts or standards 2 at the front and rear ends of the stand, (shown also in Figs. 2, 6, and 7,) to the upper ends of which horizontal connecting side pieces 3 3 and end pieces 4 4 are rigidly attached to brace and impart rigidity to the frame.

The standards 2 are provided with grooves 5 5, Figs. 2 and 6, upon their opposite faces, which grooves are preferably V-shaped in form and are adapted to receive counterpart tongues 6 6, formed upon the outer edges of vertical bars or movable standards 7 7, the tongues of which are adapted to slide vertically in said grooves. The upper ends of said movable standards at the rear of the stand are attached to a cross bar 8, Figs. 1 and 5, which is connected by means of hinges 9 to a table 10, projecting rearwardly, as shown in Fig. 1. The upper ends of the standards at the front are likewise attached to a cross-bar 11, Figs. 1 and 4, which is provided with pin-tles 12, which pass into elongated loops 13, attached to the bottom of the table, thereby providing for play when the table is moved into an inclined position. To the lower ends of each pair of sliding supports 7 7 is attached a connecting metal plate 14, Figs. 2, 4, 5, and 6, said plate being rigidly connected to one support by means of screws 15 and loosely connected to the other by means of a screw 16, passing through a slot 17 in said plate, as shown in Fig. 2, which permits of a slight lateral movement of said movable standards, thereby enabling the tongues 6 thereof to be pressed firmly into the grooves, so as to cause a binding contact therewith or to be withdrawn therefrom sufficiently to permit a free

vertical movement for the purpose hereinafter stated.

Rigidly attached to each of the cross-bars 11 and 8 at the front and rear, respectively, of the stand is a vertical metal rod 18, Figs. 4 to 7, inclusive, preferably located midway between and parallel with the standards 7, which rod passes into or through a bore in the plate 14, as shown in Fig. 2. The purpose of said rods is to support the weight of the table 10, while permitting any desired adjustment thereof as to relative height or inclination by means of automatic clamping mechanism—such, for example, as that described in said Patent No. 702,749.

Having thus far described features common to our device, as well as that of the patent referred to, we will now describe our improved means for simultaneously clamping the supporting-rods and the movable uprights 7. Pivotally attached to the uprights 2 2 at or near the top by means of screws or bolts 19, Figs. 3, 4, 5, 6, and 7, are bent clamping-arms 20 20, having parts 21 21, Figs. 5 and 6, arranged to engage the opposite inner faces of the parts 7 7, which parts 21 are arranged, preferably, at right angles to the main body of said arms and are somewhat longer than the width of the supports 7. Bifurcated end portions 22 22, also shown in Fig. 8, are formed upon the ends of the parts 21, preferably at right angles thereto, the ends thereof being projected toward and in close proximity to each other, as shown. End notches 23, better shown in Figs. 3, 7, and 8, are adapted to receive and serve as an end bearing or fulcrum for a friction clamping member 24 through a bore 25, Figs. 6 and 7, in which is loosely passed the supporting-rod 18. The bore is somewhat larger than the rod, and when the rod and clamp are at substantially right angles to each other the rod is free to move through said bore, but when left free to act the outer end of the member 24 descends by its own gravity and by its frictional action clamps the rod and prevents its further descent. Inasmuch as the bearing end of the clamping member 24 rests in the notches 23, the entire weight of the rod 18, supports 7, and a portion of the table 10, with the camera, is supported upon the free ends of the clamping-arms 20; and inasmuch as the tendency of the parts 21 is to move in the arc of a circle the center of which is the pivotal supports 19 said arms press downwardly and laterally, thereby acting to spread the parts 7 7 apart, thus forcing the beveled parts 6 into the notches 5 with sufficient pressure to render the supports 7 thoroughly rigid and free from lateral movement or play.

The clamping members 24 are the same as those described in said patent hereinbefore referred to and are provided with bores 26, Fig. 6, through which are projected pins 27, upon the upper ends, respectively, of vertical releasing-rods 28 and 29 at the rear and front, respectively, of said stand. The lifting of

one or the other of said rods in the manner hereinafter described serves to release the clamping member 24 at the front or rear, as may be desired, thereby permitting the raising or lowering of the table at will and its adjustment at any desired height.

In order to maintain the clamping-arms 20 in a substantially normal position and to prevent their displacement, we extend the ends 22 of each set thereof into a recess 30 in one of the end pieces 4, (better shown in Figs. 3 to 8, inclusive,) into the top of which recess and arranged to press downwardly upon said ends is a spring 31.

Supported in bearings 32 33, beneath the stand, Figs. 1 and 9, is a rock-shaft 34. (Shown also in Figs. 4, 5, and 9 to 11, inclusive.) Near the front end of said rock-shaft is keyed or otherwise secured a rigid arm 35, the free end of which is provided with a bore through which is projected a pin 36 upon the lower end of the releasing-rod 29. Near the end of said shaft is rigidly attached an arm 37, Figs. 1 and 5, the free end of which bears against the lower end of one arm 38 of an elbow-lever pivoted to the frame at 39, while the other arm supports the lower end of the releasing-rod 28, a pin 40 thereof passing loosely through a bore in said arm. Upon the rear end of said rock-shaft is rigidly attached a treadle 41, having arms or projections, as shown, branching to the right and left, respectively, so that a pressure upon one or the other may serve to rock the shaft. Integral therewith are arms 42 43, extending in opposite directions, between the ends of which and a horizontal plate 44, Figs. 9 and 11, are interposed spiral springs 45, (also shown in Fig. 10,) which tend to hold said rock-shaft in a normal position.

A locking-plate 46 (better shown in Figs. 9 to 11, inclusive) is pivotally attached at 47, Figs. 9 and 11, to the frame directly over the treadle. A screw 48, passing loosely through a slot 49 in said plate, serves to limit its lateral movement. Said locking-plate is about the width of the treadle and is provided with depending rearwardly-extended wings 50 50 in immediate proximity to the treadle. A lug 51 is formed upon the rear and at the lower part of said plate, said lug having a notch 52 upon its rear side in position to engage a projection 53 upon the rear of the cross-bar 42, as shown in full lines in Fig. 11 and indicated in dotted lines in Figs. 9 and 10. A spring 54, secured to the frame of the stand, serves to hold said locking-plate in its normal or locked position, as shown.

The clamping-releasing mechanism is controlled by means of the treadle, which cannot be operated until the locking-plate is released. If it is desired to depress the right-hand arm thereof, the foot of the operator is placed against the outside of the right-hand wing 50, which is moved to its full limit toward the left, whereupon the lug 51 is released from engagement with the projection 53 upon the

cross-bar, which leaves the rock-shaft 34 free to be tilted. The pressure of the foot upon the right-hand arm of the treadle serves to tilt the said shaft, so as to raise the arm 35, Fig. 4, thereby, through the action of the rod 29, lifting the outer end of the friction-clamp and releasing the supporting-rod 18 at the front of the stand, thus permitting the front end of the table to descend by its own gravity. By pressing toward the left against the left-hand wing of the locking-plate and then depressing the left-hand arm of the treadle the rock-shaft is tilted in an opposite direction, which serves, through the action of the arm 37, Fig. 3, bell-crank-lever, and rod 28, to release the clamp at the rear of the stand, which permits the rear end of the table to descend.

In manipulating the table it should be understood that the operator grasps the rear end thereof and either lifts or steadies its descent until the desired height and inclination are attained. It is obvious that in order to lower the table resort should be had to the treadle, which is normally locked by the spring-actuated locking-plate. It may be raised, however, by alternately depressing and lifting the rear end of said table or camera-bed, which alternately raises the front and rear thereof.

The automatic locking-plate serves to prevent a release of the supporting-clamps as a result of accidental pressure upon the treadle or any unauthorized interference therewith by children or others.

Having thus described said invention, we claim—

1. In a camera-stand of the class described, the combination of a stationary frame, vertically-movable supports, clamping-arms pivotally mounted upon said stationary frame and arranged to press against the opposite inner faces, of said vertically-movable supports, a supporting-rod and a gravity friction clamping member, one end of which is jointly supported upon the free ends of said clamping-arms, whereby said movable supports are pressed firmly against the counterpart elements of the stationary frame in which they are mounted and the rigidity of the camera-bed insured.

2. A camera-stand in which is combined a stationary frame, parallel vertically-movable supports mounted therein, the lower ends of which are free to move laterally, clamping-arms pivotally mounted upon said stationary frame, said clamping-arms being arranged to engage and press the acting faces of said movable supports against those of said stationary frame, a supporting-rod, and a gravity-clamp having its bearing upon the meeting ends of said clamping-arms.

3. The combination with the stationary frame of a camera-stand, of vertically-movable guide-supports at front and rear, a supporting-bed pivotally secured to the upper

ends of said guide-supports, supporting-rods adjacent to said guide-supports, gravity-clamps for engaging said supporting-rods, and clamping-arms pivotally mounted upon said stationary frame and arranged to grasp and spread said guide-supports when pressure is applied to their free ends, said free ends forming rests for said gravity-clamps, respectively.

4. The combination with the stationary frame of a camera-stand, of parallel vertically-movable guide members arranged to move in grooved frame-guides at front and rear, said guide members having a slight lateral movement, a camera-bed secured to the upper ends of said supporting guide members, vertical supporting-rods attached to said guide members, friction-clamps for normally clamping said rods against downward movement and clamping-arms pivotally mounted upon said supporting-frame, said clamping-arms being arranged to engage and press said guide members into close contact with said guideways, when downward pressure is applied thereto, and to serve as a rest for said friction-clamps.

5. In a camera-stand, the combination with the supporting-frame having vertical guideways, of the vertically-movable guide members, supporting-rods, gravity friction-clamps for engaging said supporting-rods, clamping-arms pivoted to said stationary frame for engaging said guide members, the meeting ends of said clamping-arms forming pivotal supports for said friction-clamps, and springs arranged to press downwardly upon the free ends of said clamping-arms.

6. A camera-stand in which is combined a stationary frame, parallel vertically-movable supports mounted therein, clamping-arms pivotally mounted upon said stationary frame, said clamping-arms being in engagement with the inner faces of said movable supports, a gravity-clamp supported upon the free ends of said clamping-arms and means for releasing said gravity-clamp.

7. A camera-stand in which is combined a stationary frame, parallel vertically-movable supports mounted therein which are free to move laterally to a slight degree, clamping-arms pivotally mounted upon said stationary frame, said clamping-arms being arranged to engage said movable supports and press them into close contact with said movable frame, a supporting-rod, a gravity-clamp having its bearing upon the meeting ends of said clamping-arms, a rock-shaft and intermediate connections for releasing said clamp and a treadle for actuating said rock-shaft.

8. In a camera-stand, the combination with a stationary frame, parallel movable supports mounted therein having a slight lateral play, clamping-arms pivotally mounted upon said stationary frame, said clamping-arms being arranged to engage said movable supports and press them into close contact with said

movable frame, a supporting-rod, a gravity-clamp having its bearing upon the free ends of said clamping-arms, a rock-shaft and intermediate connections for releasing said clamp, a treadle for actuating said rock-shaft, and means for normally locking the same in a predetermined position.

9. The combination with a camera-stand of the class described, of the gravity locking-clamps, a treadle-controlled rock-shaft, intermediate releasing mechanism for connecting the same with said clamps and a spring-actuated locking-plate for locking said treadle in a normal position.

15 In testimony whereof I, JAMES H. SMITH,

have signed this specification, in the presence of two subscribing witnesses, this 7th day of February, 1903, and I, JAY ALBERT SMITH, have signed the same, in the presence of two subscribing witnesses, this 10th day of February, 1903.

JAMES H. SMITH.
JAY A. SMITH.

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I. P. HAMBLÉN,
R. G. SMITH.

Witnesses as to Jay Albert Smith:

C. F. CHESHIRE,
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