

UNITED STATES PATENT OFFICE.

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CAMERA-BED.

SPECIFICATION forming part of Letters Patent No. 753,800, dated March 1, 1904.

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To all whom it may concern:

Be it known that I, HARVEY W. LOCKE, a citizen of the United States, and a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Camera - Beds, of which the following is a specification.

My invention relates to improvements in camera-beds, and has for its object to provide means for operating by a single mechanism several extensible sections of a bed.

My invention is particularly described in the following specification, in which—

Figure 1 is a side elevation of a camera provided with my improvement and showing the bed extended. Fig. 2 is a horizontal cross-section on the line 2 2 of Fig. 1, showing a top view of the bed extended. Fig. 3 is a bottom view of the bed extended. Fig. 4 is a section on the line 4 4 of Fig. 2, and Fig. 5 is a section on the line 5 5 of Fig. 3.

In the drawings, A represents the rear frame of a camera-box of suitable construction.

B represents the front frame, which supports the lens-frame C, and D represents the collapsible and expansible bellows that connects the two frames. The bed E is connected with the frame A, as by hinges *a a*, Fig. 2, so that it can be folded in upon and close the front end of the box A. The under side of the bed E is cut away to receive one of the extensible sections in the manner indicated by dotted lines in Fig. 2. This section F is represented in the drawings as made up of two parallel rails *F' F'*, whose outer edges, respectively, are grooved, so as to form thereon the parallel flanges *f f*, and which are connected together at their ends by plates *F² F³*. Guide-rails *E' E'* upon the top of the bed E project over the flanges *f f* on the sides of the rails *F' F'*, respectively, and retain said section F within the bed E, while permitting it to slide longitudinally therein. A lip *f'*, turned down from the plate *F²*, engages with the edge of the bed E when the section F is carried back into the bed E and limits the movement of this section in that direction, and a stop *f³*, that projects downward from the rail *F³*, is

adapted to strike a portion of the bed E and prevent said section from being withdrawn from the bed E. A recess *f²* is shown in the edge of the bed A to receive the lip *f'*. The inside faces of the rails *F' F'* in the construction I have shown in the drawings are grooved to receive plates *G' G'*, which are set into and project from the sides of the second extensible section G of the bed, so that the section G is in turn retained within the first extensible section F and is at the same time free to slide longitudinally between its bars *F' F'*. A stop *g* extends downward from the under side of section G, Fig. 3, to limit the forward movement of this section by the engagement of this stop with the plate *F³*. Parallel longitudinal grooves *g' g'* are provided in the top of the section G, Fig. 5, and a plate *G²* is fastened to the top of said section, as by screws *g²*, and extending partially over said grooves *g'*. The frame B is removably connected with the section G in any suitable manner, as by means of a clamp of common form, whose lever *b* is represented in Figs. 1 and 2. Any other of the many well-known means whereby a lens-frame is removably connected to a camera-bed may be employed.

The camera-bed is extended by means of racks and a pinion, which I will now describe. Upon the under sides of both sections F and G are racks *f⁴ f⁴* and *g⁴ g⁴*, respectively, that are parallel with the line of movement of said sections. In the construction illustrated in the drawings a pair of racks is attached to each of said sections F and G at their inner and outer edges, respectively, so that each rack on one section is adjacent to one on the other section when the section G lies within the section F. All four racks have teeth of the same pitch. A pinion H is journaled in a perforation *a²* in one side of the bed E, and this perforation is extended into a recess *a³*, that is wider than the diameter of the perforation *a²*, and the recess is made deep enough for the pinion to be pushed into it until the milled head *H'* lies in a recess *a⁴*, formed in the edge of the bed E, and takes the position shown by the dotted lines in Fig. 2. The portion of

the pinion lying in the recess a^3 is larger than the stem h , that passes through the perforation a^2 , so that the pinion may be pulled out until its end strikes the inner face of the perforation a^3 , and thus limits the outward movement of the pinion. When thus pulled out, the milled head H' is withdrawn from the recess a^4 into the position shown in full lines in Fig. 2, and the milled head H' and pinion may be more readily manipulated in this position. The toothed portions of the pinion are long enough to be in engagement with the racks f^1 and g^1 whichever position (inward or outward) the pinion has. The center portion h' of the pinion is shown without teeth. This is optional.

When the sections F and G are slid in one upon the other, so that the bed is in its most compact form, the teeth of the pinion H are in engagement only with the racks upon the section G, for the outer ends of the racks upon the section F are slightly back of the pinion when this section F lies fully within the bed E. When the bed is extended, the section G will first be forced out by the revolution of the pinion until the stop g engages with the front plate F^2 of the section F. The ends of the racks g^1 g^1 now slightly overlap the racks f^1 f^1 , (see Fig. 3,) so that continued revolution of the pinion draws the section F forward until the racks g^1 upon its under surface come into engagement with the pinion, whereupon it in turn is forced out until the camera-bed is extended to the desired degree or until further extension is stopped by the engagement of the stop f^3 with the pin f^0 in the bed E. When the section F has been returned into the bed E as far as the limit of the engagement of its racks with the pinion, it is forced back the rest of the way by the section G, which engages with it when it encounters the lip f^3 upon the plate F^3 . The racks upon the section G are sufficiently long to make it possible to run this section fully in by means of the pinion.

In order that the section G should not be drawn backward upon the section F when the section F is being extended by the action of the pinion device, an automatic catch or means of fastening together the extended section G and the next extensible section F is provided. This catch or fastening is also automatically retracted when the section F is drawn in so that the pinion device may operate the racks upon the section G. This device is shown in Figs. 3 and 5. In one of the rails F' of the section F a spring-latch l is set, that is capable of being projected into a socket l' in the section G. The socket and latch are placed in such a position that the latch engages its socket when the section G has been fully extended with reference to the section F, and the engagement is made automatic by means of a spring l^2 . Consequently when the pinion de-

vice engages the racks f^1 of the section F the section G remains extended and is not pulled back upon the section F by the pull of the bellows D.

When the extensible sections are to be retracted or drawn back into the main section E, the section F is first retracted, and when it approaches its retracted position a pin l^3 , extending from the latch l , runs into a cam-slot l^4 , Fig. 3, in a plate l^5 , fastened upon the section E. The shape of the slot l^4 is such that it causes the pin to move outward from the section G and to withdraw the latch l from its socket l' . The slot l^4 has a portion in line with the movement of the sections F and G and another portion at an angle to the first portion, whereby the pin is operated.

The number of extensible sections may of course be more than two, and a single pinion or several pinions on the same shaft may operate all the sections, as herein set forth.

It is obvious that the construction I have shown may be modified. My improvement may be employed to operate an extensible bed comprising more than two sections that are of different construction from that I have shown. It is applicable to beds comprising more than the number of extensible sections I have shown in the drawings. I may use a pair of racks or only a single rack on each extensible section. The form of the pinion may be varied and its location and position may be changed, provided the relative operative positions of the racks and pinions that I have described are retained. I understand my invention to cover and I intend to claim all such modifications.

What I claim is—

1. The combination, in a camera-bed, of a main section; two or more extensible sections adapted to be expanded and retracted with reference to the main section and with reference to each other; operating means for moving said extensible sections longitudinally and successively so as to extend the bed; a lock for automatically connecting said sections together; and means on the main section for automatically releasing said locking device by engagement with said main section when the sections reach a predetermined relative position.

2. In an extension-bed for cameras, the combination of a plurality of extensible sections; means for extending the same successively; a main section on which said extensible sections are mounted; a locking device carried by one of said extensible sections and adapted to engage automatically with another of said sections and with said main section; and means on said main section for automatically releasing said locking device from its engagement with one of said extensible sections by engagement with said main section when the sections reach a predetermined relative position.

3. In an extension-bed for cameras, the com-

5 combination of a plurality of extensible sections;
 means for extending the same successively; a
 main section on which said extensible sections
 are mounted; a locking device carried by one
 10 of said extensible sections, and adapted to en-
 gage automatically with another of said ex-
 tensible sections, and with said main section;
 a slotted plate on said main section for auto-
 matically engaging said locking device to re-
 15 lease it from one of said extensible sections
 when the latter reaches a predetermined po-
 sition.

4. In an extension-bed for cameras, the com-
 bination of a plurality of extensible sections;
 15 means for extending the same; a main section
 on which said extensible sections are mounted;
 a locking-bolt carried by one of said extensi-
 ble sections, and adapted to engage automatic-
 ally with the other of said extensible sections
 20 and with said main section; and a slotted plate
 on said support for engaging said bolt and
 automatically withdrawing it from its engage-
 ment with one of said extensible sections
 when the latter reaches a predetermined posi-
 25 tion, substantially as described.

5. In an extension-bed for cameras, the com-
 bination of a plurality of extensible sections,
 and means for extending the same; a main sec-
 tion on which said extensible sections are
 30 mounted; a locking-bolt on one section for
 automatically connecting with the other sec-
 tion; and means for automatically moving
 said locking-bolt from its engagement with
 one of said sections by engagement with the

main section when it reaches a predetermined 35
 position.

6. In an extensible bed for cameras, the com-
 bination of a plurality of extensible sections,
 and means for extending the same; a main
 section on which said extensible sections are 40
 mounted; a locking device carried by one of
 said extensible sections; coöperating means
 therefor on the other of said extensible sec-
 tions and on the main section; means for au-
 tomatic engagement and disengagement of 45
 said locking device from said main section,
 and from one of said extensible sections, when
 the other of said extensible sections reaches
 a predetermined position in its path of move-
 50 ment.

7. The combination of a camera-bed, com-
 prising the main section E; the section F slid-
 ing in the section E'; the section G sliding in
 the section F; operating means for moving 55
 said extended sections longitudinally and suc-
 cessively so as to extend the bed; the spring-
 latch l set in one of the rails F' of the section
 F; the socket l' in the section G adapted to
 receive said spring-latch l ; the spring l^2 ; a
 pin l^3 extending from the latch l ; and the 60
 plate l^5 upon the section E, having the slot l^4
 adapted to retract the pin l^3 , substantially as
 shown and described.

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Witnesses:

C. M. PERKINS,
 F. BISSELL.