(No Model.) 2 Sheets—Sheet 1.

G. McLAUGHLIN.

CAMERA.

No. 346,120. Patented July 27, 1886.

FIG. 1.

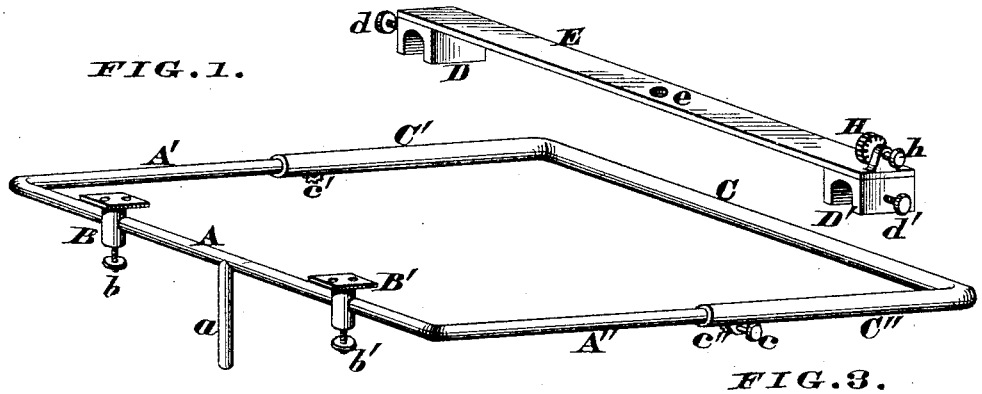


FIG. 2.

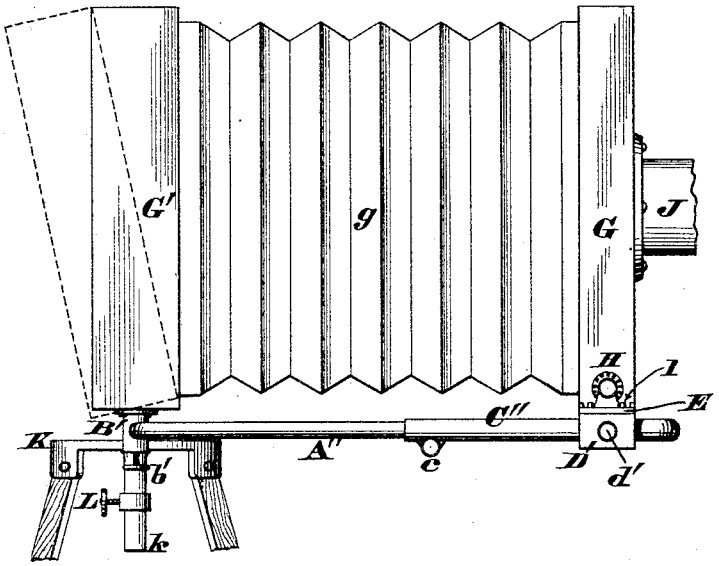
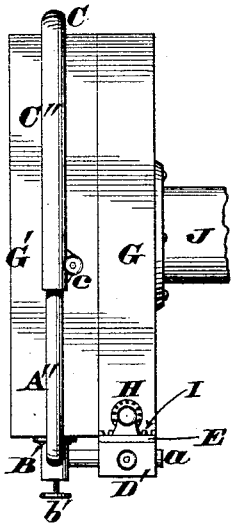


FIG. 3.



C FIG. 4. C

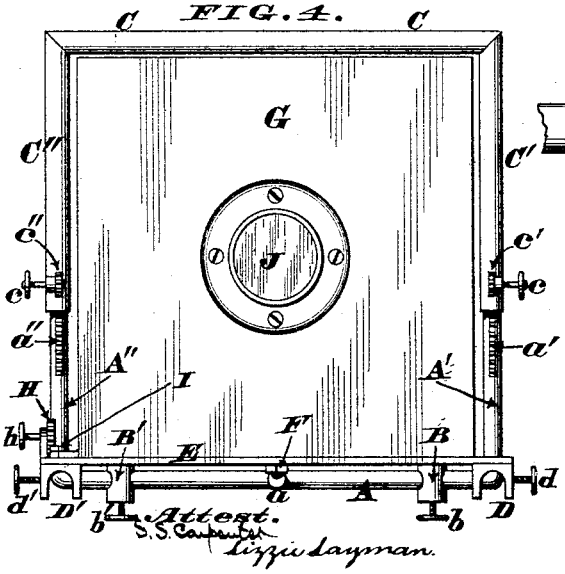
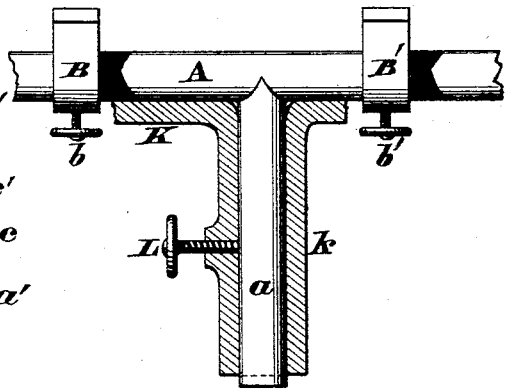


FIG. 5.



Attest.
S. S. Carpenter
Lizzie Layman.

Inventor.
George McLaughlin
by James N. Layman
Atty.

(No Model.) 2 Sheets—Sheet 2.

G. McLAUGHLIN.

CAMERA.

No. 346,120. Patented July 27, 1886.

FIG. 6.

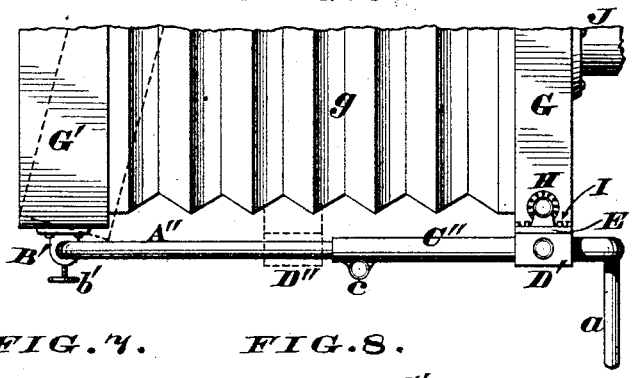


FIG. 11.

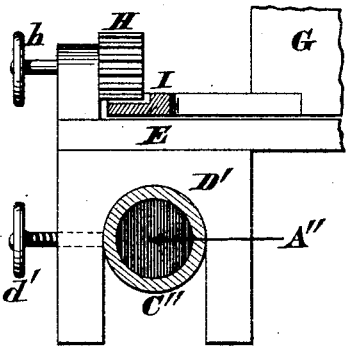


FIG. 7.

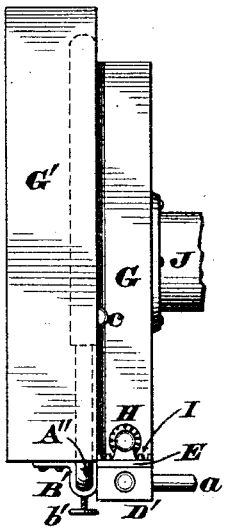


FIG. 8.

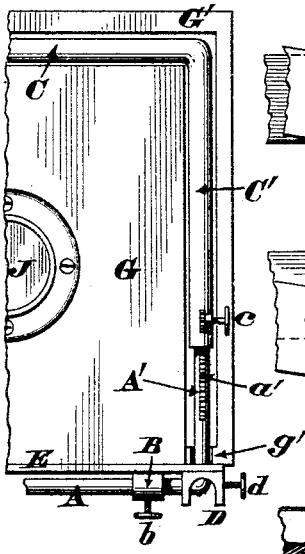


FIG. 12.

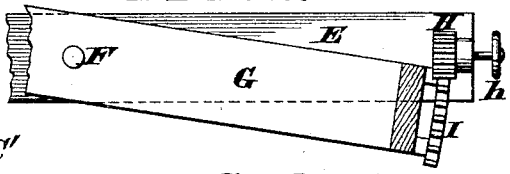


FIG. 13.

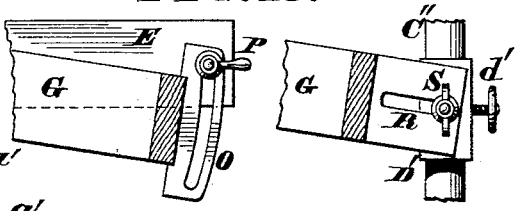


FIG. 14.

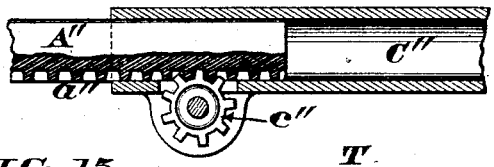


FIG. 9.

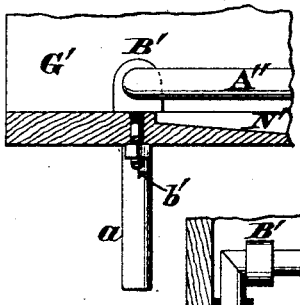


FIG. 15.

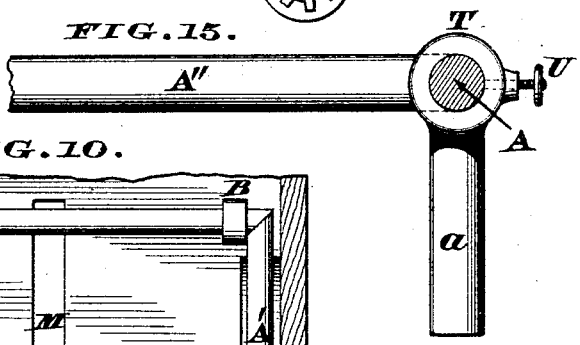
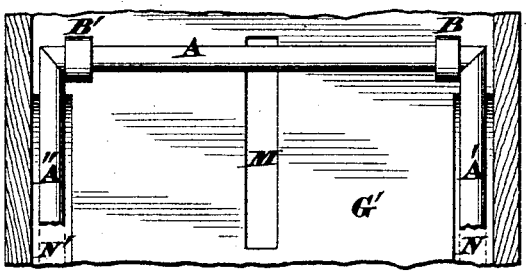


FIG. 10.



Attest.
S. S. Capwell
Lizzie Layman.

Inventor.
George McLaughlin
by James N. Layman
Atty.

UNITED STATES PATENT OFFICE.

GEORGE McLAUGHLIN, OF CINCINNATI, OHIO.

CAMERA.

SPECIFICATION forming part of Letters Patent No. 346,120, dated July 27, 1886.

Application filed November 27, 1885. Serial No. 184,051. (No model.)

To all whom it may concern:

Be it known that I, GEORGE McLAUGHLIN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Cameras, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention comprises a longitudinally-extensible folding bed or track for the support of those cameras which are usually mounted upon tripods, said extensible folding bed or track being provided with a vertical spindle or pintle that turns readily in the tripod-head, so as to permit the entire apparatus being swung around in a horizontal plane. Said bed or track is further provided with suitable boxes or equivalent bearings for the back or focusing section of the camera, which bearings enable said section to be inclined and retained at any desired angle to a perpendicular position. This extensible bed carries a longitudinally-shiftable pivot-bar that supports the front or lens section of the camera, said bar being provided with adjusting devices wherewith this lens-section can be turned laterally on its pivot and independently of the swinging of said frame on the main spindle, as hereinafter more fully described.

My invention also comprises other but minor features of construction, the details of which will be hereinafter more fully described.

In the annexed drawings, Figure 1 is a perspective view of my longitudinally-extensible bed or track, the pivot-bar being shown detached therefrom. Fig. 2 is a side elevation showing an ordinary "bellows-camera" mounted on the track and the latter applied to a tripod-head. Fig. 3 is a side elevation of the aforesaid camera in its closed condition. Fig. 4 is a front elevation of this closed camera. Fig. 5 is an enlarged view of a portion of the track and tripod-head, the latter being sectioned. Fig. 6 is a side elevation of the lower portion of a camera mounted on a modified form of the extensible track. Fig. 7 is a side elevation of the invention applied to a camera having a cone-bellows, the camera being closed. Fig. 8 is a front elevation of a portion of said camera. Fig. 9 is a modification, in which the extensible track is fitted within the frame of the camera. Fig. 10 is a plan thereof. Fig. 11 is an enlarged view of one of the shiftable keepers to which the pivot-bar is attached, the supporting-track being sectioned. Fig. 12 is a plan of the adjusting devices at the end of said pivot-bar. Fig. 13 is a plan showing two modifications of these adjusting devices. Fig. 14 is a longitudinal section of a portion of the extensible track. Fig. 15 is a modification of said frame.

Referring to Fig. 1, A represents the end bar, and A′ A″ the side bars, of what may be called the "stationary section" of the extensible track, which members A A′ A″ may be either solid or tubular. Depending rigidly from this end bar, A, and at or near the mid-length of the same, is a spindle or pintle, *a*, adapted to engage with the tripod-head, as will presently appear. Furthermore, said end bar is surrounded by a pair of boxes or other bearings, B B′, for the focusing or back section, G′, of the camera, each box having a set-screw, *b b′*, for retaining said section at any desired angle.

The longitudinal extension of the supporting-frame is preferably obtained by means of a shiftable tubular section consisting of an end piece, C, and a pair of side pieces, C′ C″, said pieces C′ C″ being adapted to slide freely along the side bars, A′ A″, of the stationary section of said frame. Either or both of these side pieces, C′ C″, may have small pinions *c′ c″*, operated by suitable knobs or thumb-wheels, *c*, and adapted to engage with racks *a′ a″*, formed on or applied to the under edges of the side bars, A′ A″, one of said racks being more clearly shown in Fig. 14.

D D′ are arched keepers capable of being shifted along the side pieces, C′ C″, and clamped thereto by means of set-screws *d d′*. These keepers have rigidly attached to them the opposite ends of the pivot-bar E, previously alluded to, a perforation, *e*, being made near the mid-length of said bar to admit a bolt, screw, or pin, F, wherewith the front or lens-section, G, of the camera G G′ *g* is loosely coupled to said bar. Furthermore, one end of this bar has journaled in it a small pinion, H, operated by a knob, crank, or thumb-wheel, *h*, and arranged to gear with a rack, I, the latter being immovably attached to the lens-section G, that carries the tube J.

G′ represents the back or focusing section of the camera, said section being supported upon the boxes B B′, and being connected to the front section, G, by an ordinary bellows, *g*.

K is the head, of any approved form, of tripod, said head being furnished with a tubular neck, *k*, for the reception of the spindle or pintle *a* of the stationary section of the track, as seen in Fig. 5.

L is a set-screw that prevents the spindle turning within said neck after the instrument has been properly adjusted.

To unfold and mount my camera, the set-screws *b b′* are loosened, the bellows *g* opened, and the folding-track is brought over G, a slanting movement of G enabling the track to be passed over the projecting keepers D D′. The spindle *a* is inserted in the neck *k* of the tripod-head, and the keepers D D′ are adjusted on the side bars, C′ C″, by which means the lens-section G is held in a perpendicular position. The instrument is adjusted by turning the frame around upon the tripod-head K until the lens-tube J is brought in line with the object to be photographed. The screw L is then tightened, so as to retain said frame in the desired position. The adjustment of the camera to the tripod-head, as aforesaid, entirely obviates the difficulties attendant upon the adjustment of the thumb screw passing vertically through the tripod-head into the cameras now in use. Its rigid position when adjusted avoids the insecurity of the plan of the camera now used, standing, as it does, upon a set-screw as an axis, and held in place wholly by a stoppage on its own revolution. The pinions *c′ c″* are then turned for the purpose of advancing or retracting the front section, G, and thereby obtaining the correct focus, the set-screws *d d′* being tightened against the tubular side pieces, C′ C″, to prevent longitudinal shifting of said section; but if it should be desired to turn said section at an angle to C′ C″, the knob *h* is manipulated, thereby causing the pinion H to act on the rack I, and thus producing the desired lateral swing of this section G, as seen in Fig. 12. If any inclination of the back section, G′, is desired, the set-screws *b b′* are first slackened, and the top of said section can then be pitched rearwardly, as indicated by the dotted lines in Fig. 2; or the top of said section can be pitched toward the front of the instrument, as suggested by the dotted lines in Fig. 6, and after the desired angular adjustment has been obtained the set-screws *b b′* are again tightened, thus preventing any accidental shifting of the rear portion of the camera.

From the above description it is apparent that my instrument is susceptible of no less than four distinct and independent adjustments—to wit, the swinging of the frame around the tripod-head, the longitudinal extension of said frame, the lateral turning of the lens-section, and the inclination of the back section—which adjustments render the camera useful for any possible kind of work.

For transportation or storage, the screws *b b′* and *d d′* are first slackened, and the section G is retracted far enough and turned around until sufficient clearance is afforded to permit the frame being swung up over the top of the camera. The two sections G G′ are then brought in contact with each other, and the frame is contracted until its end piece, C, rests upon the top of section G′, as seen in Figs. 3 and 4, the spindle *a* now occupying a horizontal position under said closed sections. It is evident, however, that the details of construction may be modified to suit special cameras or the requirements of the operator—as, for example, the spindle may project from the end piece of the tubular section of the extensible track, as seen in Fig. 6, in which case the lens-section would remain stationary and the focusing-section would extend toward the operator; or a camera having a cone-bellows may be mounted upon the track, in which event the instrument would close up in the manner seen in Figs. 7 and 8, the track, as thus telescoped, occupying a space between the larger and smaller sections, G′ G, and the lower margin of the former being notched at *g′*, as shown in Fig. 8, to admit the side bar, A′, of said frame. Furthermore, Fig. 7 shows that the boxes B′ must be set up quite close to the front edge of the section G′, to permit a snug closure of the camera and the folding extensible track.

In Figs. 9 and 10 the extensible track is fitted within the camera, the spindle *a* projecting through a central slot, M, of the same, while inclined grooves N N′ are provided to receive the side pieces of said frame when the top of section G′ is pitched rearwardly; but when said track is contracted and turned up to an erect position within said section the spindle *a* passes through the central slot, M, and folds up within the frame of the camera.

In Fig. 13 is seen two modifications of the devices for effecting the lateral swing of the lens-section, O being a slotted plate attached thereto and P being a thumb or lever nut engaged with a screw that projects upwardly from the pivot-bar E and traverses the slot of said plate. R, in the same illustration, represents a slot made in a horizontal extension of the lens-section, through which slot passes a screw projecting from the keeper D′, a thumb-nut, S, being engaged with the screw. This modification dispenses with the pivot-bar E.

Another modification is seen in Fig. 15, where the spindle *a* terminates with a head, T, that affords a journal-bearing for the end bar, A, of the frame, by which arrangement said bar can be rocked within said head. U is a set-screw that retains this bar to any specific angular adjustment either above or below the line of the horizon. In case the camera is provided with a very short focus only, the tubular portion C C′ C″ of the track could be omitted and the keepers ride upon the side bars, A′ A″, as indicated by the dotted lines D″ in Fig. 6. Finally, it is preferred to make the entire

track of metal, although the invention is not limited to any special material.

I claim as my invention—

1. The combination, in a camera-track, of an end piece terminating with a pair of side bars, said end piece being provided with a spindle and rocking bearings, for the purpose herein described.

2. A camera-track consisting of an end piece terminating with a pair of side bars, in combination with a longitudinally-sliding section applied to said side bars, said end piece being provided with a spindle and rocking bearings, for the purpose described.

3. The combination, in a camera-track, of an end piece provided with a spindle and terminating with a pair of side bars, a longitudinally-sliding section applied to said bars, and a bellows-camera mounted upon a pivot-bar of the aforesaid sliding section, for the purpose described.

4. The combination, in a camera-track, of an end piece provided with a spindle and terminating with a pair of side bars, a longitudinally sliding section applied to said side bars, and a bellows-camera mounted upon a pivot-bar of the aforesaid sliding section, which pivot-bar is furnished with devices for the lateral adjustment of the lens-section, as herein described.

5. The combination of end piece, A, side bars, A′ A″, spindle *a*, rocking bearings B *b* B′ *b*′, longitudinally-sliding section C C′ C″, rack *a*′, pinion *c*′, keepers D *d* D′ *d*′, bar E *e*, pivot F, bellows-camera G G′ *g*, pinion H, and rack I, for the purpose described.

6. A tripod-head, K, having a neck, *k*, and set-screw L, in combination with the camera-track A A′ A″, provided with a spindle, *a*, that traverses said neck, for the purpose described.

7. A camera-track consisting of an end piece provided with a spindle and a pair of side bars, suitable bearings being applied to said track for supporting the instrument, substantially as herein described.

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

GEORGE McLAUGHLIN.

Witnesses:

JAMES H. LAYMAN,

SAML. S. CARPENTER.