

May 6 , 1924.

J. MÉRY

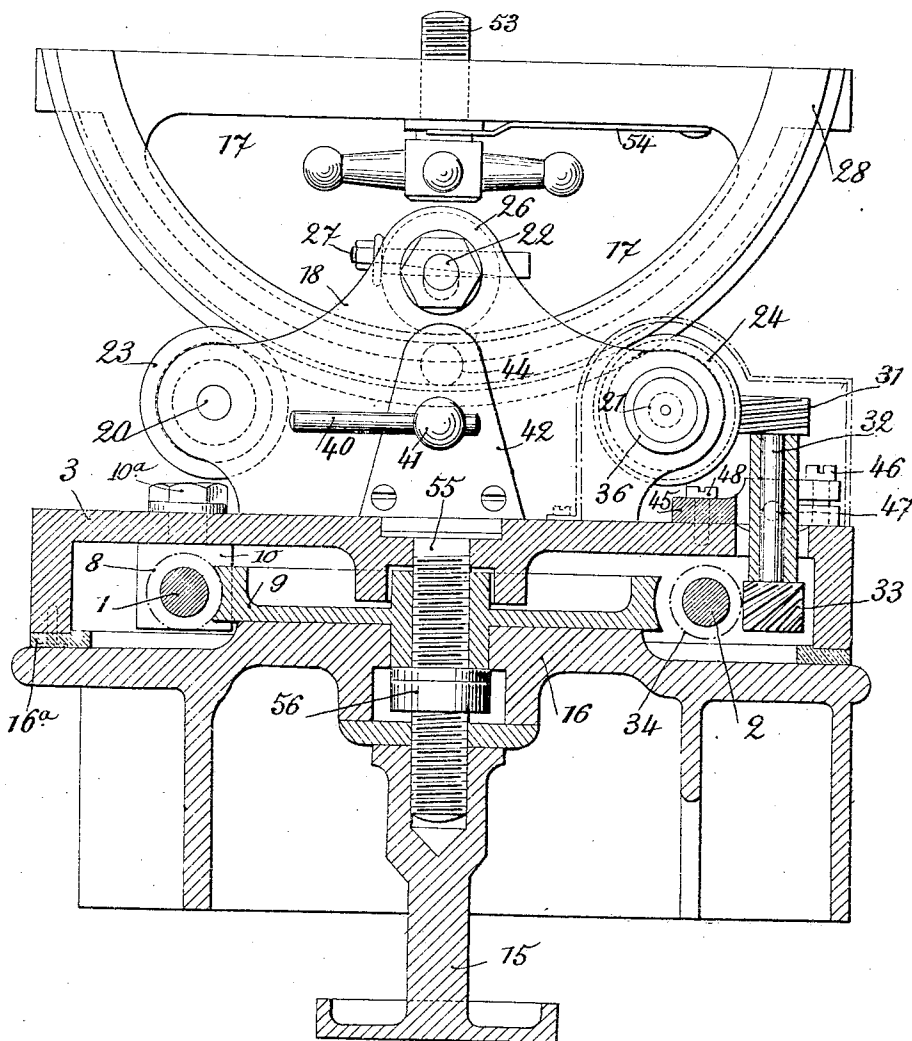
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INTEGRAL PLATFORM BASE FOR CAMERAS AND THE LIKE

Filed Dec. 29, 1921

7 Sheets-Sheet 1

Fig. 1



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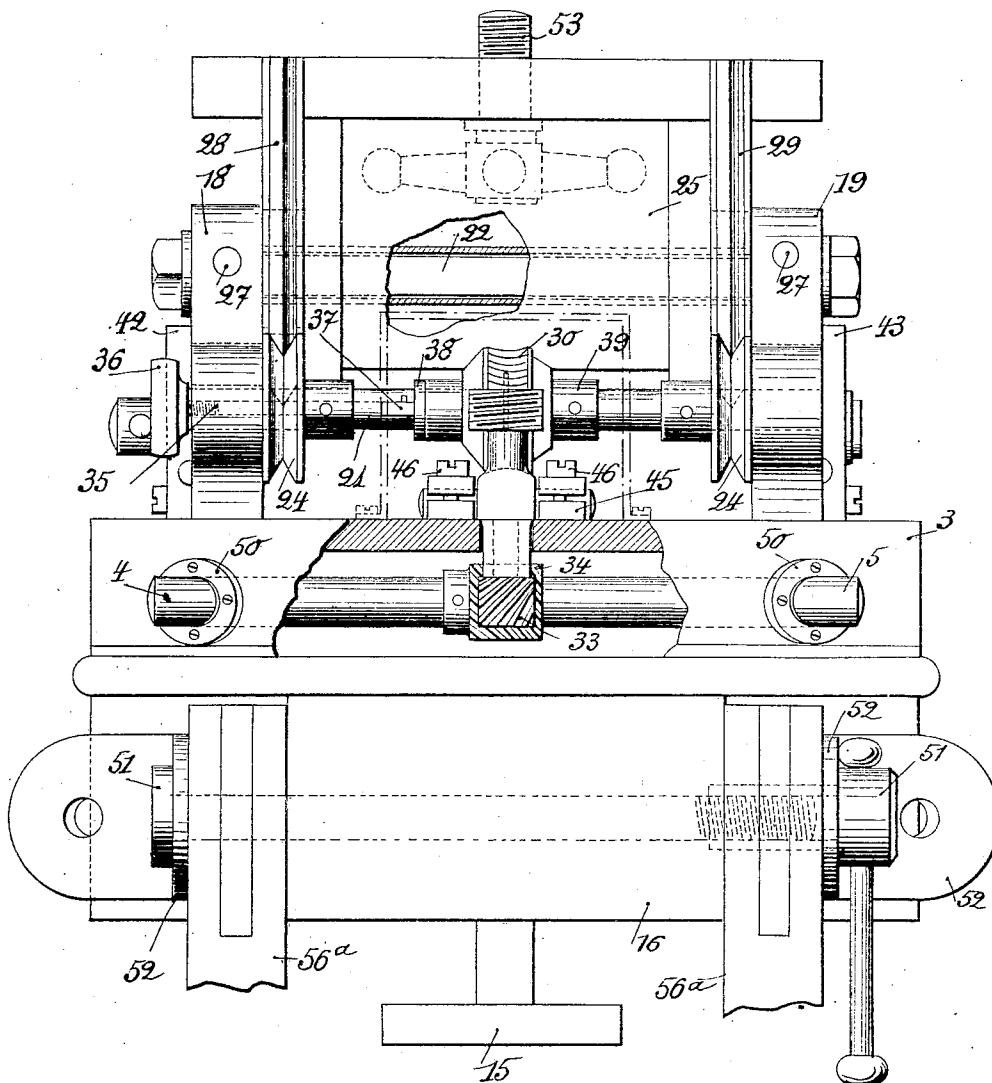
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Fig. 2



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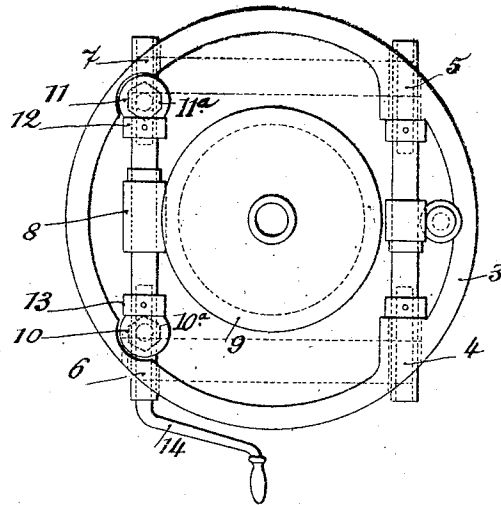
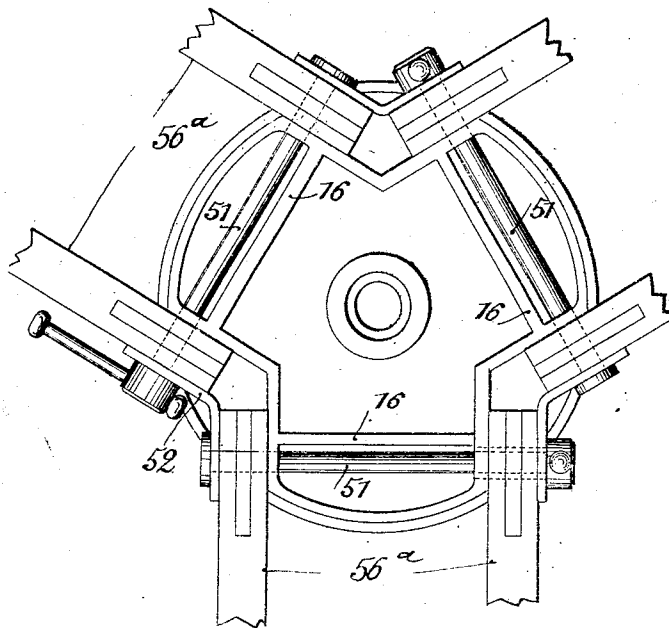


Fig. 3

Fig. 4



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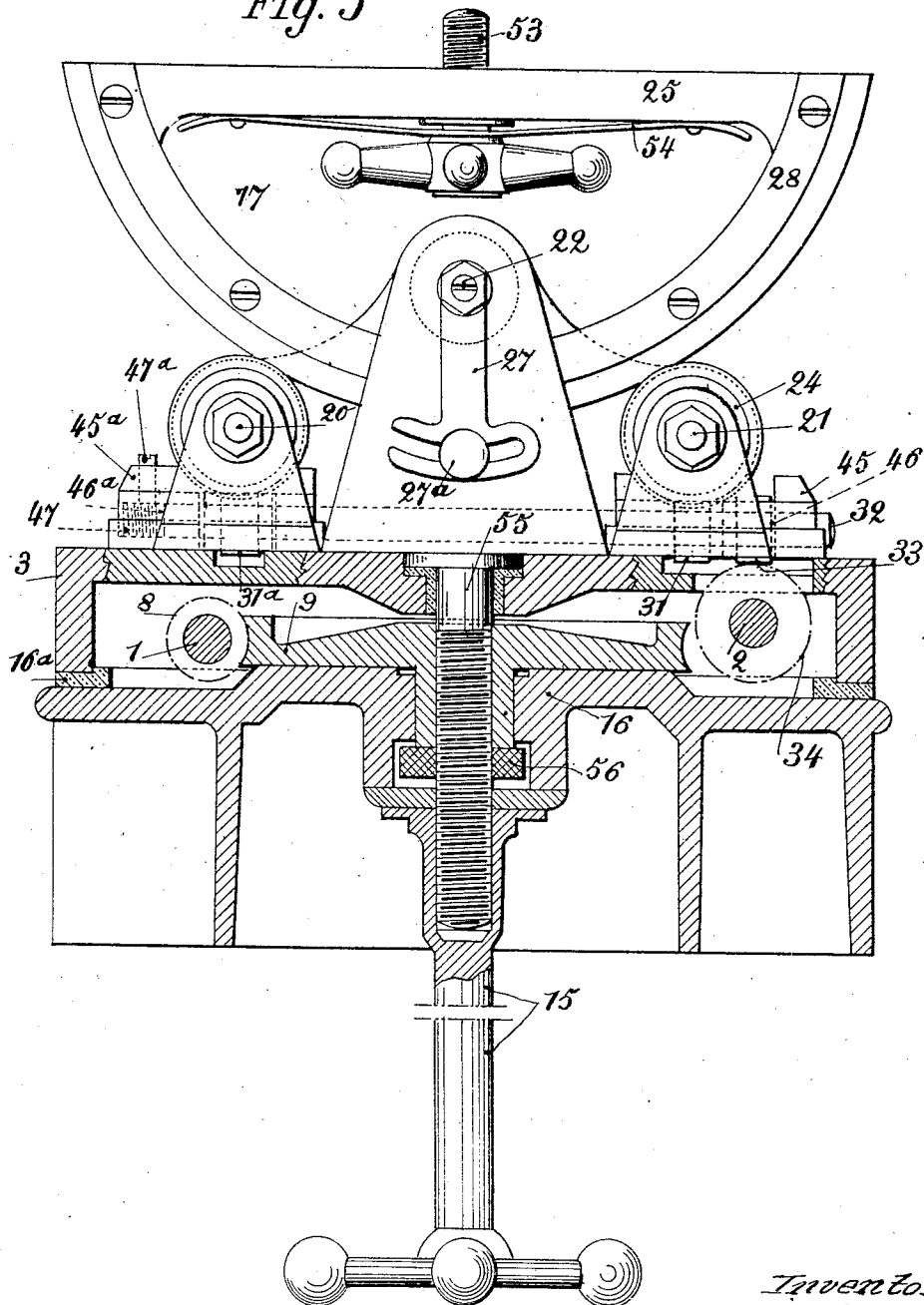
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Fig. 5



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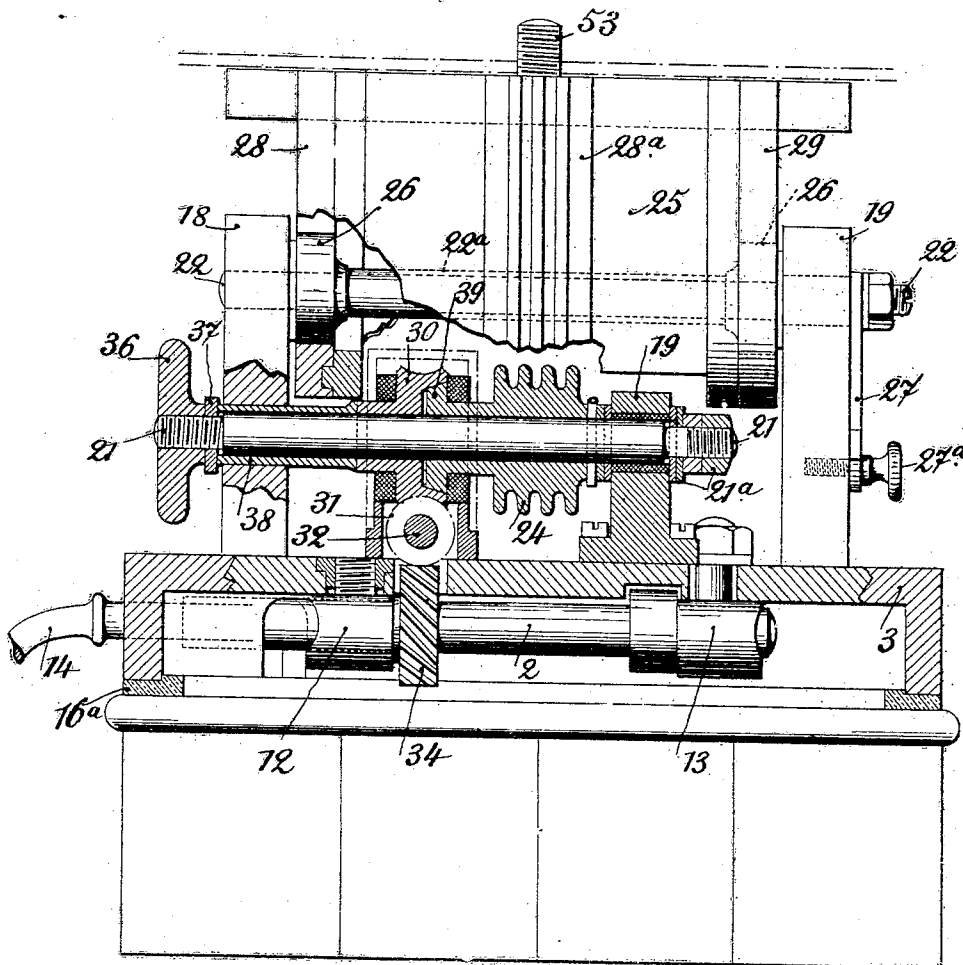
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INTEGRAL PLATFORM BASE FOR CAMERAS AND THE LIKE

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Fig-6



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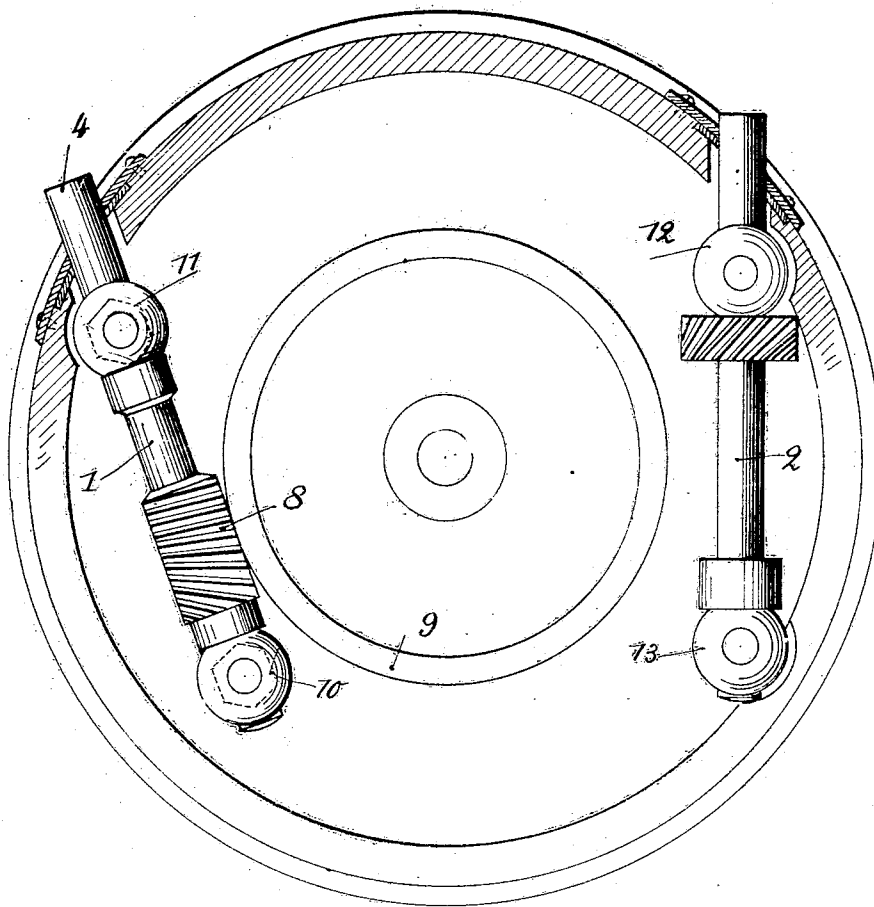
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INTEGRAL PLATFORM BASE FOR CAMERAS AND THE LIKE

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Fig. 7



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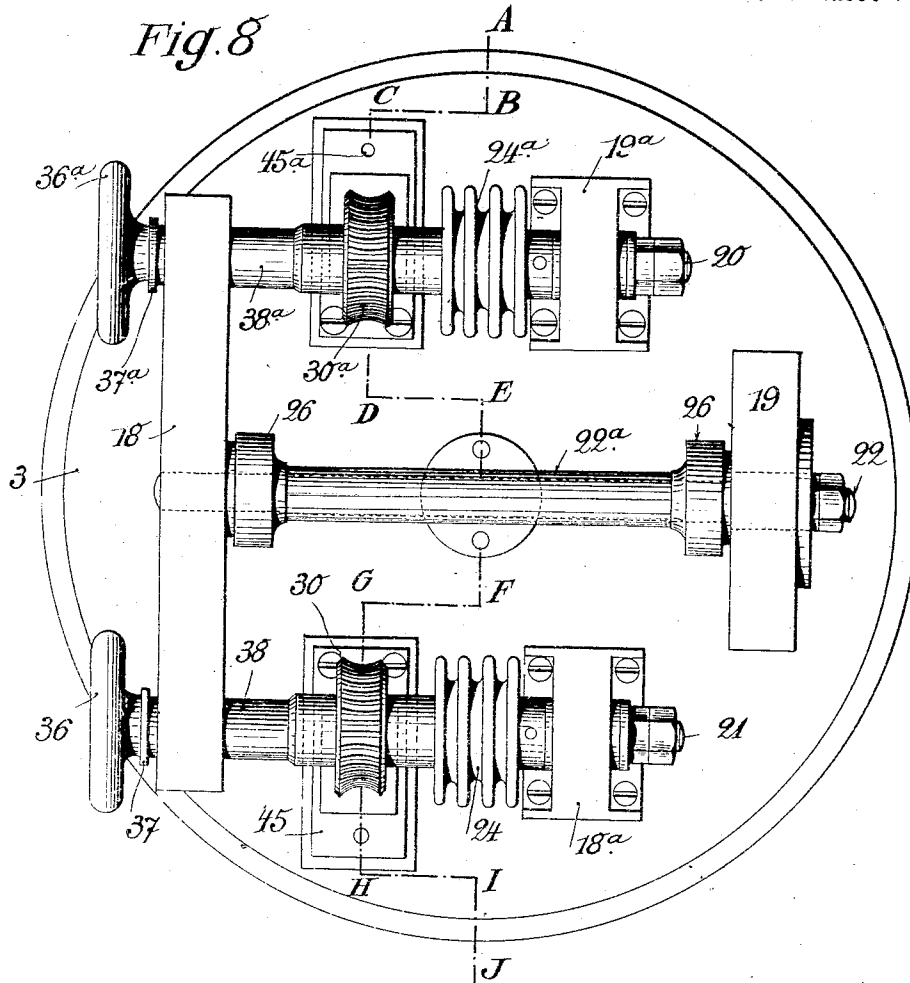
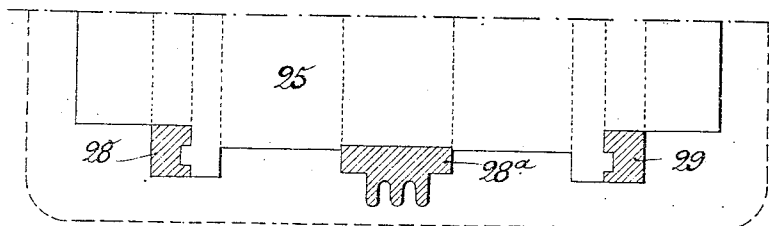


Fig. 9



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UNITED STATES PATENT OFFICE.

JEAN MÉRY, OF PARIS, FRANCE.

INTEGRAL PLATFORM BASE FOR CAMERAS AND THE LIKE.

Application filed December 29, 1921. Serial No. 525,656.

To all whom it may concern:

Be it known that I, JEAN MÉRY, a citizen of the Republic of France, and residing at Paris, Seine Department, No. 12 Rue Gail-
 5 lon, in the Republic of France, have invented certain new and useful Integral Platform Bases for Cameras and the like, of which the following is a specification.

The platform bases employed for motion
 10 picture cameras are not as a rule of the integral type, that is, the vertical platform is removable from the horizontal platform. The latter is in most cases permanently secured to the tripod, but it is also made re-
 15 movable from the latter, for instance for travelling purposes. Certain vertical and horizontal bases constituting a single piece are of a lighter and stronger character by reason of the construction of the same.
 20 However, all the known devices of this type have a very serious drawback in allowing a too small angle of swing forward or back of the vertical position. A second drawback arises from the fact that in none of the
 25 known vertical bases are the mechanical parts protected from the action of dust and like prejudicial effects, and for this reason they become worn out within a short time. On the other hand, since the devices of this
 30 kind are caused to swing upon horizontal journals by means of a quadrant and worm gear, these two parts soon possess an amount of play which is inadmissible for taking motion picture views.

35 This invention has for its object to obtain lighter construction, greater strength, an indefinite duration and a wide angle of inclination. The lightness is obtained by using an integral construction for the hori-
 40 zontal and the vertical bases. Rigidity is secured by a construction wherein the vertical platform base is not pivoted on two journals disposed at an elevated point but is provided with a rocking arrangement
 45 upon rails between closely spaced rollers mounted on the horizontal base. An increased duration of the apparatus is secured from the fact that the worm and like gear-
 50 ing actuating the said rollers are protected from all causes of wear within a perfectly tight casing. The rails and rollers which are the only parts exposed to the open air are constructed of a specially hard metal and are not damaged by the action of dust.
 55 The shafts of the rollers are moreover carefully protected.

The following description, together with the accompanying drawings which are given by way of example, sets forth two embodi-
 60 ments of this invention wherein:

Fig. 1 shows the horizontal platform base in section and the vertical platform in side elevation.

Fig. 2 is a longitudinal view with parts broken away.

Fig. 3 is a plan view of the bottom of the horizontal platform, on a smaller scale.

Fig. 4 represents the base viewed from below and the method of securing the
 70 branches, also on a smaller scale.

Fig. 5 shows a modified form of the horizontal platform in cross-section with parts broken away according to the A B C D E F G H I J, Fig. 8.

Fig. 6 is a longitudinal view with parts
 75 broken away.

Fig. 7 is a plan view of the elements of the horizontal platform, the top of the casing being supposed to be removed.

Fig. 8 is a plan view of the vertical plat-
 80 form after the removal of the cradle.

Fig. 9 is a partial plan of the upper part of the cradle, showing the position of the rails. The same numerals are used to designate like parts in the different figures.

In Figs. 1 to 4, the shafts 1 and 2 are disposed in a circular casing 3 and pass through the same at 4, 5, 6 and 7, Fig. 3. A worm 8 disposed at the middle of the shaft 1 engages a worm-wheel 9 which is constructed
 90 preferably of bronze. Two bronze members 10 and 11 serve as bearings for the said shaft, and the two rings 12 and 13 limit the lateral movement of the same. The said bearings are secured to the top within the
 95 casing by screwthreaded rods and by the nuts 10^a and 11^a, with the use of elastic washers. The said bearing 10 is revoluble with easy friction in its socket whilst the bearing 11 is secured in an enlarged aper-
 100 ture affording a slight movement in all directions. The amount of play of the worm 8 upon the wheel 9 and the lateral play of the shaft 1 in the bearings 10 and 11 may be regulated at the same time from the exterior.
 105 The two nuts 10^a, 11^a can be slightly unscrewed in order to allow the bearing member 10 to rotate, the bearing 11 being pushed at the same time towards the said wheel and towards the bearing 10. The play in all
 110 these parts is annulled at the same time, and the nuts are then definitely set in position.

The device provides for the pivoting movement of the horizontal platform 3 at the normal speed by means of the endless screw 8 actuated by the handle 14. But without making use of the said handle or crank, a rapid rotation can be obtained by hand. This is carried out by releasing the lower central key which controls the adjustment of the wheel 9 upon the base 16. By releasing the said key the operator is enabled to effect the free rotation of the said wheel and the whole superstructure. A bronze contact ring 16^a provides for an easy sliding movement of the horizontal platform upon the base 16. The vertical platform 17 which is preferably of aluminum, is maintained by two vertical uprights 18 and 19 cast together with the casing 3 of the horizontal platform. Three shafts 20, 21 and 22 serve to connect the said uprights together. The two lower shafts 20, 21 are provided at the ends with four rollers 23, 24 having V-shaped grooves and constituting the rolling guides of the cradle 25 of the vertical platform. The shaft 22 is provided with two rollers 26 without grooves, and it is adjustable in height by means of two conical screw keys 27.

The steel rails 28 and 29 have the form of a circular arc and are secured to the plano-convex aluminum cradle 25 which constitutes the vertical platform whereupon the camera is secured by means of a screw 53 having the standard thread with cross-head and provided with a forked spring 54 for drawing the same upwardly. The said circular rails are inserted in the V-shaped grooves of the lower rollers 23 and 24 and constitute with the same a gear combination of the wedge type. The convex portion is cut by machine in V-shape whilst the concave portion remains flat. The upper cylindrical rollers 26 are caused to roll upon this flat surface and press the rails 28, 29 against the rollers 23, 24, this action being adjustable by means of the keys 27. The said rails will thus be maintained without play between the said rollers and are entrained in a reliable manner by the rollers 24 which alone actuate the device; the rollers 23 are used only as supports. It should be noted that the four lower rollers form a sustaining polygon such that the vertical line passing through the centre of gravity of the apparatus can in no event be situated outside the limits of the same, even when the angle of inclination has a maximum value. The apparatus will thus be in all cases in stable equilibrium, and will consequently afford a very easy and smooth operation.

The actuating rollers 24 entraining the rails 28 and 29 on the wedge gear principle are controlled by a central worm-wheel 30 actuated by a worm 31 which is keyed to

a shaft 32, the latter also carrying a worm-wheel 33. The latter wheel co-operates with a second worm-wheel 34 mounted on the shaft 2 and adapted to receive the operating crank at either end. The adjustment of the two sets of gearing comprising worm and worm-wheel is carried out with facility by bringing towards each other the bearings 45 whereupon the shaft 32 is mounted in a movable manner. Two screws 46 provide for the tightening of the rocking portion 47; two other screws 48 secure the said bearings to the platform. A suitable casing 49 indicated by dotted lines in Fig. 6 affords dustproof protection for the said mechanism.

The vertical as well as the horizontal platform may be controlled rapidly by hand without the use of the hand crank, or in other cases the latter may be employed. The driving shaft 21 has formed therein a screw-threaded aperture 35 having screwed therein a small threaded rod which is riveted to a button 36. The said rod is adapted to push against a key 37 extending outwardly of the shaft on each side, and it is employed to impel a steel ring 38 or is disengaged from the latter. The central worm-wheel 30 having a substantial hub is mounted loose upon the shaft 21, and has formed therein a female cone; a co-operating male cone 39 secured to the shaft 21 is so disposed with reference thereto that screwing the button 36 will impel the key 37, then the ring 38 and lastly the worm-wheel 30 which enters in close contact with the stationary cone 39. At this moment it becomes necessary to use the hand crank in order to incline the platform. By unscrewing the button 36 the said worm-wheel is rendered loose on the shaft and the operator can rapidly bring the vertical platform to the desired inclination and then immobilize the same by a turn of the button 36 without requiring the use of the hand crank.

To obtain a still more absolute connection between the two platforms, the operator uses a handle 40 to produce a strong pressure upon the shaft provided with a shoulder 41 which passes through the cheek 42 and is screwed into the other cheek 43. The said cheeks when brought together by the action of the screw will impel two pistons 44 of fibre or the like within two apertures formed in the uprights 18 and 19; the said pistons will cause the jamming of the rails 28, 29 and will maintain them in fixed position against the frame. The control shafts 1 and 2 for the two platforms which pass entirely through the casing 3 extend but for a short distance outwardly of the same and are therefore not subjected to bending effects. Dust cannot enter through the apertures used for the said shafts, these being carefully stopped by the

felt pieces and collars 50. In order to obviate the loosening of the pressure bolts 51 upon opening and closing the branches 56^a and also to prevent any splintering of the wood at the pressure points of the said bolts, a heavy brass plate 52 is used to connect two consecutive branches. The bolts are thus caused to exert their pressure upon the said plate. Each of the branches is by reason of the said plate held pressed between two friction surfaces which are prevented from rotating, thereby obviating all danger arising from an improper opening of the branches.

In the modified form shown in Figs. 5 to 9, the shafts 1, 2 are disposed within a circular casing 3, passing through the same at 4, 4^a, Fig. 7. A worm 8 mounted on the shaft 1 co-operates with a worm-wheel 9 which is preferably in bronze. Two upright members 10, 11 serve as bearings for the said shaft and limit the lateral movement of the same. The said bearing members are secured to the top of the casing on the inside. The bearing 10 is pivoted by easy friction in the aperture thereof whilst the bearing 11 is mounted in an enlarged aperture whereby it is enabled to move to a slight extent in all directions. The amount of play between the worm 8 and the worm-wheel 9 and the lateral play of the shaft 1 in the bearings 10, 11 may be regulated at the same time from the exterior. However, on the contrary to the preceding device, the shafts 1 and 2 are no longer parallel. The apertures 4, 4^a through which the shafts extend out of the casing 3 are here spaced at a greater distance apart in order to prevent any possible contact between the handles, thereby enabling the latter to be used at the same time and on the same side of the casing (to the left of the operator).

The vertical platform 17 is supported by two vertical uprights 18, 19 cast together with the casing 3 of the horizontal platform. Two other small uprights 18^a, 19^a are secured to the said casing. Two shafts 20, 21 connect the upright 18 respectively with 18^a and 19^a. A third shaft 22 in eccentric position connects 18 with 19. The two lower shafts 20, 21 are provided near the middle point with the pinions 24, 24^a having a V-shaped or a lenticular groove and constituting roller guides serving also for the support and the drive of the cradle 25 of the vertical platform. The eccentric shaft 22 carries a tube 22^a provided at the ends with rollers without grooves 26 which are adjustable in height by the rotation of the eccentric shaft 22. The circular arc-shaped steel rails 28, 29 are secured to the plano-convex cradle 25 which constitutes the vertical platform base whereupon the camera is mounted by a screw 53 having a cross-head constantly returned by a spring strip

54. Another rail in central position 28^a having V-shaped grooves is secured to the middle part and below the said cradle. The grooved portions of the rail 28^a co-operate with the grooved-ports of the pinions 24, 24^a and form a gear set of the wedge type whereby the cradle shall be guided and longitudinally entrained by two gear wheels placed in tandem. To provide for the lateral stability of the same, the two rollers 26 are caused to roll upon the inner curved side of outer rails 28, 29, thus affording the equilibrium of the cradle as well as the wedge gear action without possible slip, inasmuch as the strong pressure of the eccentric shaft will provide for an adjustable adherence and will take up the wear. The said shaft may be rotated and secured at the desired pressure by the use of the handle 27 secured thereto. The said handle is provided with a slide quadrant which may be immobilized upon the cheek of the upright 19 by the button 27^a.

The said cradle may be dismantled, cleaned and put in place in a few moments. For dismantling, it will suffice to unscrew the button 27^a and to remove the shaft from its uprights 18 and 19. The grooved driving pinions 24, 24^a are actuated by the worm-wheels 30, 30^a which are in turn driven by the worms 31, 31^a keyed to a shaft 32 which latter also carries a worm-wheel 33; the latter wheel engages a second worm wheel 34 mounted on the shaft 2. The said shaft is journaled in the bearing members 12, 13 and the outwardly extending end is provided with the hand crank 14, Fig. 6. The shaft 32 is revoluble in the bronze bearings 45, 45^a between two fibre washers 46, 46^a. A screw 47 serves to adjust the lengthwise play of the said shaft, and is in turn immobilized by a small transverse screw 47^a with interposition of a brass stud.

The same bearings 45, 45^a are fitted with two suitable casings, each being formed in two pieces in order to pass around the shaft 21 and the shaft 22. The device is made dustproof by felt pieces mounted in the interior. The vertical platform base may be rapidly inclined by hand to the front or rear, or a slower movement is obtained by the handle; for this purpose the shafts 20, 21 are screw-threaded at the ends, Fig. 6. On the side opposite the bolts 36, 36^a, this thread serves for the free adjustment without play of the two shafts in their respective bearings 18^a, 19^a by means of fibre and steel washers, nuts and lock-nuts as shown at 21^a Fig. 6. On the side of the buttons, screwing the buttons 36 will cause the latter to impel the steel washer 37, the tube 38, and the bronze wormwheel 30 which is now pressed against the clutch cone 39 secured to the grooved pinion 24 mounted by means of a cross-pin upon the shaft, this

construction securing together the driving worm-wheel, the grooved-pinion and the cradle, which latter will thus be controlled by the operator's handle. Unscrewing the button will on the contrary release the said cradle. Hand operation may then be used to tilt the same forward to the requisite degree by a rapid movement, or on the contrary the cradle may be placed under the control of the handle by screwing in the button 36; the same will apply to the button 36^a. These two buttons may instead of being made independent be disposed in mechanical co-operation whereby they may be screwed or unscrewed at the same time.

It is obvious that without departing from the principle of the invention, the various improvements as set forth are applicable as a whole or separately to all platform bases or like supports for motion picture cameras or more generally for usual photographic cameras.

Claims.

1. A platform base for motion picture and photographic cameras, comprising a supporting element, a horizontal platform pivoted to the said supporting element upon a vertical shaft, rollers disposed upon the said platform, a vertical platform comprising bearing elements having the form of circular arcs concentric with a given horizontal axis, the said bearing elements resting upon the said rollers, and means for maintaining the said bearing elements pressed against the said rollers.

2. A platform base for motion picture and photographic cameras, comprising a supporting element, a horizontal platform having the form of an inverted circular box and pivoted to the said supporting element, two screw-threaded shafts disposed within the said platform, a gear wheel disposed upon the said supporting element and cooperating with one of the said screw-threaded shafts, rollers mounted upon the top of the said platform, a vertical platform comprising bearing elements having the form of circular arcs concentric with a given horizontal axis, the said bearing elements resting upon the said rollers, and means actuated by the second screw-threaded shaft whereby at least one of the said rollers shall be rotated in order to effect the rocking movement of the vertical platform.

3. A platform base for motion picture and photographic cameras, comprising a supporting element, a horizontal platform pivoted to the said supporting element upon a vertical shaft, two rollers mounted upon the said platform in a common vertical plane, means disposed upon the said platform for effecting the rotation of the said rollers, a horizontal shaft adjustably mounted upon the said platform and situated transversally to the plane of the said rollers, two other rollers disposed upon the said shaft, a vertical platform comprising three bearing elements having the form of circular arcs concentric with a given horizontal axis, the middle element resting upon the first two rollers and the two lateral elements being guided below the said rollers carried by the transverse shaft.

4. In a platform base for motion picture and photographic cameras, the combination of a horizontal platform, rollers mounted thereupon, a cradle-shaped vertical platform resting upon the said rollers, and means for rotating at least one of the said rollers in order to effect the rocking movement of the said vertical platform, the said means comprising worm gearing adapted to be unclutched as desired.

5. In a platform base for motion picture and photographic cameras, the combination of a horizontal platform, rollers mounted thereupon, a vertical platform comprising bearing elements in the form of circular arcs resting upon the said rollers, the said elements having a cut-out portion, a horizontal shaft passing loosely through the cut-out portions of the said bearing elements, bearings provided upon the said horizontal platform for supporting the said horizontal shaft, a sleeve mounted upon the said shaft, two rollers mounted upon the said sleeve and resting respectively upon two of the said bearing elements of the said vertical platform, the said shaft being slidably and removably mounted in the bearings thereof and in the said sleeve, for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed by name in presence of a subscribing witness.

JEAN MÉRÉ.

Witness:

MAURICE ROUX.