SUMMA REPORT

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CESARE TIRANTI - Costruzione Apparecchi Fotografici - Roma

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CAMERA

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2 Claims. (Cl. 95—11)

This invention relates to cameras, and more particularly to cameras which are particularly suitable for reporters.

An object of this invention is to provide a camera with two photographic or working lenses and two viewing lenses.

In picture taking services for newspapers, magazines, and the like, the need arises both for ordinary picture taking and for wide-angle picture taking. Other requirements relate to the case and rapidity of adjusting the focusing and framing in both instances and it is of the utmost importance to prevent undesired releases of the shutter such as may take place when the cover of the plate or film carrier has not been removed. In addition, the provision of a direct-vision view-finder is desirable, if not necessary, for a direct-vision framing, either in connection with the ordinary working lens or in connection with the wide-angle working lens. Other requirements relate to the strength, convenience, and easy control of the camera.

A camera according to this invention fulfils all the above requirements as it comprises:

(1) An ordinary photographic or working lens and a wide-angle photographic or working lens, either of which can be brought to operating position at will by means of a very simple operation;

(2) A viewing lens associated with the ordinary working or photographic lens, and a viewing lens associated with the wide-angle working or photographic lens, the suitable one of which is brought to the operating position at the same time as the corresponding working lens; the viewing lens which is in the operating position gives on a ground glass screen an image exactly corresponding to the image which will result on the light sensitive material as to focusing and framing inasmuch as a device is provided for parallax correction, which is operative with either working lens in any focusing adjustment thereof.

(3) A mechanical device is provided which prevents the shutter from being released when the cover of the plate or film carrier is in place.

(4) A direct-vision view-finder is provided with two framings, one for each working lens.

(5) The camera has two handles, one on each side, and double control both for focusing and for releasing the shutter, as well as two holders for flash-bulbs.

A camera according to the invention will be described with reference to the accompanying drawings which show a preferred embodiment thereof, it being understood that the specification and drawings are not to be construed in an exclusive or limiting sense.

Fig. 1 is a front view of the camera;

Fig. 2 is a side view, with a portion of the casing broken away;

Fig. 3 is a rear view;

Fig. 4 is a side sectional elevation;

Fig. 5 is a vertical cross section;

Fig. 6 is a view in side elevation on the opposite side to Fig. 2, with a portion of the casing broken away;

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Fig. 7 is a front view of the turret mount on a smaller scale than that of the preceding figures;

Fig. 8 is a front view of the turret on which the lenses are to be mounted, on the same scale as Fig. 7; and

Fig. 9 is a perspective view of the shutter release device utilized in the apparatus.

To the sides of the casing of the camera, generally designated by **1**, two symmetrical structures are fastened which comprise the handles **2**, **2**, and above the handles the focusing rollers **3**, **3**, the two shutter release buttons **4**, **4**, and the switches **5**, **5** for two flash-bulbs are arranged. Said disposition of the two handles and double controls is very useful for the service for which the camera is particularly intended, as will be easily understood by those skilled in the art.

The casing **1** internally comprises two chambers, the lower one **6** being the photographic camera proper, and the upper one **7** serving for viewing; chamber **7** is closed at the back by a ground glass screen **8** surrounded by a shade box **9** to which a closing wall or cover **10**, provided with an enlarging eye-piece **11**, is hinged. Cover **10** is provided with a spring (not shown) tending to bring the cover to its open position, and with a small spring latch which can be released by hand, the latch being provided for this purpose with a portion **12** which projects from the cover.

The two chambers **6** and **7** are open in front. On the front of the camera, a turret mount **14** is arranged, said turret mount being capable of a translatory movement in a fore-and-aft direction, in which movement it is guided by a pin or rod **13**, fastened to or integral with the turret mount, said pin or rod **13** being slidably received in a track formed in the wall which separates chambers **6** and **7** from each other.

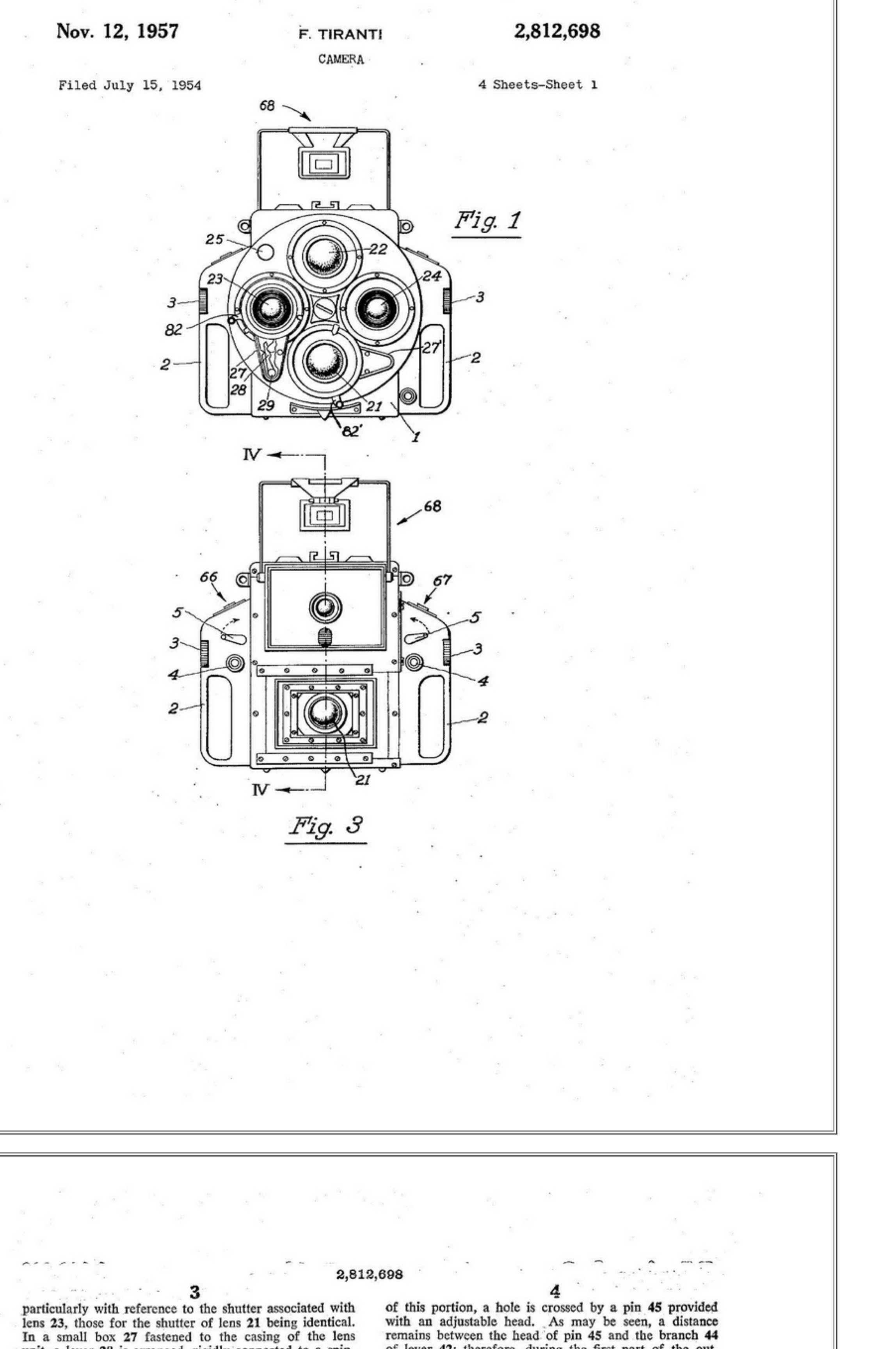
Turret mount **14** has a lower opening **15** for the passage of the beam of light supplied by the working lens which is in the operating position, and an upper opening **16** for the passage of the beam of light supplied by the corresponding viewing lens. Turret mount **14** is prevented from turning by a pin **17** slidably received in a bore positioned in the casing wall.

The end of pin **13** projects from turret mount **14** and is the rotation journal for the turret **18** which carries four lens units, as will be explained hereinafter, and is retained by a screw **19** and is pressed on the turret mount by a semi-elliptical spring **20**, screw **19** and spring **20** not preventing the rotation of the turret.

Turret **18** carries a normal photographic or working lens **21**, which is a part of a unit comprising a shutter and a diaphragm; said unit is not described in detail here as it may be any known suitable type available on the market. Diametrically opposed to lens **21**, a viewing lens **22** of the same focal length is arranged without a shutter.

90° apart from the two lenses **21** and **22**, a wide-angle photographic or working lens **23** and a viewing lens **24** of equal focal lengths are arranged. Wide-angle working lens **23** is a part of a unit of any suitable type available on the market comprising a shutter and a diaphragm. Obviously, on rotating the turret through 90° either the ordinary or the wide-angle lens is brought to the operating position in front chamber **6**; this rotation is obtained by depressing the spring-urged stop button **25** and turning the turret by hand; on depression of button **25**, a reduced portion of the stem **26** registers with a circularly arcuate slot in turret mount **14** and may glide therein. When the other working position is reached, button **25** can return to its outward position under the action of its spring and block the turret.

The shutter of the working lens which is in the operative position is controlled by either of the two buttons **4**, **4** through means which will now be briefly described,



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particularly with reference to the shutter associated with lens **23**, those for the shutter of lens **21** being identical. In a small box **27** fastened to the casing of the lens unit, a lever **28** is arranged, rigidly connected to a spindle **29**, said lever **28** being in operating contact with the release lever for the shutter.

The two spindles **29** for the shutters of the two working lenses **21** and **23** have their inner ends flattened and shaped as screwdrivers, said spindle ends travelling, during the rotatory movements of turret **18**, in slot **29a** in the turret mount **14**.

The end of the spindle **29** associated with the lens unit, which is in the operating position, becomes engaged in the diametrical notch cut at the end of a main spindle **29b**: this spindle in its movements caused by the axial movements of the turret mount travels in a guiding track **29c** provided on one of the casing walls, whilst a lever **30** is permanently engaged with a longitudinal groove on spindle **29b**; this lever **30** is operatively connected with both release buttons **4**, **4** by means of a suitable linkage in such a way that a depression of either of said buttons will cause a rotation of said spindle **29b** and consequently the rotation of spindle **29** and the release of the shutter of the lens which is in the operating position.

Rollers **3**, **3**, which control the movement of the turret mount **14** and turret **18** for focusing purposes, are connected for rotation by a spindle or shaft **31** which is fastened to the roller stems by screws which also prevent rollers **3**, **3** from coming off. Integral with spindle **31** in the middle thereof, a little wheel **32** is provided which has slightly inclined sides, and engages by friction in a longitudinal groove **33** in the guiding pin **13** rigidly connected with the turret mount **14**, so that a rotating movement of either roller **3** causes a translatory movement of the turret mount and turret, which movement serves for the focusing which is checked on the ground glass screen **8**. In order to insure a sufficient frictional engagement of wheel **32** in groove **33**, a strong flat spring **31a** is provided, which presses spindle or shaft **31** downwards.

Another novel solution according to the invention is that which attains lightproofness between the turret mount and casing in correspondence to the photographic chamber. The lower rectangular opening **15** in the turret mount carries all around, toward the inside of the camera, a perpendicular flange **34** whose extent is greater than the longest longitudinal distance travelled by the turret mount, said flange **34** having a sliding fit in the gap formed by two frames, viz. an outer frame **35** and an inner frame **36** of corresponding shape, forming a deep furrow closed at the bottom.

As regards the device for preventing the shutter release when the cover of the sensitive material carrier is not removed, it comprises a spindle or shaft **37** (Fig. 5) which is a part of the means for the shutter release control already referred to without specifically mentioning said spindle and without designating it by a reference numeral; on said spindle or shaft **37** an eccentric **38** is mounted (Fig. 2), which in its idle position rests against a lever **39** pivoted at **40**: against the upper end of lever **39** the inner end of a spring pin **41** rests. The turning movement of spindle or shaft **37**, to which movement the release of the shutter is subservient, can take place only when eccentric **38** is able to displace lever **39** and the latter is able to push pin **41**. This may happen only when the movement of pin **41** is not hindered by the presence of the cover of the plate carrying frame, or the like.

The arrangement for automatic correction of parallax will now be described, starting with the instance of the ordinary photographic or working lens, reference being particularly made to Fig. 6. A horizontal lever **42** pivoted at **43** has a right-angled end portion, a front view of which is shown in Fig. 6. In the vertical branch **44**

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of this portion, a hole is crossed by a pin **45** provided with an adjustable head. As may be seen, a distance remains between the head of pin **45** and the branch **44** of lever **42**; therefore, during the first part of the outward movement of the turret mount, pin **45** is kept by spring **46** in the position shown in the drawing, any suitable means being provided to prevent any further movement of pin **45** toward the right of Fig. 6. Nevertheless, during the outward movement of the turret from the moment that branch **44** comes into contact with the head of pin **45**, the latter is forced to follow the turret against the force of spring **46**, and when doing so it will move in an angular direction a blade or slat **49** pivoted at **49a**, by means of the linkage **47**, **48**; blade or slat **49** through a link **50** will drag an upper blade or slat **51** in a parallel direction. These blades or slats **49** and **51**, which extend transversely of viewing chamber **7**, shield the beam of light at the top and bottom, and as their position, which depends on that of the turret, is varied, the upper and lower limits of the portion of beam that can reach the ground glass screen **8** will also be varied, the whole system being so devised that the image obtained is corrected from parallax.

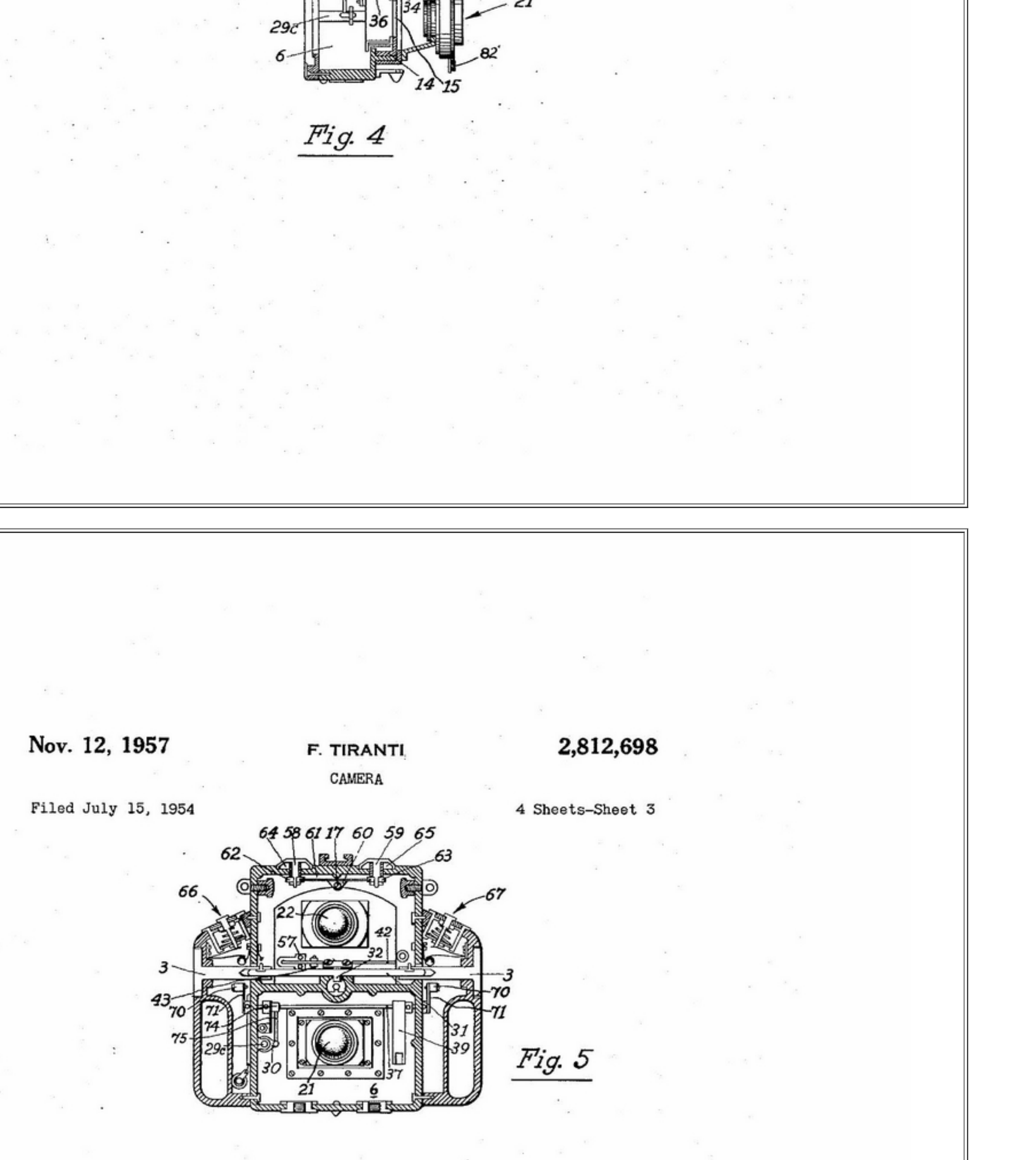
The head of pin **45** is at a distance from branch **44**, since the turret is in the position of Fig. 8, and normal working lens **21** is in the operative position; under these circumstances even the shortest distance from which a picture can be taken corresponds to a somewhat projecting position of the turret, and the parallax correction must begin when said position is reached. If, however, the turret is rotated through 90° to bring the wide-angle lens to the operating position, the blind hole **52** in a bushing **53** on the turret will reach the vertical diameter of the turret mount; that is, it will register with a hole **54** in the turret mount, acting as a guide for a small pivot **55** (shown in Fig. 4), the other end of which will bear against a projection **56** on lever **42**. In this condition, pivot **55** may be displaced and a spring **57** will cause lever **42** to turn about its pivot **43**, thus bringing branch **44** into contact with the head of pin **45**, even in the innermost position of the turret mount, and consequently the parallax correction will begin as early as the commencement of the outward movement of the turret mount and turret.

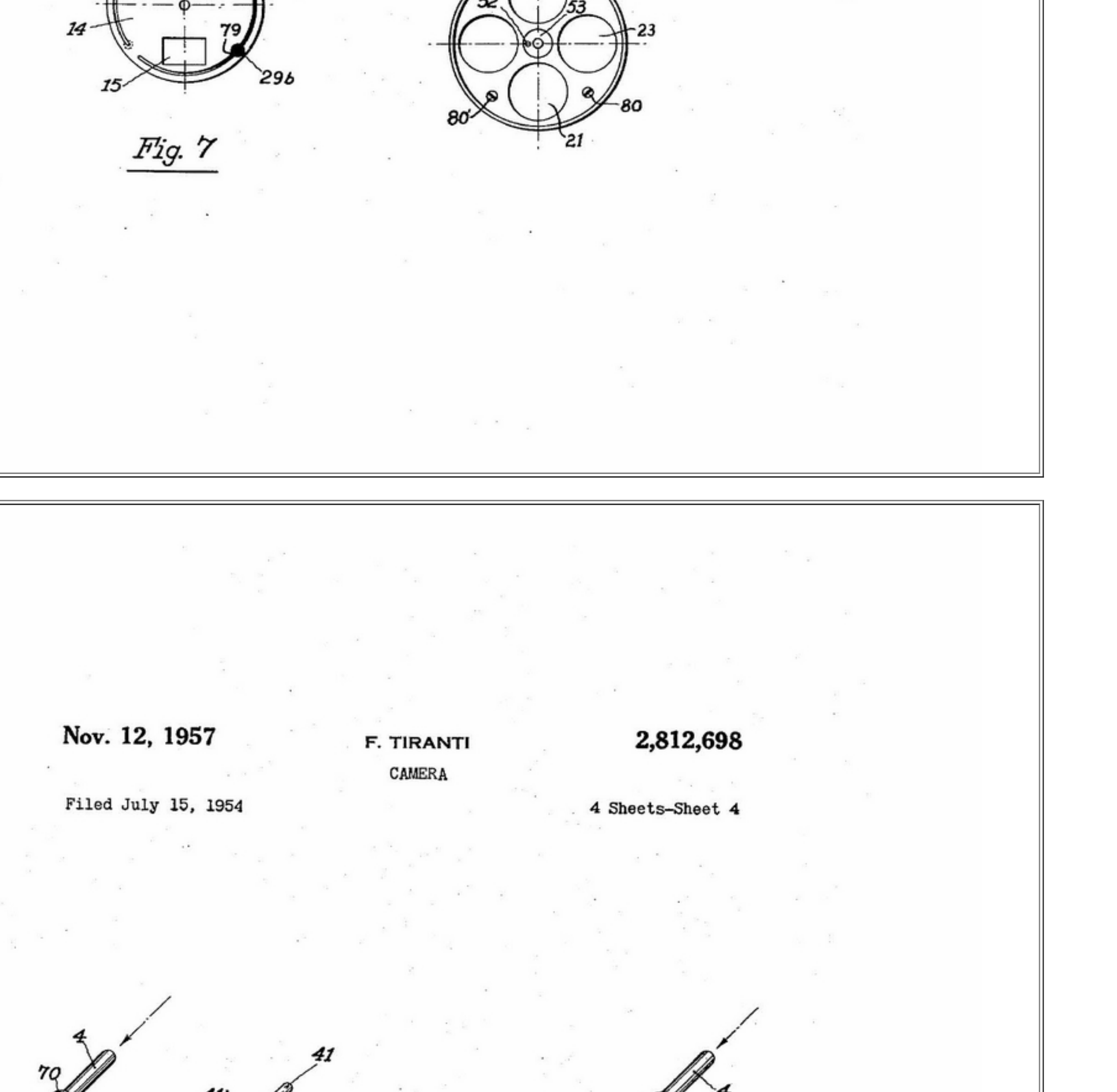
Moreover, the camera is provided with two discs **58** and **59** (Fig. 5) engraved with the graduations of distances in meters which correspond to the positions of the turret, one of the discs corresponding to the ordinary photographic or working lens and the other to the wide-angle working lens; a rotation in proportion to the axial distances travelled by the turret mount is imparted to the discs owing to the fact that pivot **17** guiding the turret mount has its end fastened to a depending ear **60** of a horizontal plate **61**, the side edges of which are rack-toothed and are in mesh with the toothed wheels **62** and **63**, respectively, which are rigidly connected with discs **58** and **59**, respectively. Obviously, the two discs will turn in opposite directions, and this is taken into account in the engraving of the respective graduations. Discs **58** and **59** are under the influence of plane spiral springs **64** and **65**, respectively, which tend to urge the respective discs in one direction of rotation, to prevent prejudicial effects of possible clearances between the teeth on the edges of plate **61** and the teeth of the gears connected with the discs.

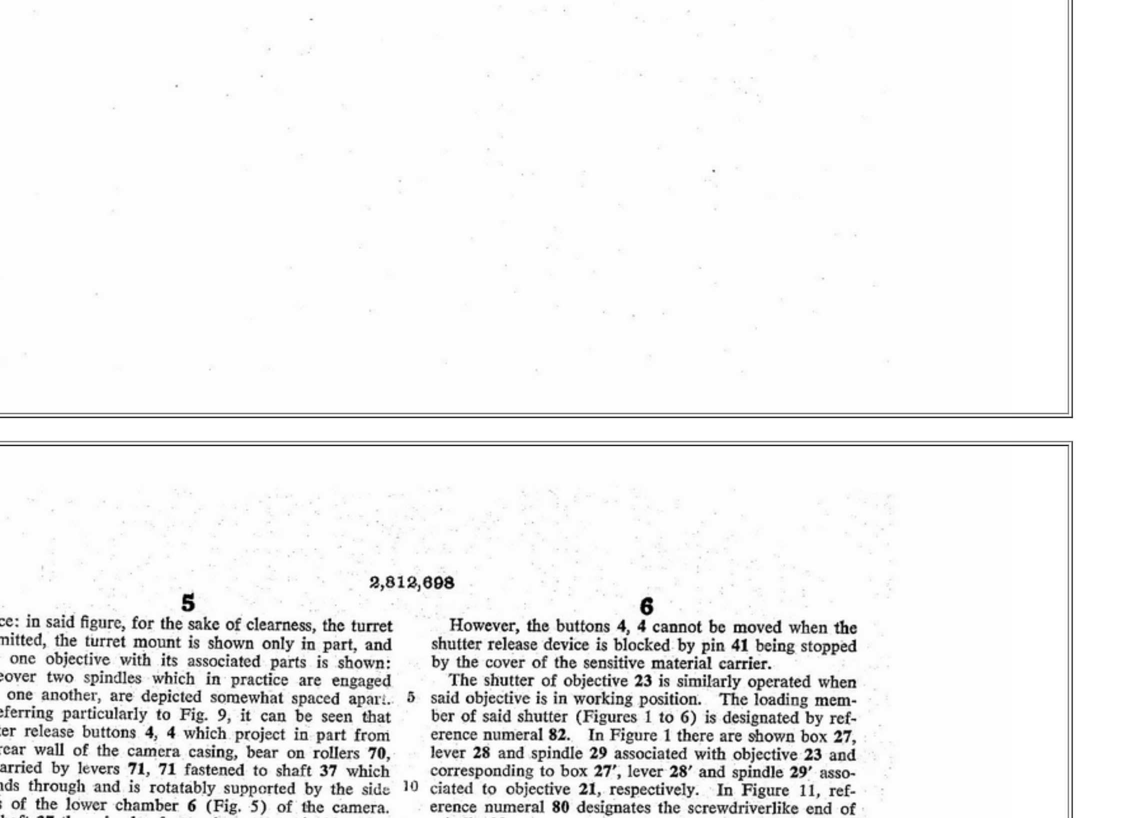
In Fig. 5, two symmetrical holders for flash-bulbs are generally designated by **66** and **67**, each of which holders may be switched on or off independently of the other on the lighting circuit by means of its own switch: the control means for the switches, shown in Fig. 3, are designated **5**, **5**.

Finally, a direct-vision view-finder for both working lenses, generally designated **68**, completes the camera but is not described as it may be of any type known per se.

Figure 9 is a perspective view of the shutter release







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device: in said figure, for the sake of clearness, the turret is omitted, the turret mount is shown only in part, and only one objective with its associated parts is shown: moreover two spindles which in practice are engaged with one another, are depicted somewhat spaced apart.

Referring particularly to Fig. 9, it can be seen that shutter release buttons **4**, **4** which project in part from the rear wall of the camera casing, bear on rollers **70**, **70** carried by levers **71**, **71** fastened to shaft **37** which extends through and is rotatably supported by the side walls of the lower chamber **6** (Fig. 5) of the camera. On shaft **37** there is also fastened an eccentric **38** which bears on a lever **39** pivoted at **40** to a fixed support **40a**. On the side of lever **39** opposite to eccentric **38** one end of pin **41** bears, said pin being slidably received in a bush **41a** and urged to a retracted position by a spring **41b**. Spring **41b** acts also as a return spring for the release control device, after an operation thereof.

It will be understood that when either of shutter release buttons **4**, **4** is pushed in the direction of the arrows, this causes the rotation of levers **71**, **71** and eccentric **38** in a counter-clockwise direction, as viewed in Fig. 9: eccentric **38** rotates lever **39** in a clockwise direction and lever **39** pushes pin **41** outwardly against the action of spring **41b**. However, if pin **41** is blocked due to the fact that the cover of the sensitive material carrier has not been removed, the rotation of cam **38** is hindered, hence the release buttons **4**, **4** cannot be operated.

On shaft **37** a radially extending arm **74** is also fastened, which is connected by a link **75** to lever **30** which is pierced by a hole **76** in which a spindle **29b** is slidably received, any relative rotation between spindle **29b** and lever **30** being prevented by the engagement of projection **77** of the periphery of hole **76** in a longitudinal groove **78** in spindle **29b**. The rotation in a counter-clockwise direction of shaft **37** and arm **74** causes a clockwise rotation of lever **30** and spindle **29b**.

Spindle **29b** follows the axial displacements of turret mount **14**, and is guided by a guiding track **29c** provided on one of the casing walls (Figures 4 and 5). The spindle terminates in a head rotatably received in a hole of turret mount **14** and provided with a diametrical slot **79** which registers with groove **29a** of turret mount **14** when the shutter release device is at rest.

In the drawings, the photographic objective which is in working position is the one designated by reference numeral **21**. To the mounting of objective **21** a box **27'** is fastened. A spindle **29'** which extends in a parallel direction to the rotation axis of turret **18**, is rotatably supported by box **27'** and turret **18** (the turret is not shown in Fig. 9).

To the one end of spindle **29'** which is located within box **27'** a lever **28'** is fastened, and the other end **80'** of said spindle projects from the rear face of the turret plate and is flattened or shaped as a screwdriver. When turret **18** is being rotated, said screwdriverlike end **80'** of spindle **29'** travels in groove **29a** in the turret mount **14**.

When objective **21** is in working position, as shown in the drawings, end **80'** of spindle **29'** is received in slot **79** in the end face of spindle **29b**, i. e. spindles **29'** and **29b** are connected for rotation. Consequently an inward movement of either button **4** causes a rotation of lever **28'** in a clockwise direction. Lever **28'** acts on shutter release lever **81'** of objective **21**, so that the exposure takes place, provided that the shutter of objective **21** is loaded. The shutter loading is effected by means of member **82'**.

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However, the buttons **4**, **4** cannot be moved when the shutter release device is blocked by pin **41** being stopped by the cover of the sensitive material carrier.

The shutter of objective **23** is similarly operated when said objective is in working position. The loading member of said shutter (Figures 1 to 6) is designated by reference numeral **82**. In Figure 1 there are shown box **27**, lever **28** and spindle **29** associated with objective **23** and corresponding to box **27'**, lever **28'** and spindle **29'** associated to objective **21**, respectively. In Figure 11, reference numeral **80** designates the screwdriverlike end of spindle **29**.

It is to be understood that whereas the arrangements forming part of the invention have been described in a very detailed manner, alterations and changes may be adopted in practice, and the different parts or combinations of parts may be replaced by operatively equivalent parts or combinations of parts without departing from the scope of the invention.

What I claim is:

1. A camera mechanism for using selectively covered light sensitive material comprising a plurality of objectives rotatable about an axis for movement into an operative position, shutters operating in conjunction with said objectives and movable therewith, shutter controls coupled to said shutters, levers for operating said shutter controls, rods coupled to said levers and capable of rotation about their axes for moving said levers to operate said shutter controls, said rods being fixedly positioned with respect to said objectives for moving therewith, a guide defining an arcuate slot for guiding said rods, push buttons for operating said shutter controls, an axle, levers coupling said axle to said push buttons for translating linear motion of said push buttons to rotational movement of said axle about its axis, an engaging rod one end of which is positioned adjacent the arcuate slot for engaging the one of the first said rods which is associated with an objective in operative position, a link for slidably coupling said engaging rod with said axle so that the rotation of said axle is imported to said engaging rod independently of the relative positions therebetween, a lug on said axle, a lever abutting said lug, a stop abutting said lever, and a spring urging said stop into contact with said lever whereby said lever is displaceably urged against said lug, said stop being adapted to contact the cover of the light sensitive material whereby said lever is indisplaceably positioned against said lug to prevent rotation of said axle.

2. A camera mechanism as claimed in claim 1 wherein said link comprises a groove in said engaging rod, a member having a tooth engaged in said groove, said member being positioned normal to the axis of said engaging rod and a linkage coupling said member to said axle.

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