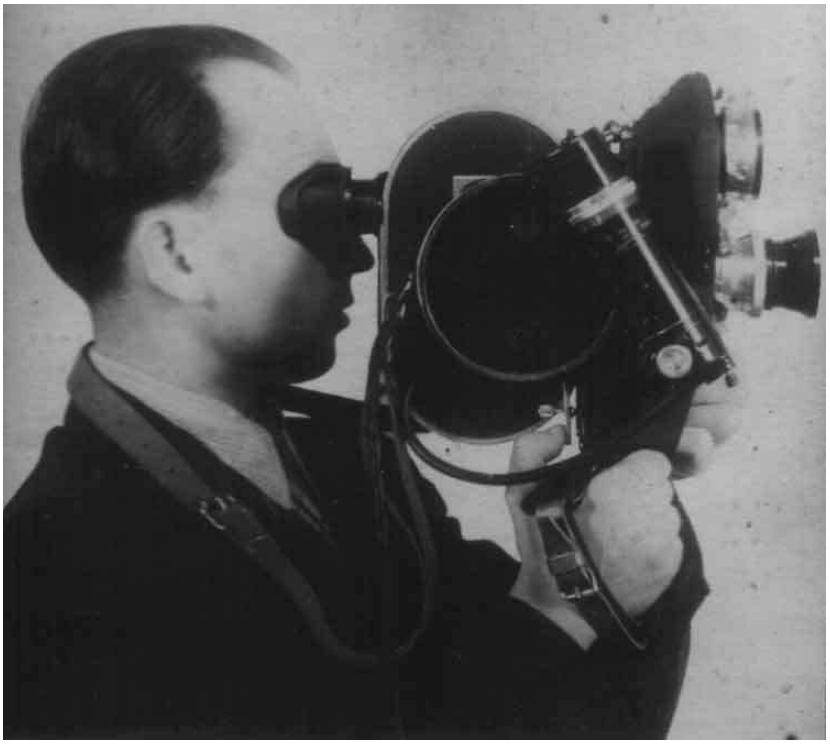


Description and Operating Instructions for Manual Movie Camera "KONVAS" (KSR-1)

1958

I. PURPOSE

The "Konvas" movie camera is intended for filming documentaries, special events and other silent motion pictures on 35mm film while being held by hand or mounted on a support (see photos 1 and 2).

The camera is designed to satisfy of needs of the operator under the various conditions he will encounter in his work, and to provide convenience of operation. Special attention has been given to fast reloading of the camera, fast lens changing, consistent ease of shooting, using different drives, etc.

II. SPECIFICATION

1. The camera is designed to be used with negative 35mm film having standard perforations.
2. Size of frame window is 16x22 mm.
3. Film in the camera moves in one plane and in one direction (camera doesn't have reverse motion).
4. Camera uses 60m common film magazines.
5. Shooting speed ranges from 1 fps up to 32 fps.
6. Camera uses a mirror shutter with a noncontrollable gap.
7. The adjustable focusing magnifier is built-in, and works from the camera lens through the mirror shutter. Its magnification is 5x.
8. Camera uses lenses with focal lengths of 28, 35, 50, 75 and 135 mm.
9. Focusing of lenses is accomplished by using the distance scale on the lens barrel or through the focusing magnifier.
10. Camera has a turret with 3 lens slots. Changing of lenses is accomplished by rotating the turret or by mounting other lenses in the slots.
11. The camera may be driven by an electric motor, by spring motor or by hand.
12. Main drive of the camera is an electric motor (the manual for the electric drive unit is available separately), which is small and lightweight and is designed for low voltage (6-8V) dc operation. The drive motor power source is sized for operator convenience and is light in weight.
13. The camera has a speed regulator and a tachometer. Film magazines have built-in counters that show remaining unexposed film (in meters).
14. Nut for external support, such as a tripod, has 3/8" threads.
15. The camera has many innovations. Its design differs considerably from other cameras. The operator should thoroughly read this manual before using the camera.
16. Dimensions of the camera with the magazine mounted, spring drive and lenses:
    Height is 240 mm;
    Width is 190 mm;
    Length is 320 mm.
17. Weight of the main components of the camera:
    a) Camera with magazine (unloaded), lenses and electric motor ..... 5.3 kg
    b) Same with spring drive ..... 6.3 kg
    c) Magazine without film ..... 1.0 kg
    d) Electric drive motor ..... 0.86 kg
    e) Spring drive ..... 1.9 kg
    f) Storage battery (with electrolyte) ..... 5.7 kg
    g) Hard carrying case ..... 6.0 kg
    h) Hard carrying case with all components ..... 17.0 kg

III. CAMERA DESIGN

The camera consists of three main parts: A – the camera itself, in whose body all parts are mounted; B - separate parts or units which are mounted or connected as required, depending on operating conditions; and C - accessories.

A. CAMERA

The camera (photo 2) includes following main parts:

1. Camera body.
2. Clamshell-shutter mechanism.
3. Camera mechanism.
4. Head with turret and lenses.

1. Camera body

The camera body (see photos 2 and 3) consists of 3 basic components:

The body (2),
The side (3),
The head (1) (see a photo 2).

All parts are made of lightweight aluminum alloys and are assembled to form a body that supports all fixed parts of the camera, as well as demountable and interchangeable units and accessories. Within the body are mounted: transmission (4) from a spring or manual drive to a clamshell, transmission (5) from any type of drive to the magazine, parts of the start-up mechanism (6), the magazine lock (7), etc.

The body is connected with the left side, which forms a rectangular channel that serves as a guide for the magazine. There is cylindrical ledge (8) with three cut holes (9) and nut (10) on the body. This part of the body is used to mount the various types of drives, and the nut serves as a lock. All axles of the drive gears rotate on ball bearings. In the bottom part of the body is the nut with 3/8" thread for tripod mounting or other support.

2. Clamshell-shutter mechanism

The camera has single-sided clamshell with single pull-down claw. The trajectory of the claw is shown on the schematic diagram (photo 6). The shutter is a single-bladed mirror with a constant corner opening of 150°.

The pull-down claw and shutter are assembled together in single mechanism consisting of the following main parts (see photo 4):

Plate (1);
Axle of clamshell (2);
Fork of clamshell (3);
Mirror shutter (4);
Prism with prism holder (5);
Mirror with mirror holder (6);
Stopper (7);
Film gate (8).

The plate is made of aluminum alloy; gears, the fork of the clamshell, and the axle of the clamshell are made of tempered steel. The mirror shutter is made of Plexiglas. Its reflecting surface has external silvering, and this surface is very thin and requires great care.

The film gate is easily removable.

3. The camera mechanism

The camera mechanism (see photo 5) includes following parts:

The body (1);
The clamshell-shutter mechanism (2);
The tachometer-regulator (3);
The viewfinder (4).

Schematics and optical connections of this group are shown in the schematic (see photo 6) and optical (see a photo 9) diagrams.

The clamshell-shutter mechanism fastens to the body and is connected to the transmission of the body and of the regulator-tachometer. The regulator-tachometer and viewfinder are mounted and fasten in slots on the left side of the camera body. The spring (5) of the stopper drop catch fastens to the body, the bottom end of the drop catch connects to a spring on the control button (7), connected, in turn, with the starting contact for the electric motor.

Upon pressing the control button (7), the mechanism becomes unlocked, and the starting contacts of the electric motor are closed. Electric connections are shown on the basic electric diagram (see photo 7).

The regulator-tachometer. The regulator and tachometer (see photo 8) are mounted in one body and work from one axle and gear.

The centrifugal regulator. On the axle of a hinge are two weights, held by springs of variable tension. The braking effect of the regulator varies depending on change of spring tension. It can be made by turn of handle (1).

In the rear part of the body of the regulator-tachometer, the magnetic tachometer is located. The sensitive element, magnet and some other parts of the tachometer are adapted from aviation tachometer TE-45. The magnet is fastened to an axle of the regulator. A scale on the tachometer is marked in FPS (frames per second).

Focusing magnifier. The image of the picture aperture, as seen through the camera lens, is reflected by the mirror surface of the shutter to a ground glass prism. By means of mirrors, the image goes to a magnifier (see photos 9 and 10). The magnifier gives the right side-up image magnified by 5x without parallactic error. The eyepiece head of the magnifier has an eyeshade (1) and ring for dioptric adjustment (2) (photo 10).

4. The head with turret and lenses

One of the body parts, the head of the camera, carries parts of the head group assembly (see photo 11). This assembly includes the following parts: the turret (1), the turret axis (2), and the lenses in their focusing mounts (3) (see photos 11, 12).

The turret axis. In the center of the head the axis on which the turret is mounted. The turret is fixed on the head by means of locking nut (4) and the clamp (5), which is inserted into the slot of clamp (6). It is possible to mount simultaneously any three lenses in the turret. Fastening of each lens on the turret is made by means of two latches (7). When mounting or dismounting a lens, it is necessary to press these latches finger.

Lenses in focusing mounts. Each lens has a focusing mount, lens hood and frame for an optical filter.

Focusing of lenses is accomplished by turning the ring (1) of the focusing mount (see photo 12). Thus, moving of the internal mount and lens along an optical axis occurs without lens rotation. Movement is stopped by rotation of the diaphragm ring (2). There distance scales and relative apertures marked on the lenses. Scales of diaphragms of red color designates physical apertures (T-stops).

B. SEPARATE PARTS AND UNITS OF THE CAMERA

The following elements can be mounted on or connected to the camera:
· Magazines.
· Spring drive.
· Manual drives.
· Electric motor drive.
· Handle.
· Shoulder strap.

1. The magazine

The camera uses common chamber magazines (see photo 13). This means that in its interior two cores with lugs are placed; the film moves from the supply core to the take-up core.

The capacity of the magazine is 60m. The magazine contains a film channel and transporting mechanism. The film channel (1) has a directing gate runner, lateral spring-loaded clips, and a spring loaded pressure plate (2). Upon mounting the magazine to the camera, the plate of camera film channel enters into magazine film channel, the pressure plate makes contact with the film gate of the film channel, holding the film along an optical axis and braking after drawing by the pull-down claw. All surfaces that contact the film are chrome plated and carefully polished. The springs of the pressure plate are adjusted so that the pressure to the film is in range of 16-18gr.

The transporting mechanism of the magazine consists of a geared transmission connecting two sprocket rollers and the friction clutch of the take-up part of the magazine with a rigid connection (see photos 6, 14).

When the magazine is removed from the camera, the mechanism is automatically stopped by a latch (1) (photo 14), preventing the film from spontaneous unwinding. Upon inserting the magazine onto the camera, the latch is shifted, releasing the mechanism. On the front side of the magazine is a clamp (3) (photo 13), also working automatically upon inserting the magazine. It is intended to maintain the position of the film loops given at loading.

Transport drums are connected to axles by means of clutches that enable disconnecting the drums from the mechanism by pressing the button in the center of drum, as is necessary during loading the magazine.

The magazine mechanism is driven by a driving gear in the camera that is connected to the gear (2) (photo 14) of the magazine mechanism upon installation of the magazine onto the camera. There is film footage counter (3) on the backside of the magazine (photo 14) indicating the amount of the unexposed film remaining in the magazine (in meters). The counter works from the lever (4) (photo 13), which is laid by one end onto a roll of film.

Magazine film cores (5) are connected by friction to axles, and the friction is adjustable. Lugs with slots for film loading are provided on the cores.

The cover of the magazine (7) is demountable. There are grooves in the cover into which ledges of the magazine body enter, ensuring that the magazine is light tight. The cover lock (8) fastens it to the body of the magazine. On the outer side of the cover, a plate (9) with rectangular hole is fixed. The magazine lock located on the camera body enters this hole and secures the magazine on the camera.

For protection of the film channel of the magazine from dirt, a shield is installed on its front.

2. The spring drive

The spring drive (photo 15) is intended for operation of the camera mechanism using the energy stored in a spiral spring. The drive consists of the case, spring, winding mechanism, driving gear, rotation limiter and core. The case encloses all these parts of the drive. Its cylindrical part and three ledges enter into the body of the camera and are fixed by means of a nut.

Winding of the spring is accomplished by rotating the handle, which lever rotates the core through a pair of gears and tightens up the spring on it. The gear ratio of the winding mechanism is 1:2.

Upon inserting the spring drive into camera, the driving gear is connected to the gear of the camera body mechanism. Gear ratio of the driving gear to the axle of the clamshell is 60:1.
It is necessary to turn the winding handle about 25-26 times in order to wind the spring fully (about 13 revolutions of the core or 26 revolutions of handle required for pulling of 15 m of film).

For speed stability of the camera mechanism at given speed, it is necessary to wind the spring again after each 10m of film shot. It is necessary to fully release the spring before dismounting the spring drive.

3. Manual drives

There are two manual drives (see photo 16), one of which is intended for the normal rate of shooting (1). The second one is for animation (2).

The manual drive for normal shooting is mounted and fastened on the camera in the same manner as the spring drive. The camera is driven from the drive gear upon installation. The gear ratio is 8.06:1.

Animation drive is mounted into a bushing of the camera body (see photo 16) and is directly connected with the axle of the pull-down claw. Rotate its handle counter-clockwise.

4. The electric motor (photo 17)

The electric motor is rated 16 watts, at 6-8 volts dc, and draws about 6-10 amperes.

The electric motor can be mounted in the same way as other drives.

The electric motor is supplied with a rheostat by means of which the operator can adjust the camera speed using an adjustment knob (1). There are 9 positions of rheostat adjustment engraved on the knob.

At the end face of the electric motor (as seen from the magazine side) are 2 switches - left (2) and right (3), and there is start button (4) on the cylindrical surface of the electric motor.

When the camera is supported or hand held (using the electric motor), start-up of the camera is accomplished by the left switch (2) and by the start button (4) of the electric motor. The start button on the camera should be switched on by screwing it in the depressed position.

When camera is held by additional handle, start-up is accomplished by the right switch (3) and by start button on the camera.

The switches have two positions:
1) Position "R" - the switch is powered by a rheostat connected in series with the motor armature. This position is recommended when shooting at speeds up to 16 fps, under normal conditions (at temperature is not lower than +15°C).

2) Position "III" - the switch is powered by a rheostat connected in series with the motor's shunt winding. This position is recommended at shooting speeds higher than 16 fps, lower temperature or while using a partially discharged battery.

When camera is operated with the left switch (2) and from the start button (4) of the electric motor, it is necessary to put the right switch (3) into the "O" (OFF) position. The electric motor cable has 3 plugs, one of which is plugged into battery, the second one into the electric motor, and the third one into the camera (the diagram of electric connections is shown on photo 7).
Connecting wires have two lengths: long is for shooting with a support (tripod), short is hand held use.

5. The handle

To hold camera in the hands, it is possible to mount a special handle with a lateral strap adjustable for the hand (see photo 1).

6. The shoulder strap

For convenience of carrying of the camera prepared for shooting, it is possible to attach a shoulder belt to the rings on the camera by means of safety hooks (see photo 1).

C. ACCESSORIES

1. Battery. The storage battery (photo 18) is mounted in a box and made of seven alkaline cells NKN-10 connected in series. The battery voltage is 7.5-10 volts. There is a jack block for two voltages (6 and 8 volt) on the battery box (this is the voltage for the plugs for the electric motor). Care for the battery, their installation and refilling of electrolyte in accordance with the manufacturer's instructions.

2. Bag of tools. The camera is supplied with necessary tools (see photo 19), packed in a bag, and along with an oilcan filled with oil.

INSTRUCTION ON SERVICE OF THE CAMERA "KONVAS" (KSR-1)

I. Preparation for shooting

Before operating the camera, inspect all components, clean by wiping with a lint-free tissue or clean out by compressed air all areas where dust can accumulate, especially the film path. Make sure of the operability of the mechanism by manually turning or by trial start-up from the electric motor without film.

Loading of the camera is accomplished by inserting a loaded magazine into the camera. Be sure that the magazine is not mis-oriented, and that it moves into camera without skewing. If the magazine is skewed, it will be necessary to pull it a bit out, correct its position and then insert it again until it is locked in place. After installation of the magazine, check to ensure that it is securely fixed. To make sure, try to pull it out; if the magazine does not move, it means that it is fixed securely. There is no need to pull the lock button out, as it is shifted automatically by the magazine.

Loading of the magazine. Remove the magazine cover, take out the lug from the top feeding core, and wind the film onto it (emulsion in). The total length of the reeled up film should not exceed 60m. The diameter of the roll should be 111-112mm. For ease of loading, the end of the film should be cut to afford a sharp corner from two sides, or cut off the perforations from two sides a length of 5-8 perforations in width of 5-8 mm.

Mount the roll onto the top core (see photo 20), sliding the lever of the footage counter to the right. Press the button (1) of top drum and guide the end of film to the left of it; holding the button, stretch the film upwards by 350-500mm. Release the button, and guide the end of the film through magazine film channel (2), at first pushing a film channel inside by finger, and then pressing on the clamp (3). Ensure that the film has not missed the gate runner - it should be under the gate runner, which is easily checked by finger. Pressing on the button (4) of bottom drum, guide the film through this drum and to the left of it, and stretch the film inside the magazine. Adjust size of the bottom and top loops so that into the top loop your thumb can be inserted easily, and into bottom loop – your forefinger (see photo 21). Then fix the end of the film on the bottom lug, mount it onto the friction core and wind the film onto the lug up tight. Wind it to the right, emulsion in. Then, close the cover and lock it by turning the lock lever to the left. The magazine is ready to be installed onto the camera.

Mounting a drive. Mounting or changing of a drive may be done at the option of the camera user. All drives - the manual one, the spring drive, and the electric motor - are mounted on the camera in same way, that is they are inserted into the drive slot and locked by a nut (see photo 22).

When the electric motor is mounted, it is necessary to press the start button to release the blocking pin (see photo 2) which, switching off, drops the latch of the camera stopper.

Attaching of handle. When camera is hand held, a special handle may be used. This handle is attached by being screwed into the 3/8" threaded support nut.

Mounting the camera on a support is accomplished with a 3/8" threaded screw in the usual manner. The camera can be installed on and fastened to any support that has the corresponding 3/8" thread.

II. Controlling the camera

The camera permits control of all necessary parts:

1. starting and stopping the mechanism;
2. setting the speed;
3. use of various lenses;
4. operating the turret.

1. Starting and a stopping the camera (photo 22)

When shooting with the spring drive, either hand held or supported, you may start and stop the camera by means of the start button (5) by pressing the knob (6) of start button with your thumb to start, or releasing it to stop.

When shooting with the electric motor, either supported or hand held (see photo 1), you may start the camera using the switch (3) (photo 22) and start button (5) pressing knob (6) with your thumb.

When shooting with the electric motor, either supported or hand held, and camera is held for the electric motor, starting is accomplished by the switch (2) and start button (4) of the electric motor. Camera start button (5) should be switched on by screwing it in the depressed position.

2. Setting shooting speeds

Setting of shooting speed can be accomplished in two ways, depending on the type of drive used. When a spring drive is used, speed is adjusted by the handle on the regulator-tachometer (see photos 8, 24); speed monitoring is done by means of the tachometer. Marks on the body of the regulator represent simple reference numbers to aid in setting the handle at the desired speed

of the camera. The reference number should be noted by the camera operator while working with the drive after setting the desired shooting speed on the tachometer.

Also, note that lowering the handle of the regulator from the top downward decreases speed, and reversing the movement increases it. It is recommended speed be regulated smoothly and in one direction in order to reduce the time of regulation and to avoid setting the wrong speed.

When working with the electric motor, speed is adjusted by the rheostat (1) (photo 22), switches (2) and (3) (photo 22) on the camera and on the electric motor, and by switching plug between the 6 and 8 volt jacks on the battery. Under normal conditions (temperature not below +15°C, and battery fully charged) the switch should be set to the "R" position, and the shooting speed (fps) adjusted by the rheostat. At high speeds, lower temperature or at partial discharge of the battery, the switch should be set to the "III" position, and the plug should be inserted into the 8-volt jack.

3. Use of lenses

Focusing at a predetermined distance is accomplished by turning the shaped ring of the lens-focusing mount. Distance can be checked by means of the marked scale on the lens, or by means of the focusing magnifier.

The aperture of lens is set by turning the lens aperture ring. To remove a lens from the turret (photo 11), press latches (7) (both latches to the left and to the right of the lens should be pressed simultaneously) and pull the lens out. To mount a lens, it is necessary to turn the lens so that the keyway is directed upwards, against a ledge in the turret slot, and insert it into the slot. Then press both latches and seat the lens (it may need to be rotated a bit to the left or to the right).

NOTE: Before inserting a lens into turret, ensure that any mark on the distance scale does not exceed the limits of index, or simply set the lens to infinity.

If you use the focusing magnifier, do not forget to set the dioptric adjustment according to your eye.

4. Operating the turret (photo 11)

To move a desired lens into working (bottom) position, press the handle of the drop catch located in the hole of the clamp (6) by finger. In this case the drop catch will release the clamp (5), allowing rotation of the turret. Rotate the turret until the drop catch locks it in desired position. It is possible to mount lenses into any slot of the turret, in any order.

III. Care of the camera and accessories

First of all, remember that this camera is made of light alloys (in order to reduce weight and dimensions), and has thin walls. At the same time, the camera is a precision device having complex components: mechanism - film - optics - devices. Therefore, be sure to handle the camera with care; rough handling may result in malfunctions.

Cleaning the camera. The camera and accessories should always be clean. External parts may be wiped with a clean flannel cloth before and after use. It is necessary to clean the magazine, the film channel and film gates of the camera and of the magazines. The magazine needs to be cleaned before each loading. Wipe clean the interior, film channel, and drums by a flannel cloth. Small cavities need to be cleaned by brush and to be cleaned by blowing using canned compressed air or a rubber syringe. In case of formation of deposits on the film gate in the camera, or on the film gate, film channel and magazine, the deposits need to be removed by rubbing a soft flannel cloth moistened with a 40-60% solution of mineral spirits in water. Removal of such deposits by hard tools is not recommended. For ease of cleaning the film gate of the camera, it is recommended that it be removed. To remove the film gate from the camera,

press the bottom edge of frame window downwards with a finger, pull it toward you, and its top end will be released. To reinstall the film gate, perform these steps in reverse (insert its bottom part, press it downwards, and push it into its place). To protect the shutter and claw, you should hide the claw into its slot.

Cleaning the optics. Optical parts of lenses and of the focusing magnifier should be cleaned very cautiously so as not to damage their coatings. In case of dust, clean them with a soft brush or by blowing. Oil or fingerprints should be cleaned with an approved optical lens cleaning fluid and lens tissues or lint-free cloths. Wiping should be done with great care and without applying pressure.

Cleaning the mirror shutter. Avoid touching the reflecting surface of the mirror with hard, liquid or damp objects. Dust particles should be cleaned by gently blowing. Only in exceptional cases (oil or fingerprints, for example) should it become necessary to remove a stain by soft dry lint-free cloth. Wiping with a soft lint-free cloth moistened with an approved optical lens cleaning fluid is permissible, but do not rub the same place many times, and do not apply pressure to the shutter.

Oiling the camera. All main bearings are ball bearings, and they do not require field lubrication. These bearings should be lubricated periodically at camera service shops during preventive maintenance. The recommended lubricant is clock oil MBP-9 or MBP-12 to oil ball bearings at normal working temperatures (from 10 up to 40°C), and oil OKB-122-16 for winter operating conditions. Apply 3 drops of oil on each bearing. Before oiling ball bearings they should be cleaned in solvent

.

There are two places in the camera that are need to be oiled regularly – the clamshell-shutter mechanism and the regulator-tachometer. Both these areas have fast-moving surfaces with sliding friction. Oiling of the shutter and one of bearings of regulator-tachometer (situated in the camera body) is accomplished, with the lens removed, by means of an oiler. It is necessary to oil some parts of clamshell (throw bearing, right jaw of axle, eccentric shaft journal and bottom support of clamshell fork). Oiling of the clamshell is done after removal of the head. The bearings of shutter are oiled through the central hole of its body (from within) and through a hole outside of the body (see photos 8 and 24).

When the camera is operated at temperatures of 10-40°C, it is recommended that these locations be lubricated with clock oil C-1. For winter operating conditions, use oil TSIATIM-M1. Apply 3 drops of oil in each place of friction for the clamshell and shutter. As to the regulator-tachometer, oil it until full saturation of stuffing-boxes occurs. Lubrication frequency for the regulator-tachometer and the shutter is once for every 500 meters of shot film, and for the clamshell once for every 1000 meters.

When changing to winter oil, it is necessary to remove the old oil by washing. Oil TSIATIM-M1 is highly volatile. Therefore, when the camera is inside (temperature +16 - +25°C), it is necessary to oil the camera again before starting work in low temperatures.

Oiling of spring drive. All running parts of the spring drive need to be lubricated approximately once a year using oil OKB-122-16, except for the clockwork spring. The clockwork spring is oiled with dry graphite powder of flaked graphite by putting a thin layer onto the spring tape during winding.

Oiling of manual drive. Bearings of manual drive should be lubricated with oil OKB-122-16 through the holes in the bushings.

Oiling of the electric motor should be done according to the electric drive motor instruction book.

Oiling of gears and focusing mounts of lenses should be done using oil OKB-122-7 during periodic inspections and preventive maintenance of the camera. It is necessary to oil periodically the slots of the lenses in turret with the same oil.

After oiling, start the camera on speed of 16-20 fps for 15-20 seconds. All excess oil, spray, and smudges should be removed as specified above.

IV. PACKING AND STORAGE

1. Packing

The complete camera outfit is packaged in a case, except for the battery and other accessories (supports, tripods, etc.) which are packaged and transported separately.

The camera is packed in its case along with a mounted magazine, three lenses and one of drives. The three lenses should be mounted on the turret (F=28, F=35, F=50); lenses F=75 and F = 135 should be stored in their special cases, placed separately into the case (see photo 25). The other two drives fasten in mounts on the case cover, and two magazines are paced into their slots in the case. The handle, cords, strap and other accessories are placed into the space between the magazines. Two more magazines are packed separately in special bag.

2. Storage

The complete outfit may be stored and transported in the same cases. During long term storage at studios, cases with the complete outfit should be placed in areas with temperature not below 10°C and with a relative humidity of no more than 60%.

Storage areas should be free of harmful solvent vapors, acids, alkalis, etc. Batteries should be stored separately to avoid contamination from electrolyte vapors.

V. COMPONENTS

1. Movie camera ..... 1 piece.
2. Lens F=28 in focusing mount PO-61 ..... 1 piece.
3. Lens F=35 in focusing mount PO-56 ..... 1 piece.
4. Lens F=50 in focusing mount PO-3-3M ..... 1 piece.
5. Lens F=75 in focusing mount PO-2-2M ..... 1 piece.
6. Lens F=135 in focusing mount U-11 (3K-135) ..... 1 piece.
7. Optical filters in frames ..... 1 set.
8. 60m mag (see note below) ..... 5 pieces.
9. Spring drive (see note below) ..... 1 piece.
10. Handle..... 1 piece.
11. Manual drive ..... 1 piece.
12. Animation handle ..... 1 piece.
13. Shoulder strap..... 1 piece.
14. Cork of film channel ..... 1 piece.
15. Electric drive ..... 1 piece.
16. Power cables..... 2 piece.
17. Storage battery in box ..... 2 piece.
18. Bag with tools ..... 1 set.

    Included tools:

    a) soft flat brush..... 1 piece.
    b) scissors ..... 1 piece.
    c) tweezers ..... 1 piece.
    d) screw-drivers with edges 1.5, 3 and 4 mm ..... 3 piece.
    e) oiler ..... 1 piece.
    f) bone stick ..... 1 piece.

19. Packing case for the camera and accessories..... 1 piece.
20. Bag with two magazines..... 1 piece.
21. Instruction manual..... 1 copy.
22. The passport on the camera and the complete set of optical filters ..... 1 copy.

NOTE:

1. The spring drive is delivered under a special order.
2. Under special order, the camera may be supplied with additional magazines.

LIST OF PHOTOS

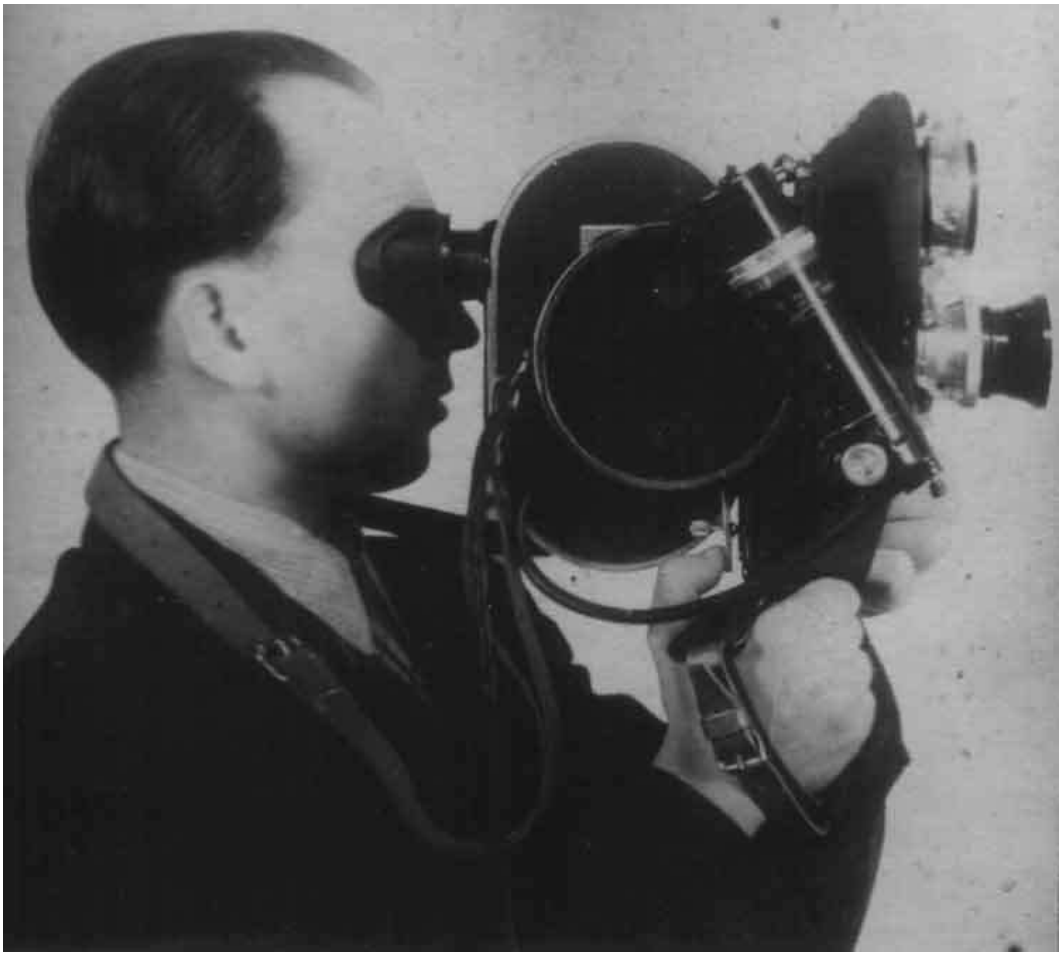
found in the description of a movie camera "Konvas" (KSR-1)

1. Film channel.
2. Pressure film gate.
3. Clamp.
4. Lever.
5. Core.
6. Lug.
7. Cover.
8. Lock.
9. Plate.

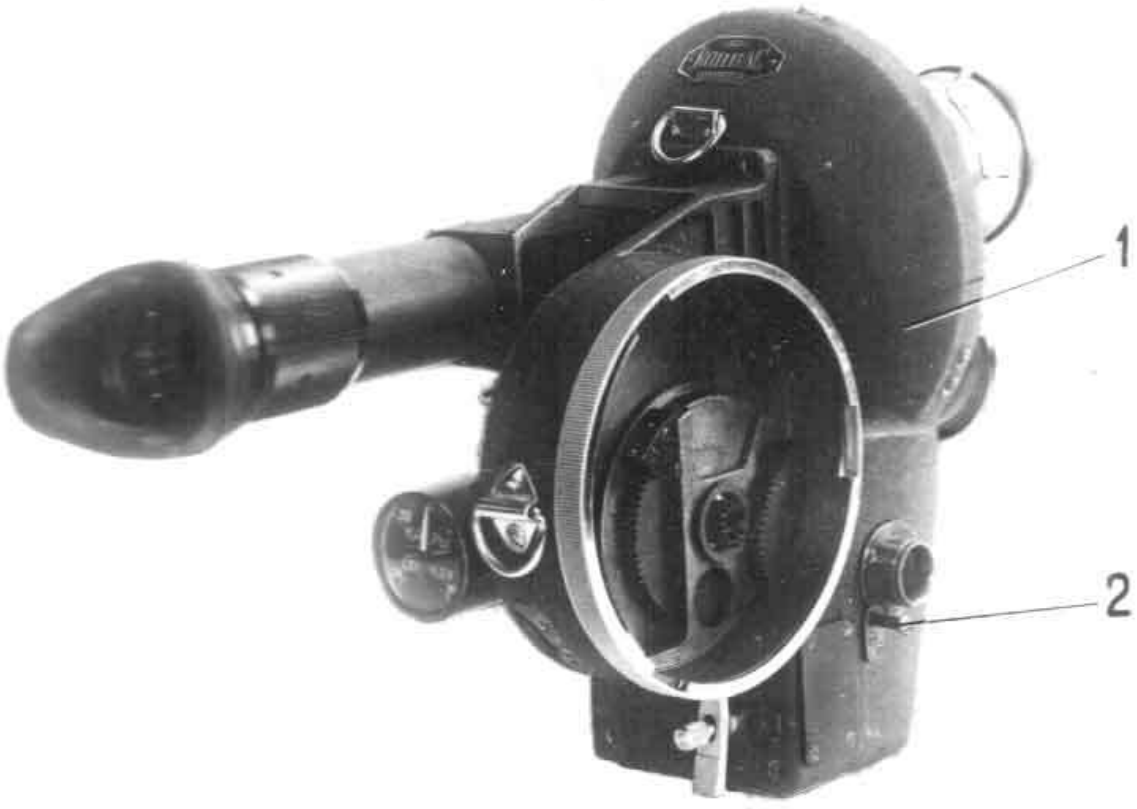
14. Magazine mechanism.
    1. Latch.
    2. Gear.
    3. Footage counter.
15. Spring drive.
16. Manual drives.
17. Electric motor of direct current.
    1. Outlet limb.
    2. Left switch.
    3. Right switch.
    4. Start button.
18. Storage battery.
19. Bag with tools.
20. Loading of the magazine with film.
    1. Button of the top drum.
    2. Film channel of the magazine.
    3. Clamp.
    4. Button of the bottom drum.
21. Sizes of loops in the magazine.
22. Mounting a drive, controlling of start-up and adjusting of speed during work with the electric motor.
    1. Rheostat.
    2. Switch.
    3. Switch.
    4. Start button of the electric motor.
    5. Start button of the camera.
    6. Pedal of the button.

23a. Mounting of spring drive.
23b. Mounting of manual drive.
24. Setting of speed regulator position.
25. Placing of the complete camera outfit in cases.

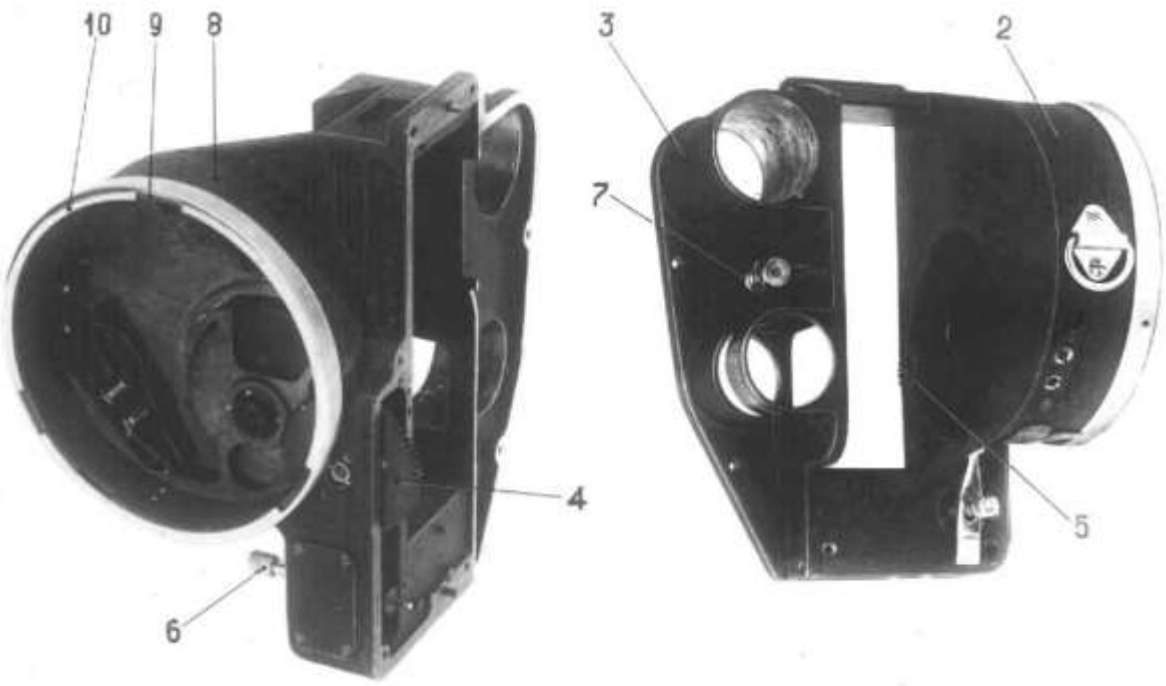
PHOTOS



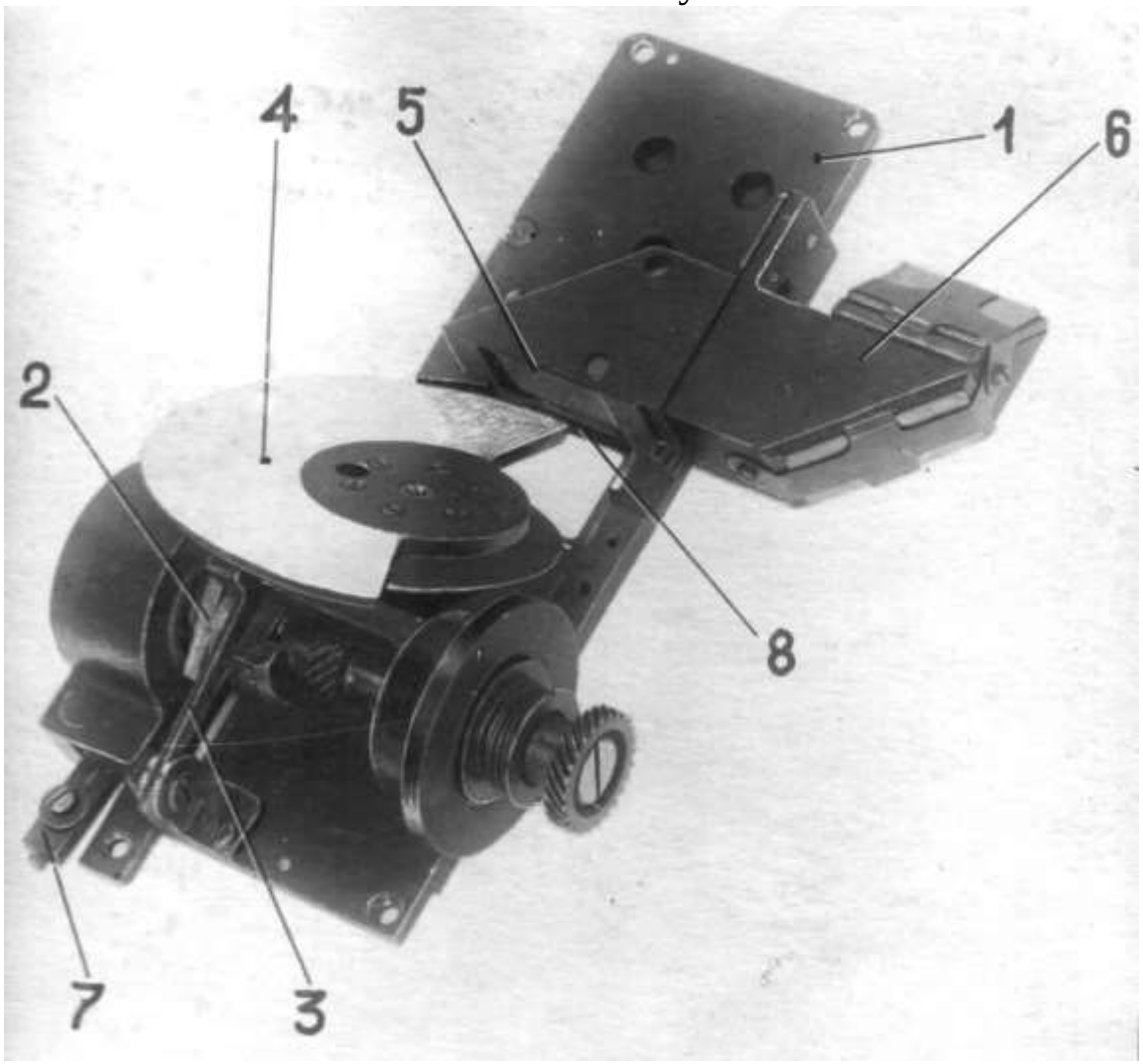
1. Position of a movie camera "Konvas" (KSR-1) during handheld shooting.



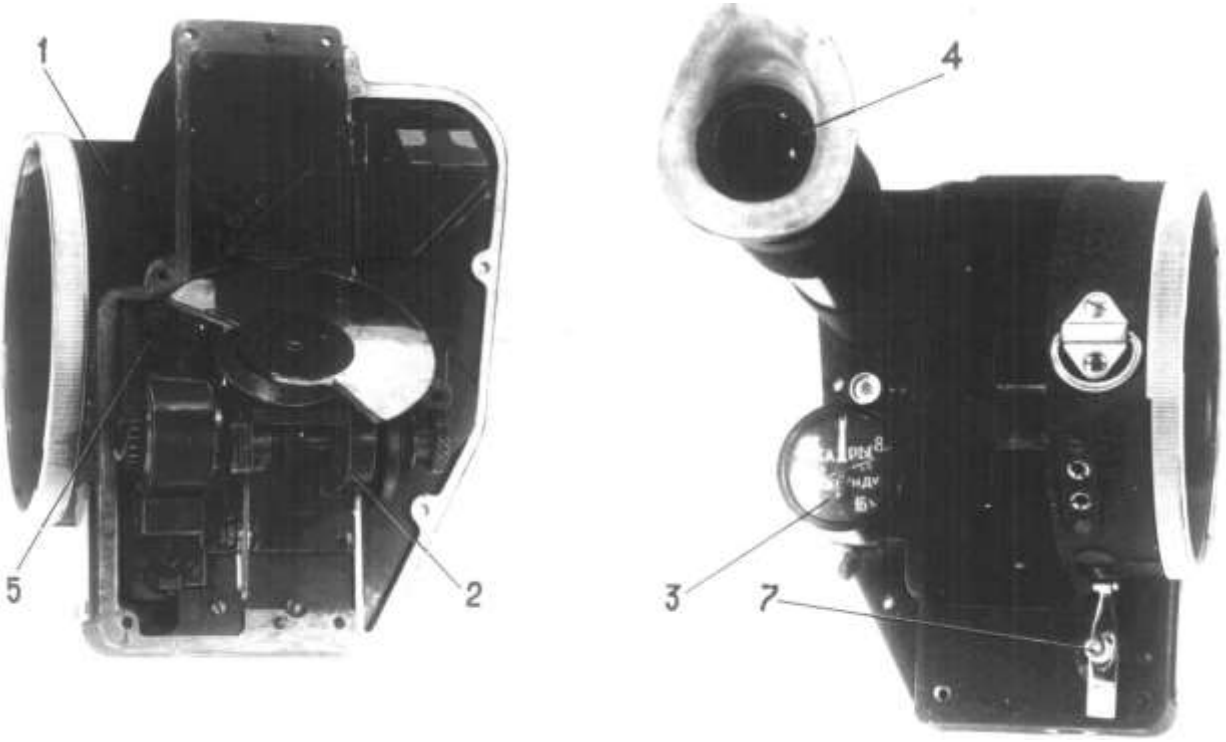
2. Camera.



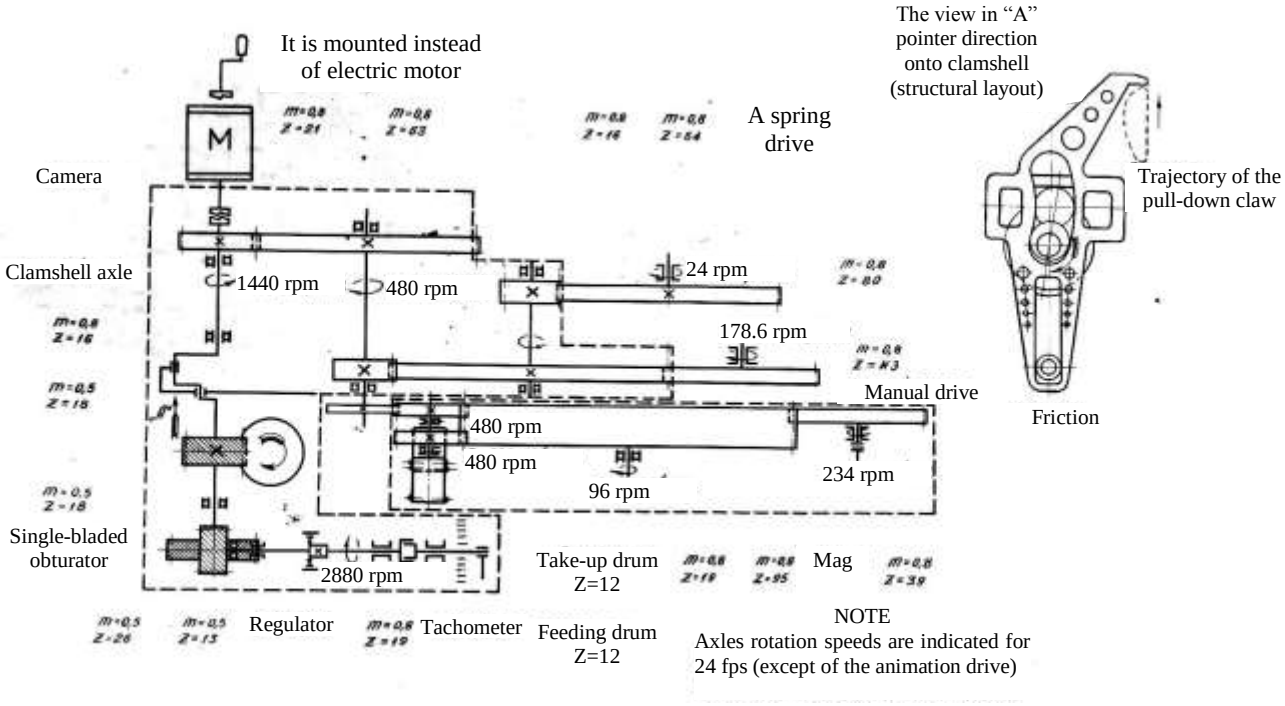
3. Camera body.



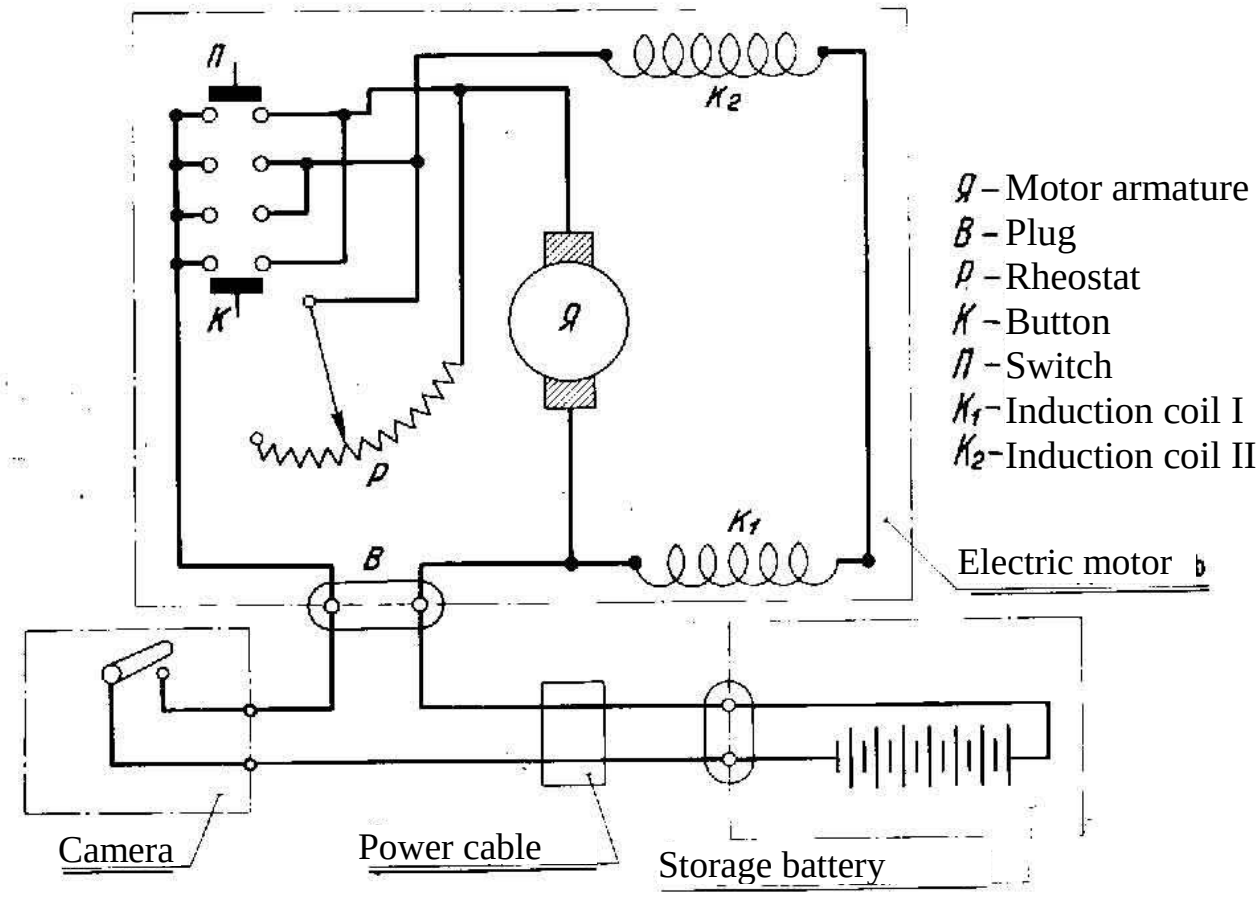
4. Clamshell-shutter mechanism.



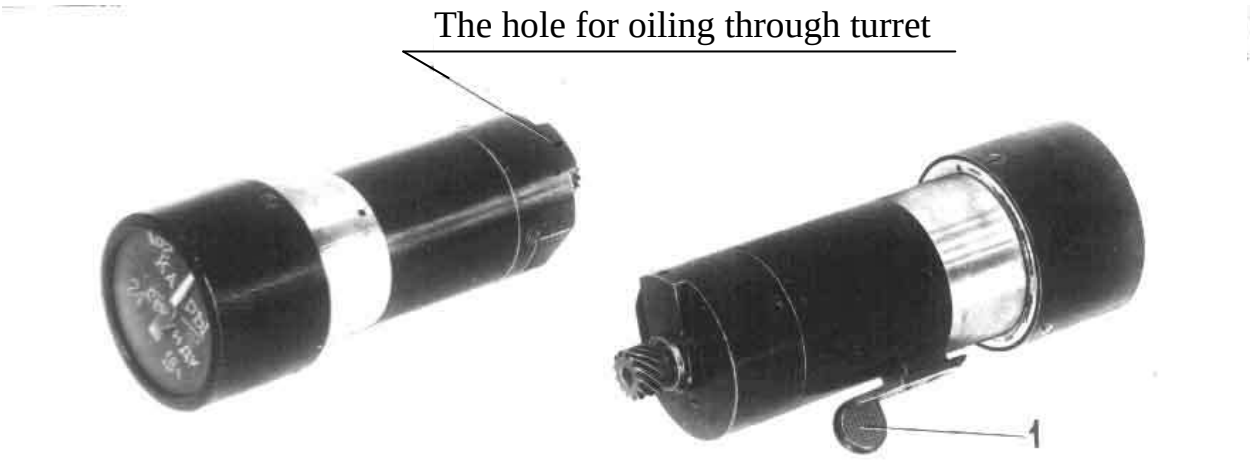
5. Camera Mechanism.



6. Schematic diagram of the camera.

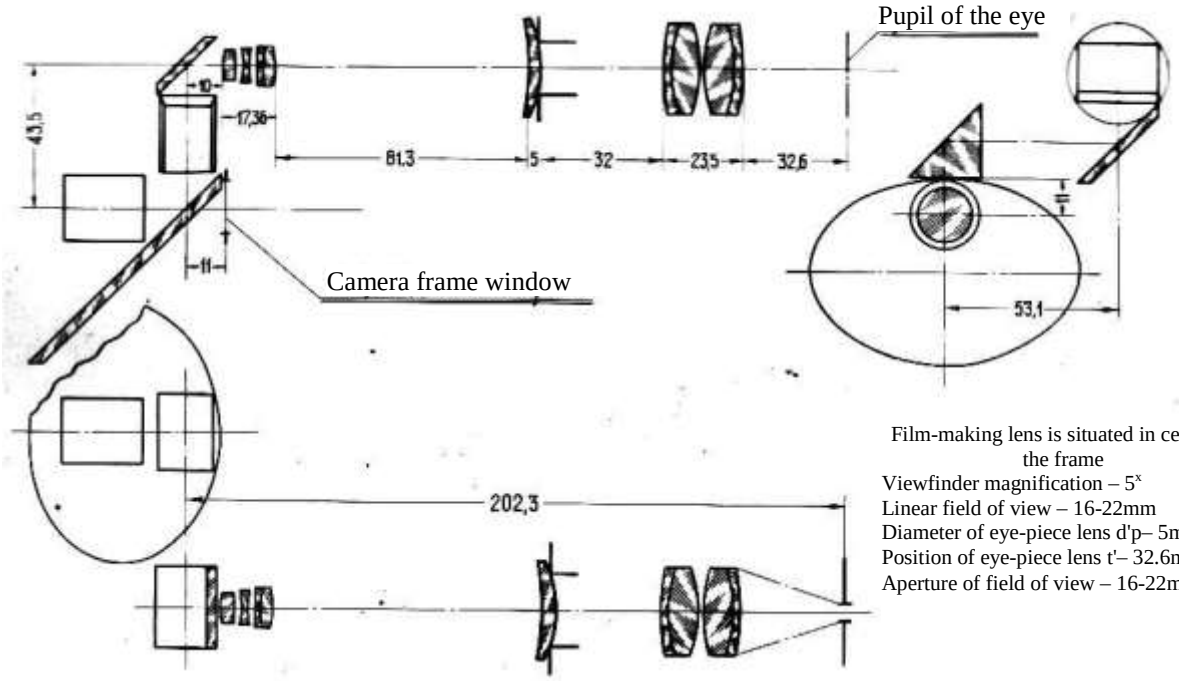


7. Basic electric diagram.



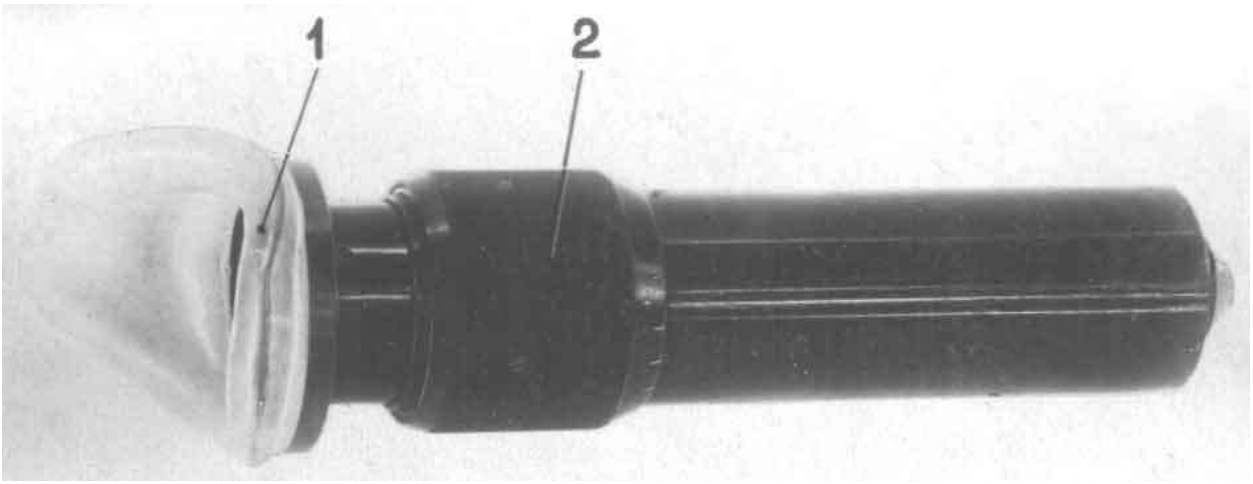
a. The view from the scale side b. The side view

8. Regulator-tachometer.

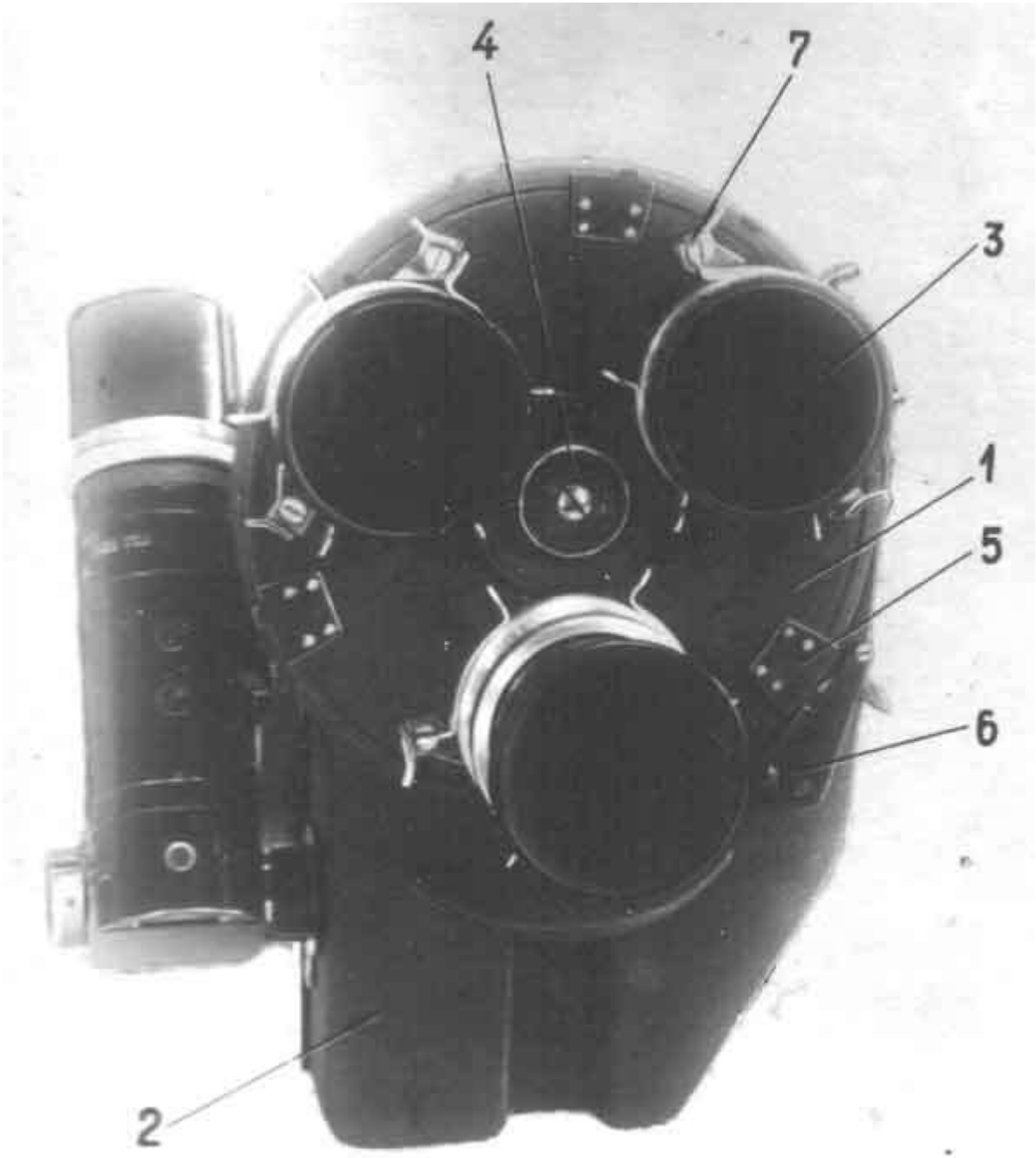


Film-making lens is situated in center of the frame
Viewfinder magnification – 5^x
Linear field of view – 16-22mm
Diameter of eye-piece lens d'p– 5mm
Position of eye-piece lens t'– 32.6mm
Aperture of field of view – 16-22mm

9. Optical diagram of the camera.

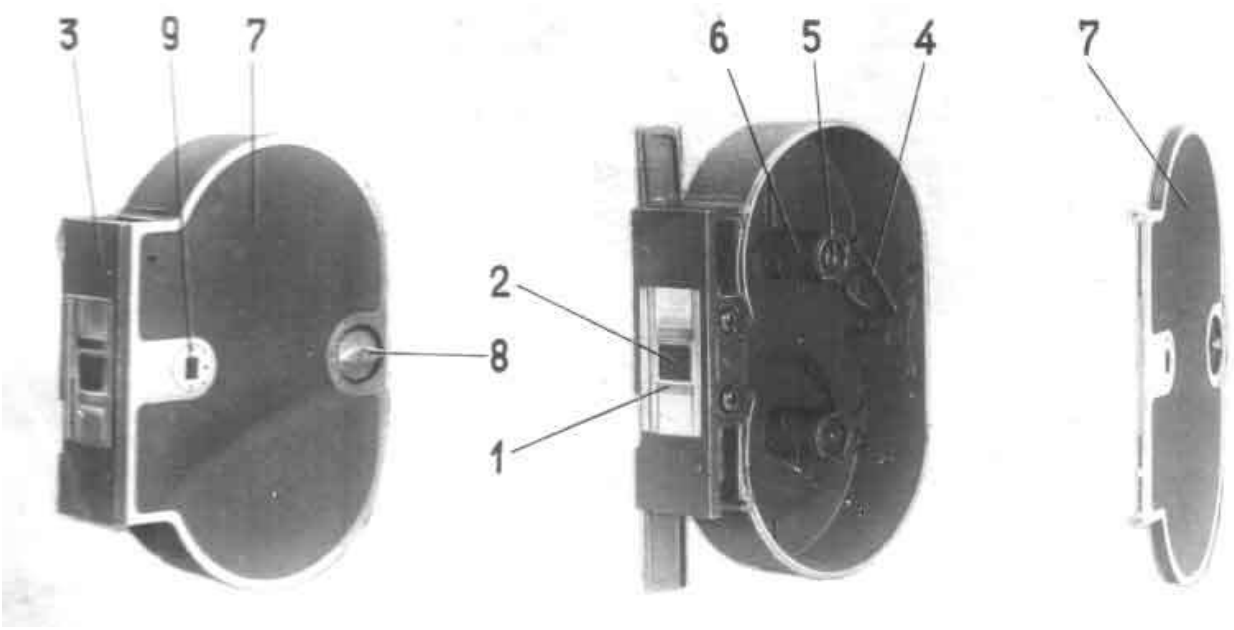


10. Focusing magnifier.



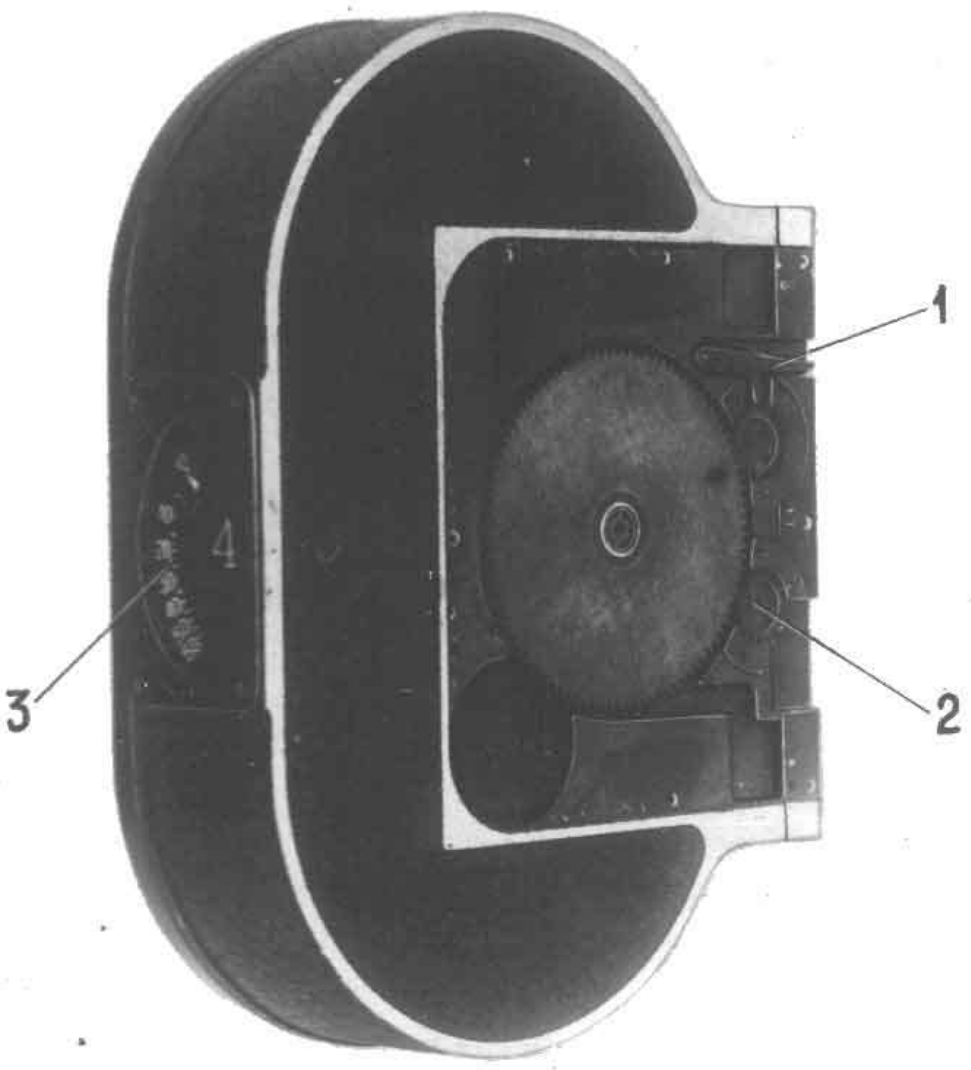
11. Head with turret and lenses.

12. Lenses in focusing mounts.



a. View from outside b. View with opened cover

13. Magazines.

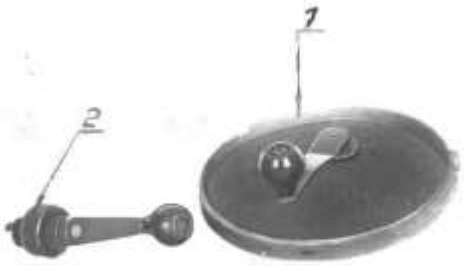


14. Magazine mechanism.

a. Back view

b. View from the handle side

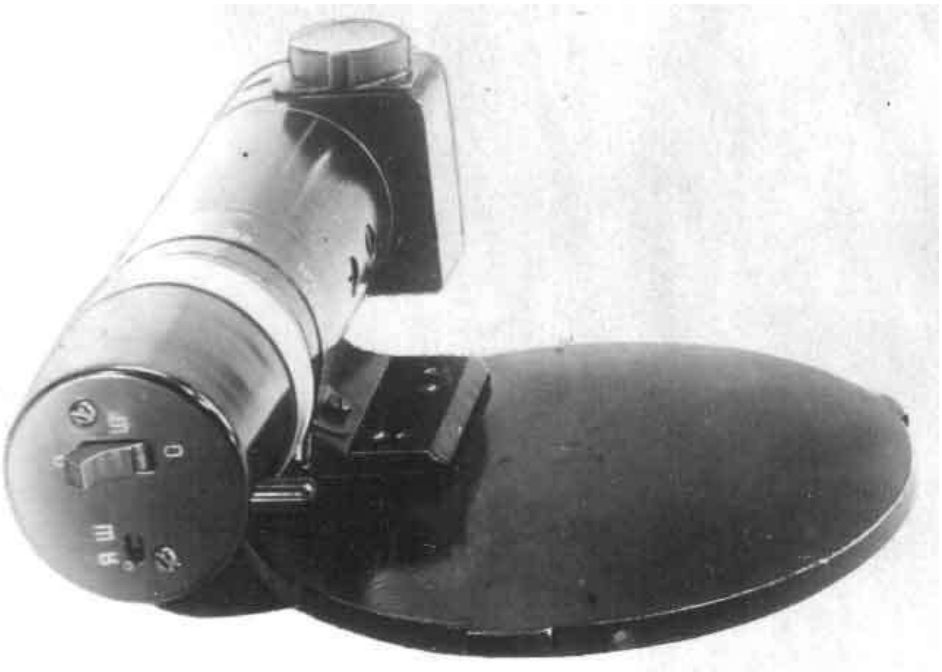
15. Spring drive.



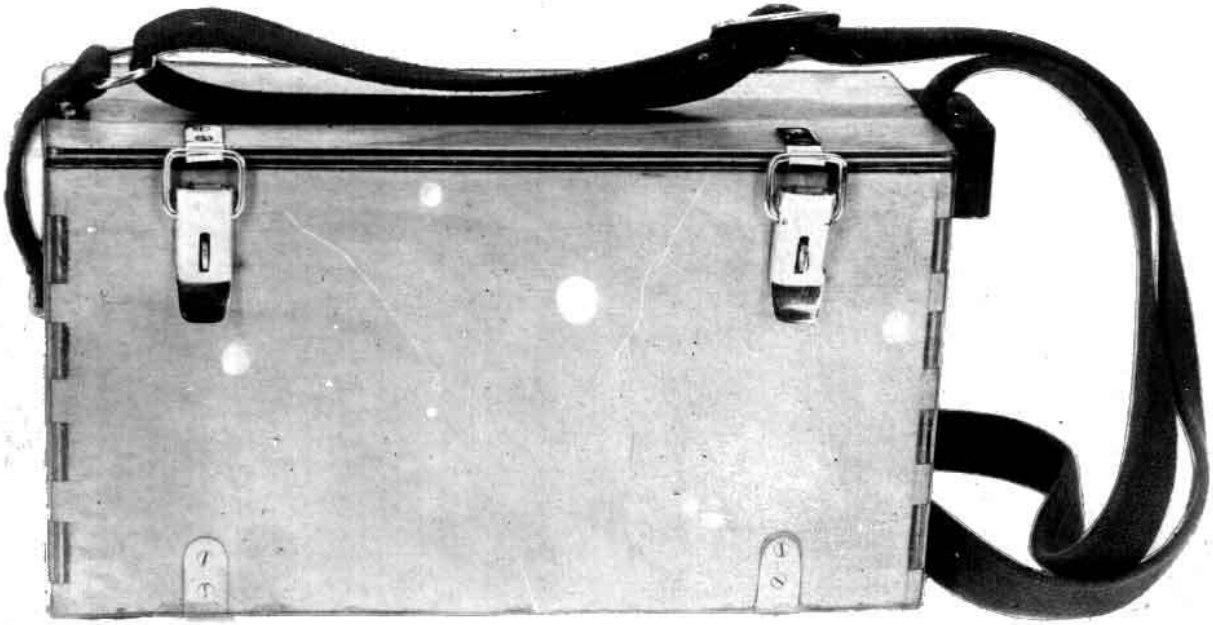
1. Manual drive
2. Animation drive

Installing of the animation drive

16. Manual drives.

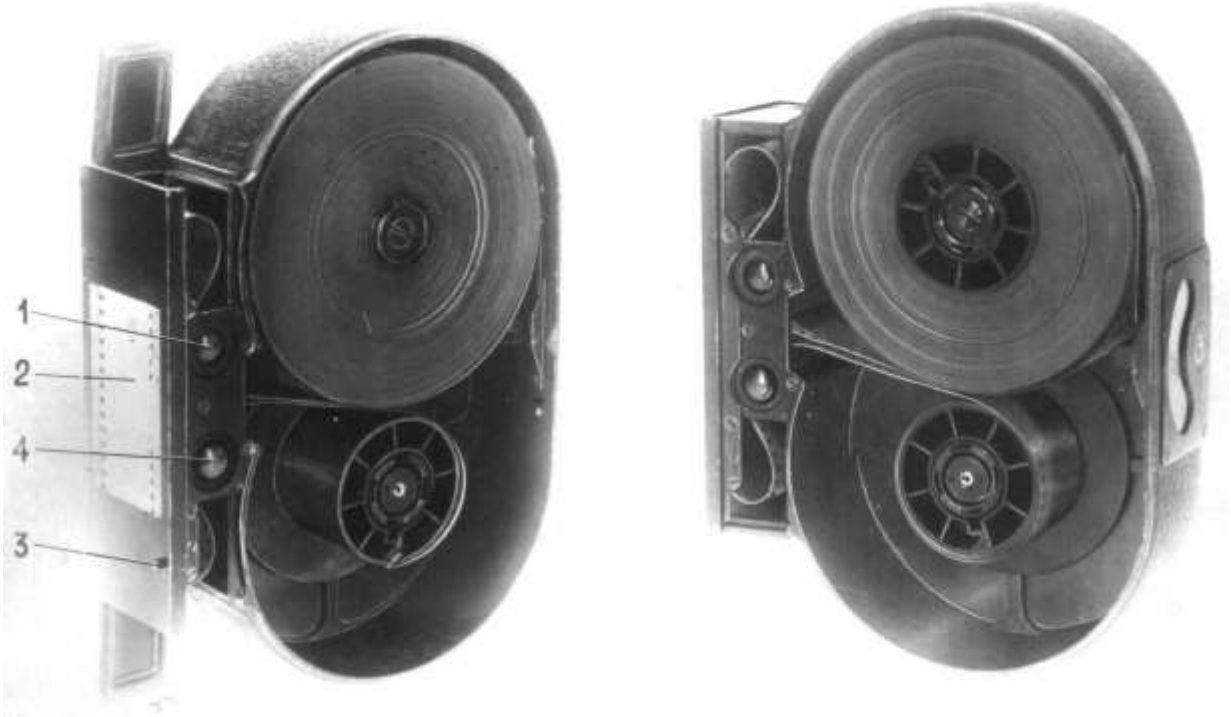


17. Direct current electric motor.

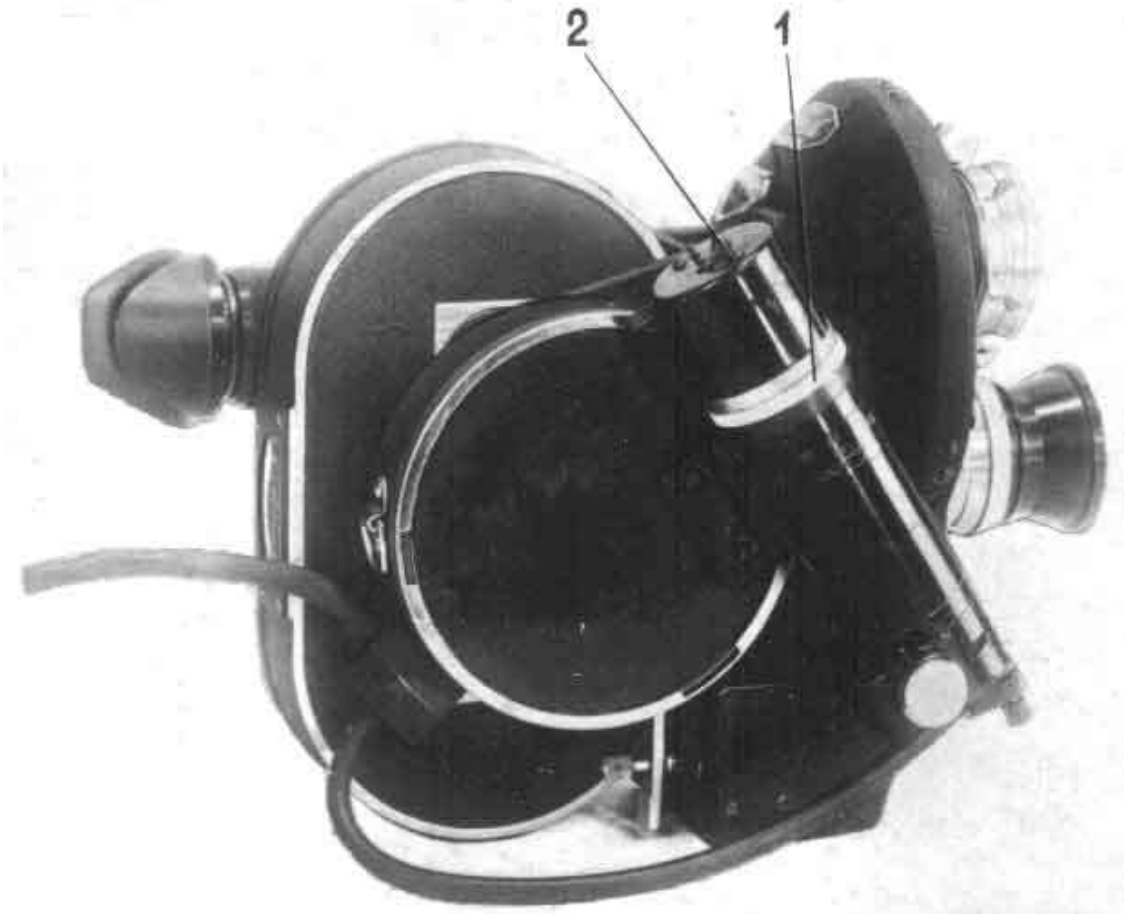


18. Storage battery.

19. Bag with tools.

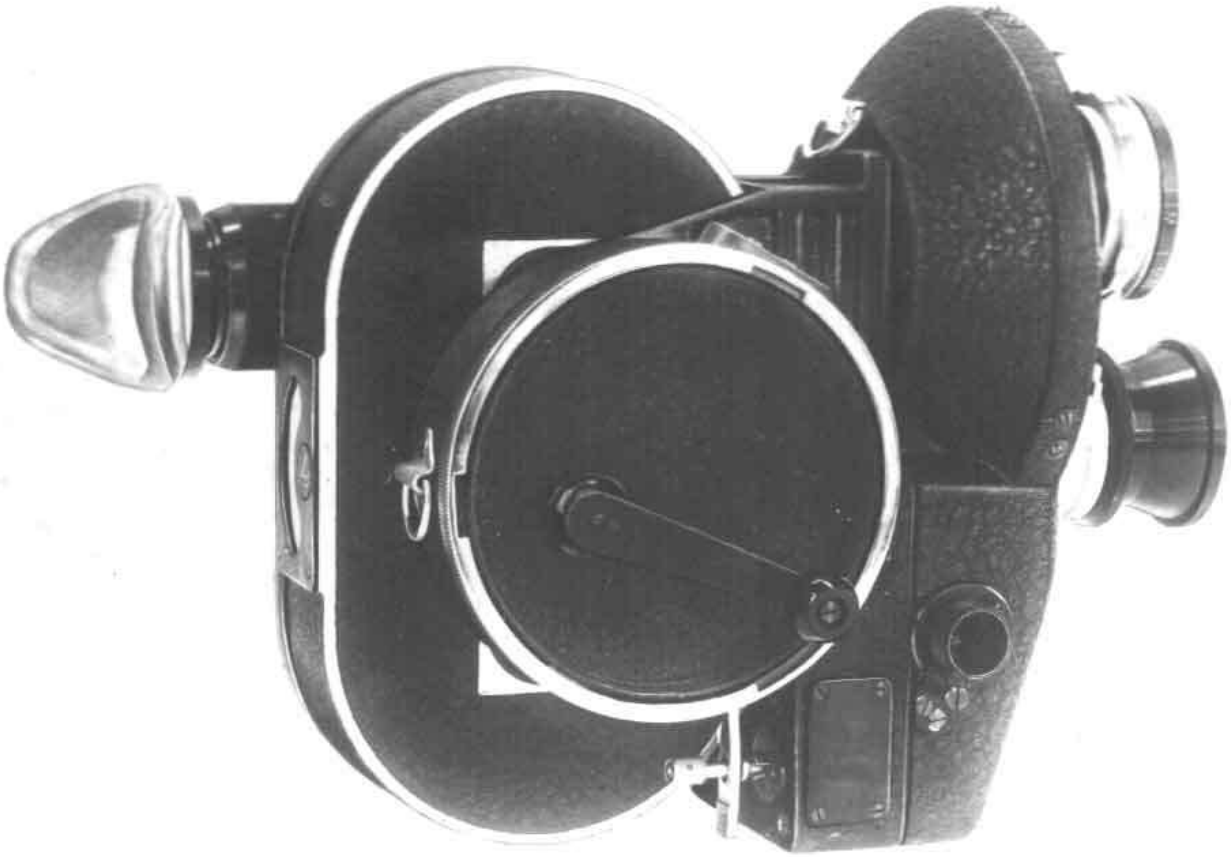


20. Loading with film. 21. Sizes of loops.

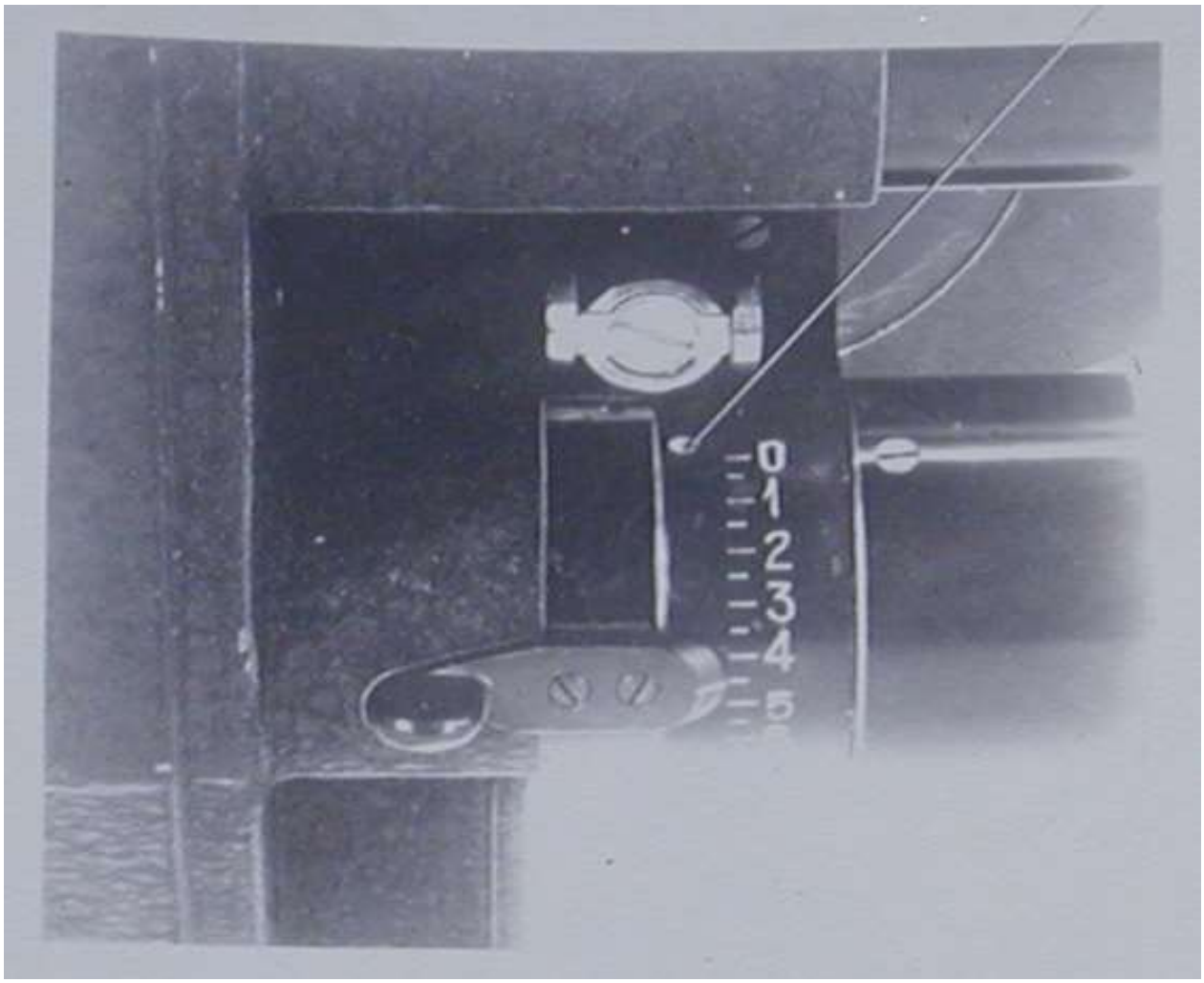


22. Mounting a drive, controlling the start-up and adjusting the speed with the electric motor.

23a. Mounting of spring drive.



23b. Mounting of manual drive.



24. Setting of speed regulator position.

25. Placing of the complete camera outfit in cases.