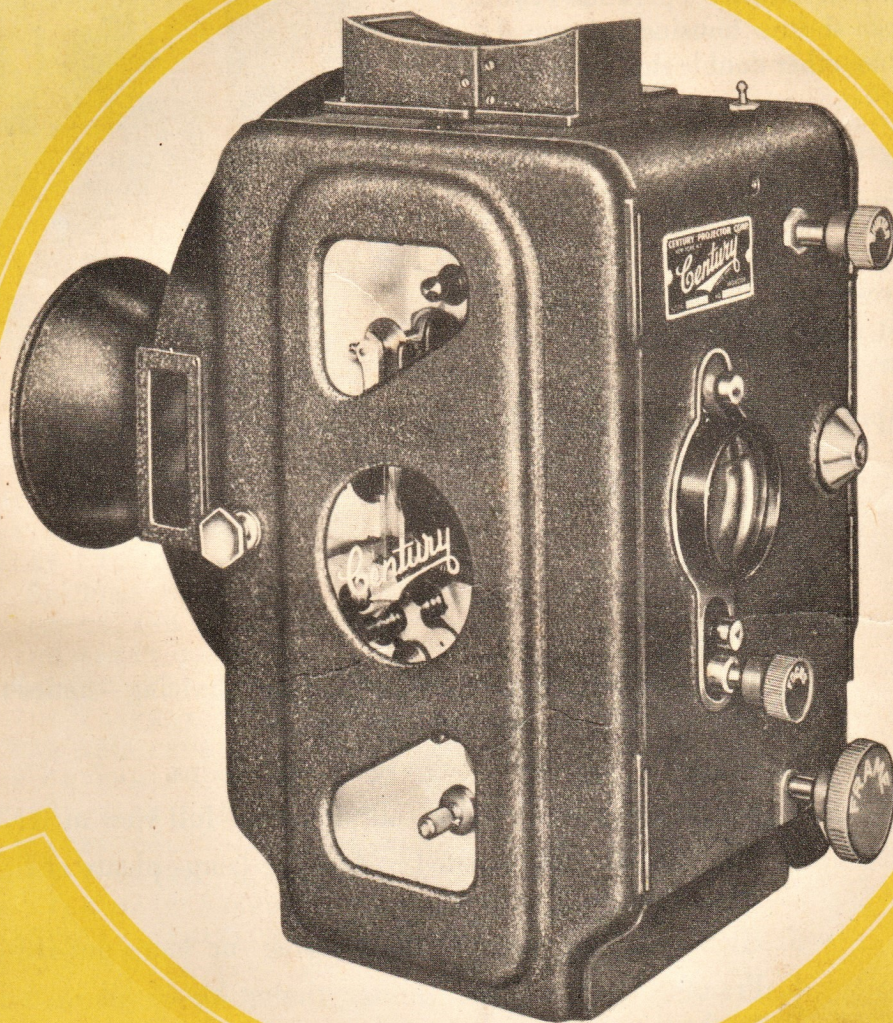


Century



INSTRUCTIONS

THE MODERN PROJECTOR

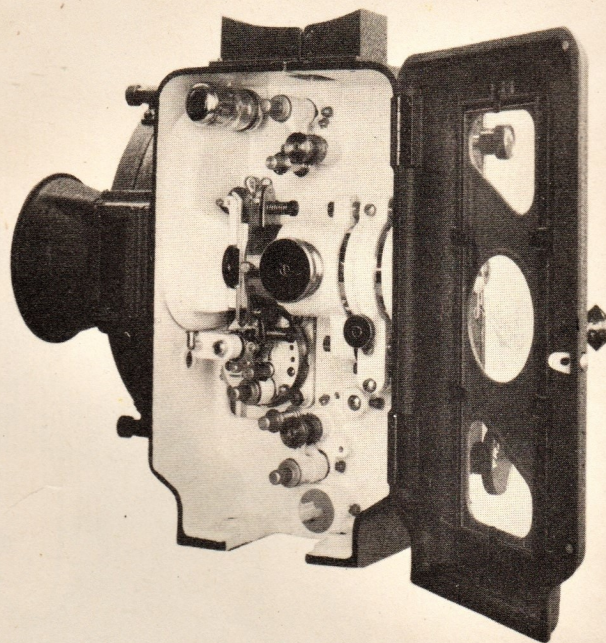
Presenting

THE CE

"Mo
DOUBL

THE OPERATING SIDE

1. Neat in appearance—the cleanest mechanism ever built.
2. Improved, double rear shutter operation—two shutters in one rear shutter housing—no travel ghost, more light than other double shutter mechanisms on the market.
3. Less heat on film—greater safety—longer film life.
4. Scientific air circulation system gives cool operation.
5. Rock steady pictures — new design upper guide roller—intermittent sprocket hardened with accurately ground teeth.
6. Designed with the projectionist's needs in mind.



SIMPLE TO OPERATE

1. Plenty of finger room for threading and servicing—notice the big opening of the film gate—adjustable gate tension.
2. Automatic loop setting—no more short loops.
3. Spot sight aperture in the shutter guard—full view of the spot.
4. White interior illuminated by framing lamp—plenty of light to see what you are doing.
5. High speed micrometer lens focusing—no more out-of-focus pictures.
6. Framing, focusing and shutter timing knobs all in the front of the mechanism.
7. Intermittent sprocket shoes mounted on intermittent cover, independent of gate.

STURDY CONSTRUCTION

Cast iron case and main frame all in one piece—heavy full width cast aluminum doors—no die cast metal in any part—all sprockets and steel gears hardened—main drive shaft, vertical shaft and sprocket shafts heavier than in any other projector—direct drive, four bearing intermittent movement—extra strength where needed throughout. Intermittent sprocket hardened with accurately ground teeth.

INSTALLATION - ASSEMBLY INSTRUCTIONS
FOR MODEL C-CC
CENTURY PROJECTOR MECHANISM

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INSTALLATION - ASSEMBLY INSTRUCTIONS
FOR MODEL C-CC
CENTURY PROJECTOR MECHANISM

THE REQUIREMENTS AND STANDARDS OF PERFECTION RELATING TO THE PROJECTION OF MOTION PICTURES HAVE BECOME MORE AND MORE EXACTING DURING THE PAST FEW YEARS. CENTURY PROJECTORS HAVE KEPT PACE WITH THESE REQUIREMENTS. CENTURY MODEL C AND MODEL CC MECHANISMS WILL MEET THE HIGHEST STANDARDS OF MODERN PROJECTION.

INSPECT THE CENTURY MECHANISM. BECOME FAMILIAR WITH ALL ITS FEATURES AND REALIZE THE COMPLETE BENEFITS OF PERFORMANCE, LONG LIFE AND SIMPLE OPERATION. THE CENTURY MECHANISM IS BUILT STURDY AND HAS MANY OUTSTANDING FEATURES.

GOOD MECHANICAL DESIGN IS SIMPLE DESIGN.

THE CENTURY C PROJECTOR HAS ONLY FIVE ROTATING SHAFTS AND NINE GEARS PLUS THE INTERMITTENT MOVEMENT. THIS MEANS EASE OF OPERATION, QUIETER RUNNING AND LONG LIFE. THE DRIVING SHAFTS ARE ROTATED IN SEALED FOR LIFE BALL BEARINGS, WHICH REQUIRE NO LUBRICATION AND WILL NOT BIND UP. NOTE THE HEAVY GEAR DESIGN AND LARGE OVERSIZE SHAFTS. THESE PARTS ARE MANUFACTURED FOR ENDURANCE.

THE OPERATING SIDE IS SIMPLE AND STRAIGHT FORWARD. ALL SPROCKETS ARE HARDENED AND GROUND TO PERFECT CONCENTRICITY. THE INTERMITTENT SPROCKET HAS EACH TOOTH INDIVIDUALLY GROUND TO POSITION AND SHAPE AFTER HARDENING. THIS REQUIREMENT IS FOUND IN FEW OTHER MECHANISMS.

THE UPPER LOOP ABOVE THE APERTURE AND THE LOWER LOOP BELOW THE INTERMITTENT ARE CORRECTLY SET BY THE LOOP SETTING PAD ROLLERS. A SHORT LOOP CANNOT OCCUR IN THREADING FILM INTO A CENTURY MECHANISM. THIS INSURES AGAINST FILM DAMAGE AND BROKEN FILM.

THE FILM TRAP AND GATE ARE MECHANICALLY STURDY AND ALL WEARING PARTS ARE OF THE FINEST STEEL, HARDENED AND POLISHED TO GUARANTEE SMOOTH FILM TRAVEL AND STEADY PICTURE REPRODUCTION. THE UPPER GUIDE ROLLER IS MANUFACTURED FROM A SOLID BAR OF STEEL AND THE GUIDING SURFACES ARE GROUND TO PERFECTION ON THE SAME MOUNTING CENTERS USED IN THE MECHANISM. THIS INSURES FREEDOM FROM SIDE WEAVES.

GATE FILM PADS ARE ADJUSTABLE FOR TENSION TO PROPERLY HANDLE NEW AS WELL AS OLD FILM. FILM TENSIONS LESS THAN HALF NORMAL WILL GIVE EXCEPTIONALLY STEADY PICTURES.

THE FOUR BEARING INTERMITTENT MOVEMENT IS A MASTERPIECE OF PRECISION WORKMANSHIP. STARWHEEL SLOTS AND RADII ARE POSITIONED AND MACHINED TO PLUS-MINUS ONE TEN THOUSANDTH OF AN INCH (.0001"). THIS PRECISION PLUS THE ACCURACY OF THE INTERMITTENT SPROCKET PRODUCES THE STEADY PROJECTION APPARENT IN THE THEATRE.

ASBESTOS HEAT SHIELDS PLUS SCIENTIFICALLY DESIGNED CAST IRON AUXILIARY HEAT SHIELDS WITH CIRCULATING AIR COOLING WILL TAKE AWAY ALL HEAT FROM THE APERTURE AND FILM TRAP SHOES, PROVIDING GREATER FACTORS OF SAFETY AND MORE SHARPLY DEFINED PICTURES.

WHITE BAKED ON ENAMEL INTERIORS AND UNIT ASSEMBLIES MAKE THESE MECHANISMS EASY TO SERVICE AND CLEAN. THE MAIN FRAME, SIDES, TOP AND BOTTOM OF THE CENTURY MECHANISMS ARE ONE INTEGRAL CASTING RIGIDLY SUPPORTING ALL OPERATING UNITS, INSURING PERFECT SHAFT AND GEAR ALIGNMENTS. NO MORE BIND UPS OF SHAFTS OR SHOW FAILURES DUE TO POOR SHIMMING OR UNEVEN MOUNTING PLATES.

THE SHUTTER SHAFT AND VERTICAL SHAFT, INCLUDING THEIR RESPECTIVE GEARS, COLLARS, BEARINGS, ETC., ARE REMOVABLE FROM THE PROJECTOR AS COMPLETE UNITS. THESE SHAFTS MAY BE REPLACED IN THE BOOTH WITHOUT THE USE OF ALIGNMENT TOOLS OR REAMERS.

THE CENTURY MODEL CC DOUBLE SHUTTER MECHANISM RETAINS ALL THE FEATURES OF THE SINGLE SHUTTER MECHANISM PLUS THE ADDITION OF A SECOND REVERSE SHUTTER WHICH INCREASES THE LIGHT EFFICIENCY OF THE MECHANISM. THE TWO SHUTTERS THOUGH REVOLVING IN OPPOSITE DIRECTIONS ARE SCIENTIFICALLY INTERLOCKED TO PROJECT PICTURES FREE FROM TRAVEL GHOST. THE USE OF THE DOUBLE REAR SHUTTERS REDUCES THE HEAT ON THE FILM ELIMINATING FIRE HAZARDS AND WARPED FILM.

THE MAIN SHUTTER AND THE REVERSE SHUTTER ARE BOTH HOUSED IN ONE REAR CASING. THE REVERSE SHUTTER IS DRIVEN FROM ITS OWN DRIVE GEAR, MOUNTED ON ITS OWN BALL BEARINGS AND IS ENTIRELY INDEPENDENT OF THE MAIN SHUTTER. EITHER OF THE SHUTTERS CAN BE USED FOR SINGLE SHUTTER OPERATION, BY REMOVING THE OTHER, INSURING 100 PERCENT PERFORMANCE.

CENTURY MECHANISM DESIGNS ARE BASED UPON STRONG MECHANICAL PRINCIPLES. NOTE THE SOLID CONSTRUCTION OF THE FILM TRAP, FILM GATE, LARGE HARDENED GEARS, AND HEAVY SHAFTS, ALL OF WHICH GUARANTEE LONG UNINTERRUPTED PERFORMANCE AND FINER MOTION PICTURE REPRODUCTION.

UNPACKING THE PROJECTOR

THE EXCELSIOR SHOULD BE TAKEN OUT OF THE CASE AND THE INSIDE WOODEN STRIP REMOVED BY DRAWING OUT THE FOUR NAILS HOLDING IT. THE MECHANISM CAN THEN EASILY BE TAKEN OUT OF THE CASE. THE PACKING MATERIAL SHOULD BE REMOVED FROM THE PROJECTOR VERY CAREFULLY. CARE SHOULD BE TAKEN TO REMOVE EVERY TRACE OF PACKING MATERIAL OR OTHER FOREIGN MATTER WHICH MAY HAVE CREPT INTO THE MECHANISM DURING SHIPMENT.

INSTALLATION:

THE CENTURY PROJECTOR IS ADAPTABLE TO ALL TYPES OF SOUND HEADS.

IN ADDITION TO THE TWO TAPPED HOLES USUALLY PROVIDED FOR HOLDING A PROJECTOR, THERE ARE FOUR OTHER HOLES LOCATED IN THE BASE WHICH MAY BE USED FOR ADDITIONAL SUPPORT. SOUND HEADS DESIGNED FOR THIS ADDITIONAL SUPPORT WILL HAVE CORRESPONDING HOLES. IN OLDER TYPES OF SOUND HEADS IT MAY BE POSSIBLE TO RE-DRILL THE SOUND HEAD AND ADD SPACERS, THUS TAKING ADVANTAGE OF GREATER STABILITY BETWEEN THE SOUND HEAD AND THE PROJECTOR.

THE HEIGHT OF THE OPTICAL CENTER ABOVE THE MOUNTING SURFACE OF THE SOUND HEAD IS STANDARD AS WELL AS THE POSITION OF THE APERTURE WITH RESPECT TO THE MOUNTING HOLES. THIS PROJECTOR CAN THEREFORE REPLACE THE OTHER TYPE PROJECTORS WITH NO ADJUSTMENTS NECESSARY IN LAMPHOUSE OR SOUND HEAD.

REFER TO FIGURE 2, WHICH SHOWS THE CONSTRUCTION OF THE MAIN DRIVE SHAFT AND GEAR. NO. 1 IS THE MAIN DRIVE SHAFT. NO. 2 IS THE MAIN DRIVE GEAR. NO. 3 IS THE SHAFT AND COUPLING DEVICE TO THE SOUND HEAD. NO. 4 IS THE SET SCREWS CLAMPING TOGETHER THE MAIN SHAFT, MAIN DRIVE GEAR AND COUPLING SHAFT FROM THE SOUND HEAD. THE MAIN DRIVE SHAFT IS DESIGNED FOR A 7/16 INCH COUPLING SHAFT. THE END OF THE MAIN DRIVE SHAFT IS PROVIDED FOR COUPLING TO A PINION DRIVE SUCH AS IS USED ON OTHER TYPE PROJECTORS. WHEN USED WITH THIS TYPE OF DRIVE SET SCREWS NO. 5 SECURE PULLEY NO. 6 AND AT THE SAME TIME CLAMP THE SPLIT HUB OF THE PROJECTOR MAIN DRIVE SLEEVE AROUND THE PINION. TWO OF THE SET SCREWS ARE CONE POINTED, THE POINTS SEATING BETWEEN TEETH ON THE PINION, ADDING POSITIVE DRIVING ACTION TO THE ASSEMBLY. THE WHOLE ASSEMBLY INCLUDING THE SOUND HEAD COUPLING ROTATES IN BALL BEARING NO. 7.

WHEN THE PROJECTOR IS USED WITH SOME OF THE OLDER TYPE SOUND HEADS, SPECIAL ADAPTER PARTS ARE REQUIRED. SEE CENTURY PARTS CATALOGUE FOR THE LISTING OF VARIOUS ADAPTER PARTS. ADDITIONAL INFORMATION MAY BE HAD ON REQUEST.

OPERATING INSTRUCTIONS:

THE GATE:

THE LARGE NICKEL PLATED KNOB (FIG. 1, #1) IN THE CENTER OF THE PROJECTOR ON THE OPERATING SIDE OPENS AND CLOSES THE GATE. TO OPEN THE GATE, TURN THE KNOB TO THE RIGHT. THE GATE OPENING DEVICE IS DESIGNED TO AUTOMATICALLY LOCK THE GATE IN EITHER THE HALF OPEN OR FULL OPEN POSITION.

PRESS THE KNOB IN TO CLOSE THE GATE. IN THE CLOSED POSITION THE GATE IS LOCKED AUTOMATICALLY AND CANNOT BE OPENED EXCEPT BY TURNING THE KNOB. WITH VERY SHORT FOCAL LENS IT IS POSSIBLE THE GATE WILL OPEN TO ITS HALF POSITION ONLY.

THE GATE IS MOUNTED AT THE REAR OF THE LENS HOLDER ON A SLIDING TUBE. THIS TYPE OF CONSTRUCTION ASSURES ACCURATE ALIGNMENT OF THE GATE WITH THE FILM TRAP AND PREVENTS DISPLACEMENT OF THE GATE DUE TO ACCIDENTAL BENDING.

TO REMOVE THE GATE FOR INSPECTION, OPEN THE GATE AS DESCRIBED ABOVE AND LOOSEN THE HOLDING SCREW (FIG.1,#2). THE GATE CAN NOW BE PULLED STRAIGHT TOWARD THE TRAP. THIS WILL DISENGAGE THE TWO SUPPORTING STUDS WHICH HOLD THE GATE IN THE LENS TUBE.

THE GATE PADS ARE LONG AND HEAVY AND ARE DESIGNED TO GIVE UNIFORM PRESSURE AGAINST THE FILM OVER THEIR ENTIRE SURFACES. THE DESIGN ASSURES THAT EXACTLY EQUAL PRESSURE IS APPLIED TO BOTH SIDES OF THE FILM WHICH HAS BEEN FOUND SO NECESSARY IN THE ELIMINATION OF PICTURE JUMP AND WEAVE. THE COMBINATION OF THE TENSION SPRINGS AND PADS HAS BEEN DESIGNED SO THAT THERE IS A MINIMUM DISTURBANCE OF THE PADS AS SPLICES GO THROUGH THE PROJECTOR.

THE TENSION OF THE PADS IS ADJUSTABLE OVER A WIDE RANGE THROUGH TENSION SPRINGS (FIG.1,#3 & #4). AFTER A LITTLE EXPERIMENTING, THE BEST OPERATING PRESSURE WILL BE FOUND FOR ANY CONDITION OF FILM. IT IS SUGGESTED THAT UNTIL THESE OPTIMUM VALUES ARE FOUND THAT THE ADJUSTMENT NUTS BE IN ABOUT MID POSITION. A SAFETY FEATURE ON THE ADJUSTMENT WILL BE FOUND IN THE STOPS PROVIDED, SO THAT THE TENSION ADJUSTMENT NUTS CANNOT BE TIGHTENED SO FAR AS TO LOCK THE FILM IN THE GATE. IT IS DESIRABLE TO OPERATE WITH AS LITTLE TENSION AS POSSIBLE ON BOTH THE UPPER AND LOWER PADS AND STILL MAINTAIN A STEADY PICTURE. THE LIGHTER THE TENSION, THE LESS WEAR ON SPROCKETS, SHOES, PADS, ETC.

PAD ROLLERS:

THE UPPER AND LOWER PAD ROLLER ARMS ARE OPENED BY PUSHING THE ROLLER KNOBS TOWARD THE REAR OF THE PROJECTOR. THE PRESSURE PADS ON THE INTERMITTENT SPROCKET ARE OPENED BY PUSHING THE KNOB DOWNWARD.

THE UPPER AND LOWER PAD ROLLERS IN OPEN POSITION PROVIDE FOR AUTOMATICALLY SETTING THE LOOPS ABOVE AND BELOW THE GATE. THE LOWER PAD ROLLER ALSO PROVIDES A MEANS OF MEASURING THE CORRECT DISTANCE ON THE FILM BETWEEN THE PICTURE APERTURE AND THE SOUND APERTURE, THUS ASSURING EXACT SYNCHRONIZATION OF SOUND AND PICTURE.

ALTHOUGH THERE ARE NO TENSION SPRINGS SHOWING ON THE PAD ROLLERS, EACH HAS A SCIENTIFICALLY DESIGNED TENSION DEVICE BUILT INTO THE PAD ROLLER ARM PROVIDING JUST THE RIGHT AMOUNT OF TENSION FOR OPTIMUM PERFORMANCE. EACH PAD ROLLER ARM HAS A POSITIVE STOP IN CLOSED POSITION, WHICH PREVENTS UNDUE MUTILATION OF THE FILM. THESE STOPS ARE ADJUSTABLE.

THE UPPER AND LOWER PAD ROLLERS SHOULD BE ADJUSTED SO THAT THERE IS A CLEARANCE OF TWO THICKNESSES OF FILM BETWEEN THE PAD ROLLER AND THE SPROCKET. THIS CLEARANCE IS ADJUSTED BY MEANS OF THE STOP SCREW (FIG.1,#5).

INSTALLING THE LENS:

THE LENS HOLDER IS DESIGNED FOR "HALF SIZE" LENSES INCLUDING THE F2 LENS. (NO CHANGE IN THE SHUTTERS HAS TO BE MADE FOR THIS HIGH SPEED OPERATION.) WITH THE PROPER ADAPTERS ANY PROJECTION LENS WILL FIT THE LENS HOLDER.

CARE SHOULD BE TAKEN THAT THE FRONT OF THE LENS IS TOWARDS THE SCREEN, OTHERWISE THE QUALITY OF THE PICTURE WILL NOT BE SATISFACTORY.

THE LENS FOCUSING KNOB SHOULD BE TURNED SO THAT THE LENS CLAMP IS IN THE CENTER OF ITS FULL LENGTH OF TRAVEL. INSERT THE LENS INTO THE HOLDER AND CLAMP IT LIGHTLY IN PLACE WITH LENS CLAMP KNOB (FIG.1,#6). IF THE FOCUS IS NOT GOOD WHEN THE PICTURE IS PROJECTED, THE LENS MAY BE SHIFTED BACK AND FORTH UNTIL A FAIR FOCUS IS OBTAINED. THE LENS CLAMP IS TIGHTENED AND THE FINAL ACCURATE FOCUSING DONE WITH THE FOCUSING KNOB WHICH EXTENDS THROUGH THE PROJECTOR CASE TOWARD THE FRONT.

TIMING THE SHUTTER: (MODEL C)

EACH CENTURY PROJECTOR HAS BEEN SET UP AND RUN IN THE FACTORY SO THAT WHEN IT IS RECEIVED, THE SHUTTER SHOULD BE IN TIME. IF THE SHUTTER REQUIRES RETIMING, BE SURE BEFORE CHANGING ANY SETTING THAT THE SHUTTER CANNOT BE CORRECTED BY ADJUSTING THE SHUTTER TIMING KNOB ON THE FRONT OF THE MECHANISM.

TO RESET SHUTTER PROCEED AS FOLLOWS: REMOVE THE RUBY GLASS IN THE SPOT SIGHT APERTURE IN THE FIXED SHUTTER GUARD ON THE OPERATING SIDE OF THE PROJECTOR. THE RED GLASS IS REMOVABLE BY PRESSING IT IN WITH THE THUMB AND PUSHING IT UPWARD. AFTER THE GLASS HAS BEEN REMOVED NOTE INDICATOR BAR ACROSS THE OPENING WHICH IS USED FOR TIMING THE SHUTTER.

WHEN THE PROJECTOR IS TURNED SLOWLY BY HAND OBSERVE THAT THE SHUTTER BLADE HAS BEEN NOTCHED AT THE EDGE (FIG.1,#7). THIS IS THE BLADE WHICH IS USED IN TIMING THE SHUTTER WITH THE INTERMITTENT SPROCKET.

TURN THE PROJECTOR SLOWLY BY HAND AND OBSERVE THE INTERMITTENT SPROCKET. WHEN THE SPROCKET HAS ADVANCED TWO TEETH FROM ITS STATIONARY POSITION, STOP THE PROJECTOR. THIS ALIGNMENT MUST BE DONE VERY ACCURATELY. IF THE SHUTTER IS IN TIME WITH THE INTERMITTENT, THE NOTCH ON THE SHUTTER BLADE WILL LINE UP EXACTLY WITH THE INDICATOR BAR ACROSS THE SPOT SIGHT APERTURE. IF THIS CONDITION CANNOT BE OBTAINED, THEN THE SHUTTER SHOULD BE LOOSENED FROM THE SHUTTER SHAFT AND ROTATED UNTIL THIS CONDITION IS OBTAINED, AND THE SHUTTER LOCKED IN POSITION.

HOWEVER, BEFORE LOOSENING THE SHUTTER FROM THE SHAFT BE SURE THAT THE SHUTTER TIMING ADJUSTMENT IS SET IN THE CENTER OF ITS FULL LENGTH OF TRAVEL.

WHEN ROTATING THE SHUTTER, ALWAYS HOLD THE INTERMITTENT FLYWHEEL TO PREVENT TURNING OF THE SHUTTER SHAFT AND INTERMITTENT SPROCKET. IF THE SHUTTER IS RESET, THEN THE INDICATOR KNOB ON THE SHUTTER SHAFT AT THE FRONT OF THE MECHANISM WILL HAVE TO BE RESET TO MATCH THE SHUTTER. THE RED LINE ON THE INDICATOR KNOB SHOULD LINE UP WITH THE NOTCHED SHUTTER BLADE.

AFTER TIMING THE SHUTTER AS EXPLAINED ABOVE, THE FINAL ADJUSTMENT MAY BE MADE WITH THE PROJECTOR RUNNING. ANY TRAVEL GHOST WHICH MAY BE PRESENT CAN BE ELIMINATED BY ADJUSTING THE SHUTTER ADJUSTMENT KNOB.

AN EASY AND VERY SATISFACTORY WAY OF CHECKING THE SHUTTER TIMING IS TO PROCEED AS FOLLOWS:

NOTE THAT THE HUB OF THE FLYWHEEL ON THE INTERMITTENT MOVEMENT IS SLOTTED. TURN THE PROJECTOR UNTIL THIS SLOT IS PARALLEL WITH THE SHUTTER SHAFT AT THE SAME TIME THE INTERMITTENT SPROCKET IS MOVING. SPROCKET MUST BE IN MOTION. THE SLOT IN THE FLYWHEEL HUB IS PARALLEL WITH THE SHUTTER SHAFT TWICE IN EACH REVOLUTION; ONCE WHEN THE CAM AND STARWHEEL ARE LOCKED, AND AGAIN WHEN THE SPROCKET IS MOVING. THE LATTER CASE IS THE CORRECT POSITION FOR CHECKING ADJUSTMENTS. IN THIS POSITION THE NOTCH IN THE SHUTTER BLADE SHOULD BE DIRECTLY OPPOSITE THE WIRE INDICATOR BAR IN THE SPOT SIGHT APERTURE.

OIL THE PROJECTOR:

PLACE A FEW DROPS OF OIL ON EACH GEAR DAILY. AN EXCESSIVE AMOUNT OF OIL DOES NO MORE GOOD THAN JUST ENOUGH. ANY EXCESS OF OIL WILL BE THROWN OFF THE GEARS AND WILL EVENTUALLY MAKE THE INSIDE OF THE PROJECTOR LOOK VERY DIRTY IF IT IS NOT CLEANED AWAY.

DO NOT OIL THE BALL BEARINGS

PUT A DROP OR TWO OF OIL DAILY ON THE VERTICAL SHAFT AT THE INTERMITTENT DRIVE GEAR. MOVE THE FRAMING ADJUSTMENT UP AND DOWN A FEW TIMES WHILE OILING.

THE INTERMITTENT SHOULD BE FILLED THROUGH THE OIL CUP (FIG.1,#8) ON THE OPERATING SIDE. FILL TO THE LEVEL INDICATED ON THE OIL GAUGE. FOR THE BEST IN LUBRICATION WE RECOMMEND THE USE OF CENTURY CERTIFIED PROJECTOR OIL. A LITTLE OIL GOES A LONG WAY. DO NOT USE EXCESSIVE AMOUNTS OF OIL, IT WILL ONLY OVERFLOW THROUGH THE VENT HOLE AND POSSIBLY BE FORCED OUT OF THE OIL CUP. FILL TO OIL LEVEL ONLY. TO REMOVE EXCESS OIL, OR TO DRAIN THE INTERMITTENT, REMOVE THE BOTTOM SCREW (FIG.3,#1). A CLEAN CLOTH SHOULD BE PLACED BENEATH THIS SCREW TO CATCH THE OIL AND PREVENT IT FROM RUNNING DOWN INTO THE SOUND HEAD. WHEN REPLACING THE DRAIN SCREW BE SURE THE STEEL WASHER, GASKET AND COPPER WASHERS ARE ON THE SCREW.

OIL SHOULD NOT BE ADDED TO THE INTERMITTENT WHILE THE PROJECTOR IS IN OPERATION - EXCEPT IN AN EMERGENCY. THE INTERMITTENT CAM ACTS AS A SPLASH DISTRIBUTOR SUPPLYING FRESH OIL CONSTANTLY TO THE CAM, STARWHEEL AND BEARINGS. THEREFORE, THERE MAY BE NO INDICATION OF OIL LEVEL SHOWING ON THE GAUGE WHILE THE PROJECTOR IS IN MOTION.

THE FOLLOWING OILING ROUTINE IS SUGGESTED

ONCE EACH DAY... A FEW DROPS OF CENTURY CERTIFIED OIL ON EACH GEAR AND ON THE VERTICAL SHAFT AT THE POINT OF CONTACT WITH THE INTERMITTENT DRIVE GEAR.

ONCE EACH WEEK.. CHECK OIL LEVEL IN THE INTERMITTENT.

DO NOT OIL MECHANISM WHILE IT IS IN OPERATION.

THREADING THE PROJECTOR:

OPEN THE GATE, THE UPPER AND LOWER PAD ROLLER ARMS AND THE INTERMITTENT SPROCKET PAD. THREAD THE FILM THROUGH THE FIRE TRAP IN THE UPPER MAGAZINE; UNDER THE UPPER SPROCKET; OVER THE UPPER PAD ROLLER; THROUGH THE GATE; UNDER THE INTERMITTENT SPROCKET; AROUND THE LOWER PAD ROLLER; OVER THE LOWER SPROCKET AND DOWN TO THE SOUND HEAD AS SHOWN IN (FIG.1).

LIGHT THE FRAMING LAMP BY OPERATING THE PILOT LIGHT SWITCH ON THE TOP OF THE PROJECTOR. PLACE THE FILM IN THE GATE WITH THE INTERMITTENT SPROCKET ENGAGED WITH THE FILM SO THAT IT IS IN FRAME. CLOSE THE INTERMITTENT PAD ASSEMBLY. CLOSE THE GATE. THE FILM MAY BE OBSERVED IN THE GATE THROUGH THE OBSERVATION HOLE PROVIDED IN THE GATE HOLDER TUBE.

NEXT, THE FILM IS ENGAGED WITH THE UPPER SPROCKET, CLOSE THE UPPER PAD ROLLER ARM. THE UPPER LOOP IS CORRECT AS THE PAD ROLLER IN ITS OPEN POSITION ACTS AS A LOOP SETTER.

A CHECK OF THE PROPER FRAMING MAY BE MADE BY OBSERVING THE SPROCKET HOLES BELOW THE FILM TRAP SHOES. WITH THE FRAME LINE AT THE BOTTOM OF THE TRAP SHOES, THE UPPER SIDE OF THE SPROCKET HOLE ABOVE THE FRAME LINE WILL COME EXACTLY EVEN WITH THE BOTTOM OF THE TRAP SHOE.

THE FILM IS ENGAGED WITH THE LOWER SPROCKET USING THE PAD ROLLER IN OPEN POSITION AS CORRECT LOOP SETTER. CLOSE THE LOWER PAD ROLLER.

WITH THE FILM PROPERLY THREADED THROUGH THE SOUND HEAD TO THE LOWER MAGAZINE, THE PROJECTOR IS READY TO RUN.

FRAMING:

THE FRAMING OF THE PICTURE ON THE SCREEN MAY BE CHANGED BY TURNING THE FRAMING KNOB ON THE FRONT OF THE PROJECTOR. THE DEGREE OF CLAMPING OF THE FRAMING SHAFT MAY BE CHANGED BY TIGHTENING OR LOOSENING THE SCREW (FIG.2,#21) ON THE FRAMING CLAMP.

MAINTENANCE:

OTHER THAN KEEPING THE PROJECTOR PROPERLY OILED AND CLEANED, THE MAINTENANCE OF THIS CENTURY PROJECTOR SHOULD BE MINIMUM. THERE ARE SEVERAL NEW AND IMPORTANT IMPROVEMENTS WHICH SHOULD BE NOTED, AND ADVANTAGE TAKEN OF THEM IN THE REGULAR MAINTENANCE ROUTINE. DO NOT USE BENZINE OR OTHER CLEANING FLUIDS ON THE GEARS OR SHAFTS WHERE EXCESS AMOUNTS MIGHT ENTER THE SEALED BALL BEARINGS.

PRACTICALLY ALL THE OPERATING UNITS OF THE MACHINE ARE EASILY REMOVED AND REPLACED. MOST OF THE REMOVABLE PARTS ARE LOCATED BY DOWEL PINS MAKING THE REPLACEMENT COMPARATIVELY EASY.

UNITS ARE AS FOLLOWS:

THE MAIN DRIVE SHAFT; THE VERTICAL SHAFT ASSEMBLY COMPLETE, THE SHUTTER SHAFT COMPLETE; THE FILM TRAP; THE FILM GATE; THE UPPER AND LOWER SPROCKET SHAFTS, THE UPPER AND LOWER PAD ROLLER ARMS, THE INTERMITTENT MOVEMENT AND THE INTERMITTENT SPROCKET PAD ASSEMBLY.

SPARE PARTS INCLUDING COMPLETE ASSEMBLIES OF THE ABOVE MAY BE KEPT IN THE BOOTH AT ALL TIMES AND REPLACEMENT QUICKLY MADE IN CASE OF AN EMERGENCY.

IT IS SOUND MECHANICAL PRACTICE TO PERIODICALLY CHECK OVER ANY PIECE OF MECHANICAL EQUIPMENT. MOUNTING SCREWS, HOLDING SCREWS, AND LIKE PARTS SHOULD BE CHECKED FOR TIGHTNESS. THIS IS PARTICULARLY APPLICABLE TO PARTS INSTALLED IN THE FIELD, AS DRIVE PARTS, INCLUDING MAIN DRIVE GEAR SCREWS, SOUND HEAD ADAPTER PARTS AND MOUNTING SCREWS. A REGULAR PROGRAM OF LUBRICATION, CLEANING, AND PREVENTIVE MAINTENANCE WILL PAY DIVIDENDS IN CONTINUOUS UNINTERRUPTED PERFORMANCE AND A SAVING IN PARTS REPLACEMENTS.

INSTRUCTIONS COVERING THE REMOVAL AND REPLACEMENT OF PARTS IN THE PROJECTOR:

REMOVING THE INTERMITTENT:

TAKE OFF THE FLYWHEEL OF THE INTERMITTENT ON THE DRIVING SIDE OF THE PROJECTOR BY TAKING OUT THE SCREW (FIG.2,#20) WHICH HOLDS IT, SLIP THE FLYWHEEL OFF THE CAM SHAFT. ON THE OPERATING SIDE - CLOSE THE LOWER PAD ROLLER ARM. FRAME THE INTERMITTENT CARRIAGE ALL THE WAY IN ITS DOWNWARD POSITION. OPEN THE FILM GATE. LOOSEN HOLDING SCREW (FIG.1,#2) AND REMOVE THE GATE FROM THE MECHANISM. LOOSEN THE FOUR SCREWS HOLDING THE INTERMITTENT (FIG.1,#9). TURN THE INTERMITTENT ABOUT AN EIGHTH TURN IN CLOCKWISE DIRECTION UNTIL THE CUT-OUTS IN THE INTERMITTENT COVER ARE EVEN WITH THE HOLDING SCREWS. PULL THE INTERMITTENT STRAIGHT OUT OF ITS CARRIAGE. CARE SHOULD BE TAKEN NOT TO HIT THE INTERMITTENT SPROCKET AGAINST ANYTHING WHICH WOULD DAMAGE THE TEETH.

REMOVING THE INTERMITTENT SPROCKET:

REMOVE THE INTERMITTENT MOVEMENT FROM THE PROJECTOR IN ACCORDANCE WITH THE INSTRUCTIONS GIVEN ABOVE. DRAIN THE OIL FROM THE CASE BY REMOVING THE OIL DRAIN SCREW SHOWN IN (FIG.3,#1). DO NOT ATTEMPT TO SAVE THIS OIL TO BE REPLACED IN THE MOVEMENT. ALWAYS USE CLEAN, FRESH CENTURY OIL. REMOVE THE OTHER FOUR SCREWS IN THE COVER. UNDER THE HEADS OF THESE SCREWS ARE STEEL WASHERS. UNDER THE OIL DRAIN SCREW ARE STEEL WASHER, GASKET AND COPPER WASHER. SAVE THESE WASHERS FOR REASSEMBLY.

LOOSEN THE TWO SET SCREWS (FIG.3,#2). HOLD THE CASE OF THE INTERMITTENT WITH ONE HAND AND THE COVER WITH THE OTHER HAND AND DISENGAGE THE CAM PIN FROM THE STARWHEEL SLOT BY ROTATING THE CAM SHAFT UNTIL THE SPROCKET IS IN THE LOCKED POSITION. PULL CASE AND COVER APART. EXTREME CARE MUST BE USED IN THIS OPERATION IN ORDER THAT THE STAR AND CAM ARE NOT DAMAGED.

PUSH THE TWO TAPER PINS OUT OF THE HUB OF THE SPROCKET, USING A TOOL MADE FOR THIS PURPOSE. IF SUCH A TOOL IS NOT AVAILABLE, PLACE THE HUB OF THE SPROCKET INTO A "V" BLOCK AND VERY LIGHTLY TAP OUT THE TWO PINS. THESE PINS SHOULD NEVER BE REMOVED EXCEPT IN ONE OF THE TWO WAYS INDICATED. LOOSEN THE TWO SCREWS IN THE COLLAR ON THE OUTSIDE END OF THE STARWHEEL SHAFT AND REMOVE THE COLLAR. THE STARWHEEL AND SHAFT CAN NOW BE PULLED OUT ALLOWING THE SPROCKET TO BE REMOVED. ALL THE ABOVE OPERATIONS SHOULD BE CARRIED OUT WITH EXTREME CARE. IT IS NOT NECESSARY TO USE FORCE TO REMOVE ANY OF THE UNITS.

THE INTERMITTENT HAS BEEN MANUFACTURED WITH UTMOST PRECISION. DIMENSIONAL VARIATIONS ARE HELD WITHIN TENTHS OF THOUSANDTHS OF AN INCH. FOR THIS REASON IT IS RECOMMENDED THAT ALL INTERMITTENT REPAIR WORK BE PERFORMED AT THE FACTORY WHERE THE TOOLS, GAUGES, AND TESTING EQUIPMENT FOR PRECISION WORK ARE AVAILABLE.

ADJUSTMENT OF THE CAM SHAFT THRUST BEARING:

WHILE THE INTERMITTENT IS DISASSEMBLED, THE END PLAY OF THE CAM SHAFT SHOULD BE CHECKED AND IF FOUND TO BE EXCESSIVE, IT SHOULD BE ADJUSTED. NOTE THAT AT THE END OF THE CAM SHAFT THERE IS A THRUST BEARING (FIG.3,#5). THE THRUST BEARING MAY BE TIGHTENED OR LOOSENED BY SCREWING IT IN OR OUT. IT SHOULD BE ADJUSTED SO THERE IS NO PERCEPTIBLE END PLAY IN THE CAM SHAFT AND YET NOT TIGHT ENOUGH TO CAUSE THE CAM SHAFT TO DRAG.

THE END PLAY OF THE CAM SHAFT MAY ALSO BE ADJUSTED AFTER THE MOVEMENT IS ASSEMBLED BY REMOVING THE LARGE PLUG SCREW IN THE CENTER OF THE MOVEMENT COVER. THIS WILL EXPOSE THE END OF THE THRUST BEARING (FIG.3, #5). A SCREW DRIVER SLOT IS PROVIDED IN THE END OF THIS BEARING SO THAT IT MAY BE TIGHTENED OR LOOSENED. THE SAME ADJUSTMENT WILL APPLY AS DESCRIBED ABOVE.

TO REASSEMBLE THE INTERMITTENT:

INSERT THE STARWHEEL SHAFT INTO THE BEARINGS OF THE COVER AND MAKE SURE THAT IT TURNS SMOOTHLY IN ITS OPERATING POSITION. PULL THE SHAFT ALMOST OUT OF THE INNER BEARING AND PLACE THE SPROCKET IN POSITION. PUSH THE SHAFT ALL THE WAY THROUGH UNTIL THE HOLES IN THE SHAFT LINE UP WITH THE HOLES IN THE SPROCKET. THESE ARE TAPERED HOLES SO CARE SHOULD BE TAKEN THAT THE TAPERS LINE UP PROPERLY.

BE SURE THAT THE LARGER END OF THE TAPERED HOLE THROUGH THE SHAFT IS ADJACENT TO THE LARGER TAPERED HOLE IN THE SPROCKET HUB. WITH THE HOLES MATCHED, THEY SHOULD BE REAMED WITH A TAPER PIN REAMER. FIRST REAM ONE HOLE UNTIL IT IS A SMOOTH, CONTINUOUS HOLE THROUGH SPROCKET AND STARWHEEL SHAFT. INSERT TAPER PIN IN THIS HOLE TO HOLD THE SPROCKET AND SHAFT PROPERLY TOGETHER. THEN REAM THE OTHER HOLE IN LIKE MANNER.

PUSH THE TWO PINS INTO PLACE WITH THE TOOL WHICH WAS USED TO REMOVE THEM, BUT NOT TOO TIGHT. CHECK THE SPROCKET, IT SHOULD FIT SOLID ON THE STARWHEEL SHAFT. REPLACE THE COLLAR AT THE OUTER END OF THE SHAFT. HOLD THE STARWHEEL WITH THE THUMB AND THE COLLAR WITH THE FIRST OR SECOND FINGER AND GENTLY SQUEEZE THE TWO TOGETHER. TIGHTEN THE TWO SET SCREWS IN

THE COLLAR. THE STARWHEEL AND SPROCKET SHOULD ROTATE WITHOUT BINDING AND WITH NO DRAG; AT THE SAME TIME THERE SHOULD BE NO PERCEPTIBLE END PLAY IN THE SHAFT.

REPLACE THE GASKET. A NEW GASKET IS RECOMMENDED.

HOLD THE CASE OF THE INTERMITTENT IN THE RIGHT HAND WITH THE CAM PIN IN THE DOWN POSITION (OUT OF ENGAGEMENT WITH THE STARWHEEL) AND HOLD THE COVER IN THE LEFT HAND WITH THE STARWHEEL ROTATED SO THAT THE RADIUS OF THE STAR WILL MATCH THE RADIUS OF THE CAM, WHEN THE TWO ARE PUT TOGETHER. CAREFULLY PLACE THE LOCATING HOLE OVER THE LOCATING PIN (FIG.3,#6). MOVE THE COVER SO THAT THE STARWHEEL RADIUS IS SLIGHTLY ABOVE THE CAM RING AND PUSH THE COVER AND CASE TOGETHER SLOWLY, ALL THE WAY. THEN GENTLY ROTATE THE COVER UNTIL THE STAR AND CAM MEET. REPLACE ALL THE HOLDING SCREWS. IF THE JOB HAS BEEN DONE CORRECTLY IT IS NOW POSSIBLE TO ROTATE THE CAM BY THE FLYWHEEL AND ADVANCE THE INTERMITTENT SPROCKET.

THE CASE SHOULD NOW BE FILLED TO THE PROPER OPERATING LEVEL WITH OIL BY MEANS OF THE OIL CUP PROVIDED FOR THAT PURPOSE IN THE END OF THE STARWHEEL OUTER BEARING. REVOLVE THE FLYWHEEL A NUMBER OF TIMES MAKING SURE THAT THERE ARE NO BINDS AND THAT THE CAM PIN ENTERS AND LEAVES THE STARWHEEL SLOTS SATISFACTORILY. DO NOT FORCE THE CAM PIN INTO THE STARWHEEL BY TURNING THE FLYWHEEL. WITH THE CAM AND STARWHEEL IN THE LOCKED POSITION, CHECK FOR ANY LOOSENESS BETWEEN STAR AND CAM. TO DO THIS, HOLD THE FLYWHEEL (TO PREVENT MOVEMENT OF THE CAM) AND CHECK FOR PLAY OR LOOSENESS. IF PLAY IS PRESENT, BE SURE FIRST THAT IT IS NOT DUE TO A LOOSE SPROCKET. IF ADJUSTMENT IS REQUIRED LIGHTLY LOOSEN THE SCREWS AROUND THE COVER, THEN ADJUST BY MEANS OF THE TWO SET SCREWS (FIG.3,#2). LOOSEN THE UPPER SCREW AND TIGHTEN THE LOWER SCREW TO REMOVE PLAY BETWEEN THE STARWHEEL AND CAM. REVERSE THE PROCEDURE TO PROVIDE CLEARANCE BETWEEN STARWHEEL AND CAM. THIS OPERATION IS MOST DELICATE, AND SHOULD NOT BE PERFORMED WHILE THE MOVEMENT IS IN THE PROJECTOR.

WHEN EVERYTHING HAS BEEN CHECKED AND THE INTERMITTENT IS IN GOOD RUNNING CONDITION, IT MAY BE REPLACED IN THE PROJECTOR. IT HAS BEEN FOUND DESIRABLE TO "RUN-IN" THE INTERMITTENT FOR A LITTLE WHILE AFTER CHANGING THE SPROCKET OR STARWHEEL BY MOUNTING THE INTERMITTENT IN A SPECIAL "RUNNING-IN" FIXTURE AND RUNNING IT AT NORMAL SPEED WITH A BELT DRIVE TO THE FLYWHEEL.

REMOVING AND ADJUSTING THE FILM TRAP:

REMOVE THE HEAT SHIELD BY TAKING OUT THE TWO SCREWS JUST ABOVE AND IN BACK OF THE FILM TRAP. TAKE OUT THE THREE SCREWS HOLDING THE FILM TRAP. ONE OF THESE WILL BE EXPOSED WHEN THE HEAT SHIELD IS REMOVED. THE FILM TRAP CAN NOW BE REMOVED BY PULLING IT STRAIGHT OUT.

NOTE THAT THERE ARE TWO GUIDING PINS WHICH KEEP THE FILM TRAP ACCURATELY IN LINE AND AT RIGHT ANGLES TO THE OPTICAL CENTER LINE. THESE PINS HOLD THE TRAP IN VERTICAL ALIGNMENT WHEN IT IS MOVED BACKWARD AND FORWARD FOR ADJUSTING THE FILM TRAP SHOES TO ITS PROPER RELATION TO THE INTERMITTENT SPROCKET. THE FILM TRAP IS SET AT THE FACTORY AND WILL NOT REQUIRE ADJUSTMENT UNLESS THE TRAP IS REMOVED TO RENEW THE SHOES OR THE STUDIO GUIDES.

IF SHOES OR STUDIO GUIDES ARE REPLACED OR REVERSED THEY SHOULD BE RE-ALIGNED WITH THE INTERMITTENT SPROCKET. TO LINE UP THE SHOES, LOOSEN THE THREE SCREWS HOLDING THE FILM TRAP. MAKE TWO THICKNESSES OF FILM AROUND THE INTERMITTENT SPROCKET. PLACE A STRAIGHT EDGE AGAINST THE FACE OF THE SHOES AND LET IT EXTEND DOWN TO THE SPROCKET. HOLDING THE STRAIGHT EDGE, MOVE THE FILM TRAP FORWARD OR BACKWARD UNTIL THE STRAIGHT EDGE COMES INTO CONTACT WITH THE FILM AROUND THE SPROCKET. TIGHTEN THE FILM TRAP HOLDING SCREWS.

REPLACE OR REVERSE THE FILM TRAP SHOES OR STUDIO GUIDES:

REMOVE THE FILM TRAP. TAKE OUT THE FOUR SCREWS HOLDING THE STUDIO GUIDES. THIS WILL ALLOW THE STUDIO GUIDES AND THE FILM TRAP SHOES TO BE REMOVED. THE FILM TRAP SHOES AND STUDIO GUIDES MAY BE REVERSED FROM RIGHT TO LEFT PROVIDING TWICE NORMAL SERVICE.

THE STUDIO GUIDES SHOULD BE POSITIONED CORRECTLY BY USING THE CI-E-30 FILM GUIDE GAUGE. THE GUIDE ON THE SOUNDTRACK SIDE OF THE FILM MUST BE IN LINE WITH THE FIXED SIDE OF THE UPPER GUIDE ROLLER. THE INSIDE UPPER GUIDE ROLLER MUST HAVE SUFFICIENT CLEARANCE AS NOT TO TOUCH THE EDGE OF THE FILM. WITH THE USE OF THE CI-E-30 GAUGE THE GUIDES ARE ALIGNED IN PLACE BY MAKING CONTACT WITH THE OUTER SIDES OF THE GAUGE, THUS ALLOWING PROPER CLEARANCE FOR THE PASSAGE OF THE FILM.

AFTER THE CHANGES HAVE BEEN MADE, THE FILM TRAP SHOULD BE REPLACED AND ADJUSTED AS INSTRUCTED UNDER "REMOVING AND ADJUSTING THE FILM TRAP".

TO REMOVE AND REPLACE THE GATE KNOB ASSEMBLY:

LOOSEN THE TWO SET SCREWS, ONE ABOVE AND ONE BELOW THE KNOB ASSEMBLY ON THE LENS TUBE AND GATE MOUNTING. PULL THE GATE KNOB STRAIGHT OUT.

THE NEW GATE KNOB SHOULD BE TURNED IN ITS HUB TO THE RIGHT, UNTIL IT LOCKS IN THE FIRST STOP. THE GATE TUBE SHOULD BE MOVED TO ITS "GATE OPEN" POSITION. THE KNOB ASSEMBLY SHOULD THEN BE INSERTED INTO ITS HOLDER WITH THE OIL HOLE UP, SO THAT THE GATE TUBE AND THE RECESSES IN THE GATE KNOB HUB COINCIDE WITH THE HOLDING SET SCREWS. TIGHTEN THE HOLDING SET SCREWS ABOVE AND BELOW THE KNOB ASSEMBLY.

TO REPLACE THE GATE KNOB SPRING:

REMOVE THE GATE KNOB ASSEMBLY.

REMOVE THE SCREW AT THE CENTER OF THE GATE KNOB. PULL THE KNOB STRAIGHT OFF. REMOVE THE OLD SPRING.

INSERT NEW SPRING SO THAT THE INNER END ENGAGES IN THE HOLE AT THE BOTTOM OF THE RECESS IN THE GATE KNOB HOLDER.

THE GATE KNOB SHAFT SHOULD BE SEATED IN THE FULL OPEN POSITION DETENT. HOLD THE KNOB OVER THE END OF THE SHAFT SO THAT THE SLOT IN THE KNOB IS AT 90 DEGREES TO THE KEY ON THE SHAFT. ENGAGE THE END OF THE SPRING IN THE NEAREST HOLE IN THE KNOB. PLACE THE KNOB ON THE SHAFT AND ROTATE THE KNOB ONE-QUARTER TURN CLOCKWISE UNTIL THE KEY AND SLOT LINE UP, THEN PUSH THE KNOB FIRMLY ONTO THE SHAFT. REPLACE THE SCREW AT THE CENTER OF THE KNOB. NOW, GRASPING THE HOLDER, TURN THE KNOB ONE FULL TURN TO THE RIGHT, RE-ENGAGING THE LOCK IN THE FULL OPEN POSITION. THIS APPLIES THE CORRECT OPERATING TENSION TO THE SPRING.

IF LESS KNOB TENSION IS DESIRED, PROCEED AS ABOVE EXCEPT WHEN ENGAGING SPRING AND KNOB, HOLD THE SLOT IN THE KNOB PARALLEL TO THE KEY ON THE SHAFT, AND ENGAGE SLOT AND KEY WITHOUT TURNING KNOB AT THE STAGE.

WITH THE GATE OPEN, REPLACE THE ASSEMBLY IN THE PROJECTOR AS INSTRUCTED "REMOVING AND REPLACING THE GATE KNOB ASSEMBLY".

REPLACING THE FILM GATE PADS

REMOVE THE GATE. REMOVE SCREWS HOLDING FILM PADS. INSTALL NEW PADS IN SAME POSITION AS OLD PADS. NOTE THAT UPPER END OF INNER PAD IS RECESSED FOR CLEARANCE OF THE LATERAL GUIDE ROLLER. AFTER PADS ARE REPLACED THEY SHOULD BE INSPECTED FOR PROPER IN AND OUT MOVEMENT AGAINST THE SPRINGS.

TO REPLACE THE PILOT LIGHT:

UNSCREW THE PILOT LIGHT SHIELD SHOWN IN (FIG.1,#11) AND REMOVE IT. UNSCREW THE PILOT LIGHT FROM ITS SOCKET AND REPLACE IT WITH A 7 WATT 110 VOLT C-7 G.E.CANDELABRA BASE MAZDA LAMP.

REMOVING THE SHUTTER GUARDS:

THE SHUTTER GUARD ON THE DRIVING SIDE OF THE PROJECTOR IS REMOVED BY TAKING OUT TWO SCREWS (FIG.2,#10) WHICH HOLD IT TO THE FIXED SHUTTER GUARD. ONE OF THESE SCREWS IS AT THE TOP OF THE GUARD AND THE OTHER IS AT THE BOTTOM.

THE FIXED SHUTTER GUARD ON THE OPERATING SIDE OF THE PROJECTOR IS REMOVED BY TAKING OUT THE TWO HOLDING SCREWS (FIG.2,#11) ON THE DRIVING SIDE, AND ONE HOLDING SCREW (FIG.1,#12) ON THE OPERATING SIDE.

TO REMOVE THE UPPER OR LOWER SPROCKET:

OPEN THE PAD ROLLER ARM. TAKE OUT THE SCREW (FIG.1,#13) AT THE CENTER OF THE SPROCKET HUB AND PULL THE SPROCKET OFF THE SHAFT. NOTE THAT THE SCREW HOLDING THE SPROCKET GOES ALL THE WAY THROUGH THE SPROCKET AND CLAMPS THE SPROCKET TO THE SHAFT. THIS FEATURE PREVENTS THE SHAFT FROM BENDING UNDER THE STRAIN OF A SET SCREW.

BOTH THE UPPER AND LOWER SPROCKETS ARE REVERSIBLE.

TO INSTALL A NEW UPPER OR LOWER SPROCKET:

THE SPROCKET SHAFT DRIVE GEAR SHOULD BE HELD FIRMLY AGAINST ITS BEARING, THE NEW SPROCKET PLACED ON THE SHAFT TIGHTLY AGAINST ITS BEARING. THIS WILL TAKE OUT ALL END PLAY. THE SPROCKET HOLDING SCREW CAN NOW BE TIGHTENED.

TO TAKE OUT THE APERTURE PLATE:

PULL OUT THE APERTURE RETAINING PLATE SHOWN IN (FIG.1,#14) WHICH IS BEHIND THE APERTURE PLATE. THIS FREES THE APERTURE PLATE SO THAT IT CAN MOVE A LITTLE TOWARD THE REAR AND THEN IT CAN BE PULLED DIRECTLY OUT OF ITS HOLDER.

IT WILL BE NOTED THAT THE APERTURE PLATE IS HELD IN POSITION BY ITS SPECIALLY DESIGNED SHAPE. THE FOUR CORNERS ARE CAREFULLY FITTED INTO THE FILM TRAP AND KEEP THE APERTURE PLATE ACCURATELY LOCATED.

SETTING THE HEIGHT OF THE FIRE SHUTTER:

AT THE TOP OF THE GOVERNOR WHICH IS ON THE VERTICAL SHAFT THERE IS A SET SCREW (FIG.2,#12) WHICH LOCKS THE GOVERNOR TO THE SHAFT. LOOSEN THIS SCREW AND THE GOVERNOR MAY BE RAISED OR LOWERED; THIS WILL RAISE OR LOWER THE FIRE SHUTTER. WHEN THE PROPER SHUTTER HEIGHT IS OBTAINED THE SET SCREW SHOULD BE FIRMLY TIGHTENED. THE HEIGHT OF THE SHUTTER SHOULD BE ADJUSTED SO THAT IT DOES NOT COME INTO THE LIGHT BEAM WITH THE PROJECTOR RUNNING AND YET NOT HIGH ENOUGH TO TOUCH THE TOP OF THE HEAT SHIELD.

TO CLEAN THE THREADING REFLECTOR:

TAKE OUT THE HEAT SHIELD AND WIPE THE THREADING REFLECTOR WITH A SOFT CLOTH. IF THE REFLECTOR IS VERY DIRTY IT SHOULD BE POLISHED WITH A GOOD METAL POLISH.

TO REMOVE AND REPLACE THE UPPER PAD ROLLER ARM ASSEMBLY:

LOOSEN THE RETAINING SCREW (FIG.1,#15) BY INSERTING SCREW DRIVER THROUGH THE HOLE (FIG.1,#16) IN FRONT OF THE PROJECTOR. NOW PULL THE COMPLETE ASSEMBLY OUT, ROTATING THE ARM SO THE ROLLERS DO NOT STRIKE THE SPROCKET TEETH.

TO REPLACE THE PAD ROLLER ARM ASSEMBLY, INSERT THE PAD ROLLER ARM STUD INTO ITS HOLE IN THE MAIN FRAME. SET THE ARM IN ITS CLOSED POSITION AGAINST THE SPROCKET. LOOSEN THE ADJUSTING SCREW (FIG.1,#5) BACKING IT OUT SO IT DOES NOT MAKE CONTACT WITH ITS STOP. ROTATE THE ARM INTO FIRM CONTACT WITH THE SPROCKET BY MEANS OF THE STUD KNOB (FIG.1,#17). NOW TIGHTEN SCREW (FIG.1,#15). THE ADJUSTING SCREW (FIG.1,#5) SHOULD BE THREADED DOWN UNTIL IT MAKES CONTACT WITH ITS STOP. PLACE TWO THICKNESSES OF FILM BETWEEN THE SPROCKET AND THE PAD ROLLER. ADJUST THE ADJUSTING SCREW UNTIL THE PAD ROLLER HOLDS THE FILM LIGHTLY IN PLACE. LOCK THE ADJUSTING SCREW WITH ITS LOCK NUT.

TO REMOVE AND REPLACE THE LOWER PAD ROLLER ARM ASSEMBLY:

THE PROCEDURE IS THE SAME AS WITH THE UPPER PAD ROLLER ARM EXCEPT THE SCREW DRIVER IS INSERTED THROUGH A LOWER HOLE (FIG.1,#10) IN THE FRONT OF THE PROJECTOR CASE TO LOOSEN SET SCREW (FIG.1,#19) HOLDING THE ARM IN ITS MOUNTING.

INSTALLATION OF THE LOWER PAD ROLLER ASSEMBLY IS MADE IN THE SAME MANNER AS THE UPPER PAD ROLLER ARM ASSEMBLY, AS EXPLAINED ABOVE.

REMOVING AND REPLACING THE UPPER OR LOWER PAD ROLLERS:

REMOVE THE PAD ROLLER ARM ASSEMBLY AS INSTRUCTED ABOVE. LOOSEN THE RETAINING SCREW IN THE PAD ROLLER ARM AND PULL THE SHAFT AND ROLLER STRAIGHT OUT OF THE ARM. WHEN THE ROLLER IS REPLACED, THE SHAFT SHOULD BE ADJUSTED SO THAT THE ROLLER TURNS FREELY AND HAS A LITTLE END PLAY.

TO REMOVE AND REPLACE THE INTERMITTENT PAD SHOE ASSEMBLY:

LOOSEN THE SET SCREW HOLDING THE COMPLETE ASSEMBLY. THE ASSEMBLY CAN NOW BE PULLED OUT. ROTATE THE ASSEMBLY WHEN REMOVING TO CLEAR THE SPROCKET TEETH.

TO INSTALL A NEW PAD ASSEMBLY:

PUSH THE ARM FIRMLY INTO ITS HOLDING HOLE (FIG.1,#20). NOTE ASSEMBLY SHOULD BE IN CLOSED POSITION WHEN INSTALLING. ROTATE THE ASSEMBLY UNTIL THE SHOES JUST MAKE CONTACT WITH THE INTERMITTENT SPROCKET. IN THIS POSITION TIGHTEN THE HOLDING SCREW SECURELY.

REMOVING AND REPLACING THE SHUTTER SHAFT COMPLETE: (MODEL "C")

OPEN THE DRIVING SIDE DOOR AND LOOSEN THE SCREW (FIG.2,#13) HOLDING THE SHUTTER KNOB. THE KNOB WILL THEN SLIP OFF THE END OF THE SHUTTER SHAFT. TAKE OFF THE DRIVING SIDE SHUTTER GUARD. TAKE OUT THE FOUR SCREWS HOLDING THE REAR BEARING BRACKET OF THE SHUTTER SHAFT (FIG.2,#14). TAKE OUT THE TWO SCREWS HOLDING THE FRONT BEARING BRACKET OF THE SHUTTER SHAFT (FIG.2,#15). THIS BRACKET IS LOCATED BY MEANS OF PINS. HOLDING THE SHUTTER SHAFT IN BOTH HANDS, DISENGAGE FROM THE DOWEL PINS AND REMOVE THE SHUTTER SHAFT COMPLETE INCLUDING THE SHUTTER.

TO REPLACE THE SHUTTER SHAFT REVERSE THE ABOVE PROCEDURE.

THE TWO SCREWS (FIG.2,#15) IN THE FRONT BEARING BRACKET ARE TIGHTENED FIRST. IT WILL BE NOTED THAT THE BALL BEARINGS ARE SELF ALIGNING. BEFORE TIGHTENING THE FOUR SCREWS (FIG.2,#14) IN THE REAR BEARING BRACKET THE GEAR MESH SHOULD BE ADJUSTED BETWEEN THE SHUTTER SHAFT GEAR AND THE DRIVING GEAR ON THE VERTICAL SHAFT. THESE TWO GEARS SHOULD BE MESHED CLOSE ENOUGH TO PREVENT AN EXCESSIVE AMOUNT OF BACKLASH BUT NOT SUFFICIENTLY CLOSE TO CAUSE DRAG.

REMOVING AND REPLACING THE VERTICAL SHAFT COMPLETE:

REMOVE THE SHUTTER SHAFT COMPLETE AS EXPLAINED ABOVE. REMOVE THE INTERMITTENT MOVEMENT. SEE "REMOVING THE INTERMITTENT". TAKE OUT THE TWO SCREWS IN THE UPPER BEARING BRACKET (FIG.2,#16). TAKE OUT THE TWO SCREWS IN THE LOWER BEARING BRACKET (FIG.2,#17). TAKE OUT THE TWO BOLTS IN THE INTERMITTENT DRIVE GEAR BRACKET (FIG.2,#18). DISENGAGE THIS BRACKET FROM ITS HOLDER. THE UPPER AND LOWER BEARING BRACKETS ARE LOCATED IN POSITION BY THEIR DOWEL PINS. HOLDING THE VERTICAL SHAFT WITH BOTH HANDS, DISENGAGE THE BRACKETS FROM THE DOWEL PINS AND REMOVE THE VERTICAL SHAFT.

TO PUT IN A NEW VERTICAL SHAFT, REVERSE THE ABOVE PROCEDURE.

BEFORE TIGHTENING ALL SCREWS AND BOLTS, MESH GEARS WITH MINIMUM BACKLASH - FREE OF DRAG.

REMOVING AND REPLACING THE MAIN DRIVE SHAFT AND GEAR:

REFER TO FIG.2. REMOVE THE TWO SET SCREWS #4 IN THE MAIN DRIVE GEAR. THIS WILL ALLOW THE REMOVAL OF THE MAIN DRIVE SHAFT #1, BY PULLING IT STRAIGHT OUT. THE MAIN DRIVE GEAR #2, CAN NOW BE REMOVED FROM THE PROJECTOR.

TO INSTALL THE MAIN DRIVE SHAFT AND GEAR, PROCEED AS FOLLOWS: REMOVE INNER BALL BEARING RETAINER BY LOOSENING THE RETAINER HOLDING SCREW (FIG.1,#22) ON THE OPERATING SIDE AND PUSHING THE RETAINER OUT (FIG.1,#21). THE HOLDING SCREW IS ACCESSIBLE THROUGH A HOLE IN THE FRONT OF THE PROJECTOR.

AT THE DRIVING SIDE, INSERT THE OUTER BALL BEARING AND THE THREE BEARING RETAINER SCREWS. INSERT THE MAIN DRIVE SLEEVE THROUGH THE OUTER BEARING. ON THE SLEEVE PUT A STEEL WASHER, THEN A FIBRE WASHER, THEN THE MAIN DRIVE GEAR, HUB INWARD. NOW PUSH THE SLEEVE ALL THE WAY IN, BRING THE GEAR TO ITS PROPER POSITION AND PUT IN THE GEAR HOLDING SCREWS.

FROM THE OPERATING SIDE PLACE ON THE SLEEVE FIRST A FIBRE WASHER, THEN A STEEL WASHER, THEN THE INNER BALL BEARING. PUSH THE BEARING ALL THE WAY IN, INSERT THE RETAINER. FIRMLY SEAT THE RETAINER, REMOVE ALL END PLAY FROM THE DRIVING ASSEMBLY. TIGHTEN THE RETAINER HOLDING SCREW.

REMOVING THE FILM GATE SUPPORT AND LENS HOLDER:

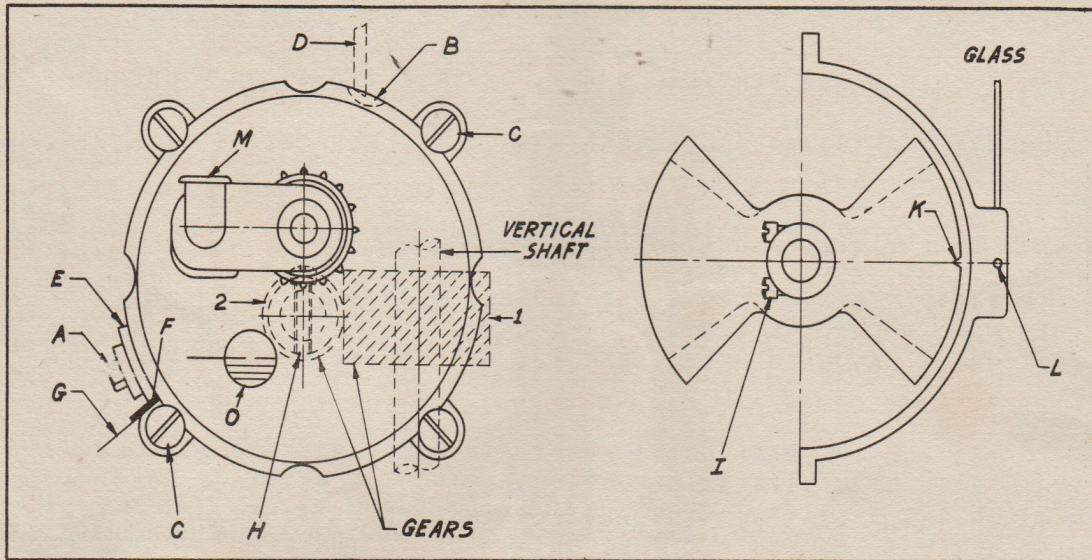
TAKE THE LENS OUT OF THE HOLDER. BY MEANS OF THE FOCUSING KNOB MOVE THE LENS CLAMP ALL THE WAY FORWARD. REMOVE THE FOCUSING KNOB BY REMOVING THE SCREW WHICH HOLDS IT AND PULL THE KNOB STRAIGHT OFF THE FOCUSING SHAFT. CLOSE THE GATE. TAKE OUT THE TWO SCREWS WHICH WILL BE EXPOSED ON THE BACK SIDE OF THE HOLDER. OPEN THE GATE. THE HOLDER MAY NOW BE REMOVED FROM THE PROJECTOR.

TO REPLACE THE HOLDER IN POSITION, REVERSE THE ABOVE OPERATION. BEFORE TIGHTENING SCREWS THE GATE SHOULD BE IN CLOSED POSITION. THE LENS HOLDER AND FILM GATE ASSEMBLY IS LOCATED BY MEANS OF DOWEL PINS. ADJUST THE FILM GATE SUPPORT ASSEMBLY TO ALLOW A CLEARANCE OF APPROXIMATELY ONE THICKNESS OF FILM (.006") BETWEEN THE FACE OF THE GATE AND THE FACE OF THE STUDIO GUIDES.

INSTRUCTIONS FOR INSTALLING CENTURY INTERMITTENT MOVEMENT

SET THE SHUTTER ADJUSTMENT MID-WAY OF ITS FULL TRAVEL, OPEN THE FILM GATE AND REMOVE. MOVE THE INTERMITTENT CARRIAGE TO ITS DOWN POSITION. REMOVE THE FLYWHEEL OF THE NEW MOVEMENT BY TAKING OUT THE HOLDING SCREW AND SLIPPING IT OFF THE CAM SHAFT. LOOSEN THE INTERMITTENT STOP SCREW (A).

REMOVE THE RED GLASS FROM THE SPOT SIGHT APERTURE. ROTATE THE MECHANISM BY HAND UNTIL THE NOTCH IN THE SHUTTER BLADE IS EVEN WITH THE BOTTOM OF THE SPOT SIGHT APERTURE.



HOLD THE MOVEMENT AND ROTATE THE GEAR ON THE CAM SHAFT UNTIL THE SPROCKET ADVANCES EXACTLY TWO TEETH. BE CAREFUL NOT TO MOVE THE GEAR FROM THIS POSITION.

INSERT INTERMITTENT WITH CUT OUTS (B) MATCHING THE LOCKING SCREWS (C) AND LOWER END OF THE FILM TRAP SHOE (D). TURN THE MOVEMENT COUNTER CLOCKWISE SO THAT THE INTERMITTENT GEAR (2) MESHES WITH ITS DRIVING GEAR (1) ON THE VERTICAL SHAFT. CONTINUE TURNING THE MOVEMENT UNTIL THESE TWO GEARS PRESS TOGETHER WITH NO BACKLASH OR PLAY. TIGHTEN ANY TWO OPPOSITE SCREWS (C). PUSH THE STOP PLATE (E) TIGHT AGAINST THE STOP (F) AND TIGHTEN SCREW (A). NOW LOOSEN THE TWO (C) SCREWS WHICH WERE PREVIOUSLY TIGHTENED AND TURN THE MOVEMENT CLOCKWISE UNTIL THERE IS A SPACE OF $\frac{3}{64}$ (.046) OF AN INCH BETWEEN STOP PLATE (E) AND ITS STOP (F). HOLD THE MOVEMENT IN THIS POSITION OR INSERT A $\frac{3}{64}$ INCH SPACER BETWEEN STOP PLATE (E) AND ITS STOP (F) AND TIGHTEN ALL FOUR SCREWS.

LOOSEN SCREW (A), PUSH STOP PLATE (E) TIGHT AGAINST ITS STOP (F) AND TIGHTEN SCREW (A). REPLACE THE FLYWHEEL ON THE CAM SHAFT. A SLIGHT AMOUNT OF BACKLASH SHOULD NOW BE PRESENT BETWEEN GEARS (2) AND (1). OIL MOVEMENT THROUGH OIL CUP (M) UNTIL OIL IS LEVEL WITH RED LINE (O). ALWAYS CHECK OIL LEVEL BEFORE RUNNING. PLACE A FEW DROPS OF OIL ON GEARS (1) AND (2). CHECK THE TIMING OF THE SHUTTER. LOOSEN SHUTTER HUB SCREWS (I) SO THAT SHUTTER TURNS ON SHAFT. TURN THE PROJECTOR BY HAND SO THAT FLYWHEEL SCREW (H) IS IN LINE WITH THE VERTICAL SHAFT, LINE UP NOTCHES (K) WITH WIRE (L) BEING CAREFUL NOT TO SHIFT PROJECTOR GEARS, TIGHTEN SCREWS (I), REPLACE GUARD.

IF SLIGHT TRAVEL GHOST IS PRESENT WITH PROJECTION OF PICTURE, IT MAY BE REMOVED BY TURNING SHUTTER ADJUSTING KNOB RIGHT OR LEFT.

INSTALLATION ASSEMBLY AND OPERATING INSTRUCTIONS
FOR THE SHUTTER SHAFT, GEARS AND BRACKET UNIT
OF THE CENTURY MODEL CC DOUBLE SHUTTER MECHANISM

TIMING AND RESETTING OF THE SHUTTERS (MODEL CC):

EACH CENTURY PROJECTOR HAS BEEN TIMED AND PROJECTION-TESTED BEFORE SHIPPING. SHOULD IT BE DESIRED TO CHECK TIMING OR TO RESET SHUTTERS, PROCEED AS FOLLOWS:

TO CHECK TIMING OF THE SHUTTERS:

REMOVE THE SPOT SIGHT GLASS IN THE FIXED SHUTTER GUARD BY PRESSING LIGHTLY INWARD AND UPWARD.

NOTE THAT THE HUB OF THE INTERMITTENT FLYWHEEL IS SLOTTED. TURN THE PROJECTOR UNTIL THIS SLOT IS PARALLEL WITH THE SHUTTER SHAFT AT THE SAME TIME THE INTERMITTENT SPROCKET IS MOVING. SPROCKET MUST BE IN MOTION. THE SLOT IN THE FLYWHEEL HUB IS PARALLEL WITH THE SHUTTER SHAFT TWICE IN EACH REVOLUTION, ONCE WHEN THE CAM AND STARWHEEL ARE LOCKED, AND AGAIN WHEN THE SPROCKET IS MOVING. THE LATTER CASE IS THE CORRECT POSITION FOR CHECKING ADJUSTMENTS AND CORRESPONDS TO A TWO TOOTH ADVANCE OF THE INTERMITTENT SPROCKET. IN THIS POSITION THE NOTCHES IN THE SHUTTER BLADES SHOULD LINE UP EXACTLY WITH EACH OTHER AND WITH THE INDICATOR ACROSS THE SPOT SIGHT APERTURE.

IF THE NOTCHES DO NOT LINE UP AS REQUIRED, TRY ADJUSTING BY MEANS OF THE SHUTTER TIMING KNOB ON THE FRONT OF THE PROJECTOR. WHEN ADJUSTMENT IS MADE BY MEANS OF THE KNOB, THE INTERMITTENT FLYWHEEL MUST REMAIN STATIONARY. IF PROPER ADJUSTMENT CANNOT BE MADE BY MEANS OF THE KNOB - PROCEED AS FOLLOWS:

FOR RESETTING SHUTTERS

SET THE SHUTTER TIMING KNOB ON THE FRONT OF THE MACHINE SO THAT THE SHUTTER TIMING ADJUSTMENT IS AT ITS MID POINT. REMOVE SHUTTER GUARD ON THE GEAR SIDE OF THE PROJECTOR BY TAKING OUT THE TWO SCREWS (FIG.2,#10). MAKE CERTAIN THAT THE INTERMITTENT SPROCKET IS ADVANCED TWO TEETH FROM ITS STATIONARY POSITION OR THE SLOT IN THE INTERMITTENT FLYWHEEL HUB IS PARALLEL WITH THE SHUTTER SHAFT AS EXPLAINED ABOVE, AND REMAINS THERE. LOOSEN SHUTTER HUB CLAMP SCREWS AND ROTATE SHUTTERS ON SHAFT UNTIL NOTCHES LINE UP AS REQUIRED. DO NOT TURN SHAFTS. HOLDING INTERMITTENT FLYWHEEL WHILE ROTATING SHUTTERS WILL PREVENT SHAFT MOVEMENT. TIGHTEN SHUTTER HUB CLAMP SCREWS. REPLACE GUARD. CHECK NOTCH ALIGNMENT AND REPLACE SPOT SIGHT GLASS. ANY TRAVEL GHOST WHICH MAY BE PRESENT AFTER FINAL ADJUSTMENT CAN BE ELIMINATED BY ADJUSTING THE SHUTTER ADJUSTMENT KNOB.

REMOVING AND REPLACING THE COMPLETE SHUTTER SHAFT ASSEMBLY:

LOOSEN SCREW (FIG.2,#13) AND REMOVE INDICATOR KNOB.

REMOVE SHUTTER GUARD ON THE GEAR SIDE.

REMOVE THE FOUR SCREWS (FIG.2,#14) WHICH HOLD THE REAR BEARING BRACKET OF THE SHUTTER SHAFT.

REMOVE THE TWO SCREWS (FIG.2,#15) WHICH HOLD THE FRONT BEARING BRACKET OF THE SHUTTER SHAFT.

TAKE THE FRONT BEARING BRACKET IN THE LEFT HAND AND THE REAR BEARING BRACKET IN THE RIGHT HAND. SLIDE THE REAR BEARING BRACKET BACK ALONG THE SHAFT UNTIL THE BRACKET IS CLEAR OF THE LOCATING DOWEL AND REMOVE THE SHUTTER SHAFT ASSEMBLY COMPLETE. THE FRONT BEARING BRACKET MAY BE SLIPPED FORWARD ON THE SHAFT TO CLEAR THE SHUTTER TIMING FLEXIBLE SHAFT.

REVERSE THE FOREGOING PROCEDURE TO REPLACE THE ASSEMBLY.

THE TWO SCREWS HOLDING THE FRONT BEARING BRACKET ARE TIGHTENED FIRST. BEFORE TIGHTENING THE REAR BEARING BRACKET SCREWS, THE MESH BETWEEN THE DOUBLE SHUTTER DRIVING GEAR ON THE VERTICAL SHAFT AND THE TWO DRIVEN SHUTTER GEARS SHOULD BE ADJUSTED TO PROVIDE JUST ENOUGH BACKLASH TO PREVENT DRAG. ALL SCREWS SHOULD BE WELL TIGHTENED BEFORE MECHANISM GOES INTO SERVICE.

WHEN INSTALLATION IS COMPLETED, CHECK SHUTTER-TIMING.

MAINTENANCE:

ADD A DROP OR TWO OF OIL IN OIL CUP ONCE EACH DAY. OTHERWISE NO ADDITIONAL LUBRICATION IS REQUIRED.

KEROSENE SHOULD NOT BE USED FOR CLEANING CENTURY PROJECTOR BEARINGS. CENTURY OIL MAY BE USED FOR CLEANING PURPOSES. HOWEVER, BALL BEARINGS SHOULD NOT BE SOAKED IN OIL OR CLEANING PREPARATIONS.

ASSEMBLY OF DOUBLE SHUTTER INTERMEDIATE GEAR BRACKET ASSEMBLY: (REFER TO ILLUSTRATION PAGE 19)

DETAILED ASSEMBLY OF FRONT SECTION OF THE DOUBLE SHUTTER BRACKET

INSERT MEDIUM BALL BEARING (No. 2) IN UPPER SECTION OF BRACKET; TIGHTEN CONE POINT RETAINING SCREWS.

INSTALL OIL CUP. (No. 1)

PARTIALLY ASSEMBLE THE STEPPED SHAFT, (No. 3) PLACING PARTS ON THE SMALLER SECTION OF THE SHAFT IN THE FOLLOWING ORDER, STARTING FROM THE SHOULDER; ONE STEEL WASHER, ONE FIBRE WASHER, ONE STEEL WASHER, ONE SMALL BALL BEARING, (No. 4), ONE STEEL WASHER, ONE FIBRE WASHER AND THE COLLAR (No. 5). FASTEN COLLAR TO SHAFT WITH SCREW. INSERT SPRING (No. 6) IN COLLAR AND PLACE STEEL WASHER ON SHAFT.

INSERT THE OTHER SMALL BALL BEARING (No. 7) IN THE BRACKET (No. 8) TOWARD THE FLANGED END. INSERT THE ASSEMBLED SHAFT, SMALL END FIRST, THROUGH THE LATTER BEARING, PLACING THE FORMICA GEAR (No. 9) SO SHAFT WILL ENTER GEAR AFTER PASSING THROUGH BEARING. HUB OF GEAR SHOULD BE TOWARD BEARING. FASTEN SHAFT ASSEMBLY IN PLACE WITH ITS THREE BEARING RETAINER SCREWS (No. 17). FASTEN FORMICA GEAR TO SHAFT WITH ITS SCREW (No. 10).

IMPORTANT - BECAUSE OF VARIATIONS IN BRACKET CASTINGS, IT IS POSSIBLE THAT THE HEAD OF SCREW (No. 10) FASTENING THE FORMICA GEAR WILL NOT CLEAR THE CASTING. AT THIS POINT ROTATE THE SHAFT, AND IF NECESSARY, GRIND SLIGHT CLEARANCE ALLOWANCE OFF HEAD OF THIS SCREW TO REMOVE INTERFERENCE.

PLACE REVERSE SHUTTER DRIVE GEAR (No. 11) ON LARGE DIAMETER OF SHAFT, HUB OUTWARD, AND FASTEN WITH ITS SCREW.

DETAILED ASSEMBLY OF REAR SECTION OF DOUBLE SHUTTER BRACKET

INSERT MATCHED PAIR OF LARGE BALL BEARINGS (No. 12) IN BRACKET (No. 13) WITH UNSHIELDED FACES OF BEARINGS ADJACENT. FASTEN WITH THE FOUR BEARING RETAINING SCREWS. EXTREME CARE MUST BE TAKEN THAT THESE BEARINGS ARE KEPT ABSOLUTELY CLEAN. THEY SHOULD NOT BE SEPARATED EXCEPT UNDER CONDITIONS WHICH GUARANTEE AGAINST DIRT OR DUST ENTERING THE GREASE.

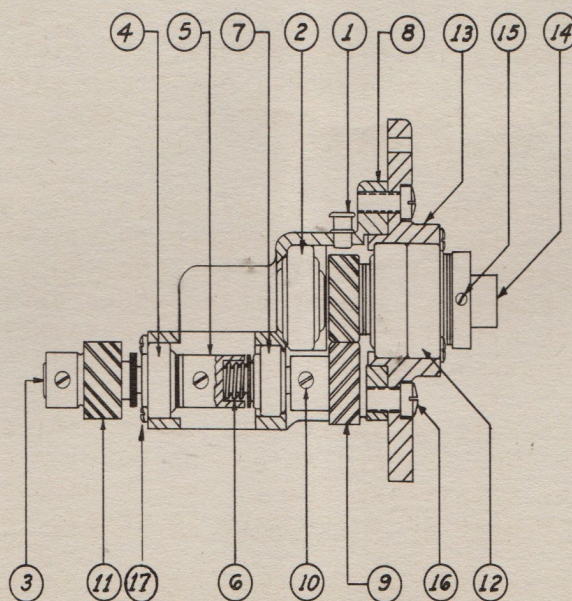
PLACE ON SLEEVE OF STEEL GEAR (No. 14) ONE FIBRE WASHER NEXT TO GEAR, THEN ONE STEEL WASHER. INSERT SLEEVE THROUGH BEARINGS, GEAR TOWARD MACHINED FACE OF BRACKET. ON PROTRUDING SLEEVE PLACE FIRST ONE STEEL WASHER, THEN ONE FIBRE WASHER. PLACE COLLAR (No. 15) ON SLEEVE, LOCATING IT SNUGLY AGAINST WASHERS SO THERE IS NO END PLAY IN SHAFT, AND FASTEN IT WITH THE TWO CONE POINT SET SCREWS. THE SLEEVE HAS A GROOVE TO ACCEPT SET SCREW POINTS WITHOUT MARRING SURFACE OF SLEEVE.

THE ASSEMBLING AND ADJUSTMENT OF THE FRONT AND REAR DOUBLE SHUTTER BRACKETS

THE OIL CUP IS ON THE UPPER SIDE OF THE FRONT SECTION. THE DOWEL PIN HOLE IS AT THE UPPER END OF THE REAR SECTION. WITH THESE REFERENCES, BRING BOTH SECTIONS TOGETHER ENGAGING GEARS (FORMICA AND STEEL). FASTEN SECTIONS TOGETHER WITH FOUR SCREWS (No. 16). THERE IS A SLIGHT CLEARANCE BETWEEN ENGAGING SECTIONS OF THE TWO BRACKETS AND IN THE COUNTERBORED HOLES FOR THE FASTENING SCREWS. UTILIZE THIS CLEARANCE TO OBTAIN CLOSE MESH BETWEEN THE FORMICA AND STEEL GEARS, SETTING FOR FREE RUNNING WITH A MINIMUM OF BACKLASH. WHEN PROPER GEAR MESH IS OBTAINED, SECURELY TIGHTEN THE FOUR SCREWS.

FOR INSTALLATION AND ADJUSTMENT OF THE BRACKET ASSEMBLY IN THE MECHANISM SEE DIRECTIONS "REMOVING AND REPLACING THE SHUTTER SHAFT COMPLETE (MODEL CC)".

*DOUBLE SHUTTER INTERMEDIATE
GEAR BRACKET*



MODEL C CENTURY PROJECTOR **OPERATING SIDE**

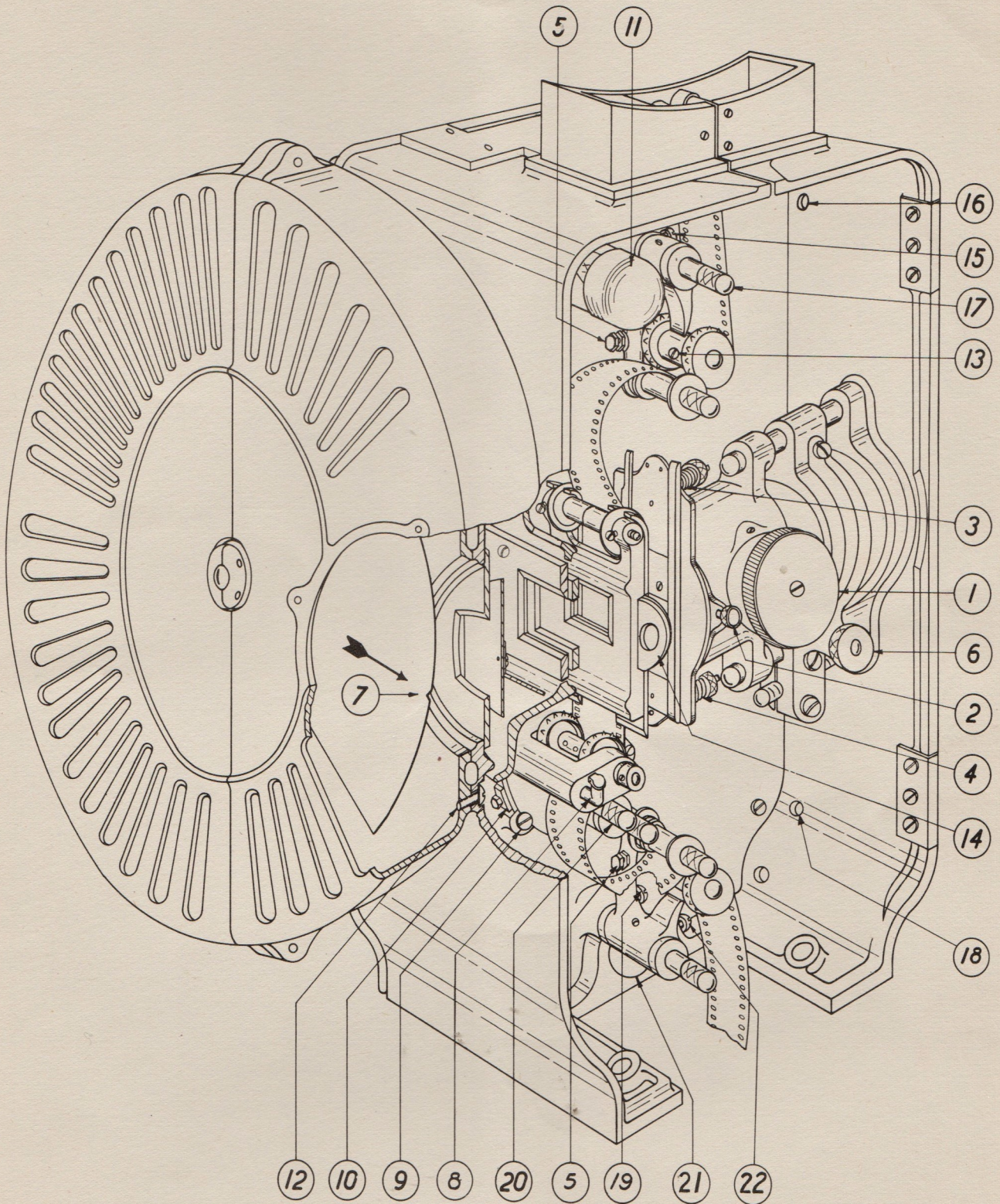


FIGURE 1

MODEL C CENTURY PROJECTOR DRIVING SIDE

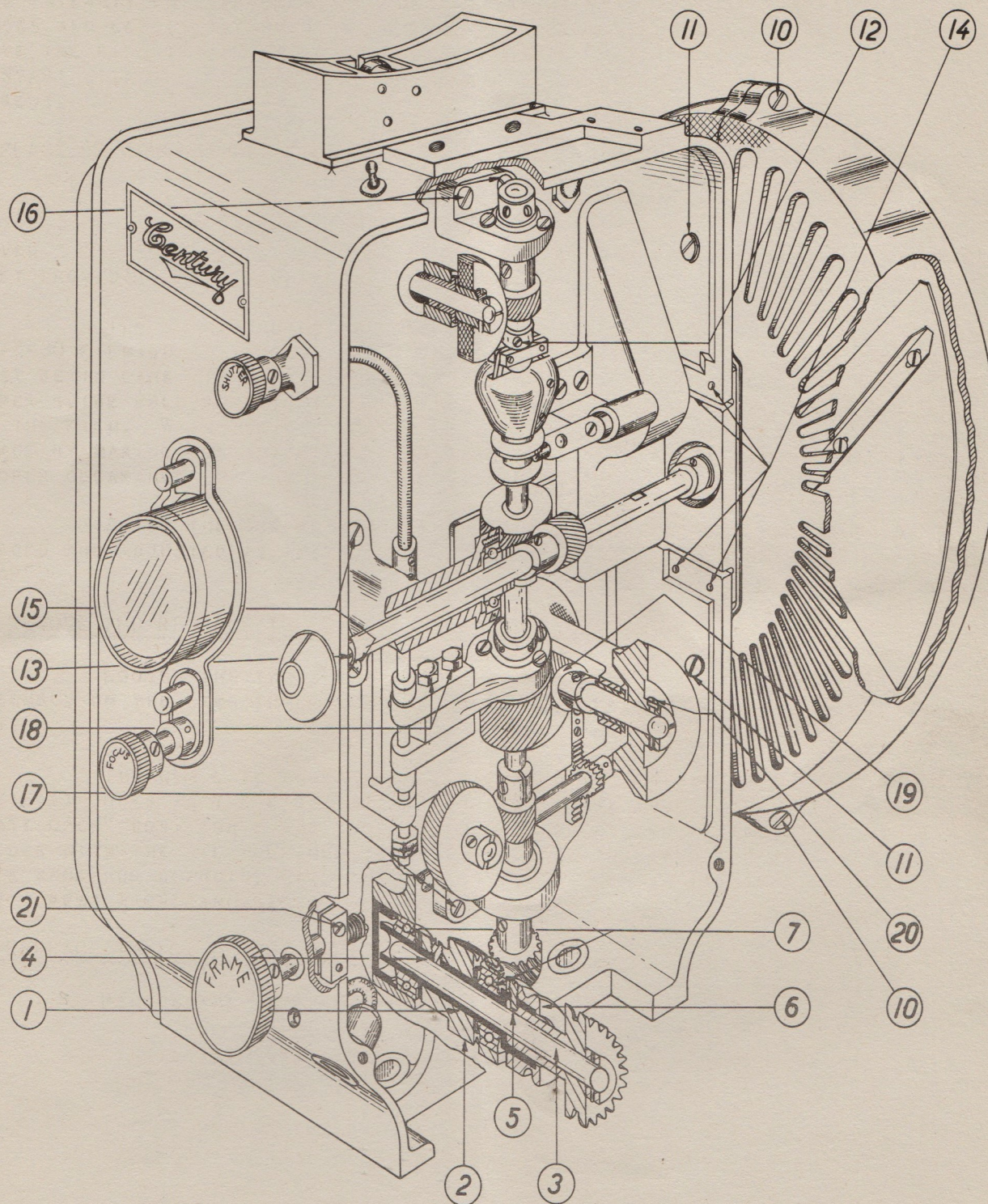


FIGURE 2

MODEL C CENTURY PROJECTOR INTERMITTENT MOVEMENT

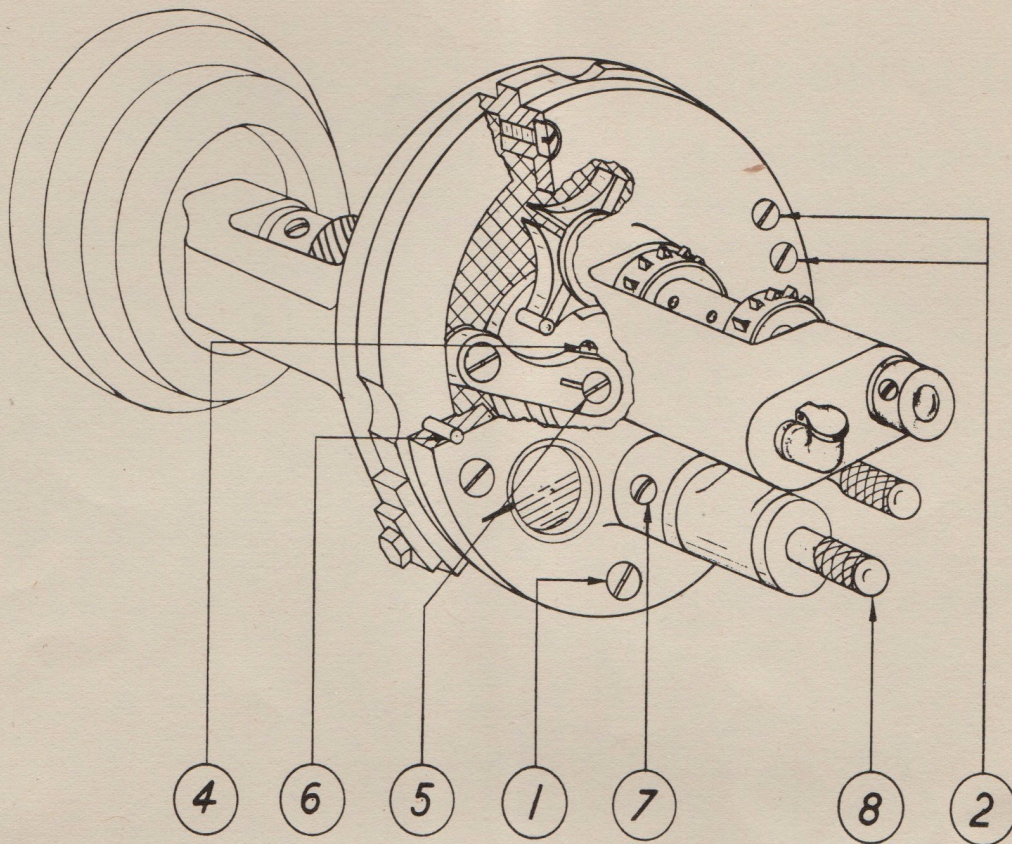


FIGURE 3

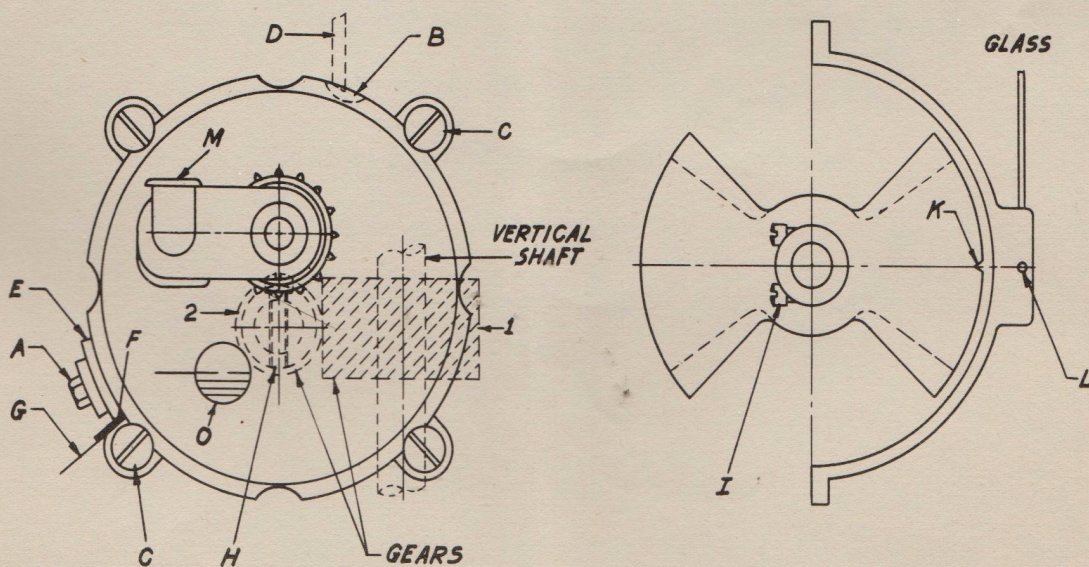
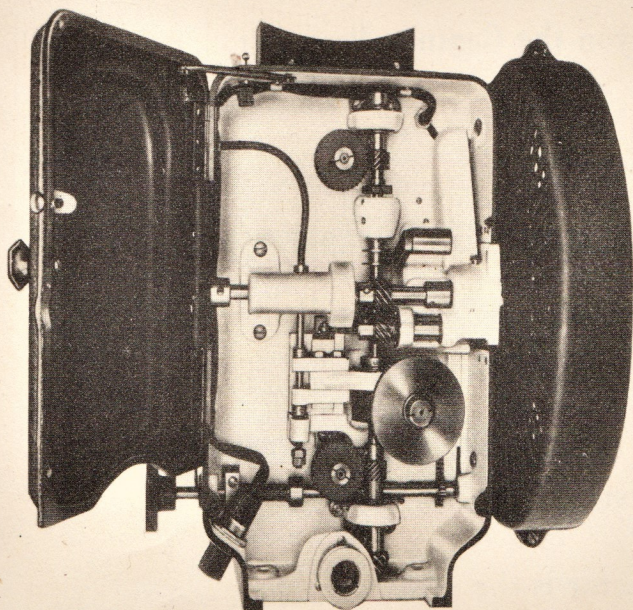


FIGURE 4

NTURY PROJECTOR . . .

el CC"
SHUTTER



THE DRIVING SIDE

1. Simple, straightforward gear arrangement.
2. All driving shafts run in grease-sealed for life ball bearings—require no lubrication.
3. Quiet operation assured through use of hunting tooth gears throughout, and using hardened steel gears against fibre.
4. Fewer gears than in any other projector—lower maintenance.
5. Easily adaptable to any sound head.
6. Double rear shutters — each shutter on its individual bearings and separately driven—

EASY TO MAINTAIN

1. Main drive shaft, vertical shaft, and shutter shaft are all removable as complete units—no more removing one gear at a time.
2. All shaft assemblies are interchangeable with minimum loss of time.
3. Gate easily removable for cleaning and inspection.
4. Film trap shoes interchangeable and reversible.
5. Intermittent oil cup and gauge are on operating side of mechanism.
6. Full width doors leave plenty of working space around all units.

MINIMUM SERVICE

Only three points to lubricate—grease-sealed ball bearings never require attention—All parts can be replaced quickly and easily in the booth, eliminating need for frequent overhauls — intermittent removable without removing any gears—every part has been specifically designed to stand up under hard wear.

Twenty-five years of experience and the best engineers of the industry have combined to give you the Century Projector.

Check these outstanding features:

1. Modern design—built to handle f2 illumination.
2. Economy—low original cost, long life, minimum maintenance, and low power consumption.
3. Tip-top performance — highest grade projection coupled with quiet operation.

The Century Projector is the
The Projector of the Century.

CENTURY PROJECTOR CORPORATION

New York, N. Y., U. S. A.

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