

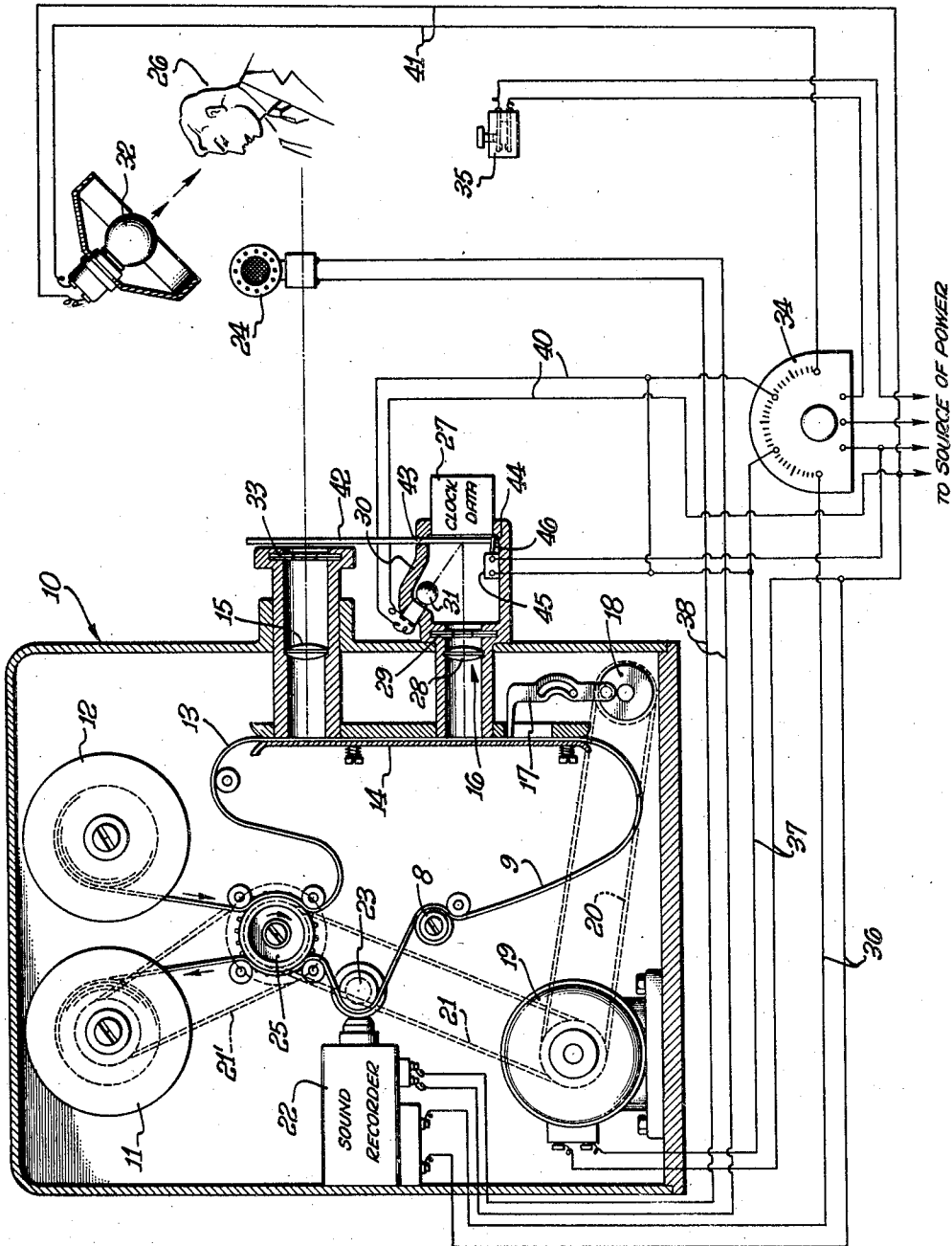
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RECORDING CAMERA

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RECORDING CAMERA

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This invention relates to recording cameras and particularly cameras capable of making a series of still pictures of a combination of subject matter and data together with a sound record.

Although the art of taking a series of still pictures of a subject has been developed to the extent that it is reasonably automatic, making possible the taking of a succession of portraits of a person without the assistance of an operator, to date no means has been developed for including upon the same set of pictures auxiliary data capable of automatically identifying the pictures by such data, for example, as the day and hour of exposure.

It is therefore among the objects of my invention to provide a new and improved system for making a series of records, the entire operation of which can be initiated by throwing a single switch, whereupon a succession of pictures will be dated, identified by sound and run for a predetermined length of time after which the operation will automatically cease.

Another object of my invention is to provide a new and improved photograph recording device capable of successively recording both data and a photographic image on a strip of film with automatic means for preventing a double exposure upon the film.

Still another object of my invention is to provide a new and improved recording camera device which is adapted to record supplemental data after a run of a predetermined period without the possibility of the supplemental record interfering with previously recorded data.

With these and other objects in view, the invention consists in the construction, arrangement and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in the claims and illustrated in the accompanying drawing, in which:

The drawing shows a diagrammatic representation of a system together with a wiring diagram for interconnecting the several parts.

There are in existence various types of occasions wherein a photographic record coupled with sufficient identifying means together with a sound record would be of considerable value in preserving a history of such an event. One such occasion where the need for such a recording apparatus has been felt is in the making of a positive identification of the birth of human infants. When a child is born in a hospital where many births take place at approximately the same time, it is highly important for reasons social and psy-

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chological that the parents be certain on every occasion that the child which is eventually delivered to them for removal from the hospital is the offspring of the mother. Mix-ups in hospitals have occurred and have resulted in serious controversy and in some cases mistakes in the identity of infants which are almost impossible to rectify. Wherever the human element enters into the recording of data, there is always the possibility that mistakes may occur but where systems have been provided which are capable of reducing the human error to substantially a minimum, mistakes become so rare as to be negligible. In addition to the recording of normal births, a machine which will record unusual cases is of scientific benefit and importance. Through some unfortunate circumstances, the birth may be a monstrosity or lithopedion, for example, and a carefully preserved record of such occurrences is of value in medical studies.

With the limitations and requirements of a satisfactory data recording device in view, there has been proposed a recording camera system which by the use of a photograph film is adapted to make a succession of records of different kinds so that when all of them are combined there is reasonably certain assurance that the subject can be positively identified.

As shown in the drawing, there is provided a casing 10 in which are mounted reels 11 and 12 for exposed and unexposed photographic film which is run through the machine is a continuous band 13 over suitable idler sprockets. A film gate 14 is designed to receive the film and direct it past the focal point of a subject lens system 15 and a data lens system 16. A film advancing finger 17 operated by means of an eccentric 18 is designed to advance the film step by step so that one exposure can be taken at a time during an interval of time dependent upon the setting of the film advancing mechanism. A motor drive 19 may be connected by suitable belt means 20 to the film advancing mechanism and by similar belt connections 21 and 21' through a drive connection 25 to the reels.

Likewise contained within the casing is a sound recording device 22 which cooperates with a film gate 23 which by a conventional arrangement of parts is capable of recording upon a sound track on the film, or upon some other suitable medium, sounds which are received in a microphone 24. In order that the sound recording mechanism may be permitted to make a continuous track upon the film even though the film may be stopped periodically behind the shutter for the taking of still

pictures, there is provided the drive connection 25 by means of which the film may be advanced continuously past the recording mechanism by reason of there being a loop 9 in the film. The speed of operation of the drive connection may readily be synchronized with the rate of reciprocation of the film advancing and take-up mechanism so that an increase in the length of the loop 9 will be taken up each time before the next operation of the film advancing mechanism. A tension idler 8 is adapted to maintain a suitable tension on the film as it passes the sound recorder.

Recording the picture of the attending physician with the new-born infant, for example, at the position 26 is in itself a primary factor in assuring correct identification for record purposes.

In addition to the making of visual record of subjects and any accompanying sounds at the time the photographic record is made, there is provided a means for recording other data on the same film. Such data, for example, may consist of the minute, hour and day of the taking of the picture. To make such a record there is provided a clock mechanism 27 which can be either spring or electrically actuated so that it will continue from hour to hour and day to day. The mechanism may be provided with a conventional clock face upon which figures appear showing the minute, hour and day of the month. To reproduce the time thus shown upon the photographic film the data lens system 16 is provided, which is equipped with a wide angle lens 28 and a shutter 29 synchronized with the film advancing mechanism. The clock mechanism is included within a light-tight housing 30 immediately surrounding the aperture of the data lens system. To provide light within the housing in order to make a photographic record, a lamp 31 is positioned so that its rays illuminate the dial or face of the clock mechanism.

A subject lamp 32 is positioned for illuminating the subject 26 so that photographic reproductions of the subject can be taken while the subject is lighted and the film advancing mechanism is in operation. A conventional camera shutter 33 is likewise operated with the subject lens system and cooperates with the film advancing mechanism in order that these parts may likewise be correctly timed.

An electric circuit is included interconnecting the various parts so that operation thereof may be satisfactorily synchronized. To accomplish this there is provided a time control 34 which is adapted to be set in operation by means of a foot pedal switch 35 connected to a suitable motor in the time control (not shown in detail). When the time control is set in operation, through suitable wire connections 36 and 37, the sound recording mechanism and motor drive respectively may be simultaneously set in operation. Necessary connections 38 between the sound recording mechanism and the microphone are likewise provided so that the microphone is simultaneously connected in.

At substantially the same time, the time control is adapted to close a connection with either a circuit 40 in which is connected the data light 31 or a circuit 41 in which is connected the subject lamp 32. It is contemplated that within the time control there may be provided an alternate switch which need not be shown by virtue of which the lamp 32 will be turned off when the lamp 31 is lit and vice versa the lamp 32 will be turned on when the lamp 31 is extinguished. By a suit-

able factor the lamp 31 may be permitted to remain illuminated for a very small fraction of the time of illumination of the lamp 32, since no more than one or two photographs of the data are important. In each case the electrical element operated by the time control may have one connection direct to a power line with the other connection finding its way to the power line through the time control.

In the event that additional data such as that which might be written on a card 42 is desired, special means is provided for receiving the card in the housing 30. A card, for example, might bear the imprint of a child's foot, a finger print of an adult or any other written data which might be relevant. In order to make a photographic record of the data on a card, there may be provided a slot 43 to permit the card to be inserted in the housing 30 and a shelf 44 on which it can rest so as to be correctly positioned within the path of the data lens system.

To make certain that there is illumination on the card there is provided a trip switch 45 having a switch arm 46 lying above the shelf 44 in such a position that the switch is operated when the card 42 is inserted into the housing so that it rests upon the shelf 44. It will be noted that the switch 45 is designed to bypass the time control so that closure of the switch 45 will complete a circuit through the motor drive and the lamp 31. The circuit may be thus closed independently of operation of the time control 34. For as long as the card 42 remains in place the switch arm 46 stays down. Upon removal of the card the switch arm will resume its normal position and open the circuit so that all of the parts will then again be subject to operation only through the time control.

In operation when the apparatus is to be used for recording and identifying a new-born infant, the doctor or other person in attendance stands before the subject lamp 32 and adjacent the foot pedal and microphone 24. In the meantime, the camera because of its electric operation remains ready to make the record. The doctor or attendant then closes foot pedal switch 35 which is so located that the subject will at that time be substantially in the focus of the subject lens system. The subject can then assume a succession of poses while the machine operates. Closure of the foot pedal switch sets the time control 34 in operation and the length of time for the run of pictures can be set for any convenient period. As soon as the time control starts to operate, the sound recording mechanism is connected in and sounds picked up by the microphone 24 are passed to the recording mechanism for recording on a sound track on a film.

At the same time, the motor drive 19 starts operation which not only begins advancing the film step by step but also begins passing the film from one reel to another and past the sound recording mechanism. The camera shutter will be operated simultaneously following an accepted system of operation already known to those skilled in the art. In order to make a continuous sound record the film is run past the sound recording mechanism at a continuous rate. Since the loop between the gate and the sound mechanism will vary in size within a limited amount, the film advancing and take-up mechanism may be geared to a speed which will take up the slack each time. Still pictures of the data and the subject are exposed successively as the film ad-

vancing mechanism moves the film past the data lens and the subject lens. The film advancing mechanism will continue to move the film ahead frame by frame for a period of time equal to that for which the time control is set. The number of individual pictures taken will depend upon this setting.

To make certain that all exposed film is moved past both lens systems and to provide one or two frames of unexposed film on the side of the data lens system from which the film is fed, the time control may be set so that the film is advanced several frames after all lights are extinguished.

In order that data may be recorded on the same strip of film both before and after the photographing of the subject, the lamps 31 and 32 are interconnected. When the time recorder begins operation the lamp 31 will be illuminated while the lamp 32 remains dark. There will thus be made two or three exposures of the data on the film before the portion of the film opposite the object lens system passes before the data lens system. Meanwhile the subject remains dark or at least sufficiently dark that no interfering exposure will be made. After a time sufficient to make two or three recordings of the data, the lamp 31 is darkened and the lamp 32 is lit. After this, no further recording of data need be made since even though the shutter 29 might open and close, the housing 30 will remain completely dark. At the end of the run the lamp 32 may again be darkened and the lamp 31 relit for repeating a recording of the data.

Should it be so desired, the data may be double exposed on a portion of the frame in which the subject is recorded, the lighting of the data record being intensified for this purpose when necessary. It is also contemplated that the film may be advanced over a distance slightly greater than the outside border of the frame which records the subject and the data lens system so located that the data record is made on the film on the unexposed intermediate space thus provided.

When there is additional supplemental data to be recorded it may be impressed or written upon a suitable space arranged for it on the card and the card inserted in slot 43 of the housing 30. Since the card is of negligible thickness, it will have the same focal position as the dial of the clock mechanism 27 so that the wide angle lens 28 can produce an image on the film of the supplemental data. So that the card data may be illuminated the switch 45 is closed by weight of the card upon the switch arm which will close a circuit through the lamp 31. Closure of the same switch likewise closes a circuit through the motor drive and the film advancing mechanism will then operate just as long as the card remains in place. In order that there may be no exposure on the film through the object lens system, the card may be so designed as to be positioned opposite the aperture of the lens system, thus cutting off all possible light from this portion of the device.

There has thus been provided a recording camera adapted to be contained within a casing as a unit and which incorporates mechanical features so interconnected with a single switch control that a series of recordings of various kinds can be made over a period of time controlled entirely automatically so that once the machine is turned on, it will proceed for a predetermined run and then automatically turn off so as to be ready for a later sequence.

I claim:

1. A system for recording data on a film strip comprising a case including a reel for unexposed film, a reel for exposed film, a film exposure gate having a pair of apertures and a motor drive, a sound recording device having means thereon for receiving the film and a microphone independent of the case connected to said recording device, a step by step film advancing mechanism attached to said motor drive, an object lens system in alignment with one of said apertures having a shutter synchronized with said film advancing mechanism, a data lens system communicating with the other of said apertures having a shutter synchronized with said film advancing mechanism, a data lens system communicating with the other of said apertures having a camera shutter, a time record positioned opposite said data lens system and a lamp in position for illuminating said record, an electric circuit incorporating said data lamp, an object lamp and an alternate switch whereby when one lamp is in circuit the other lamp is out of circuit, and a time operated multiple switch having a manual starting device, said time switch having in circuit with respective parts thereof said sound recording device, said motor drive, and said alternate light switch.

2. A system for photographically recording data comprising a camera case including a reel for unexposed film, a reel for exposed film, a film exposure gate having a pair of apertures and a motor drive, a sound recording device having means thereon for receiving the film and a microphone independent of the case connected to said recording device, a step by step film advancing mechanism attached to said motor drive, an object lens system in alignment with one of said apertures having a shutter synchronized with said film advancing mechanism, a data lens system communicating with the other of said apertures at a point adjacent the object lens system having an independent shutter synchronized with said film advancing mechanism, a housing surrounding the data lens shutter including a clock-operated record positioned opposite said data lens system and a lamp directed toward the record, an electric circuit incorporating said data lamp, an object lamp and an alternate switch whereby when one lamp is in circuit the other lamp is out of circuit, and a timing control having a manual switch for initiating operation thereof, said timing device having separate elements having independent periods of operation and respectively in circuit with said sound recording device, said motor drive, and said alternate light switch whereby operation of the sound recording device, said motor drive and said light switch are adapted to be maintained for predetermined lengths of time.

3. A system for recording data on a strip of film comprising a case, a film exposure gate therein, a step by step film advancing mechanism and motor drive therefor, a data lens system communicating with the gate, a housing adjacent the data lens system including an automatically changing record opposite said data lens system and a lamp positioned to illuminate said record, an electric circuit incorporating said data lamp and a switch adapted to turn said lamp on and off and a manually actuated time control switch having said motor drive and said light switch in circuit therewith adapted to initiate operation of said motor drive and said light switch for predetermined lengths of time, and an auxiliary data recording

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device comprising means for receiving an auxiliary record sheet in the housing, a switch arm in line with said means and a circuit including said last switch, said motor drive and said data lamp bypassing said time control switch whereby said camera continues in operation while said card remains in position.

4. A system for recording data on a strip of film comprising a case, a film exposure gate therein, a motor drive therefor, a step by step film advancing mechanism attached to said motor drive, an object lens system communicating with the gate having a shutter, a data lens system communicating with the gate having a shutter, a housing surrounding the data lens system at the end remote from the gate including an automatically changing record positioned opposite said data lens system and a lamp positioned to illuminate the record, an electric circuit incorporating said data lamp and a switch adapted to turn said lamp on and off, and a manually actuated multiple contact time control switch having said sound recording device, said motor drive, and said light switch in circuit therewith adapted to initiate operation of the sound recording device, said motor drive and said light switch for predetermined lengths of time and an auxiliary data recording device comprising a shelf in the housing and a switch having a switch arm adjacent the shelf, said housing having a slot opposite the shelf for receiving a card adapted to be retained on said shelf and a circuit bypassing the time control switch including said shelf switch, said motor drive and said data lamp whereby said camera is adapted to continue in operation while said card remains in position.

5. A system for photographically recording data comprising a camera case, a reel for unex-

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posed film, a reel for exposed film and a film exposure gate, a sound recording device having means thereon for receiving the film and an external microphone attached thereto, a motor drive and a step by step film advancing mechanism attached to said motor drive, an object lens system in alignment with the gate having a shutter synchronized with said film advancing mechanism, a data lens system in alignment with another part of the gate having a shutter synchronized with said film advancing mechanism, a housing including a clock-operated record in alignment with the data lens system at the end opposite from the gate and a lamp therein for illuminating the record, an object lamp and an electric circuit incorporating said data lamp and said object lamp and an alternate switch whereby when one lamp is in circuit the other lamp is out of circuit, and a multiple time control switch having a manually operated starting button at the focal distance of said object lens system for initiating operation of the system, said sound recording device, said motor drive and said alternate light switch having connections to respective portions of the multiple switch and adapted to be set in operation for respectively predetermined lengths of time, and an auxiliary data recording device comprising a shelf in the housing, a switch having a switch arm adjacent the shelf, said housing having a slot opposite the shelf for receiving a card adapted to be retained on said shelf and a circuit bypassing the time control switch and including said shelf switch, said motor drive and said data lamp whereby exposure of the auxiliary data is adapted to continue while said card remains in position.

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