

The live parts of the lamp are effectively insulated from the grounded line current by the use of a separate primary and secondary winding in the transformer. There is also a smoothing reactor which is connected in the direct-current circuit to the arc; this reduces the a-c component and the resultant light flicker to a commercial acceptance.

Within the rectifier are also housed the necessary switches for manual adjustment of the current to the arc; an a-c line voltmeter; overload circuit-breaker; and the line relay, which is connected to the lamp house door switch.

The a-c load or rectifier input does not exceed the 15-ampere limit provided by any 110-volt convenience outlet.

NEW 16-MM RECORDING EQUIPMENT*

D. CANADY**

New models of Canady recorders and film-phonographs are slightly different in design from the previous ones. While some improvements have been added, the basic reason for re-design was to have a film-driving mechanism that would be equally suitable for both 16-mm and 35-mm recorders and film-phonographs.

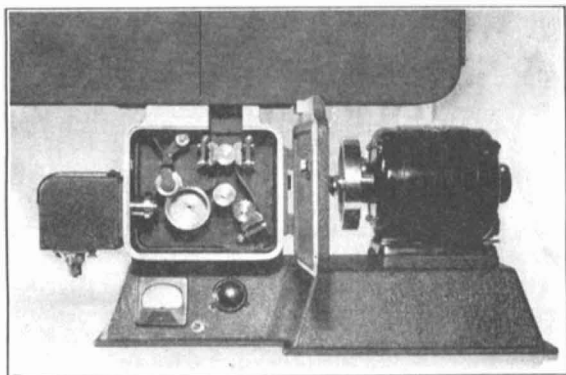


FIG. 1. Film-phonograph unit.

Worm drives of various combinations permit assembly of equipment for any format and for operation on any power supply. The 2-inch scanning drum has been retained for both formats, as scanning drums of too short a radius affect sound quality through light spread at the scanning point.

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Fig. 1 shows one of the new units completed as a film-phonograph. Film is held against the sprockets by hardened and ground steel shoes which touch the film at the extreme edges. This precludes the sound-tracks being marred by abrasion marks and scratches. A ball-bearing, fabric-covered, steel pad-roller with guiding flanges serves to keep the film in close contact with the scanning drum. A rotary stabilizer insures a constant film-speed at the scanning point. Sixteen-mm recorders are furnished with galvanometers or glow-lamp assemblies which are also optional on the 35-mm units. The glow-lamp assembly retains the well known quartz slit which still remains the most efficient and practicable method of utilizing the actinic light produced by gas-filled lamps.

35-Mm to 16-Mm Optical Reduction Printer.—A film-phonograph forms the basis for the Canady optical reduction sound printer. The door of a film-phonograph is replaced with a special door upon which is mounted the 16-mm section which operates at right angles to the 35-mm unit. This includes a reduction lens assembly, rotary drum with equalizer, 16-mm sprockets, film supporting arms, and take-up.

A prism mounted on the opposite side of the door intercepts the light-beam passing through the 35-mm sound-track and re-directs it at right angles to the reduction lens.

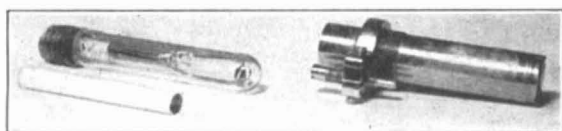


FIG. 2. Miniature glow-lamp and holder.

When the door is closed, the 16-mm section is driven by two pins which engage recesses in the end of the feed sprocket of the film phonograph.

While present design calls for operation in a darkroom, the entire 16-mm section can be readily enclosed in a light-tight cover with provisions for receiving conventional 16-mm film magazines, thus permitting daylight operation.

Miniature Glow-Lamps for 16-Mm Recording.—The miniature glow-lamp and its associated holder shown in Fig. 2 has been developed for use in 16-mm cameras of the "home movie" type. The electrodes are identical to those employed in the 35-mm lamp. While the volume of gas has been reduced, the lamp is capable of recording several thousand feet of film.

When used in conjunction with an amplifier equipped with an automatic volume control or "limiter" circuit, glow-lamps are capable of turning out creditable sound-track in the hands of inexperienced persons, and will no doubt receive serious consideration in future design of sub-standard cameras for photographing sound and picture on the same film.

As small compact amplifiers present no engineering problems, the only item necessary for making talking pictures in the home is a 16-mm camera modified to receive the glow-lamp holder.