

Abstracts

Abstracts from other Journals, chosen for importance and timeliness, are published in the *Journal* from time to time. The greater number of these abstracts are translations, chiefly from the U.S.S.R., and made available by the *Kodak Monthly Abstract Bulletin*.

The subject areas are grouped below:
High-Speed Photograph and Instrumentation
Sound Recording and Reproduction
Television

HIGH SPEED PHOTOGRAPHY AND INSTRUMENTATION

Slow, High Speed Motion Pictures by Means of Spark Flashes: Camera With 50,000 up to 140,000 Pictures/ Sec. Maximum

An apparatus has been constructed for high-speed cinematography on continuously moving film with a stroboscopic flashlamp as the light source. The speed of shooting is controlled within a range of 16 to 50,000-140,000 frames/sec. The choice of the gas in the lamp (70% argon plus 30% hydrogen) ensures a flash with a time of less than 1 μ sec. The control system synchronizes the flashes with the moments of passing of the perforated openings and switches off the circuit if the temperature in the lamp exceeds a given value. Sample shots from films so obtained are reproduced. (S. C. G.)—[Translated from *Referativnyi Zhur., Fiz.*] F. Frungel. *Explosivstoffe*, 6:263-64, 1958.

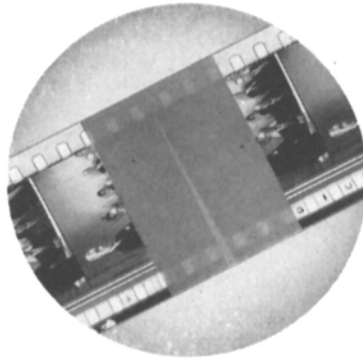
The Distortion of the Tooth of a Film Sprocket on Milling with a Hobbing Cutter

It is very important to know the magnitude of the distortion of the profile of a sprocket tooth, since this affects the uniformity of the release of the film from the tooth. A formula is deduced for determining the magnitude of the distortion of the profile of the tooth, and curves are constructed showing its relation to the number of grooves of a single-cut hobbing cutter. (S. C. G.)—[Translated from *Tekhn. Kino i Televideniya*] S. M. Pertsev. *Inf.-tedkh. Byul. TsKB Min. Kultur. S.S.S.R.*, pp. 30-2, No. 4 (18), 1958.

Some Methods of Synchronization in High-Speed Cinematography (from Experimental Work With the FP-22 Camera)

The Soviet-made FP-22 high-speed motion-picture camera is provided with a synchronizing device, but cases arise which require a supplementary device. Three such cases are described. The first of these was the impact of a loaded rod on a glass block. The second was a study of the deformation of drops of molten metal striking a glass surface in a metallization process. The third case was a study of cavitation erosion of solid bodies in an ultrasonic field. (S. C. G.)—S. R. Zhukovskii. *Zhur. Nauch. i Priklad. Fotografii i Kinematografii*, 5:48-53, No. 1, Jan.-Feb., 1960 (in Russian).

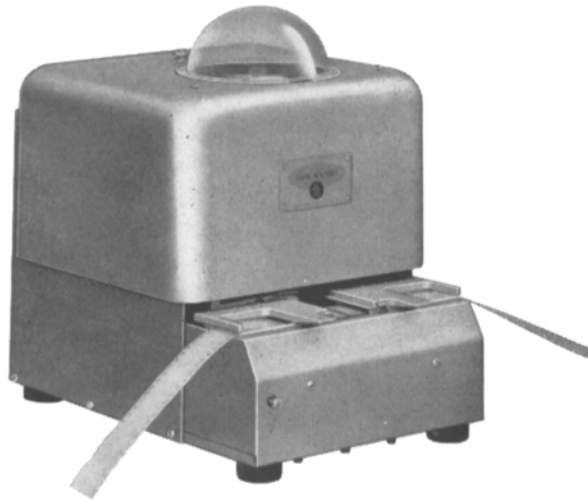
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The Accuracy of Measurements Carried Out by the Methods of High-Speed Cinematography

A mathematical analysis is made of the accuracy of measurement of the speed of a moving body by two methods of high-speed cinematography: by scanning and by frame-wise exposure. (S. C. G.)—E. A. Tarantov. *Zhur. Nauch. i Priklad. Fotografii i Kinematografii*, 5:44-7, No. 1, Jan.-Feb., 1960 (in Russian).

High-Velocity Cinematographic Camera FP22

"... The universal multi-objective camera with a single common entrance pupil permits the taking of motion pictures with subsequent projection for exposure frequencies from 5000 to 100,000 frames/sec. ... The camera assembly comprises: illuminating devices, a frequency meter, developing apparatus, and the cinematographic projector..." *Instruments and Experimental Techniques* (transl. ed. of *Pribery i Tekh. Eksp.*), p. 508, No. 3, May-June, 1959.

Use of High-Speed Cinematography for the Study of Processes Occurring in Liquids Under the Action of Ultrasonics (in Russian), S. R. Zhukovskii, V. F. Kazantsev and L. O. Makarov, *Zhur. Nauch. i Priklad. Fotografii i Kinematografii*, 5: 133-140, No. 2, Mar.-Apr. 1960.

Descriptions are given of the experimental arrangements used in making high-speed motion-picture films of ultrasonic

phenomena studied at the Acoustics Institute of the Academy of Sciences of the U.S.S.R. They included the destruction of a film of dirt on a glass surface and ultrasonic drilling, with their related phenomena of cavitation, erosion and bubble formation. A wide range of frame frequencies (750-50,000 frames/sec) was used, enabling the processes to be studied both as a whole and in detail. Frame-by-frame analysis allowed a quantitative study of the processes to be made and curves to be drawn.—S. C. G.

SOUND RECORDING AND REPRODUCTION

Standard Specifications for Photographic Sound Tracks

Departmental Standard, Norm-Kino 4-59, 35mm. *Motion-Picture film, Dimensions and Positions of the Sound Track on Negative Records and Film Copies*, from the Ministry of Culture of the Soviet Union is reproduced and commented upon. (S. C. G.)—*Kino-Mekhanik*, pp. 31-2, Dec., 1959 (in Russian).

Problems of the Perception of the Stereophonic Effect With a Multichannel System of Sound Reproduction

V. S. Man'kovskii. *Trudy Leningrad. Inst. Kinoinzhener.*, pp. 52-61, No. 5, 1959 (in Russian).

Magnitude of the Photocurrent in the Photocell Circuit in the Absence of a Sound Track.

B. N. Ukhin. *Trudy Leningrad. Inst. Kinoinzhener.*, pp. 15-20, No. 5, 1959 (in Russian).

Type 3 Magnetic Tape

Methods of manufacture have been worked out for [Soviet-made?] Type 3 magnetic tape on acetate base. The relations between the electroacoustic properties of the tape and the composition and conditions of manufacture of the ferro-lacquer, and also the magnetic orientation of the powder in the ferro-layer have been ascertained. The electroacoustic properties of the laboratory samples have been compared with those of the best foreign magnetic tapes. The first batch of experimental tape has been tested. It was found that the electroacoustic properties of Type 3 magnetic tape are better than those of Type 2 and hence Type 3 reaches the same level as one of the best foreign tapes. (S. C. G.)—[Translated from *Tekh. Kino i Televideniya*] M. S. Chel'tsova. *Trudy Vsesoyuz. Nauch.-Issled. Inst. Zvukozapisi*, pp. 73-87, No. 6, 1959.

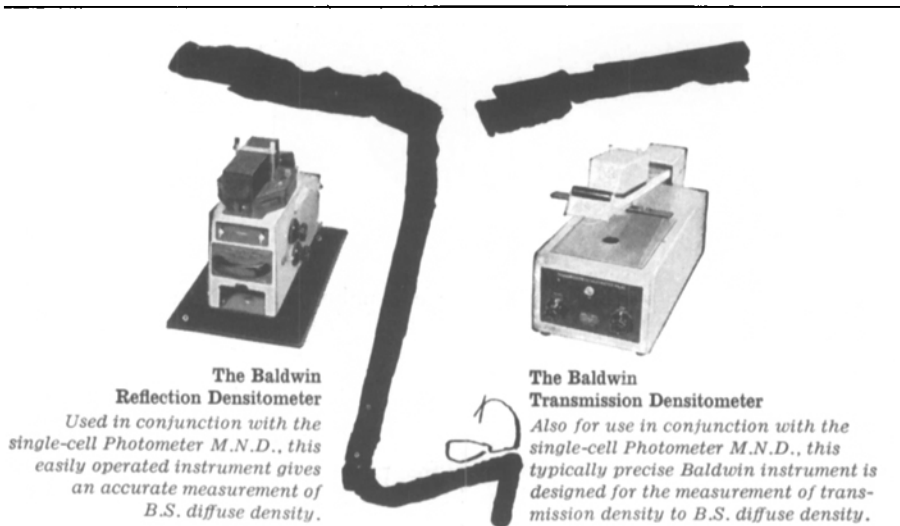
TELEVISION

A System of Television Projection and Kinescope Recording with Optical Doubling of the Scanning Raster

A survey is made of the systems at present in use for television projection and kinescope recording, and their deficiencies are pointed out. A new system is described in which the image on the tube is reflected by two systems of horizontal mirrors to form two separate images, one above the other. A synchronized shutter cuts out each reflected image alternately, and film-transport speed is adjusted so that, for a 25-frames/sec TV standard, the two fields are imaged on the same film frame. The machine, which has been made by the Leningrad Electrotechnical Institute of Communications, is used both for television projection and kinescope recording. (S. C. G.)—A. A. Gol'din and D. A. Taranets. *Tekh. Kino i Televideniya*, pp. 25-33, Nov., 1959 (in Russian).

Practical Problems in the Construction of Stereo Television Systems

The principles of construction of two-channel and single-channel systems of spatial television and factors influencing the stereo effect are discussed. An account is given of the optical systems of stereo television apparatus. The possibility of transmitting stereo-pair images with standard frequency bands is discussed. (S. C. G.)—[Translation of Authors' Abstract] P. V. Shmakov and V. E. Dzhakoniya. *Tekh. Kino i Televideniya*, 4:11-21, March, 1960 (in Russian).



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