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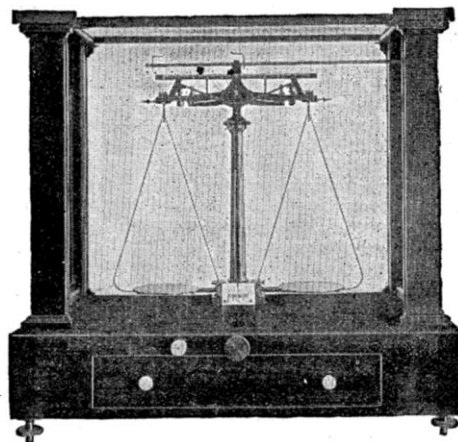
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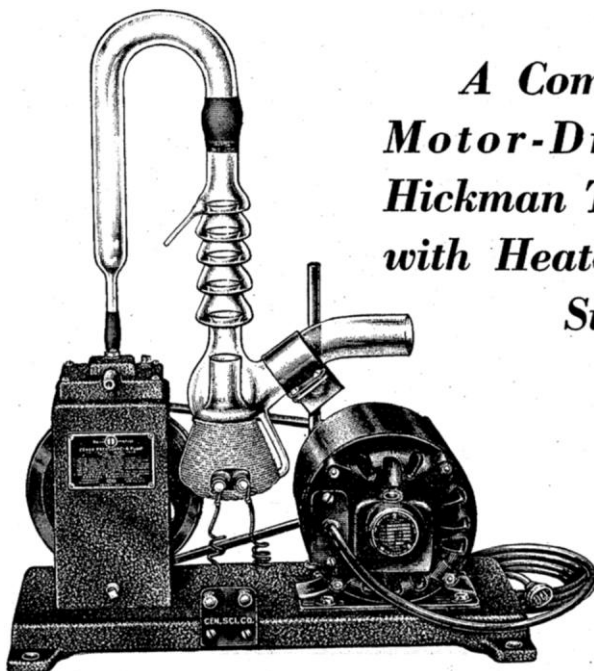
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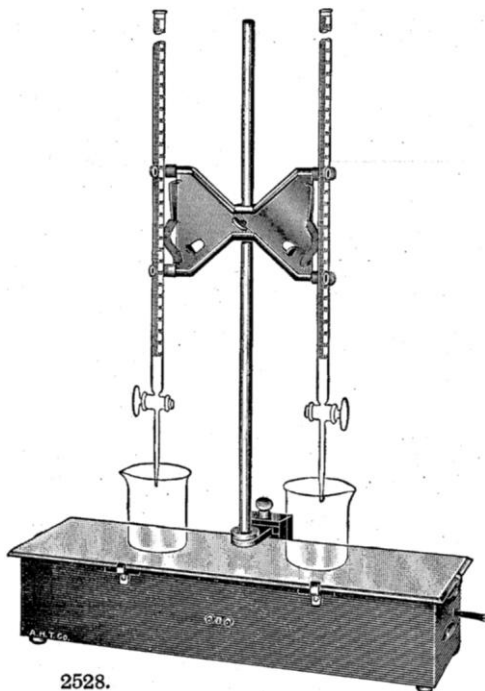
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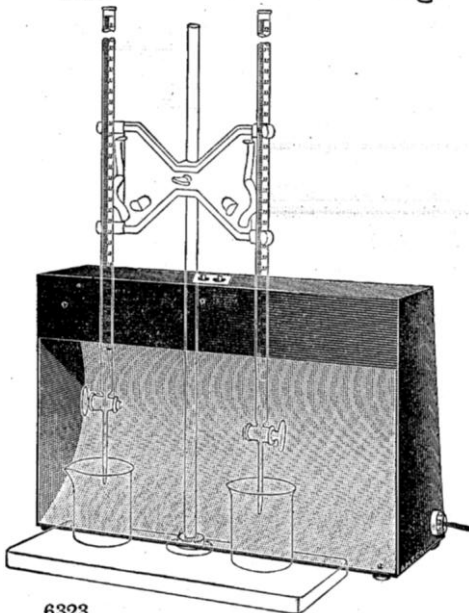
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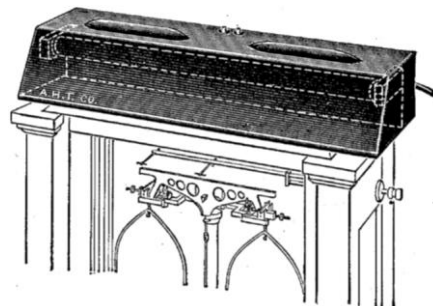
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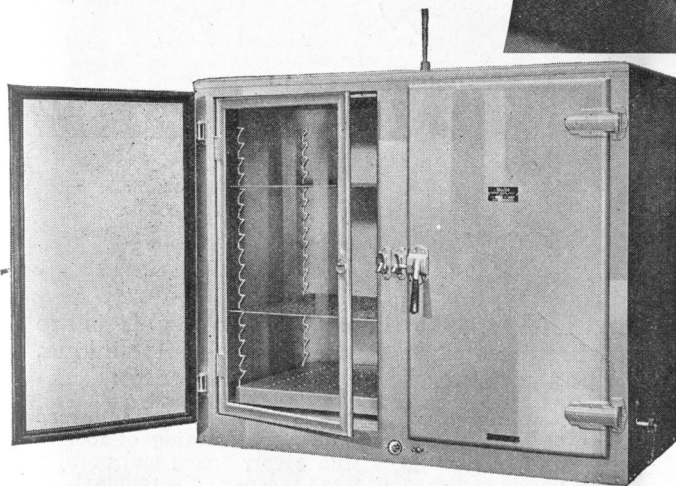
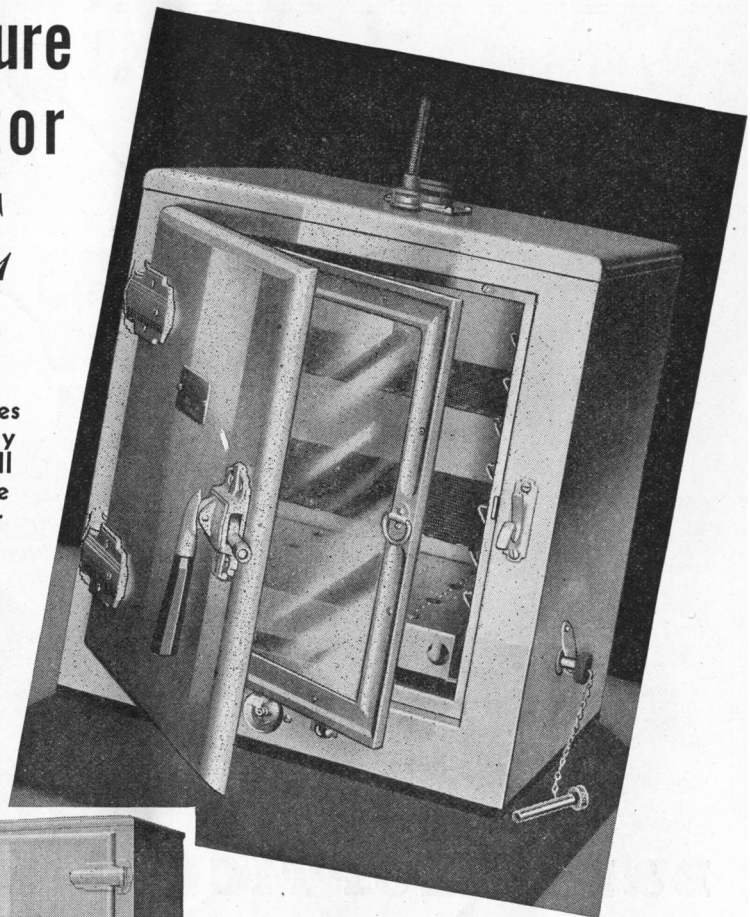
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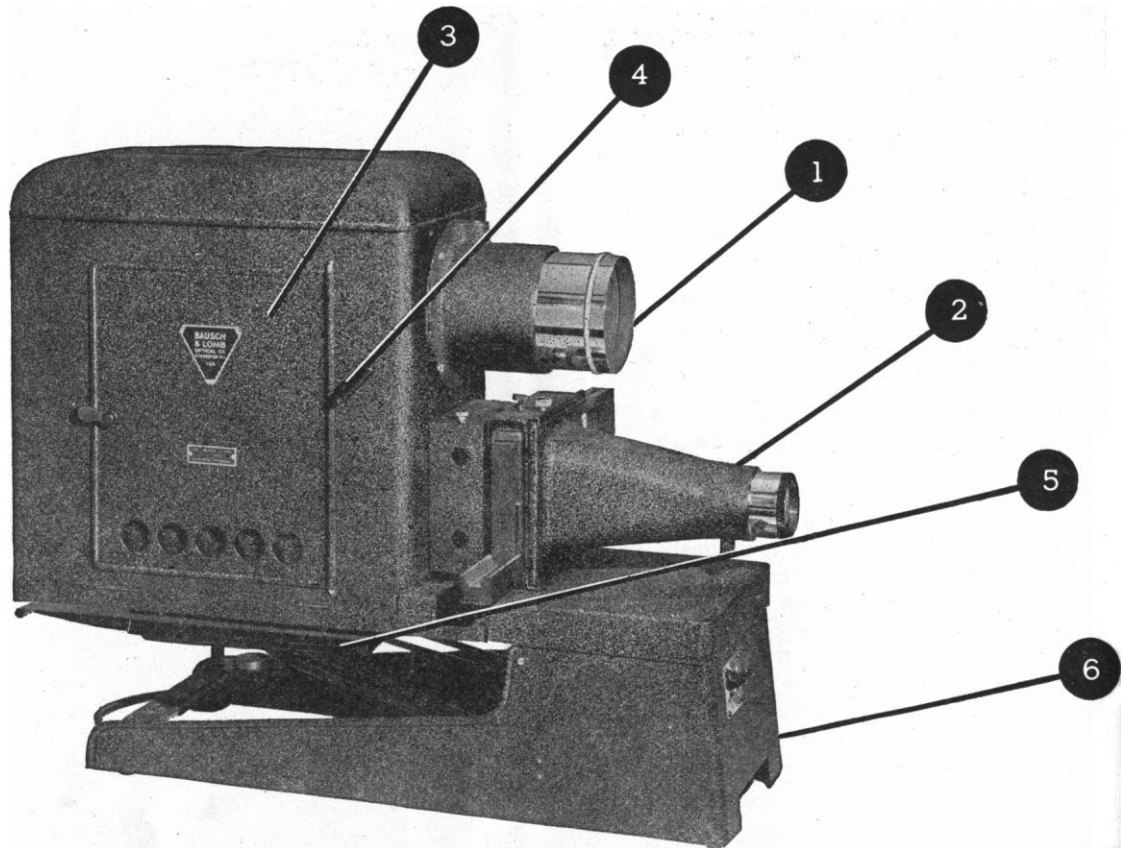
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Apparatus: In the following work an Argus Model C camera, fitted with a portrait lens and a cable release, was used. The camera, with the lens pointing downward through a two-inch hole, was mounted on a specially prepared board. The camera was held in place by strips of wood around three edges; thinner strips held the face of the camera up from the board to give clearance for the shutter lever. The camera was held firmly but could be easily removed for other uses. This wooden frame was wired securely to a 6-inch ring and a large ring stand was used as a support. With the ring used, the camera lens was 6.5 in. from the rod, and this proved satisfactory for ordinary books and journals. If larger objects, such as a newspaper, were to be photographed, an extensible support would be necessary. The field covered was 8.75 in. by 13.25 in. at a height of 20 in. and 12.5 in. by 19 in. at a height of 28 in. It is helpful to have the upper and lower part of the ring stand rod marked in inches so that the height may be adjusted. Two T-shaped rods were used with ring stand clamps to hold down the edges of the journal being photographed. It is well to set the stand on a black cloth to avoid glare from polished table tops. After adjustment, it is advisable to steady the support by a brace from a second ring stand to reduce the possibility of vibration. Either

strong indirect daylight or artificial light may be used for illumination.

Operation: The article to be copied was centered in position and the pages held level with the T-shaped rods. The name of the journal, date, etc., if not appearing in the article, was printed on a card and laid on the margin of the article. (This card may be used to cover portions of other articles appearing on the same page. If the microfilm is to be filed by number or subject, this data may be added and inch figures, after photographing, may be easily read without optical aid for ease in filing.) The camera support was placed at the proper height and the camera put in position. A cable release was used to avoid vibration, and the exposure was made. Time and diaphragm opening will vary according to the lighting, and a little experimentation will fix the optimum conditions. With daylight, in a well-lighted room and with fast film (Scheiner No. 23), equally good results were obtained with an exposure of 10 seconds at f:11 and 0.2 second at f:3.5. The f:11 diaphragm opening allows considerable latitude in focusing, which is helpful if journals of different thicknesses are used, since the camera height need not be changed. It was not necessary to remove the camera between exposures, the shutter being cocked by inserting the eraser end of a pencil between the support and the camera.

Discussion: The method described has been found to be very satisfactory for the making of short runs of microfilm. The films are conveniently stored in numbered glassine or kraft paper envelopes and correspondingly numbered cards are kept in the regular filing system. (Dice⁵ and Brown and Austin⁶ have described filing systems for microfilm.) Films should not be developed to high density and contrast because the softer grey background is easier on the eyes than a dense black. For diagrams with tiny numerals, it is desirable to take close-ups particularly when the film is to be examined with a hand reader.

J. DAVID REID


AMES, IOWA

⁵ L. R. Dice, *SCIENCE*, 89: 39-40, 1939.

⁶ H. P. Brown and J. A. Austin, *SCIENCE*, 90: 573-574, 1939.

BOOKS RECEIVED

- Cancer; A Manual for Practitioners.* Pp. viii + 284. Rumford Press, Boston, agent for Committee on Publication representing the Massachusetts Medical Society and the American Society for the Control of Cancer.
- FASSETT, NORMAN C. *A Manual of Aquatic Plants.* Pp. vii + 382. Illustrated. McGraw-Hill. \$4.00.
- MENKIN, VALY. *Dynamics of Inflammation; An Inquiry into the Mechanism of Infectious Processes.* Pp. xii + 244. 50 figures. Macmillan. \$4.50.
- VISSCHER, MAURICE B., Editor. *Chemistry and Medicine; Papers Presented at the Fiftieth Anniversary of the Founding of the Medical School of the University of Minnesota.* Pp. 296. Illustrated. University of Minnesota Press. \$4.50.



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