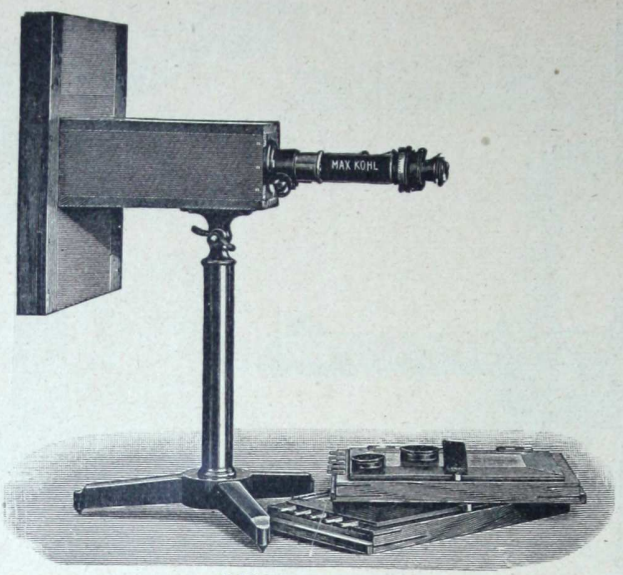
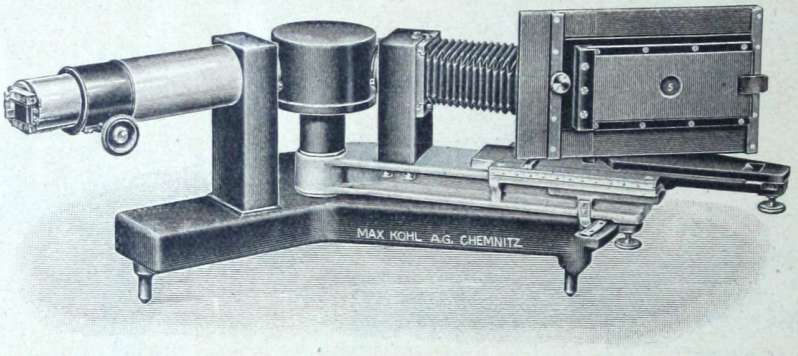


54100a. 1:7.



82848.

54101a. **Direct-vision Spectroscope** after Janssen-Hofmann, Figure on p. **1453** (Fr. phys. Techn. II, 2, Fig. 2818 [II, 904]) . . . . . £ 20. 0.0

Observing telescope and gap-tube with 22 mm aperture, 182 mm focal length and approx. power 7. Gap with micrometer screw and comparison prism. On the middle cylindrical portion, in which the prism-system is fixed, a telescope with photographic scale is arranged laterally. The movement of the observing tube is carried out by a micrometer screw with a view to controlling the very extended spectrum, while focussing is carried out by rack and pinion. The apparatus is mounted on a stand having universal motion. Dispersion from A - H^1, aprox. 9^0.

54102a. — idem, with two prism-systems and twice the dispersion (approx. 18^0) 22. 0 0

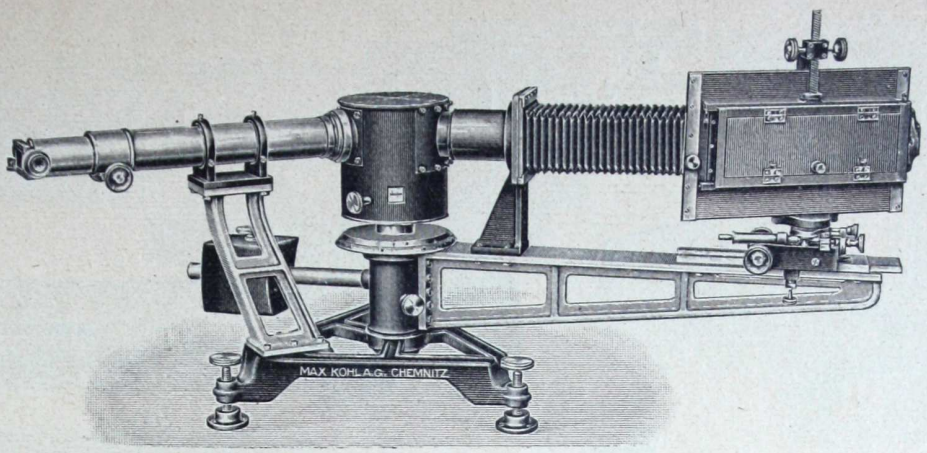
Spectrographs, Wave-length Grating Spectrometers.

54100a. **Spectrograph,** Figure, consisting of a Spectroscope combined with a Photographic Camera 13×18 cm 15. 0.0

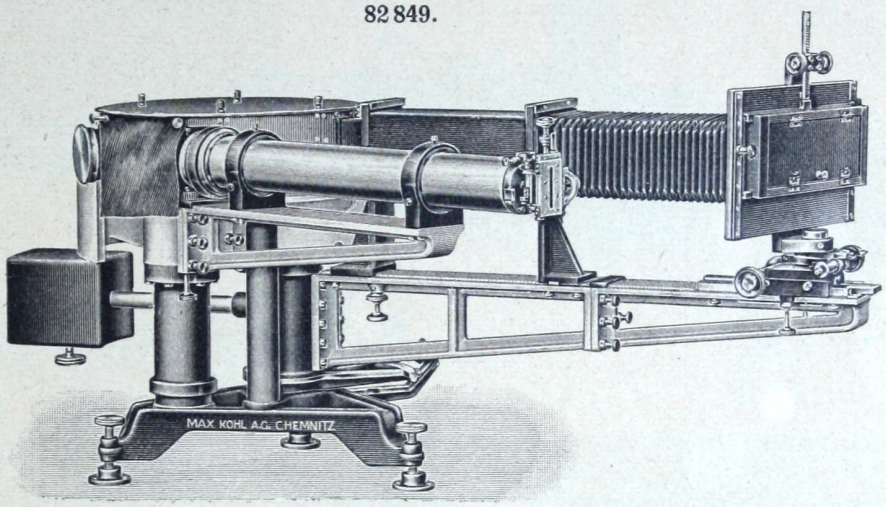
The spectroscope contains 1 quintuple direct-vision prism, 1 triple collimator objective of 20 mm aperture, 1 single micrometer gap slider with divided drum. The camera can be rotated in the vertical plane and a rack is provided for sharp focussing. The ground glass disc and the dark slide can be displaced vertically so as to admit of 5 exposures being made on one plate. The apparatus is specially suitable for investigating colour-sensitive plates and for teaching purposes.

82848. **Quartz Spectrograph** (Steinheil's), Figure, with simple unsymmetrical gap, collimator with long rack and pinion, capable of setting to all wave-lengths 35. 0.0

Camera on pivoting arm with divided circle and index and with following movements by hand: Focussing by sliding the camera, with millimetre reading. Tilting movement with reading in degrees. Height adjustment for the plate-holder, with mm-scale. Objective aperture of collimator and camera, 20 mm. Focal length, 240 mm for n = 1,59, brightness factor 1 : 12 The collimator lens is a simple spherically corrected lens, the camera objective a double "Spectroplan", which, with the collimator and prism together gives a flattened spectrum. There are two Young type prisms.



82 849.



82 850.

£ s. d.

82 849. **Quartz Spectrograph** (Steinheil's), Figure, complete type 89.10.0

Objective aperture (a) of the collimator = 40 mm, (b) of camera = 45 mm. Focal length = 400 mm for n = 1,59, hence aperture ratio = 1:10. The collimator is a single spherically-corrected lens, the camera objective a double "Spectroplan", which, together with the collimator lens and prism flattens the spectrum.

With simple, dissymmetrical **precision gap** with quartz comparison prism, collimator with sufficiently long movement, so as to set the apparatus to any wave-length up to infinity; 1 Cornu prism 40 mm height and 50 mm side on pivoting prism table with divided circle; camera on pivoting arm, with clamp with graduated circle and vernier, and with following adjustments: Rack focussing with scale reading to 9,1 mm; camera tilt operated by measuring screw with drum reading; height adjustment for plate-slide by rack with millimetre scale, to enable any number of exposures to be made on one plate.

The photographic plate is focussed by shifting the position of the camera, so that the latter can be moved as close as possible to the prism, to enable the slanting pencil of rays to be photographed satisfactorily.

82 850. **Glass Spectrograph** (Steinheil's), Figure 122.10.0

Objective apertures (a) of collimator = 45 mm, (b) of camera = 50 mm. Two different ratios of aperture may be used, viz., 1:3 and 1:10, that is to say, the camera objective (Spectroplan) has two focal lengths, viz. f_1 = 135 mm, and f_2 = 450 mm. With three 60° prisms, increasing towards the camera, and with condenser lens calculated for 1:3 but capable of being used for the other ratio. Since the apparatus can be used with either one or with three prisms for the two ratios of aperture, the choice of different spectra is thus provided. For 1:3 and 1:10 with three prisms the spectra are flattened. With a simple unsymmetrical precision gap with gap diaphragms or coincidence gap and protecting hood. The collimator is focussed by shifting the objective by means of a rotary ring. Prisms on pivoting prism stands with reading on divided circles. Camera on pivoting arm with scale and vernier and with following adjustments: Rack focussing and reading to 9,1 mm. Camera tilted by measuring screw reading on a drum. Height adjustment of the slide by rack with millimetre scale, so as to enable any convenient number of exposures to be made on a plate. Condenser with adjustment in all three directions. Convenient arrangements are fitted for adjusting all parts, while the apparatus can be easily dismounted for the various spectra, the adjustment previously set being maintained. With **Gauss ocular** capable of rotation about an axis in the image-plane and above the spectrum. In light-tight housing, easily detachable.

82 851. **Wavelength Grating Spectrometer**, Cf. Figure 82834 on p. **1450** (Instead of the prism shown in that illustration, a diffraction grating is used) 45. 0.0

The grating, — a copy of the Rowland metal grating — is made on a 90° prism, and has a grating area of 30×30 mm, with about 15 000 lines to the inch. With a luminous source of sufficient strength, however, the accuracy attainable is more than twice that of a wave-length spectrometer made of the heaviest flint glass. The prism with grating is fixed to a stand in the same way as a constant-deflection prism, this table or stage being moved by an accurately calibrated screw with wave-length drum of 80 mm diameter having a spiral groove of 380 $\mu\mu$—800 $\mu\mu$. The objectives of the reading telescope and the gap-tube have a free aperture of 30 mm at about 200 mm focal length. The gap is symmetrical, with graduated drum for measuring the width of gap. The apparatus can be adjusted up and down so that the lowest position of the optical axis is about 16 cm, and the highest position about 35 cm above the surface of the stage.