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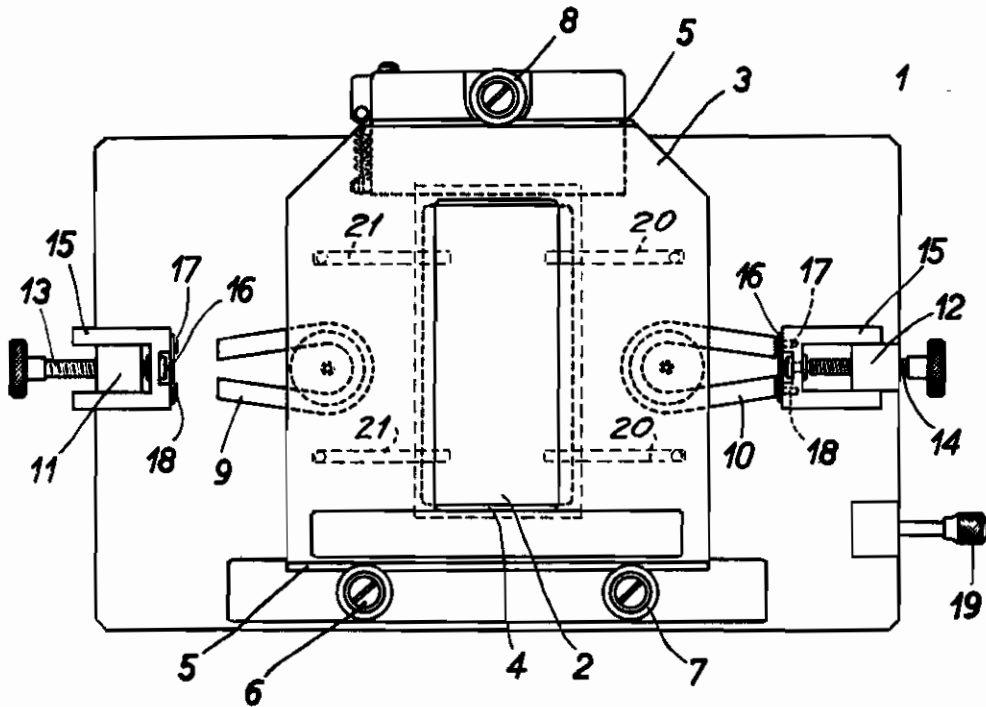


Fig. 1

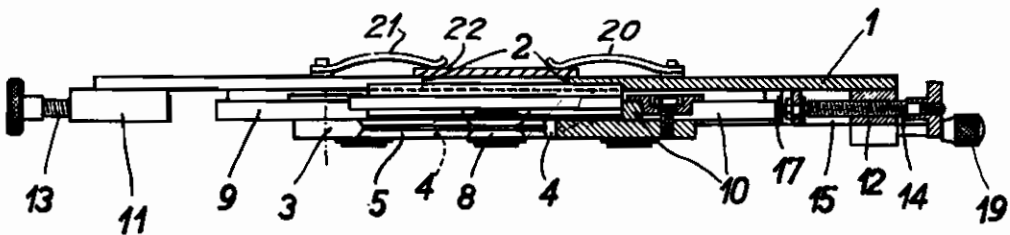


Fig. 2

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In the technical use of spectro-analyses, it is becoming more and more important to attain as high a rapidity as possible in the measurement of photographic exposures. This proceeding consists nearly always in measuring the density of the blackening of spectral lines in each spectrum of a great quantity of spectra looking much alike which are photographed on one plate. The measurement concerns especially two lines which have the same distance apart in all spectra photographed on the same plate. The distance between the lines to be measured is different however with different substances. Accordingly an apparatus is to be devised which permits the plate holder to be rapidly displaced over a distance that corresponds exactly to that between the two lines to be measured, especially because finding the lines generally takes up much time. The time required for measuring is considerably reduced as soon as the apparatus has once been adjusted to the distance apart of the lines in one spectrum. In this case, the measurement of the two lines of each spectrum merely requires that the plate is displaced from spectrum to spectrum, the plate holder being shifted by means of the apparatus to and fro between the two end positions. According to the invention, micro-photometers for rapidly measuring pairs of lines and especially pairs of spectral lines are provided with adjustable stops between which the plate holder can be displaced. Further, it is of importance that the plate holder can be reliably arrested in the two end positions. The image of a spectral line, which has in most cases only a breadth of less than 0.1 millimetre, is magnified 20 to 30 fold on the slit in front of the photo-electric cell. To avoid a readjustment in each end position, which would be tantamount to an additional loss of time, the plate holder is to assume always the same end positions and to be firmly arrested therein. For the sake of an easy displacement of this plate holder, it is necessary that no considerable power need be used for instance for operating mechanical arresting de-

vices. The invention accordingly provides that arresting the plate holder in its two end positions adjustable by means of the stops is effected magnetically, conveniently by permanent magnets. To this effect, horse-shoe magnets are fixed to the displaceable plate holder, and iron plates fast with the stops constitute the pole pieces. It is naturally also possible to fix the stops to the displaceable plate holder and the permanent magnets to the stationary part supporting this holder. Further, it is convenient to use means that prevent the magnets and the said iron plates from touching each other completely, so that these parts cannot stick to each other and the plate holder can be withdrawn without much energy being required. Not only does the apparatus according to the invention thus fulfill in an ideal manner the demands set forth hereinbefore, but it is, moreover, exceedingly cheap.

In the accompanying drawing, which illustrates the invention, the apparatus is shown in

Fig. 1 in a view from below, and in

Fig. 2 in part-sectional side elevation.

A plate holder 1 having a rectangular aperture 2 is displaceable on a stationary base 3 having an aperture 4. The base 3 has bevelled guide surfaces 5, between which the plate holder 1 can be made to slide by means of rollers 6, 7 and 8. To the base 3 are fixed horse-shoe magnets 9 and 10. The plate holder 1 has stops which are constituted by a U-shaped iron part 15 and whose displacement relative to guide pieces 11 and 12 can be controlled very exactly through the agency of micrometer screws 13 and 14. To that end of the said iron part 15 which is nearest the magnet, a soft iron plate 16 is fixed by brass screws 17 and 18, which protrude approximately 0.5 millimetre above the plate 16 and prevent this plate from sticking to the magnet. By means of a milled head 19, the spectral lines can be accurately adjusted relatively to the slit of the photo-electric cell.

GERHARD HANSEN.