Melt on a water bath, mixing thoroughly, and strain through muslin; or the gum elemi may be dissolved in the solvents, and the melted wax added after filtration; to make it thinner, add a little more essence of lavender.

Retouching.—In introducing this subject into our Twelve Lessons, we must necessarily do so in a mere cursory manner, because to elucidate every point would occupy several pages of matter, which may be of interest to only a few; therefore, beyond a mere outline of this important branch of photography, we shall say but little, as past issues of the PHOTOGRAPHIC NEWS and YEAR-BOOKS will give all the information required, and our publishers issue a special work on the subject.

When a negative is finished, it is seldom in a fit state for printing; transparent spots require filling up to the same density as the surrounding parts, clouds need strengthening, water-falls or waves are not vivid enough, foliage is imperfect, the modelling in the flesh parts of portrait negatives is too abrupt; these, and many other defects likely to mar the beauty of the resulting print, may be corrected by skilful retouching. Since the universal adoption of gelatino-bromide plates these defects are, in a measure, not so glaring as they were formerly; but we have to contend with some of them even now, but in a less aggravated form. Graphite, commonly but wrongly named black-lead, is the agent universally employed to overcome many of the difficulties, and by its judicious use very fine results are obtained.

To facilitate the work of retonching, a suitable frame or

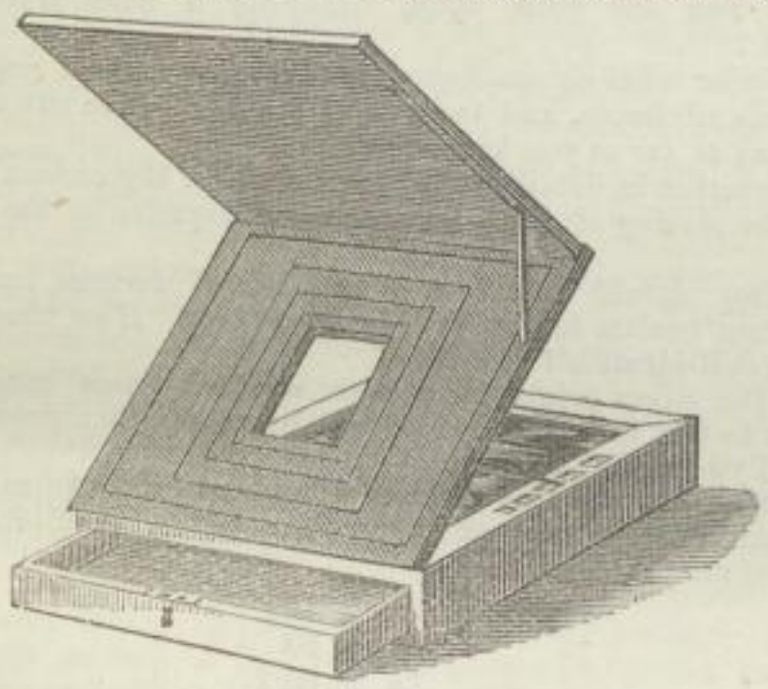

Fig. 1.

desk will be required (see fig. 1). The lower portion of the desk consists of a case into which a drawer is made to slide, the said drawer being used to store pencils, brushes, colours, &c.; on the top of the case a mirror is fitted, and at one end the middle portion is hinged, thus forming, when supported by struts at the back, a convenient table, on which the negative may rest during the operation of retouching. At the top of this middle section is hinged another of equal size, for the purpose of shutting off the top light; black twill curtains (not shown in the fig.) depend from this portion, so that, when working, all light is cut off from the operator except that which passes through the negative. The desk should be placed facing a window; the reflector, which may be of white cardboard, should be placed at right angles to the source of light. As the upper and lower portions of the frame are hinged, the angle at which the negative rests while being worked upon should be arranged to suit the comfort of the operator.

En passant, we may remark that, cramped, leaning forward positions adopted by some retouchers tend rather to deteriorate health than promote it; therefore, bearing this important fact in mind, the learner will do well to train himself to work in an upright position. The desk shown in fig. 2 is for day or evening working; when used in daylight the lamp is removed. The light emitted from the lamp should be diffused through the medium of an opal or ground glass chimney, there being many suitable patterns in the market. Until persons become thoroughly trained to the art of retouching, their eyes are often much distressed with the strong light; blue or green

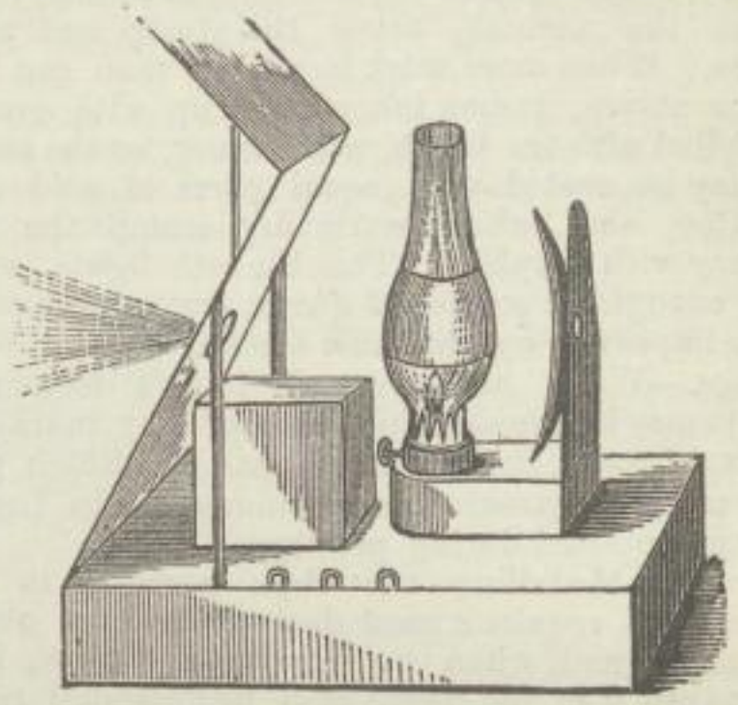

Fig. 2.

glass placed between the negative and the source of light, *i.e.*, under the negative, will be found to improve matters very much. A ready means of obtaining coloured glass is by dissolving a packet of Sand's penny aniline dyes in two ounces of plain collodion, or negative varnish. Coat the piece of glass as in varnishing, dry, using very little heat; the finest result is obtained when the dye is dissolved in collodion, but the most durable when dissolved in spirit varnish, the glass plate being coated with plain collodion previous to coating with dye. Another help to the sight, from which great comfort is often derived, is to cut a small oval opening in a piece of brown paper, of such a size that every part of the negative is covered up except the portion being worked upon; the amount of light through such an opening, previously filtered through blue glass, will not be found to distress the eyes very much. Besides a retouching frame, the following articles will be needed:—Finely powdered graphite (such as electrotypers use will be found the best); an artist's stump, for applying the graphite over large surfaces that may require it; an assortment of drawing pencils—best quality, soft, medium, hard, and very hard, a few finely pointed; sable brushes, small size; a few cakes of water colours, among them being Prussian blue, Indian ink, vermilion, Chinese white, and carmine; a bottle of gum water containing three drops of glycerine per ounce, a little gum being added to the colour when it is desired to stipple on the varnish; a bottle of medium, for use when the varnish refuses to take the pencil, the medium consisting of half-an-ounce of gum resin dissolved in two ounces of turpentine. To use it, moisten a piece of rag with the medium, and, when nearly dry, pass it over the parts of the negative required. This medium is also useful in removing the marks of the pencil when the retouching has been imperfectly done, at the same time leaving a good surface for the new work to be laid on. Some persons use an abrading medium, such as cuttle-fish bone, powdered resin, alone and with dextrine, fine emery, putty powder, and other cutting substances, the object being to obtain a matt surface presenting a good tooth or bite to the pencil. The mode of application is to take a little of the dry powder on the finger, and rub the part to be retouched with the powder in a circular motion until a matt surface results. Work put on this matt surface cannot be removed so easily as with the resin and turpentine, which we recommend to the learner in preference to the others. We will attempt the correction of the defects in the order enumerated above.

Transparent Spots.—When these are small, and the negative has been varnished, they may be filled up with a hard