

UNITED STATES PATENT OFFICE.

GUSTAV SELLE, OF BRANDENBURG, GERMANY.

PHOTOGRAPHS IN NATURAL COLORS.

SPECIFICATION forming part of Letters Patent No. 604,269, dated May 17, 1898.

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To all whom it may concern:

Be it known that I, GUSTAV SELLE, a subject of the German Emperor, and a resident of Brandenburg-on-the-Havel, in the Empire
5 of Germany, have invented certain new and useful Improvements in the Production of Photographs in Natural Colors, of which the following is a specification.

This invention relates to the production, by
10 superposition of three differently-colored transparencies, of a colored photograph in natural colors; and its object is to produce such photograph in an easier and more perfect manner than heretofore. In previous
15 attempts in this direction gelatin films colored with insoluble pigment have been exposed under negatives and developed in hot water by which parts of the gelatin are dissolved away, carrying away with them the in-
20 soluble pigment from such places. This process not only produces a transparency in relief which is difficult to superpose, but also is liable to distortion, so that the colored photographs do not come into exact coincidence
25 and the desired effect is not obtained. In such process also the supports for the gelatin have been used temporarily only, partly with the view to be able to bring the gelatin films into absolute contact, partly since such sup-
30 ports were of a thickness which would quite prevent such near approach of the gelatin or actual picture-bearing films as is necessary to obtain the effect of natural colors in the combined photograph. The removal of the
35 support, however, as aforesaid, without distortion of the film is of supreme difficulty. By the present invention these difficulties are overcome or avoided partly by the use of extremely thin collodion films for more imme-
40 diately carrying the gelatin film, such collodion films being during the development process themselves carried by a support such as a glass plate partly by avoiding the hot-water-development process and insoluble pigment,
45 which leaves the gelatin film in relief, and consequently requires a comparative thickness of film, and using in place thereof a soluble mordant in the gelatin and a cold-wa-

ter process of development and subsequent dyeing, which leaves the gelatin film quite
50 smooth and of even thickness throughout and allows of a thinner gelatin film. Thus by the use of the collodion under layer these films when stripped from the glass are not
55 liable to distortion and are still, including the permanent collodion layer, of such thin-ness that when superposed they are close enough together to give the natural effect of
60 the color of the objects represented in the photograph.

Such process is carried out as follows: An excessively thin coating of collodion is spread on a glass plate, and when dry the chromated gelatin emulsion is spread thereon. Three
65 such plates are exposed to light beneath three negatives which have been respectively taken of the same object with interposition of three different-colored light-filters. The faces of the
70 plates are next to the negatives. Each plate is then immersed in a bath of cold water in which a soluble dye has been dissolved com-
75plementary to the color of the respective light-filter which was used in the production of the corresponding negative. The previously clear and colorless gelatin takes up the dye
at such places as the light has acted upon,
80 but none of the gelatin is dissolved. When dry, the gelatin films, with their collodion under layer adhering to them, are stripped from the glass and the three thus-produced trans-
parencies are superposed and suitably mounted or attached.

I do not claim as my invention the use, broadly, of a film-carrier nor the production
85 of natural-colored photographs from three differently-colored superposed transparencies, nor do I claim the use of pigmented gelatin; but

What I claim is—

The process for the production of natural-
90 colored photographs from three negatives, taken with interposition respectively of three differently-colored light-filters, consisting in forming three plates by spreading upon a firm support an excessively thin adhering coating
95 of collodion and upon the latter an adhering

coating of colorless chromated gelatin emul-
sion, exposing the plates so formed respec-
tively behind the negatives with the gelatin
coating in contact with the negative, immers-
5 ing each plate in cold water containing a dye
or solution complementary to the color of the
light-filter used for the corresponding nega-
tive, subsequently detaching the collodion

films with the gelatin films thereon from the
supports and superposing said detached films. 10

In witness whereof I have signed this speci-
fication in presence of two witnesses.

GUSTAV SELLE.

Witnesses:

WM. HAUPT,
CHAS. KRUGER.