

UNITED STATES PATENT OFFICE.

NAPOLEON J. HECKMANN, OF LOUGHTON, ENGLAND.

PROCESS OF TREATING PAPER FOR DETECTIVE PURPOSES.

SPECIFICATION forming part of Letters Patent No. 225,282, dated March 9, 1880.

Application filed October 8, 1879. Patented in England, February 6, 1879.

To all whom it may concern:

Be it known that I, NAPOLEON JOSEPH HECKMANN, of Loughton, in the county of Essex, England, have invented a new and useful
5 Process for Treating Paper for Detective Purposes, which is fully set forth and described in the following specification.

The improvements are performed by placing in the size (used in the finishing process of paper-making) equal parts of prussiate of potash and sulphuret of ammonia, in the proportions,
10 or near thereto, of one of each to about twenty of size. The paper or parchment is passed through this solution and finished as in making ordinary paper. Any color or tint can be
15 added, as at present. I prefer, however, to use sulphate of manganese and sulphate of copper, in proportion of seven of the first to four of the latter, for the coloring-matter, added
20 to two hundred and forty weight of liquid, consisting of three parts water to one part size, or sufficient size to cause the paper to float, combined with the detective ingredients first above mentioned.

As most attempts at erasure by chemical means would leave a dark discoloration on paper so treated, great care is necessary in
25 keeping utensils wherein to dissolve the chemicals, as in no case must the ingredients for the coloring come in contact with those chemicals in the first solution, because
30 in that event it would cause a precipitate which would be on the surface of the paper, and not become embodied therein. It is also imperative that the rolls of the sizing-machine
35 be without eruption or indentation, as the result would be a streak upon the surface of the paper when passing through the coloring solution. This precaution is not necessary when
40 the paper is passing through the first solution. Therefore, to obviate this discoloration, the rolls of the sizer must be coated with at least a half inch in thickness of vulcanized india-rubber.

45 If ordinary metal rolls be used for the first operation, they should be free of any eruption or indents on the surface, so as to render them

fit for the second or coloring operation. Care must be taken that after the paper has passed through the first solution the rolls and the
50 size-trough be thoroughly cleansed with a solution consisting of one part sulphuric acid to eight parts of water, until the discoloration caused by the sulphuret of ammonia is removed. Should the rolls be covered with vul-
55 canized rubber it will only be necessary to use clean water to remove any traces of the first solution before using the second. It is further necessary that the sizing-trough be at least twelve inches away from the back of the
60 rolls, because, if such be not the case, the froth caused by the paper passing through the second solution would attach itself to the paper in the shape of small globules, and so prevent the second solution from attaching it-
65 self to the already sensitized paper, and thereby causing white spots.

The best paper for use is that known by the term "water-leaf."

The first solution is best formed of half size
70 and half water of not less temperature than that ordinarily used for sizing paper, the chemicals, previously dissolved separately, to be added separately.

The second solution is best formed of three
75 parts water to one part size, or sufficient size to cause the paper to float on the rolls.

In the drying process the temperature in the drying-room must not exceed 80° or 90° Fahr-
80 enheit, for if in excess it renders the paper harsh.

I claim as my invention—

The process of preparing detective-paper by placing in the finishing-size prussiate of pot-
85 ash and sulphuret of ammonia, substantially in the manner described.

In testimony whereof I have signed this specification in the presence of two subscrib-
ing witnesses.

N. J. HECKMANN.

Witnesses:

H. I. HADDAN,

D. H. McLAUCHLAN.