

United States Patent Office.

MARK B. HARDIN, OF NEW YORK, N. Y.

Letters Patent No. 61,733, dated February 5, 1867.

MODE OF TAKING COPIES OF MANUSCRIPTS, &c.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, MARK B. HARDIN, of the city, county, and State of New York, have invented a new and useful Mode of Taking Copies of Manuscripts; and I do hereby declare the following to be a full and exact description of my said invention.

My invention provides for taking copies of papers which have been written in common ink, somewhat in the same manner in which manuscripts have heretofore been copied which have been written with ink specially compounded for that purpose. There is this difference, however, that I not only copy papers which have been written in common ink, but I copy papers which have been written for months, and even for years, with great facility; and what is of still more importance, I make a great number of perfectly legible copies from one single manuscript.

To prepare the paper on which the copies are to be made, I take such paper as is ordinarily used for taking press copies of manuscripts, and treat it with an infusion of nut-galls. About one pound of the galls to one gallon of water will give the infusion the proper strength, though it may be made considerably stronger or weaker without essential detriment to the final result. This infusion may be applied to the paper beforehand, which can then be bound into letter-books in the usual way, and can be moistened as the successive leaves are wanted for use. Or, a letter-book may be used which has been formed of unprepared paper, and the successive sheets may be moistened with the infusion of galls, as those sheets are to be used in the copying process. The moistened sheet of the paper to be copied may then be subjected to pressure in a copying press. Successive copies may thus be taken. The reaction between the sulphate of iron in the ink with which the manuscript was made and the gallo-tannin acid in the prepared paper produces a new ink in the prepared paper itself. A number of copies may thus be made from the same manuscript before the color becomes so faint as to be illegible. When the manuscript has been written for several weeks or longer, it is found necessary to use some auxiliary acid to effect the object sought. For this purpose I prefer the use of oxalic acid, though there are other acids which will answer the purpose very well. A weak solution of the acid should be used for this purpose. The paper may be treated with this solution beforehand, then dried, and afterwards moistened with water when about to be used, as has been suggested with regard to the infusion of galls. I prefer, however, to prepare the paper beforehand, so far as the infusion of galls is concerned, and then moisten it when about to be used with this weak solution of the acid. The shorter the period of time since the manuscript to be copied was written, the weaker may be the solution of the acid. If that period has been only a few days, no auxiliary acid whatever will be needed.

I am aware that in 1863 John Underwood obtained a patent for an improved process for copying writings, maps, &c., by forming characters, marks, &c., with a prepared ink, and then bringing them in contact with a prepared paper under pressure, the ink and paper being prepared in such a manner that when the two are brought together a chemical action takes place, whereby copies of the said characters are produced. But, although the said Underwood, in his invention, applied the same principle as that now contemplated by me, he always proposed to use an ink specially prepared in making the manuscript which he proposed to copy. He had never conceived the idea of copying ordinary manuscripts which had been written in common ink, and especially such manuscripts as had been written for months and years previous, and without any intention of their being copied at the time they were written.

What, therefore, I claim as my invention, and desire to secure by Letters Patent, is—

1. The process hereinbefore described of copying manuscripts, maps, &c., which have been written with common ink, substantially as above set forth.

2. In the copying of manuscripts, as herein contemplated, which have been written with common ink, and which have been long written, I claim the use of a weak solution of oxalic or other equivalent acid, substantially in the manner and for the purpose hereinbefore described.

M. B. HARDIN.

Witnesses:

R. T. CAMPBELL,
EDM. F. BROWN.