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INDIA OFFICE,
London, 12th July 1894. File No. 141.
Serial No. 1.

To

Revenue.
No. 91.

To His Excellency the Right Honourable the Governor-General of India in Council.

MY LORD,

I forward, for the information of your Excellency's Government copy of
From Board of Agriculture, 24th May 1894, and correspondence with the Board of Agri-
enclosure. culture, marginally noted, on the subject
To Board of Agriculture, 30th May 1894. of a process invented by Mr. G. H. Block
From Board of Agriculture, 27th June and en- for chemically cleaning and graining zinc
closure. plates.

I have the honour to be,

MY LORD,

Your Lordship's most obedient humble Servant,

H. H. FOWLER.

No. 4967-B., dated London, the 24th May 1894.

From—T. H. ELLIOTT, Esq., Secretary, Board of Agriculture,
To—The Under-Secretary of State for India.

I am directed by the Board of Agriculture to acquaint you, for the in-
formation of the Secretary of State for India, that a process invented by Mr.
G. H. Block for chemically cleaning and graining zinc plates has been tested
by the Ordnance Survey Department, and inasmuch as it was found to effect
a considerable saving in labour, the Treasury have authorised the Board to
acquire permission to make use of the process, which has since been patented.
I enclose a copy of a receipt which has been signed by the Patent Lithographic
Zinc Plate Company, Limited, and by Mr. Block, and I am to say that if the process
is one which is likely to be of use to your department, the Board will, be happy
to furnish a copy of the recipe.

The Patent Lithographic Zinc Plate Company, Limited, and Gustav Henry
Block of 9, Fenchurch Street, in the City of London, Commission Merchant,
hereby acknowledge the receipt of the sum of one hundred pounds paid by the
Treasury to the said Company at the request of the said G. H. Block as the
agreed consideration for the use at all times hereafter for the services of
the Crown by the Board of Agriculture, the India Office and the War Office
by themselves, their Agents, Contractors or others of the invention relating to
chemically cleaning and graining zinc plates for which provisional protection
is afforded by the application of this year numbered 595 and of any amend-
ment or modification of such invention which may be comprised in the complete
specification of the patent granted under this application.

Dated this sixteenth day of April 1894.

For the Patent Lithographic Zinc Plate Company, Limited.

(Sd.) W. R. LOCKING,
Secretary.

(Sd.) G. H. BLOCK.

No. 805-R. & S., dated 30th May 1894.

From—C. E. Bernard, Esq., Secretary, Revenue and Statistics Department,

To—The Secretary, Board of Agriculture, 3, St. James's Square, S. W.

I am directed by Mr. Secretary Fowler to acknowledge the receipt of your letter of the 24th instant, relative to a patent process which the Board of Agriculture have acquired permission to use and are willing to impart to this Department; and in reply I am to state that Mr. Fowler will be glad to be furnished with a copy of the recipe which the Board have kindly offered to furnish, as it is likely to be most useful in this Department and to the Government of India.

No. 10375-B., dated London, 27th June 1894.

From—T. H. Elliott, Esq., Secretary, Board of Agriculture,

To—The Under-Secretary of State for India.

I am directed by the Board of Agriculture to advert to Mr. Bernard's letter of the 30th ultimo (R. & S. 805), and in compliance therewith I enclose a copy of a memorandum for the information of the Secretary of State for India upon Mr. Block's patent process for chemically cleaning and graining zinc plates as adopted by the Ordnance Survey Department.

Mr. Block's Process for Preparation of Zinc Plates.

Nature of Plates.

The zinc plates generally in use at the Ordnance Survey Office are of the following

sizes :—

For large work 43" x 28½".

From small work 28½" x 21½".

They are of 7 B.W. gauge in thickness.

When first received these plates have an extremely hard surface which is removed by scraping with a razor; then the plates are planished with pumice-stone at first and subsequently with snake stone.

The plates are then ready for graining. This process has hitherto been carried out by means of Moulders' sand which is passed through a very fine sieve. About 160 meshes to the linear inch.

Mr. Block's Process.

The process aims at avoiding the necessity of graining the plates.

At the Ordnance Survey Office no crucial experiments have been made in adapting this process to new plates, i.e., plates which have not been previously used for printing.

The great majority of plates at Southampton have already been used for printing.

The process of preparation for a plate on which Printers' ink remains is as follows :—

- (1) In order to remove the gum and the old detail from the surface of the plate it is immersed in a bath of saturated caustic potash. The duration of immersion is ten minutes. Care must be taken to prevent the operators' hands coming in contact with the solution. Care must also be taken to regulate the time of immersion.

Immersion beyond the period stated has been found to act prejudicially on the surface of the plate.

When the plate is removed from the caustic potash bath, it is first washed, front and back with clean water, to which has been added a little of the acid, the composition of which is the same as that of the acid bath mentioned later on.

The plate is again washed with clean water and pumice-stone powder is rubbed over the surface by hand whilst the plate is still moist.

The plate is now immersed in an acid bath prepared as follows :—

To alum 6 lbs, add hot water 8 quarts until the former is dissolved.

Then add nitric acid 2 quarts and cold water 12 quarts.

This forms the stock solution, but it is too strong for use, and the stock is diluted by adding cold water to it in the proportion of eight to one.

The solution naturally loses strength as each plate is treated, and must from time to time be strengthened by adding a certain quantity of the stock solution.

The trough containing this bath has a rocking motion, so that the acid travels backwards and forwards over the surface of the plate, and produces an oxide on its surface which is carefully sponged off at least four or five times. Then the plate is allowed to remain in the bath, until a slight oxide forms on its surface. The plate is then withdrawn, washed with clean water, and while still moist sprinkled over with carbonate of magnesia which is well rubbed into the

The surface.

plate.

Once again the plate is well washed with water and dried quickly by pouring boiling water over the back.

When nothing unusual occurs it may be estimated that the preparation of a large size plate takes about half an hour.

Time.

Recd-34
94

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To Board of Agriculture, 30th May 1894.
From Board of Agriculture, 27th June and enclosure.

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The Patent Lithographic Zinc Plate Company, Limited, and Gustav Henry Block of 9, Fenchurch Street, in the City of London, Commission Merchant, hereby acknowledge the receipt of the sum of one hundred pounds paid by the Treasury to the said Company at the request of the said G. H. Block as the agreed consideration for the use at all times hereafter for the services of the Crown by the Board of Agriculture, the India Office and the War Office by themselves, their Agents, Contractors or others of the invention relating to chemically cleaning and graining zinc plates for which provisional protection is afforded by the application of this year numbered 595 and of any amendment or modification of such invention which may be comprised in the complete specification of the patent granted under this application.

Dated this sixteenth day of April 1894.

For the Patent Lithographic Zinc Plate Company, Limited.

(Sd.) W. R. LOCKING,
Secretary.
(Sd.) G. H. BLOCK.

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When nothing unusual occurs it may be estimated that the preparation of a large size plate takes about half an hour.

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