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# ALIEN PROPERTY CUSTODIAN

## PROCESS FOR REMOVING PRINTING INK FROM PRINTED PAPER

Berthold Rassow, Leipzig, Germany; vested in the Alien Property Custodian

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The present invention relates to a process for removing printing ink from printed papers wherein upon reduction of the paper texture into fibre, the colouring matter located thereon is loosened and washed off so that it can be removed together with the waste water, or in the dispersed condition for example by adsorption rendered harmless. The fibre thus obtained may serve as half of the material for the production of new paper.

A number of such processes have already been proposed. For example it is known to carry out such a process with soap and trisodium phosphate has also been suggested for this purpose. Such proposals have, however, not hitherto led to a process of any practical value.

The process according to the present invention on the other hand, renders it possible to overcome the known disadvantages and enables the desired result to be readily, simply and effectively obtained, being of especial importance for rendering newspapers again usable for purposes other than the manufacture of pasteboard.

The invention consists in a process for removing printed ink from printed paper by reducing it to fibre in aqueous solutions of washing agents characterised by the feature that alkali or ammonium pyrophosphate is used as the washing agent. It is advantageous for the reduction to fibre to be effected in water which contains in suspension kaolin or any other usual loading substance, and the method of operation is the usual one as will be evident from the examples hereinafter described.

It is already known to add, during the washing of paper, a certain quantity of phosphate, for example to increase the hardness of the water. The addition of pyrophosphate according to the present invention does not, however, lead to this result. Pyrophosphate has been shown to be a particularly suitable washing agent for the present purpose and it is therefore itself used as a washing agent and not as an addition to another substance acting as a washing agent.

In carrying out the process the usual washing procedure is quite practicable but often in practice due to large quantities of waste water being necessary it is not quite suitable.

It is therefore an important further feature of the invention that the amount of waste water required can by a suitable sequence of operations be kept small and for this reason the present invention has a considerable advantage over the hitherto known processes. In this case the reduction to fibre is carried out at a fairly high concentration and to the pasty mass obtained is added ordinary pulp. This addition may be effected to the extent of 30% and more according to the residual colour obtained. The mass obtained often presents a blue shade which for the

purpose of obtaining a commercial product may be compensated with soluble yellow colouring matter in the same way as a yellow colour can be removed by blue colouring. This compensation may of course be carried out at a later stage during the manufacture of the paper.

The results obtained will be more clearly seen from the following examples which are given only by way of example, it being understood that the invention is not limited to the particular examples herein described.

### Example 1

150 g of printed newspaper are beaten up in a Hollander with 6 litres of water and treated with an aqueous solution of, 4, 5 g tetra-sodium pyrophosphate. After two hours agitation the liquid in which the printing ink is washed away is removed through a fine sieve. The remaining fibrous mass may according to requirements be used directly as half finished material for new paper or can be brought to a pulped form on a sieving machine.

The effects obtained are shown by the following whiteness measurements. Newspaper reduced to fibre had a whiteness value of 39 relative to permanent white (barium sulphate) and in the case of a comparative suspended wood pulp (raw, unbleached) the whiteness was 64. Waste paper treated by above described process had a whiteness value of 56-66. The strength of the fibres was shown to remain undiminished.

### Example 2

200 parts by weight of newspaper waste sheets are added to 1,000 parts of water in which are dissolved 2 parts by weight of sodium pyrophosphate, mixed at room temperature in an edge mill and worked for approximately two hours.

In this case kaolin is preferably added to an amount corresponding to the desired loading of the paper, for example 30 parts by weight. The paste obtained is then added to a weakly acid pulp, i. e., the fibre obtained during the usual paper making processes. Instead of an edge mill other apparatus may of course be employed, for example a Hollander, ball mill, Jordan mill, refiner, rotary boiler or a container fitted with a pump installation. Such apparatus may also be coupled together.

In addition to tetra-sodium pyrophosphate other washing agents, for example soaps, soda, sodium octadecanolmethylaminoethansulphonate and the like may be used. The substances may also be added in a Holland mill. In this case to the waste sheets are added pyrophosphate and kaolin. Instead of newspaper other kinds of paper may of course be used with similar results.

BERTHOLD RASSOW.