Patented May 6, 1941 2,240,732

UNITED STATES PATENT OFFICE

2,240,732

LITHOGRAPH PLATE PREPARATION

William H. Wood, Bedford, Ohio, assignor to The Harris-Seybold-Potter Company, Cleveland, Ohio, a corporation of Delaware

No Drawing. Application November 21, 1938, Serial No. 241,512

4 Claims. (Cl. 101—401.1)

In lithography, it is common practice to suitably treat the surface of the plate such that image and non-image areas are obtained, the latter being characterized by being non-receptive of the ink, and water is suitably applied in the printing process to maintain these areas sufficiently ink-repellent. Customarily, aluminum in pure state is employed as plate material. In accordance with the present invention, alloy plate materials are employed, and with surprising distinction in properties as contrasted with the customary aluminum plates.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described, and particularly pointed out in the claims, the following description setting forth in detail certain illustrative embodiments of the invention, these being indicative however, of but a few of the various ways in which the principle of the invention may be employed.

In the preparation of lithographic plates according to the invention, I apply aluminum alloyed, as hereinafter detailed. Lithographic plates thus made up, are found to have surprisinig moisture-retentiveness. They hold a moisture film three to five times as long as the customary aluminum plates, and as will be readily appreciated by workers in the art, this involves a remarkable advantage in lithographic printing. Again, less moisture is required in the dampening during printing. Another peculiar characteristic of the improved plates is that whereas the ordinary aluminum plates cannot be left unprotected by applications of gum etc. for more than fifteen or twenty minutes without undergoing changes in the atmosphere such that there is a difference in sensitivity to ink, the present plates may be left unprotected by the usual gum coating for extended periods. Peculiarly also, using commonly known fountain solutions such as gum-dichromate-phosphoric acid or phosphoric-gum solution, the present plates may be allowed to dry on the press, and can then be inked up solid, and then simply by dampening the plate the ink may be removed by the ink rollers or by other means. This is impossible with customary aluminum plates. Peculiarly also, a finer grain is produced in graining the present plates, and there is less tendency to warpage from the graining than is the case with the usual aluminum plates. The present invention is notably advantageous in the making of deep etch lithographic plates, for the reason that the etching action proceeds more slowly than with ordinary aluminum and can be more accurately controlled. In deep etching usual aluminum plates, the attack by an iron chloride solution is so rapid that a plate may be over-etched in less than a minute, and skilled operators have great difficulty in controlling the etching to avoid such over-action. In contrast, the present plates will withstand the action of a 50° Bé. iron chloride etch for a period within two minutes without over-etching, and the process is easily controlled.

The plates are made in usual or desired thickness, and the metal is an alloy of aluminum and manganese. The proportion of manganese may in general be 1 to 2 per cent, and 1.25 per cent is very satisfactory. Provided the manganese content be present, the presence or absence of smaller amounts of such elements as copper, iron, and silicon is immaterial. Such plates may be coated with light-sensitized coating and exposed and be developed by the usual procedures for making lithographic plates. On the press, the dampening roll arrangement may be as usual or preferred; however, as already pointed out, less moisture is required during printing. A further characteristic which is found in usage is that the plates break less readily when gripped by the plate-clamps in contrast to customary aluminum plates.

Other modes of applying the principle of the invention may be employed, change being made as regards the details described, provided the features stated in any of the following claims, or the equivalent of such, be employed.

I therefore particularly point out and distinctly claim as my invention:

1. In the preparation of lithographic plates, promoting the moisture-retaining capacity of a plate which is predominantly of aluminum by including a small amount of manganese in the plate.

2. In the preparation of lithographic plates, promoting the moisture-retaining capacity of a plate which is predominantly of aluminum by including about 1.25 per cent of manganese in the plate.

3. As a new article of manufacture, a lithographic plate of an alloy predominantly of aluminum and containing a small amount of manganese.

4. As a new article of manufacture, a lithographic plate of predominantly aluminum and containing about 1.25 per cent of manganese.

WILLIAM H. WOOD.