

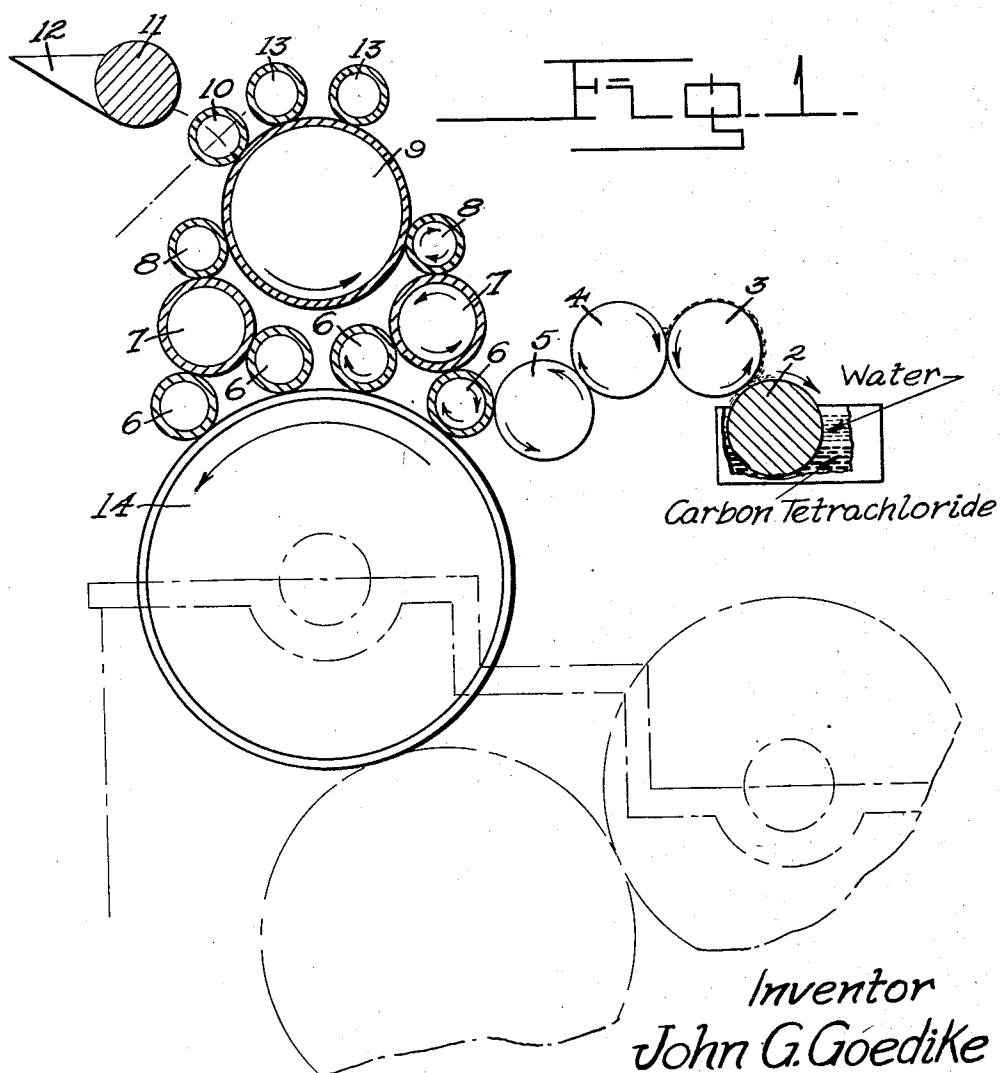
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DUAL DAMPENING AND INKING MECHANISM FOR PLANOGRAPHIC AND ANALOGOUS PRESSES

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DUAL DAMPENING AND INKING MECHANISM FOR PLANOGRAPHIC AND ANALOGOUS PRESSES

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This invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates generally to the lithographic art, which is one of the graphic arts and is a process of reproduction that is based on the mutually repellent properties of substances such as grease and water or oil and water.

Since metal plates have become adapted to the lithographic process other names have been applied to the process such as planography, planographic offset, photo offset, deep etch, etc.

Lithographic and offset inks are of a greasy and oily nature and are water repellent.

It has been normal practice to construct the presses used in this art with separate and distinct distributing systems, one of which functions as an ink distributor and the other as a water distributor.

The separate water distributing system has always been a destructive element to litho plate surfaces.

I have discovered and proved by careful tests that a unified distributing system for the dual purpose of distributing the mutually repellent substances, ink and water, maintains the plate surface in perfect condition and eliminates the destructive effect of the separate water distributing system on the plate surface.

I accomplish this result by distributing the water with the same rollers that distribute the ink and by feeding the water to these rollers by taking advantage of the surface tension of water and the difference in the specific gravity of water and carbon tetrachloride.

A film of water will adhere to the exposed surface of a partially submerged roller revolving slowly in a water pan or trough. This film of water has a sufficient thickness to dampen the surface or deposit water on the surface of a roller turning independently of the fountain roller if the independent roller is set close and in the same alignment. The setting of the independent roller is as close as permitted without actual contact. If the independent roller is carrying a coating of ink and set close some of the ink may gradually accumulate on the surface of the fountain roller. The fountain roller is a slow turning roller and it is possible to revolve this roller in a trough the lower half of which is filled with carbon tetrachloride therefore the carbon tetrachloride would dissolve the ink off the fountain roller surface and as it revolved through water in the upper half of the pan this surface would

again be dampened. Therefore the effect obtained at this point is a slow revolving roller partially submerged in a trough and carrying a film of water which dampens the surface of a second roller which may be travelling at a greater speed owing to the fact that the rollers are set close without being in actual contact, and the surface of the fountain roller is passing at each revolution through a lower layer of carbon tetrachloride for cleaning and an upper layer of water for dampening. The independent roller of this set up is now connected in true alignment and close contact with a roller of the ink distribution system which immediately is converted into a dual purpose distribution system carrying ink and water. At this point the two rollers in close contact govern the amount of water that is distributed and if water is visible at the point of contact it indicates that sufficient water is feeding for correct operation of the press.

Some of the rollers of the distribution are driven by gears and some by contact and as this is apparent to anyone familiar with the art the description of the drive has been omitted to retain simplicity. It is apparent that if the rollers turn the distribution system will function as illustrated.

This method of water distribution by the same rollers that accomplish the ink distribution has the effect of preserving the plate surface to such an extent that unlimited editions may be obtained without a wear in the design or false tint in the background.

This method of water supply is positive and visible as the two rollers in true alignment and close contact that are set between the water fountain feed roller and the balance of the distributing system always show water at the line of contact.

In order to understand my invention reference is had to the accompanying drawing which is a diagram representing an end view of the combined ink and water distribution system of an offset press as it is set to the plate cylinder. All the elements represented by this diagram are rotating rollers or cylinders with the exception of the water and ink fountains. Each element represented in the diagram is numbered for reference. Every roller in the distribution system is sensitive to ink on the surface.

The water trough 1, contains a lower layer of carbon tetrachloride and an upper layer of water as sectioned off by lines shown. The water feed roller 2, revolves at the required speed in water trough 1, with a partially submerged surface

which passes through the lower layer of carbon tetrachloride for cleaning and through the upper layer of water where the surface is charged with water and carried on the surface to water contact distributing roller 3, which revolves in setting close enough to contact the water on surface of water feed roller 2, without touching surface of water feed roller 2, at any point. The water contact distributing roller 3, carries the water to the line of close contact with water regulator distributing roller 4, and at this point the close contact of the water contact distributing roller 3, and the water regulator distributing roller 4, form a reservoir and permit only the necessary film of water to pass that is required for operating the press while the visible water retained at this point is evidence that sufficient water is being supplied. The surface tension of water permits this effect as it rolls at this point visibly as a small bead from one-eighth to one quarter inch in diameter without spilling at the ends.

From water regulator distributing roller 4, the film of water is carried to rider 5, and from rider 5, to form roller 6, which contacts the plate surface on plate cylinder 14, with water and ink and rider 7, and as the system revolves in the direction indicated by the arrows the film of water charges the surface of the entire system such as form rollers 6-6, riders 7-7, connecting rollers 8-8, drum 9, distributors 13-13, and when the water film reaches ductor 10, it is so fine it permits ductor 10, to deposit ink on drum 9, from ink fountain roller 11, which turns in ink fountain 12. The entire system of distributing rollers from 3, to 13, are completely charged with ink.

Having described my invention what I claim as new and wish to protect by Letters Patent is:

1. The method of inking and dampening printing surfaces of planographic and analogous printing members, which consists in transmitting water from a source of supply to an inking mechanism, transmitting the water together with a film of ink to said printing member through said ink distributing system, whereby an ink repelling coating of water will be applied to the non-design portions of a printing surface and ink will be applied to the design portions of said surface.

2. In a printing press, the combination of a printing member, a mechanism for applying ink to said printing member and a dampening mechanism connected with said inking mechanism, said dampening mechanism including a source of water supply and means for transmitting the water from said supply to the inking mechanism.

3. In a printing press, the combination of a printing member, a mechanism for applying ink to said member, a dampening mechanism connected with said inking mechanism, said dampening mechanism comprising a source of water supply, a water feed roller mounted therein, means for transmitting the water from said feed roller to said inking mechanism, and a cleanser for said feed roller provided in said source of water supply.

4. In a printing press, the combination of a printing member, a mechanism for supplying ink to said member, a dampening mechanism connected with said inking mechanism, said dampening mechanism comprising a source of water

supply, a water feed roller mounted therein, means for transmitting the water from said feed roller to said inking mechanism, a cleanser for said feed roller provided in said source of supply, said cleanser comprising carbon tetrachloride.

5. In a printing press, the combination of a printing member, a mechanism for applying ink to said member, a dampening mechanism connected with said inking mechanism, said dampening mechanism comprising a source of water supply, a water feed roller mounted therein, a distributing roller adapted to pick up by surface contact water from said feed roller and means for transmitting the water from said distributing roller to said inking mechanism.

6. In a printing press, the combination of a printing member, an inking mechanism, including a source of ink supply, means for transmitting the ink from said source of supply to said printing member, said means including an ink distributing drum and ink rollers, a dampening mechanism connected with said inking mechanism, said dampening mechanism comprising a source of water supply, a water feed roller mounted therein, a water distributing roller adjacent to said feed roller and adapted to pick up water from said feed roller by surface contact therewith, a water regulator distributing roller in contact with said water contact distributing roller and a rider roller in contact with the ink rollers of said ink distributing mechanism.

7. In a printing press, the combination of a printing member, a mechanism for applying ink to said member, a dampening mechanism connected with said inking mechanism, said dampening mechanism including a source of water supply, a water feed roller mounted therein, a water contact distributing roller adjacent to said water feed roller and adapted to pick up water from said feed roller by surface contact therewith, a water regulator distributing roller in contact with said water contact distributing roller, a rider roller in contact with said inking mechanism, and a water reservoir formed by said water contact distributing roller and said water regulator distributing roller.

8. In a printing press, the combination of a printing member, an inking mechanism, including an ink fountain, an ink roller in the fountain, an ink distributing drum, a ductor roller for transferring the ink from said ink fountain roller to the ink distributing drum, means for transferring the ink from said drum to said printing member, said means comprising ink rollers, including ink distributing and form rollers, said form rollers contacting with said printing member, a dampening mechanism connected with said inking mechanism, said dampening mechanism comprising a water fountain, a water feed roller mounted therein, a fluid in the lower portion of said fountain for cleaning the water feed roller and water in the upper portion thereof, said fluid comprising carbon tetrachloride, a water contact distributing roller adjacent to said water feed roller and adapted to pick up by surface contact the water on said water contact distributing roller, and a rider roller in contact with a form roller of said ink distributing system.

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