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MACHINE FOR DEVELOPING SENSITIZED PAPERS

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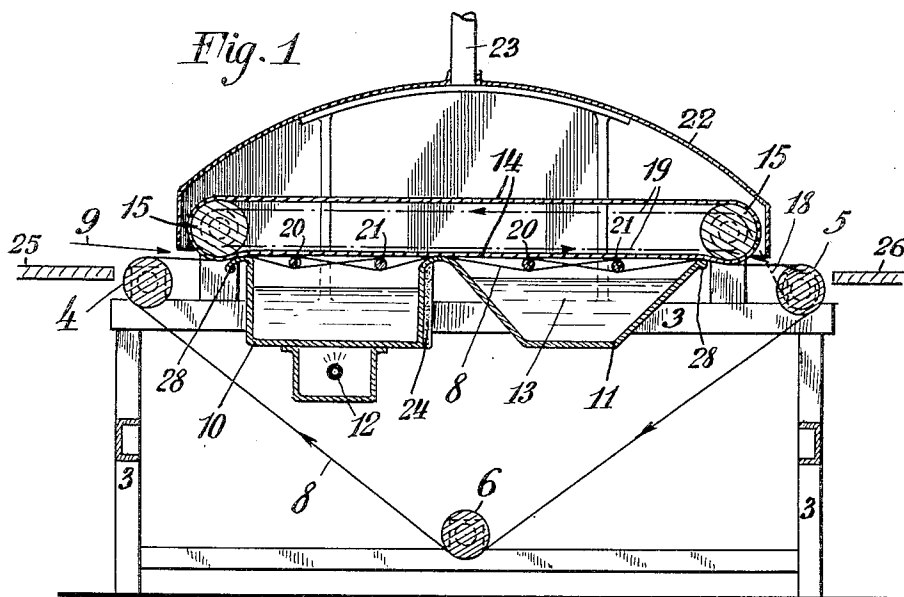
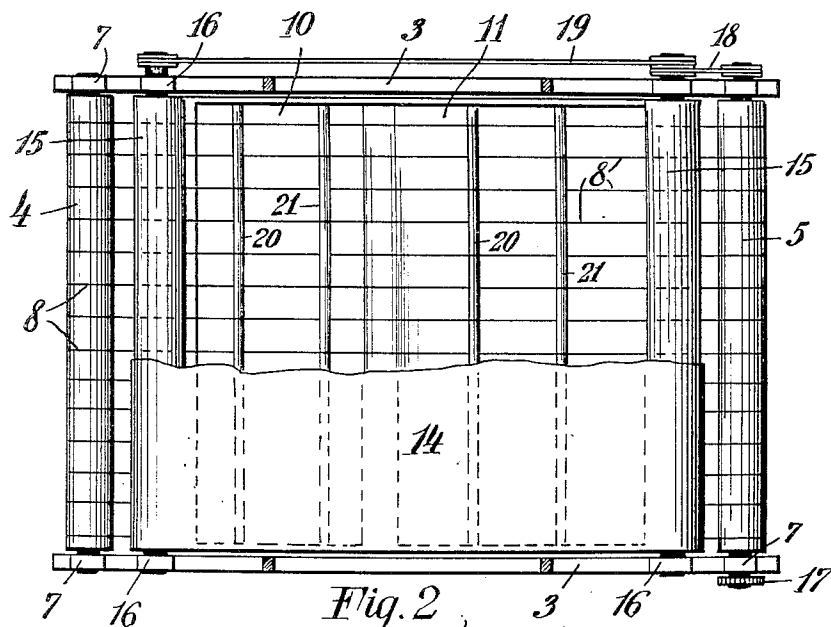


Fig. 2

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MACHINE FOR DEVELOPING SENSITIZED PAPERS.

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This invention relates to apparatus for developing sensitized paper such as is used for the reproduction of drawings, pictures, maps, prints and other similar matters and things.

More particularly the invention relates to a machine for developing paper which has been sensitized with certain chemicals in accordance with certain processes resulting in a sensitized paper which may be developed into nonfading positives after having been exposed to steam and the fumes of ammonia.

The object of the invention is to provide a machine of simple practical construction, arranged and designed, whereby sensitized paper may be exposed to or treated with steam and the fumes of ammonia so as to be developed into positive prints.

To this end the invention is embodied in a paper developing machine arranged and constructed as hereinafter set forth and as illustrated in the accompanying drawing in which

Figure 1 is a sectional view of a machine embodying the invention, and

Figure 2 is a plan view of the machine with parts broken away for the sake of clearness.

Referring to the drawing the reference numeral 3 denotes a suitable framework for supporting the several parts and elements of the machine. The framework may be made of wood or metal and assembled and arranged in any manner suitable for the purpose.

The numerals 4, 5 and 6 denote paper feed rollers which are suitably mounted in bearings 7, 7. Over the rollers pass endless string or cords 8, 8 which support and convey the paper through the machine in the direction of the arrow 9. The cords or strings 8 constitute a belt for conveying the paper through the machine in such a manner that the least possible surface area of the paper is covered by said belt as is obvious.

In passing through the machine the paper with its sensitized surface downward passes over a steam tank 10 and an ammonia tank 11. The tanks extend from side to side of the machine and are suitably supported in the framework 3. The steam tank contains water which is heated by a gas burner 12. The ammonia tank is replenished from time

to time with ammonia 13 in any convenient manner.

Above the tanks there is supported a rubber belt 14 which extends from side to side of the tanks and which is mounted on rollers 15, 15 journaled in suitable bearings 16, 16. The rubber belt cooperates with the strings 8 to feed the paper through the machine and keep it flat. The belt also serves as a cover for the two tanks insuring that the steam vapors and ammonia fumes are confined so as to act on the paper.

The machine is driven from any suitable source of power applied to a gear 17 on the driving roller 5. At the opposite end a belt 18 drives one of the rubber belt rollers 15, and the two rubber belt rollers are driven by another belt 19.

The edges of the tanks are rounded as at 28 to prevent cutting of the strings or cords 8, and the rubber belt rollers 15 are mounted so as to compel the rubber belt 14 to pass downward slightly at each end of the machine to insure good closure on the tanks as shown. In each of the tanks there are mounted rods 20 and 21 over and under which the cords 8 are led alternately as shown in Figure 2. That is to say one cord passes over the rod 20 and under the rod 21. The next adjacent cord passes under 20 and over 21, and so on. This is done in order that all parts of the paper may be exposed to the action of the steam and ammonia.

For the protection of the workmen a hood 22 is placed over the machine to draw off the ammonia fumes and steam which pass out through a draft pipe 23. The steam tank may have insulation 24 attached to the one side which faces the ammonia tank, and work tables 25 and 26 may be provided as a matter of convenience.

In operation, a negative is made in the usual manner by exposing a sensitized paper with an original. Thereafter the negative is placed with the sensitized surface downward upon the cord belt 8 and fed into the machine where it passes over the steam in the tank 10 and over the ammonia tank 11, thereby being exposed first to the steam and then to the ammonia fumes. During the passage over the steam and ammonia fumes, the negative is developed and comes out at the other end of the machine between the rollers 15 and 5 as a positive with deep

permanently fixed purple lines on a white background.

The paper is not exposed long enough to moisten it. It is finished when it has passed through the machine. If necessary the speed of the machine may be regulated to suit the local conditions and the paper. The rubber belt serves as a cover for the two tanks so that hardly any steam and ammonia fumes escape.

The apparatus is quick acting, simple and efficient in construction and operation, and permits the operator to work close by the machine without being subjected to otherwise obnoxious escape of the ammonia fumes.

The fact that the tanks are of a given suitabel size does not impair the efficiency of the machine inasmuch as the time of exposure may be regulated by the operating speed of the machine.

I claim:

1. A machine of the character described comprising in combination a steam tank, an ammonia tank, an endless belt supported to move over and flush with the two tanks and adapted to act as a gastight cover therefor and a plurality of spaced endless cords for moving the paper over the tanks and below said endless covering belt to cause the paper to be exposed to steam vapors and ammonia fumes developed in the tanks and means for operating the said belt and endless cords.

2. A machine of the character described comprising in combination a first tank, means for developing steam therein, a second tank, means for supplying the latter with ammonia, a plurality of spaced cords forming an endless conveyor, means for operating the same over and flush with the said two tanks, a gas confining belt, means for moving the latter above and in cooperative relation with said cord conveyor, said belt forming a covering means for the said tanks and mechanism for driving the said belt and conveyor.

3. A gas developing apparatus of the character described, comprising a pair of tanks, an endless conveyor formed of a plurality of spaced cords, means for moving the same over said tanks, means for deflecting parts of the cords in their passage over the tanks, a gas confining belt, means for moving the latter above and in cooperative relation with said cord conveyor, said belt forming a cover for the tanks, and means for driving the belt and conveyor.

4. A gas developing apparatus of the character described, comprising a tank, an endless conveyor formed of a plurality of spaced cords movable over said tank, rods in said tank for deflecting a portion of the cords in their passage over the tank, a gas confining belt, means for moving the latter above and in cooperative relation with said

cord conveyor, said belt forming a cover for the tank, and means for driving the belt and conveyor in unison.

5. A gas developing apparatus of the character described, comprising a tank, a conveyor movable over said tank, a movable substantially gastight cover for said tank formed to coact with said conveyor to advance material therebetween and over said tank, and means for driving said cover and conveyor.

6. A machine of the character described, comprising in combination a steam tank and an ammonia tank, a conveyor movable over said tanks, a movable gastight cover for said tanks formed to coact with said conveyor to advance material through the fumes generated in said tanks, and means to drive the cover and conveyor.

7. A machine of the character described, comprising in combination a steam tank and an ammonia tank, a conveyor movable over said tanks, a movable cover for said tanks formed to coact with said conveyor to advance material through the fumes generated in said tanks, and means to drive the cover and conveyor.

8. A gas developing apparatus of the character described, comprising a tank, a conveyor movable over said tank, a movable cover for said tank formed to coact with said conveyor to advance material therebetween and over said tank, and means for driving said cover and conveyor.

9. A gas developing apparatus of the character described, comprising a plurality of tanks, an endless conveyor formed of a plurality of spaced members, means for moving the same over said tanks, means for deflecting parts of the members in their passage over the tanks, a gas confining belt, means for moving the latter above and in cooperative relation with said conveyor, said belt forming a cover for the tanks, and means for driving the belt and conveyor.

10. A gas developing apparatus of the character described, comprising a tank, an endless conveyor formed of a plurality of spaced members movable over said tank, means in said tank for deflecting a portion of the conveyor members in their passage over the tank, a gas confining belt, means for moving the latter above and in cooperative relation with said conveyor, said belt forming a cover for the tank, and means for driving the belt and conveyor.

11. A gas developing apparatus of the character described, comprising a tank, a conveyor formed of a plurality of spaced members movable over said tank, means for deflecting a portion of alternate conveyor members in their passage over said tank, a gas confining cover movable in cooperative relation with said conveyor, and means for driving the belt and conveyor.

12. A gas developing apparatus of the character described, comprising a tank, a conveyor formed of a plurality of spaced members movable over said tank, rods in the tank for deflecting portions of alternate conveyor members in their passage over said tank, a gas confining cover movable in cooperative relation with said conveyor, and means for driving the belt and conveyor.

13. A gas developing apparatus of the character described, comprising a tank, a conveyor movable over said tank, means for deflecting a portion of said conveyor in its passage over said tank, a gas confining cover movable in cooperative relation with said conveyor and means for driving the belt and conveyor.

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