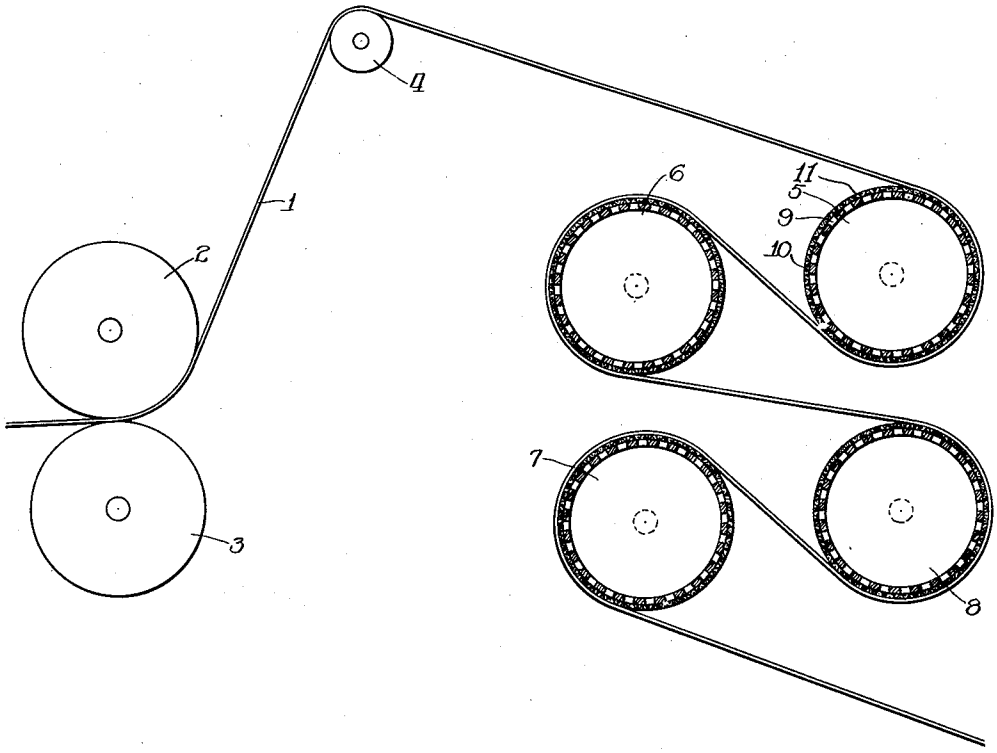
Feb. 11, 1936. T. E. KNOWLTON 2,030,304

PRINTING

Filed July 20, 1931



Inventor:-
Theodore E. Knowlton.
By Albert & Robinson Atty.

Patented Feb. 11, 1936 2,030,304

UNITED STATES PATENT OFFICE

2,030,304

PRINTING

Theodore E. Knowlton, New York, N. Y.

Application July 20, 1931, Serial No. 551,918

5 Claims. (Cl. 101—416)

This invention relates to a method and apparatus for printing blank sheets on one or both sides and then immediately drying the freshly printed sheets whereby they may be readily rolled or cut up into individual pieces and handled without smearing or blurring of the ink.

The invention consists in the novel methods, combinations and arrangements hereinafter described or claimed for carrying out the above-stated object and such other objects as will hereinafter appear.

The invention may be readily understood by reference to one embodiment thereof which is described in the following specification for the purpose of illustration. In this embodiment the sheet to be printed, for example "Cellophane" paper, is fed through any conventional type of printing apparatus comprising printing and impression means and is then traversed through a heated or drying zone whereby drying means is impinged upon the freshly printed surface until the ink is completely dry or is sufficiently dry to permit the sheet being rolled or otherwise disposed of without smearing.

For a better understanding of the invention reference may be made to the accompanying drawing in which the single figure is a view in vertical elevation, partly sectional, of that part of a printing apparatus embodying my invention.

Referring to the drawing, numeral 1 designates a blank sheet of paper, such as "Cellophane", which may be fed from any source, such as a supply roll, to a conventional printing apparatus comprising a printing roll 2 and an impression roll 3. This sheet is ordinarily to be printed on one side only and after being printed is traversed over a tension or take-up roll 4 to one or a series of drying cylinders 5, 6, 7, and 8. Any number of drying rolls may be provided, and they are preferably disposed in order that the freshly printed sheet may be circumvolved thereover with the opposite faces alternately contacted.

While the drying cylinders may be varied as to size they are preferably driven in synchronism with the printed roll and arranged to coordinate and register therewith. As far as relating to the present invention, however, they are of the same general structure in which each is hollowed with a central chamber 9 to which compressed air is supplied through the usual stuffing box at the axis of the journal and then discharged to the periphery of the cylinders to any number of perforations 10. The perforated cylinders are faced with a perforated or foraminated sheet 11, such as a wire screening, whereby the air may be discharged through the perforations and distributed by means of the screening over the entire face of the sheet. In addition to or in lieu of discharging air through the hollow perforated cylinders, air may also be impinged against the printed sheet during its movement from the printing and impression cylinders to the drying cylinders, and during its movement from one drying cylinder to another. If this latter drying means be employed in lieu of discharging the air through the cylinders, the cylinders may be solid, in which case the screen facing functions merely as an irregular supporting surface to prevent smearing of the ink. In this instance, emery or sanded paper may be employed as the facing for the cylinders, the sanded side being exposed to contact with the printed blank.

While I have shown several rolls of similar construction it will be understood that any number of them may be used and they may be disposed in any arrangement desired. Any or all of the cylinders may be journaled in fixed or adjustable bearings. It will be further understood that the air may be varied as to temperature and dryness to suit particular circumstances and could be ejected through the perforated cylinders under different degrees of pressure.

Obviously the present invention is not limited to the specific embodiment herein shown and described, for various changes in detail may be made by one skilled in the art without departing from the spirit of the invention.

I claim:

1. A method of drying a freshly printed sheet comprising feeding said sheet with its freshly printed side in contact with an irregular uneven screen surface, and impinging a drying means through the screen upon the freshly printed side while being fed over said surface of the sheet.

2. A method of drying a freshly printed sheet comprising feeding said sheet in juxtaposition with an irregular uneven surface, actuating the juxtaposed sheet and irregular surface through a predetermined path, and impinging a drying means against the freshly printed side of the sheet during its movement in this predetermined path.

3. A method of drying a freshly printed sheet comprising providing a cylinder having a perforated periphery, facing the cylinder with a foraminated layer having an irregular uneven surface, circumvolving the freshly printed sheet over the cylinder with the freshly printed side in contact with the foraminated layers, and

ejecting a drying means through the perforated cylinder against the freshly printed sheet.

4. In combination with a printing device, a drying means comprising a cylinder provided with a perforated periphery having an irregular uneven peripheral surface, and a conduit provided in the cylinder leading to the perforated periphery.

5. A method of drying a freshly printed sheet comprising feeding said sheet over an irregular uneven surface, and impinging a drying means through the surface upon the sheet while being fed thereover.

THEODORE E. KNOWLTON.