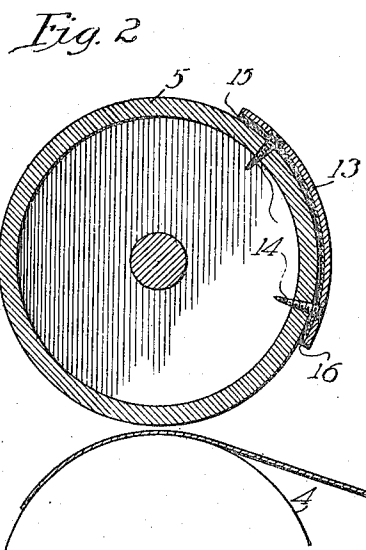
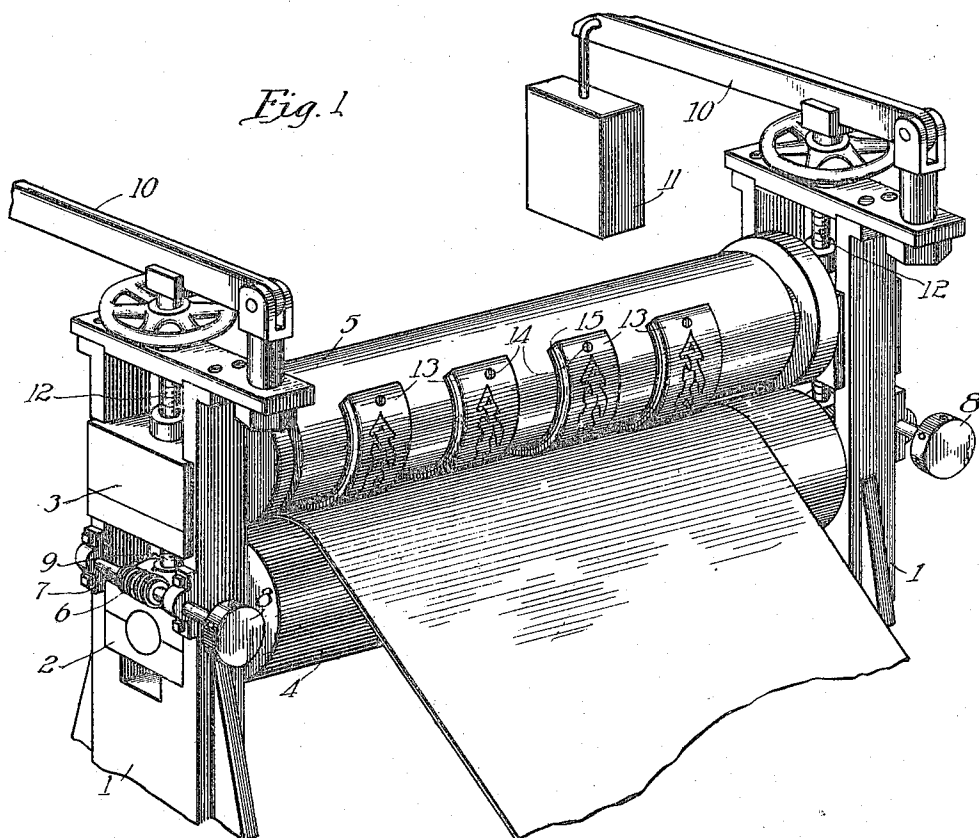


H. BROWN.
PAPER MARKING DEVICE.
APPLICATION FILED MAR 9, 1914.

1,152,393.

Patented Sept. 7, 1915.



Witnesses:
Arthur W. Carlson
Hubert G. Halverson

Inventor:
Howard Brown
by Wallace R. Lane
Attys.

UNITED STATES PATENT OFFICE.

HOWARD BROWN, OF MITTINEAGUE, MASSACHUSETTS.

PAPER-MARKING DEVICE.

1,152,393.

Specification of Letters Patent.

Patented Sept. 7, 1915.

Application filed March 9, 1914. Serial No. 823,347.

To all whom it may concern:

Be it known that I, HOWARD BROWN, a citizen of the United States, residing at Mittineague, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Paper-Marking Devices, of which the following is a specification.

This invention relates to a marking device for paper.

According to the process and mechanism disclosed in my co-pending application No. 774,800 filed June 20th, 1913, a mark in the nature of a water mark is placed upon paper preferably in the course of its manufacture, by squeezing the paper under heavy, preferably regulable, pressure between a hard backing and a hard impression surface whereby the paper which is damp at the point of treatment is compressed along the lines of the mark and takes a mark of the utmost clarity and accuracy of line.

In order to produce a perfect mark, it is obviously necessary for every portion of the design surface across the whole length of the pressure roll to be applied with substantially the same pressure against the paper. The slightest unevenness either in the backing roll, in the thickness of the paper, or in the design plates, unless in some fashion equalized, will result in an imperfect mark. The device disclosed in my co-pending application above referred to has pressure levers for applying a yielding pressure to the whole pressure roll which carries the design plates. These levers, however, while they will permit a bodily shifting of one or both ends of the rolls and accurately regulate the pressure imparted to the roll, will not accommodate inaccuracies or irregularities in the contacting surfaces between which the paper is compressed. It is vitally necessary that the design surface should, so to speak, hug the backing throughout the whole extent of the design. It is impossible to obtain this result by making either the design or the backing surface comparatively soft so that one thereof will sink into the other, because the very essence of the process is that both surfaces must be hard. If either were soft the mark imparted to the paper would be in the nature of an embossing and not a true and permanent mark of the character desired.

My invention contemplates the provision of a resilient medium between the hard de-

sign surface and the pressure roll whereby the design surface may be slightly deflected without disturbing either the pressure or the backing roll and accommodates itself under the pressure of the pressure levers to closely hug the surface against which it is forced.

It is therefore, an object of this invention to provide a means whereby the design surface is caused to perfectly accommodate itself to the surface against which it is forced.

In addition to the object just stated, I have found that even when no irregularity in the surface is present or can be detected, the water mark according to my process is most successfully and accurately applied where the design surface is brought to bear against the paper with a springy or resilient impact.

It is therefore, another object of this invention to bring the design surface to bear against the work with such an impact.

In the drawings: Figure 1 is a perspective view of my paper marking device shown as applied to standards preferably located between adjacent driers in a paper making machine. Fig. 2 is a cross section showing the manner of attaching the design plate.

In the drawings 1 represents standards attached to the frame of a paper making machine carrying stationary lower journal boxes 2 movable upper journal boxes 3 in which are respectively journaled the backing roll 4 and the pressure roll 5.

6 represents a worm on the shaft 7 operated by the capstan 8 to turn the worm gear 9 to regulate the distance apart of the rolls 4 and 5. Pressure is applied to either end of the roll by levers 10 carrying weights 11 and bearing on the upper ends of shafts 12 mounted in the upper journal boxes.

The parts so far described are more fully disclosed and explained in my co-pending application above referred to.

Mounted upon the upper or pressure roll 5 are a plurality of arcuate design plates 13 preferably secured to the roll 5 by screws 14, one at each end, which screws are countersunk in the plates so as not to project beyond the surface thereof.

Underneath the plates 13 and between these plates and the roll 5, I place a layer of resilient material 15, preferably rubber, though probably many other materials could be substituted. In addition to this layer I preferably also place one or more layers 16

of paper. The layers of paper serve not only to build up the design plate at the point at which they are applied to precisely the right radial dimensions to make a proper
5 mark (small pieces of paper being inserted at will to bring up any portion of the mark that appears faint when the plate is first tested) but also serve to add resiliency to the design plate. With the backing thus
10 made, the design plate will come to bear against the backing roll with a springy or resilient impact and will also deflect and accommodate itself under the pressure communicated by the levers 10 to closely hug the
15 surface of the backing roll throughout its entire length.

I claim:—

1. In a pressure water marking device for
20 paper, a backing roll, a pressure roll adapted to be forced thereagainst under heavy

pressure, a design plate on the pressure roll and a resilient sheet under the design plate to equalize and distribute its pressure and allow the same to creep and bend under the pressure imposed thereupon.

2. In a pressure water marking device for
25 damp paper, a backing device, a pressure roll adapted to be forced thereagainst under heavy pressure, a metallic design plate, having a hard surface, on said pressure roll, 30
a resilient pad for said design plate to allow the same to bend and give to equalize the effect of all portions thereof.

In witness whereof, I hereunto subscribe my name to this specification in the presence
35 of two witnesses.

HOWARD BROWN.

Witnesses:

S. C. MORLEY,
C. A. EDGERTON.