

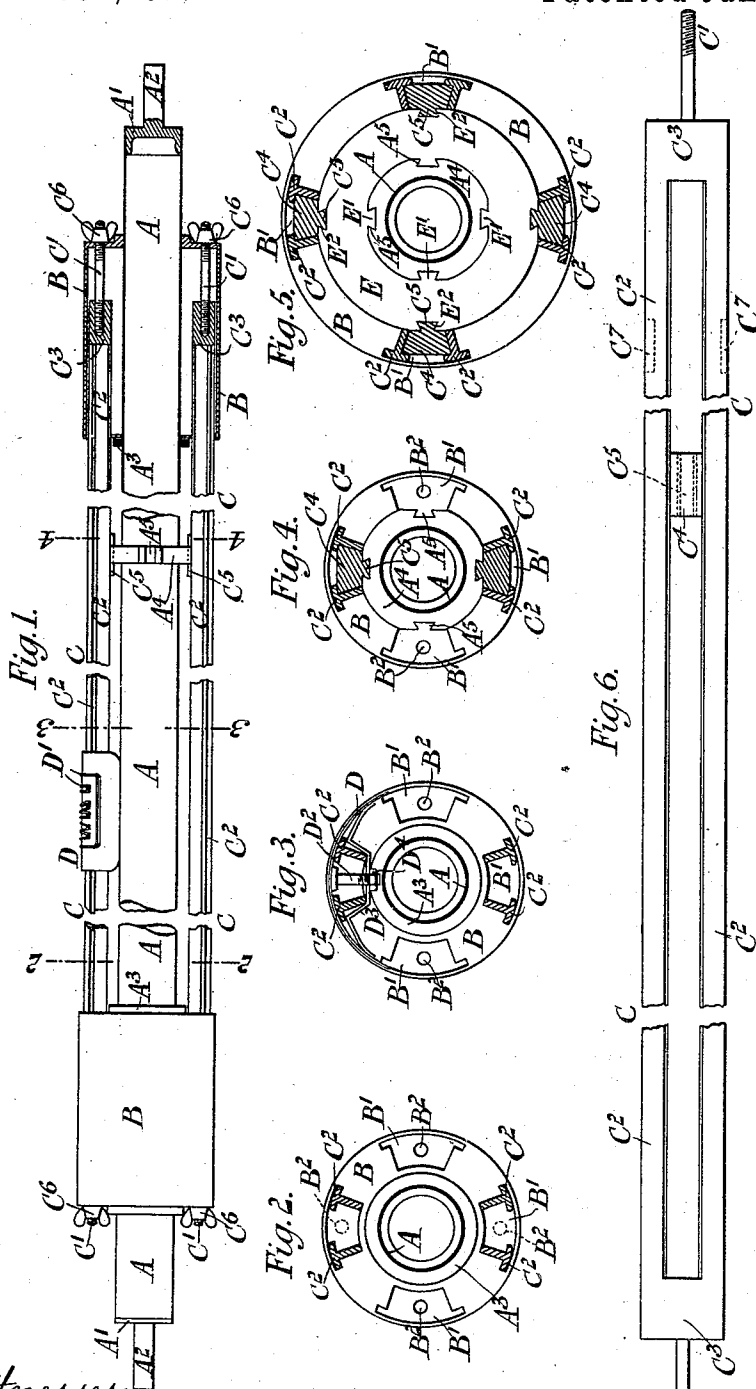
(No Model.)

2 Sheets—Sheet 1.

W. K. TROTMAN.
APPARATUS FOR WATERMARKING PAPER.

No. 532,252.

Patented Jan. 8, 1895.



Witnesses:
H. K. Boulter
C. E. Northrup

Inventor:
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By Wm. O. Boulter
attorney.

(No Model.)

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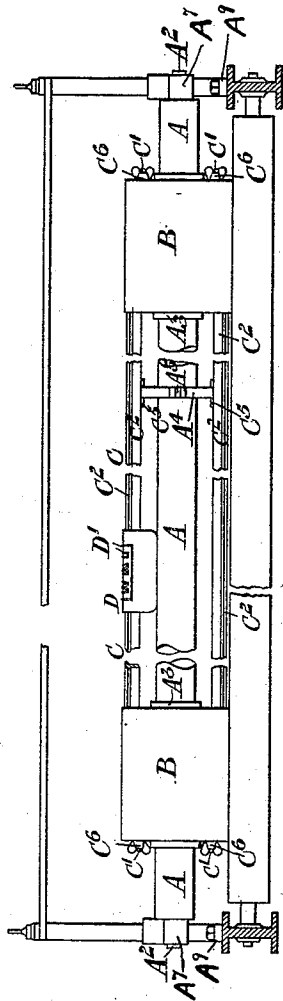


Fig. 8.

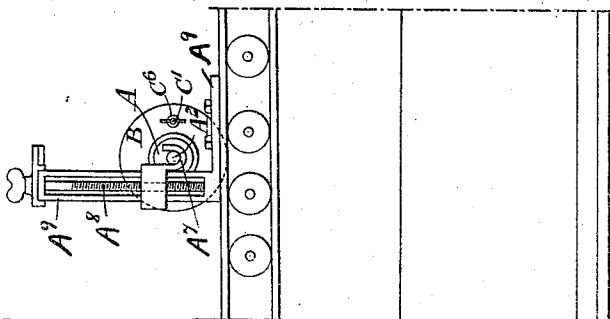


Fig. 9.

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UNITED STATES PATENT OFFICE.

WALTER KNOWLES TROTMAN, OF LONDON, ENGLAND.

APPARATUS FOR WATERMARKING PAPER.

SPECIFICATION forming part of Letters Patent No. 532,252, dated January 8, 1895.

Application filed January 5, 1894. Serial No. 495,842. (No model.)

To all whom it may concern:

Be it known that I, WALTER KNOWLES TROTMAN, a subject of the Queen of England, residing at London, England, have invented

Improved Apparatus for Watermarking Paper, of which the following is a specification.

When it is desired to watermark paper in the course of manufacture on a machine, it has heretofore generally been accomplished by means of a dandy-roll having the device of such watermark formed by sewing, soldering or similarly securing wire or the like on its periphery which device stands out in relief thereon. This method has necessitated the employment of a separate dandy-roll as well for each watermark as for different sizes of paper.

My invention has for its object to overcome that necessity, and comprises the provision of means whereby the watermarking letters or devices may be interchanged without the removal and substitution of a fresh dandy roll.

The invention will be best understood by reference to the accompanying drawings, in which—

Figure 1 is a view partly in elevation and partly in longitudinal section of a roll constructed according to my invention. Figs. 2, 3 and 4 are transverse sections taken respectively on the lines 2—2, 3—3 and 4—4 of Fig. 1. Fig. 5 is a section corresponding with Fig. 4 of the roll arranged for watermarking a larger size of paper than that for which the roll as arranged in Figs. 1 to 4 is designed. Fig. 6 is a plan of one of the pad carrying frames detached from the roll and Fig. 7 is an edge view of the pad with modified means for securing it to the frames. Fig. 8 is a side elevation (partly sectioned) of a portion of a machine with my invention applied. Fig. 9 is an end view thereof.

Like letters indicate like parts throughout the drawings.

A is a body preferably constructed of metal tube as shown, the ends of which may be closed by metal plugs A' provided with journals A² by which the improved roll is mounted in its bearings in the paper making machine at preferably a short distance away from the

dandy roll which in a machine wherein the watermarking is effected according to this invention is plain, having no watermarking device upon it. The body A is adapted to be removably supported in bearings for the purpose of allowing collars of different sizes to be placed on said body A, and for this purpose I mount the journals A² in open or hook bearings A⁷ vertically adjustable upon a screw rod A⁵ mounted in a support A³ secured to the machine.

On the tubular body A are provided two conveniently circular fixed collars A³ and one or more collars A⁴ each having say four dovetail recesses A⁵ dividing its periphery into four equal parts.

B, B are two drums fitting on the ends of the tubular body A at the outside of the collars A³ and provided at their inner ends with openings B' large enough to accommodate the ends of the frames C and at their outer ends with openings B² to admit of the screw-threaded pins or bolts C' passing through them. Each frame C consists of two preferably T-shaped bars or rails C² rigidly united at their ends as at C³ Fig. 6 in any convenient manner and at one or more parts by blocks C⁴ the number and position of which preferably correspond with the number and position of the collars A⁴ fixed on the tubular body A. Each of the blocks C⁴ is provided with a dovetail projection C⁵ to fit into one of the before mentioned dovetail recesses A⁵ of the collars A⁴ and into the ends C³ of the frames C are screwed or otherwise suitably secured the pins or bolts C'.

D is a watermarking pad or impression plate carrying any desired device D' to be impressed in relief. This plate is curved to suit the size of roll to which it is applied. At its back the plate D may, as shown in Fig. 3, be provided with a bolt or screw D² over which is passed a clamping plate D³ adapted to be forced tightly against the back of the bars C² by means of the nut D⁴ screwing on bolt D². By this arrangement the pad D may be secured in any desired position on the frame on which it is mounted, or the pad D may be retained in position on frame C with sufficient

firmness for all practical purposes by two or more clips D⁵ (Fig. 7) secured to the back of said pad and adapted to engage with the outer flanges of each pair of bars C² which as shown in dotted lines in Fig. 6 are recessed as at C⁷ to admit of the pad being applied to the frame C as will be well understood. At all parts of the frame excepting at the recesses the clips fit tightly against the outer flanges of the bars C² so that the pad D will be retained in any position to which it is adjusted until again moved by hand.

E Fig. 5 is a collar or ring provided at its interior with dovetail projections E' to fit the dovetail recesses A⁵ of collar A⁴ and at its exterior with dovetail recesses E² to receive the dovetail projections C⁵ of the blocks C⁴ all as shown in Fig. 5.

From the foregoing description it will readily be understood that by loosening the nut D⁴ the pad D may be moved along the frame C on which it is mounted and secured in any desired position thereon by again tightening the nut. It will also be obvious that one, two or more pads D may be mounted at different parts of the same frame.

In Figs. 1 to 4 I have represented the roll as with accommodation for four frames C (each fitting into one of the openings B') though with only two applied. It will be obvious however that the roll may be constructed for carrying one, two or any other suitable number of frames and that any number of frames up to the limit of accommodation may be fitted to the roll. Thus in Figs. 1 to 4 only two frames C are shown which is two less than the full complement.

When it is desired to arrange the roll for watermarking paper of a larger size than that for which it is shown arranged in say Fig. 1, all that is necessary is to remove the winged nuts C⁶ from the pins C', slip the drums B off the ends of the tubular body A, fit a collar E of the desired size on the fixed collar A⁴ and place drums of the required diameter on the ends of A. The ends of the frames C are then inserted in the drum openings B' (the diametrically opposite ones of which will be farther apart than in the drums last removed) the pins C' passed through openings B², the dovetail projections C⁵ engaged with the recesses E² and the winged nuts screwed on the pins C' until the drums are pressed tightly against the collars A³. After this the pads are secured in their proper positions on the necessary frames C and the roll is then ready for use.

The periphery of the drums is in practice to be preferably roughened so that they may be rotated by contact with the endless apron or bed of the paper-making machine.

The before described apparatus may be modified in some respects without departing from the spirit of the invention. For example the frames C may be connected to the tubu-

lar body A by brackets by means of which they may be adjusted radially in relation to body A.

I claim—

1. In an apparatus for watermarking paper, the combination with a supporting body, of drums mounted thereon and provided at their inner ends with openings, collars mounted on the supporting body, a pad-supporting frame supported by said collars and extending within the openings in the drums, threaded bolts carried by the frame and passing through the drums, nuts on the outer ends of said bolts, and a pad or impression plate carried by the frame, as and for the purpose specified.

2. In an apparatus for watermarking paper, the combination with a supporting body, of drums mounted thereon and provided at their inner ends with openings, collars mounted on the supporting body and provided with radially-arranged dovetailed recesses, pad-supporting frames provided with dovetailed projections engaging said recesses, said frames extending through the openings in the drums, threaded rods carried by the frames and extending through the drums and provided with nuts on their outer ends, and pads or impression plates carried by the frames, as and for the purpose specified.

3. In an apparatus for watermarking paper, the combination with a supporting body, of drums mounted thereon and provided at their inner ends with openings, collars mounted on the supporting body and provided with dovetailed recesses, collars provided with interior projections adapted to engage the said dovetailed recesses, said collars being provided with exterior dovetailed recesses, pad-supporting frames carried by the drums and the collars on the supporting body and provided with dovetailed projections adapted to engage the exterior recesses of the collars and pads or impression plates carried by said frames, as and for the purpose specified.

4. In an apparatus for watermarking paper, the combination with a supporting body, of drums mounted thereon and provided at their inner ends with openings, collars mounted on the supporting body, a pad-supporting frame supported by said collars and extending within the openings in the drums, threaded bolts carried by the frame and passing through the drums, nuts on the outer ends of said bolts, a pad or impression plate, and means for adjustably connecting the said pad or impression plate with the pad-supporting frame, as and for the purpose specified.

5. In an apparatus for watermarking paper, the combination with a supporting body, of drums mounted thereon and provided at their inner ends with openings, collars mounted on the supporting body, a pad-supporting frame supported by said collars and extending within the openings in the drums,

threaded bolts carried by the frame and passing through the drums nuts on the outer ends of said bolts, a pad or impression plate, a threaded bolt carried thereby a clamping
5 plate carried by the said bolt and adapted to engage the pad-supporting frame and a nut screwing upon the bolt in rear of the clamping plate, as and for the purpose specified.

In testimony whereof I have hereto set my hand in the presence of the two subscribing witnesses.

WALTER KNOWLES TROTMAN.

Witnesses:

ALFRED J. BORELT,
HARRY B. BRIDGES.