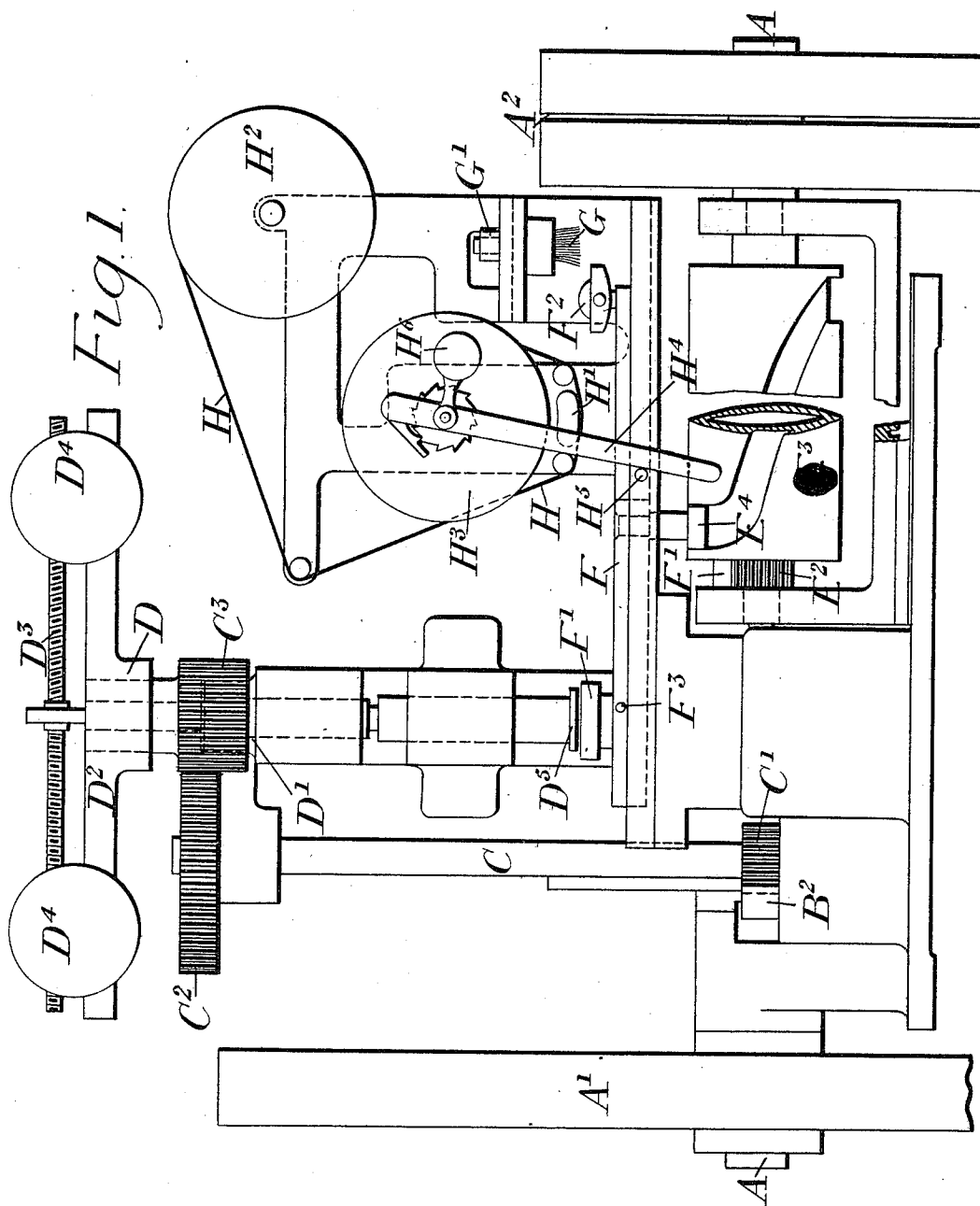


R. F. SPROULE.

RELIEF COLOR SCREW STAMPING PRESS.

No. 566,239.

Patented Aug. 18, 1896.



Witnesses.

Thos. A. Green

Robert Emmett.

Inventor.

Robert F. Sproule.

By James L. Norris.

Atty.

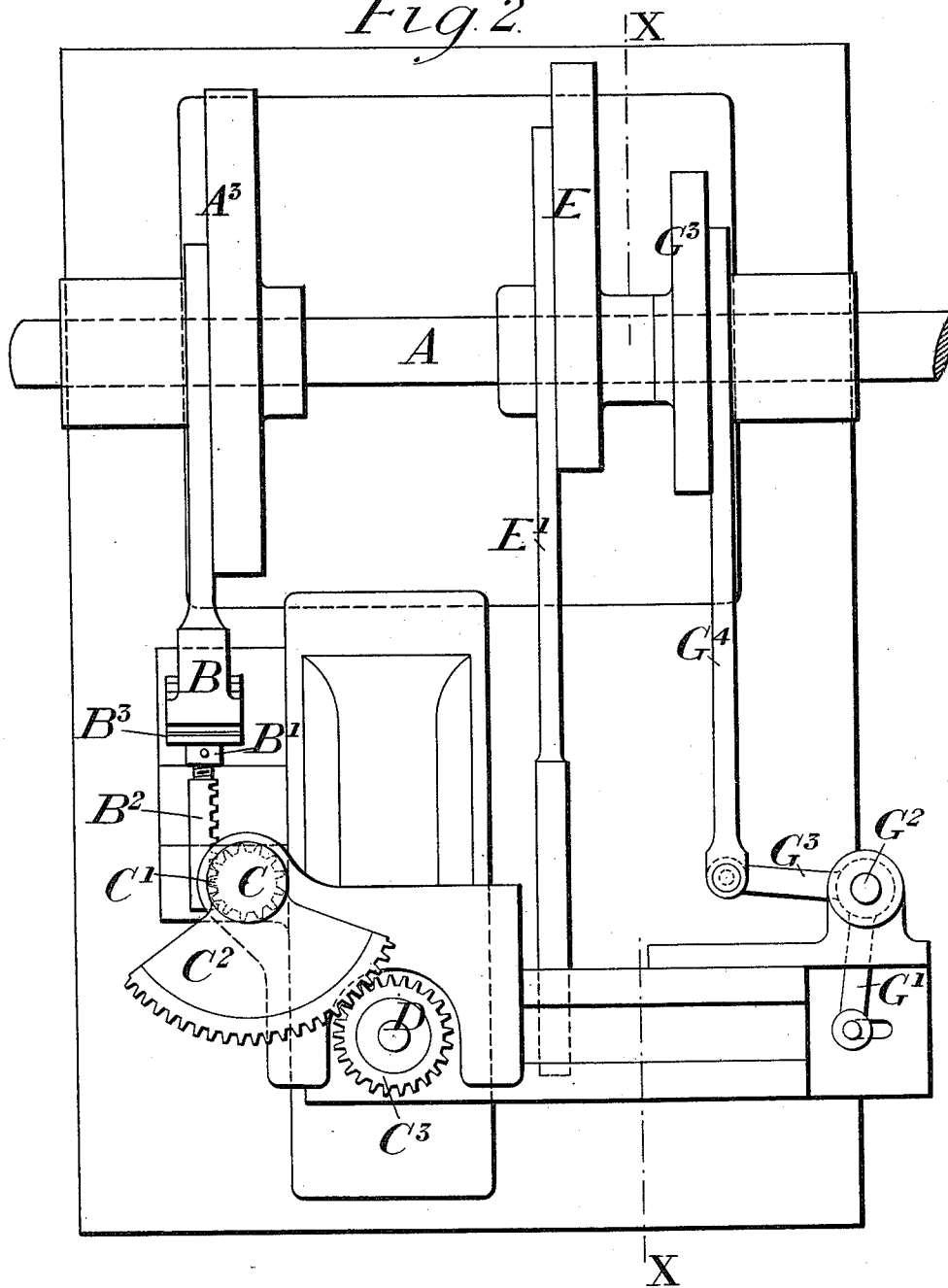
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Fig. 2.



Witnesses.
Thos. A. Green
Robert Sprout.

Inventor.
Robert F. Sproule.
By James L. Norris.
Atty.

(No Model.)

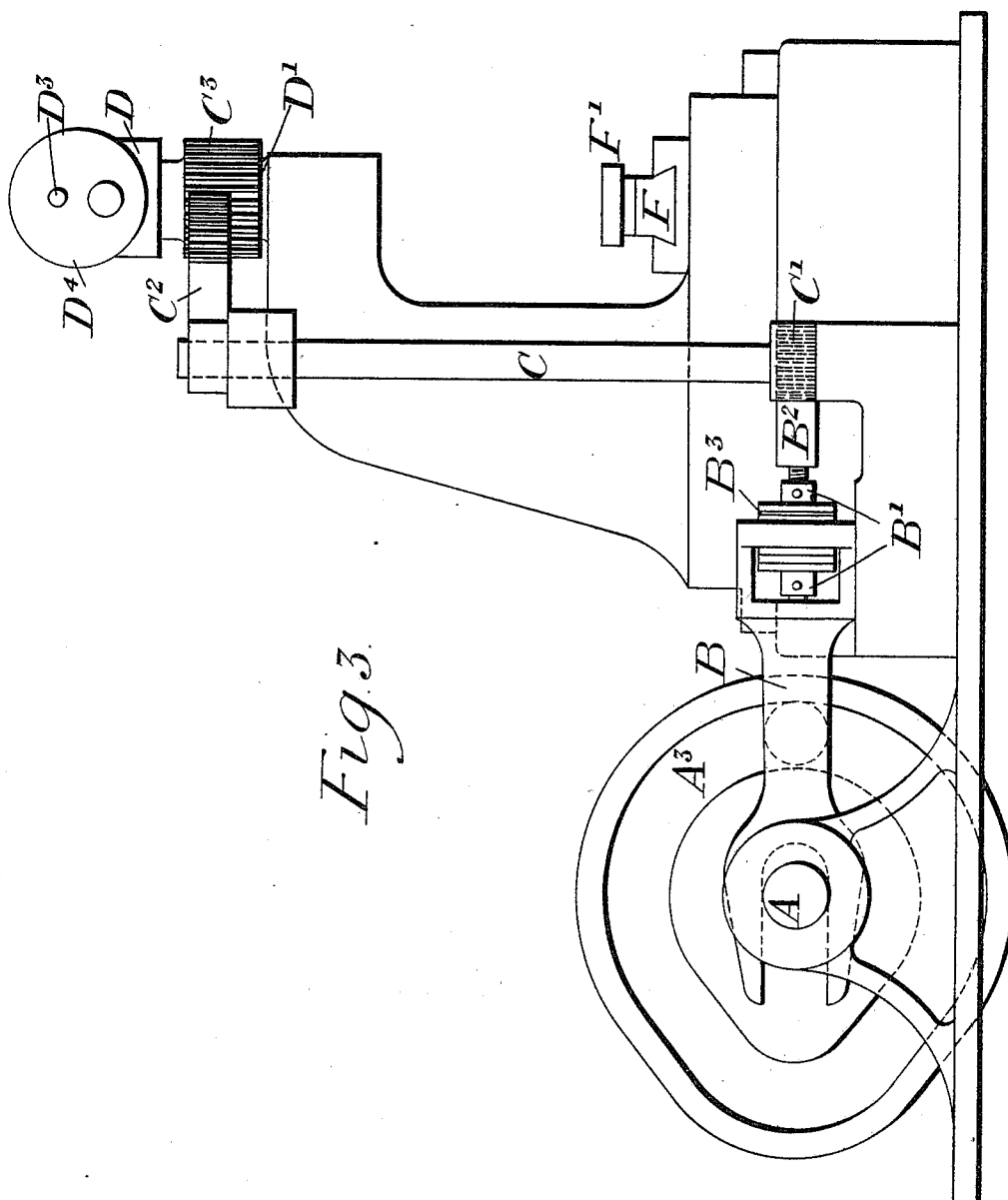
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James L. Norris

Atty.

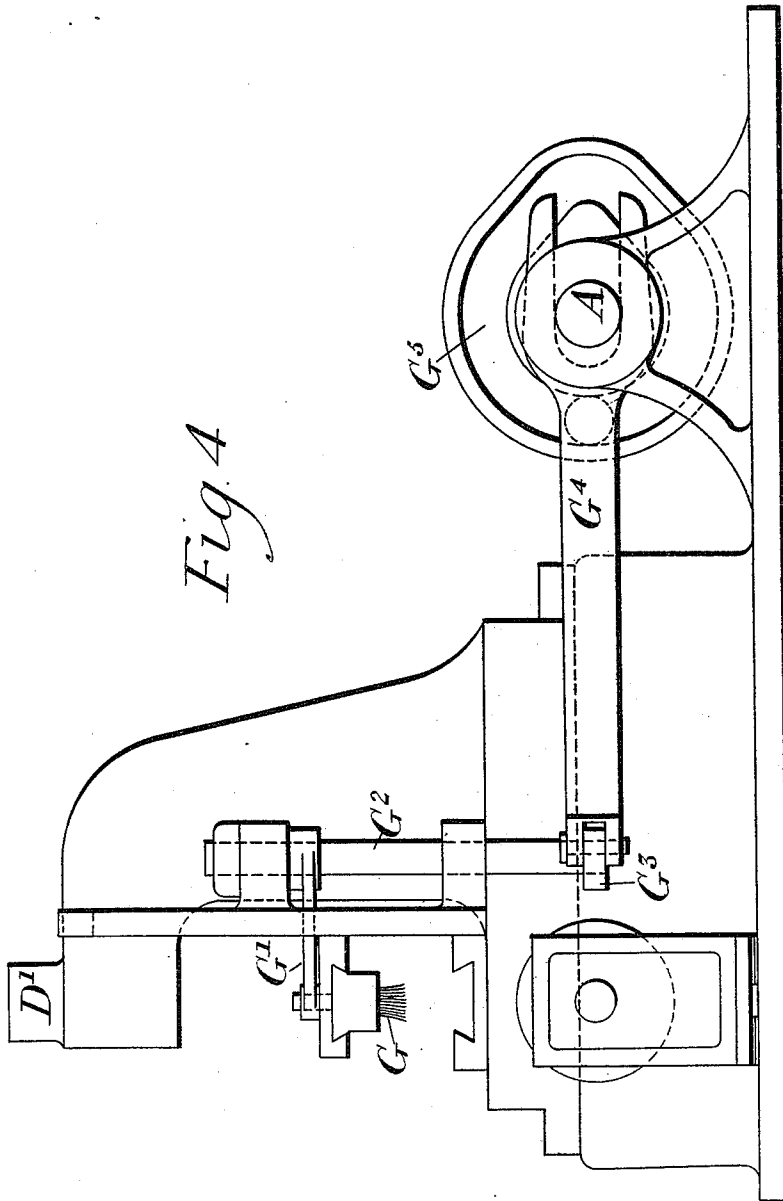
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Witnesses.

Thos. A. Gunn
Robert Emmett.

Inventor.

Robert F. Sproule.

By

James L. Norris.

Atty.

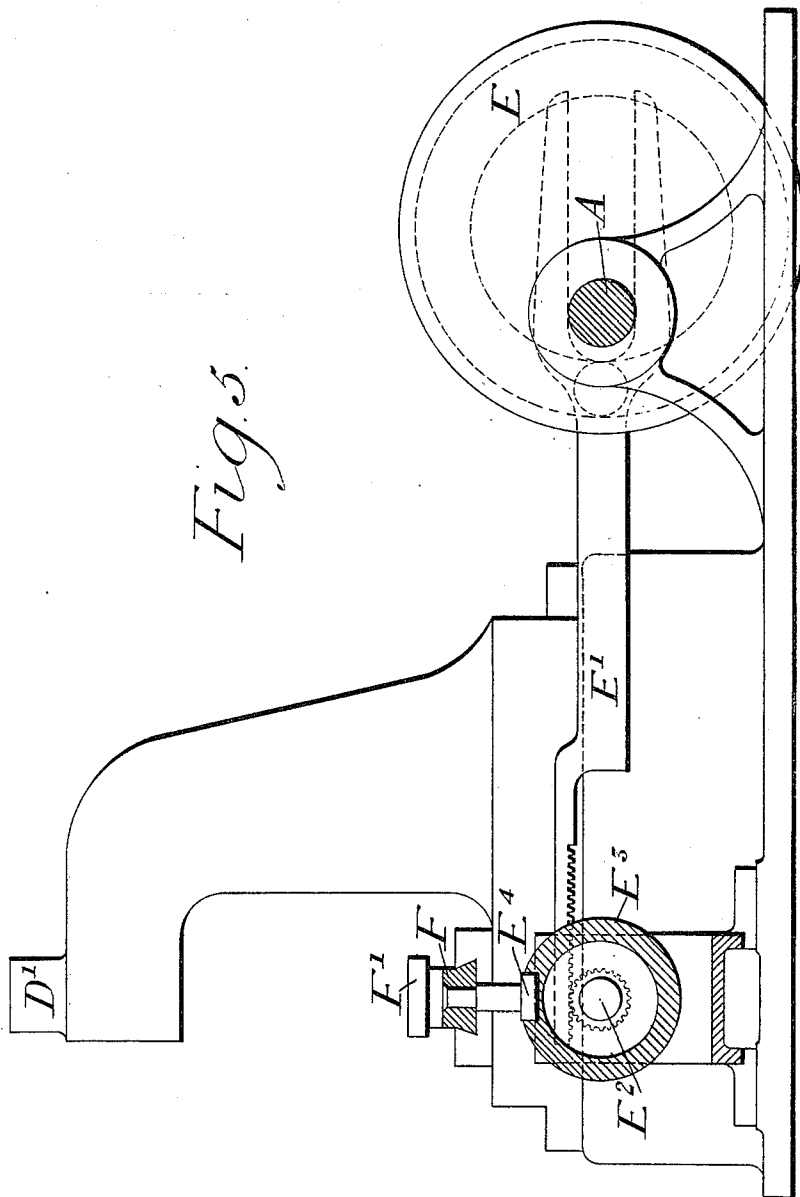
(No Model.)

5 Sheets—Sheet 5.

R. F. SPROULE.
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No. 566,239.

Patented Aug. 18, 1896.



Witnesses:
Thos. A. Gunn.
Robert Everett.

Inventor:
Robert F. Sproule.
By James L. Norris.
Atty.

UNITED STATES PATENT OFFICE.

ROBERT F. SPROULE, OF KITTSBURY, ENGLAND.

RELIEF-COLOR SCREW STAMPING-PRESS.

SPECIFICATION forming part of Letters Patent No. 566,239, dated August 18, 1896.

Application filed February 21, 1896. Serial No. 580,277. (No model.)

To all whom it may concern:

Be it known that I, ROBERT FRITH SPROULE, a citizen of England, residing at Kittsbury, Berkhamstead, in the county of Hertford, England, have invented an Improvement in Relief-Color Screw Stamping-Presses, of which the following is a specification.

My invention relates to stamping-presses of the kind in which an engraved lower die is caused to travel under a color-brush and wiper and then under an upper or counter die, which is caused by a screw to descend upon and impress with color a piece of paper or other receptive material interposed between the dies.

The chief object of my invention is to obtain all the required movements, suitably timed, from a continuously-rotating shaft, and to provide for adjustment of the impression, as I shall describe, referring to the accompanying drawings.

Figure 1 is a front view of a press embodying my invention. Fig. 2 is a plan. Fig. 3 is an elevation of the left side. Fig. 4 is an elevation of the right side. Fig. 5 is a section on the line *xx* of Fig. 2.

A is the main shaft, provided with fly-wheel A' and fast-and-loose pulleys A². A grooved cam A³ on the shaft A acts on the roller of a guided sliding rod B, which has connected to it, by an adjusting-screw and nuts B', a rack B², caoutchouc or other elastic washers B³ being interposed between the end part of the rod B, through which the screw passes, and the washers compressed by the nuts B' for the purpose of deadening shock. The rack B² gears with a pinion C' at the lower end of a vertical rock-shaft C, on the upper end of which is fixed a toothed segment C², gearing with a pinion C³, fixed on the press-screw D. The pinion C³ is of such depth that it remains in gear with the segment C² during the whole up-and-down stroke of the screw D.

In order to relieve the screw from lateral strain, I prefer to hollow the pinion C³ at its under side and to provide on the top of the frame a boss D', on which the pinion revolves as on a bearing.

On the shaft A is fixed a grooved eccentric E, engaging in its groove a roller on a hori-

zontally-sliding rod E', terminating in a rack gearing with a pinion E². On the shaft of this pinion is a grooved barrel-cam E³, in the groove of which is engaged a traveling roller E⁴ on a stud projecting down from the sliding table F, which carries the lower die F' and the ink or color duct F².

It is to be understood that the cam E³ is of sufficient length to cause the die F' to move to the right far enough to pass the color-brush G, which receives color from the duct F² as it passes under it. The slide of the brush has a to-and-fro movement imparted to it by an arm G' on a vertically-rocking shaft G², another arm G³ on which is moved by a rod G⁴, which has a roller engaged in the groove of a cam G⁵. This cam is of such shape and so set on the shaft A that the brush G receives its to-and-fro movement while the die F' is under it, the die being thus coated with the color. As the die moves to the left with the color on it it passes in the usual way under a strip H of paper, by which the superfluous color is wiped off, leaving the color only in the engraved lines. At every stroke of the table F a stud F³ at its side moves to the right a lever-arm H⁴, which carries a pawl engaging in a ratchet-wheel on the axis of a reel H³, so that the reel being partly turned winds on it a portion of the strip H, which is drawn from a reel H² and carried under guide-rollers and a pad H'. Thus every time the die F' passes under H' a fresh portion of the strip H effects the wiping. When the stud F³ returns to the left, a weight H⁶ causes the lever-arm H³ to return against a fixed stop-stud H⁵.

From the above description of the operating part of the press it will be understood that, as the shaft A revolves, the cam A³, through its connections to the pinion C³, causes the screw D to turn alternately in opposite directions, thus causing the upper die D⁵ to descend alternately upon the paper or other material placed on the lower die F', giving the impression, and to ascend, leaving the impressed piece of material free to be removed and a fresh piece to be placed on F'. Also the eccentric E causes the barrel-cam E³ to revolve to and fro, thus causing the table F and the die F' upon it to move alternately

to the right to receive color from the brush G, and to the left to have superfluous color wiped from it by the strip H, and then to bring the lower die under the upper die.
 5 Furthermore, the cam G³ gives the brush G its to-and-fro movement, so as to coat the lower die with color, and the stud F³ causes the reel H³ to revolve step by step, so as to bring fresh portions of the strip H to wipe
 10 the die.

In order to vary the force of the impression, I mount upon the screw cross-head D² a right and left hand screwed spindle D³, which passes through threaded holes in the balls D⁴. By
 15 turning the screw-spindle D³ in the one direction or the other the balls D⁴ can be moved simultaneously and equally toward or away from the axis of the screw, thus giving less or greater force to the impression of the die.

20 Many parts of the press which I have described are old and well known, such as the screws, the dies, the traveling table, and the inker and wiper for the die, and to these I make no claim.

25 Having thus described the nature of my invention and the best means I know for carrying the same into practical effect, I claim—

1. In a relief-color screw stamping-press, the combination with a press-screw which carries a die, of a continuously-rotating shaft
 30 having an eccentric disk, a horizontally-sliding rod having at one end a rack and at the other end a roller which engages a cam-race in the eccentric disk, a vertical rock-shaft having a pinion with which the teeth of said
 35 rack-bar mesh, and a toothed segment on the said rock-shaft having mesh with a pinion on the press-shaft, the latter having a face of such depth that it retains mesh with the toothed
 40 segment during the vertical movement of the

press-screw in either direction, substantially as described.

2. In a relief-color screw-press, the combination with a press-screw which carries a die of a continuously-rotating shaft carrying a
 45 disk eccentrically mounted thereon, a horizontally-sliding rod having at one end a roller which engages a cam-race in the eccentric disk, and provided at the other end with a rack of teeth, a vertical rock-shaft having a
 50 pinion meshing with said rack of teeth, a pinion on the press-shaft having its toothed face of such depth that it remains in mesh with a toothed segment on said vertical rock-shaft
 55 during the movement of the press-shaft in both directions, a grooved barrel-cam having a pinion on its shaft, a rack-bar meshing with said pinion, a disk eccentrically mounted on the continuously-rotating shaft, having a cam-
 60 race in which lies a roller on the end of the rack-bar, and a table moving beneath the die on the press-shaft and having a roller lying in the groove in the barrel-cam, substantially as described.

3. In a relief-color screw-press, the combination with a traveling table carrying the
 65 lower die, of a color-brush, a continuously-rotating shaft, a cam on said shaft, and a series of levers operated by said cam to give a to-and-fro movement to the color-brush, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 12th day of February, A. D. 1896.

ROBERT F. SPROULE.

Witnesses:

OLIVER IMRAY,
 JNO. P. M. MILLARD.