

No. 628,719.

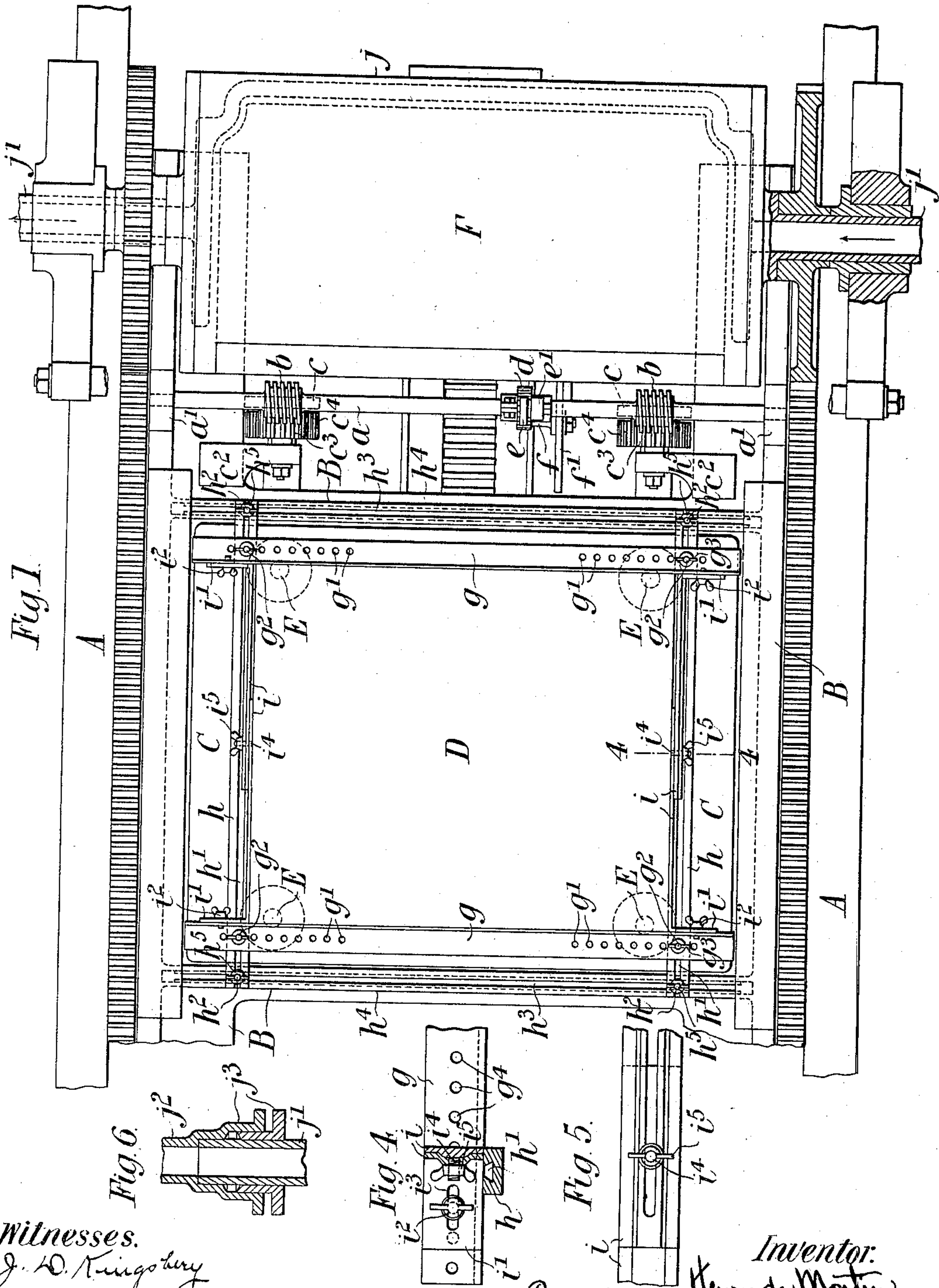
Patented July 11, 1899.

H. DE MONTIN.
POLYCHROME PRINTING MACHINE.

(Application filed Dec. 9, 1898.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses.

J. D. Kingbury

B. W. Brock

Inventor:
Henry de Montin
By Whitaker & Reed Attys

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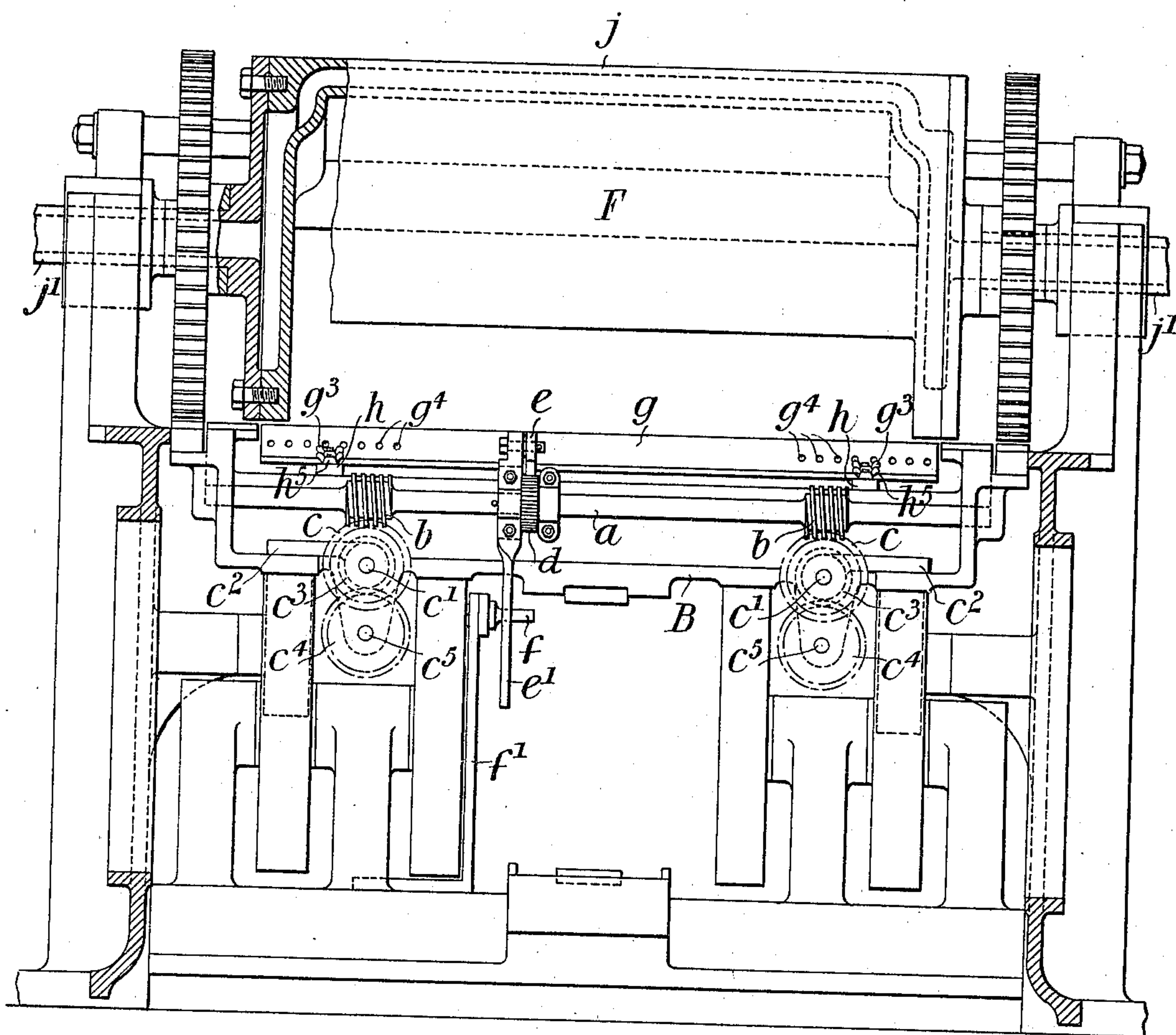
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3 Sheets—Sheet 2.

Fig. 2.



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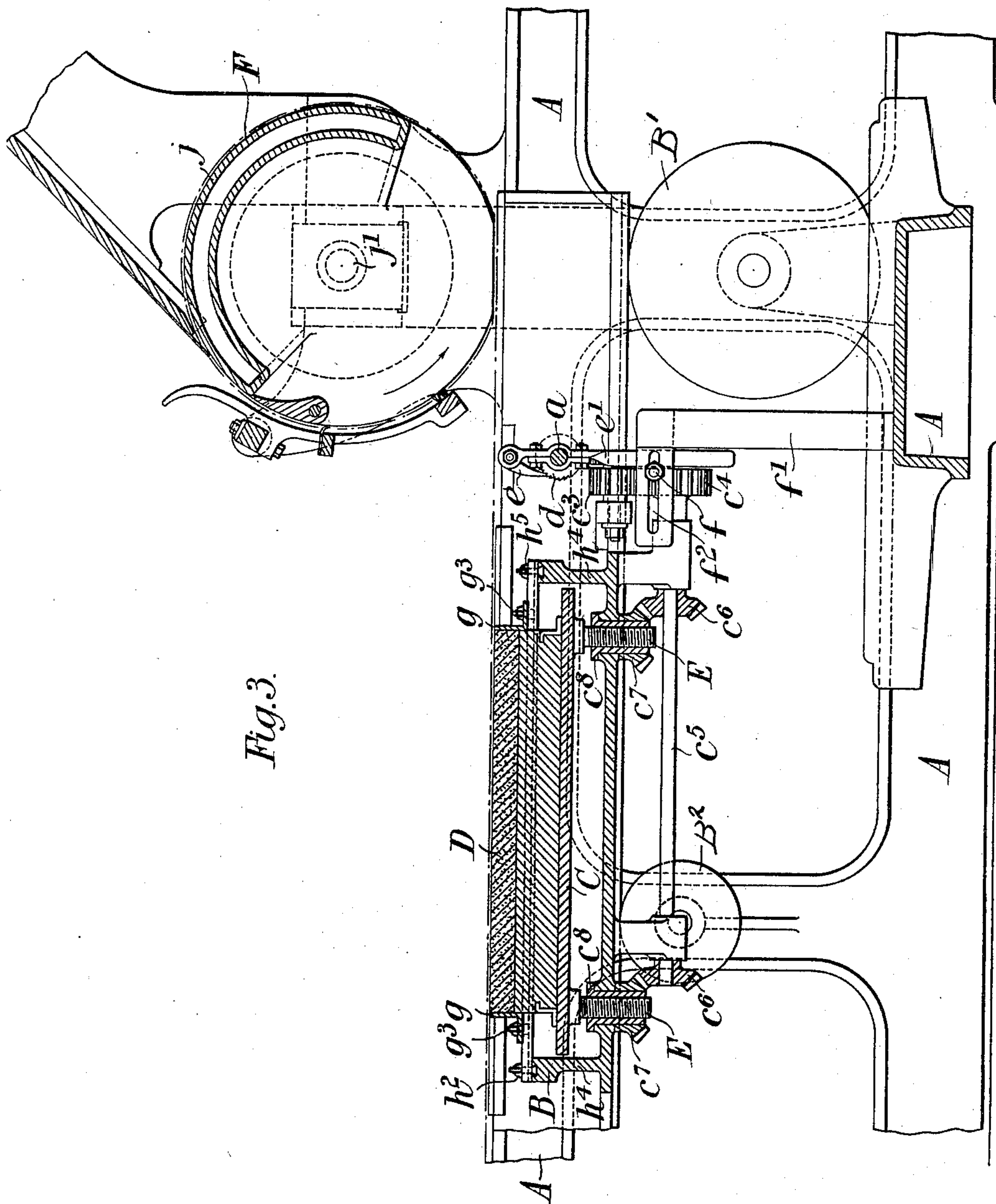


Fig. 3.

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UNITED STATES PATENT OFFICE.

HENRY DE MONTIN, OF LONDON, ENGLAND, ASSIGNOR OF ONE-HALF TO THE SIMULTANEOUS COLOR PRINTING SYNDICATE, LIMITED, OF SAME PLACE.

POLYCHROME-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 628,719, dated July 11, 1899.

Application filed December 9, 1898. Serial No. 698,776. (No model.)

To all whom it may concern:

Be it known that I, HENRY DE MONTIN, a subject of the Queen of Great Britain, residing at New Southgate, London, Middlesex county, England, have invented new and useful Improvements in and Relating to Polychrome-Printing Machines, (for which I have applied for a patent in Great Britain, No. 10,153, dated May 3, 1898,) of which the following is a specification.

This invention relates to polychrome-printing machines in which the colors to be used are formed in a solid block and to the preparation of the color-blocks where heat is employed for rendering the block fluid to give off color to the printing-paper or the like.

In the accompanying drawings, Figure 1 is a sectional plan of a portion of a single-cylinder printing-machine having my improvements applied thereto. Fig. 2 is a sectional end elevation, and Fig. 3 a longitudinal section, of the said machine: Fig. 4 is a section on the line 4 4, Fig. 1; and Figs. 5 and 6 are views of details. Figs. 4, 5, and 6 are drawn to a larger scale than Figs. 1, 2, and 3.

A is the frame of the machine, and B is the sliding box or coffin supported upon rollers B¹ B², mounted in the frame A, and carrying the bed C, supporting the color-block D, all these parts being of ordinary construction.

According to the invention I provide improved means for feeding the color-block after each impression. Such means comprises a cross-shaft *a*, which is journaled in bearings *a'* *a'* formed in the sliding box or coffin B, the said shaft *a* being provided with worms *b* *b*.

c *c* are worm-wheels with which the worms engage, the said worm-wheels being mounted upon spindles *c'* *c'*, carried by brackets *c*² *c*², secured to the sliding box or coffin B. The spindles *c'* carry toothed pinions *c*³, which engage with toothed wheels *c*⁴, mounted upon side shafts *c*⁵, carrying bevel-wheels *c*⁶, which gear with bevel-wheels *c*⁷, keyed to the nuts *c*⁸. These nuts *c*⁸ when rotated actuate the elevating-screws E, with which the bed C of the machine is provided, in the usual manner.

d is a ratchet-wheel which is provided upon the cross-shaft *a*, the said ratchet-wheel being

adapted to be operated by the pawl *e*, which is pivoted to a lever *e'*, loosely mounted upon the cross-shaft *a* and the depending arm of which is adapted to be operated by a stop *f*, which is carried in a fixed bracket *f'*, secured to the frame A of the machine. To enable the stroke of the pawl to be varied according to the desired thickness of color to be removed from the color-block at each printing operation, the stop *f* is fixed in a slot *f*² in the said bracket *f'* so that its position in the said slot can be suitably adjusted. With this arrangement when the sliding box or coffin B reciprocates in the usual manner under the printing-cylinder F the lever *e'* by virtue of its own weight assumes a vertical position and on the return movement of the sliding box or coffin B strikes against the fixed stop *f*, so as to turn upon the cross-shaft *a*, and thereby engage with and rotate the ratchet-wheel *d* and the said cross-shaft *a* through a distance which is dependent upon the position to which the said stop *f* has been adjusted.

I also provide a frame or chase through which the color-block D is forced as required by means of the rising bed C, the said frame being adjustable according to the size of the block instead of being of a fixed or determined size. It consists of two cross-bars or angle-irons *g* *g*, supported upon two longitudinal bars *h* *h* in the box or coffin B of the machine and forming two opposite sides of the frame. These longitudinal bars *h* *h* are provided with dovetailed grooves *h'* *h'*, and they are secured to the box or coffin B by means of bolts *h*², which pass through the ends of the bars *h* and the heads of which fit into dovetailed grooves *h*³ *h*³ in the sides *h*⁴ of the box or coffin B. It will be obvious that by sliding the bolts *h*² in the dovetailed grooves *h*³ the distance between the two longitudinal bars *h* *h* can be adjusted as desired. *h*⁵ *h*⁵ are wing-nuts by means of which the said bars *h* *h* are secured in any position to which they may be adjusted. The cross-bars or angle-irons *g* *g* are provided with a number of holes *g'* *g'*, by means of which they can be secured to the longitudinal bars *h* *h* through the medium of bolts *g*² *g*², which pass

through the said holes g' and the heads of which fit the dovetailed grooves h' in the said bars $h h$, being secured in position by wing-nuts $g^3 g^3$. The other two sides of the frame or chase are formed by two bars $i i$, each of which consists of two or more overlapping parts, as shown clearly in Figs. 4 and 5, the latter of which figures is an end view of the former. The two ends $i' i'$ of the bars $i i$ are bent at right angles to the main portions thereof and are adapted to be secured to the upright flanges of the angle-bars $g g$ by winged studs $i^2 i^2$, which pass through slots i^3 , Fig. 4, in the ends i' and holes $g^4 g^4$ in the said angle-bars $g g$. The overlapping end of one part of the bars $i i$ is slotted and is adapted to be secured to the other overlapping end by a bolt i^4 , having a wing-nut i^5 . With this arrangement it will be obvious that the sides of the frame or chase can be adjusted in both directions by unscrewing the various wing-nuts and studs, sliding the bars to the required position, and then again tightening the wing-nuts and studs.

Instead of a gas-heated printing-cylinder I employ a cylinder adapted to be heated by steam, hot water, or hot air. For this purpose the cylinder F is provided with a heating-jacket j , the heating medium passing through the cylinder-shaft j' , which is made hollow. Tight joints are made between the ends of the shaft j' and the pipes j^2 , conveying the heating medium, by suitable means, such as the stuffing-box and gland j^3 . (Shown in Fig. 6.) Instead of the heating-jacket I may provide the cylinder j with longitudinal heating-tubes arranged in proximity to the surface of the cylinder and extending between chambers at each end thereof, or a coiled tube could be used.

The color-blocks used in connection with printing-machines of the kind above described are made up of different coloring materials arranged mosaic-like in any desired design, and an impression is taken of the latter in all the colors simultaneously or by one impression. I employ an improved medium for combining with the coloring-matters or pigments to be used. This medium consists of mineral or earth wax, vegetable and animal wax, animal, vegetable, and mineral oils, and a small proportion of animal fat. The proportions of these ingredients which I have found to give good results in practice are as follows, viz: Eight parts of Japanese wax, two parts of cerosin-wax, one part of castor-oil, and one part of mutton fat, although it will be understood that these proportions may be varied as required for the different colors. These ingredients are melted and well mixed, and the compound formed is then mixed individually with the several coloring-matters previously ground, the said compound and coloring-matter being mixed in about equal

proportions by weight. The several coloring-matters so made are formed into a mosaic-like block according to the desired design, and after the block has been planed or rendered perfectly even of surface and in thickness it is ready for use in the printing-machine in the ordinary manner. The sliding box or coffin is reciprocated in the usual manner.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a polychrome-printing machine, the combination with the main frame of a reciprocating box mounted therein, a vertically-movable color-block support carried by said box adjustable guides secured to said box, and adjustable laterally and transversely thereof to engage color-blocks of different sizes, and automatic mechanism for elevating said support whereby the color-block will be forced upward between said adjustable guides, substantially as described.

2. In a polychrome-printing machine, the combination with the main frame, of the color-block-carrying box, provided with parallel slotted portions adjacent to opposite sides of the same, the vertically-movable color-block support mounted in said box, parallel slotted plates engaging said portions, of the box and provided with securing devices engaging said slotted portions, a pair of parallel guide-plates lying upon said slotted plates transversely thereto, and provided with vertical portions to engage the color-block and with adjusting devices engaging said slotted plates and a pair of longitudinally-adjustable guide-plates lying upon, secured to and disposed transversely of the first-named guide-plates, substantially as described.

3. In a polychrome-printing machine, the combination with the main frame, of the color-block-carrying box, provided with parallel slotted portions adjacent to opposite sides of the same, the vertically-movable color-block support mounted in said box parallel slotted plates engaging said portions, of the box and provided with securing devices engaging said slotted portions, a pair of parallel guide-plates lying upon said slotted plates transversely thereto and provided with vertical portions to engage the color-block and with adjusting devices engaging said slotted plates and a pair of longitudinally-adjustable guide-plates having overlapping portions, and end portions perpendicular to the main portions, lying between said first-named guide-plates and means for securing said end portions adjustably to the vertical portions of said first-named guide-plates, substantially as described.

HENRY DE MONTIN.

Witnesses:

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A. ALBUTT.