

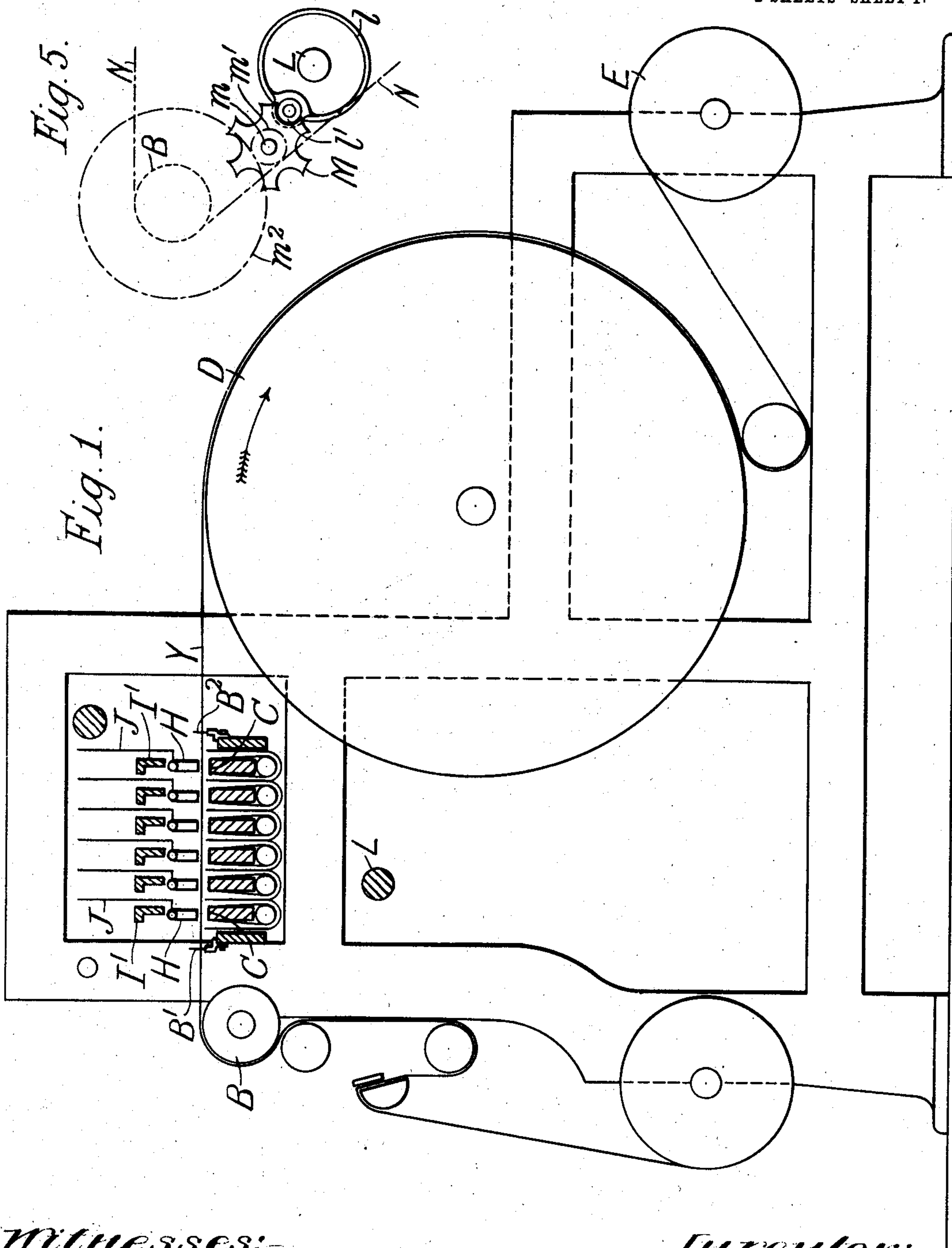
No. 834,396.

PATENTED OCT. 30, 1906.

G. MORTON.
APPARATUS FOR PRINTING WARPS.

APPLICATION FILED APR. 13, 1905.

2 SHEETS—SHEET 1.



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Inventor:
Garin Morton
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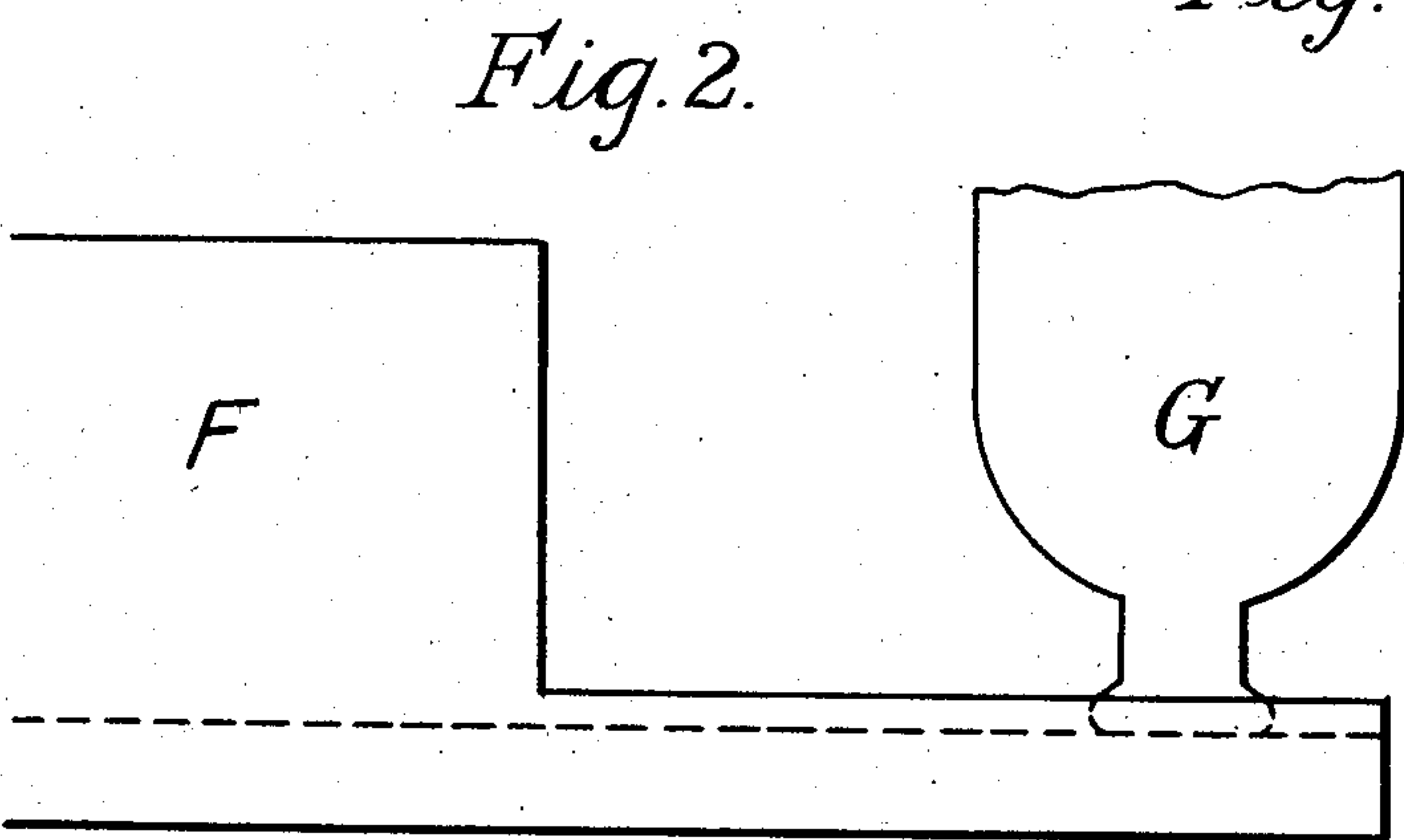
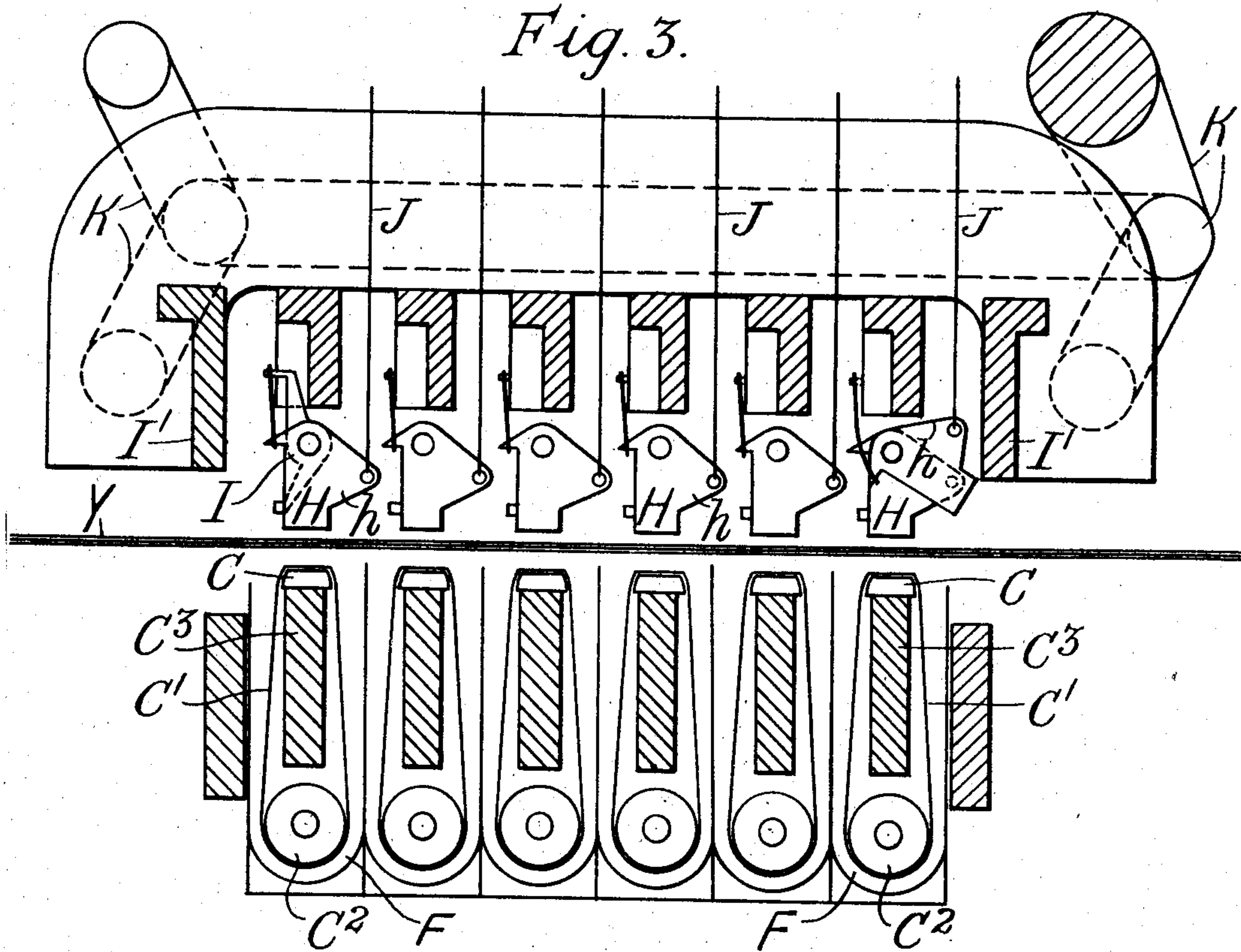
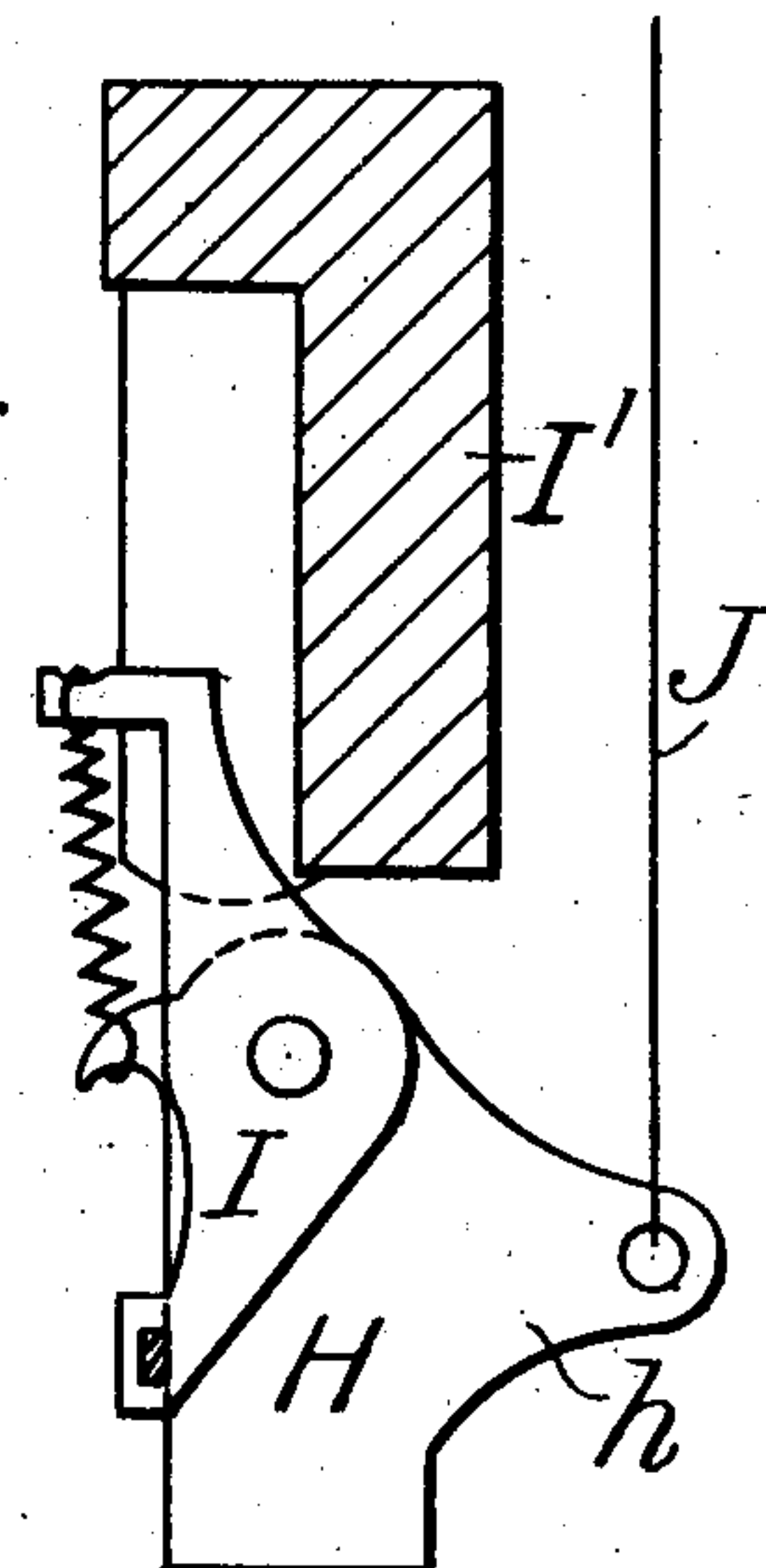


Fig. 4.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR PRINTING WARPS.

No. 834,396.

Specification of Letters Patent.

Patented Oct. 30, 1906.

Application filed April 13, 1905. Serial No. 255,428.

To all whom it may concern:

Be it known that I, GAVIN MORTON, a subject of the King of the United Kingdom of Great Britain and Ireland, and a resident of Carlisle, in the county of Cumberland, England, have invented certain new and useful Improvements in Apparatus for Printing Warps, of which the following is a specification.

10 This invention relates to the printing of warp-yarns for the production of figured woven fabrics—such, for example, as Lassewade or tapestry carpets; and it has for its object to effect such printing in a novel manner and by improved and comparatively inexpensive means, whereby the requisite amount of yarn for a single carpet or piece of fabric of any desired figured pattern or design may be printed and the pattern or design thereafter changed with little trouble and expense, while the warp is printed exactly as it is to be woven, the design not being disturbed in placing the warps in the weaving-loom—advantages not attainable by the usual drum system of printing.

25 According to my invention the series of warps which are to be used on the warp-beam in weaving the figured fabric are caused to travel intermittently over a series of color-pads, into contact with which they are depressed in order to effect the printing by types or blocks selected or brought into operative position by means of jacquard or other pattern mechanism, so that at each action a short portion of the length of each warp or so much as suffices for a bight or tuft of the fabric is printed or dyed with one color, while the adjoining warp is printed with a different color, (or with the same color,) and at the next action the adjoining length of each warp is printed with the same or a different color in accordance with the design as cut on the jacquard-cards, and thus by merely changing the cards of the jacquard a fresh design may be printed.

30 In the accompanying drawings, which illustrate the invention, Figure 1 is a diagrammatic side elevation of the apparatus employed. Fig. 2 is an elevation of the drain for supplying color to the printing-pads, and Figs. 3 and 4 are enlarged cross-sections of the printing types and relative parts of the apparatus. Fig. 5 shows diagrammatically means for intermittently feeding the warp-threads.

The apparatus used in carrying out the invention may be arranged in various ways; but according to one convenient arrangement, which is illustrated diagrammatically at Fig. 1, the yarns Y are led from an intermittent feed-beam B through a reed B', over a series of suitably-spaced color pads or boxes C, through a guide-reed B², and over a drying-drum D to the yarn-beam E, from which the fabric is subsequently woven.

60 The warp-threads are intermittently fed from the beam B, as shown at Fig. 5, by means of a disk l, secured to the main driving-shaft L, the said disk having a roller l', which engages with the teeth of an intermittently-rotated wheel M, mounted on a shaft m, which also carries a pinion-wheel m', gearing with a spur-wheel m², driving the intermittent feed-beam B. From the beam B the drying-cylinder is driven by sprocket-chain N.

75 The color-pads C are supplied with fluid dye or color each by a separate drain F, as indicated at Fig. 2, into which the dye is led from a feed-tank or bottle G, preferably fluid-tight and having its outlet dipping into the drain in such wise that as the fluid-level in the drain descends below the outlet of the bottle air is admitted to permit of a small discharge of the fluid, so that a practically uniform level is maintained in the drain. Other means may, however, be provided for supplying the color-pads each with its requisite supply of color.

80 Over the color-pads are fitted rows of types or blocks H, as shown by the enlarged cross-sections, Figs. 3 and 4, one row being fitted over each pad C and consisting of as many types as there are yarn-threads, each type being directly over a strand of yarn Y. The types H of each row are centered on a cross bar or rod I, and each type has a projecting arm h, to which is attached one of the harness-threads J of the jacquard, which when pulled on tilts the type to which it is attached so as to throw it up out of the operative position, as indicated at the right-hand end of Fig. 3.

90 The cross-bars I, on which the rows of types are centered, are carried by a frame I', to which a vertical reciprocating movement is imparted by the toggles K or by other means, so as to bring down these types H which are not thrown out of operative position into contact with the yarns Y below.

and so as to depress them into contact with the color-pads C below in the intervals between the intermittent feeding movements of the yarn.

5 The types to be brought into action at each depression of the frame are selected by the jacquard, and they are suitably arranged in relation to the color-pads below, so that by their operation each strand of yarn is printed
10 throughout its length with a succession of sharply-defined colorings in accordance with the cutting of the jacquard-cards and the design or pattern of the fabric to be woven with the printed yarns. The types instead of be-
15 ing swung on centers may be reciprocated or otherwise operated from the jacquard or pattern mechanism.

The color-pads in the present instance, of which there may be a single row or a number
20 of rows, are formed by endless bands C', passing round suitably-driven rollers C² in the drains F and over soft pads C, secured on the upper ends of rails C³, so that a fresh supply of dye or color is or may be provided for
25 each descent of the types into contact with the pads.

Having now described my invention, what

I claim, and desire to secure by Letters Patent of the United States, is—

Apparatus for printing warps for use in the 30 manufacture of figured woven fabrics comprising in combination, means for intermittently feeding a plurality of warps, a series of color-pads located under each warp, a corresponding series of printing types or blocks 35 located over each warp, pattern mechanism connected to and arranged to select the printing types, and means operating to bring the selected types into contact with the warps thereunder and to press them against the cor- 40 responding pads while leaving inoperative the others of the printing-types, whereby successive lengths of the individual warps are printed with varying colors in accordance with the design of the pattern mechan- 45 ism, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GAVIN MORTON.

Witnesses:

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