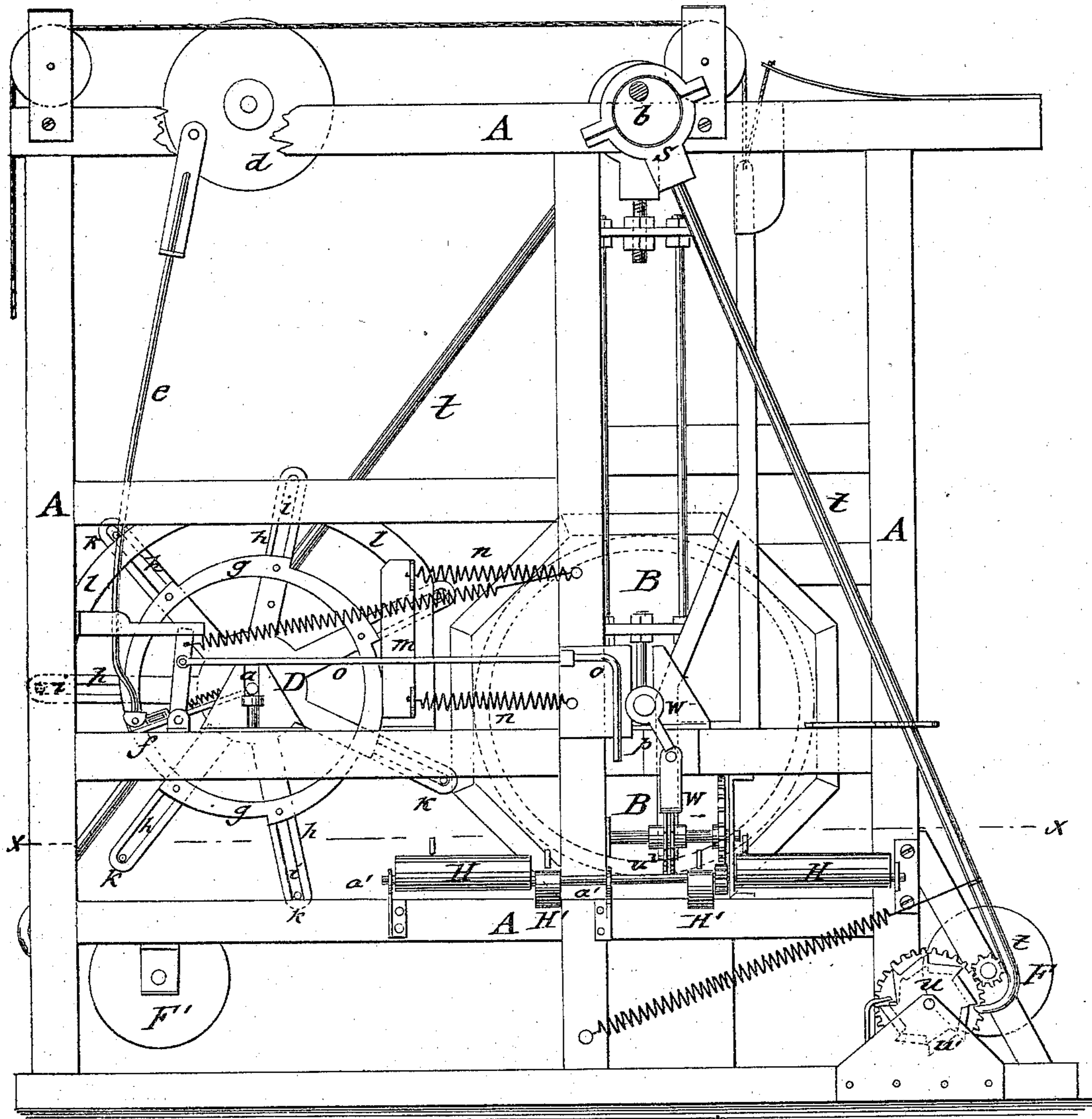


**C. ROMMEL.**  
**Oil-Cloth Printing-Machines.**

No. 137,962.

Patented April 15, 1873.



Witnesses:  
*Chas. Nida*  
*Chedwick*

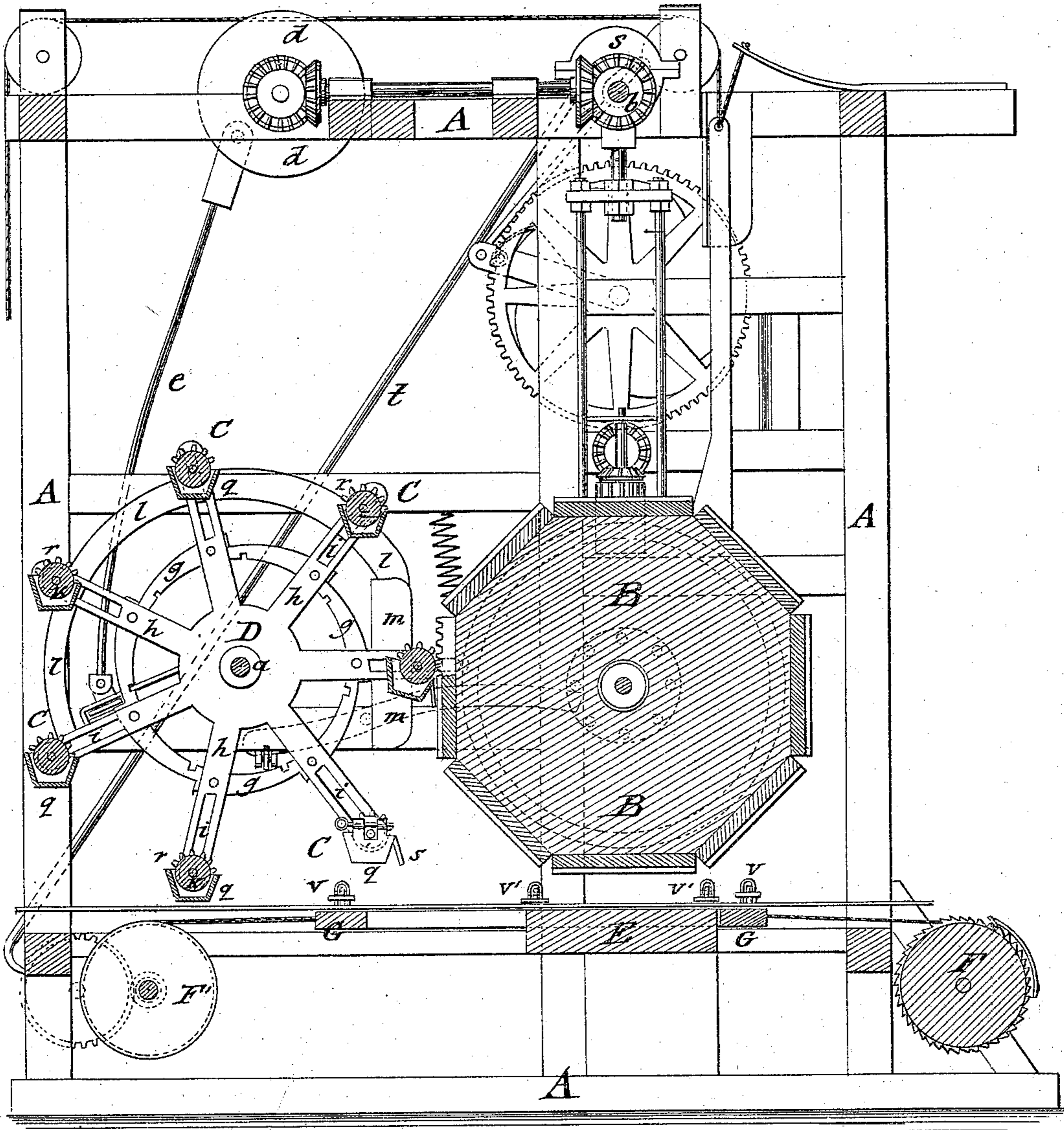
Inventor:  
*C. Rommel*  
PER *Munn*  
Attorneys.

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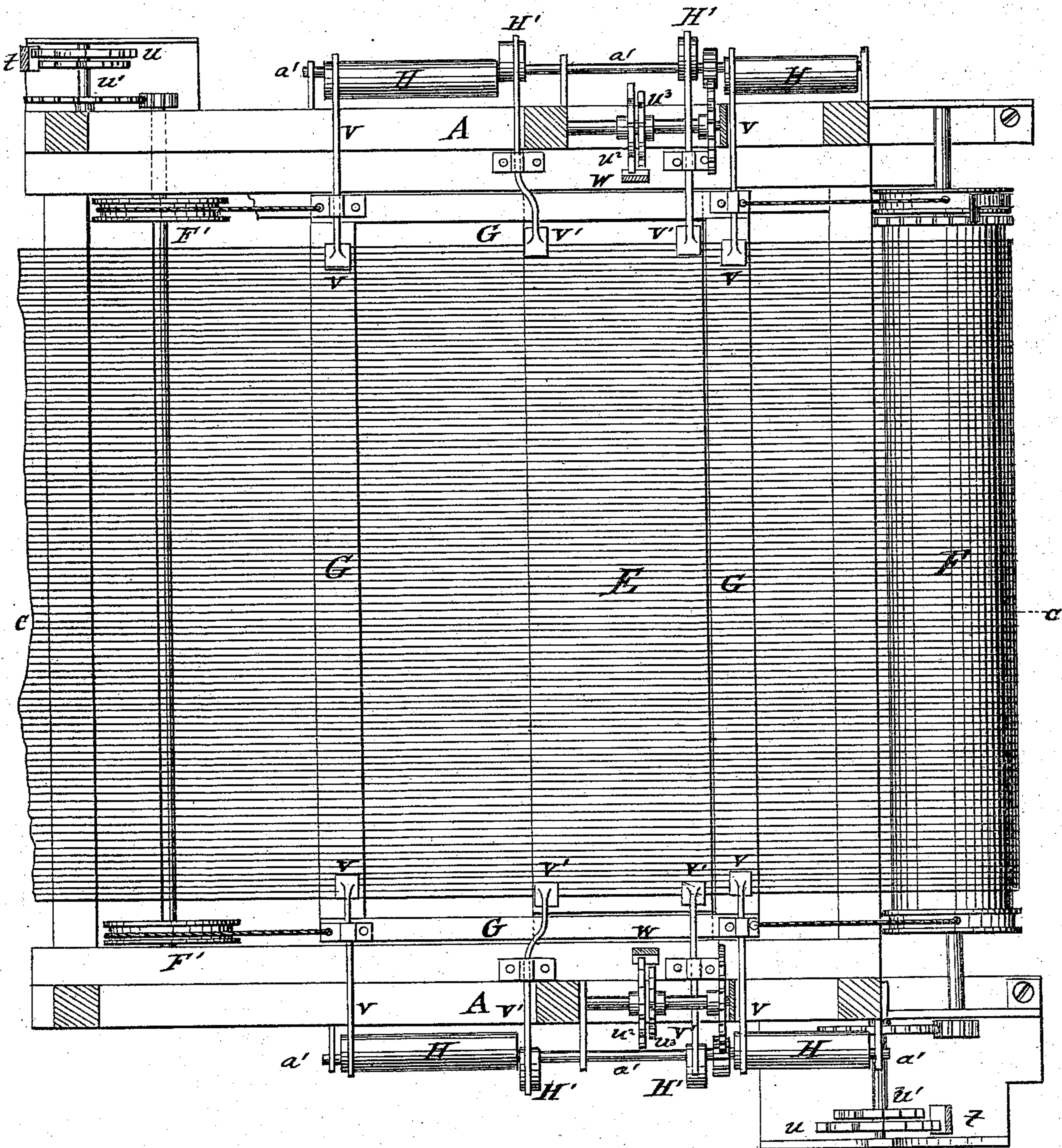
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Inventor:  
*C. Rommel*  
PER *Munn & Co.*  
Attorneys.

# UNITED STATES PATENT OFFICE

CHARLES ROMMEL, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO HIMSELF  
AND WISNER H. TOWNSEND, OF NEW YORK, N. Y.

## IMPROVEMENT IN OIL-CLOTH-PRINTING MACHINES.

Specification forming part of Letters Patent No. **137,962**, dated April 15, 1873; application filed  
March 8, 1873.

*To all whom it may concern:*

Be it known that I, CHARLES ROMMEL, of Elizabeth, in the county of Union and State of New Jersey, have invented a new and Improved Oil-Cloth-Printing Machine, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of my improved oil-cloth-printing machine, showing arrangement of printing-roller with coloring-rollers; Fig. 2, a vertical longitudinal section on the line *c c*, Fig. 3, showing spider-frame of coloring-rollers with boxes attached; and Fig. 3, a horizontal section on the line *x x*, Fig. 1, showing arrangement of eccentrics and ratchet-wheels for the motion of the cloth and table-frame.

Similar letters of reference indicate corresponding parts.

My invention relates to machines which permit the successive printing of oil-cloth or other fabrics in different colors by means of mechanical appliances; and has for its object the substitution of the hand-coloring of the printing-blocks, and the adjustment of the fabrics by such means that the whole apparatus may be driven by steam-power, and the manufacture of oil-cloth and other fabrics be accelerated. My invention consists in the arrangement of suitable coloring-rollers with boxes on a spider-frame in such a manner that the requisite number of printing-blocks are successively colored and the cloth be carried forward as soon as the printing of the blocks is completed. The shaft of the printing-roller is connected by pawl-and-ratchet arrangements with the printing-bed and movable frame, which regulate the forward motion of the cloth and the return of the supporting-frame at the time required.

In the drawing, A represents the frame of the printing-machine. It is built of wood or other suitable material, of sufficient strength and size to sustain the different parts of the machine. B is the printing-roller, in the drawing of octagonal prismatic form, but may be constructed with any number of sides, according to the colors to be applied.

The roller B and its motion having been patented to me under date of April 11, 1871, requires no further description.

The coloring-rollers C are supported in a spider-frame, D, keyed on shaft *a*, which rests in suitable bearings on the side beams of frame A parallel to the axis of the printing-roller B. The rotary motion of the spider-frame D is transmitted by suitable gearing from the main shaft *b*, from which the printing-roller B is suspended, to shaft *a* by means of wheels *d* and arms *e*. Arms *e* are attached at their ends to pawls *f*, which rest with one end loosely on shaft *a*, the other end catching into a ratchet-wheel, *g*, applied rigidly to the arms of spider-frame D. Spider-frame D is provided with as many arms *h* as coloring-rollers may be used. The arms *h* are placed diametrically from the center, and have slots *i* for the insertion and adjustment of the shafts *k* of the coloring-rollers C. Circular segments *l* applied to the sides of frame A guide shafts *k*, that part toward the printing-roller B being formed straight, so that shafts *k*, gliding along the same, carry the coloring-rollers evenly over the blocks of printing-roller B. Additional guide-pieces *m* are by means of springs *n* carried along the straight parts of segments *l*, giving thereby elasticity to the action of the rollers C in passing over the printing-blocks. Slots *i* of arms *h* permit the adjustment and flexibility of rollers C. The spider-frame of the drawing, Fig. 2, shows seven coloring-rollers to correspond to seven blocks of the printing-rollers, the finishing-block or masher requiring no color, as it serves to connect or blend those printed on the cloth. Levers *o*, in connection with lugs or projection *p* applied to the gudgeons of printing-roller B, strike in some suitable manner the lever-arms *e*, so that the same do not act on the ratchet-wheel *g*, and leave the spider-frame D in position for the passing of the finishing-block without applying color to the same. The same object may also be reached by constructing the spider-frame with as many rollers as there are blocks on the printing-roller, providing a blind or false roller for the finishing-block. Coloring-rollers D are suspended laterally on the arms *h* of the spider-frame D, and supplied with weighted color-boxes *q* hung on the shafts *k*. Mutilated pinions or gear-wheels *r*, keyed to one side of shafts *k* to mesh

into racks of printing-blocks, guide the roller over the same, distributing the color evenly over the blocks. Projecting lugs *s* of the color-boxes *q* at the other side of shafts *k*, below the smooth side of wheels *r*, glide with them over the smooth frame of printing-roller and prevent the upsetting of the color-boxes *q*.

The color is adjusted evenly on the rollers in the usual manner by blades or "doctors" running alongside of the same. The boxes may, if required, be divided into two or more parts by vertical partitions, allowing thereby a variety of colors on one block. The spider-frame is so arranged with the printing-roller that the former turns when the latter descends, causing one of the coloring-rollers to run up along the face of the block; the frame then stops till a turn of the printing-roller brings the surface of the next block toward the next coloring-roller, which continues till the masher faces the coloring-rollers, which remain still, by means of the lever arrangement, till the masher has passed, or, in the case of the false roller, glides over the same without receiving color. After all the blocks of the printing-roller B have passed over the coloring-rollers and printed on the cloth or other fabric resting on printing-bed E, below roller B, it is necessary to expose the adjoining part of the fabric to the printing-roller, and feed the cloth in regular succession. For this purpose main shaft *b* is connected by eccentrics *s* and pawls *t*, passing along the outside of frame A, with two ratchet-wheels, *u* and *u*<sup>1</sup>, which gear by suitable cog-wheels with cloth-roller F, at end of bed-frame. Ratchet-wheels *u* and *u*<sup>1</sup> have as many teeth as there are printing-blocks, ratchet *u* being larger than ratchet *u*<sup>1</sup>, and loose on the shaft, being therefore carried along, by the pawls *t*, over the tight ratchet till the printing-roller has completed its revolution. A deep notch of loose ratchet *u* allows the pawls *t* to take hold of the tight ratchet *u*<sup>1</sup>, turning the cloth-roller F, and with it the movable frame G and the cloth stretched thereon. The transmission of motion from the ratchets to the cloth-roller must be so calculated that the frame is carried forward the required distance by roller F. The pawl-and-ratchet arrangement of the cloth-roller carries the movable frame forward; that arranged on the other side with rollers F' brings it back again. Eccentric cylinders H and H' are applied on shafts *a*', parallel to the longitudinal axis of frame A on the outside of the same, and guide suitable clamp-levers *v* and *v*', which secure the cloth alternately to the movable frame G and the printing-bed E, to secure the proper feeding of the cloth after each revolution of printing-roller B. Similar ratchet-

wheels *u*<sup>2</sup> and *u*<sup>3</sup> are connected by suitable pawls *w* with main shaft *a*, and transmits the motion by cog-wheels to the shafts *a*' and eccentric H and H'. The loose ratchets *u*<sup>2</sup> have, instead of one deep notch, as ratchet *u*, two deep notches, so that when the pawls *w* enter the first notch, the eccentric cylinders H, of slightly greater length than the printing-blocks, raise the ends of clamp-levers *v*, which press their inner clamp ends tightly on the cloth and carry the same forward as soon as the masher is lifted from the cloth. Pawls *w* then take hold of the next notch, which turns the short eccentric cylinders H' up, pressing the clamp-levers *v*' on the cloth, securing it on the printing-bed. The turning down of cylinder H releases at the same time levers *v*, and allows the movable frame C to glide back under the cloth.

The continuous printing of the blocks, in connection with the corresponding motion of the movable frame and the feeding of the cloth, allows an uninterrupted printing of the cloth till the whole piece is finished.

The printing-block may be replaced by those of other patterns, and oil-cloth be manufactured, in shorter time and with less expense than at present.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The spider-frame D having arms *h* and slots *i*, in connection with ratchet-wheels *g*, pawls *f*, arms *e*, and wheels *d*, producing motion of frame D, substantially as set forth.

2. Coloring-rollers C, having mutilated pinions *r* and weighted boxes *q*, in connection with segments *l*, guide-pieces *m*, and springs *n*, for coloring printing-blocks, as described.

3. The connection of lever O and lug *p* of printing-roller B with pawl *f* to keep spider-frame D at rest for passage of finishing-block, as set forth.

4. The table-motion, produced by eccentrics *s*, pawls *t*, ratchet *u* and *u*<sup>1</sup>, in connection with cloth-rollers F and F' and movable frame G, substantially as described.

5. Eccentric cylinders H and H', guiding clamp-levers *v* and *v*', in connection with ratchet-wheels *u*<sup>2</sup> and *u*<sup>3</sup>, pawls *w*, frame G, and bed E to feed cloth, as set forth.

6. The combination of the parts of the foregoing clauses with printing-roller B and frame A, substantially as and for the purposes described.

CHARLES ROMMEL.

Witnesses:

PAUL GOEPEL,  
WISNER H. TOWNSEND.