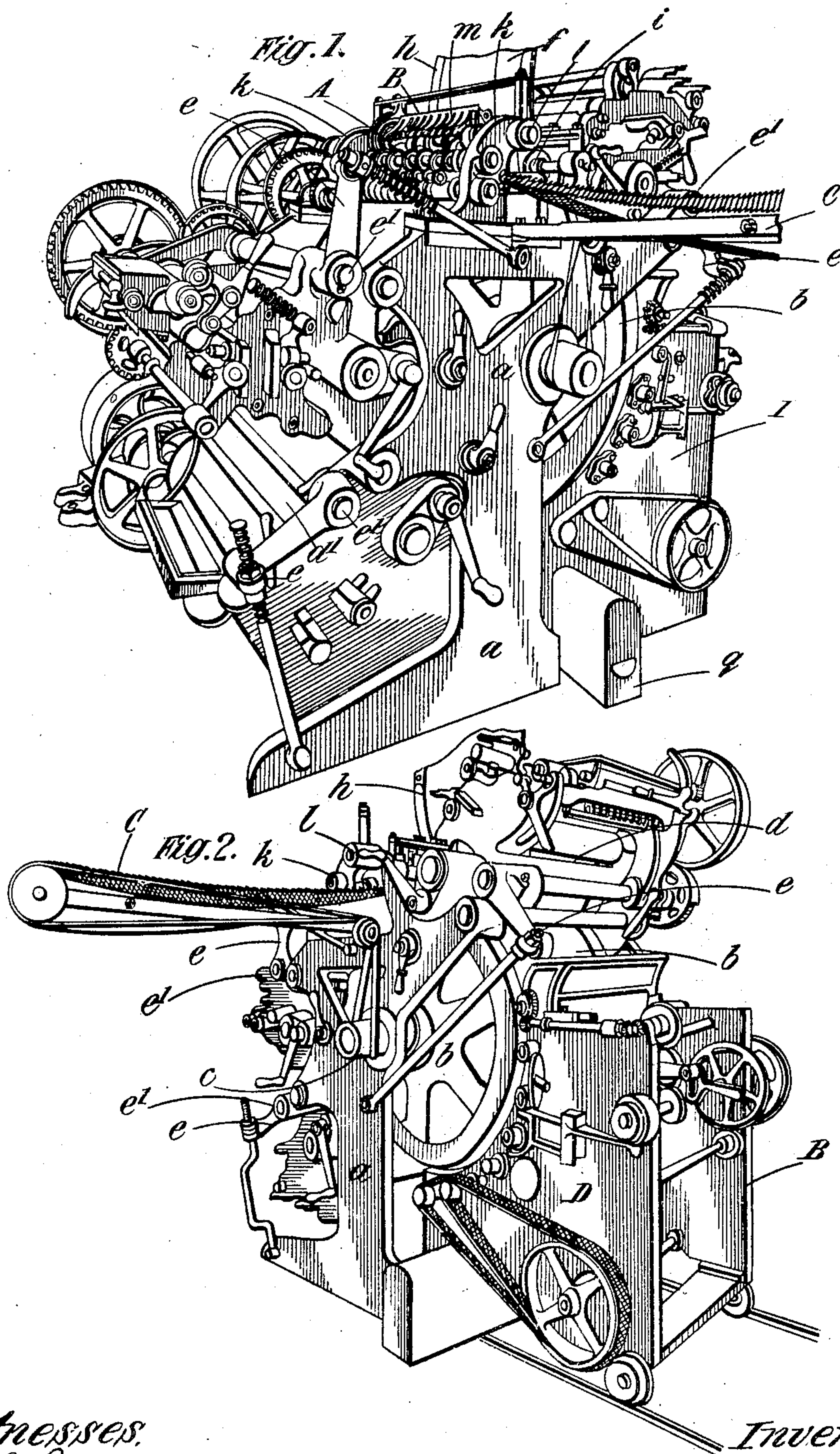


No. 844,055.

PATENTED FEB. 12, 1907.

E. Z. TAYLOR.  
LABEL PRINTING MACHINE.  
APPLICATION FILED JULY 7, 1904.

2 SHEETS—SHEET 1.



Witnesses:  
N. L. Bogan  
Robert Smith,

Inventor:  
Elmer Z. Taylor.  
By James L. Norris.  
Att'y.

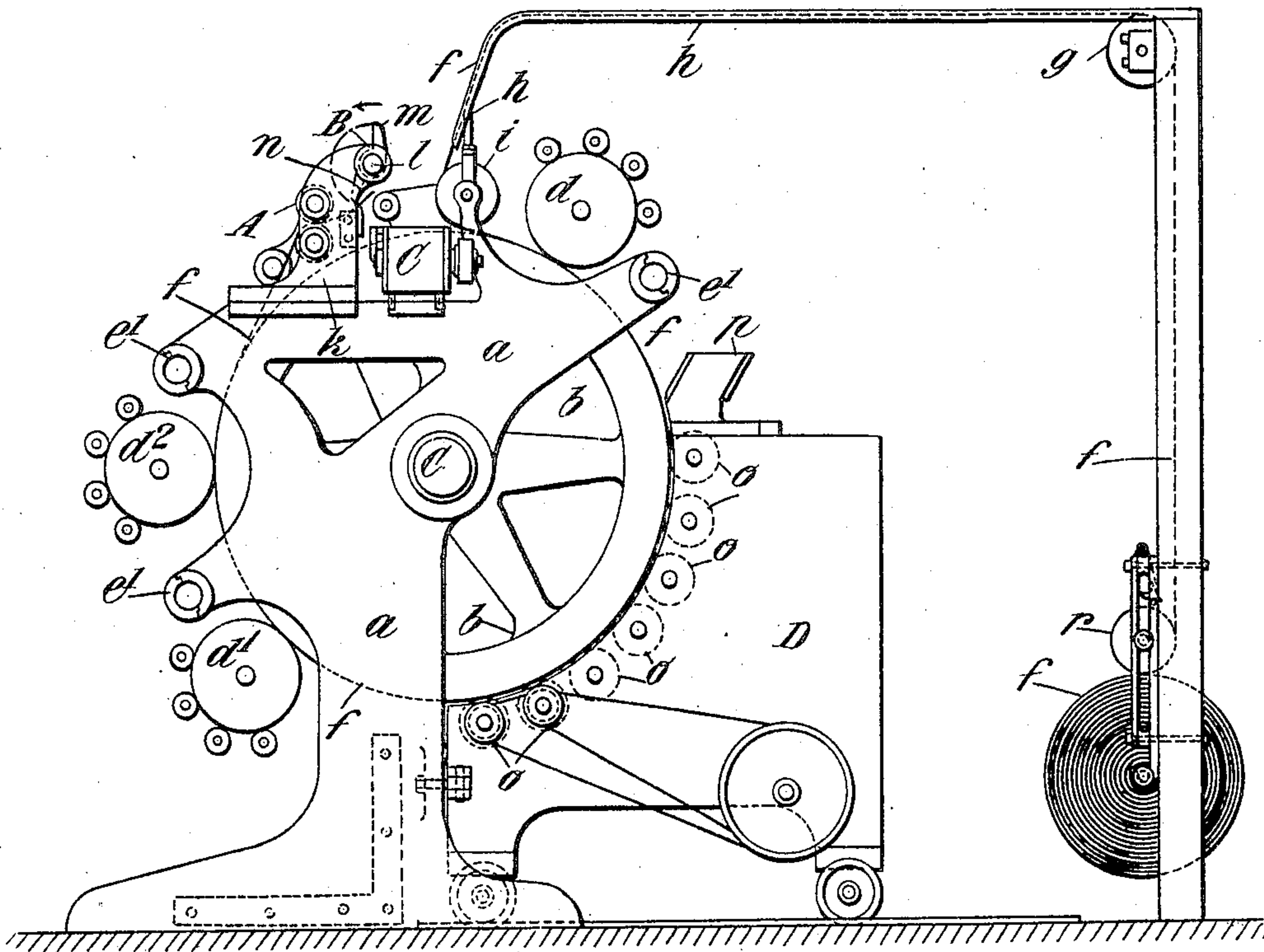
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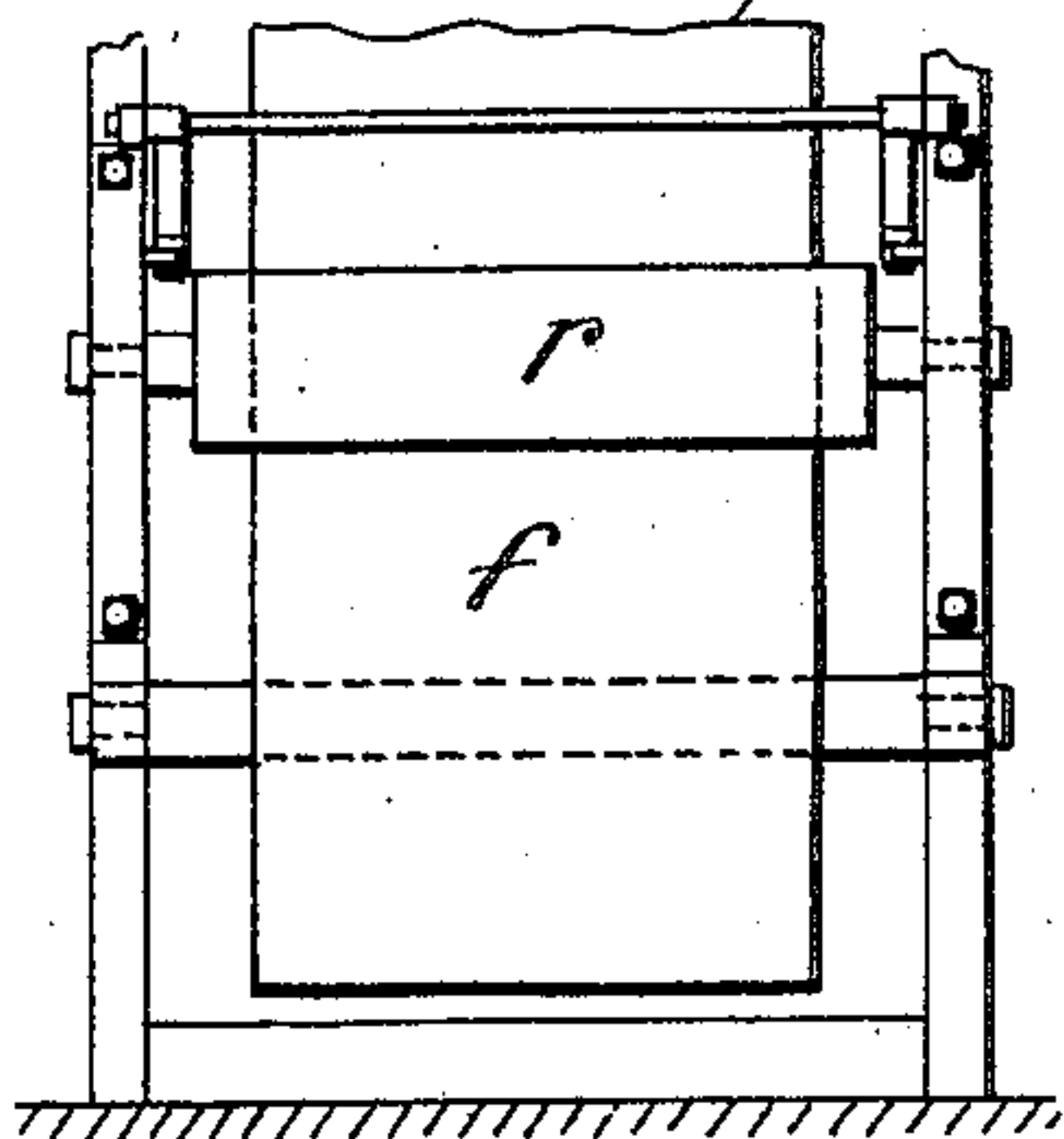
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2 SHEETS—SHEET 2.

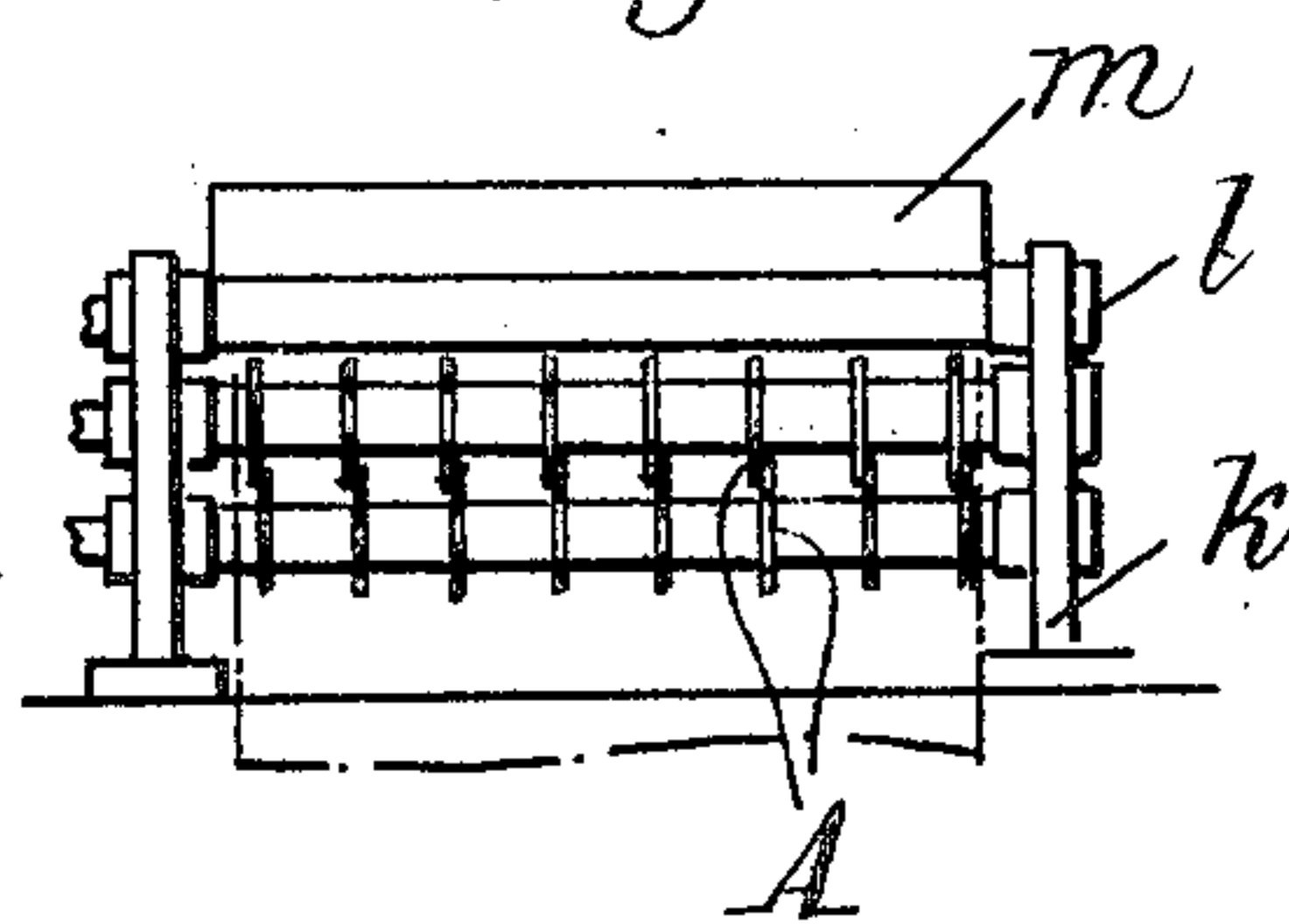
*Fig. 3.*



*Fig. 4. f*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

ELMER ZEBLEY TAYLOR, OF LONDON, ENGLAND.

## LABEL-PRINTING MACHINE.

No. 844,055.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed July 7, 1904. Serial No. 215,651.

*To all whom it may concern:*

Be it known that I, ELMER ZEBLEY TAYLOR, a subject of the King of Great Britain, of 4 Montague street, London, in the county of Middlesex, England, have invented new and useful Improvements in Label-Printing Machine, of which the following is a specification.

My invention relates to improvements in label-printing machine, and aims to effect all the operations of printing the designs for the labels in two or more colors upon an endless roll of paper, cutting the printed roll of paper longitudinally and transversely into labels, and delivering the finished labels from the machine to any desired place, the whole being done automatically in a single machine, and, second, to afford facilities for bronzing parts of the designs when required. I effect these objects by the means illustrated in the accompanying drawings, in which—

Figure 1 is a general perspective view of the entire machine, (the less important parts being shown broken off.) Fig. 2 is a similar view from the other end of the machine. Fig. 3 is a side view of the machine. Fig. 4 is a front view of the continuous roll of paper in the frame from which it is delivered to the printing-cylinder. Fig. 5 is a view illustrating the circular cutting-disk fitted and fixed upon a pair of spindles so as to act as circular shears to draw the paper between them and cut the paper into strips.

Similar letters refer to similar parts throughout the several views.

The figures include an ordinary printing-machine, together with the supplementary parts, consisting of a longitudinal cutting device, a transverse cutting device, and automatic delivering apparatus, the combination of which with the printing-machine constitutes my invention.

*a* represents the parallel side frames of the ordinary cylinder printing-machine, which are strongly stayed together.

*b* is the large central impression-roller, fixed upon a shaft *c*, which revolves in bearings in the sides *a* and is set in revolution by any separate power.

*d d' d²* are supplementary printing "forms" or cylinders, as many in number as the different colors which are to be used in the design, these forms having inking-rollers of the usual kind arranged round them, as indicated. The position of the forms and of the inking-rollers is capable of very accurate ad-

justment by the ordinary means, (not shown in the figures,) and either of the forms can, when necessary, be moved away from the principal cylinder or brought back, together with the inking-rollers and accessory parts, by means of adjusting-levers *e*, turning upon centers *e'*.

The general operation of the printing-machine is indicated in Fig. 3, in which *f* indicates an endless roll of paper upon a spindle carried in bearings at a convenient distance from the machine, the end of the paper being carried up and over a roller *g* and thence to a curved guide or plate *h*, (shown broken off,) over which it passes down to and under a roller *i*, which guides it to the main impression-cylinder *b*, which as it revolves draws the paper round it and between its surface and that of the several printing-forms *d d' d²*, the position of which is so accurately adjusted that the different black or colored parts of the design upon each form in succession are printed in exactly their proper position upon the paper. *r* is a weighted roller working in vertical guides by which the roll of paper *f* is kept properly stretched and is delivered evenly.

In ordinary printing-machines of the kind described the printed paper after having been printed is then led or carried away after leaving the form-cylinder *d²* and is cut up by hand into pieces which form the printed labels. By my invention instead of being carried away to be cut up the paper is first automatically drawn between cutting-blades which cut it into longitudinal strips; each of the width of one of the labels, of which a number are printed across the paper, and then between horizontal blades, by which it is cut transversely, so as to separate the strips into separate finished labels, which fall upon a traveling band by which they are carried away and delivered in any desired position.

The longitudinal and transverse cutting apparatus are carried upon separate frames or supports *k*, which are firmly bolted or fixed to flanges upon the upper edge of the two side frames *a* of the machine. The longitudinal cutters (best shown in Fig. 5) consist of two spindles one above the other, revolving in bearings in the supports *k* and set in motion by toothed wheels at one end, actuated from the driving-shaft of the machine. These spindles have circular cutting-disks fitted and fixed upon them at suitable distances apart, (according to the size of the longitudi-



nal strips of labels to be cut,) and they act as circular shears or blades to draw the paper between them and cut it into strips.

The transverse cutting apparatus is shown at B, Figs. 1, 2, 3, and 5, and consists of a spindle *l*, revolving in bearings in the supports *k* and carrying a knife-blade *m*, fixed upon arms on the spindle *l* and passing in its revolution against the edge of a fixed knife-blade *n*, over the edge of which the longitudinal strips of paper from the circular blades at A pass, the spindle *l* being set in revolution by toothed gear at such a speed that the revolving and fixed blades meet and operate exactly at the moment when the longitudinal strips of paper are in the position to be cut transversely, so as to separate a row of finished colored labels which then fall upon a delivering apparatus at C, consisting of a transverse endless traveling band passing round and over pulleys and made to travel, by means of pulleys and belts or toothed gear, at the proper speed, so as to deliver the labels into a suitable receptacle or table or upon additional traveling belts, by which they can be conveyed in any direction and to any distance.

Where it is required that part of the design upon the labels should be in bronze or the like powder, I use a bronzing apparatus of the usual kind, (shown at D,) not, however, forming part of the machine, but arranged so that it can be run upon rails and can be brought up to the end of the machine close to the central impression-cylinder *b* and fixed in its position there when bronzing is to be done or can be released and wheeled away when bronzing is not required upon the labels.

When the bronzing apparatus is to be used, it is wheeled up against the machine, as described, and the first of the form-cylinders *d* is removed and a cylinder of a somewhat similar kind is substituted for it. This cylinder at *d*, the design upon which represents the bronze parts of the finished labels, is supplied (instead of ink or color) with a suitable adhesive varnish from a reservoir, by means of spreading and equalizing rollers of the usual kind, by which the adhesive varnish or substance is properly applied to the design upon the form carried by the roller *d*. The paper so coated is drawn between the principal impression-cylinder *b* and the several rollers *o o* of the bronzing apparatus, bronze or other desired powder being supplied to the first roller *o* from a hopper *p* and the surplus powder being dusted off by the succeeding rollers *o*, which are coated with a suitable soft material, and the powder remaining upon the adhesive design being polished and finished by an endwise movement of the lower rollers. The rollers are driven by suitable gear or pulleys and belts, and the powder falls into a movable box *q* below.

It will be seen that by my invention the

entire process of printing a series of labels or like articles upon a continuous roll of paper in designs having two or more inks or colors and of bronzing parts of the designs, if required, of cutting the printed paper into strips longitudinally, of then cutting them transversely to form the finished labels, and of delivering the labels to any desired place is carried on absolutely automatically and very quickly and cheaply, my invention consisting substantially of the combination of a cylindrical color-printing machine with movable bronzing apparatus, with longitudinal cutting apparatus, with transverse cutting apparatus, and with delivering apparatus, all driven by the machine itself and operating entirely automatically, very great saving being effected of time and of cost as compared with the means ordinarily used for making colored labels.

I am aware that prior to my invention cylindrical printing-machines have been used for printing colored designs upon labels, and separate circular revolving blades have been used for cutting a roll of paper into longitudinal strips, and separate transverse blades have been used for cutting a roll of paper transversely. I do not, therefore, claim such devices, broadly; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A machine for manufacturing labels in two or more colors from a continuous roll of paper, comprising a color-printing mechanism, a curved guide for tensioning the web of paper as it is fed off the roll to the printing mechanism, a pair of rotatable spindles arranged forward of the guide, circular cutting-disks fixed upon the spindles suitable distances apart and adapted to automatically cut the printed web into longitudinally-extending strips as the printed web leaves the printing mechanism, a transversely-extending fixed and a transversely-extending revolvable cutting-blade arranged forward of said guide and in suitable relation with respect to said circular cutting-disks and adapted to transversely cut the said longitudinal strips, thereby completing the labels, and a delivery apparatus adapted to receive the finished labels and automatically transport them to any desired place.

2. A machine for manufacturing labels in two or more colors from a continuous roll of paper, comprising a color-printing mechanism, a curved guide for tensioning the web of paper as it is fed off the roll to the printing mechanism, a pair of rotatable spindles arranged forward of the guide, circular cutting-disks fixed upon the spindles suitable distances apart and adapted to automatically cut the printed web into longitudinally-extending strips as the printed web leaves the printing mechanism, and a transversely-extending fixed and a transversely-extending



revoluble cutting-blade arranged forward of said guide and in suitable relation with respect to said circular cutting-disks and adapted to transversely cut the said longitudinal strips, thereby completing the labels.

3. A machine for manufacturing labels in two or more colors from a continuous roll of paper, comprising a color-printing mechanism, a curved guide for tensioning the web of paper as it is fed off the roll to the printing mechanism, a pair of rotatable spindles arranged forward of the guide, circular cutting-disks fixed upon the spindles suitable distances apart and adapted to automatically cut the printed web into longitudinally-extending strips as the printed web leaves the printing mechanism, a transversely-extending fixed and a transversely-extending revoluble cutting-blade arranged forward of said guide and in suitable relation with respect to said circular cutting-disks and adapted to transversely cut the said longitudinal strips, thereby completing the labels, and a delivery apparatus adapted to receive the finished labels and automatically transport them to any desired place, and a detachable bronzing mechanism driven from and associating with said printing mechanism.

4. A machine for manufacturing labels in two or more colors from a continuous roll of paper, comprising a color-printing mechanism, a curved guide for tensioning the web of paper as it is fed off the roll to the printing mechanism, a pair of rotatable spindles arranged forward of the guide, circular cutting-disks fixed upon the spindles suitable distances apart and adapted to automatically cut the printed web into longitudinally-extending strips as the printed web leaves the printing mechanism, and a transversely-extending fixed and a transversely-extending revoluble cutting-blade arranged forward of said guide and in suitable relation with respect to said circular cutting-disks and adapted to transversely cut the said longitudinal strips, thereby completing the labels, and a detachable bronzing mechanism driven from and associating with said printing mechanism.

5. A machine for manufacturing labels in two or more colors from a continuous roll of paper, comprising a color-printing mechanism, supporting means for said mechanism, a curved guide arranged in operative relation with respect to said mechanism and adapted to tension the web of paper as it is fed off the roll to the printing mechanism, a pair of revoluble spindles arranged forward of said guide, one superposed over the other, circular cutting-disks fixed upon the spindles suitable distances apart and adapted to act as shears to draw the web between them and cut the web into longitudinally-extending strips as the web leaves the printing mechanism, and

a transversely-extending fixed and a transversely-extending revoluble cutting-blade arranged forward of said guide and in operative relation with respect to the cutting-disks and adapted to transversely cut the said longitudinal strips, thereby completing the labels.

6. A machine for manufacturing labels in two or more colors from a continuous roll of paper, comprising a color-printing mechanism, supporting means for said mechanism, a curved guide arranged in operative relation with respect to said mechanism and adapted to tension the web of paper as it is fed off the roll to the printing mechanism, a pair of revoluble spindles arranged forward of said guide, one superposed over the other, circular cutting-disks fixed upon the spindles suitable distances apart and adapted to act as shears to draw the web between them and cut the web into longitudinally-extending strips as the web leaves the printing mechanism, and a transversely-extending fixed and a transversely-extending revoluble cutting-blade arranged forward of said guide and in operative relation with respect to the cutting-disks and adapted to transversely cut the said longitudinal strips, thereby completing the labels, and a detachable bronzing mechanism driven from and associating with the said printing mechanism.

7. A machine for manufacturing labels in two or more colors from a continuous roll of paper, comprising a color-printing mechanism, supporting means for said mechanism, a curved guide arranged in operative relation with respect to said mechanism and adapted to tension the web of paper as it is fed off the roll to the printing mechanism, a pair of revoluble spindles arranged forward of said guide, one superposed over the other, circular cutting-disks fixed upon the spindles suitable distances apart and adapted to act as shears to draw the web between them and cut the web into longitudinally-extending strips as the web leaves the printing mechanism, and a transversely-extending fixed and a transversely-extending revoluble cutting-blade arranged forward of said guide and in operative relation with respect to the cutting-disks and adapted to transversely cut the said longitudinal strips, thereby completing the labels, and a delivery apparatus for receiving the completed labels and adapted to transport them to any desired place.

8. A machine for manufacturing labels in two or more colors from a continuous roll of paper, comprising a color-printing mechanism, supporting means for said mechanism, a curved guide arranged in operative relation with respect to said mechanism and adapted to tension the web of paper as it is fed off the roll to the printing mechanism, a pair of revoluble spindles arranged forward of said guide, one superposed over the other, circular



cutting-disks fixed upon the spindles suitable  
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bels, a detachable bronzing mechanism driven  
from and associating with said printing mech-  
anism, and a delivery apparatus for receiving  
the finished labels and adapted to transport 15  
them to any desired place.

In witness whereof I have hereunto set my  
hand in the presence of two witnesses.

ELMER ZEBLEY TAYLOR.

Witnesses:

ALFRED T. BRATTON,  
H. D. JAMESON.