

**No. 662,805.**

**Patented Nov. 27, 1900.**

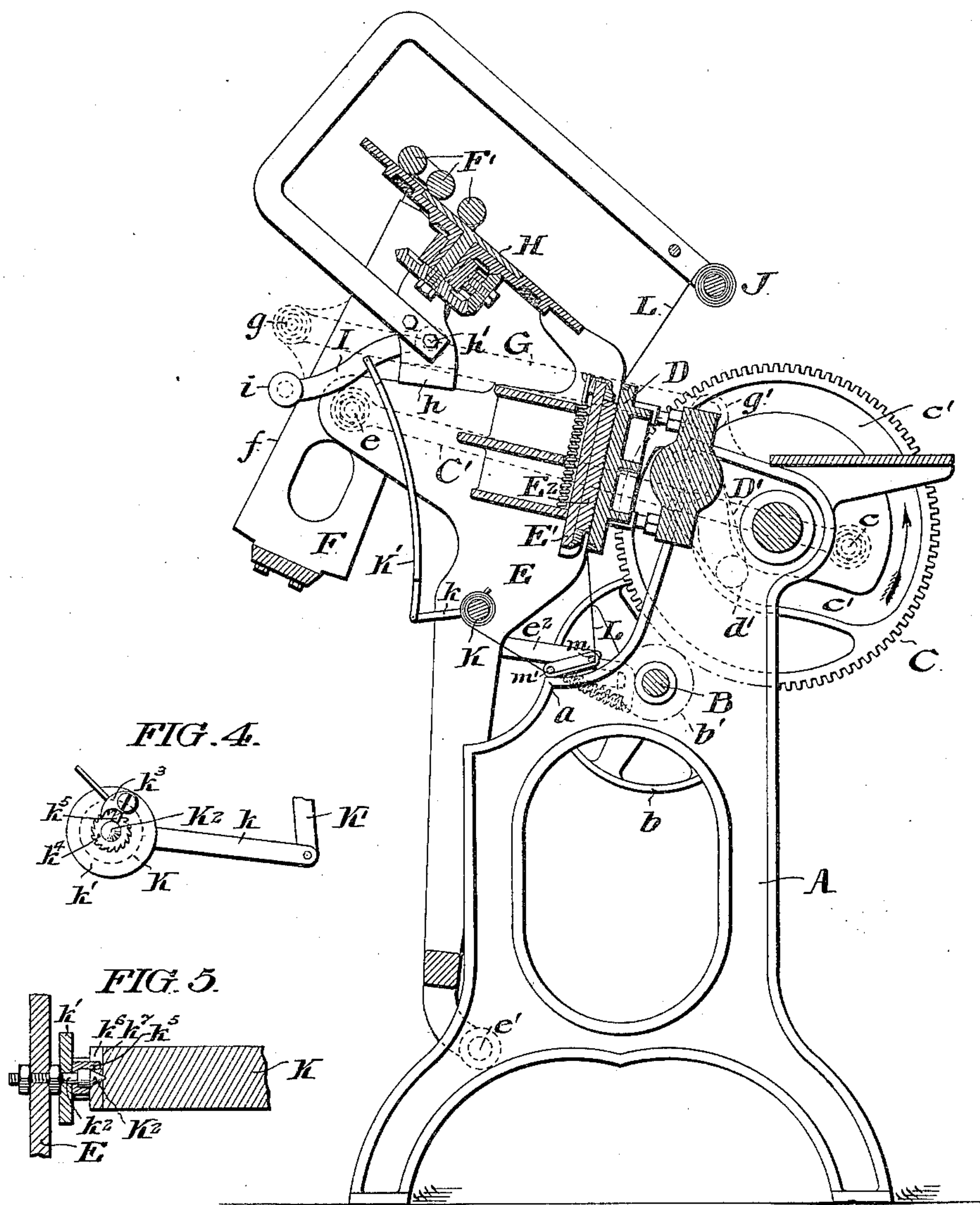
**S. A. NEIDICH.**  
**INK RIBBON MECHANISM.**

(Application filed Sept. 6, 1900.)

(No Model.)

**2 Sheets—Sheet 1.**

**FIG 1.**



WITNESSES:

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2 Sheets—Sheet 2.

FIG. 2.

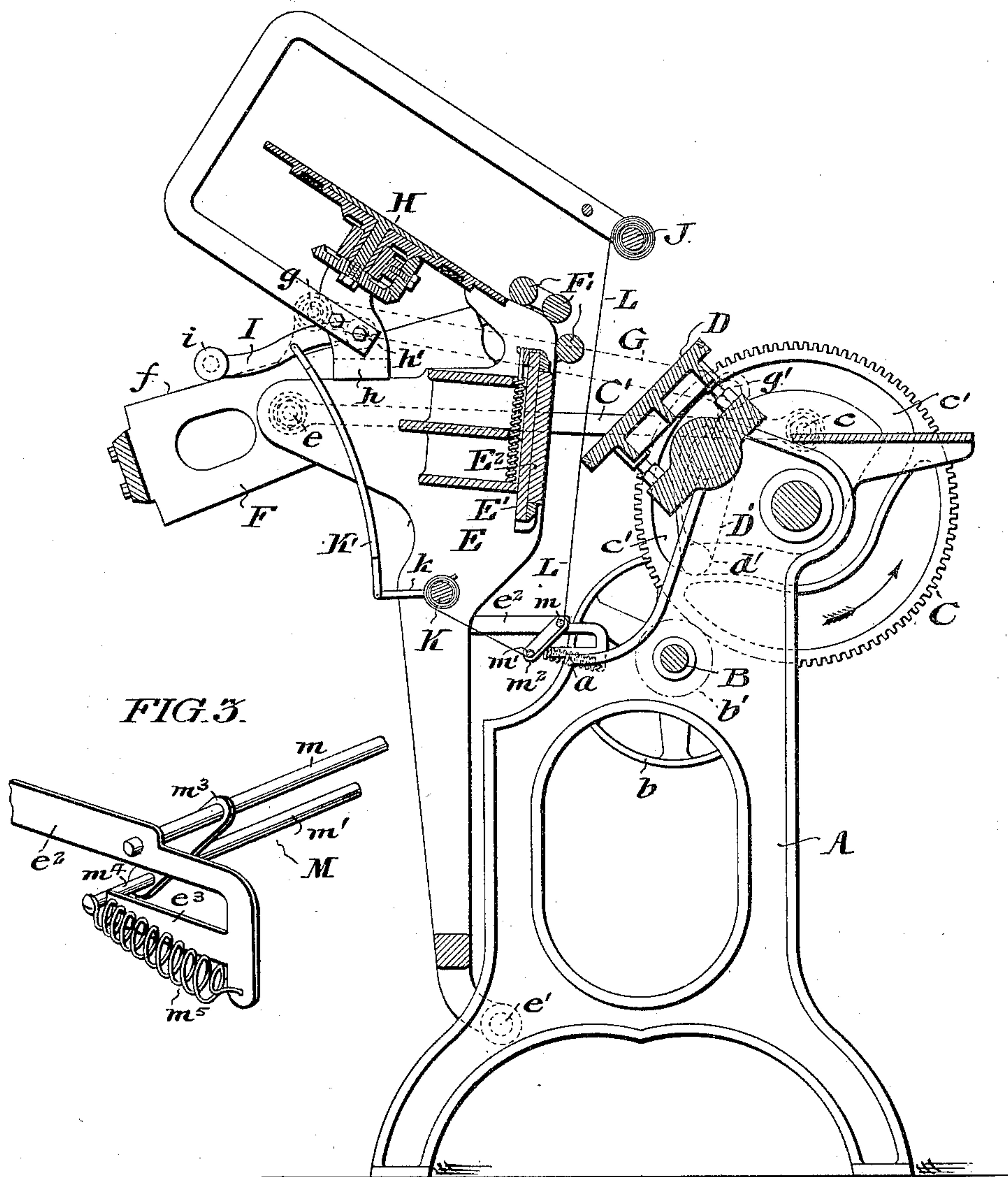
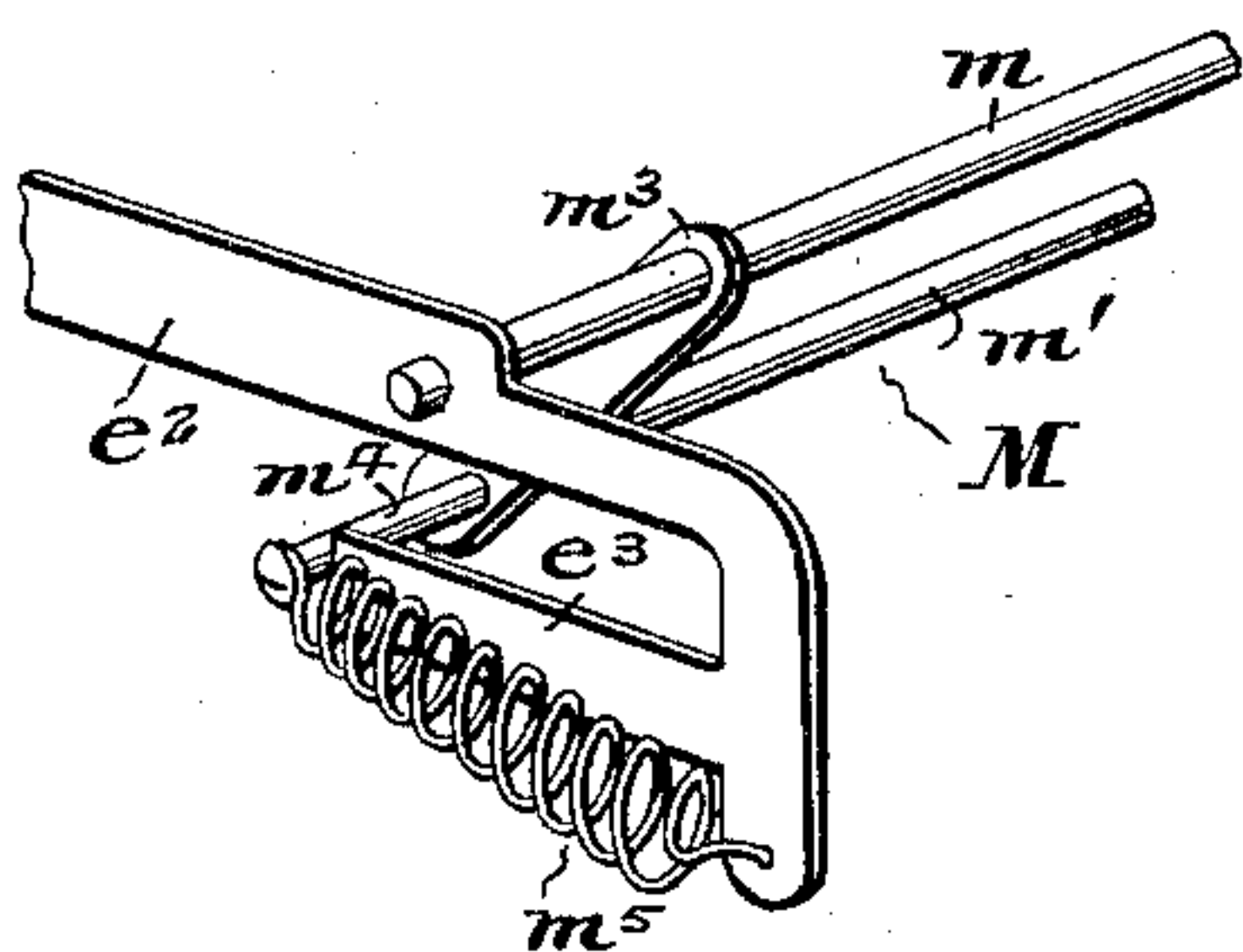


FIG. 3.



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# UNITED STATES PATENT OFFICE.

SAMUEL A. NEIDICH, OF PHILADELPHIA, PENNSYLVANIA.

## INK-RIBBON MECHANISM.

SPECIFICATION forming part of Letters Patent No. 662,805, dated November 27, 1900.

Application filed September 6, 1900. Serial No. 29,155. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL A. NEIDICH, of Philadelphia, in the State of Pennsylvania, have invented certain new and useful  
5 Improvements in Ink - Ribbon Mechanism, whereof the following is a specification, reference being had to the accompanying drawings.

My invention relates to printing devices of  
10 the class described in Letters Patent of the United States No. 655,985, granted to me under date of August 14, 1900, wherein an ink-ribbon is longitudinally shifted step by step  
15 between the type-form of a press and the platen opposed thereto. As such devices have been hitherto constructed and arranged an ink-ribbon is fully charged with ink before insertion in the device, which ribbon is reinked or renewed only when the ink is completely exhausted from it by a succession of  
20 impressions. It is characteristic of such known devices that the first impressions from the ribbon are darker in color than the succeeding impressions, which become lighter and lighter until the life of the ribbon is  
25 ended.

It is the object of my present invention to provide means to uniformly reink the ribbon contemporaneously with the subtraction of  
30 ink from it by the successive impressions, and thereby secure a product having a uniformity of coloring not hitherto attainable and also permit the continued use of the ribbon without removal from the press until its fabric is  
35 actually worn out.

My invention consists of mechanism applicable to an ordinary printing-press and comprises feed-rollers arranged to respectively  
40 support the opposite extremities of an ink-ribbon in invariable relation with the type-form, means to intermittently feed the ink-ribbon in the direction of its length between the type-form in the press and the platen opposed thereto, and means to alternately separate the medial portion of said ink-ribbon  
45 from said type-form and thrust it against the face thereof, the ink-ribbon being so arranged with respect to the press that the inking-rollers of the latter may traverse and directly ink  
50 the type-form while the ribbon is separated from it.

My invention also comprehends certain de-

tails of construction hereinafter more definitely specified and claimed.

In the accompanying drawings, Figure 1 is  
55 a sectional view of a printing-press, showing a convenient embodiment of my invention applied thereto. Fig. 2 is a sectional view similar to Fig. 1, but showing the parts in another position. Fig. 3 is a fragmentary perspective  
60 view of the ribbon-doffer shown in Figs. 1 and 2. Figs. 4 and 5 show details of construction of the ribbon-feed rollers.

Referring to Figs. 1 and 2, A is the main frame of an ordinary printing-press, in which  
65 is mounted the driving-shaft B, provided with the band-wheel *b* and pinion *b'*, the latter gearing with the cam-wheel C and serving to rotate it. The eccentric stud *c* upon said wheel C is operatively connected by the  
70 link C' with the stud *e* upon the bed E to rock said bed upon its fulcrum *e'* in the frame A, and the platen D is given the proper movement by the rock-arm D', whose roller *d'* is engaged in the cam-groove *c'* of the cam C.  
75 The chase E', containing the type-form E<sup>2</sup>, is secured upon the bed E. The to-and-fro motion of the bed E, imparted to it by the link C', &c., is transformed into oscillatory motion of the roller-frame F, concentric with  
80 said stud *e*, said frame F being pivotally connected at *g* with the roller-arm G, whose opposite extremity is pivoted at *g'* upon the fixed frame A.

The ordinary inking-disk H is mounted  
85 upon the bracket *h* of the bed E and intermittently rotated by the pawl-lever I, pivoted at *h'* on said bracket, said lever being rocked by the engagement of its roller *i* with the face *f* of the frame F.  
90

The above-described parts of an ordinary printing-press are not essential features of my invention, but serve to actuate and co-operate with my improved mechanism, comprising the ribbon-feed rollers J and K, mounted  
95 upon the bed E, respectively above and below the chase E', and arranged to intermittently shift the ribbon L across the face of the type E<sup>2</sup> as follows: The roller K is arranged to be rotated step by step by the pawl-lever  
100 *k*, which is connected by the link K' with the disk-lever I above described, the parts being so arranged that the desired oscillatory motion is imparted to said pawl-lever *k* while



the parts are shifting from the position shown in Fig. 1 to that shown in Fig. 2. It is to be understood, however, that the ribbon L may be intermittently shifted by suitable connection with any movable member of the press other than the lever I.

I find it convenient to employ a ribbon-feed roller of the construction claimed in the Letters Patent aforesaid and here shown in Figs. 4 and 5, wherein the feed-roller K is mounted for rotation upon cone-bearings  $K^2$ , fixed in the respectively opposite sides of the bed E. The pawl-lever  $k$  is fixed upon the pawl-disk  $k'$ , which is loosely mounted upon the shank  $k^2$  of the bearing  $K^2$  and carries the pawl  $k^3$  in position to engage the ratchet-wheel  $k^4$ , which is also loosely mounted upon said shank. The lug  $k^5$  of the wheel  $k^4$  is adapted for engagement in the slot  $k^6$  of the bearing-plate  $k^7$  on the roller K.

It is to be understood that the parts above described are so related that when the bed E and platen D swing apart, as indicated in Fig. 2, the ink-ribbon L is unrolled from the roller J and rolled upon the roller K an extent equal to the rotary action of the pawl  $k^3$  upon the ratchet  $k^4$ . The progression of the ribbon L serves to present a fresh portion of its surface for each succeeding imprint of the press.

In order that the ribbon L may be separated from the face of the type-form  $E^2$  during its longitudinal progression aforesaid to permit the ordinary inking-rollers  $F'$  to directly ink the face of the type, I mount the roller J some distance in front of the chase  $E'$  and extend the ribbon L from said roller J to the roller K around the doffer-frame M, which comprises the upper rock-shaft  $m$  and lower rod  $m'$ , maintained in fixed relation by the end bars  $m^2 m^3$ . Said rock-shaft  $m$  is mounted in the brackets  $e^2$  of the bed E, which brackets comprise abutments  $e^3$ , arranged to limit the downward movement of said doffer-frame by contact with the studs  $m^4$ , which project from the bars  $m^2 m^3$ . Said doffer M is normally maintained in the position shown in Fig. 2 by the springs  $m^5$ , which extend from the studs  $m^4$  to said brackets  $e^2$ . The parts last described are so arranged that when the springs  $m^5$  are free to swing the doffer-frame M downwardly to the position shown in Fig. 2 the ribbon L is drawn taut between the roller J and the rock-shaft  $m$ , and said ribbon is separated from the face of the type  $E^2$  a distance sufficient to permit the traverse of the inking-rollers  $F'$  over the face of the type-form. When, however, the bed E advances to the position shown in Fig. 1, the end bars  $m^2 m^3$  of the doffer-frame M encounter the press-frame A at  $a$ , and said doffer-frame is swung upwardly to the position shown in Fig. 1, thereby slackening the ribbon L and permitting its medial portion to be thrust against the face of the type  $E^2$ , as shown in said Fig. 1.

The operation of the device is as follows:

When the parts are in the position shown in Fig. 1, an impression is made from the type-form  $E^2$  through the ribbon L upon the paper against the platen D. Thereafter the cam C continues to rotate in the direction of the arrow upon Fig. 2 and the bed and platen swing apart, as therein shown. During the separating movement of the parts aforesaid the bed E carries the doffer-frame away from the corner  $a$  of the frame A and the springs  $m^5$  are free to draw said doffer-frame down into the position shown in Figs. 2 and 3, and the ribbon L is thereby drawn taut from the roller J to the rock-shaft  $m$  and in taut position is longitudinally shifted a predetermined extent by the ratchet movement of the roller K. While the ribbon L is separated from the face of the type-form  $E^2$ , as shown in Fig. 2, the ink-rollers  $F'$  traverse down and up over the face of the type, directly inking the same. The bed E being again advanced by the rotary traverse of the stud  $c$ , the inking-rollers  $F'$  are shifted upwardly out of the way, the doffer-frame M encounters the corner  $a$  of the frame A, and the ribbon L is slackened and again thrust against the face of the type  $E^2$ , as shown in Fig. 1. The effect of the operation aforesaid is to make an impression from the type-form E through the ribbon L upon a sheet of paper supported by the platen D and to contemporaneously reink the ribbon in the precise outline of the type-form and in the precise region of the ribbon from which the ink is removed by the impression, thereby preserving the uniformly-inked condition of the ribbon. Moreover, the progression of the ribbon L in the intervals between the successive impressions insures that duplicate impressions shall not be made in precisely the same region of the ribbon, and the ink received from the type-faces by the ink-ribbon is evenly distributed upon the latter by capillary attraction of the ribbon fibers before the reinked portion of the ribbon is again presented for the printing action, all of which features tend to uniformity of coloring in the product and economy of cost of production.

In view of the fact that the prior art comprises means for reinking ribbons whereby the ink is applied throughout the length and breadth of the ribbon irrespective of the region from which the impression is made in the following claims I shall specify means to reink the ribbon "solely in the region from which the impression is made," using that expression as descriptive of the element of my invention by which the above-described peculiar reinking operation is effected. It is to be understood, however, that by such use of the term "solely" I do not desire to preclude the employment of the novel combinations claimed in association with the aforesaid well-known devices of the prior art.

Although I prefer to employ the ribbon-doffing mechanism in conjunction with mechanism arranged to directly ink the faces of



the type, as before described, it is to be understood that said doffing mechanism is advantageous, *per se*, in that before the ribbon is progressed it is separated from the face of the type-form, and thereby saved from the abrasion incident to sliding contact with the faces of the type.

I am aware that it is old to employ a device the operation of which consists in inking the type and making the impression through a fabric, such as bolting-cloth, which is interposed between the inked type and the surface upon which the imprint is to be produced. However, such prior devices do not comprise any means for progressing the fabric through which the impression is made, but on the contrary the successive imprints are made through precisely the same region of said interposed fabric, which is therefore destroyed by comparatively few impressions and the impressions made lack the uniformity of coloring characteristic of the product of my present invention. Therefore my present invention is differentiated from the prior art referred to in construction, operation, and result attained.

It is to be understood that the mechanism hereinbefore described may be applied to any ordinary form of printing-press. Therefore I do not desire to limit myself to the precise construction and arrangement of the parts which I have illustrated, as it is obvious that various modifications may be made therein without departing from the spirit of my invention in accordance with the construction of the press in which said mechanism is to be embodied.

I claim—

1. In a printing-press, the combination with an ink-ribbon, of means to intermittently progress said ribbon between the type-form of said press and the platen opposed thereto, means to imprint from said type-form through said ink-ribbon, and means to reink said ribbon solely in the region from which the impression is made, substantially as set forth.

2. In a printing-press, the combination with an ink-ribbon, of means to intermittently progress said ribbon between the type-form of said press and the platen opposed thereto, means to imprint from said type-form through said ink-ribbon, and means to contemporaneously reink said ribbon solely in the region from which the impression is made, substantially as set forth.

3. In a printing-press, the combination with an ink-ribbon, of means to intermittently progress said ribbon between the type-form of said press and the platen opposed

thereto, means to imprint from said type-form through said ink-ribbon, means to contemporaneously reink said ribbon in the region from which the imprint is made, means to slacken said ribbon while the impression is being made, and means to tighten said ribbon after the impression is made, substantially as set forth.

4. In a printing-press, the combination with an ink-ribbon, of means to support the opposite extremities of said ribbon in invARIABLE relation with the type-form, means to imprint from said type-form through said ink-ribbon, and means to contemporaneously reink said ribbon, solely in the region from which the impression is made, substantially as set forth.

5. In a printing-press, the combination with an ink-ribbon, of feed-rollers mounted in invariable relation with the type-form of said press, and arranged to respectively support the extremities of said ribbon, means to intermittently progress said ribbon between the type-form and the platen opposed thereto, by rotation of said feed-rollers, means to imprint from said type-form through said ink-ribbon, and means to contemporaneously reink said ribbon solely in the region from which the impression is made, substantially as set forth.

6. In a printing-press, the combination with an ink-ribbon, of means to extend said ribbon between the type-form of the press and the platen opposed thereto, means to alternately slacken and tighten said ribbon, means to imprint from said type-form through said ribbon when slackened, and means to intermittently shift said ribbon when tightened, substantially as set forth.

7. In a printing-press, the combination with an ink-ribbon, of means to intermittently progress said ribbon between the type-form of said press, and the platen opposed thereto, and means to tighten said ribbon during its progression and slacken said ribbon when at rest, substantially as set forth.

8. In a printing-press, the combination with an ink-ribbon, of means to intermittently progress said ribbon between the type-form of said press and the platen opposed thereto, means to tighten said ribbon during its progression and slacken said ribbon when at rest, comprising a doffer-frame, and means to oscillate said frame, substantially as set forth.

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Witnesses:

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