No. 793,934. PATENTED JULY 4, 1905.

F. W. HUNTER.

CONSTRICTOR FOR INKING ROLLERS.

APPLICATION FILED AUG. 27, 1903. RENEWED APR. 5, 1904.

2 SHEETS—SHEET 1.

Fig. 1

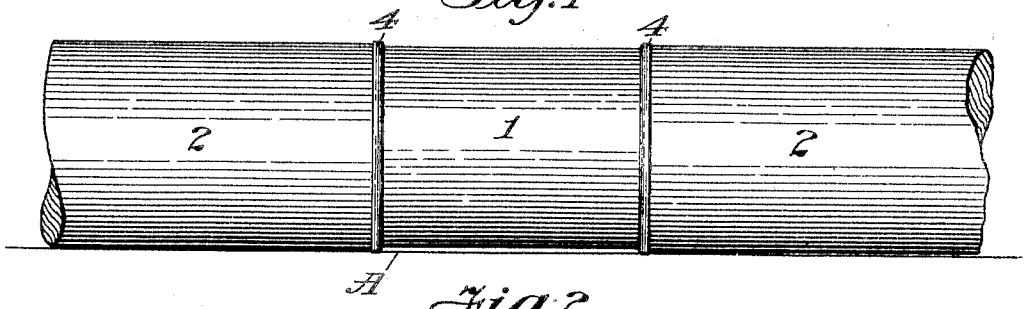


Fig. 2

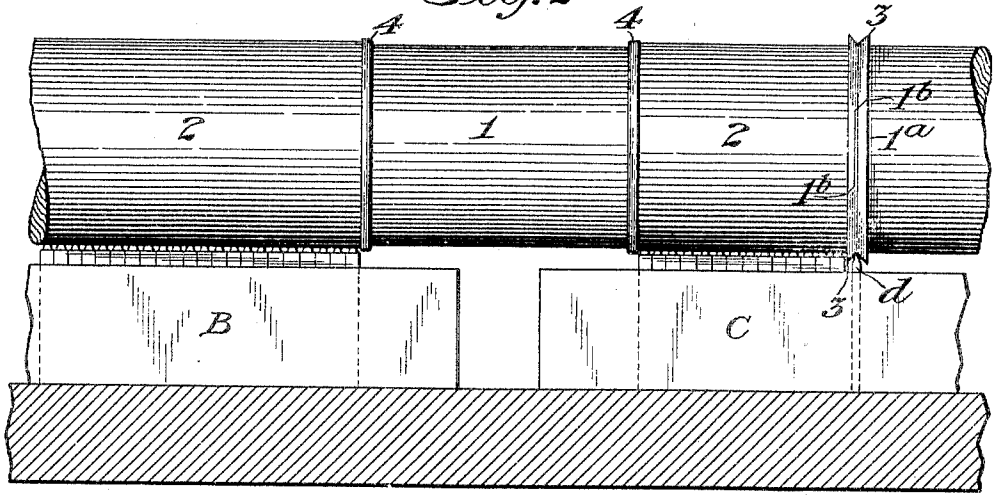


Fig. 3

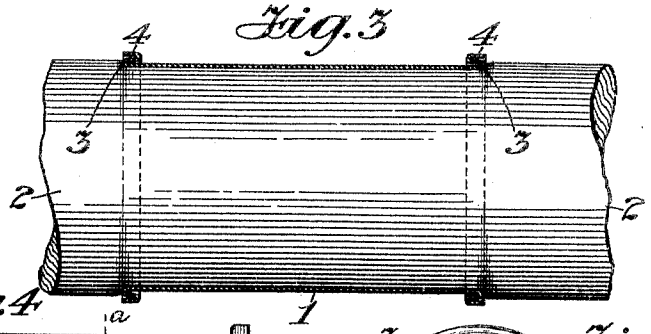


Fig. 4

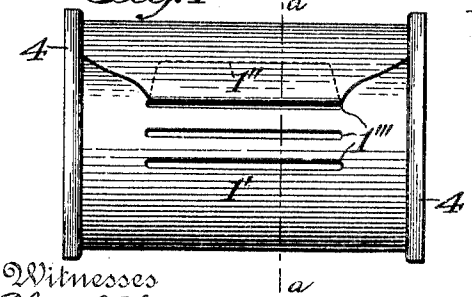
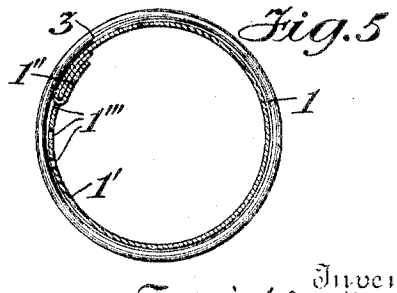


Fig. 5



Witnesses
Chas. F. Clagett
Etelka Gercke

Inventor
Frederick W. Hunter;
By his Attorney, Chas. A. Davis.

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2 SHEETS—SHEET 2.

Fig. 6

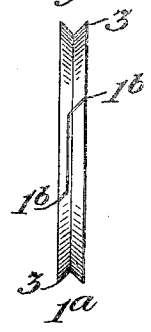


Fig. 7

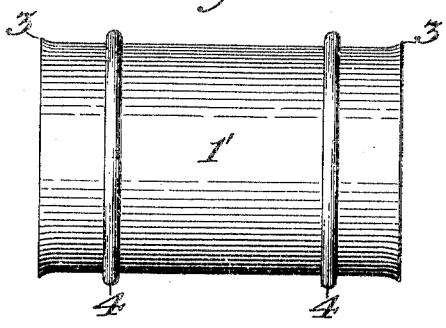
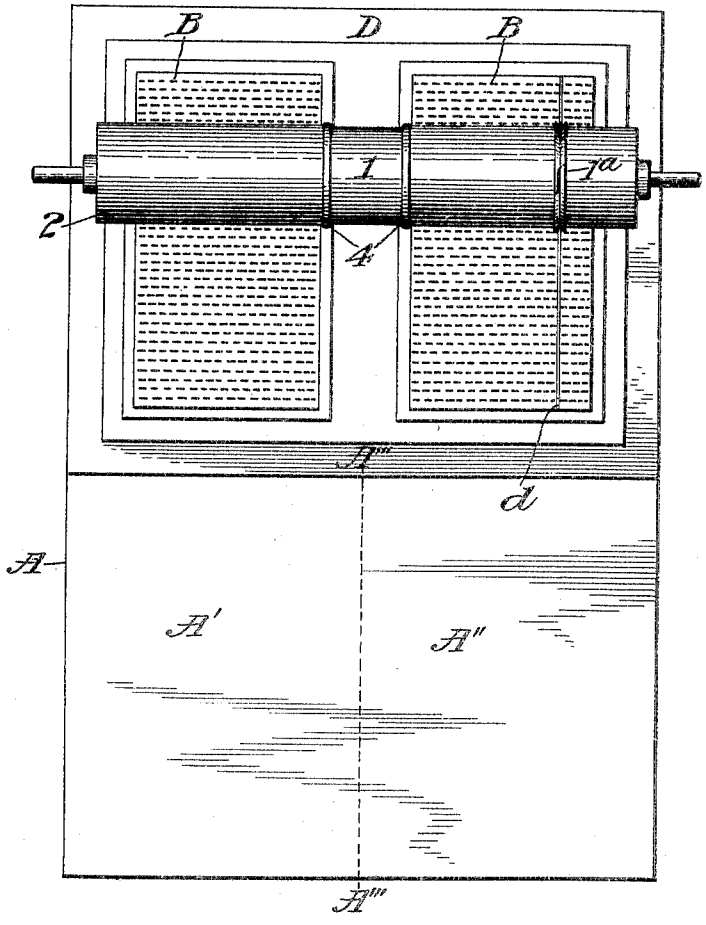


Fig. 8



Witnesses
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Inventor,
Frederick W. Hunter.
By his Attorney, Chas. F. Davis.

PHOTO-LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 793,934. Patented July 4, 1905.

UNITED STATES PATENT OFFICE.

FREDERICK W. HUNTER, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE HUNTER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CONSTRICTOR FOR INKING-ROLLERS.

SPECIFICATION forming part of Letters Patent No. 793,934, dated July 4, 1905.

Application filed August 27, 1903. Renewed April 5, 1904. Serial No. 201,746.

To all whom it may concern:

Be it known that I, FREDERICK W. HUNTER, a citizen of the United States, residing in the borough of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Constrictors for Inking-Rollers, of which the following is a specification.

My present invention pertains to constrictors which are designed to be applied circumferentially of the inking-rollers of printing-presses and by reason of the combination thus effected to obtain a diversity of inking effects from a suitably-prepared inking-table by means of the operation of each roller thus equipped.

Among the objects which I obtain by my invention are the following, namely: the adaptability of an inking-roller for use in combination with a variety of inks or with various quantities of one kind of ink, in combination either with a plurality of parts of the surface of one printing-form or with the entire surface of each of a plurality of printing-forms, and also the adaptability of a roller to be used in combination with a form in which is fixed one or more perforating-rules or other protruding elements which need not or should not be inked and which if they contact an unprotected surface of an inking-roller cut or otherwise mar or damage the latter.

In the drawings, Figure 1 is an elevation, as from the forward end of a printing-press, of a part of an inking-table and of a part of an inking-roller with a constrictor mounted thereon. Fig. 2 is an elevation of the inking-roller and two constrictors and of a part of each of two forms of type, one of which contains a perforating-rule. Fig. 3 is an elevation of a part of an inking-roller, part of which is constricted by means of a constrictor which is mounted thereon, parts of the constrictor being shown in vertical longitudinal section. Fig. 4 is an elevation of a constrictor. Fig. 5 is a transverse vertical section of a constrictor through the line *a a*, Fig. 4. Figs. 6 and 7 are elevations of modified forms of a constrictor; and Fig. 8 is a top plan view, on a reduced scale, of elements which are shown in Figs. 1 and 2.

Reference characters are relatively alike throughout the drawings.

In the drawings, A designates an inking-table, upon which printing-inks of differing colors or qualities may be distributed either evenly or in differing quantities by any suitable means. (Not shown.) For the purpose of illustrating and describing my invention the surface of the inking-table A should be considered as divided longitudinally into a plurality of inking-faces, herein shown as two in number—namely, A′ and A″—which may be understood to lie on either side of an imaginary line A‴, which lies on the same vertical plane as the middle of a constrictor, which is herein referred to as 1 and is mounted upon an inking-roller 2. The inking-roller 2 may be of any required dimensions and made of any suitable material. The constrictor 1 may be made of any suitable flexible material which has sufficient tensile strength for the purpose of my invention. I prefer, however, to make the constrictor of relatively thin and somewhat resilient metal—such, for instance, as steel. A strip of such material of suitable length and breadth for its intended use is reduced in width somewhat at one end part thereof, as at 1″, and this narrower end part is then formed into a hook by bending it down toward and nearly upon the body 1′ of the device, leaving, in fact, sufficient space between the end part of hook 1″ and the body 1′ to receive a thickness of the same material. Near the opposite end of the body 1′ a plurality of slots 1‴ may be formed in and transversely of the latter, each of said slots 1‴ being of suitable dimensions to permit the bent-end part or hook 1″ to be hooked therein. Any other suitable means may be used for so connecting the end parts of the constrictor 1 as to secure it upon and to cause it to constrict the roller 2; but I prefer the means herein illustrated and described.

Means are provided for preventing the peripheral edges of the constrictor 1 from cutting and damaging the face of the roller 2.

These may be of various forms or construction according to their respectively-designed uses. I prefer, however, to attain the desired end by curving outwardly the edge parts of the device, thus giving to each of said edge parts the form which is hereinafter termed and referred to as a "protective" edge 3. In some instances it may be necessary to provide means for retaining the constricted part of the roller 2 at a slight distance from the surface of the inking-table A, this being sometimes rendered more necessary by reason of a slight increase which may be caused diametrally of the roller by the constriction thereof by and contiguous to the constrictor 1. For the purpose mentioned I prefer to form certain elements which are hereinafter designated and referred to as "riding ridges," and these may be made by recurving, as at 4, the edge parts of the protective edges 3. It will be noted that the riding ridges 4 if formed of suitable material—such, for instance, as spring metal—will have a resilient bearing upon the inking-table A. This resiliency, however, as will be hereinafter more fully related, will be of more marked advantage where a constricted inking-roller contacts one or more type-forms—such, for instance, as are illustrated and referred to herein as forms B and C. The riding ridges 4 may, however, comprise elastic and resilient bands, which may encircle the constrictor, as shown in Fig. 7; but I prefer those which are integral with the constrictor, as before described.

Where relatively narrow constrictors are used—as, for instance, where they may be required to prevent the roller 2 from contacting a perforating-rule—such, for instance, as the one which is shown in Figs. 2 and 8, respectively, and referred to herein as *d*—a circumferentially-grooved band of suitable material may be used for the purpose, means being provided to cause it to encircle the whole circumference of the roller. Such a constrictor is shown in Figs. 2 and 8, respectively, and is referred to herein as 1^a. This I prefer to make of metal which shall have sufficient resilience to cause it to constrict the roller 2 at least slightly, and thus maintain itself in its normal position relatively of the roller. Means are provided to facilitate the positioning of the constrictor 1^a on a roller 2. In the form shown in the drawings the constrictor 1^a is divided, as shown by the line 1^b, which by reference to Fig. 6 will be seen to enter one side of the constrictor 1^a, divide the latter for a certain distance on a plane transversely of its axis and at one side of the center of the constrictor, and pass thence outwardly at the side opposite to that at which it entered, the constrictor thus formed being provided with parallel contact-faces, which when the constrictor is in position contact each other circumferentially of the roller 2.

The operation of my invention may be described as follows: Where different inking effects are required for one or more type-forms, which are mounted on the bed D of a printing-press, the parts of the surface of the inking-table which are in longitudinal alinement with the parts of the type-forms upon which said different inking effects are to be produced should be respectively properly prepared with the inks which will be required for the purpose mentioned. The inking-rollers of the press should then be respectively provided with constrictors 1, which should be respectively positioned on the several rollers so that they severally extend, at least approximately, an equal distance each side of the adjacent margins of the differentially-inked parts of the inking-table.

Any suitable means may be used to properly distribute the different inks upon the inking-table, and should distributing-rollers form the whole or a part of said means they may also be equipped with constrictors 1 in a like manner with the inking-rollers. Assuming, however, that inks of the various kinds required have been distributed upon the inking-table A in the desired quantities, the inking-roller 2 will transfer said inks to the surfaces of the printing-forms B C if said surfaces and inking-roller be properly contacted one with the other—as, for instance, by the usual operation of a cylinder-press—and it will be noted that the several divisions of the inking-roller 2 if properly defined and separated by constrictors 1, as before related, will respectively transfer unmixed and unblended ink from the several correlative divisions of the inking-table A to the prearranged correlative parts of the surfaces of the type-forms B C. If a perforating-rule *d* be inserted in a type-form and longitudinally of the bed D, a constrictor 1^a should be placed on the inking-roller 2 in the relative position which is shown in the drawings.

In placing a constrictor on a roller it should be spread open circumferentially sufficiently far to enable it to pass readily longitudinally of the roller to its destined position, when it may be permitted to close upon the roller, and if, as shown and described herein, it be provided with engaging means for securing an outer end thereof to the body thereof said means may then be engaged, and if said means are adjustable they should be so adjusted as to cause the device to slightly constrict the roller. When positioned and secured as thus related, the protective edges 3 prevent the edges of the constrictor from cutting or otherwise injuring the roller, and the riding ridges 4 may ride upon the inking-table A and upon the surfaces of the type-forms, thus preventing the body of the constrictor from contacting either the inking-table A or the type-forms, and the resilience of the riding ridges 4 will so cushion the latter as to prevent them from injuring any faces which they may contact in

the type-forms. The grooved constrictor 1^a prevents the perforating-rule d from being inked by the roller 2 and also prevents the latter from being injured by the perforating-rule d, and because of its grooved form it comprises within itself all the functions of the wider constrictor, including those of the protective edges 3 and of riding ridges 4. The principal function of a wider constrictor consists in providing an uninked, and therefore functionally inoperative, surface for an ink-roller, thus, in fact, forming an inoperative zone about the latter and positively preventing the intermixture and consequent blending thereon of the different inks which may be used on the type-forms.

Where the riding ridges 4 are separable from the body of the constrictor, as shown in Fig. 7, one or more of the former may be used, according to the special requirements of the latter. When separable riding ridges are used, they may be placed in position by expanding them sufficiently to permit them to encircle and to be contacted upon a previously-placed constrictor, thus not only serving as riding ridges, but also by their resilient contraction causing the constrictor to constrict the inking-roller 2. A separable riding ridge may consist of a continuous annulus, or it may be divided transversely similarly to the constrictor 1^a.

I claim as new and as my invention —

1. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller.

2. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a band which has curved protective edges.

3. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a flexible band which has curved protective edges.

4. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a flexible and resilient band which has curved protective edges.

5. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a band which has curved protective edges; and a riding ridge which is combined therewith and circumferentially thereof.

6. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a flexible band which has curved protective edges; and a riding ridge which is combined therewith and circumferentially thereof.

7. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a flexible and resilient band which has curved protective edges; and a riding ridge which is combined therewith and circumferentially thereof.

8. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a band which has curved protective edges; and a plurality of riding ridges which are combined therewith and circumferentially thereof.

9. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a flexible band which has curved protective edges; and a plurality of riding ridges which are combined therewith and circumferentially thereof.

10. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a flexible and resilient band which has curved protective edges; and a plurality of riding ridges which are combined therewith and circumferentially thereof.

11. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a band which has curved protective edges; and a plurality of resilient riding ridges which are combined therewith and circumferentially thereof.

12. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a flexible band which has curved protective edges; and a plurality of resilient riding ridges which are combined therewith and circumferentially thereof.

13. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a flexible and resilient band which has curved protective edges; and a plurality of resilient riding ridges which are combined therewith and circumferentially thereof.

14. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band which has means for attaching an end of the band to the body of the band.

15. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band which has means for adjustably attaching an end of the band to the body of the band.

16. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band which has a hook which is formed on an end of the band and is engageable with the body of the band.

17. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band which has a hook which is formed on an end of the band and is engageable in either one of a plurality of slots which are formed in the body of the band.

18. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended flexible and resilient band which has means for attaching an end of the band to the body of the band.

19. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended flexible and resilient band which has means for adjustably attaching an end of the band to the body of the band.

20. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended flexible and resilient band which has a hook which is formed on an end of the band and is engageable with the body of the band.

21. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended flexible and resilient band which has a hook which is formed on an end of the band and is engageable in either one of a plurality of slots which are formed in the body of the band.

22. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band which has curved protective edges; and means for attaching an end of the band to the body of the band.

23. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band which has curved protective edges; and means for adjustably attaching an end of the band to the body of the band.

24. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended flexible and resilient band which has curved protective edges; and means for attaching an end of the band to the body of the band.

25. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended flexible and resilient band which has curved protective edges; and means for adjustably attaching an end of the band to the body of the band.

26. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band which has means for attaching an end of the band to the body of the band; and a plurality of riding ridges which are combined therewith and circumferentially thereof.

27. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band which has means for adjustably attaching an end of the band to the body of the band; and a plurality of riding ridges which are combined therewith and circumferentially thereof.

28. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended flexible and resilient band which has means for attaching an end of the band to the body of the band; and a plurality of riding ridges which are combined therewith and circumferentially thereof.

29. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended flexible and resilient band which has means for adjustably attaching an end of the band to the body of the band; and a plurality of riding ridges which are combined therewith and circumferentially thereof.

30. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band which has curved protective edges; means for attaching an end of the band to the body of the band; and a plurality of riding ridges which are combined therewith and circumferentially thereof.

31. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band which has curved protective edges; means for adjustably attaching an end of the band to the body of the band; and a plurality of riding ridges which are combined therewith and circumferentially thereof.

32. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended flexible and resilient band which has curved protective edges; means for attaching an end of the band to the body of the band; and a plurality of riding ridges which are combined therewith and circumferentially thereof.

33. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended flexible and resilient band which has curved protective edges; means for adjustably attaching an end of the band to the body of the band; and a plurality of riding ridges which are combined therewith and circumferentially thereof.

34. The combination of an inking-roller

with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a band which has a riding ridge which is combined therewith and circumferentially thereof.

35. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a band which has a plurality of riding ridges which are combined therewith and circumferentially thereof.

36. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a band which has a plurality of resilient riding ridges which are combined therewith and circumferentially thereof.

37. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band which has curved protective edges.

38. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band; and a riding ridge which is combined therewith and circumferentially thereof.

39. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band; and a plurality of riding ridges which are combined therewith and circumferentially thereof.

40. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band; and a plurality of resilient riding ridges which are combined therewith and circumferentially thereof.

41. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band; a plurality of resilient riding ridges which are combined therewith and circumferentially thereof; and means for attaching an end of the band to the body of the band.

42. The combination of an inking-roller with a non-inking constrictor which surrounds and constricts a part of the roller and comprises a two-ended band; a plurality of resilient riding ridges which are combined therewith and circumferentially thereof; and a hook which is formed on an end of the band and is engageable in either one of a plurality of slots which are formed in the body of the band.

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

FREDERICK W. HUNTER.

Witnesses:

CHAS. H. DAVIDS,

ETELKA DERCKS.