

No. 749,487.

PATENTED JAN. 12, 1904.

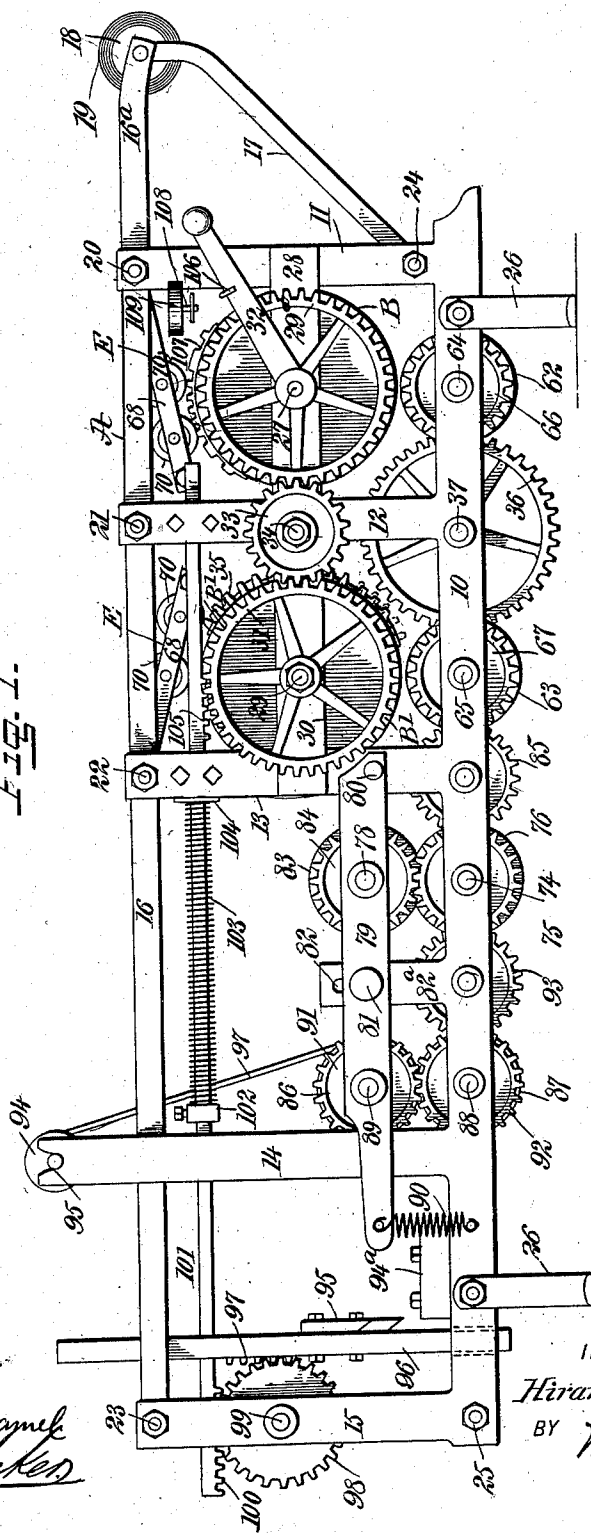
H. T. KENT.
PRINTING PRESS.

APPLICATION FILED OCT. 15, 1902.

NO MODEL.

4 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

James J. Duhamel
J. H. Peters

INVENTOR

Hiram T. Kent

BY

Mumford
ATTORNEYS.

No. 749,487.

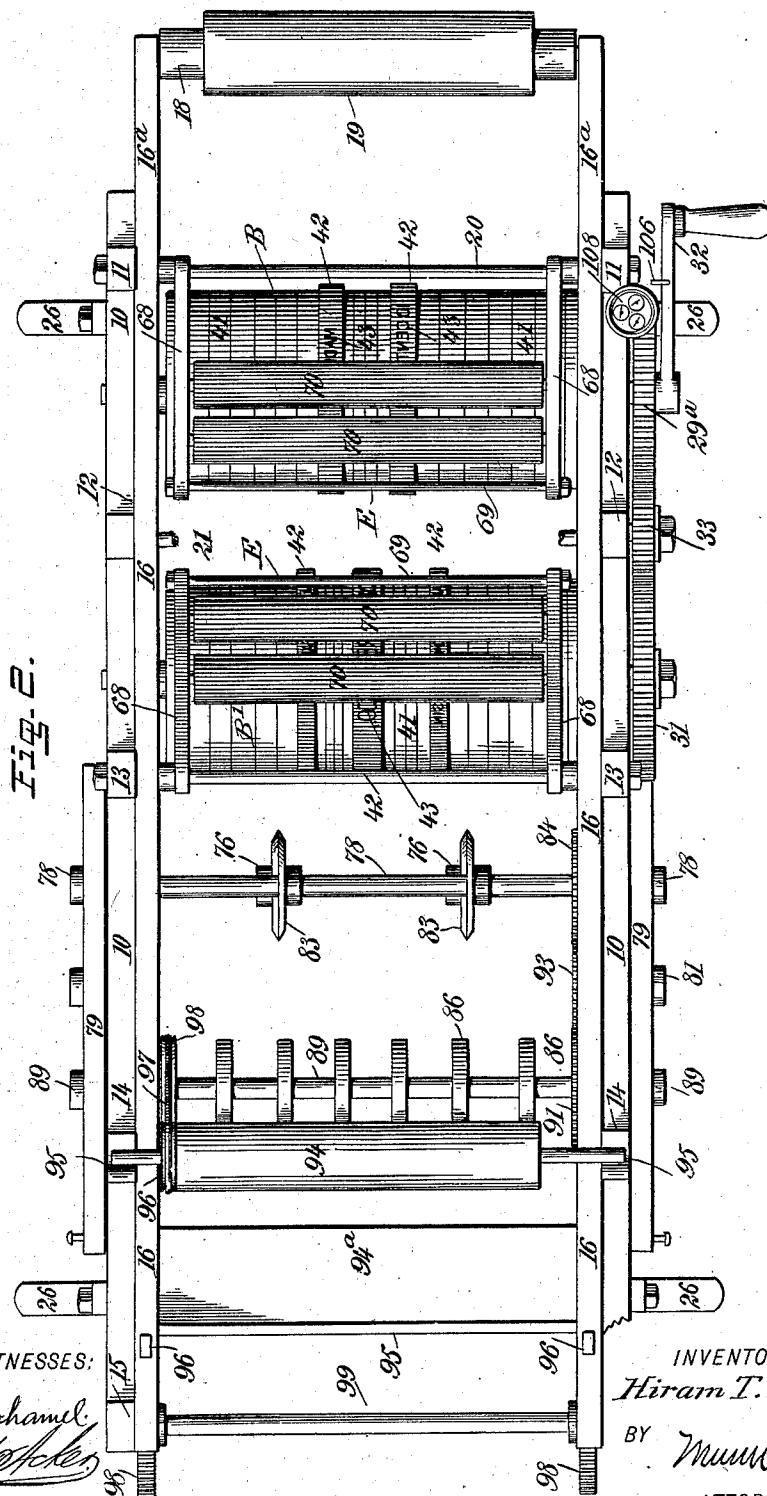
PATENTED JAN. 12, 1904.

H. T. KENT.
PRINTING PRESS.

APPLICATION FILED OCT. 15, 1902.

NO MODEL.

4 SHEETS—SHEET 2.



No. 749,487.

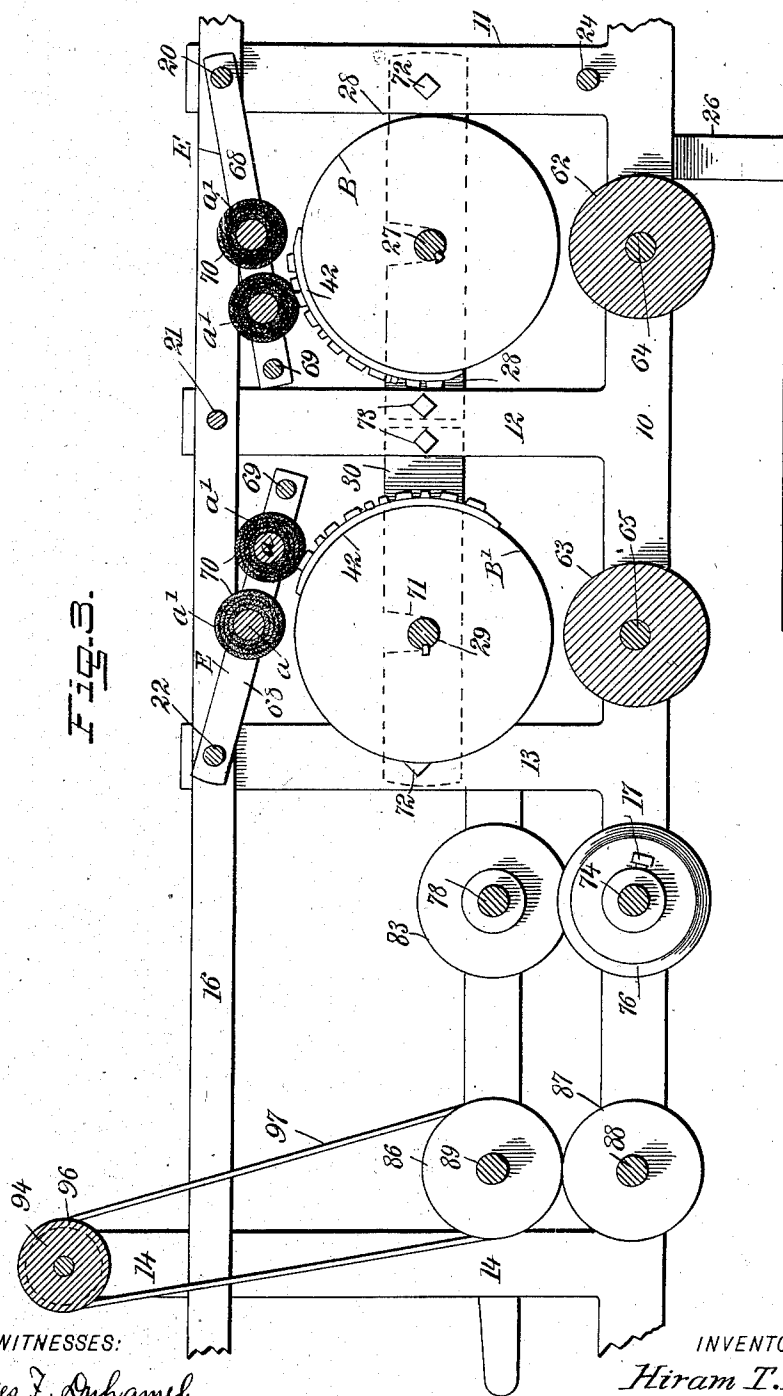
PATENTED JAN. 12, 1904.

H. T. KENT.
PRINTING PRESS.

APPLICATION FILED OCT. 15, 1902.

NO MODEL.

4 SHEETS—SHEET 3.



WITNESSES:

James F. Duhamel
[Signature]

INVENTOR

Hiram T. Kent

BY

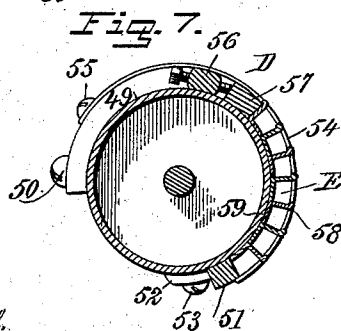
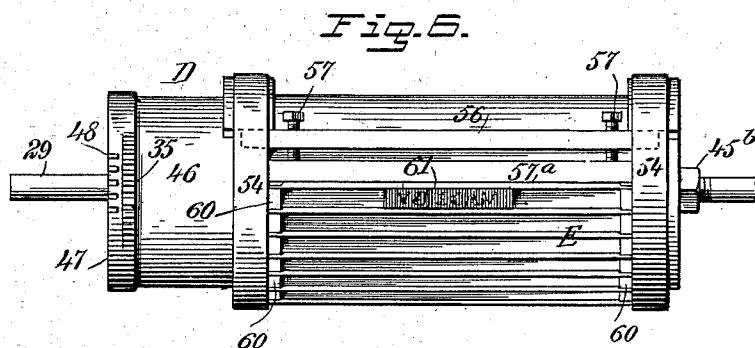
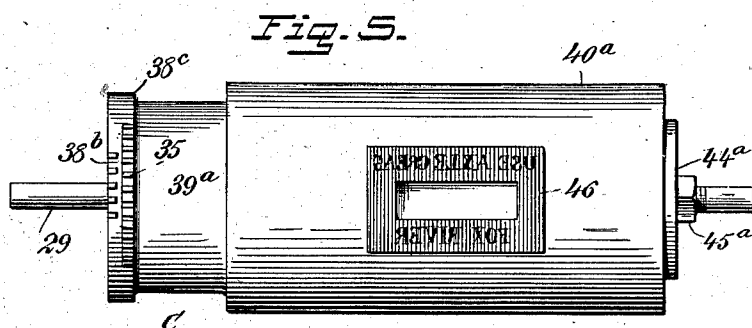
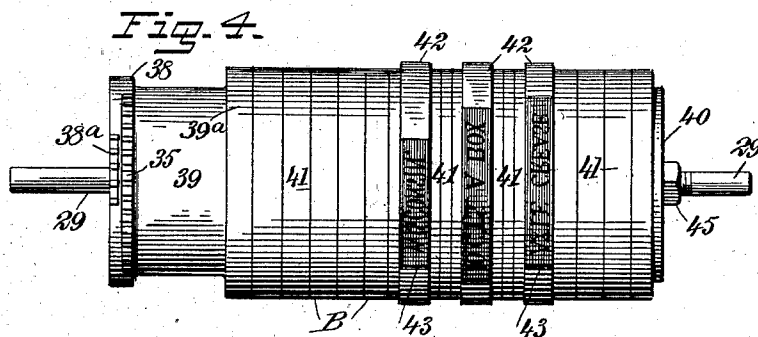
[Signature]
ATTORNEYS.

H. T. KENT.
PRINTING PRESS.

APPLICATION FILED OCT. 15, 1902.

NO MODEL.

4 SHEETS—SHEET 4.



WITNESSES:

James P. Duhamel
[Signature]

INVENTOR

Hiram T. Kent

BY

[Signature]
ATTORNEYS.

UNITED STATES PATENT OFFICE.

HIRAM T. KENT, OF APPLETON, WISCONSIN.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 749,487, dated January 12, 1904.

Application filed October 15, 1902. Serial No. 127,372. (No model.)

To all whom it may concern:

Be it known that I, HIRAM T. KENT, a citizen of the United States, and a resident of Appleton, in the county of Outagamie and State of Wisconsin, have invented a new and Improved Printing-Press, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide a printing-press having rollers so constructed and arranged that they may carry a rubber stamp or have any desired matter set up therein in rubber or metal type with or without rubber or metal pictorial objects or ornaments, and, further, to provide means whereby a single printing-roller may be employed or whereby the matter may be set up upon the printing-rollers in such manner that two or more rollers may be used to print in as many colors.

Another purpose of the invention is to provide a mechanism of the character described which will be simple, durable, and economic and which can be operated manually or by power in connection with paper in roller form.

A further purpose of the invention is to provide adjustable cutters automatically operated to cut the printed sheet longitudinally in desired width and a winding-roller upon which the cut and unprinted sections of the sheet will be automatically wound for future use.

A further purpose of the invention is to provide an automatically-operated knife for transversely cutting the printed sheet in desired length and to provide means for recording the number of pieces printed.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the machine. Fig. 2 is a plan view of the same. Fig. 3 is a vertical longitudinal section through the major portion of the machine. Figs. 4, 5, and 6 are side elevations of various styles of

printing-rollers which may be employed, and Fig. 7 is a transverse section through the printing-roller shown in Fig. 6.

The frame of the machine primarily consists of two side sections A, which are practically of the same construction, each side section consisting of a lower bottom bar 10, standards 11, 12, 13, 14, and 15, which extend upward from the said bottom bar, the standard 14 extending up higher than the rest, and an upper bar 16, attached to the inner faces of the uprights or standards 11, 12, 13, and 15, which upper bar 16 of each side section A extends beyond the front standard or upright 11, forming arms 16^a, supported by suitable braces 17, and in these arms 16^a bearings are formed to accommodate the trunnions of a reel or roller 18, upon which the paper 19 to be printed is wound. The bearings for the said reel or roller 18 are so constructed that said reel or roller may be readily lifted out from the bearings.

The side sections A of the frame are connected by rods 20, 21, 22, and 23, provided with suitable nuts passed through opposing standards or uprights 11, 12, 13, and 15 and through the upper side bars 16, as is shown in Fig. 1, and through the medium of other rods also provided with suitable nuts located at the bottom portions of the side sections A at the front and at the rear, which latter rods are designated as 24 and 25; but other braces or connecting-rods may be employed wherever they may be deemed necessary. The frame as described is supported by suitable legs 26.

A shaft 27 is journaled in transverse intermediate side bars 28 between the upright standards 11 and 12, as is shown in Figs. 1 and 3, and at the left-hand end of the shaft 27, outside of the left-hand side of the frame, a gear-wheel 29^a is secured in any suitable or approved manner. Upon this shaft 27 a printing roller or drum B is keyed, the said drum or roller being capable of removal from the aforesaid shaft 27. A second and parallel shaft 29 is journaled in intermediate side bars 30 between the uprights or standards 12 and 13, as is also shown in Figs. 1 and 3, and at the left-hand end of the said shaft 29, outside of

the frame, a gear-wheel 31 is secured of the same diameter as the gear-wheel 29^a, and these two gear-wheels are connected by a pinion 33, which pinion is secured upon a shaft 34, mounted to turn in the left-hand upright or standard 12, and at the inner end of the shaft 29 is a mutilated gear 35, the purpose of which will hereinafter appear. The power is preferably communicated to the shaft 27 either by means of a suitable pulley or through the medium of a crank 32 when the machine 13 is to be manually operated.

The rollers B and B' are preferably constructed as is shown in detail in Fig. 4, consisting of a body-section 39, provided with a collar 39^a near one end and a flange 38 at the end adjacent to the collar, on which flange 38 a desired number of teeth 38^a are produced for a purpose to be hereinafter described, and on the said body 39 a series of washers 41 is located, the said washers being held in place by bearing against the collar 39^a near one end of the roller and by means of a disk 40 at the opposite end of the roller bearing against the uppermost washer at that end and held in place by a nut 45, screwed upon the shaft on which the roller is mounted. In building up the washers on the body 39 of the roller suitable spaces are formed for printing-rings 42, which are of greater diameter than the diameter of the washers 41, and on these rings 42, which are held in predetermined position relative to each other by the washers 41, the type-matter to be printed from is secured by means of suitable strips, upon which the type is cast—as rubber, for example—or the printing-rings 42 may be in the form of segments and the matter to be printed be set up between the ends of the segments in the usual manner, the type employed being preferably rubber, although metal type may be likewise used.

When the two rollers B and B' are used, the matter set up can be printed in two colors, and under such conditions the matter set up on the roller B will register with the space between the matter set up on the roller B', and the teeth 38^a may be omitted from the roller B, if desired, since they will not be needed, or the said roller B may be provided with the teeth 38^a, so that it may be interchangeable with the opposing roller B'.

In Fig. 5 I have illustrated another form of printing-roller, in which the flange 38^c on the body 39^a is provided with teeth 38^b corresponding to the teeth 38^a in Fig. 4 and a cylinder 40^a is slipped over the body 39^a, being secured therein in any approved manner, or the said cylinder 40^a may be an integral portion of the body 39^a of the roller. On this cylinder 40^a or enlargement of the body a rubber stamp 46 or a plate of any description may be secured. When a cylinder 40^a is employed removable from the body 39^a of the roller, a disk 44^a is used to hold the cylinder in place at one end, the disk being secured by a suit-

able nut 45^a, and the cylinder at the opposite end may abut against any projection desired on the body portion 39^a. This form of printing-roller is designated in the drawings as C.

In Fig. 5 I have illustrated another form of printing-roller, in which the body portion 46 is provided at one end with a flange 47, having teeth 48 corresponding to the teeth 38^a and 38^b, heretofore described, and at one end of the said body 46 and near the opposite end, at which the flange 47 is located, segmental blocks 49 are secured by means of suitable screws 50 or their equivalents. A predetermined distance from the free ends of the said segmental blocks 49 a bar 51 is located longitudinally of the said body, extending from a point opposite the fastened end of the opposing segmental block 49. This longitudinal bar 51 is attached to the body 46 preferably by segmental lugs 52 and suitable screws 53, as is shown in Fig. 7.

At each end portion of the longitudinal bar 51 one end of a spring-strap 54 is secured, and these straps are of sufficient length to be carried over the free ends of the segmental blocks 49 and to be secured to the said blocks by suitable screws 55. At the free ends of the segmental blocks 49 a presser-bar 56 is located, the ends of which bar 56 engage with the front ends of the blocks 49, as is shown in Figs. 6 and 7, and adjusting-screws 57 are passed through the presser-bar 56 to an engagement with a follower-bar 56^a. This follower-bar 56^a under the influence of the adjusting-screws 57 serves to bind the series of type-carrying bars E between the fixed longitudinal bar 51 and the aforesaid follower-bar 56^a. These type-carrying bars are angular in cross-section, each comprising a bottom member 59, curved to fit upon the exterior of the body 46, and an outwardly-extending side member at one edge of the body member and at an angle thereto, the side members being designated as 58. The construction of the type-carrying bars is best shown in Fig. 7. At the end of each type-carrying bar a block 60 is secured, and these blocks extend beneath the spring-straps 54, and when said straps are fastened as has been described the type-carrying bars are firmly held in position on the body 46 of the roller. Under this construction and grouping of the type-carrying bars a series of channels is obtained in which the type-matter is set up or in which blocks of rubber are placed having type-matter thereon, as is shown at 61 in Fig. 6.

An impression-roller is provided for each of the printing-rollers B and B', and these impression-rollers are designated, respectively, as 62 and 63. The shafts 64 and 65 of the said impression-rollers are journaled in suitable manner in the bottom bars 10 of the side sections A of the frame. The left-hand trunnion of the impression-roller 62 is provided with a pinion 66, which engages with a gear

36, mounted upon a suitable shaft 37, as is shown in Fig. 1, and a pinion 67, which is likewise attached to the left-hand trunnion of the impression-roller 63, also engages with the said gear 36.

In connection with each printing-roller B and B' an inking mechanism E is employed. The inking mechanism for each roller is identical in construction, consisting of a frame comprising side bars 68 and a connecting-bar 69. The side bars 68 for the inking mechanism E belonging to the printing-roller B are pivoted upon the forward connecting rod or bar 20, whereby the frame inclines downward and rearward, while the side bars 68 for the inking mechanism belonging to the printing-roller B' are pivoted upon the connecting rod or bar 22, whereby the said frame extends downward and forward. In each of the frames constructed as described inking-rollers 70 are journaled, and each inking-roller preferably consists of a solid core *a* and an outer wrapping *a'*, of any absorbent material, and as the printing-rollers revolve one inking-roller of the inking mechanism belonging to the printing-roller will first ink the type and then the type will be inked by the second inking-roller; but, if desired, a single roller only may be employed for each printing-roller.

The printing-rollers are preferably removed from the frame at the right-hand side thereof, and to that end the intermediate side bars 28 and 30 in which the shafts of the printing-rollers are journaled at their right-hand ends are provided with bearings 71, having removable caps, as shown in Fig. 3, or a similar form of bearing, whereby the right-hand ends of the shafts may be readily detachable therefrom, and at one end of each intermediate side bar 28 and 30 the said bar is pivoted to an adjacent standard at the right-hand side of the frame, as is shown at 72 in Fig. 3. The opposite ends of the said intermediate side bars 28 and 30 are locked to another standard—the standard 12, for example—at the right-hand side of the frame by means of suitable bolts 73 or like devices. Any locking mechanism may be employed for the afore-said intermediate side bars 28 and 30 which will admit of said side pieces being dropped downward or carried upward and permit of the outward passage of the printing-rollers and serve to hold the said intermediate side bars 28 and 30 in their normal or supporting position when required.

To the rear of the rearward printing-roller B' and its impression-roller 63 a shaft 74 is suitably journaled in the bottom side bars 10 of the side sections of the frame, and at the left-hand end of the said shaft 74 a pinion 75 is secured, as is shown in Fig. 1. On this shaft 74 any desired number of disk cutters 76 are adjustably mounted, being secured in adjusted position by set-screws 77 or the like. Above and parallel with the shaft 74 a second

shaft 78 is journaled in arms 79, pivotally attached to the standards or uprights 13, as is best shown in Figs. 1 and 2, the pivot-pins of the arms 79 being designated at 80 in Fig. 1. At the central portion of said arms 79 pins 81 are located, which have sliding movement in slots 82, produced in short standards 82^a, which extend upward from the bottom bars 10 of the side sections of the frame between the standards 13 and 14, the shorter standards 82^a serving to limit the vertical movement of the arms 79.

On the upper shaft 78 disk cutters 83 are adjustably secured in like manner to the lower disk cutters 78, with which they are adapted to register and with which they are adapted to engage at their peripheral portion, and at the left-hand end of the upper cutter-shaft 78 a pinion 84 is secured, which meshes with the pinion 75 on the lower cutter-shaft. Motion is communicated to these two pinions 75 and 84 through the medium of a pinion 85, which meshes with the pinion 75 and with the pinion 67 on the impression-roller for the printing-roller B', as is also best shown in Fig. 1, and an intermittent motion is given to the lower train of gearing to move the paper the proper distance by the teeth 35 engaging the gear 67. These cutters 76 and 83 are adapted to cut the paper in longitudinal sections after the paper has passed from the roller or reel 18 between the printing and the impression rollers, thus enabling a number of different labels to be printed on the same machine at the same time, each label appearing in numbers upon one of the longitudinal sections of the paper.

At the rear of the cutters 76 and 83 disk guides 86 and 87 are secured at suitable intervals apart upon shafts 88 and 89, one shaft being above the other, and the shaft 88 is journaled in the lower side bar 10 of the side section of the frame, while the upper shaft 89 is journaled in the pivoted arms 79, and springs 90 are attached to the rear or free ends of the said arms 79 and to the lower portions of the side sections A of the frame, which springs serve to keep corresponding cutters on the cutter-shafts in touch and likewise the guide-disks 86 and 87.

At the left-hand end of the shaft 89, carrying the guide-disks 86, a pinion 91 is secured, and this pinion is in mesh with a similar pinion 92 on the shaft carrying the lower guide-disks 87, and motion is imparted through the said pinions 91 and 92 to the disk-shafts through the medium of a pinion 93, mounted to turn at the lower portion of the left-hand side of the frame, meshing with the pinion 75 on the lower cutter-shaft 74, as is also shown in Fig. 1.

At the upper ends of the higher standards 14 open bearings 95 are produced, and in these bearings the trunnions of a winding-roller 94 are suitably mounted. This winding-roller

is given motion by securing at its right-hand end, for example, a pulley 96, (shown in Fig. 2,) over which pulley a belt 97 passes and is likewise passed over a pulley 98 on the upper guide-disk shaft 89, as is shown in Figs. 1 and 2. It may happen in the process of printing that some strips or sections of the paper divided by the action of the cutters 76 and 83 may be plain or have no printed matter upon them, and in order to preserve such sections of the paper for future use the ends of these sections are attached to a winding-roller 94 and are automatically wound thereon as the paper is carried rearward, the printed sections or the sections only on which printed matter is produced passing between the guide-disks 86 and 87. These printed sections of the paper after passing between the guide-disks 86 and 87 pass over a table 94^a, (shown in Figs. 1 and 2,) and a knife 95 is adapted to pass downward with its cutting edge in close contact with the rear edge of the table 94^a. This knife 95 is secured at its ends to vertical slides 96, which pass through openings in the upper side bars 16 and pass into slideways at the lower portions of the side sections of the frame, as is shown in Figs. 1 and 2. The said vertical slides 96 have rack-teeth 97 produced upon their rear vertical edges, which teeth 97 engage with the teeth of gears 98, the gears being secured upon a shaft 99, suitably journaled in the rear uprights or standards 15.

The knife 95 is brought downward to cut the printed paper into desired lengths each time the printing-rollers have made one complete revolution. This is accomplished by causing rack-teeth 100 on an operating-bar 101, preferably at the left-hand side of the machine, to engage with the teeth on the left-hand gear 98, and this operating-bar extends forward through suitable guides at the inner portions of suitable uprights of the left-hand side section and is provided near its inner end with teeth 105, which engage with the teeth 38^a on the printing-roller which is nearest the rear end of the machine. The operating-bar 101 is therefore brought into action only when these teeth 38^a have been brought in engagement with the teeth 105 of the bar. It is not necessary that the teeth 38^a on the forward printing-roller should engage with teeth on the operating-bar 101.

After the operating-bar has been forced in a direction to carry the knife 95 downward to effect a cut a spring 103 is placed under tension, which spring is coiled around the bar and, as shown, engages at one end with the collar 102 on the bar and at its opposite end with a plate 104, bearing against the left-hand upright 13. Therefore as soon as the teeth of the printing-roller B' are released from the teeth 105 of the operating-bar 101 the spring 103 will immediately expand and force the operating-bar 101 in an opposite direction,

carrying the knife upward, to be brought downward again for another cut at the proper time.

The crank-handle 32, connected with the shaft 27 of the forward printing cylinder or roller, is provided with a spur 106, and this spur is adapted to engage whenever the said roller has made one complete revolution with a trip-arm 107, connected with the operating-stem 108 of any suitable recording device 109, so as to make a record of the number of impressions that have been made during the operation of the machine for a given length of time.

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

1. In a printing-press, a frame, a printing-roller, side bars in which the shaft of said roller is journaled, the said side bars being pivoted at one end to the frame, means for locking the other ends of the side bars to the frame, an impression-roller for the printing-roller, cutters arranged to longitudinally slit a printed sheet passing from the printing-roller, and a cutter arranged to transversely sever the sheet, the said cutters being all operated from the printing-roller, as described.

2. In a printing-press, a frame, a printing-roller, side bars pivoted to the frame and in which the shaft of the printing-roller is journaled, an impression-roller for the printing-roller journaled in the frame below the printing-roller, a gravity inking mechanism above the printing-roller, cutters arranged to longitudinally slit the paper passing from the printing-roller, and a cutter arranged to transversely sever the paper, as set forth.

3. In a printing-press, a frame, side bars pivoted to the frame, a printing-roller having its shaft journaled in the pivoted side bars, an impression-roller journaled in the frame below the printing-roller, a gravity inking mechanism for the printing-roller pivoted to the frame above the printing-roller, cutters arranged to longitudinally slit the paper passing from the printing-roller, a knife for transversely cutting the printing-paper, means for operating the knife in one direction from the printing-roller including an operating-bar, and a spring on said bar for moving the knife in an opposite direction, substantially as set forth.

4. In a printing-press, a printing and an impression roller, a gravity inking mechanism for and located above the printing-roller, disk cutters arranged to longitudinally slit the paper passing from the printing-roller, a winding-roller adapted to receive continuous unprinted sections of the slitted paper, a knife for transversely cutting the paper, and means, for operating the knife in one direction at each revolution of the roller, and returning the knife independent of the action of the printing-roller, the said means comprising a bar having teeth near one end for engaging a series of teeth on the printing-roller, a gear-wheel engaged by teeth on the other end of

said bar, vertical slides carrying said knife and provided with teeth engaged by said gear-wheel, and a spring on said bar, as specified.

5. In a printing-press, a pair of printing-rollers, impression-rollers for the printing-rollers and means for operating the said rollers, type-matter removably embedded in the surface of the printing-rollers, means for adjusting the said type-matter, whereby the type-matter on one of the printing-rollers will be opposite the spaces between the type-matter on the opposing printing-roller, a recording device, a device connected with the shaft of one of the printing-rollers, adapted to operate the recording device at each revolution of the rollers, frames hinged above the printing-rollers, and inking-rollers mounted to turn in the said frames and to engage with the type-matter on the printing-rollers, as set forth.

6. In a printing-press, a pair of printing-rollers, impression-rollers for the printing-rollers and means for operating the said rollers, type-matter removably embedded in the surface of the printing-rollers, means for adjusting the said type-matter, whereby the type-matter on one of the printing-rollers will be opposite the spaces between the type-matter on the opposing printing-roller, a recording device, an extension from one of the printing-rollers, adapted to operate the recording device at each revolution of the rollers, inking mechanism for the printing-rollers, disk cutters located at the rear of the printing-rollers one above the other, guide-disks located at the rear of the disk cutters, the shafts of the guide-disks being located one above the other, and the shaft of the upper disk cutters and that of the upper guide-disks being mounted in a movable and spring-controlled support, and a winding-roller operated from a shaft of the guide-disks and located above the same, for the purpose described.

7. In a printing-press, a pair of printing-rollers, impression-rollers for the printing-rollers and means for operating the said rollers, type-matter removably embedded in the surface of the printing-rollers, means for adjusting the said type-matter, whereby the type-matter on one of the printing-rollers will be opposite the spaces between the type-matter on the opposing printing-roller, a recording device, an extension from one of the printing-rollers, adapted to operate the recording device at each revolution of the rollers, frames hinged above the printing-rollers, inking-rollers mounted to turn in the said frames and to engage with the type-matter on the printing-rollers, disk cutters located at the rear of the printing-rollers, guide-disks located at the rear of the disk cutters, a winding-roller operated from a shaft of the guide-disks and located above the same, a knife having vertical movement at the rear of the guide-disks, a rack and pinion for operating the knife, a rack-bar engaging with the pinion of the said op-

erating mechanism for the knife, the said bar being spring-controlled, and means substantially as described for operating the said bar from a printing-roller and placing the spring of the bar under tension, as and for the purpose set forth.

8. In a printing-press, the combination with a frame, a printing-roller journaled in the frame, type-matter adjustably and removably inserted in the periphery of the roller, an impression-roller for the printing-roller, and disk cutters at the rear of the printing-roller and its impression-roller, of guide-disks mounted in the frame at the rear of the cutting-disks, vertical supports having sliding movement in the said frame at the rear of the said guide-disks, said supports having rack-teeth formed thereon, a shaft journaled in the rear of the frame, gears on the said shaft, engaging with the teeth on the said supports, a knife carried by the said supports transversely of the frame, a table carried by the said frame, in conjunction with which the said knife acts, teeth formed upon the printing-roller, a spring-controlled bar having teeth for engagement with the teeth of the printing-roller, said teeth on said bar engaging with a gear at the rear of the frame, the said printing-roller operating the said bar at only one period in its revolution, and a gravity inking mechanism located above the printing-roller, for the purpose set forth.

9. In a printing-press, the combination with a frame, a printing-roller mounted to turn in said frame, type-matter adjustably and removably embedded in the periphery of the said printing-roller, an impression-roller for the printing-roller, spring-controlled arms pivoted to the said frame at the rear of the printing-roller, and shafts located one above the other at the rear of the printing-roller, one shaft being journaled in the frame and the other in the spring-controlled arms, of disk cutters on the said shafts, adjustable with relation to each other and adapted to engage the upper with the lower one, other shafts journaled one above the other in the said frame and in the said spring-controlled arms, disk rollers secured upon the latter shafts, the upper disk rollers being in engagement with the lower ones, a winding-roller supported above the disk guides, means for driving the winding-roller from one of the guide-disk shafts, and means substantially as described for driving all of the said shafts and the impression-roller from the printing-roller, as set forth.

10. In a printing-press, a printing and impression roller, disk cutters arranged to longitudinally slit the paper passing from the printing-roller, a vertically-movable knife for cutting the paper transversely, vertical slides to which said knife is secured at its ends, rack-teeth on the said slides, pinions engaging the racks, an operating-bar having guided

horizontal movement and provided with rack-teeth at one end engaging one of said pinions, the said bar being also provided with rack-teeth near its other end engaging teeth on the
5 printing-roller, whereby the knife is operated in one direction at each revolution of the printing-roller, and a spring for moving said operating-bar to return the knife, when the said teeth of the printing-roller are released
10 from the teeth of the operating-bar, as set forth.

11. In a printing-press, the combination with a frame, a printing-roller journaled in the frame, an impression-roller for the printing-roller, arms pivoted at one end to the
15 frame at the rear of the printing-roller, springs connecting the other end of the said arms with

the frame, pins on said arms engaging slots in the frame to limit the vertical movement of the arms, shafts located one above the other
20 at the rear of the printing-roller and journaled respectively in the frame of the machine and the said arms, disk cutters carried by said shafts, shafts located one above the other and
25 journaled in the frame and the said arm at the rear of the cutter-shafts, and disk rollers on said shafts, as set forth.

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

HIRAM T. KENT.

Witnesses:

F. W. HARRIMAN,
W. G. DE WITT.