

No. 835,903.

PATENTED NOV. 13, 1906.

W. C. GRANT.
PRINTING DEVICE.
APPLICATION FILED FEB. 9, 1905.

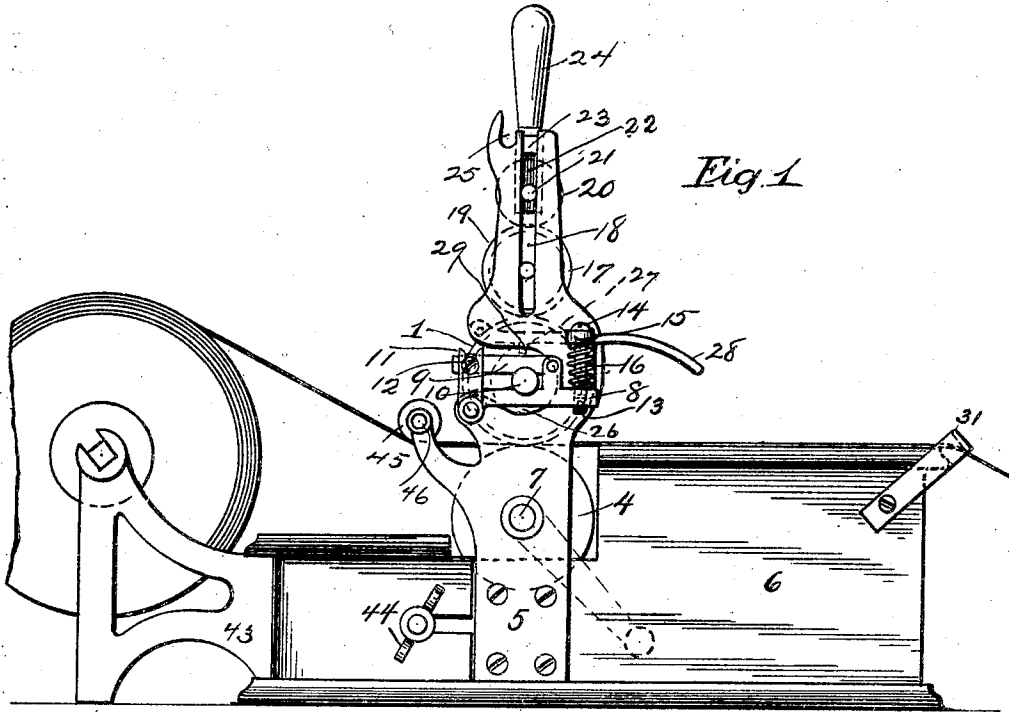


Fig. 1

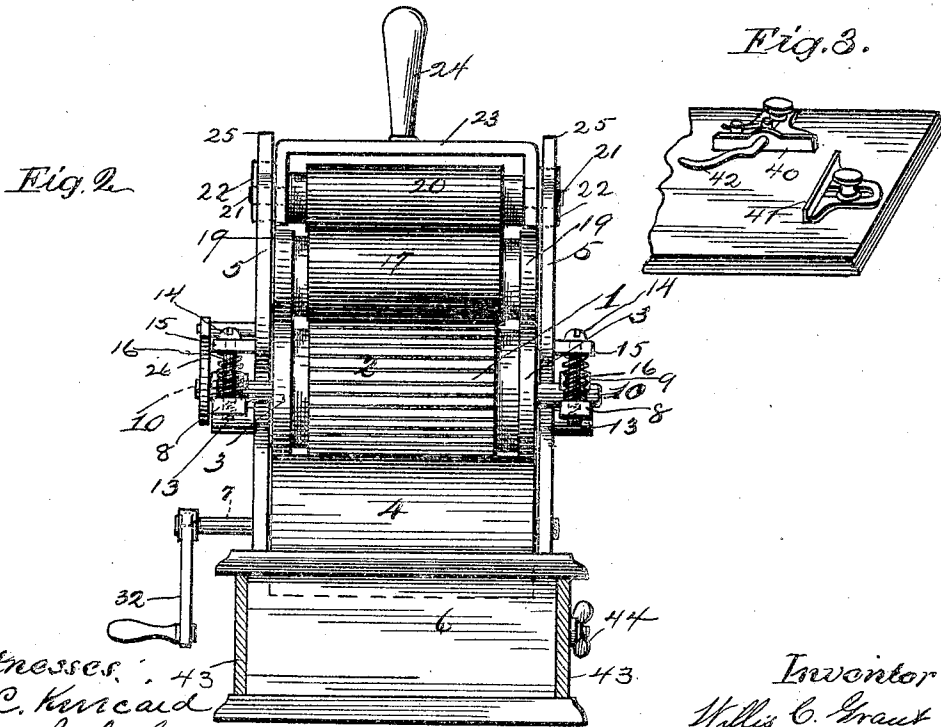


Fig. 2

Fig. 3.

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PRINTING DEVICE.

No. 835,903.

Specification of Letters Patent.

Patented Nov. 13, 1906.

Application filed February 9, 1905. Serial No. 244,967.

To all whom it may concern:

Be it known that I, WILLIS C. GRANT, a citizen of the United States, and a resident of Ashtabula, county of Ashtabula, State of Ohio, have invented certain new and useful Improvements in Printing Devices, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The objects of this invention are to provide a simple and efficient form of printing device for common, commercial, or private use and adapted to print either roll or web paper or paper slips of convenient size suitable for letter-heads, bill-heads, menus, programs, or similar matters which are subject to frequent change from day to day.

The invention consists in a printing-cylinder and pressure and inking rollers mounted vertically in suitable supports one over the other and in the adjustable mechanism whereby the pressure upon the type is controlled.

It also consists in the combination and arrangement of the various parts to fit the device to its double use and in the construction of the various details, as hereinafter described, shown in the accompanying drawings, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of the device, showing a roll of paper attached and a paper-cutter at the opposite end of the machine. Fig. 2 is an end elevation of the same from the paper-roll end, showing the supports for the paper-roll in section. Fig. 3 is a plan view of the table of the machine, showing the second manner of using the same for printing paper slips of varying size and means for adjusting the position of the slips so that they may be regularly fed to the printing-cylinder.

In the views, 1 is the printing-cylinder, which is provided in any suitable manner with removable type 2 and is also provided with rubber bands 3, which encircle the ends and engage the surface of the driving-roll 4, between which and the type-cylinder the paper is printed.

The printing-cylinder and roll 4 are mounted upon vertical plates 5, which are secured to the sides of the box 6, in which the type and other appliances for use with the machine are kept. The roll 4 is directly mount-

ed upon bearings in these plates upon an axial shaft 7.

The printing-cylinder 1 is adjustably and yieldingly mounted in bearings formed in the arms 8 and 9, one set of which, 8, are pivoted each at one side of the supports 5, and the other set or upper arms 9 are pivoted to the arms 8 at a point above the cylinder-shaft 10, and the upper arms 9 are brought down upon the shaft and their outer ends securely locked by means of the slotted links 11 and lock nuts or screws 12. By this means the bearings can be made as tight as required, and by loosening the links from their fastenings they can be dropped down and the shaft and printing-cylinder removed at pleasure. The outer ends of the arms 8 extend beyond the shaft-bearings and are supported by means of the screws 13, which hang by their heads 14 from the lugs or projections 15 upon the supports 5. Coiled springs 16 upon these screws will make the pressure of the type upon the roll 4 positive, but will yield to the pressure of thicker paper or card which may be passed between the cylinder and roll, so that in lieu of a positive adjustment for one thickness of paper, as now is customary in printing-presses, the cylinder will automatically adjust itself to all thickness of paper or cardboard which may be required in the large variety of uses in common, mercantile, and private work, an advantage not hitherto possessed by such machinery.

The inking-roller 17 engages the cylinder by gravity and is guided in the vertical slots 18, into which the axial shaft projects. This inking-roller is provided with elastic rubber bands 19 upon its extremities, which engage with the bands 3 upon the printing-cylinder and are driven thereby, so that the inking-roller will be kept constantly revolving even when not engaged by the type. The roller 20 is a feed-roller and is made of felt or some substance capable of saturation with the ink. This makes direct contact with the inking-roller 17 and is preferably of a different diameter from the inking-roller, which insures its making contact with a different portion of the surface of the inking-roller with each revolution thereof. This feed-roller is also mounted upon a shaft 21, which is secured in linear bearings 22, which in turn slide in the slots 18, and the linear bearings form the sides of the fork 23, which is provided with a

handle 24, so that the roller can easily be removed for renewal of the ink thereon. When not in use, this fork can be hung upon the hooks 25, shown upon the upper edges of the side supports 5.

26 is a disk mounted upon the end of the shaft of the printing-cylinder and is provided with a notch 27 "dotted." A lever 28, pivoted upon one of the supports 5, is provided with a dog 29 and projecting handle 28. When the cylinder makes one revolution and prints off the matter contained thereon, the lever drops by gravity, and the dog 29, dotted, entering the notch 27 in the disk 26, stops the movement of the cylinder. The paper, if a slip, can then be removed, or if a continuous roll or web the slips are cut off by means of the transverse knife 31, underneath which it passes. A crank 32 serves to rotate the driving-roller and cylinder; but the machine cannot be started again until the lever 28 has been raised to release the disk 26. Thus the printed matter is correctly spaced upon the paper, and there is no waste or uncertainty of movement of the machine. When roll paper is printed, it passes underneath the rubber bands on the printing-cylinder and is fed by friction between these bands and the pressure-cylinder. Separate paper slips, however, may or may not engage these bands.

In Fig. 3 is seen a form of adjustable guide by means of which slips of paper can be properly positioned on the table before the printing-cylinder when they are too narrow to engage these bands, as when printing postal cards across the narrow way. In this view 40 and 41 are the guides, one at the end and one at the side of the card. The one at the end so locates the card that as soon as the first line of type engages the card it will feed at once between the printing-cylinder and pressure-roll. A spring 42, curved to firmly hold the card until it is engaged by the first line of type, is attached to the guide at the side of the card.

The supports 43 for the paper-roll may be detachably secured to the box by thumb-nuts 44 or by any suitable means, and a guide-roll 45 for the roll paper is mounted in its suitable position at 46.

Having described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a box, having a platform upon its upper surface, of vertical side supports thereon, a pressure-roller pivoted thereon, a printing-cylinder pivotally supported above the pressure-roller, and having vertical movement, rubber bands upon the printing-cylinder, adapted to engage the

pressure-cylinder, an inking-roller above the printing-cylinder, rubber bands upon the inking-roller adapted to engage the bands upon the printing-cylinder, the said inking-roller provided with an axial shaft, a vertical slot in each side support in which said shaft is adapted to rotate and have vertical movement, a feed-roller pivoted in linear bearings, the said bearings having vertical movement in said vertical slots, and a fork provided with a handle, to the sides of which fork the said linear bearings are secured, substantially as and for the purpose described.

2. The combination with a box, having a platform for the reception of paper, of vertical supports thereon, a pressure-roller provided with an axial shaft pivoted in said supports, a printing-cylinder provided with an axial shaft, the said shaft having spring-controlled vertical movement in said supports, rubber bands upon said printing-cylinder, an inking-roller above said printing-cylinder provided with corresponding rubber bands, a feed-roller above the inking-roller making direct contact therewith, axial shafts for the inking and feed rollers, and vertical slots in the vertical supports in which said axial shafts have free vertical movement, substantially as described.

3. The combination, with a table, and vertical side supports, of a pressure-roller pivoted in said supports, a printing-cylinder, inking-roller and feed-roller mounted upon said supports and having vertical movement therein, said cylinder and rollers being removable therefrom, and frictionally driven by means of said pressure-roller, and guides for paper slips upon said table and a pressure-spring in one of said guides, substantially as described.

4. The combination, with a printing-cylinder and axial shaft therefor, of rigid side supports upon which said cylinder is mounted and vertically adjustable, and vertically-movable bearings therefor, comprising each an arm pivoted upon one of said supports on one side of said shaft, and extending beyond the other side of the shaft, on which said shaft rests, a vertical spring-controlled adjustment for the outer end of said arm, and a second arm pivoted upon said first-named arm, engaging the upper side of said shaft, and a locking device for the face end of said second-named arm, substantially as described.

In testimony whereof I hereunto set my hand this 8th day of February, 1905.

WILLIS C. GRANT.

Witnesses:

WM. M. MONROE.

GEO. S. COLE.