No. 644,298. Patented Feb. 27, 1900.

G. F. McADAMS.

FANCY LINE ATTACHMENT FOR RULING AND LINE PRINTING MACHINES.

(Application filed May 18, 1899.)

(No Model.)

Fig. 1.

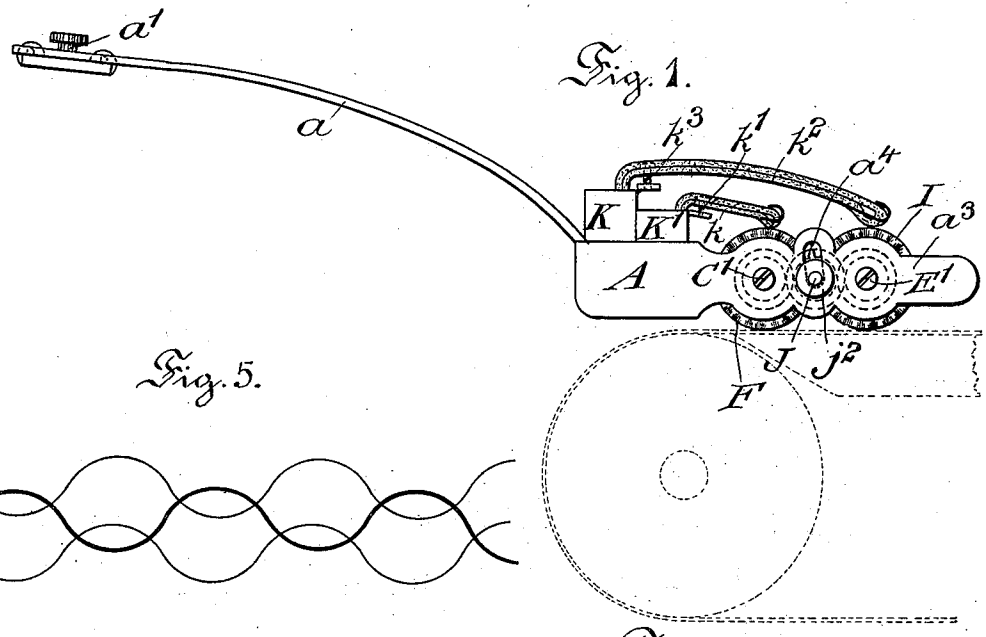


Fig. 5.

Fig. 6.

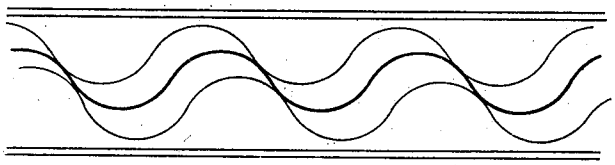


Fig. 2.

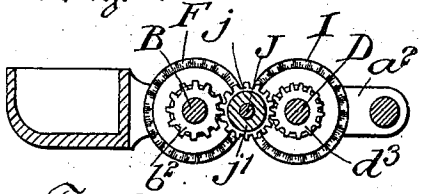


Fig. 3.

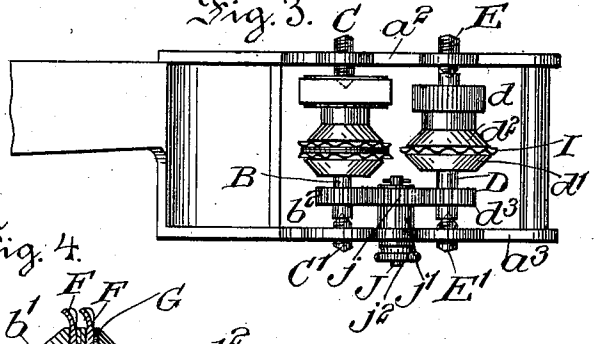
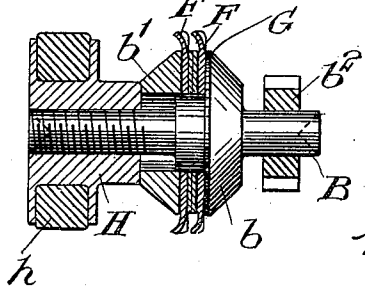


Fig. 4.



Witnesses.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE F. McADAMS, OF NEW YORK, N. Y.

FANCY-LINE ATTACHMENT FOR RULING AND LINE-PRINTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 644,298, dated February 27, 1900.

Application filed May 18, 1899. Serial No. 717,264. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. McADAMS, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, State of New York, have invented a new and useful Fancy-Line Attachment for Ruling and Line-Printing Machines, of which the following is a specification.

This invention relates to a fancy-line attachment for ruling and line-printing machines by the use of which a great number of fancy designs or patterns may be impressed upon the paper being lined.

A further object is to provide an attachment of the above character which may be readily applied to ruling-machines now in use, the said attachment taking the place of or acting in conjunction with what are known as the "pen extensions."

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 represents a side view of the attachment. Fig. 2 is a longitudinal vertical section through the same with the means for furnishing ink to the disks removed. Fig. 3 is a top plan view of the attachment with the means for furnishing ink to the disks removed. Fig. 4 is an enlarged side view of the rear disk-carrying shaft, the disks and their adjacent parts carried by the shaft being shown in vertical central section; and Figs. 5 and 6 represent two of the many patterns which may be printed by the disks.

I have not shown in the accompanying drawings any part of the ruling and line-printing machine to which my new attachment may be applied other than by representing in Fig. 1 in dotted lines the position of one of the rollers of the machine and its adjacent table, between which and the lining-disks of the fancy-line attachment the paper is caused to travel. It is to be understood that this attachment may be secured to the extension-bar of an ordinary ruling-machine, or it may be attached to the machine in any other convenient and suitable place.

The support or carriage is denoted by A, and it is provided in the present instance with a rearwardly and upwardly extended arm a, the free end of which is provided with a suitable clamp a' for use in clamping the attachment to the ruling-machine. (Not shown.)

A rotary lining-disk-supporting shaft B is mounted between the side bars a^2 a^3 of the carriage, and it is supported at its ends by adjusting-screws C C', having pointed inner ends which enter cups in the ends of the said shaft, so that the said shaft may be adjusted laterally with respect to the carriage. A second lining-disk-supporting shaft D is similarly mounted a short distance in front of the shaft B between the side bars of the carriage, and it is supported by adjusting-screws E E', so that it may be adjusted laterally with respect to the carriage. The shaft B is provided with a fixed collar b, which is preferably formed integral with the said shaft, and a movable collar b', which collars are arranged to engage and hold in position one or more lining-disks F, which are mounted on the said shaft. In the present instance I have represented two of these lining-disks and have shown them as being spaced apart by means of spacing-washers G. The peripheries of these disks are bent or formed in waves, so that they will print wavy or sinuous lines upon the sheet when the attachment is in use.

A combined clamping-nut and traction-wheel H has a screw-threaded engagement with the shaft B, and it serves the double purpose of clamping the disks in any desired rotary adjustment relative to each other and also of positively causing the shaft B to rotate by its engagement with the surface of the sheet being lined. This combined clamping nut and wheel may be provided with an annular ring h of some non-slipping material—such, for instance, as rubber—to insure the positive rotation of the said shaft B.

The construction of the front shaft D and the parts it carries is similar to the rear shaft B, with the exception that the clamping-nut d, which clamps the lining-disk l between the fixed collar d' and the movable collar d^2, is not used as a traction-wheel.

The rotary motion of the shaft B is positively imparted to the shaft D by means of a train of gearing, which comprises a spur-gear b^3, fixed to the shaft B, a spur-gear d^3, fixed to the shaft D, and an intermediate spur-gear j, mounted to rotate freely on a stub-axle, fixed to the side bar a^3 of the carriage. This

intermediate gear-wheel j may be raised out of its engagement with the gear-wheel d^3 when it is desired to shift the lining-disk l with respect to the lining-disk F for changing the pattern. This is accomplished by passing the stub-axle J through an elongated slot a^4 in the side bar a^3 of the carriage and providing the said axle with a fixed sleeve j' between the side bar and the spur-gear j and a clamping-nut j^2, having a screw-threaded engagement with the end of the stub-axle which projects exterior to the side bar.

The peripheries of the disks are inked directly in the following manner: The carriage or support A is fitted to support one or more ink-pans. In the present instance two pans are shown, (designated, respectively, by K K',) one of the said pans, K', being fitted to supply ink to the disk or disks upon the rear shaft B and the other pan, K, being fitted to supply ink to the disk or disks upon the shaft D. The pan K' is provided with a forwardly-extended arm k, the free end of which may be adjusted nearer to or farther away from the top of the disks F by a suitable adjusting device k'. This arm serves as a support for a strip of flannel or other suitable ink-conveying material, which leads from the interior of the pan along the arm and through slots in its end into engagement with the peripheries of the said disks. The pan K is similarly provided with a forwardly-extended arm k^2, having its free end capable of adjustment nearer to or farther from the top of the disk I by a suitable adjusting device k^3, which arm serves as a support for a strip of flannel or other suitable ink-conveying material, which leads from the pan K to the end of the said arm, where it passes through suitable slits into engagement with the periphery of the disk I. By this device I am enabled to feed inks of different colors to the disks on the two shafts, so as to produce varying effects in the lining of the paper being treated.

While I have represented the shaft B as being provided with two disks and the shaft D with a single disk, it is to be understood that both of the said shafts may be provided with one or more disks, as may be found desirable to make different patterns. Furthermore, the distance between the disks on the shaft may be varied, as desired, by changing the number or width of the washers G. Again, when several disks are used on a shaft the disks may be arranged so that the wavy lines will run parallel to each other, as shown by two fine lines in Fig. 5, or by loosening the clamping-nut H, for instance, the disks may be rotated a slight distance relative to each other, so as to produce the effect shown by the two fine curved lines in Fig. 6. The patterns formed by combining the line or lines printed by the disk or disks upon the second shaft with the line or lines printed by the disk or disks carried by the first shaft may be varied by disconnecting the two shafts, as hereinabove described, and then rotating one of the shafts slightly with respect to the other before again bringing the shafts into gear. The pattern formed by the disks upon the two shafts may also be varied by shifting them laterally with respect to each other by adjusting one or both of the shafts bodily laterally with respect to the carriage, the gears carried by the shaft being of sufficient width to permit quite an extended adjustment in this direction without causing them to be disconnected. In the above manner the several disks may be combined in such relations as to produce a great number of patterns. Ordinarily straight-line disks may be also clamped on one or both sides of the disks having the wavy peripheries, if so desired.

While I have shown and described two of the disk-carrying shafts, it is to be understood that a greater number might be employed, one in advance of the other, if so desired, so as to produce patterns in which are combined a number of different-colored lines and a greater variety of patterns.

The device hereinabove described may be employed for ruling or lining what is known as "safety-paper" for bank-notes and other purposes, the desired number of shafts, such as B D, each carrying a suitable number of disks and ink-feeders, being carried by any suitable support in the machine, the disks on the several shafts being so located with respect to each other as to print wavy patterns, either interlocking or not, as may be found desirable.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts without departing from the spirit and scope of my invention. Hence I do not wish to limit myself strictly to the structure herein set forth; but

What I claim is—

1. A line attachment comprising a suitable support, a plurality of shafts mounted therein, one in advance of the other, disks carried by the said shafts, certain of the disks having sinuous peripheries, the said disks being so located on the shafts with respect to each other as to print a pattern on the sheet being treated, substantially as set forth.

2. A line attachment comprising a suitable support, a rotary shaft mounted therein, a plurality of disks having sinuous peripheries, carried by the shaft and means for clamping the disks in different rotary adjustments relatively to each other, substantially as set forth.

3. A line attachment comprising a suitable support, a plurality of rotary shafts mounted therein, one in advance of the other, a plurality of disks having sinuous peripheries, carried by the said shafts, means for clamping the disks on each shaft in different rotary adjustments relatively to each other and means for adjusting the shafts rotatably with respect to each other, substantially as set forth.

4. A line attachment comprising a suitable support, a pair of lining-disk-carrying shafts

mounted therein, gearing connecting the said shafts and means for disconnecting the shafts at pleasure for permitting the disk or disks upon one shaft to be rotatably adjusted with respect to the disk or disks upon the other shaft, substantially as set forth.

5. A line attachment comprising a suitable support, front and rear lining-disk-carrying shafts mounted therein, gears carried by the said shafts, an intermediate gear and means for moving the gear into and out of engagement with one of the gears carried by the said shafts, substantially as set forth.

6. A line attachment comprising a suitable support, a rotary shaft mounted therein, a fixed and a movable collar carried by the shaft, one or more lining-disks interposed between the said collars and a combined clamping-nut and traction-wheel having a screw-threaded engagement with the said shaft and serving the double function of clamping the disk or disks in position on the shaft and for engaging the surface of the sheet being passed beneath the attachment for positively rotating the shaft, substantially as set forth.

7. A line attachment comprising a suitable support, a plurality of rotary shafts mounted therein, one in advance of the other, one or more lining-disks having sinuous peripheries, carried by each of the said rotary shafts, means for supplying ink to the disks and means for adjusting the shafts and thereby the disks, laterally with respect to each other to produce different patterns, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 15th day of May, 1899.

GEORGE F. McADAMS.

Witnesses:
FREDK. HAYNES,
C. S. SUNDGREN.