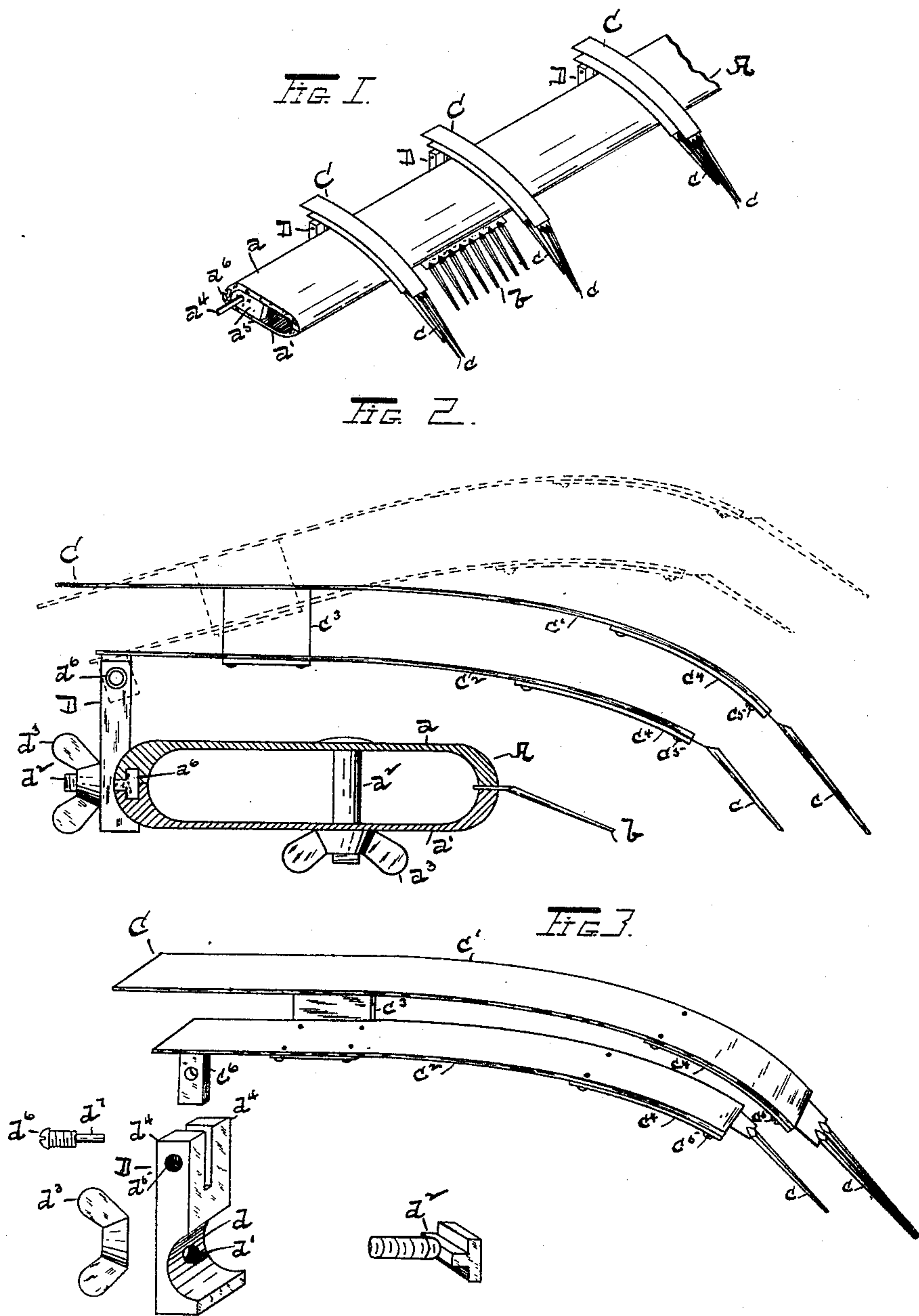


(No Model.)

W. McNAB.
PAPER RULING MACHINE.

No. 406,940.

Patented July 16, 1889.



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WILLIAM McNAB, OF HOLYOKE, MASSACHUSETTS.

PAPER-RULING MACHINE.

SPECIFICATION forming part of Letters Patent No. 406,940, dated July 16, 1889.

Application filed April 27, 1888. Serial No. 272,017. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM McNAB, of Holyoke, in the county of Hampden and Commonwealth of Massachusetts, have invented a new and useful Improvement in Paper-Ruling Machines, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

My invention relates to those parts of a paper-ruling machine known as the "pen-beam" and "pen-holding clamp;" and its object is to provide a combined beam and clamp having means for holding the single ruling-pens and also the extended double or triple pens, so constructed that the latter pens can be quickly applied to and removed from the clamp, as well as adjusted laterally thereon, without disturbing the single pens or interfering with the operation of the machine.

A further object is to improve the construction of the extended pen-holder in such manner as to entirely prevent the mingling of inks of different colors as they are fed to the pens carried by said holder.

To these ends my invention consists in the novel construction and arrangement of parts hereinafter fully described, and particularly pointed out in the claims.

Referring to the drawings, in which like letters designate like parts in the several figures, Figure 1 is a view in perspective of the combined beam and clamp devised by me. Fig. 2 is a cross-section thereof drawn to a larger scale. Fig. 3 is a view in perspective of one of the extended pen-holders and the means for holding and adjusting the same.

The letter A designates the combined pen beam and clamp, which is composed of an upper member a and a lower member a' , detachably secured together by means of bolts a^2 , passed transversely through both members, and nuts a^3 , turned upon the outer ends of said bolts. A trunnion a^4 , seated in a block a^5 at each end of the clamp A, permits the latter to swing upon the beam-standards of the ordinary ruling-machine in the usual manner. I have not shown a ruling-machine in the drawings, for the reason that the clamp herein described is adapted to be applied to any of the various styles of machines now in use, as will be obvious to persons skilled in the art.

At their front side the members $a a'$ of the clamp are provided with corresponding plane surfaces, whereby they are adapted to clamp between them a series of single pens b , as shown, and in the usual manner. At their rear side each of said members is provided with an undercut groove extending throughout its length, which grooves together form a T-shaped opening a^6 , the function of which will be presently described.

The extended pens c are clamped in the front ends of the extended pen-holders C, which latter are composed of the usual flat strips $c' c^2$, connected together near their rear ends by plate c^3 . The upper strip c' projects beyond strip c^2 at both its front and rear ends, instead of at its front end only, as heretofore, and the pens c , instead of being held between said strips and auxiliary strips c^4 by the tension of a sliding clasp, as is customary, are positively held between said strips by means of set-screws c^5 , whereby the annoyance caused by said sliding clasps becoming gummed with ink and adhering to the strips is obviated.

Each of the pen holders C is mounted upon the clamp A in such manner as to be adjustable both vertically and laterally by means of standards D, which standards are each provided in their front side and near their lower end with a concave depression d , corresponding substantially in contour with the rear surface of clamp A and with a perforation d' in the plane of the junction between the members $a a'$ of the clamp when the standard is applied thereto, as shown in Fig. 2. A bolt d^2 , having a T-shaped head adapted to fit closely within the opening a^6 of the clamp, has its shank extended through said perforation d' of the standard, and receives upon its outer end a tightening-nut d^3 , whereby the standard is securely clamped to the rear edge of the clamp A. By loosening said nut d^3 the standard can be readily adjusted longitudinally of the clamp, the head of bolt d^2 sliding freely within opening a^6 of the latter. At its upper end the standard D terminates in two ears d^4 , one of which is provided with the screw-threaded perforation d^5 , which receives a screw d^6 , which screw terminates in a pin d^7 . A lug c^6 , projecting downwardly from the rear end of the lower strip c^2 of pen-holder C, fits closely between ears d^4 of the

standard, and is perforated transversely to receive pin d^7 . Said pin is in length slightly less than the width of lug c^6 , whereby provision is made for clamping said lug securely between the end of screw d^6 and the opposite ear d^4 of the standard, while by loosening said screw the lug is free to turn upon pin d^7 . Pen-holder C can therefore be adjusted to any desired angle to the standard, as indicated by full and broken lines in Fig. 2. The last-described adjustment is for the purpose of throwing either of the extended pen-holders upwardly to a position where it will be entirely removed from the paper when it is desired to use but a part of said pens, and also for the purpose of compensating for wear of the pens by adjusting said holders to a more acute angle to the paper.

The lateral adjustment of the holders C with standards D is for the purpose of spacing the distance between the lines made by the pens carried by the several holders, and, as previously stated, such adjustment can be made very quickly and accurately by simply loosening nuts d^3 . The standards D, with their holders, can be applied to and removed from the clamp without loosening the two members of the latter by inserting the heads of bolts d^2 in and withdrawing them from the open end of opening a^6 at either end of the clamp. I am thus enabled to manipulate the extended pens without disturbing the single pens b .

It will be observed that by thus mounting the extended pens upon the clamp I am enabled to dispense with the usual beam entirely, thus simplifying the construction of the machine and lessening its cost. By mounting the holders C upon the standards, as described, moreover, I am enabled to continue the rear end of the upper strip beyond the end of the lower strip, as shown, whereby the strips of fabric which feed the ink to the pens c are permitted to extend between the ink-pan and the rear ends of said upper and lower strips of the holder without coming in contact with each other, and the accidental mingling of the two different-colored inks is prevented.

By my invention, therefore, I am enabled to overcome very serious objections incident to paper-ruling machines as heretofore made, besides, as before stated, simplifying their construction and decreasing their cost.

I do not wish to limit myself to all of the various details of construction shown and de-

scribed, as it is obvious that modifications therein can be made without departing from the spirit of my invention.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combined pen-clamp and beam for paper-ruling machines herein described, consisting of a clamp composed of two members constructed to hold between them at their front side a series of single ruling-pens and having adjustably secured to their rear side a series of extended pen-holders, arranged and operating substantially as set forth, whereby the use of an independent beam is avoided.

2. The pen-clamp for paper-ruling machines herein described, composed of the two members $a a'$, having at their front edges corresponding plane surfaces, whereby they are adapted to hold the single pens b between them, and having standards D adjustably secured directly to their rear edges, said standards having adjustably secured thereto the extended pen-holders C, combined and operating substantially as set forth, whereby the use of an independent beam is avoided.

3. The combination, with pen-clamp A, having the T-shaped opening a^6 in its rear side, of standards D, bolts d^2 , having T-shaped heads inserted in said opening a^6 and having their shanks passed through said standards, nuts d^3 upon the outer ends of said bolts, and extended pen-holders C, mounted upon said standards, substantially as and for the purpose set forth.

4. The combination, with pen-clamp A, of standards D, adjustably secured thereto, said standards terminating at their upper ends in ears d^4 , extended pen-holders C, having lugs c^6 , located between said ears, and screw d^6 , inserted through one of said ears and through said lug c^6 , substantially as and for the purpose described.

5. The combination, with clamp A and standard D, secured to the rear side thereof, of pen-holder C, mounted upon said standard, said pen-holder consisting of strips $c' c^2$, connected together near their rear ends by plate c^3 , said strip c' projecting at its rear end beyond the end of strip c^2 , substantially as and for the purpose described.

WILLIAM McNAB.

Witnesses:

W. H. CHAPMAN,
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