A. HATHAWAY.

RULING PEN.

No. 7,920.

PATENTED JAN. 28, 1851.

Fig. 8.

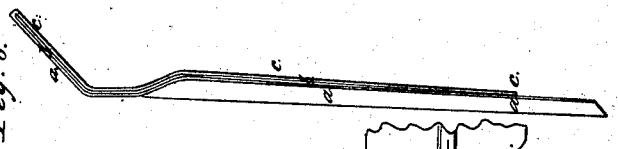


Fig. 5.

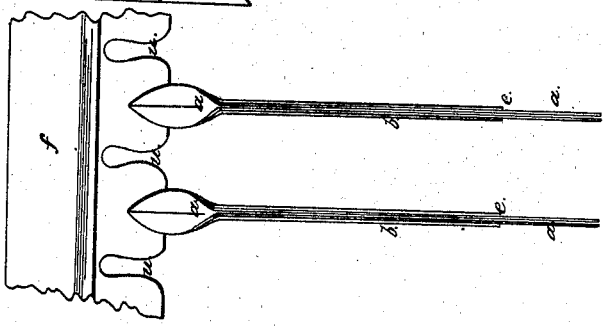


Fig. 7.

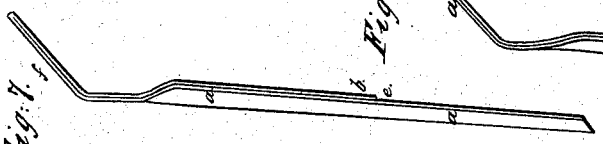


Fig. 4.

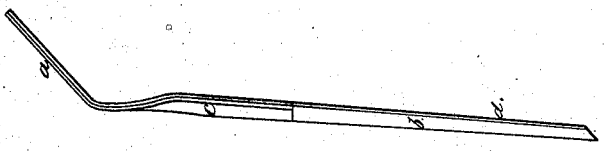


Fig. 3.

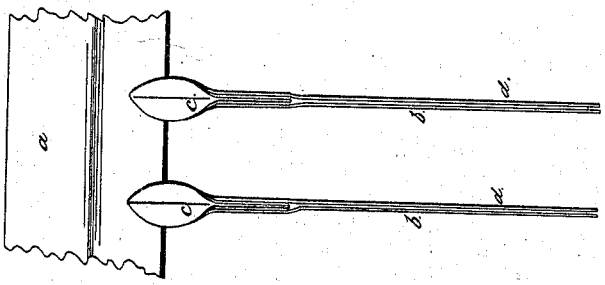


Fig. 6.

Fig. 2.

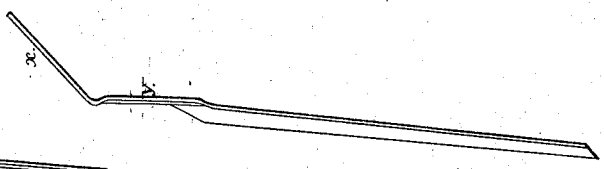
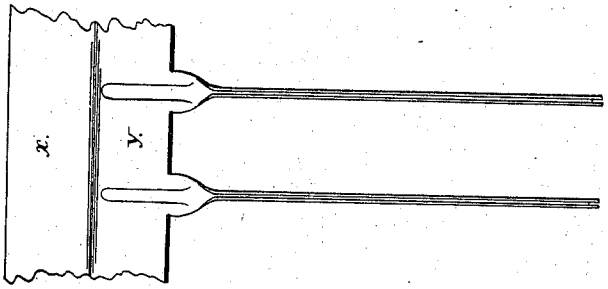


Fig. 1.



UNITED STATES PATENT OFFICE.

ALFRED HATHAWAY, OF BOSTON, MASSACHUSETTS.

PEN FOR RULING PAPER.

Specification of Letters Patent No. 7,920, dated January 28, 1851.

To all whom it may concern:

Be it known that I, ALFRED HATHAWAY, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Pens for Paper-Ruling Machines; and I do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

In order to exhibit the nature of my invention, and how it differs from others of a similar kind before known and used, I have represented it and them in the drawings on an enlarged scale; that is to say one wherein the dimensions of the parts thereof, are given three times what they are as usually constructed.

In Figure 1, I have delineated a top view, and in Fig. 2 a transverse section of a series of ruling pens, as they were originally constructed of one thickness or sheet of metal. Fig. 3, denotes a top view and Fig. 4, a transverse section of a series of pens as afterward constructed. In the last two figures the head bar or clamp *a*, and the spring blades *b*, *b*, of the pens are made of two thicknesses, one of which is doubled or laid upon the other, the upper one *c*, being the shorter while the lower one *d*, is the longer. In the formation of the pen blades, the upper one *c*, is sunk within the lower one, the latter being the marking point.

The object of making the bar of pens as represented in Figs. 3, and 4, was to stiffen the pens at or near their roots, or where jointed to the bar *a*. Such method of making the pens, has been attended with a difficulty in the flowage of ink through them, as the ink passage of such pen cannot be made of one uniform width, or of such uniformity of width as to present no obstacle to the free flowage of the ink.

Fig. 5, is a top view, and Fig. 6, a transverse section of a series or bar of my improved pens. They are made of two or more thicknesses of metal, the longest of which is made the ruling part of the pen, and is placed above and within the other or others. In the said Figs. 5, and 6, the longest or ruling part of the pen is seen at *a*, the other being represented at *b*, the former part being sunk within the latter, and made to extend beyond it as seen at *e*. In the construction of such a series of pens they may be formed by stamping or cutting them from one single sheet of metal, and doubling them together so that the back bar or clamp *f*, as well as the pen blades may be composed of two thicknesses of metal, the same being as seen in transverse section in Fig. 7, or instead thereof, the same may be made of two sheets of metal of different thicknesses, or of different tempers or of different metals the upper of which, may be inclosed within the other, or lower one, while the said lower one is bent over it as seen at *g*, in Fig. 6; thus making the back bar or clamp of the pens of three thicknesses of metal. The outer ends of the lower portions or sheets composing the pen blades, should be soldered to the other or marking and conducting parts. Such a method of making the pens, enables the conducting groove of each pen to be made of one uninterrupted width, and so that there is no opportunity for the ink to work between the two thicknesses of metal, as it is liable to when the pens are made as represented in Figs. 3, and 4. When such a difficulty takes place, it will readily be seen how such ink, when between the plates could not be easily removed, and would be very liable to discolor or injure ink of any different shade or color.

I would remark that whatever may be the number of thicknesses of which the pen is composed, (Fig. 8 exhibiting the transverse section of a bar made with three thicknesses *a*, *b*, *c*,) the upper one I make the longest, the conducting, and the marking one, and I place the others underneath it, and solder the outer end of the lowest one (*c*), to the first one (*a*). In such case I make the lowest one longer than any of the others except the first or upper one, and thus by soldering the lower and upper parts together, they serve to keep those between them in place, and render it unnecessary to solder the second to the first one.

In Figs. 1, and 2, the back bar or clamp of the pens is represented as made with a bend, or angular in its cross section, or as composed of two parts *x*, *y*, which make an obtuse angle with each other, the spring blades of the pens being made to project from the part *y*, which is one undivided bar, or in other words has no divisions transversely of it. In my improved pens I split or separate the bar between any two pens, and nearly or quite up to the vertex of the angle of the head bar or clamp, as seen at *u*, *u*, *u*, in Fig. 5. This renders each pen, when in use, and

moving over a ridge or protuberance in the paper less liable to raise the adjacent pens, than it would be were the back bar not split up to the angle as specified. By making the ruling part of the pen, of silver or some metal not readily oxidized, and the other part or parts of brass, or a harder or springy metal, a great advantage may be sometimes effected.

1. Whatever may be the number of thicknesses of metal of which the back bar and pens are composed, my improvement and what I claim consists in not only making the upper one longer than the other, but in making it the marking part, and soldering the next one below it to it, as specified. Such improved mode of making the pen or pens, I claim as my invention, and whether the plates of metal placed upon one another be of different metals, or of different thicknesses of metal as described. And I also claim the improvement in the construction of the back bar, the same consisting in making it with a slit or opening *u*, between any two pens, and extending nearly or quite up to the vertex of the angle or bend of the bar as specified, the same producing the advantage above mentioned.

2. And when the pen is composed of more than two thicknesses of metal, I claim the improvement by which one single soldering of the upper and lower parts together, suffices to bind or keep all the parts together or in place, the said improvement consisting in making the lower thickness of metal longer than any of the others, except the first or upper and marking one as described.

3. And I also claim the method of making the pens and back bar as shown in Figs. 5, and 6, when the same are composed of two different thicknesses of metal, or of two plates of different metal; the said improvement consisting in making the lower plate to inclose or lap over the one or others above it, as seen at *g*, in Fig. 6, and thus make the back bar of one more thickness of metal than the pens are composed of.

4. And I also claim, to make the different thicknesses of the pen of different metals, as specified.

In testimony whereof I have hereto set my signature this twenty-fourth day of July, A. D. 1850.

ALFRED HATHAWAY.

Witnesses:
R. H. EDDY,
BENJAMIN EDDY.