(No Model.)

O. L. HULBERT.

PROCESS OF BURNISHING UNMOUNTED MULTIPLE PHOTOGRAPHIC SHEETS.

No. 344,781. Patented June 29, 1886.

Fig. 1.

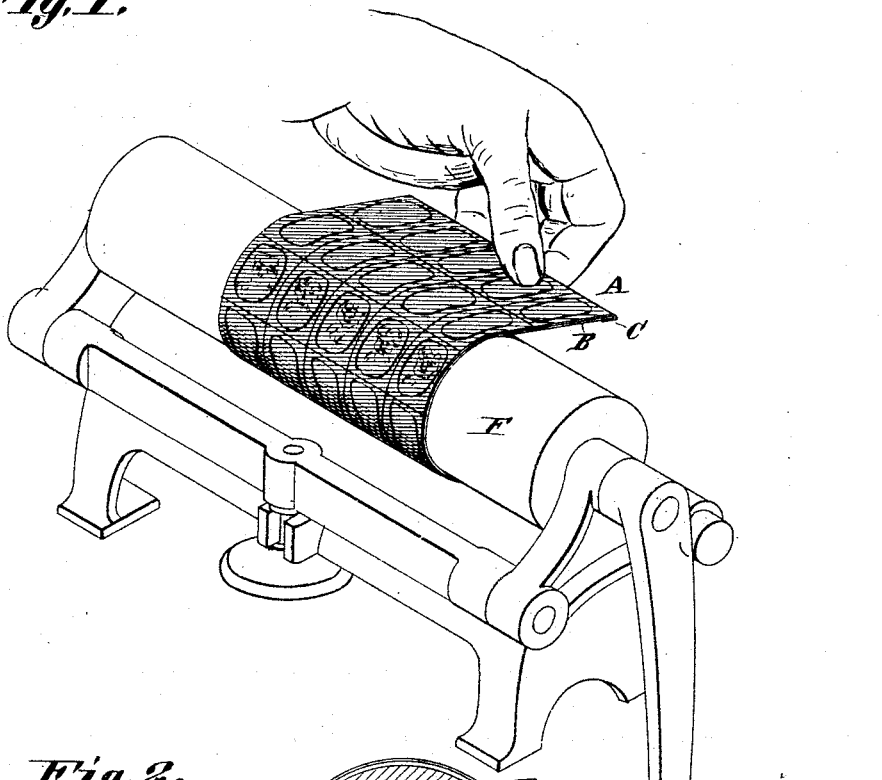
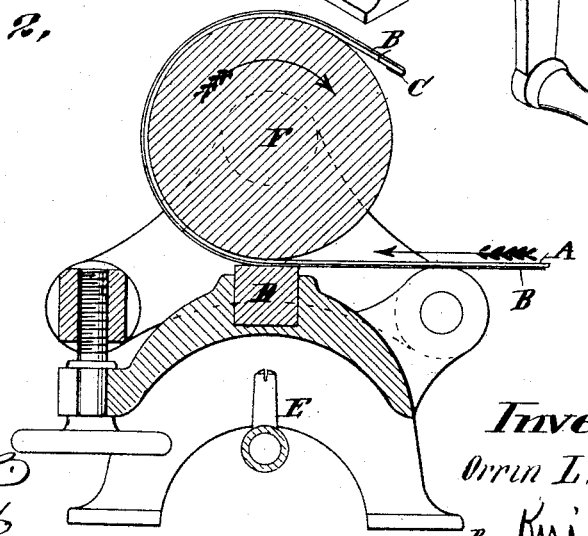


Fig. 2.



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ORRIN L. HULBERT, OF ST. LOUIS, MISSOURI, ASSIGNOR TO HULBERT BROTHERS, OF SAME PLACE.

PROCESS OF BURNISHING UNMOUNTED MULTIPLE PHOTOGRAPHIC SHEETS.

SPECIFICATION forming part of Letters Patent No. 344,781, dated June 29, 1886.

Application filed December 26, 1885. Serial No. 186,735. (No model.)

To all whom it may concern:

Be it known that I, ORRIN L. HULBERT, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Process of Burnishing Unmounted Multiple Photographic Sheets, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a perspective view of the apparatus, and Fig. 2 is a vertical transverse section.

It has been the practice for some time to calender the sheets of paper, and it has also been a somewhat common practice to burnish unmounted sheets of photographs; but my process of burnishing unmounted multiple sheets of photographs differs materially from the old modes of burnishing unmounted sheets and calendering paper, and these unmounted multiple photograph-sheets present special difficulties in burnishing and finishing by reason of their essential peculiarities. For example, they are not made around a single focus like a single picture with numerous foci, and on such a small scale that great sharpness is necessary to produce a satisfactory effect. It is the purpose of my improved mode of burnishing to develop, bring out, and heighten this effect, which is peculiarly important in this product, because of not dealing with single pictures such as have heretofore been supplied to the trade on unmounted sheets, but with numerous pictures each having its own independent effect while they are all united on one sheet, and hence it is that means heretofore employed for calendering paper or burnishing unmounted photographs are not available or satisfactory for the finish of these multiple photograph-sheets. Another reason why the old processes would not be available or satisfactory for these multiple photograph-sheets is that the pictures on a sheet are either detached from each other or separated by intervening rows of perforations after burnishing, and in performing either of the operations the burnish or a portion of it is destroyed unless a much heavier pressure is brought to bear on a print while burnishing than can be brought upon a thin sheet by the ordinary processes of burnishing and calendering, and by the ordinary processes used a sufficient pressure cannot be made and a sufficiently fine burnish cannot be produced to prevent the destroying of the burnish, as above stated, a very high pressure being necessary where the sheet has to be perforated to compact the paper and make it solid. Another difficulty in burnishing these multiple photograph-sheets by any old process is that when an attempt is made to produce a fine burnish the center will have a finer burnish than the edges. This would answer the purpose on a single photograph, because the center is preferred to be sharper than the outside; but with a number of photographs on a sheet it would not be satisfactory, as the center ones would have a finer burnish than the others, and a customer would object to a sheet of photographs differing in appearance, as they would if they were not all burnished alike.

By a series of experiments I have succeeded in burnishing these unmounted multiple photograph-sheets by a method which I believe to be entirely new, and one, in the present state of the art of photography, which appears to me to be essential to produce these pictures with a sufficiently fine burnish to satisfy the trade. My improved method is as follows: I first take a three-ply bristol-board, A, and fold the edge of the photograph-sheet B over one end of the bristol-board, as shown at C in the drawings, and then pass the two through the burnisher three or four times, preferring to wrap them around the roller F, as shown, as they pass through in the direction indicated by the arrows, Fig. 2. The face of the photograph bears upon a steel plate, D, which is heated from below by means of a suitable burner, E. This plate D is made of malleable silver steel, tempered and polished, and is particularly suited for this purpose, the ordinary metal or cast-steel ordinarily used in burnishing having failed to produce the desired result, not having a sufficiently fine and solid surface, but being too coarse or having too much grain in its composition. The plates as ordinarily used in burnishing are suitable for burnishing mounted photographs, because the mount prevents any slipping or

rumpling of the picture when considerable friction or pressure is applied; but when the necessary amount of friction or pressure is applied to the unmounted sheet with the old form of plate, it would be creased and rumpled and frequently destroyed and torn, owing to the grain of the metal being coarse, taking too great a hold of it; but with the kind of metal I use for this purpose these difficulties are avoided. Before passing the sheets through the burnisher I lubricate the face of the photograph-sheet with a solution of white wax dissolved in sulphuric ether, to which is added a sufficient quantity of alcohol for the purpose of thinning it. I am enabled by this process to produce just as fine a burnish upon an unmounted photograph-sheet and upon each single photograph (if not finer) than has been produced upon mounted photographs, and I am enabled to burnish thousands of these unmounted multiple photograph-sheets without destroying or injuring one, giving to each an unexcelled appearance.

The three distinguishing features of my improved method and apparatus are, first, wrapping the edge of the photograph-sheet around the edge or end of the bristol-board before passing them through the burnisher together; second, making the plate of the burnisher of malleable silver steel; and, third, lubricating the photographs with white wax and ether.

As an equivalent of wrapping the edge of the photograph over the edge of the bristol-board, they may be stuck together at the edge by glue, mucilage, or other adhesive.

I claim as my invention—

1. The improved method of burnishing unmounted multiple photograph sheets by first lubricating them, then placing them on a backing of bristol-board, with their edges wrapped or folded over the edge of the bristol-board, and then passing them through a burnisher, substantially as described.

2. The improved method of burnishing unmounted multiple photograph-sheets by first lubricating them with a compound of white wax and ether, then passing them through a burnisher having a plate made of malleable silver steel upon which the pictures bear, substantially as set forth.

3. The improved method of burnishing unmounted multiple photograph-sheets by lubricating them with a mixture of white wax and ether, then placing them on a backing of bristol-board, around which one edge is wrapped, then passing them through a burnisher having a plate made of malleable silver steel heated from below, substantially as described.

ORRIN L. HULBERT.

In presence of—

EDW. S. KNIGHT,

JOE. WAHLE.