T. VANDEVENTER.

APPARATUS FOR HANGING UP AND CARRYING OFF PAPER.

No. 20,965. Patented July 20, 1858.

Fig. 3.

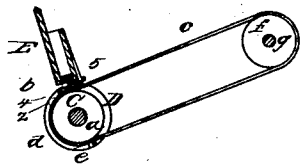


Fig. 1.

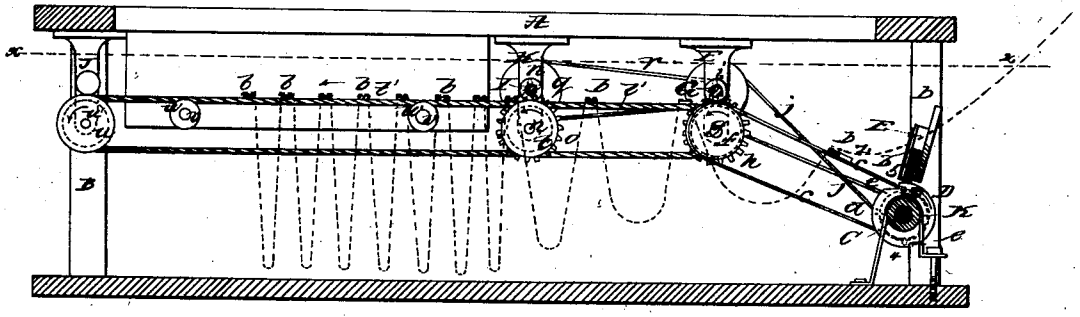
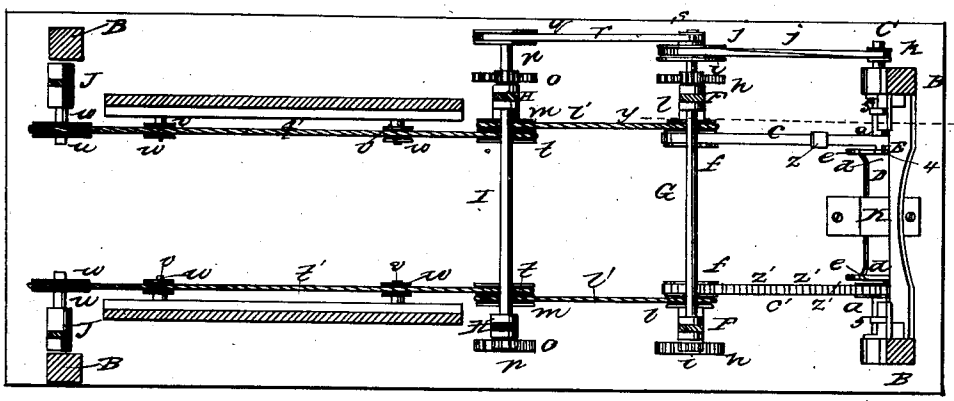


Fig. 2.



UNITED STATES PATENT OFFICE.

THEODORE VAN DEVENTER, OF NEW BRUNSWICK, NEW JERSEY.

IMPROVEMENT IN APPARATUS FOR HANGING UP AND CARRYING OFF PAPER HANGINGS.

Specification forming part of Letters Patent No. 20,965, dated July 20, 1858.

To all whom it may concern:

Be it known that I, THEODORE VAN DEVENTER, of New Brunswick, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Apparatus for Hanging Up and Carrying Off Paper Hangings; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal section of an apparatus with my improvements. Fig. 2 is a horizontal section of the same in the plane indicated by the line *x x* in Fig. 1. Fig. 3 is a section of the feed-box in the line *y y* of Fig. 2, and a side view of the first carrying-band.

Similar letters of reference indicate corresponding parts in all the figures.

This invention consists in a certain arrangement of belts for carrying the laths on which the paper is hung and carried off, whereby as the paper is formed into festoons the sides of the festoons are prevented from striking each other and smearing or otherwise injuring the wet impression or coating.

It further consists in the application of springs, as hereinafter described, to the lath-feeding box to permit laths of varying thicknesses to be used, and also to permit laths that may be warped to pass out from the box, and yet to prevent the passage out at any one time of more than one lath.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

In the drawings the several parts of the apparatus are all shown as being supported by a framing A B B, but in practice much of this framing may be dispensed with by the attachment of many of the parts to the walls and roof or ceiling of the building or apartment where the apparatus is used.

C is the principal shaft, having firmly secured to it two belt-pulleys *a a*, of uniform size, arranged so that their outer sides are at a distance apart somewhat less than the length of the laths on which the paper is to be hung, and their inner sides at a distance apart greater than the width of the paper.

D is a loose drum fitted to the shaft C, between the pulleys *a a*, said drum having at its ends flanges *d d*, the external diameter of which is somewhat greater than that of the pulleys *a a*, and which contain each two notches *e e*, of a depth less than the thickness of the laths employed to carry the paper, the notches in the one flange being opposite those in the other.

Over the drum D is situated the open-bottomed lath-feeding box E, which is filled with laths *b b*, and from which the latter drop one at a time into the notches *e e* of the flanges of the drum as the said notches pass the box. The parts of the flanges where there are no notches are so near to the bottom of the box as to prevent the laths dropping out till the notches are presented to receive them.

From the two pulleys *a a* two belts *c c'* run with an upward inclination to two pulleys *f f*, which are fitted loosely to two short shafts *g g*, which are arranged in line with each other and work in bearings in hangers F F, suspended from the top of the framing or from the roof or ceiling of the building or apartment. The shafts *g g* have secured to them spur-gears *h h*, which gear with and derive motion from two pinions *i i* on a shaft G, which works in bearings in the hangers F F, and carries a fast pulley *j*, which is driven by a belt *j'* from a smaller pulley *k* on the shaft C. The two short shafts *g g* carry two fast pulleys *l l* somewhat smaller than the pulleys *f f*, and as the said shafts are driven by the pulleys, belt, and gearing above specified, the said pulleys *l l* rotate at a velocity much less than that of the pulleys *a a* and *f f*.

From the pulleys *l l* two horizontal bands *l' l'* run to two loose pulleys *m m* on two short shafts *n n*, which work in bearings in hangers H H, suspended like F F from the top of the framing or from the roof or ceiling. These shafts *n n* have secured to them spur-gear *o o*, which gear with and derive motion from two pinions *p p* on a shaft I, which works in bearings in the hangers H H, and which has secured to it a pulley *q*, through which it derives motion from a belt *r*, running from a smaller pulley *s* on the shaft G. The shafts *n n* also carry two fast pulleys *t t*, from which long horizontal bands *t' t'* run to loose pulleys *u u* on two studs *u' u'*, that are secured in hangers J J. The velocity of the bands *t' t'* is very low, and

is about the same compared with that of the bands *l' l'* as the latter is to that of the belts *c c'*.

w w are pulleys working on fixed studs *v v*, secured in hangers L L to support the upper part of the bands *t' t'*. The bands *l' l'* and *t' t'* are at proper distances apart to support the ends of the laths, but yet to permit the paper to pass between them.

The drum D has applied to it a friction-brake K to prevent it from rotating continuously with the shaft C, and it has on one end two projections 4 4, which are struck, each in turn, at regular intervals by a plate *z*, attached to the belt *c*, by which means said drum is caused to make half a revolution, and two opposite notches *e e* in its flanges are carried past the bottom of the lath-box and caused to receive a lath, which drops out from the box into them, and which, by the continued movement of the drum, is deposited on the belts *c c'*. The projections 4 4 on the drums are so arranged relatively to the notches *e e* that the lath drops on the belt *c* just in front of the plate *z*. The belt *c'* has a number of plates *z' z'* at very short intervals apart, so that one of them is sure to come opposite to *z* and catch the lath near the other end.

5 5 are springs applied near the ends of the lath-box on the side which is toward the belts *c c'*. These springs consist of narrow pieces of steel plate turned up slightly at their lower ends, which project a short distance below the bottom of the box. The space between the bottoms of the notches *e e* presented under it is fully sufficient to permit the thickest laths to escape, and also to permit the escape of any laths that may have become warped by use; but the space required for a warped lath would sometimes be sufficient to permit two thin and quite flat laths to pass out.

It is the object of the springs 5 5 to prevent the escape of more than one lath under any circumstances, and for that reason the bottoms of said springs extend downward so far that they will just let the thinnest laths pass them, but will stop the one above it. In case of a thick or warped lath coming into the notches the said lath will be forced against the springs, which will yield to it and permit it to pass, but in no case will the springs permit more than one lath to pass.

The paper to be hung up and carried off passes in the manner shown in Fig. 2, where it is shown in section in red color, over the top of the box E and over the laths which are carried up the belts *c c'* as fast as they are delivered from the box. The belts *c c'* and the bands *l' l'* and *t' t'* move severally in the directions indicated by arrows shown near them, the belts *c c'* moving at which the paper is delivered from the machine in which it is printed or grounded. The laths as they pass with the belts *c c'* over the rollers *f f* are deposited on the bands *l' l'*, and in consequence of the motion of these bands being so much slower than that of the belts *c c'*, as the laths succeed one another in the movement up the belts, the paper between each one and its predecessor is formed into a festoon, which is carried along suspended from the laths resting on the bands *l' l'* till the said laths severally pass over the pulleys *m m* onto the bands *t' t'*, where the diminished velocity causes each to be nearly overtaken by its successor on the bands *l' l'*, which causes the festoons to be made very narrow, so that only just sufficient room is left within them for circulation of air to dry the paper. The bands *t' t'* require to be so long that the paper will be dried in passing in festoons from one end to the other. The paper is delivered from the bands *t' t'* on what is termed a "horse," or it may be cut into proper lengths for rolls while hanging in festoons, and removed from the bands *t' t'* to be rolled up.

The intermediate bands *l' l'* effect a very important result in the operation of the apparatus, for when the hanging-up belts *c c'* deliver the laths directly onto the carrying-off bands *t' t'* the sudden retardation of the motion of the laths to so great a degree causes so great a liability to collapse the festoons and smear the impression on the paper that the festoons cannot be made very close, and consequently the carrying-off bands require to be of very great length; but by the use of the intermediate bands *l' l'* to receive the paper from the hanging-up belts *c c'* and form it into wide festoons before delivering it in narrow or close festoons to the carrying-off bands the above-mentioned difficulty is avoided.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The employment of the intermediate bands *l' l'*, in combination with the hanging-up belts *c c'* and carrying-off bands *t' t'*, substantially as described, the whole operating as set forth.

2. The springs 5 5, applied to the lath-box E, to operate substantially as and for the purpose set forth.

THEO. VAN DEVENTER.

Witnesses:

W. TUSCH,

R. MACFARLANE.