

JOHN WILKINSON, Jr.

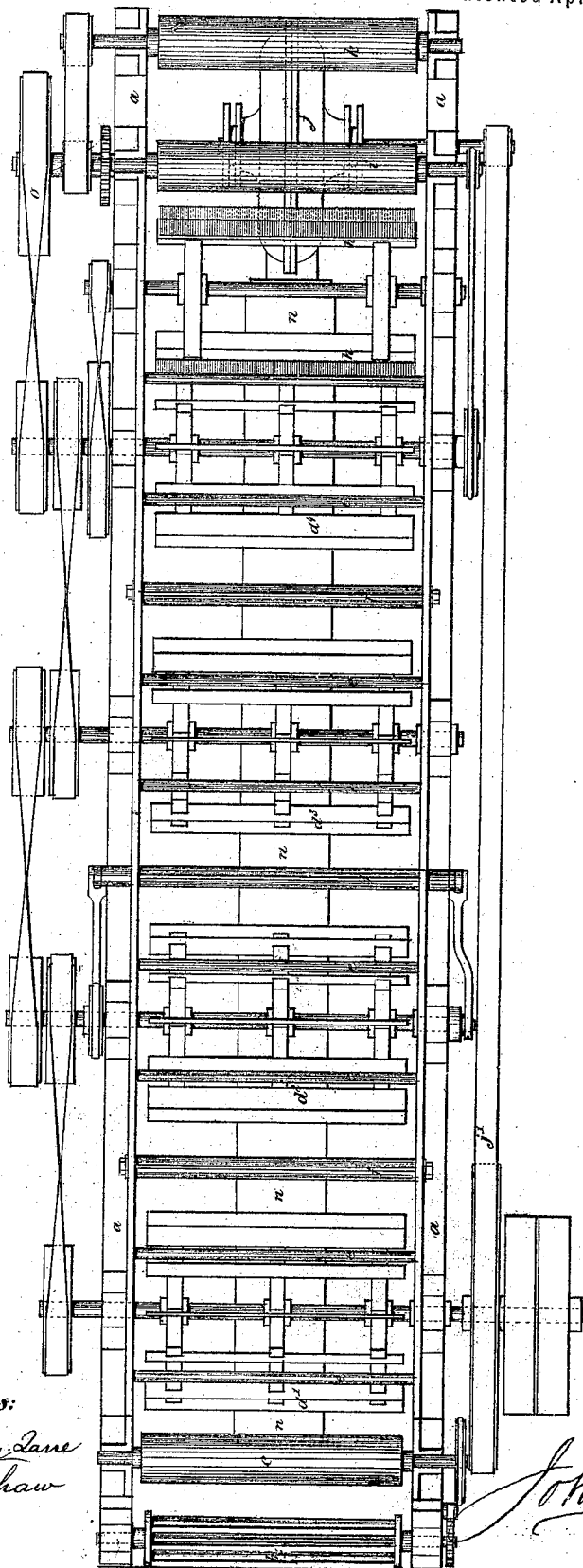
3 Sheets--Sheet 1.

Machines for Cleaning Carpets.

No. 125,240.

Patented April 2, 1872.

Fig. 1.



Witnesses:
W. White
66 Chancery Lane
Dan C. Forshaw

Inventor.

John M. Wilkinson

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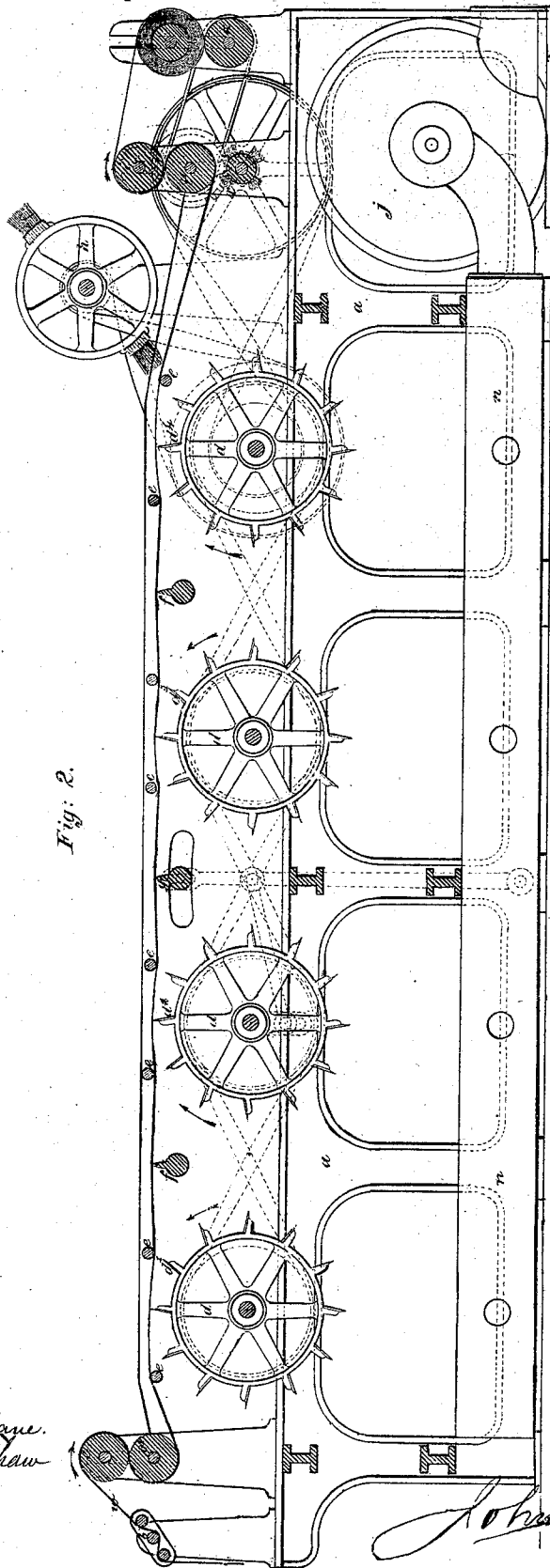


Fig. 2.

Witnesses:

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John Wilkinson, Jr.

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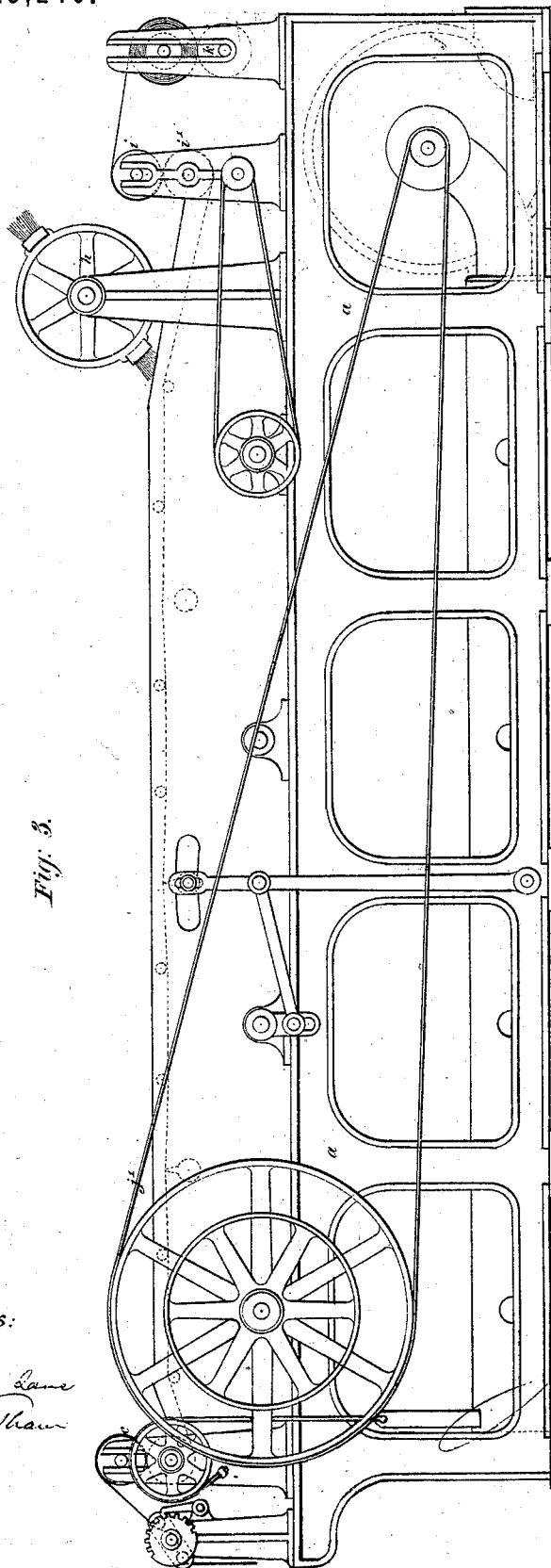


Fig. 3.

Witnesses:

Wm. H. Hiker
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UNITED STATES PATENT OFFICE.

JOHN WILKINSON, JR., OF LEEDS, ENGLAND.

IMPROVEMENT IN MACHINES FOR CLEANING AND FINISHING CARPETS.

Specification forming part of Letters Patent No. 125,240, dated April 2, 1872.

I, JOHN WILKINSON the younger, of Leeds, in the county of York, England, carpet manufacturer, have invented certain "Improvements in the Process of and Machinery for Cleaning and Finishing Carpet Fabrics," of which the following is a specification:

My invention of "improvements in the process of and machinery for cleaning and finishing carpet fabrics" relates to that class of carpet fabrics in which the pattern is produced thereon by printing after the fabric is made. It is well known that the colors used for the purpose of printing these fabrics are mixed with earthy and vegetable matters, so as to make them of a proper consistence for printing from blocks or rollers. When the printing has been completed (and the colors have been fixed by steaming the fabric) the earthy and other matters are usually removed by washing the carpet in water. It has been found that when dark colors are used in the printing operation this washing process is very liable to (and, in fact, almost invariably does) injure the brilliancy of the lighter colors, and also discolors the white ground. The object of my invention is to dispense altogether with washing, and to remove the earthy matters from the fabric by a totally different process. To this end, when the fabric has been printed and steamed in the usual way it is taken to a drying-room and thoroughly dried, so as to render the earthy and other matters brittle and easily detachable from the textile fibers of the fabric by means of friction. The mechanical appliances which I have found most convenient for the purpose of detaching the earthy matters from the fibers consist principally of a series of blunt knife-edges or scrapers, which may be secured either in a reciprocating frame or frames, so that they may be dragged to and fro in contact with the printed surface of the fabric, so as to break up the earthy and other matters and detach them from the fibers as the fabric is being carried slowly through the machine; or these knife-edges or scrapers may be adapted to the peripheries of cylinders or rollers, which may be made to rotate at a suitable speed and scrape the fabric as it is being drawn forward by drawing-rollers or other equivalent appliances or devices. This latter is the arrangement of mechanism I prefer for the purposes of my invention, and is the arrangement

shown in the accompanying drawing, in which—

Figure 1 is a plan view of the machine. Fig. 2 is a longitudinal vertical section; and Fig. 3 is a side elevation of the same.

The frame-work of the machine is shown at *a a*, and *b b* are a set of friction-bars, between which the carpet *w* is drawn into the machine. These bars *b b* can be adjusted to create such an amount of friction as will keep the carpet at suitable tension while under operation. The bars *b b* likewise act as guides for the carpet and keep it spread out evenly. *c* is a roller with a smooth surface, and over which the carpet passes with the pile to the surface of the roller. *c'* is a roller provided with pins on its surface so as to enter the back of the carpet and draw it forward. *d d d* are cylinders, (of which there may be any convenient number.) All of them are provided with a number of steel scrapers, *d' d' d'*. Four of these cylinders are shown in the drawing, and they rotate, in the direction of the arrows in Fig. 2, at a suitable speed to cause friction against the pile of the fabric. Pressing-rollers *ee* (capable of adjustment) cause the carpet to bear with suitable pressure on the scrapers of the cylinders, and also on fixed scrapers *ff*, which rub with friction on the pile of the fabric as the latter is drawn through the machine. Another scraper, *g*, of similar form, but to which a horizontal reciprocating motion is imparted by a crank and eccentric or other suitable device connected with the shafts of one of the cylinders *d*, is placed at any convenient part of the machine. *h* is a rotating beater, which acts on the back of the carpet and beats out the dust which has been loosened by the scrapers *d'*, *f*, and *g*. A roller, *i'*, is provided with pins on its surface, so that by its rotation it will draw the carpet through the machine. This roller is driven by a belt from the shaft of the last scraping-cylinder, and which belt passes over the pulley *o*, Fig. 1, which carries a pinion on its boss. This pinion gears into and drives a toothed wheel on the axle of the roller *i*, as shown in Fig. 2. A plain roller rests on the roller *i'* for the purpose of pressing the carpet down on the pins of the roller *i'*. An exhaust-fan is inclosed in the case *j*, and is driven at considerable speed by suitable gearing for the purpose of drawing in the color-dust from

the machine and blowing it through the long box or channel *n*, whereby it is conducted to some suitable place prepared for its reception. This fan is driven by a belt, *j'*, from a pulley on the shaft of the first scraping-cylinder, as shown at Figs. 1 and 3. A roller, *k*, is driven by a band from a pulley on the shaft of the roller *i'*; and on this roller *k* rests another roller or beam, on which the carpet, when cleaned, is rolled. Connecting-rods *m* and *l*, one on each side of the machine, are actuated from the shaft of one of the scraping or rubbing cylinders for the purpose of working the horizontal reciprocating scraper *g*, as shown in Fig. 3. The long longitudinal wooden dust-box or channel *n* is laid from end to end of the machine under the scraping or rubbing cylinders, and is provided with holes or openings to admit the dust which is detached from the carpet by the scrapers.

The operation of the machine is as follows: The fabric, with the printed surface downward, is passed into the machine between the friction-bars *b b* and the rollers *c c'*, as shown at Fig. 2. The printed surface is drawn forward with considerable friction over the blunt edges of the scrapers, and these scrapers (whether fixed or otherwise) break up the dry color which adheres to the fibers and detach it therefrom. The action of these scrapers will also have the effect of smoothing and leveling the pile or surface of the fabric. The rotary beater *h* will knock out the loosened dust from the fabric, which may then be passed over one or more soft brushes, such as that shown at *x*, Fig. 2, which will brush off any loose dust that

may be on the surface. All these working parts should be closely boxed in, so as to prevent the dust from escaping into the surrounding atmosphere, and the dust, as it becomes detached from the fibers by the scrapers or brushes, will, by means of the fan, or blowing or exhausting apparatus *j*, be conveyed along the trunk *n* to any suitable receptacle.

Having now described my invention of "improvements in the process of and machinery for cleaning and finishing carpet fabrics," and having explained the manner of carrying the same into effect, I claim—

1. The process of preserving the brilliancy of the colors and preventing the discoloration of the white ground of printed carpets by drying, rubbing, scraping, brushing, and beating, as above described.
2. The arrangement of the vibrating scraper *g* to operate upon a carpet, as set forth.
3. The fixed scrapers *f f*, arranged, with relation to the rotary scrapers and beaters, as set forth.
4. The tension-bars *b b*, arranged, with relation to the drawing-roll *c'*, as set forth.

In witness whereof I, the said JOHN WILKINSON, have hereunto set my hand and seal the 26th day of July, in the year of our Lord one thousand eight hundred and seventy-one.

JOHN WILKINSON, JR. [L. S.]

Witnesses:

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SALEM C. HARRIS.