(No Model.) 3 Sheets—Sheet 1.

J. & G. RICH, E. L. FARR & S. T. BAILEY.

OIL CLOTH RUBBING MACHINE.

No. 348,417. Patented Aug. 31, 1886.

FIG. 1.

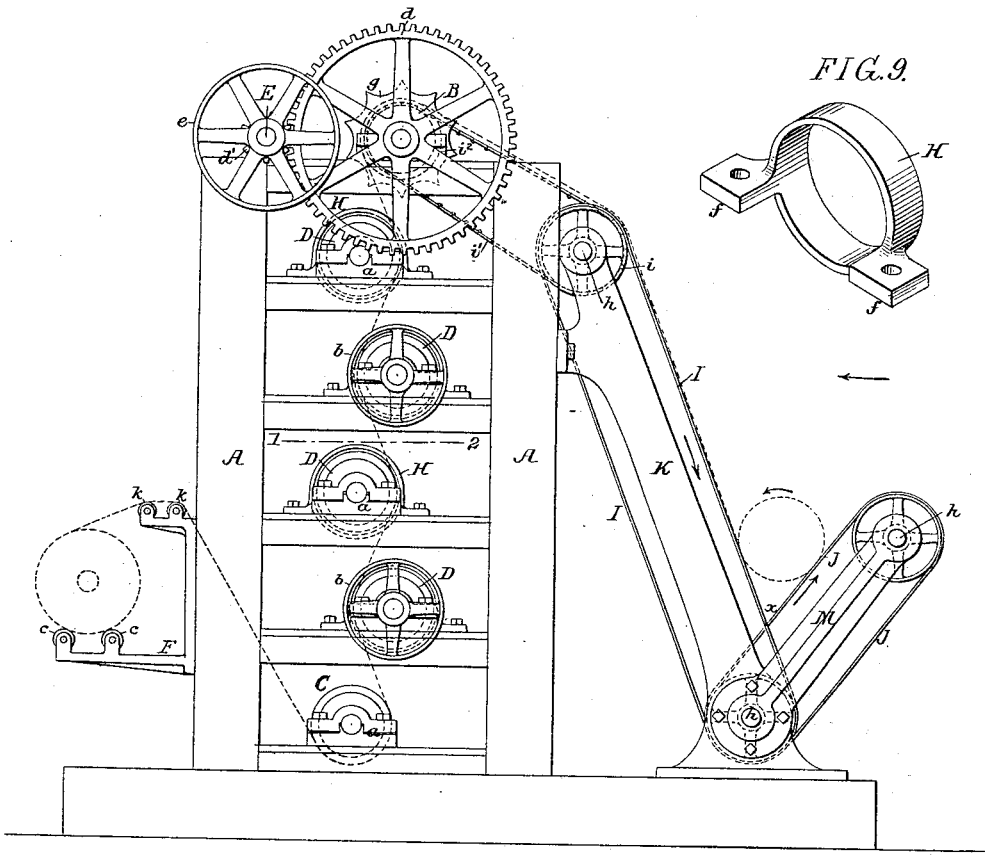


FIG. 9.

FIG. 10.

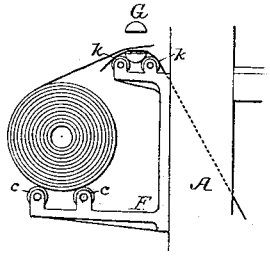
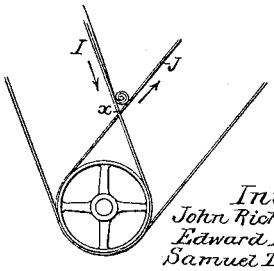


FIG. 11.



Witnesses:
John E. Parker
William D. Conner

Inventors:
John Rich, George Rich,
Edward L. Farr, &
Samuel T. Bailey
by their Attorneys
Howson & Sons

(No Model.)

3 Sheets—Sheet 2.

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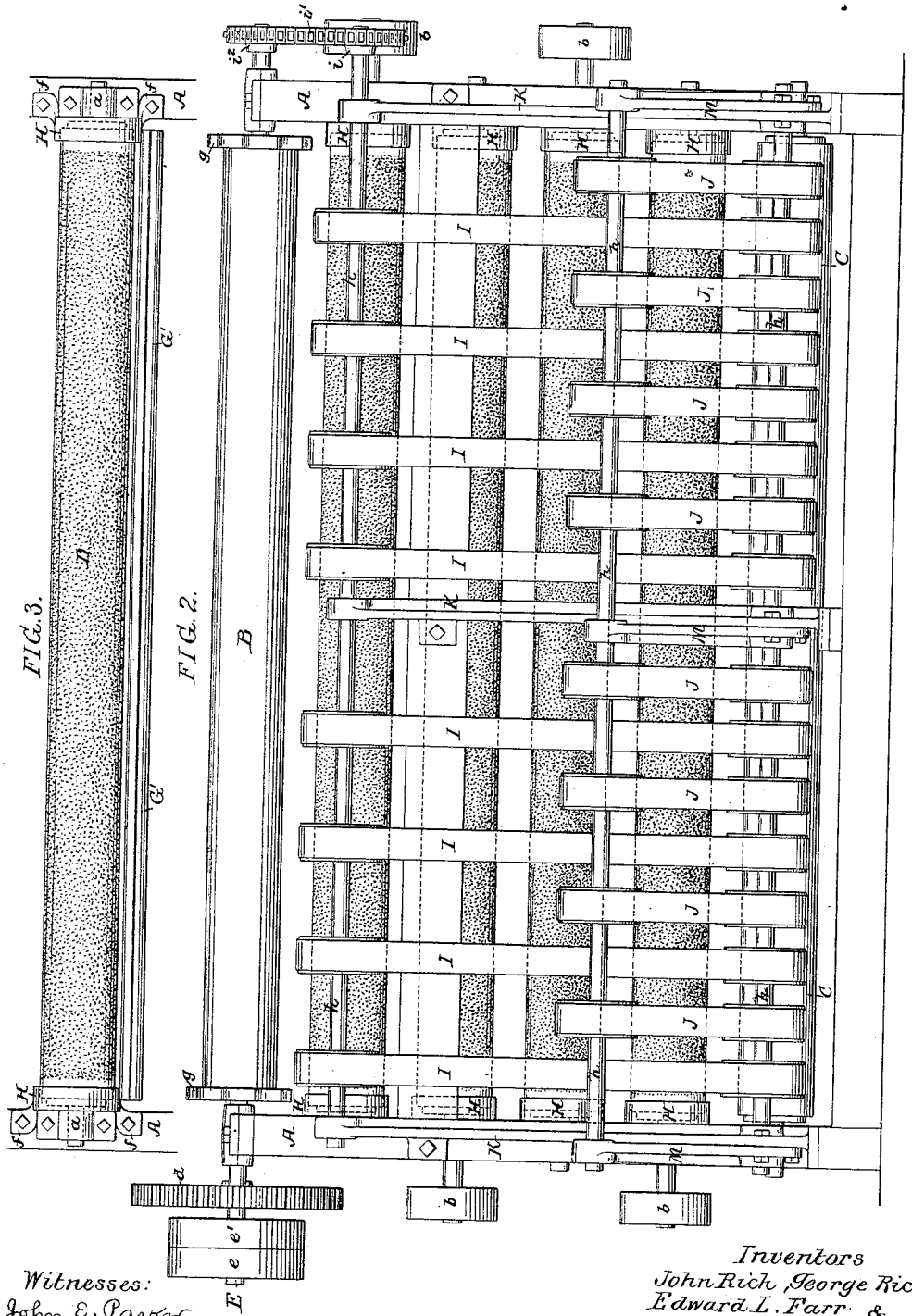

FIG. 3.

FIG. 2.

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(No Model.) 3 Sheets—Sheet 3.

J. & G. RICH, E. L. FARR & S. T. BAILEY.

OIL CLOTH RUBBING MACHINE.

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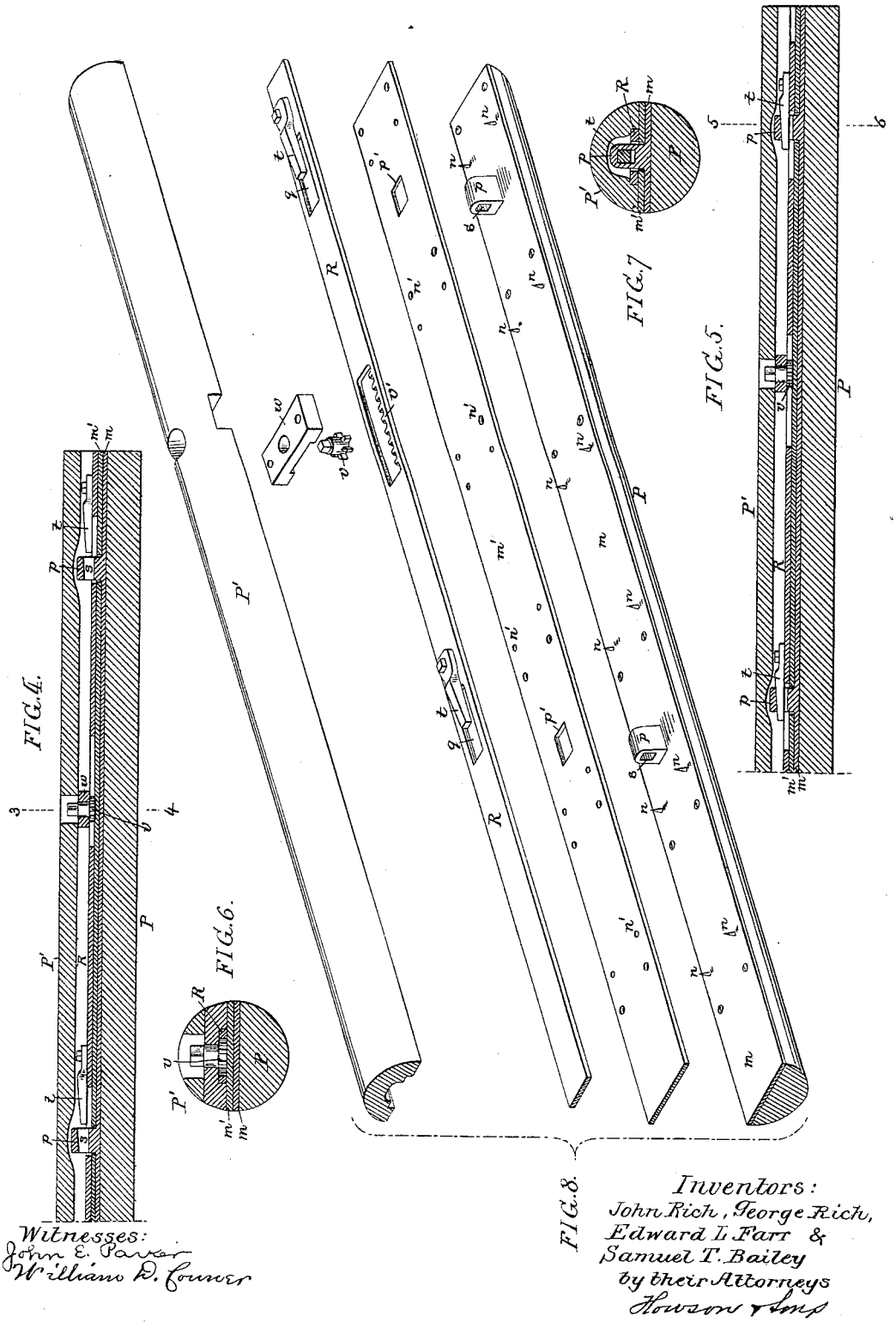

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UNITED STATES PATENT OFFICE.

JOHN RICH AND GEORGE RICH, OF PHILADELPHIA, PA., EDWARD L. FARR, OF WENONAH, AND SAMUEL T. BAILEY, OF CAMDEN, N. J.; SAID J. RICH AND GEORGE RICH ASSIGNORS TO SAID FARR AND BAILEY.

OIL-CLOTH-RUBBING MACHINE.

SPECIFICATION forming part of Letters Patent No. 348,417, dated August 31, 1886.

Application filed June 12, 1886. Serial No. 205,036. (No model.)

To all whom it may concern:

Be it known that we, JOHN RICH and GEORGE RICH, both of Philadelphia, Pennsylvania, EDWARD L. FARR, of Wenonah, Gloucester county, New Jersey, and SAMUEL T. BAILEY, of Camden, New Jersey, all citizens of the United States, have invented certain Improvements in Oil-Cloth-Rubbing Machines, of which the following is a specification.

Our invention consists of certain improvements in that class of machines in which a strip or sheet of oil-cloth fabric, after it has received the priming or foundation coat of paint, is caused to traverse in contact with abrading rollers or drums, whereby the opposite faces of the sheet or strip are smoothed or rubbed, so as to reduce the same to the proper condition for receiving the paint which forms the pattern.

One object of our invention is to provide for subjecting roll after roll of the fabric to the action of the abrading-drums without stopping the machine for any material length of time, a further object being to insure the proper rubbing or smoothing of all portions of each roll, and a still further object being to provide for the compact rerolling of the fabric after treatment, without the use of a spindle or core.

In the accompanying drawings, Figure 1 is a side view of an oil-cloth-rubbing machine constructed in accordance with our invention; Fig. 2, a face view of the same, looking in the direction of the arrow, Fig. 1; Fig. 3, a sectional plan view on the line 1 2, Fig. 1, illustrating one of the features of our invention; Figs. 4 and 5, longitudinal sections of part of a clamp whereby adjoining ends of successive rolls of fabric are connected; Fig. 6, a transverse section on the line 3 4, Fig. 4, enlarged; Fig. 7, a transverse section on the line 5 6, Fig. 5, enlarged; Fig. 8, a perspective view of the parts of the clamp detached from each other; Figs. 9 and 10, detached views of parts of the machine, illustrating features of the invention; and Fig. 11, a diagram illustrating another feature of the invention.

A A are the opposite side frames of the machine, to suitable bearings, *a*, on which are adapted the shafts of an upper draft-roll, B, a lower guide-roll, C, and a series of intermediate rubbing or smoothing drums, D, which are coated with sand or other abrading material, four of these drums D being shown in the present instance, two for acting on one side of the strip or sheet of fabric, and two for acting on the opposite side of the same, although it should be understood that two or three drums only might be used, if desired, or the machine might be provided with more than four drums in some cases.

The shafts of the drums D are provided with pulleys *b*, which receive driving-belts from any suitable counter-shaft, and the shaft of the upper draft-roll, B, has a spur-wheel, *d*, which engages with a spur-pinion, *d'*, on a counter-shaft, E, the latter having fast and loose pulleys *e e'*, for receiving the driving-belt, or being provided with other means—such as a clutch—whereby it may be readily started or stopped.

Machines of this class have been heretofore devised; but it has been the usual practice to draw the fabric from the original roll, and after it passes through the machine to rewind it upon a spindle or core, one piece of fabric being drawn completely through the machine, and the latter being then stopped while the end of a new piece was being drawn in and prepared for rewinding. This plan is objectionable, because that portion of the strip or sheet at and near the end of the roll is not subjected to proper tension in its passage through the machine, and consequently is not properly acted on by the abrading-drums, while the strip or sheet at the beginning of a roll is necessarily passed through the machine while the abrading-drums are at rest; hence proper action of said drums upon this portion of the strip or sheet is likewise impossible.

In carrying out our invention, therefore, we provide for a practically-continuous operation of the machine, in the manner which we will now proceed to describe. The roll from which the fabric is drawn rests on bearing-rolls *c c*, carried by brackets F, secured to the frame of the machine, and the fabric passes around the lower guide-roll, C, then in contact

with the abrading-surfaces of the successive drums D, and thence over draft-roll B. When the roll of fabric has been exhausted, a fresh roll is applied to the rollers *c*, and the front end of the strip forming the fresh roll is connected to the rear end of the preceding strip by means of a clamp-bar, G, which passes through the machine with the fabric, so that not only is the front end of the incoming strip drawn into the machine without any stoppage in the operation of the latter other than that necessary in order to clamp the ends of the strips together, but tension is imparted to the outgoing end of the advance strip, so that the abrading-drums will properly act upon the same to the end. In order to provide a proper support for the clamp-bar while the ends of the strip are being applied to and confined by the same, we use a pair of rollers, *k k*, Fig. 10, which extend transversely across the machine, and after the clamp has been drawn into or through the machine form a guide for the strip, as shown in Fig. 1. To prevent the clamp from coming into contact with the abrading-surfaces of the drums D, each of the latter has at the opposite ends a guard or shield, H, which in the present instance is in the form of a ring overlapping the end of the drum, and having lugs *f* bolted to the end frames, A, so that when the clamp-bar approaches the roll the opposite ends of said bar will strike the guards H, and the clamp will be lifted free from contact with the abrading-surfaces of the drums, as shown in Fig. 3. Collars or flanges on the drums at and near each end will answer the same purpose, and may be used in place of the shields H, as will be readily understood. The draft-roll B at the top of the machine has at each end a notched disk, *g*, these disks supporting the opposite ends of the clamp, and insuring the passage of the same around the draft-roll, so as to prevent any interruption in the draft of the fabric. The fabric passes from the draft-roll B onto a rewinding device consisting of two series of belts, I and J, which alternate with and are arranged at an angle to each other, the shafts *h*, which carry the pulleys for said belts, being adapted to bearings in arms K and M, and these arms being suitably bolted to the fixed frame of the machine. The upper shaft *h* has a sprocket-wheel, *i*, which is driven by a chain belt, *i'*, from a similar sprocket-wheel, i^2, on the shaft of the draft-roll B, so that the belts I and J are caused to traverse in the direction of the arrows in Fig. 1. When the front end of the strip issues from the machine, a few coils are made in the same, and, these coils are then deposited in the angle *x*, formed by the belts I and J, as shown in Fig. 11, the action of the belts upon the coil being to cause the continued winding of the fabric in the form of a tight and compact roll without the use of the usual journal or core, the latter being objectionable, as it must be removed before the cloth is subjected to the subsequent operations which it has to undergo. The use of a rewinding roll or spindle to which power is applied is also objectionable, because it results in a continual increase in the speed of draft of the fabric, due to the gradual increase in the diameter of the roll which is being wound; hence some portions of the strip or sheet must necessarily be subjected to the action of the abrading-drums for a less time than other portions, whereas in our machine the speed of draft is always the same, so that there is a uniform action of the abrading-drums upon all portions of the strip or sheet, and a consequent uniformity of surface in the rerolled strip.

The clamp which we prefer to use in order to connect together the adjoining ends of successive strips of fabric is illustrated more fully in Figs. 4 to 8, on reference to which it will been that the clamp comprises upper and lower bars, P and P', between which the ends of the strips are confined, the face-plate *m* of the lower bar being provided with studs *p*, which pass through openings *p'* in the face-plate *m'* of the upper bar, and through openings in the overlapping ends of the two strips, the studs thus serving to prevent either strip from being drawn out of the clamp. Studs *n* on the lower face-plate, adapted to openings *n'* in the upper face-plate, serve as an additional means of retaining the strips. The studs *p* are provided with longitudinal openings *s*, to which are adapted wedge-shaped fingers *t*, carried by a bar, R, which is free to slide in a suitable guideway in the upper bar, P', and can be reciprocated by means of a pinion, *v*, which engages with a rack, *v'*, on the bar R, and has a stem adapted to a bearing in a block, *w*, secured within a recess in the upper bar, P', said stem having a squared end for the reception of a suitable key, whereby the pinion may be turned in one direction or the other to cause the reciprocation of the bar R and the engagement of the wedge-fingers *t* with or their disengagement from the studs *p* of the lower bar, P, elongated slots *q* being formed in the bar R, so that the studs *p* will not interfere with the proper reciprocation of said bar.

We have in the drawings shown but one end of the clamp; but it should be understood that the studs and wedge-fingers are arranged at proper intervals throughout the entire length of said clamp, so as to effect the secure confinement of the two bars of the clamp to each other at all points.

We claim as our invention—

1. The mode herein described of imparting tension to the outgoing end of one strip and simultaneously passing the end of a succeeding strip through an oil-cloth-rubbing machine, said mode consisting in clamping the ends of the two strips together and then imparting draft to the strip in advance, whereby the clamp and the forward end of the succeeding strip are drawn through the machine, all substantially as specified.

2. The combination, in an oil-cloth-rubbing

machine, of a fixed frame, draft mechanism, and a series of abrading-drums so located in respect to each other as to permit the passage of a clamp-bar between them, all substantially as specified.

3. The combination of the abrading-drums with end guard-plates or shields, whereby the clamp-bar connecting the ends of successive strips of fabric is prevented from coming into contact with said drums, all substantially as specified.

4. The combination of the abrading-drums with the draft-roll having notched disks, whereby the clamp connecting the strips of fabric is carried around said draft-roll, all substantially as specified.

5. The within-described rewinding device for an oil-cloth-rubbing machine, said device consisting of two sets of belts arranged at an angle in respect to each other and driving mechanism for said belts, whereby one side of the roll is subjected to the action of a descending belt and the other side to the action of an ascending belt, all substantially as specified.

6. The within-described clamp for connecting the ends of successive strips of fabric to be subjected to the action of the machine, said clamp consisting of the lower bar having projecting studs and an upper bar having a slide, with wedge-fingers for engaging with said studs, all substantially as specified.

7. The combination of the lower bar of the clamp and its studs, the upper bar, its slide, with wedge-fingers and rack, and a pinion having a bearing in the upper bar and engaging with said rack, all substantially as specified.

8. The combination of the fixed frame of the machine, its abrading-drums, and the draft mechanism with a support for the roll of fabric and a bearing forming a support for a clamp-bar and a guide for the fabric, all substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN RICH.
GEORGE RICH.
EDWD. L. FARR.
SAMUEL T. BAILEY.

Witnesses:
WILLIAM D. CONNER,
HARRY SMITH.