No. 820,666. PATENTED MAY 15, 1906.

H. D. NEWELL & A. T. BRYANT.

ADJUSTABLE BRUSH CARRIER FOR WEB COATING MACHINES.

APPLICATION FILED JAN. 24, 1906.

2 SHEETS—SHEET 1.

Fig. 2.

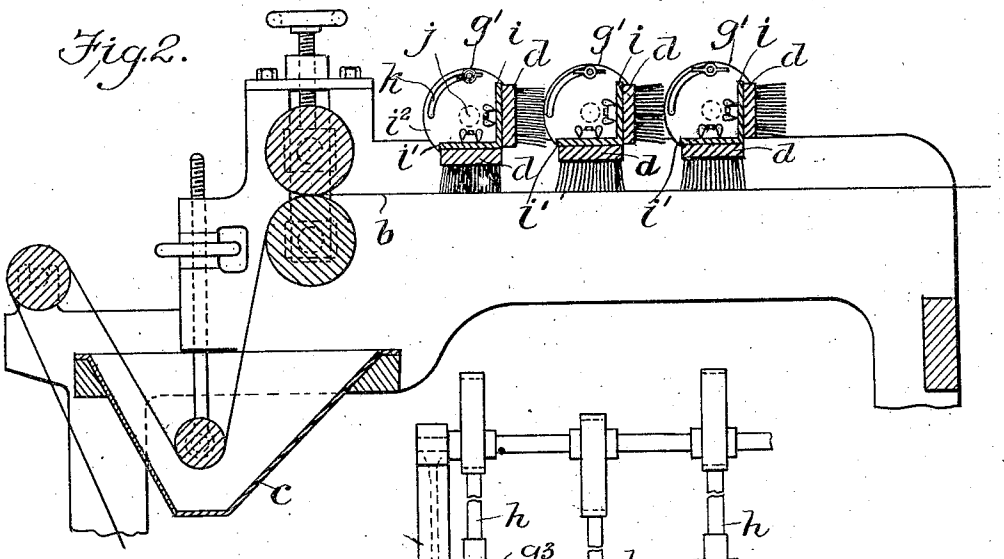
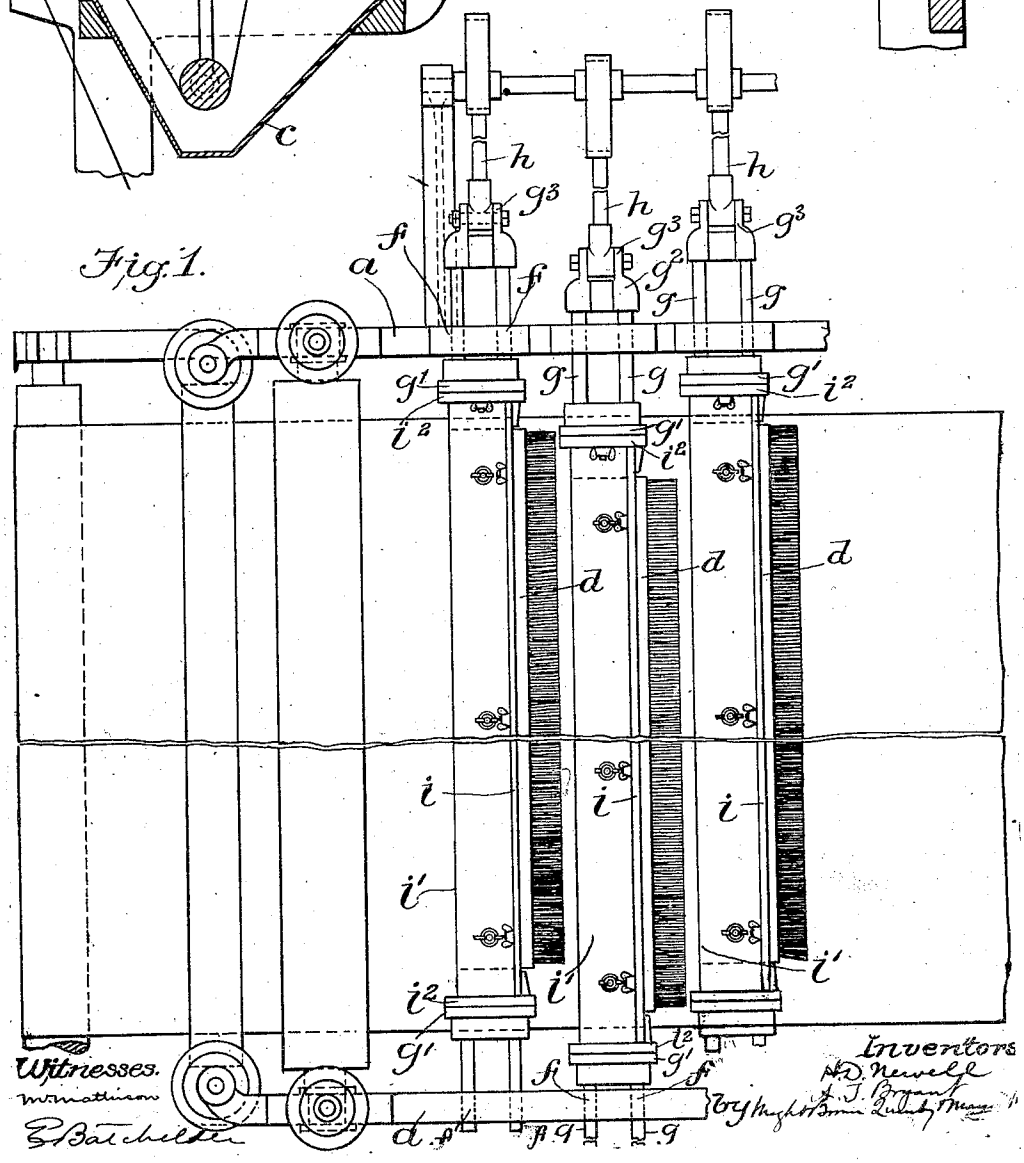


Fig. 1.



Witnesses.
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2 SHEETS—SHEET 2.

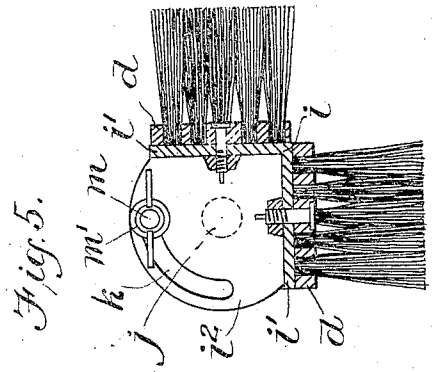


Fig. 5.

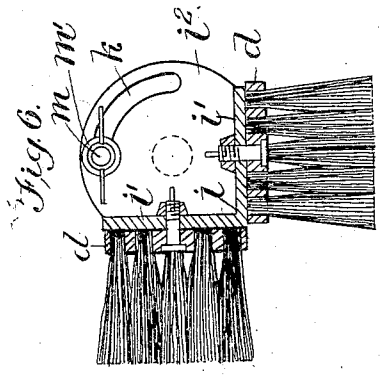


Fig. 6.

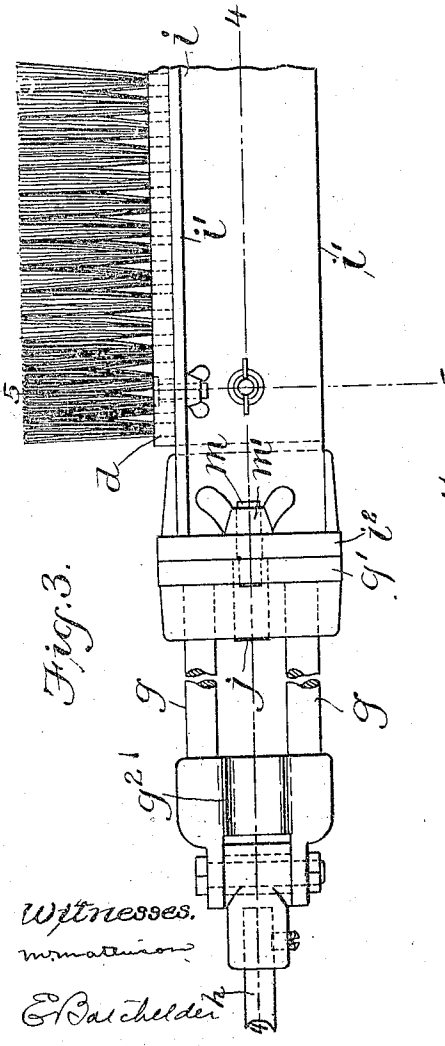


Fig. 3.

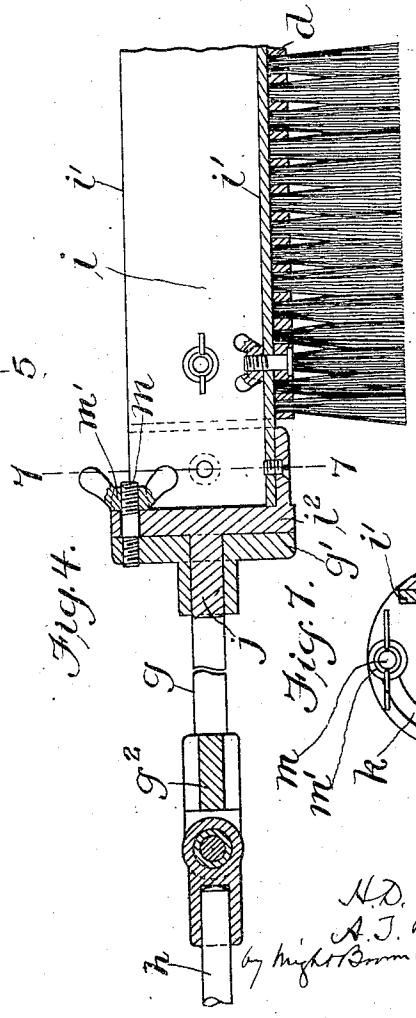


Fig. 4.

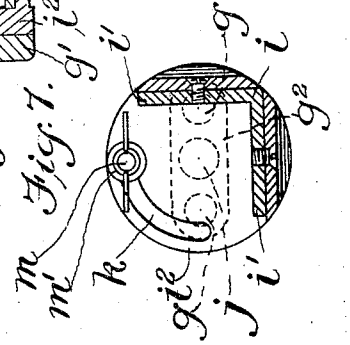


Fig. 7.

Witnesses.

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UNITED STATES PATENT OFFICE.

HARRY D. NEWELL AND ASA T. BRYANT, OF LAWRENCE, MASSACHUSETTS.

ADJUSTABLE BRUSH-CARRIER FOR WEB-COATING MACHINES.

No. 820,666. Specification of Letters Patent. Patented May 15, 1906.

Application filed January 24, 1906. Serial No. 297,551.

To all whom it may concern:

Be it known that we, HARRY D. NEWELL and ASA T. BRYANT, of Lawrence, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Adjustable Brush-Carriers for Web-Coating Machines, of which the following is a specification.

This invention relates to machines for coating webs of paper or other flexible material, and particularly to machines for coating paper with talc or clay. In machines of this character the web to be coated after being coated is subjected to the action of reciprocating brushes which distribute the coating and leave it in a smooth and uniform condition. The brushes in time become so filled and clogged by the finely-powdered coating material as to require cleaning. Heretofore it has been necessary to arrest the operation of the machine while removing the clogged brush and replacing it by a fresh one. The interruption of the operation involved by the stoppage of the machine is detrimental to the surface of the paper, because the finished surface of the paper has an uneven appearance, due to the interruption of the continuity of the brushing operation.

Our invention has for its object to enable the distributing-brushes of a coating-machine to be removed from contact with the web and fresh brushes substituted for them without stopping the machine or interrupting the continuity of the brushing operation. To this end the invention consists in the improvements which we will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a top plan view of a portion of a paper-coating machine embodying our invention. Fig. 2 represents a longitudinal section of said portion. Fig. 3 represents a top plan view of a portion of our improved brush-carrier removed from the machine. Fig. 4 represents a section on line 4 4 of Fig. 3. Fig. 5 represents a section on line 5 5 of Fig. 3. Fig. 6 represents a view similar to Fig. 5, showing the brush-holder in a different position. Fig. 7 represents a section on line 7 7, Fig. 4.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a a* represent parts of the frame of a paper-coating machine which may be of any suitable construction.

b represents the web of paper, which is provided with a clay coating and is fed through the machine by the usual or any suitable means. As here shown, the paper is coated by being passed through a trough *c*, containing the coating material. The coated web is subjected in its progress through the machine to the action of brushes *d*, which are reciprocated while in contact with the freshly-coated surface or surfaces of the paper. The brushes may act on one or both sides of the web, the preferred practice being to brush both sides of the web, the two sets of brushes opposing each other, so that the web is supported between the brushes.

In carrying out our invention we provide a series of brush-carriers, each comprising end portions adapted to engage fixed guides at opposite edges of the web and having an intermediate brush-holding portion or brush-holder adapted to hold a plurality of brushes and adjustably connected with the said end portions, the arrangement being such that the brushes are interchangeable by a movement of the brush-holding portion, so that when one of the brushes on the brush-holder is in position to bear upon the web the other brush will be moved out of contact with the web and will be held in such position that it can be readily removed from the holder and its place supplied with a fresh brush without stoppage of the machine, the said fresh brush being moved into contact with the web and the other brush removed from the web by an adjustment of the brush-holding portion. When, therefore, it becomes necessary to remove a brush for the purpose of cleaning it, the holder of the brush is adjusted to remove the clogged brush from contact with the web and bring the other brush on the holder into contact with the web, after which the clogged brush may be removed from the holder and the fresh one substituted for it and all without stoppage of the machine.

Our invention resides entirely in the brush-carriers, of which several are employed in the machine. These being of the same construction, a description of one carrier will suffice.

f f represent fixed guides supported by the

frame of the machine. The guide-engaging end members of the brush-carrier in this embodiment of our invention comprise slide-rods *g g*, movable in the guides *f f* and connected at their inner ends by heads *g'*. The slide-rods *g g* of one of the end portions are connected at their outer ends by a head g^2, having ears g^3, engaged with suitable power-transmitting means, such as an eccentric rod *h*, through which the brush-carrier may be reciprocated. The intermediate brush-holding portion or brush-holder, as here shown, comprises an angle-bar *i*, having two faces or wings *i' i'*, standing preferably at right angles with each other, and end pieces or heads i^2 i^2, which are connected by pivots or trunnions *j j* with the heads *g'* of the end portions. Each of the wings *i'* of the brush-holder is provided with a brush *d*, the brushes being detachably secured to the wings by any suitable means which will permit their ready application and removal.

It will be seen from the foregoing that the brush-holding portion of the carrier is adapted to partially rotate to bring either of the brushes *d* in an operative position, the other brush being at the same time held in an inoperative position out of contact with the web, the brushes being interchangeable by a movement of the brush-holding portion of the carrier. When, therefore, it is desired to remove a brush from the machine, it is only necessary to give the brush-holder a partial rotation, removing the clogged brush from contact with the web and bringing the fresh brush into contact therewith. This operation, as well as the operation of removing the clogged brush and applying a brush in its place, can be performed while the machine is in operation. Hence no stoppage of the machine is required, and no interruption of the continuity of the coated surface is involved.

Means are employed for securing the brush-holder in its different positions, so that each brush will be firmly held in position to properly act on the paper. The means here shown for this purpose comprise segmental slots *k* in the heads i^2 and bolts *m*, engaged with the heads *g'* of the end portions, said bolts passing through the segmental slots *k* and having clamping-nuts *m'*, whereby they may be tightened to clamp the heads i^2 firmly against the heads *g'*.

We do not limit ourselves to the details of construction of our improved brush-holder herein shown and described, as the same may be variously modified without departing from the spirit of our invention.

We claim—

1. In a web-coating machine a reciprocating brush-carrier comprising an adjustable holder having a plurality of brushes which are interchangeable into operative position by movements of the holder.

2. In a web-coating machine, a reciprocating brush-carrier comprising end portions, and a brush-holder adjustably connected with the said end portions, and having a plurality of brushes which are interchangeble into operative position by movements of the holder.

3. In a web-coating machine, a reciprocating brush-carrier comprising end portions, and a multiple brush-holder pivoted to the said end portions.

4. In a web-coating machine, a reciprocating brush-carrier, comprising end portions, a brush-holder adjustably connected with the said end portions, and having a plurality of brushes which are interchangeable into operative position by movements of the holder, and means for securing the brush-holder to the end portions in different positions.

5. In a web-coating machine, a reciprocating brush-carrier comprising end portions having locking members, and a multiple brush-holder pivoted to the end portions, and provided with complemental locking members adapted to engage the locking members of the end portions.

6. In a web-coating machine, a reciprocating brush-carrier comprising end portions, a brush-holder, formed as an angle-bar having a plurality of brush-supporting faces, and end pieces or heads which are pivoted to the end portions, and means for locking said heads to the end portions in different positions.

7. In a web-coating machine, a reciprocating brush-carrier comprising end portions, a brush-holder adjustably connected with the end portions, and having a plurality of faces, and a corresponding plurality of brushes detachably secured to said faces.

8. In a web-coating machine, a reciprocating brush-carrier comprising guide-engaging end portions, each including parallel slide-rods, heads attached to the inner ends of said rods, a brush-holder having segmentally-slotted end heads pivoted to the heads of the end portions, bolts engaged with the heads of the end portions and passing through the segmental slots, said bolts having clamping-nuts, the brush-holder having a plurality of faces, and brushes detachably secured to said faces.

In testimony whereof we have affixed our signatures in presence of two witnesses.

HARRY D. NEWELL.
ASA T. BRYANT.

Witnesses:
J. M. McCausland,
C. E. Balenforth.