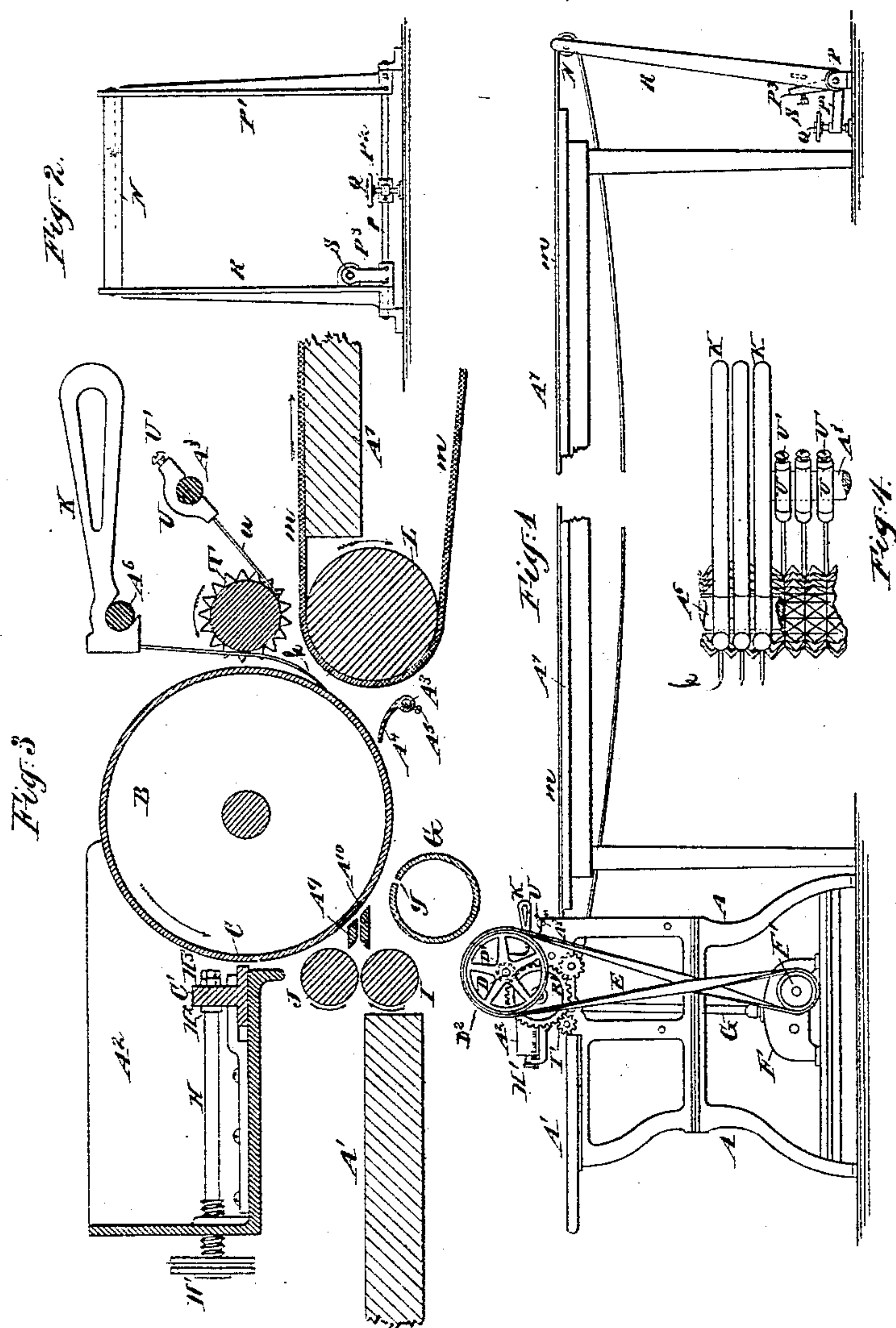


(No Model.)

M. F. WILSON.
METHOD OF PASTING OR COATING PAPER.

No. 453,394.

Patented June 2, 1891.



Witnesses:

Charles R. Searle,
H. A. Johnstone.

Inventor:

Merrick F. Wilson
by his attorney
Thomas Drew Jackson

UNITED STATES PATENT OFFICE.

MERRICK F. WILSON, OF CHICAGO, ILLINOIS.

METHOD OF PASTING OR COATING PAPER.

SPECIFICATION forming part of Letters Patent No. 453,394, dated June 2, 1891.

Application filed August 31, 1888. Serial No. 284,247. (No model.)

To all whom it may concern:

Be it known that I, MERRICK F. WILSON, of Chicago, in the county of Cook and State of Illinois, have invented a certain new and
5 Improved Method of Pasting or Coating Paper or other Thin Material, of which the following is a specification.

I employ a machine which applies a thin uniform coating of paste, gum-arabic, or other
10 adhesive material upon one side of each sheet of paper or other thin material fed through it. I have in my experiments applied a solution of the adhesive material known as "dextrine" on one side of pieces of paper to be
15 used for covering what are known as paper-boxes—boxes the bodies of which are formed of pasteboard or other stout forms of paper-stock cut and folded to the required form. The sheets are introduced one by one and are
20 delivered in corresponding succession with the clean side downward upon an endless traveling apron, from which each may be removed at leisure and applied upon box-bodies or otherwise used, as may be desired.

25 The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a general side elevation, a portion of the mid-length of the delivery-table or work-table and apron being broken away to curtail the length of the figure. Fig. 2 is an elevation of a portion at right angles to the view in Fig. 1. Fig. 3 is on a larger scale.
35 It is a central longitudinal section of a portion of the machine. Fig. 4 is a plan view of a portion thereof.

Similar letters of reference indicate corresponding parts in all the figures where they
40 occur.

A is a fixed frame-work of cast-iron or other suitable material, and A' a table or horizontal platform supported thereon, by the aid of which the sheets are successively fed into the
45 machine. A² is a tank supported on the framing and containing a quantity of a solution of dextrine or other fluid, or semi-fluid adhesive material.

B is a drum of brass or other suitable material, having its surface truly cylindrical. Its axis, supported in fixed bearings, is slowly
50 turned by the aid of a gear-wheel B', engag-

ing with a pinion D', carried on the main driving-shaft D, which is driven by a pulley, (not represented,) receiving a belt from a
55 steam-engine or other suitable power. A large pulley D² on the same shaft gives motion through the medium of a belt E and pulley F' to a blower F, which may be of any suitable character. I have in my experiments
60 used the style known as "Root's blower." A strong current of air impelled by this blower is conducted upward in a pipe G, which extends across the machine near the under side of the drum B, and is thickly bored with
65 perforations g. These are set so as to blow toward the drum, but not squarely. The current of air is blown from the perforations g at an inclination forward.

C is a sliding gate mounted in the base of
70 the tank A². When the machine is in operation, the gate is adjusted so that its edge stands near but not quite in contact with the drum. It allows the surface of the drum to pass it coated with a fresh layer of the adhe-
75 sive material of uniform thickness. The thickness may be adjusted at will by turning the hand-wheels H', and thereby adjusting the nearness of the scraper or gate C to the drum B at one end or both ends. There are
80 two screws H, each operated independently by applying the hand to the corresponding hand-wheel H'. Each screw is tapped through the front of the tank A² and engages the corresponding end of the gate C between a col-
85 lar H² and a nut H³. The nut is firmly held by a jam-nut in the obvious manner. It follows that as the screw is adjusted endwise it carries with it that end of the gate C.

Between the edge of the feed-table A' and
90 the drum B, I mount a pair of feed-rolls I J. The lowermost I receives motion through a gear-wheel I' from the gear-wheel B'. The uppermost J rests on I. The motion of these feed-rolls coincides with that of the drum B,
95 being only enough slower to insure that the paper shall be smoothly extended upon the latter.

A³ is a transverse bar extending across the machine under the drum, and A⁴ is a metallic
100 deflector held on the bar A³ by means of a pinching-screw A⁵. This should be so set that the upper edge of the deflector will almost but not quite touch the sheets of thin mate-

rial which are being carried past it along on the drum. The deflector allows the drum, with its coating of adhesive material and sheets of paper on its under surface, to move 5 past without touching; but the current of air which accompanies it is caught by the deflector and directed downward, so that the paper after being detached from the drum moves in air which is practically still.

10 A⁶ is a cylindrical bar extending across the machine at a higher level. It supports a series of removable levers K *k*, the part K of each lever being cast-iron and the part *k* being a steel wire set therein, bent and sharp- 15 ened at the lower end, as shown. The superior gravity of the portion K holds the points of the wires *k*, which I term "clearing-points," gently against the drum B, and insures that the paper shall be detached from the drum 20 when it reaches this point. These parts K *k* are narrow, and are set side by side on the bar A⁶. They present the clearing-points *k* near together and in actual though gentle contact with the drum. They insure the de- 25 tachment of the paper and its deflection away from the drum in an oblique upward direction.

L is a drum mounted in fixed bearings in the position shown, and receiving through 30 gearing, as represented, a surface motion corresponding to that of the drum B. An endless apron *m* runs over the drum L. The apron *m* also runs over and in contact with the upper face of a work-table A⁷, which may be of 35 any breadth to allow the attendants to work on each side of the apron, taking the pasted sheets from the apron as it traverses along between them.

N is a drum which keeps the apron *m* ex- 40 tended. I provide means for taking up any excessive slack of the apron, and also for adjusting the angular position of this drum N, so as to guide the apron.

P is a shaft mounted in fixed bearings, in 45 which it is capable of partially revolving.

P' is an arm fixed on shaft P. Its upper end supports one of the bearings of the drum N. A short arm P², extending horizontally from shaft P, receives a screw Q, the point of which 50 strikes a plate on the floor. By adjusting this screw Q the shaft P may be turned slightly in its bearings.

P³ is an arm extending obliquely upward from shaft P, on which it is fixed, and carry- 55 ing a screw S. An arm R is mounted loosely on the shaft P. Its upper end supports one of the bearings of the drum N. The point of the screw S presses against a wing cast on the arm R. Adjusting the screw Q turns 60 the shaft P and moves both arms P' and R so as to move both ends of the drum N, and thereby increase or relax the tension of the apron *m*. Adjusting the screw S changes the position of the loose arm R relatively to the 65 shaft P, allowing the end of the drum supported in the arm R to be set to right or left relatively to the arm P'. This adjustment,

additional to the adjustment by the screw Q, serves to guide the apron and keep it always on the mid-length of its respective drums L 70 and N.

T is a clearing-drum revolved in the position represented. Its surface may move, and preferably does move, somewhat faster than the drum. It is grooved both longitudinally 75 and transversely with grooves of V-section. These make the surface of this clearing-drum in effect a series of pyramidal spurs, the motion of which is certain to deflect the front edge of each sheet of paper downward 80 and insure its resting properly upon the apron *m*.

U *u* are a series of clearers held by pinch- 85 ing-screws U' upon a cross-bar A⁸. One wire *u* lies in each of the circular grooves around the clearing-drum T. These are only important in case the sheets shall tend to stick to the points of the pyramidal spurs and be carried around therewith. The clearers insure 90 their detachment.

I attach importance to the fact that the sheets are applied to the under instead of to the upper side of the drum B, for the reason that such method of pasting presents the sheets on the apron with their freshly-coated 95 faces upward. This is very important, because the coated face is liable to stick. The ordinary practice of applying the sheets to the upper side of the drum leaves them with the coated side down, unless special provis- 100 ion is made for turning them after their removal. My method avoids all the difficulties.

The gate C should be set forward a little, so as to entirely close the aperture between 105 itself and the drum whenever the machine is stopped. This may be effected by turning the screws H by means of the hand-wheel H'. Under ordinary conditions of working the gate C should be set backward from the drum B enough to allow a sufficient and uniform 110 stratum of the semi-fluid adhesive material to remain on the surface of the drum, which is moving downward past the gate C.

I employ a pair of guide-bars A⁹ A¹⁰, ar- 115 ranged to serve as guides for the paper after it has passed through the feed-rolls I J, and before it comes in contact with the drum B. These are of advantage in preventing the paper from either dropping too low by grav- 120 ity in case the blast of air is weak or rising up too high in obedience to the force of the blast when it is too strong.

Modifications may be made without depart- 125 ing from the principle or sacrificing the advantages of the invention.

I do not confine the use of the invention to pasting paper in separate sheets for cov- 130 ering boxes. It may be used with advantage in applying a coating of glue, gum, paste, or other adhesive substance, or even a coating of material not adhesive upon one side of sheets or rolls of paper, cloth, or other thin material, in all cases delivering it on the apron with the coated surface upward.

When adhesive material is applied the paper or other material thus coated may be used for staying-up, trimming, covering, and labeling paper-boxes, also gumming paper for postage-stamps, gummed labels, and other purposes.

My drum B is longer than is required to apply the coating upon any single sheet or strip. I can pass two or more narrow strips or sheets through the machine simultaneously. Any size or shape of paper or other material may be passed through the machine without requiring any previous preparation or adjustment of any part.

I do not claim the combination of mechanism, such being made the subject of a separate patent, bearing date September 30, 1890, No. 437,545.

I claim as my invention—

1. The herein-described method of pasting or coating paper, which consists in carrying the sheets separately with their upper sur-

face in contact with a pasting medium and conveying the sheets away therefrom with the coated surface uppermost, substantially as specified.

2. The herein-described method of pasting or coating paper or analogous material, which consists in carrying the sheets separately in a substantially horizontal direction, with the upper surface against a pasting medium, forcing air against the under side of the material at an inclination, and then conveying the sheets away with the pasted side uppermost, substantially as specified.

In testimony whereof I have hereunto set my hand, at New York city, this 28th day of August, 1888, in the presence of two subscribing witnesses.

MERRICK F. WILSON.

Witnesses:

W. B. GONSALVES,
H. A. JOHNSTONE.