

No. 778,126.

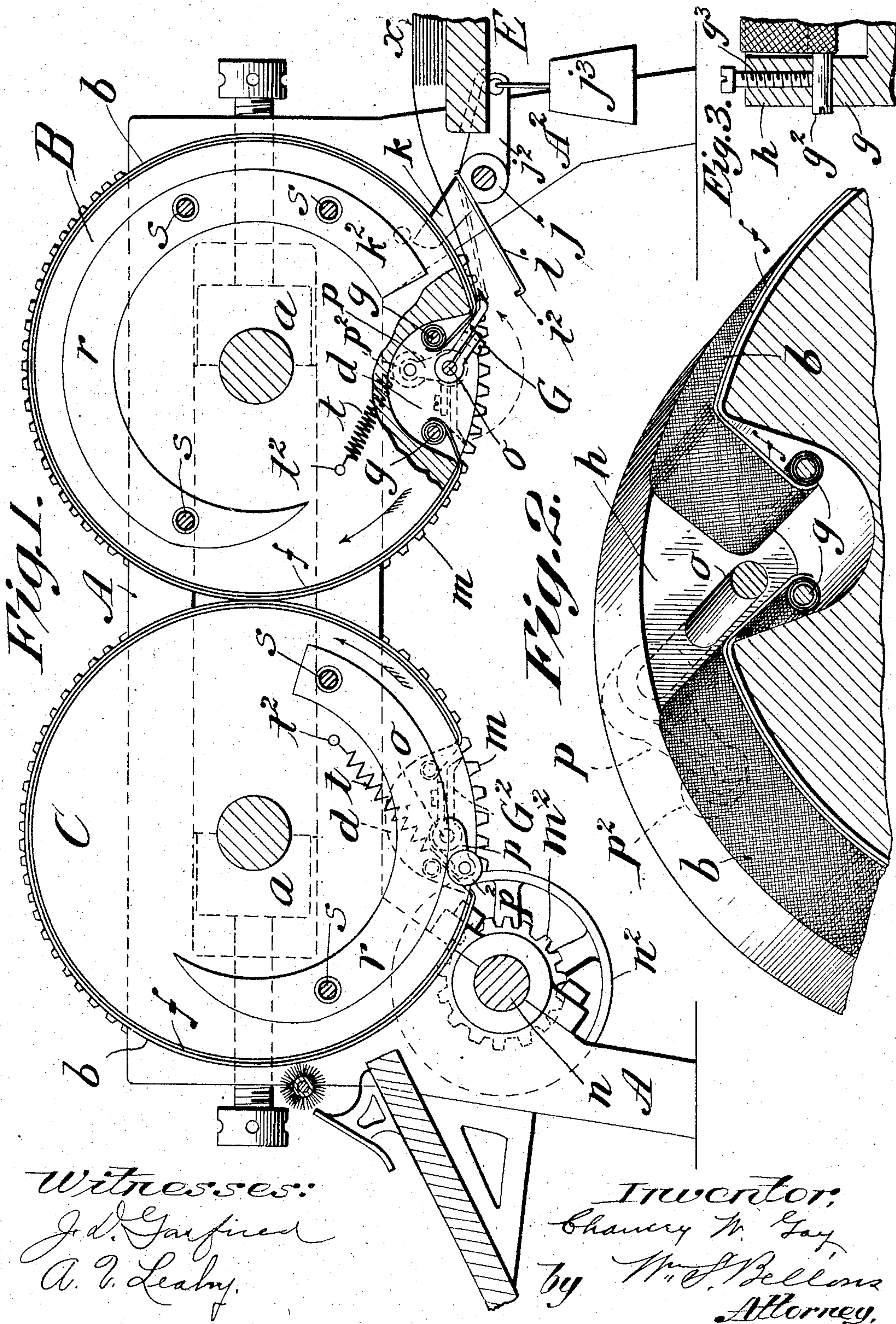
PATENTED DEC. 20, 1904.

C. W. GAY.

MACHINE FOR SURFACE FINISHING PAPER.

APPLICATION FILED DEC. 19, 1903.

NO MODEL.



Witnesses:
J. A. Garfield
A. P. Leamy.

Inventor:
Chauncy W. Gay,
by W. S. Bellows
Attorney.

UNITED STATES PATENT OFFICE.

CHAUNCEY W. GAY, OF WEST SPRINGFIELD, MASSACHUSETTS.

MACHINE FOR SURFACE-FINISHING PAPER.

SPECIFICATION forming part of Letters Patent No. 778,126, dated December 20, 1904.

Application filed December 19, 1903. Serial No. 185,841.

To all whom it may concern:

Be it known that I, CHAUNCEY W. GAY, a citizen of the United States of America, and a resident of West Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Machines for Surface-Finishing Paper, of which the following is a full, clear, and exact description.

This invention relates to improvements in a machine for imparting to blanks of paper a surface finish resembling in aspect the surface of textile fabric.

The object of the invention is to devise a machine for the stated purpose which is of extremely simple and inexpensive construction, strong and durable, and susceptible of adaptation to vary the character of the surface finish to be imparted to the paper.

The invention includes in combination a pair of peripherally-adjacent cylinders, one of which essentially has, but both of which preferably have, covering of cloth peripherally and in tension thereon, means for rotating the rolls, and means for causing the progression of a blank between and subject to the surfacing action of said rolls.

The invention furthermore consists in certain combinations and arrangements of parts and the constructions of parts, all substantially as hereinafter fully described, and set forth in the claims.

In the drawings, Figure 1 is in substance a side elevation of the machine as seen next in side of one of the side members of the supporting-frame that is understood to be omitted. Fig. 2 is a perspective and sectional view, on a larger scale, of a portion of one of the cylinders of the machine for particularly illustrating features of construction hereinafter referred to. Fig. 3 is a sectional view in detail to show a construction at one end portion of one of the cylinders.

The machine comprises a frame understood as having front and rear side portions A and supporting-legs A² and having mounted therein axially transversely the cylinders B and C, having end journals and arranged to run peripherally in contact or in peripheral prox-

imity, strong and immovable journal-bearings *a a* being provided, so that any tendency of the cylinders to separate will be ably resisted. Both of the cylinders are shown as having peripherally in tension therearound a layer *b* of textile fabric, the ends of which are approached, but do not meet, being carried within a gap or recess *d* in each roll and secured.

While the invention is not necessarily limited to any particular manner of securing the layer of textile fabric peripherally around on each cylinder, a practical, desirable, and tested expedient is here illustrated as consisting in a carrier-strip *f* of flexible material, which may be strong heavy paper, leather, rubber-covered cloth, or watch-spring metal, the ends thereof having connection and winding engagement with rods *g*, located within the aforementioned gaps *d*, extending in parallelism with the axis of the cylinders and having bearings through the portions of or equipments for the cylinders, which are represented at *h*, constitute walls at the ends of the recesses, which are as one with the body of the cylinder. The outer ends of the said rods *g* have screw-driven slots *g*² or equivalent formations, whereby they may be turned, and set-screws *g*³ are extended radially through the portions *h*, forming the end walls to the recesses to confining engagements against the sides of the said rods.

The cloth *b* is secured in any suitable manner on the outer surface of the carrier-strip *f*, as may be done by gluing it at its end portions or throughout its entire area or by mechanical fastenings within the recesses.

By loosening the confining-screws *g*³ and turning the rods *g*, one or both, the carrier-strip and cloth strip thereon may be tensioned around the cylinder in the required degree.

E represents a feed-table on which the blanks *x* may be piled, the upper surface of such table being at a plane adjacent the one which is coincident with the under side of the cylinder B, and between the inner edge of the feed-table and the under peripheral portion of the cylinder is a periodically-movable gage or stop *i*, against which the leading or inner ends of the blanks may be shoved. Said gage

consists of a plate having an upturned extremity i^2 and is mounted on a rocking support j , having radial arms j^2 , to which a weight j^3 is hung, so that normally the carrier will be swung to present the upturned extremity i^2 of the gage device against the under side of the cylinder, as represented by the dotted lines in Fig. 1. The carrier j has, however, a lever-arm extension k , understood as located in a plane beyond but adjacent one end of the cylinder, such arm extending across the orbital path of a stud k^2 on the end of the cylinder, so that once in every revolution of the cylinder the said stud will impinge against the lever-arm k and cause the gage $i i^2$ to resemble the position represented in the full lines in Fig. 1.

The cylinders have spur gear-wheels $m m$ at their ends meshing into each other, and one of the cylinder gear-wheels is driven by a pinion gear-wheel m^2 on a counter-shaft n , for which a driving-pulley n^2 is provided. The rotations of the cylinders are as represented by the carriers, Fig. 1.

$G G^2$ represent gripper devices having their locations in the recesses d in both cylinders, the one G gripping the leading end of the blank brought into juxtaposition and properly limited by the gage aforementioned and carrying the blank around with its surface against the surface of cylinder B until the recessed part of cylinder C comes opposite the corresponding recesses of cylinder B, whereupon the grippers G release the leading end of the blank at a location in a line perpendicular to and extending between the axes of both cylinders, and the gripper G^2 engages the blank and carries it around over the upper half of cylinder C, the whole surface, with the exception of the small leading portion which is gripped, being subjected to the pressure-contact and surface-finishing action of the textile-covered pair of cylinders, and when the blank has been carried so that its leading end is descending the left-hand upper portion of the cylinder C the gripper G^2 releases it, and it is fed onto the receiver or delivery-support therefor.

The gripper devices for both cylinders are substantially alike and the actuating means therefor also; but the gripper-operating means are reversely arranged, so that when the gripper for cylinder B is open to release the leading end of the blank the gripper for the cylinder C closes to then engage the blank.

The grippers are carried on rock-shafts o , journaled in the opposite end walls h of the recesses d , said rock-shafts ranging along in said recesses, sunk below the periphery of the cylinders, and each rock-shaft has at its end a lever extension p , carrying a friction-roller p^2 , arranged to impinge against the cam-plate r at the end of the frame and adjacent the end of the cylinder, $s s$ representing

supporting-studs extending from the inner side of the frame toward the end of the cylinder, and on which studs the cam-plates are secured.

The springs t , having each one end attached to a stud t^2 at the end of the cylinder and its other end attached to the lever extension p of the rock-shaft o , is operative to normally hold the gripper closed, the cam-plate when the roller on the lever p is bodily brought into impingement therewith opening the gripper and holding it open until such roller has in its revoluble movement with the cylinder passed out of engagement with the cam-plate, whereupon the gripper is by the reaction of the spring swung from its open position, represented by dotted lines at the remote portion of Fig. 1, to the closed position, there represented by full lines.

It is noticed that the cams $r r$ have reverse arrangements relatively to the respective gripper-provided cylinders for a corresponding reversing operation of the grippers.

To receive the paper after it has passed through the cylinders, there is provided a table F, having a guide f mounted thereon, which is carried by the frame A adjacent the cylinder C, there being arranged a brush I near the upper end of the guide adapted to contact with the cylinder A.

The layer of cloth which constitutes the upper surface of each cylinder may be common cotton or linen cloth, and the so-surfaced portions of both cylinders in coming together as the cylinders rotate impress the textile-like cylinder-surfacing into the paper which is carried between the cylinders, so that it is delivered from the machine with both sides having cloth-like surfaces.

By having the extremities of the surfacing-cloth located within the recesses $d d$ of the cylinders and having the cylinders arranged to run conjointly in the manner described no seam-mark will be produced or left upon any portion of the blanks subjected to the cloth-surfacing action.

Substantially the present improvements in machines for surface-finishing paper have been described but not claimed in an application for Letters Patent of the United States filed by me April 27, 1903, Serial No. 74,395.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for producing sheets of paper having a cloth-like surface on both sides thereof, the combination of a pair of cylinders mounted peripherally adjacent and adapted to run at a uniform speed, both cylinders being provided with niches located in their peripheries to register with each other at each rotation of the cylinders, layers of cloth covering the peripheries of both of the cylinders having their end portions secured within the

niches, grippers mounted within the niches of both cylinders, means for feeding paper to the gripper of the first cylinder, means for closing the said gripper on the paper near the margin thereof, means for opening said gripper concurrently with the registration of the cylinder-niches, means for closing the second cylinder-gripper concurrently with the opening of the first gripper and means for there-
 10 after opening the gripper of the second cylinder, substantially as described.

2. In a machine for surface-finishing both sides of paper in one operation, the combination of two cylinders mounted peripherally adjacent and adapted to rotate in unison at the same speed, said cylinders being provided with niches so disposed as to register with each rotation of the cylinder, cloth coverings for each cylinder extending entirely around the periph-
 20 eries and having their end portions seated within the niches thereof, grippers mounted within the niches of each cylinder, means for guiding the infed paper to the gripper of the first cylinder, means for controlling the feed of the paper, actuated by the first cylinder, means for closing the first cylinder-gripper upon the margin of the sheet fed thereto, means for opening said gripper upon the registration of the cylinder-niches, means for
 30 closing the gripper of the second cylinder upon the paper upon the opening of the gripper of the first cylinder, and means for there- after releasing the hold of said second gripper, substantially as described.

3. In a machine for surface-finishing paper, in combination, a pair of peripherally adjacent pressure-cylinders provided with recesses therein, a covering of cloth peripherally therearound, having the ends thereof secured
 40 within the recesses of the cylinders and adjustable for tension therein, means for conjointly rotating the cylinders, a feed-table for the blanks of paper adjacent one of the cylinders, grippers carried by the cylinders
 45 within the recesses, and means for operating them, substantially simultaneously, the one to

open and the other to close, and vice versa, a gage between the inner edge of the feed-table and a peripheral portion of one of said gripper-provided cylinders, means for normally
 50 holding said gage in peripheral contact with said cylinder, and means for forcing the same out of contact upon a complete rotation of the cylinder.

4. In a machine for surface-finishing paper, 55 in combination, a pair of peripheral-adjacent pressure-cylinders having a covering of cloth peripherally therearound, means for conjointly rotating the cylinders, a feed-table for the blanks of paper adjacent one of the rolls, 60 grippers, carried by the cylinders, and means for operating them substantially simultaneously the one to open and the other to close, and vice versa, and a gage between the inner edge of the feed-table and a peripheral portion of 65 one of said gripper-provided cylinders, a rock-shaft on which said gage is mounted having a lever extension, means for maintaining the gage normally peripherally adjacent the proximate cylinder, and a stud on the cylinder co-
 70 operating with said lever extension of the rock-shaft.

5. In a machine for surface-finishing paper, a pair of cloth-covered cylinders provided with recesses therein, means for conjointly rotat-
 75 ing said cylinders, grippers mounted within the recesses, means for operating said grippers simultaneously to open one and close the other, a feed-table, a gage mounted between the table and the periphery of one of the cyl-
 80 inders, means for normally holding said gage in peripheral contact with said cylinder, and means for forcing the same out of contact upon a complete rotation of the cylinder, sub-
 85 stantially as and for the purpose set forth.

Signed by me at Springfield, Massachusetts, in presence of two subscribing witnesses.

CHAUNCEY W. GAY.

Witnesses:

WM. S. BELLOWES,
 A. V. LEAHY.