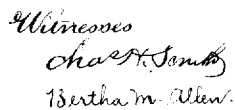


U. S. PATENT OFFICE.
 DEVICE FOR APPLYING ADHESIVE MATERIAL TO THE BACKS OF BOOKS IN COVERING MACHINES.
 APPLICATION FILED APR. 19, 1911.

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Inventor
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his atty.

UNITED STATES PATENT OFFICE.

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DEVICE FOR APPLYING ADHESIVE MATERIAL TO THE BACKS OF BOOKS IN COVERING-MACHINES.

1,023,569.

Specification of Letters Patent.

Patented Apr. 16, 1912.

Application filed April 19, 1911. Serial No. 621,988.

To all whom it may concern:

Be it known that I, CHARLES A. JUENGST, a citizen of the United States of America, residing at Croton Falls, in the county of Westchester and State of New York, have invented an Improvement in Devices for Applying Adhesive Material to the Backs of Books in Covering-Machines, of which the following is a specification.

My invention relates to an improvement in machines for covering books, magazines and pamphlets, particularly where paper covers are employed.

The device of my invention is applicable to the machine shown and described in United States Letters Patent No. 476,208, granted May 31, 1892, to Lovell and Bredenberg. In the machine of this patent the assembled signatures for the book or magazine are held between clamping devices mounted upon an endless conveyer; they are supported in an upright position lengthwise of the conveyer and as they are moved, present their top or bottom edges forward to the line of travel. As thus supported and moved, the backs of the signatures are the lowest portion thereof and in this position the signatures one at a time are passed over and in contact with the surface of a suitable glue roller which delivers hot glue upon the backs thereof preparatory to the cover being placed thereon. In transit from the glue roller to the place where the covers are placed in position, the hot glue forms long globules or lines,—called “whiskers” in the trade,—which drop and smear up other parts of the machine, and this, it is the object of my present invention to overcome. In carrying out my invention, I provide a small or auxiliary roller placed to revolve in proximity to the glued back surface of each signature and close enough to collect these globules and lines (or whiskers) of hot glue, removing all the surplus glue so that none will thereafter drop upon any part of the machine. This auxiliary roller is upon a shaft in suitable bearings, preferably with a small gear meshing with a large gear upon the shaft of the glue roller, so as to revolve at a high speed. This roller is also preferably placed over the vat of hot glue so that the surplus hot glue as removed from the signatures may fall back in the vat. In fact this roller soon becomes hot enough to prevent the glue congealing thereon and the

same assists the limpid condition which insures the glue falling back into the vat, all of which is hereinafter more fully described.

In the drawing, Figure 1 is an elevation and partial vertical section representing part of the devices out of the aforesaid patent and the devices of my improvement: Fig. 2 is a vertical longitudinal section and partial elevation of the essential parts shown in Fig. 1, and Fig. 3 is a vertical section and partial elevation in larger size illustrating features associated with the auxiliary roller.

a^1 and a^2 represent essential frame parts of the machine adjacent to the vat of hot glue and the traveling conveyer over the same, and b b^1 are bracket parts; the bracket part b from the frame part a assisting in the support of the glue vat c containing hot glue c^1 and surrounded below its upper edge by a steam jacket d .

2 3 and 4 are bearings; the bearings 2 and 3 being adapted to receive the shaft e of the glue roller g running in the vat of hot glue, and the bearing 4 adapted to receive a shaft e^1 of the auxiliary roller h employed according to my invention for the removal of the surplus glue. The bearing 4 is preferably made adjustable so as to place the periphery of the auxiliary roller h at the proper and desired distance from the backs of the signatures. Only a slight adjustment is required.

The shaft e is provided with a large gear f and the shaft e^1 with a small gear f^1 ; the gears being in mesh so that the rotation of the shaft e and its large gear causes the rotation of the shaft e^1 and its small gear at a greatly accelerated velocity.

I provide slide-ways i i^1 ; the slide-way i being on the free end of the bracket member b^1 and the slide-way i^1 secured to the frame part a^2 .

The endless conveyer that I prefer to employ and which is shown in the aforesaid patent, comprises companion shafts 5 and 6, to the ends of which are connected short links. On the ends of the shafts 6 which are longer than the shafts 5 I employ rollers 7 8 which run in the slide-ways i i^1 . The clamping members for the signatures m comprise a clamp bar and plate members k l which come at opposite sides of the signatures. The ends of these members are pivotally connected to the shafts 5 6 so as to form the chain of the endless conveyer. The

clamp bars and plate members *l* at their respective ends are provided with sleeves or tubular members *l'* upon the shafts 5 6, upon which shafts are also helical springs 9 and clamping members 10, the position of which determines the amount of compression of the spring and the consequent tension that there is applied to the tubular members *l'* and the clamp bars and plate members *l* against the signatures of the book, magazine or pamphlet held between the parts *k* *l*.

In the operation of the device the conveyer is presumed to be moving in the direction of the arrow Fig. 2; the glue roller *g* and auxiliary roller *h* in the direction of the arrows accompanying the same so that the glue roller is moving in the direction of the conveyer and the auxiliary roller in the opposite direction and at a greatly accelerated speed over the same. The backs of the signatures are the lowest portion or part thereof and the signatures are moving either with their top edges or their bottom edges forward, and as will appear from Fig. 1, these signatures pass along over and in contact with the upper surface of the glue roller *g* and remove therefrom substantially all of the glue that has been permitted to remain after the surplus has been removed by the scraper 12, the forked end of which not only passes at opposite sides of the roller *g* near the periphery, but also in close proximity to the periphery.

The periphery of the roller *g* is wide enough to glue the backs of pamphlets or magazines of any reasonable width; therefore there is more glue on the surface than can be taken up by the signatures as the same move over the periphery, and this surplus glue at once, and because of its hot condition, starts to form beads or edges on the opposite parallel edges of the book or pamphlet. The backs of the books or pamphlets pass close to the auxiliary roller and this roller moving at a high speed and in the opposite direction acts, as it were, to cut off all of these globules or edges (known as whiskers) of glue from the backs of the signatures, that is, the back of the book or magazine, so that as the same passes along there is sufficient glue for the attachment to the back of the cover, but not sufficient to drop upon and smear other parts of the machine. This auxiliary roller soon becomes very appreciably heated with the hot glue and assists in keeping the glue limpid so that it continually drops off this roller into the vat, and the auxiliary roller itself remains comparatively clear of glue.

I find it necessary in connection with the auxiliary roller *h* to keep the glue taken up by the same as limpid as possible and to present to the glued back of the signatures a clean surface of the roller with its rotation to take off the whiskers of the glue and pre-

vent any possibility of pulling glue globules into strings, hence I employ a scraper blade 13 bifurcated at its free end to bear upon the surface of the roller *h* and straddle the same, bearing upon its ends with the bifurcated ends pointing in the direction of rotation of the roller *h* so as to scrape off into the glue vat all surplus glue as the roller revolves. It is also necessary to keep this roller and the particles of glue thereon hot and for this purpose I employ a shield or plate 14 extending out from the adjacent end of the tank and extending across between the sides of the tank, and this together with the scraper 13, may be secured in place by the same means or bolt 15 to the edge of the tank. This plate 14 not only confines the heat beneath it but accentuating the same directs its escape between the free edge of the plate 14 and surface of the roller *g* insuring a limpid condition of the glue on the auxiliary roller *h* and its ready removal and delivery into the tank.

I claim as my invention:

1. In a device for applying adhesive material to the backs of books, the combination with a vat for containing hot glue, a shaft in suitable bearings and a roller mounted therein and running in the vat of hot glue for applying the same to the backs of books or magazines, of an auxiliary roller occupying a position adjacent the aforesaid roller, with the periphery in proximity to the backs of the books or pamphlets and means for rotating the said roller in an opposite direction to the glue roller.

2. In a device for applying adhesive material to the backs of books, the combination with a vat for containing hot glue, a roller therein and means for actuating the roller to deliver the glue on the backs of books or pamphlets, of an auxiliary roller and shaft therefor located over a part of the glue vat, and with its periphery adjacent to the backs of the books or pamphlets as they are moved off of the glue roller, a large gear on the shaft of the glue roller and a small gear on the shaft of the auxiliary roller, whereby the auxiliary roller is rotated in an opposite direction to the glue roller.

3. In a device for applying adhesive material to the backs of books, the combination with a vat for containing hot glue, a shaft in suitable bearings and a roller mounted therein and running in the vat of hot glue for applying the same to the backs of books or magazines, of an auxiliary roller occupying a position adjacent the aforesaid roller, with the periphery in proximity to the backs of the books or pamphlets, means for rotating the said roller in an opposite direction to the glue roller, and a scraper bearing upon the surface of the auxiliary roller for removing surplus glue.

4. In a device for applying adhesive ma-

terial to the backs of books, the combination
with a vat for containing hot glue, a shaft
in suitable bearings and a roller mounted
therein and running in the vat of hot glue
5 for applying the same to the backs of books
or magazines, of an auxiliary roller occupy-
ing a position adjacent the aforesaid roller,
with the periphery in proximity to the backs
of the books or pamphlets, means for rotat-
10 ing the said roller in an opposite direction
to the glue roller, and a bifurcated scraper
bearing upon the surface of the auxiliary
roller for removing surplus glue.

5. In a device for applying adhesive ma-
15 terial to the backs of books, the combination
with a vat for containing hot glue, a shaft
in suitable bearings and a roller mounted

therein and running in the vat of hot glue
for applying the same to the backs of books
or magazines, of an auxiliary roller occupy- 20
ing a position adjacent the aforesaid roller,
with the periphery in proximity to the backs
of the books or pamphlets, means for rotat-
ing the said roller, a scraper bearing upon
the surface of the auxiliary roller for re- 25
moving surplus glue, and a shield or plate
beneath the scraper and covering the tank
at one end for confining the heat and direct-
ing its escape against the auxiliary roller.

Signed by me this 6th day of April 1911. 30

CHAS. A. JUENGST.

Witnesses:

GEO. T. PINCKNEY,
E. ZACHARIASEN.