(No Model.) 3 Sheets—Sheet 1.

T. DEAN.

GLUING MACHINE.

No. 510,630. Patented Dec. 12, 1893.

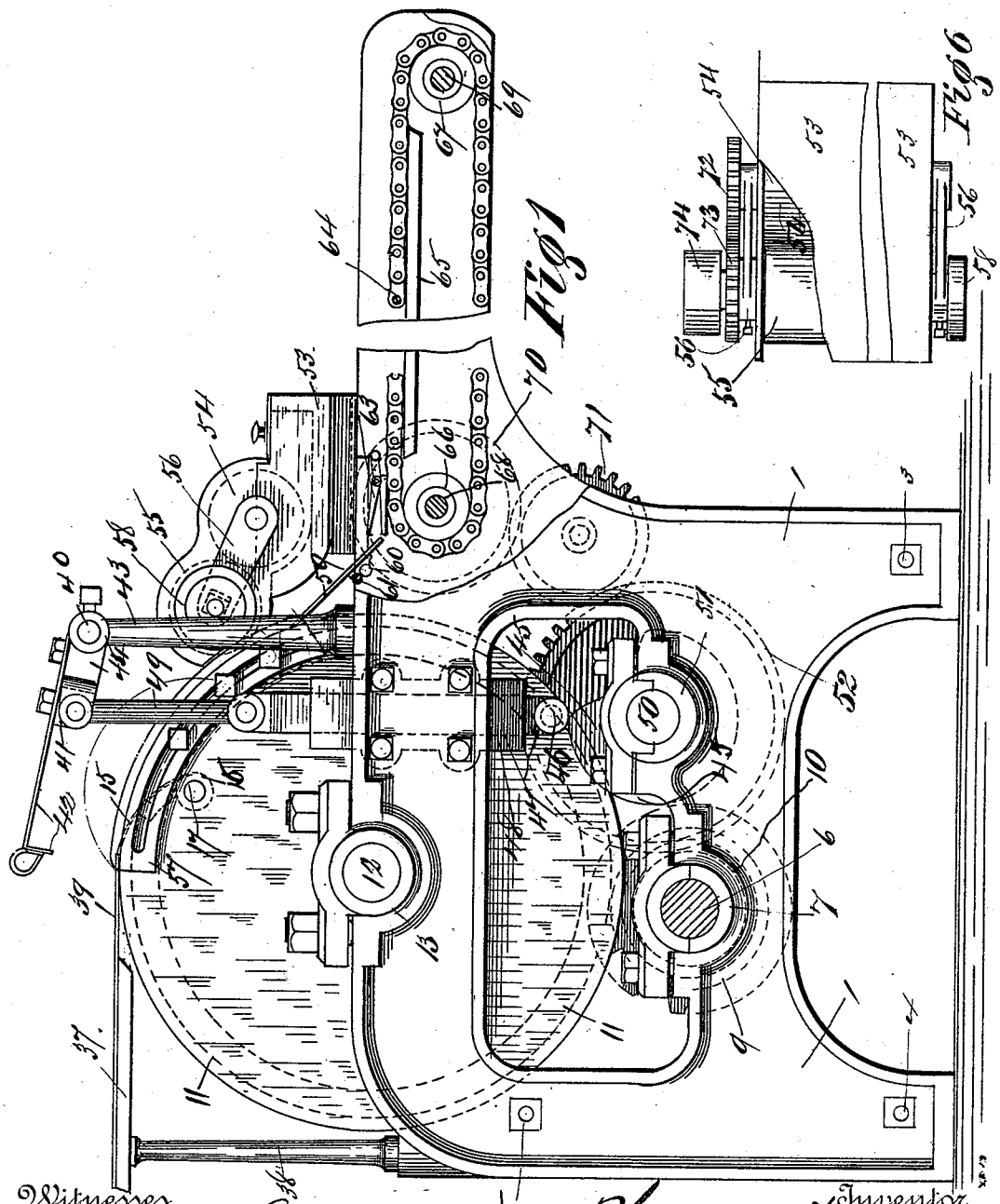

Fig. 1

Fig. 6

Witnesses
Jno. Geo. Shurtleff
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Inventor
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By his Attorney
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THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

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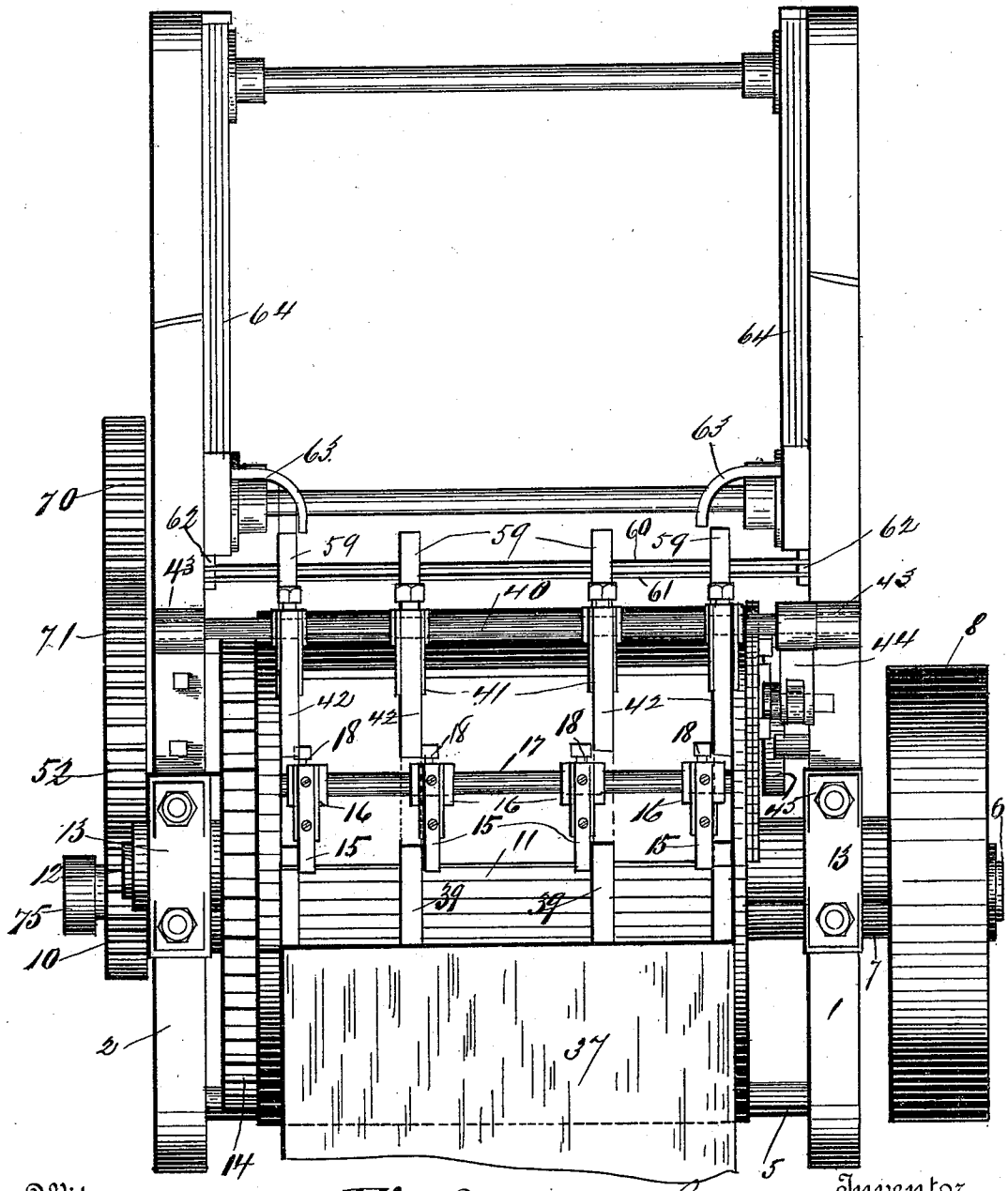

Witnesses

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Fig 2

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(No Model.) 3 Sheets—Sheet 3.

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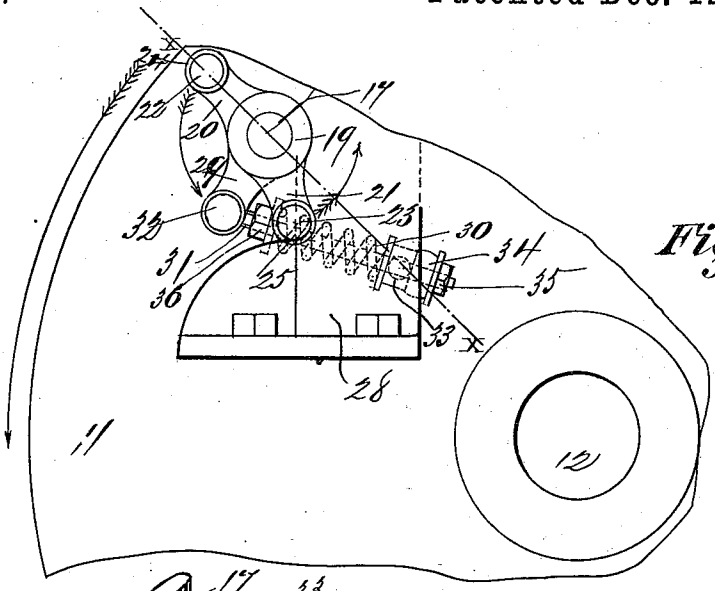

Fig 5

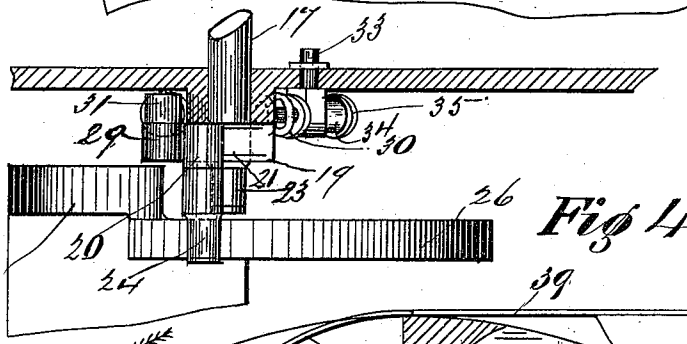

Fig 4

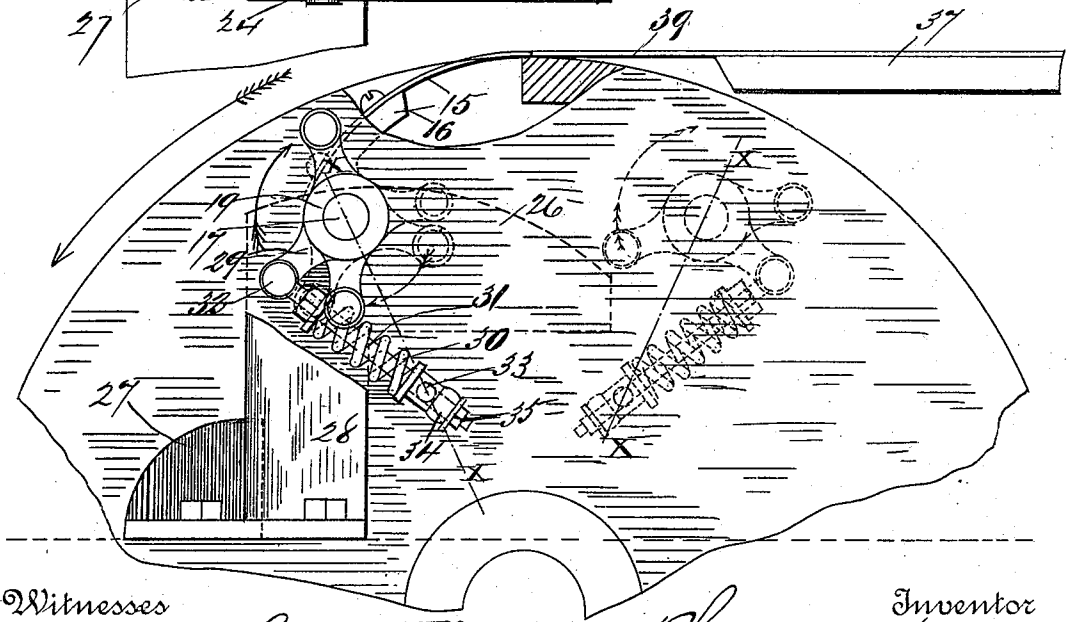

Fig 3

Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS DEAN, OF INDIANAPOLIS, INDIANA.

GLUING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 510,630, dated December 12, 1893.

Application filed November 12, 1892. Serial No. 451,842. (No model.)

To all whom it may concern:

Be it known that I, THOMAS DEAN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented new and useful Improvements in Gluing-Machines, of which the following is a specification.

My invention relates to a new and improved machine for applying liquid glue or other adhesive matter to the surface of paper, cloth, leather, or other material, and is particularly designed to be used in connection with book cover forming machines wherein the cloth is used and formed to be applied to the usual mill-boards to form the outer covering of the casing.

The object of my invention is to provide a machine that will apply liquid glue or other adhesive matter uniformly over one surface only of the fabric or other flexible material; also, to provide means whereby the rollers for applying the liquid glue to the surface of the material will be thrown out of contact with the peripheral surface of the main cylinder of the machine at a point of rotation at which the end of the material is reached, thereby avoiding the accumulation of the adhesive material and dust on the unoccupied or uncovered portion of the main cylinder; also, to provide simple, cheap and effective means whereby the fabric or other material to be coated, is gripped and held to the surface of the cylinder, and after having passed under the gluing roller is promptly disengaged, stripped or withdrawn from the surface of the cylinder and removed and conveyed from the machine to be afterward further operated upon by other mechanism as required. I attain these objects by means of the mechanism illustrated in the accompanying drawings in which similar numbers of reference designate like parts throughout the several views.

Figure 1. is a side elevation of the machine with parts broken away. Fig. 2. is a plan of the same with the paste-box removed. Fig. 3. is an enlarged detail view of a portion of the main cylinder showing the engaging and disengaging mechanism of the grippers. Fig. 4. is a plan of the same. Fig. 5. is a view similar to that of Fig. 3. and showing the disengaging position of the tumbling lever of the trippers, and Fig. 6. is a part plan view of the driving mechanism of the glue applying apparatus.

1. and 2. designate the main right and left side frames, firmly secured and held in the respective positions by their distance bars 3. 4. and 5.

The main shaft 6. is journaled in the bearings 7. formed integral on the side frames 1. and 2. and is provided with the driving pulley 8. the gear wheels 9. and 10. firmly secured thereon.

The gluing or main cylinder 11. is provided with the end journals 12. journaled in the bearings 13. formed integral on the top of the said side frames 1. and 2. and is continuously rotated by means of the gear wheel 14. which may be either formed integral on the side of the main cylinder 11. or it may be removably secured thereto, said wheel meshing with the gear wheel 9. on the main driving shaft.

15. designates the grippers of the main cylinder which are preferably formed of spring steel of suitable thickness and are adjustably secured on their holders 16. which are firmly and adjustably secured on the rocking shaft 17. by their set screws 18. The gripper or rocking shaft 17. has its ends journaled in suitable bearings formed in the ends of the main cylinder, 11, and has its tumbling lever 19. firmly secured on the outer projecting end; said lever having the arms 20, and 21. formed thereon and on the ends of which are firmly secured the roller pins 22. and 23 whereon the rollers 24. and 25. are journaled; said rollers arranged to operate in different planes of action and to contact with their actuating cams 26. (shown in dotted lines in Fig. 3.) and the engaging cam 27 (see Figs. 3. 4. and 5.) both of which cams are formed in one integral piece on their supporting stand 28. securely bolted to the top of the side frame 2. The throw-out arm 29. is also formed integral with the tumbling lever 19. and in a position between the angle formed by the cam roller arms to equally divide the angle of inclination of throw on each side of the central radial line x—x which bisects the angle of the throw of the grippers of the cylinder 11. The tumbling lever 19. has its arms 20. and 21 actuated by the fixed cams 26. and 27. to throw them only a portion of their throw the remaining portion of the throw or swing be-

ing actuated by means of the throw-out spring 30. actuating the guiding rod 31. pivoted on the pin 32. secured on the spring or throw out arm 29 of the tumbling lever 19.; said rod adapted to slide and be guided in the eye formed in the pin 33. pivoted in the end or head of the main cylinder 11. (see Fig. 4) which movement secures a quick prompt action of the grippers to engage or disengage the material at the proper time and when the cylinder 11. has moved to the receiving and delivering position. The rubber cushion 34. between the pivotal guide pin 33. and the retaining washer nut 35. secured on the end of the spring rod 31. is provided for the purpose of cushioning the jar or shock produced by the sudden action of the spring 30. when in action. I also provide the adjusting nut 36. screwed on the upper end of the spring rod 31. for the purpose of regulating the tension of the spring 30. The washer nut 35, may also be used for the purpose or limiting the throw of the spring and to regulate the tension of the grippers on the material passed through the machine.

37. designates the operating table whereon the cloth or other material to be operated upon is placed and from which it is fed into the machine, supported on suitable supporting standards 38 secured on the top of the side frames 1. and 2., and 39 are gage fingers for supporting the edge of the material over the cylinder 11. and against the gages 42.

40. designates the gage shaft having the gage holders 41. adjustably secured thereon and to which the gages 42. are adjustably secured, said gage shaft journaled at its ends in its supporting standards 43. secured to the side frames 1. and 2. and has its oscillating or rocking lever 44. firmly secured on the projecting end thereof and operated to swing or rock by means of its actuating cam 45. acting through the roller 46. secured on the vertically sliding bar 47. sliding in the guide box 48. secured on the inside of the side frame 1., said sliding bar connected and communicating motion to said rocking lever 44. through its connecting rod 49. The gage operating cam 45. is firmly secured on the shaft 50. journaled at its ends in the journals 51. and provided with the gear wheel 52. meshing with the gear wheel 10. secured on the main driving shaft and by which it is driven said gears so proportioned as to rotate the cam to regularly raise and lower the gages 42. at regular intervals of revolution of the main cylinder 11.

53. designates the glue reservoir which may be of any suitable form and is provided with the interior rotating roller 54. journaled at its ends in suitable bearings formed in the end of the reservoir 53. This roller dips into the liquid glue and is adapted to contact or nearly so with the peripheral surface of the gluing roller 55. which has its journals journaled in the adjustable bearings of the swinging arms 56. centered on the journals of roller 54 which permit said gluing roller to be moved concentrically with the latter roller nearer to or farther from the surface of the main cylinder 11. The gluing rollers 54. and 55. are positively connected by their gears 72. and 73. and driven by a belt surrounding the pulleys 74 and 75. The belt pulley 74 and the toothed wheel 73 are secured on the shaft of the roller 55, and the pulley 74 is arranged over the pulley 75 so that it may be driven from it by an ordinary driving belt. The toothed wheel 72 is secured on the shaft of the roller 54 and gears into the said wheel 73. When gluing the shorter lengths of cloth a portion of the peripheral surface of the cylinder 11. is left exposed and uncovered the amount of the exposed surface varying with the different sizes of the material used and in order to avoid this portion of the cylinder from being coated with the liquid adhesive matter I provide the adjustable cam 57. adjustably secured on the side of the main cylinder 11. and adapted to contact with the cam roller 58 secured on the projecting end of the journal of the gluing roller 55. to move it from contact with said surface of the main cylinder when rotated to the exposed portion of its periphery.

59. designates the stripping fingers of the cylinder firmly and removably secured to the side frames 1 and 2 by their retaining rods 50. and 61. resting in suitable grooves formed in the lugs 62. formed integral on the side frames 1. and 2. said fingers provided for the purpose of conducting the material from the periphery of the main cylinder 11. to the chain grippers 63. secured on the endless conveyer chain 64. The chain 64. is adapted to traverse in suitable guides 65. and is driven by the chain wheels 66. and 67. secured firmly on their shafts 68. and 69. journaled in suitable bearings formed in the side frames 1. and 2. said shaft 68. positively connected and driven by the gear wheel 70. meshing with the intermediate or idler 71. and engaging the driving wheel 52. secured on the cam shaft.

The operation of the machine is as follows:—The material to be coated with the adhesive material is placed on the operating table 37 and when the gages 42 have moved downwardly and rest on the gage fingers 39 one of the cloths or other material to be glued is moved forward till its edge is in contact with said gages 42. The cylinder 11. having rotated till in the position shown in Fig. 1. at which position the grippers 15 immediately move from their disengaging positions and grip or engage the leading end of the material which moves with the rotating cylinder 11. under the gluing roller 55 by which it is coated with the adhesive material and is at once released and discharged when said glued material contacts with the stripping fingers 59. which conduct it to the grippers 63. of the conveyer chain by which it is carried to a suitable repository or to another machine by which it is further operated upon.

Having thus fully described the nature, construction, and operation of my invention, what I claim as new and useful, and desire to cover by Letters Patent of the United States therefor, is—

1. In a gluing machine, the combination, with the revoluble main cylinder for carrying the material, of a reservoir for the glue, the roller 54 dipping into the glue reservoir, the arms 56 journaled on the shaft of the roller 54, the roller 55 journaled in the free ends of the said arms and bearing on the roller 54, toothed wheels connecting the shafts of the rollers 54 and 55, a roller 58 on the end of the shaft of the roller 55, and a cam secured on the side of the main cylinder and adapted to lift the said roller 58 at intervals, substantially as and for the purpose set forth.

2. In a gripping device for gluing machines, the combination with, a rotating cylinder and its engaging and disengaging grippers, of a rocking shaft whereon said grips are adjustably secured, fixed cams arranged in different planes a tumbling lever having cam roller carrying arms, said rollers adapted to contact alternately and to engage said cams a spring arm between said cam roller arms, and a suitable throw-out spring adapted to engage said spring arm, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

THOMAS DEAN.

Witnesses:
THOMPSON R. BELL,
JNO. GEO. THWETTS.