(No Model.)

3 Sheets—Sheet 1.

H. WINTERWERBER.

MACHINE FOR WINDING FABRICS.

No. 335,870. Patented Feb. 9, 1886.

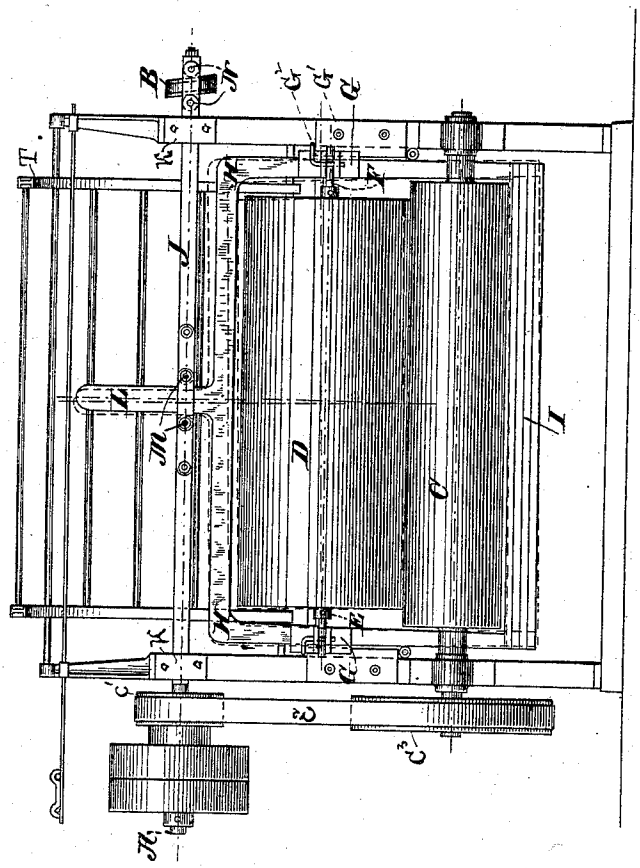


Fig. 2.

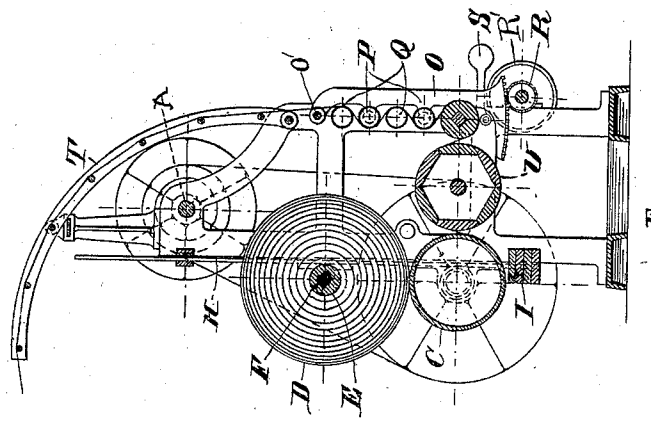


Fig. 1.

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R. F. Sanford

Inventor
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per H. Eichberg
his Atty

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 2.

H. WINTERWERBER.

MACHINE FOR WINDING FABRICS.

No. 335,870. Patented Feb. 9, 1886.

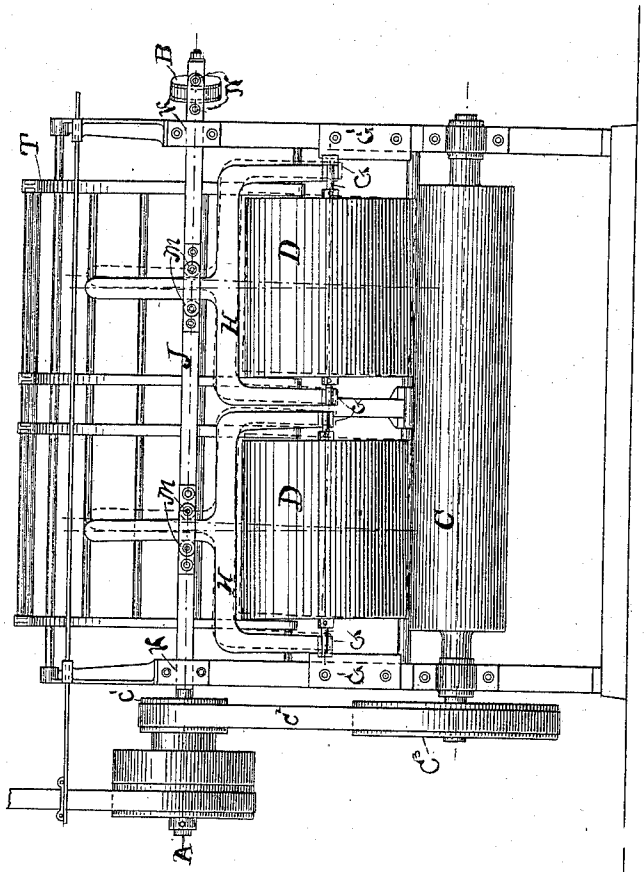


Fig. 4.

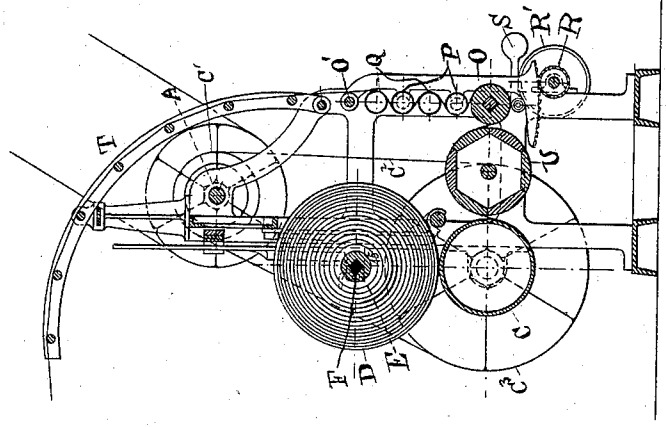


Fig. 3.

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(No Model.) 3 Sheets—Sheet 3.

H. WINTERWERBER.

MACHINE FOR WINDING FABRICS.

No. 335,870. Patented Feb. 9, 1886.

Fig. 5.

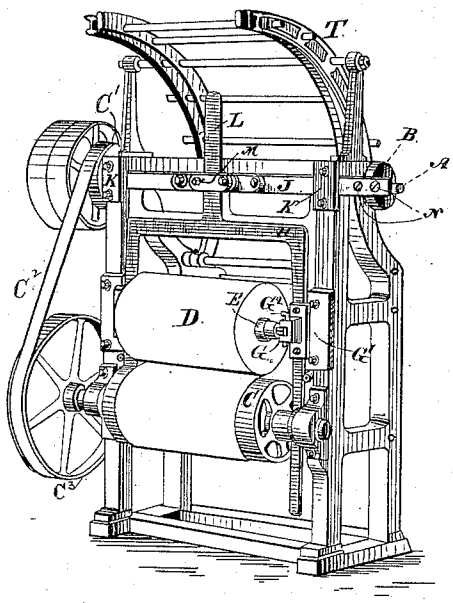


Fig. 7.

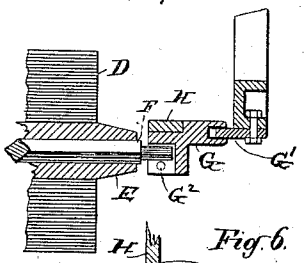


Fig. 6.

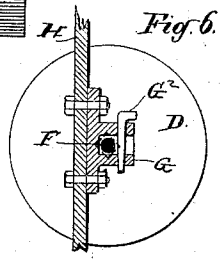


Fig. 8.

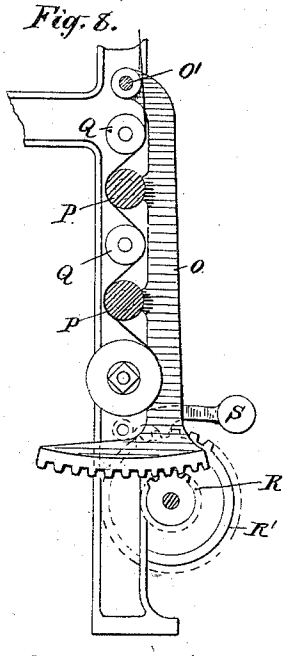
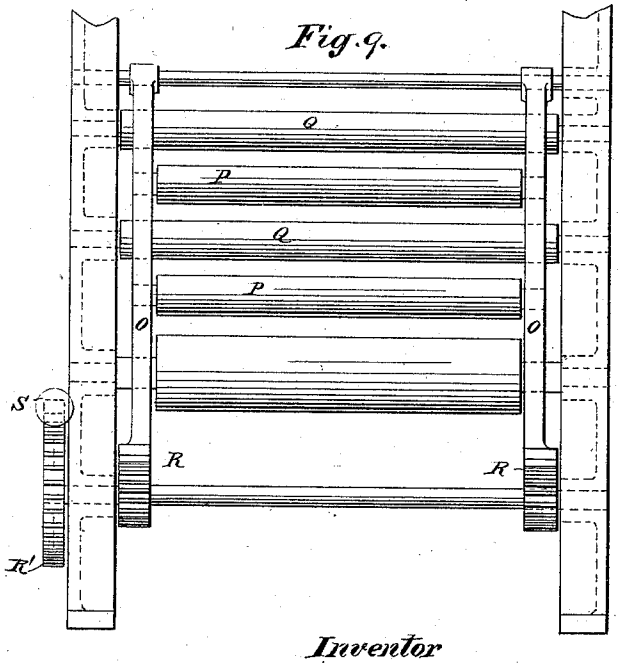


Fig. 9.



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UNITED STATES PATENT OFFICE.

HEINRICH WINTERWERBER, OF OFFENBACH-ON-THE-MAIN, GERMANY.

MACHINE FOR WINDING FABRICS.

SPECIFICATION forming part of Letters Patent No. 335,870, dated February 9, 1886.

Application filed February 10, 1885. Serial No. 155,536. (No model.) Patented in Germany July 6, 1877, No. 282.

To all whom it may concern:

Be it known that I, HEINRICH WINTERWERBER, of Offenbach-on-the-Main, Germany, have invented certain new and useful Improvements in Machines for Winding Fabrics, of which the following is a full, clear, and exact description, and will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings.

This invention relates to machines for winding into rolls or reels paper, cloth, or other textile fabrics or any like material. In winding such materials in the ordinary ways it is very difficult to keep the material perfectly true on the roll upon which it is wound and to prevent the occurrence of folds, wrinkles, and similar irregularities, which, it will be plain, cause the material to become more or less damaged and unsalable, and this is particularly true of richly-decorated papers and woven fabrics of fine texture.

The invention has for its object to automatically reel or wind the material into compact and regularly-formed rolls without forming folds, wrinkles, or the like; and it consists of a roll upon which the material is reeled, and which has a tilting or oscillating motion upon another stationary roll, and of tension-regulating rolls arranged in combination with the winding and stationary roll for delivering the material to the winding-roll under suitable tension.

In the drawings, Figure 1 is a central cross-section of a machine embodying the invention. Fig. 2 is a front elevation of the machine from the left of Fig. 1. Fig. 3 is a cross-section of a machine containing two winding-rolls. Fig. 4 is a front view of the same. Fig. 5 is a perspective view of the machine shown in Fig. 1, but with the tension-regulating mechanism omitted, as also the mechanism for weighting the winding-roll. Fig. 6 is a detail section through one of the bearings of the winding-roll, and showing the material wound thereon. Fig. 7 is a horizontal section through such roll and its bearings, viewed from above the roll. Fig. 8 is an enlarged vertical section through the tension-rolls; and Fig. 9 is an elevation of such rolls, looking from the right of Fig. 1.

In these views A represents the main or driving shaft, suitably journaled in the main frame of the machine and carrying a cam-wheel, B.

C is what I term the "driving-roll," which is journaled in stationary bearings on the main frame, and is driven by any suitable means—as the pulley C, the belt C^2, and pulley C^3—on the main shaft.

D is the cloth-roll, which is the roll made by winding the cloth or other material upon a removable winding-roll, E, consisting of a tube or sleeve carried on an angular-shaped axis or rod, F. G indicates the bearings of this axial rod, which bearings move vertically on ways G′, attached to the standards of the machine, Fig. 7, each of such bearings being also constructed to permit, by removing pin G^2, the removal of the winding-roll and its axis when the cloth roll has become sufficiently large, and the placing of another winding-roll upon the same axis.

H is a forked frame to which the bearings G of the winding-roll are attached, and which extends below such bearings, where it is provided with removable weights I, Fig. 1.

J is a bar held in place by straps K, secured to the frame of the machine, and bears against arm L of frame H by pins M, which permit the vertical movement of such frame, being arranged to also engage by pins N with the cam-wheel B on the main shaft, so as to derive a lengthwise reciprocating movement from such shaft.

O is a segment-arm, which is hung to the main frame at O′, carries tension-regulating rolls P, arranged between the tension-regulating rolls Q on the main frame, meshes with the pinion R on the shaft of the gear-wheel R′, and is moved to or from the stationary rolls Q by the turning of wheel R′, being held at any desired position by a weighted dog, S, which engages the teeth of wheel R′.

T is a guide-frame, which directs the material to the tension-rolls, and U is a roll arranged between the tension mechanism and the winding-roll, over which passes the material on its way to the driving-roll.

Figs. 3 and 4 show a machine adapted to wind two or more rolls of fabric or paper simultaneously. The construction and arrangement here is in all respects substantially the same as that shown in the other figures, the only

actual difference being that in thus bringing two machines into one, the reciprocating bar J, which tilts the winding-rolls, and the driving-roll C which revolves them, are lengthened, so as to operate upon both winding-rolls. The weights I are omitted in this modification.

The material to be wound into rolls may come directly from a machine that has manufactured or otherwise operated upon it, and, passing between the fixed and movable rolls of the tension-regulating mechanism, runs partly around the driving-roll and upon the winding-roll, which has previously been put in place upon its axis and hung in its bearings. Putting the main shaft in motion causes the driving-roll to revolve, and it in turn revolves the winding-roll and winds upon it the material running through the machine, the winding-roll bearings rising vertically as the roll increases in size. Meanwhile the driving-shaft also causes the sliding bar to oscillate and give the forked frame a rocking or tilting motion, which causes the ends of the winding-roll to be alternately lifted from the driving-roll, as shown by dotted lines in Figs. 2 and 4, and while still revolving and winding the fabric thereon. This combined circular and up-and-down motion of the winding-roll causes the edges of the material being wound thereon to be loosed on one side thereof while held at its other side or edge, and then loosed at its opposite side and held at the side before loosed, thereby forcing out the air from between the layers, taking out the folds and wrinkles in the material and compacting the layers upon one another as closely as may be required, this latter being regulated by the adjustment of the tension-regulating mechanism. This tension-regulating mechanism is not necessary to the effective winding of the fabric, but is a convenient means for governing at will the closeness with which the fabric shall be wound, and also governing the degree to which the fabric shall be stretched or pulled out by the rise and fall of the winding-roll. To adjust this mechanism, it is only necessary to raise the weighted dog and revolve the gear-wheel with which it engages, when the movable tension-rolls will be moved closer to or farther from the stationary tension-rolls, and the fabric will thereby be held more closely or loosed, as the case may be.

What I claim as new is—

1. The combination of the winding-roll upon which the material is wound with the driving-roll supporting the winding-roll and mechanism, substantially as described, for alternately lifting and lowering the ends of the winding-roll, as and for the purpose set forth.

2. The combination of the winding-roll upon which the material is wound with the driving-roll supporting the winding-roll, mechanism, substantially as described, for alternately lifting and lowering the ends of the winding-roll, and the tension-regulating rolls, as and for the purpose set forth.

3. The combination of the winding-roll E, the driving-roll C, the bearings G, the frame H, the angular axis F, removably journaled in bearings G on the frame H, the bar J, and the cam-shaft A, having cam B, all substantially as described.

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