(No Model.)

D. A. ANDREWS.

PARAFFINE PAPER MACHINE.

No. 367,886. Patented Aug. 9, 1887.

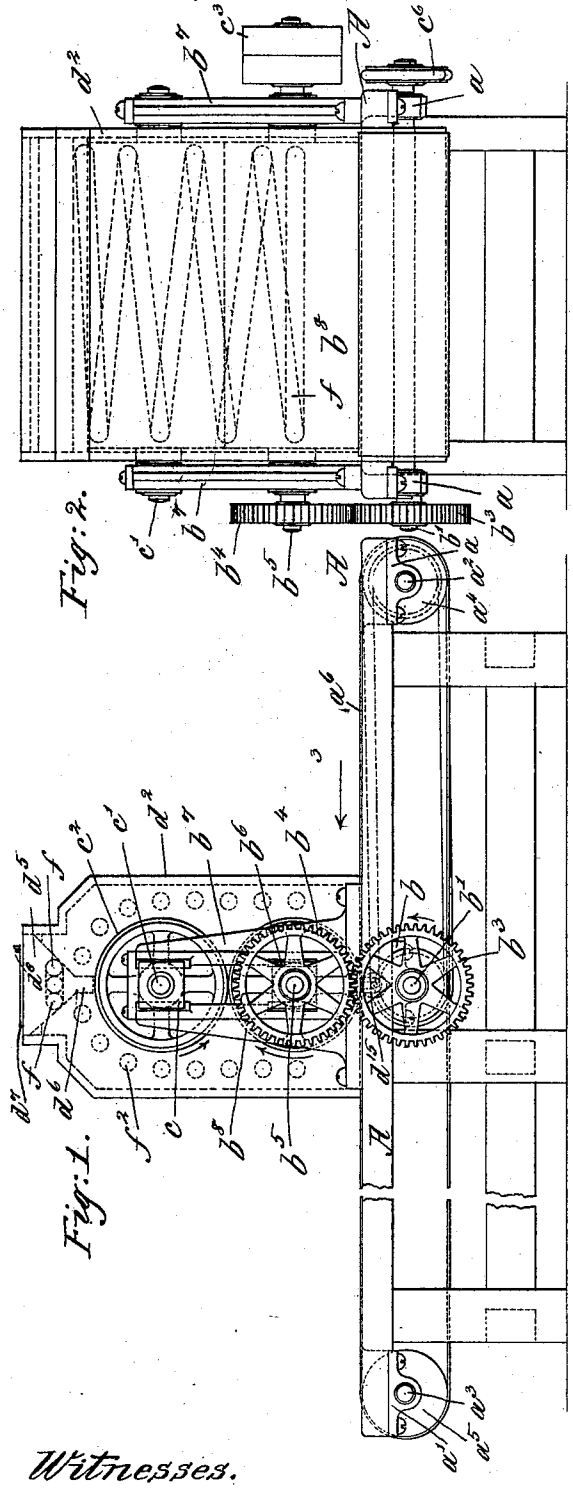

Fig. 2.

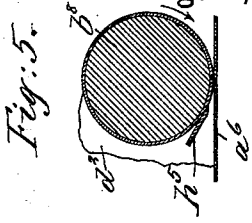

Fig. 5.

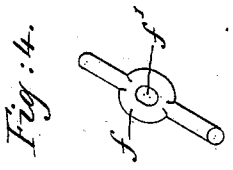

Fig. 4.

Fig. 1.

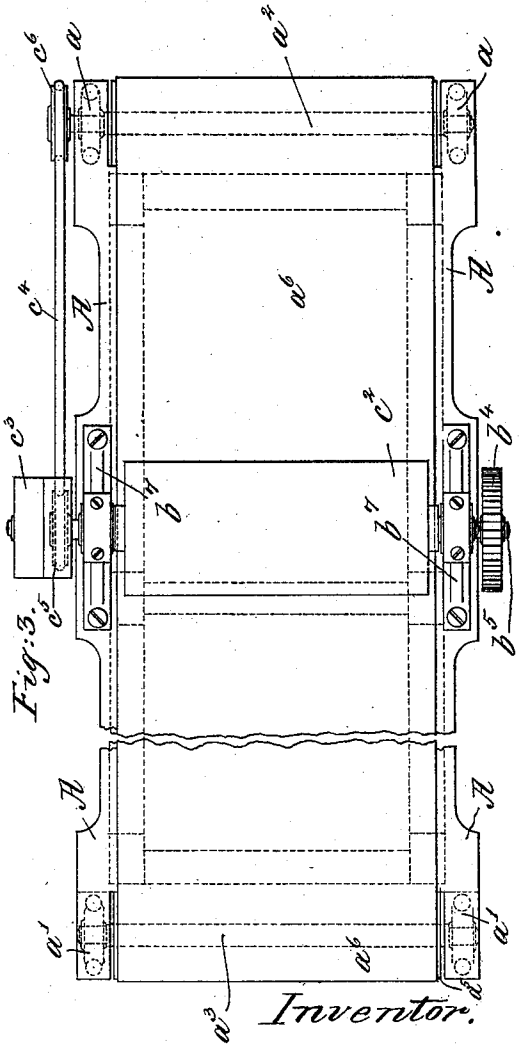

Fig. 3.

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UNITED STATES PATENT OFFICE.

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PARAFFINE-PAPER MACHINE.

SPECIFICATION forming part of Letters Patent No. 367,886, dated August 9, 1887.

Application filed July 31, 1886. Serial No. 209,642. (No model.)

To all whom it may concern:

Be it known that I, DAVID A. ANDREWS, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Paraffine-Paper Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to provide apparatus in which paper or other material may have applied to its surface paraffine or other wax-like substance. The paper or other material is laid, preferably in sheet form, upon an endless belt or apron caused to travel beneath and in contact with a roller or cylinder, which applies the paraffine or other wax-like substance upon the paper or other material laid upon the said endless belt or apron. The cylinder or roller referred to has secured to it and forming the surface thereof a layer of felt or other like material, which has the paraffine or other wax-like substance applied or imparted to it by a second roller, the latter roller also having a layer of felt or other material secured to it, which receives the paraffine or other wax-like substance from a suitable receptacle, shown as placed above it. The rollers or cylinders referred to will be inclosed in a chamber heated sufficiently to maintain the paraffine or other wax-like substance in a sufficiently softened or fluid state to permit it to be taken from the receptacle and evenly applied to the paper or other material by the cylinder or roller in contact therewith.

My invention consists, essentially, of a traveling belt upon which paper or other material is laid, combined with a cylinder or roller located above the belt and adapted to apply paraffine or other wax-like substance to the said paper or other material, and with gearing to revolve the said belt and rotate the said cylinder.

My invention also consists of a traveling belt upon which paper or other material is laid, a cylinder or roller located above the said belt and adapted to apply paraffine or other wax-like substance to the said paper or other material on the said belt, a second cylinder to distribute the paraffine or other wax-like substance upon the first cylinder, and a receptacle to contain the wax-like material, combined with means to heat the wax-like material in the said receptacle and on the cylinders, and with gearing to move the belt and rotate the said cylinders.

Other features of my invention will be pointed out in the claims at the end of this specification.

Figure 1 is a side elevation of an apparatus by which to practice my invention; Fig. 2, an end view of Fig. 1, looking toward the left; Fig. 3, a top or plan view of Fig. 1, with the heated chamber and its contained pipes removed; and Figs. 4 and 5, details to be referred to.

The sides A of a supporting-frame of any suitable construction have secured to their opposite ends bearings a a', for shafts a^2 a^3, the said shafts having mounted thereon rollers or cylinders a^4 a^5, respectively, over which is passed an endless supporting and feeding belt or apron, a^6, of canvas, leather, or other suitable material. The sides A also support bearings b for a shaft, b', herein shown as located near the center of the apparatus, the said shaft having at one end a gear, b^3, in mesh with a gear, b^4, on a shaft, b^5, located, as herein shown, above and in line with the shaft b'. The shaft b^5 has its bearings in suitable boxes, b^6, supported in uprights or standards b^7, secured to the sides A, and has mounted upon it a roller or cylinder, b^8. (See dotted lines, Figs. 1 and 2.) The standards b^7 above the roller b^8 support journal-boxes c for a shaft, c', having a roller or cylinder, c^2, the surface of the cylinders b^8 and c^2 having a layer of felt or other like material secured thereto.

The shaft b^5 is rotated by means of driving-belt, (not shown, but which is passed about a pulley, c^3, on the said shaft at one side of the apparatus, as shown in Fig. 3,) the rotation of the shaft b^5 revolving the shaft b' through the gears b^4 b^3.

The revolution of the shaft b' rotates the cylinder a^4 by means of a belt, c^4, passed about a pulley, c^5, on the shaft b' (see dotted lines, Fig. 3) and a pulley, c^6, on the shaft a^3, the rotation of the cylinder a^4 causing the endless belt a^6 to travel over it and the roller a^5.

As the endless belt is moved, as described, it passes over a small roller, a^{15}, having its bearings, as herein shown, in slots in the sides

A, as clearly shown in Fig. 1, the said endless belt passing between the roller d^{15} and the roller or cylinder b^8, located above it.

The rollers or cylinders b^8 and c^2 are inclosed within a chamber, d^2, provided at its top with a receptacle, d^5, herein shown as conical in shape, (see Fig. 1,) and provided with a narrow neck, d^6, through which the paraffine or other wax-like substance passes to the cylinder c^2, the said paraffine being fed into the receptacle through a door, d^7, at its top, provided with a valve, d^8, of any suitable construction.

The receptacle d^5 is heated to a temperature sufficient to maintain the paraffine or other wax-like substance, preferably in a somewhat fluid condition, by means of a pipe, f, located within the receptacle, the said pipe being preferably formed to leave an opening, f', (see Fig. 4,) through which opening the paraffine or other material passes to the neck d^6 of the receptacle.

The pipe f may have one end connected to a steam-boiler or other source of heat and its other end connected to a coil of pipe, f^2, located within the chamber d^2, the said pipes f^2 maintaining the paraffine or other wax-like substance in a substantially fluid condition on the cylinders.

In operation the paper or other material, preferably in sheet form, is laid upon the endless supporting and feeding belt at one side of the chamber d^2, it being in the present instance supposed to be laid on the belt at the right of the said chamber in Fig. 1, the endless belt moving in the direction of the arrow 3, the chamber d^2 being a sufficient distance above the endless belt a^6 to permit the said belt to pass beneath it. As the endless belt and the paper or other material thereon are passed between the cylinder b^8 and roller d^5, the paraffine or other wax-like substance on the felt or other surface or covering of the cylinder b^8 is applied to the said paper or other material as it passes beneath the said cylinder. The felt or other surface on the cylinder b^8 has the substantially fluid paraffine imparted to it by the cylinder c^2 likewise covered with a surface of felt or similar material, the cylinder c^2 being rotated, as herein shown, by contact with the cylinder b^8. The felt or other surface of the cylinder c^2 in its rotation wipes across the neck d^6 of the receptacle d^5, receiving therefrom the substantially fluid paraffine or other wax-like substance and imparting it to the surface of the cylinder b^8, which in turn applies the said paraffine to the surface of the paper or other material carried by the endless belt.

The flow of the substantially fluid paraffine from the receptacle d^5 may be accelerated by opening the valve d^8 to admit air to the receptacle, or it may be stopped by closing the said valve. The paper or other material, after being covered with paraffine or other wax-like substance, will be carried forward by the endless belt toward the end of the apparatus—that is, to the left of Fig. 1—and will then be taken from the endless belt in any suitable manner, such as by a machine.

In order to remove the paper from the roller b^8, if it should adhere thereto, I have herein shown in Fig. 5 a "doctor," consisting of a knife or blade, h^5, which bears against the said roller, it being but a slight distance above the belt a^6, the said doctor detaching the paper from the roller and permitting it to fall upon the belt.

I claim—

1. In an apparatus for paraffining or waxing paper or other material, a traveling belt upon which paper or other material is laid, combined with a cylinder or roller located above the said belt and adapted to apply paraffine or other wax-like substance to the said paper or other material, and with gearing, substantially as described, to revolve the belt and rotate the said cylinder, substantially as specified.

2. In an apparatus for paraffining or waxing paper or other material, a traveling belt upon which paper or other material is laid, combined with a cylinder or roller located above the said belt and adapted to apply paraffine or other wax-like substance to the said paper or other material, and a second cylinder to distribute the paraffine or other wax-like substance upon the first cylinder, and with gearing, substantially as described, to move the said belt and rotate the cylinders, substantially as specified.

3. In an apparatus for paraffining or waxing paper or other material, a belt upon which the paper or other material is laid, the cylinder b^8, the cylinder c^2, and receptacle to contain the wax-like material, located above the cylinder c^2, and from which it is taken by the said cylinder c^2, combined with gearing, substantially as described, to move the belt beneath and past the cylinder b^8 and rotate the said cylinders, substantially as set forth.

4. In an apparatus for paraffining or waxing paper or other material, a traveling belt upon which paper or other material is laid, combined with a cylinder or roller located above the said belt and adapted to apply paraffine or other wax-like substance to the said paper or other material upon the belt, and a second cylinder to distribute the paraffine or other wax-like substance upon the first cylinder, a receptacle located above the belt to contain the wax-like material, combined with means, substantially as described, to heat the wax-like material in the said receptacle and on the cylinders, and with gearing, substantially as described, to operate the belt and cylinders, substantially as specified.

5. In an apparatus for paraffining or waxing paper or other material, a traveling belt upon which paper or other material is laid, combined with a cylinder or roller located above the said belt and adapted to apply paraffine or other wax-like substance to the said paper or other material upon the belt, and a second cylinder to distribute the paraffine or

other wax-like substance upon the first cylinder, a receptacle located above the belt to contain the wax-like material, and provided with a valve, combined with means, substantially as described, to heat the wax-like material in the said receptacle and on the cylinders, and with gearing, substantially as described, to operate the belt and cylinders, substantially as specified.

6. In an apparatus for paraffining or waxing paper, a belt to receive the paper, means to move the belt, two rolls, and a receptacle from which to supply the said rolls with paraffine or wax, combined with a heated chamber in which the said rolls are inclosed, and with means to rotate the said rolls, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DAVID A. ANDREWS.

Witnesses:
G. W. GREGORY,
J. H. CHURCHILL.