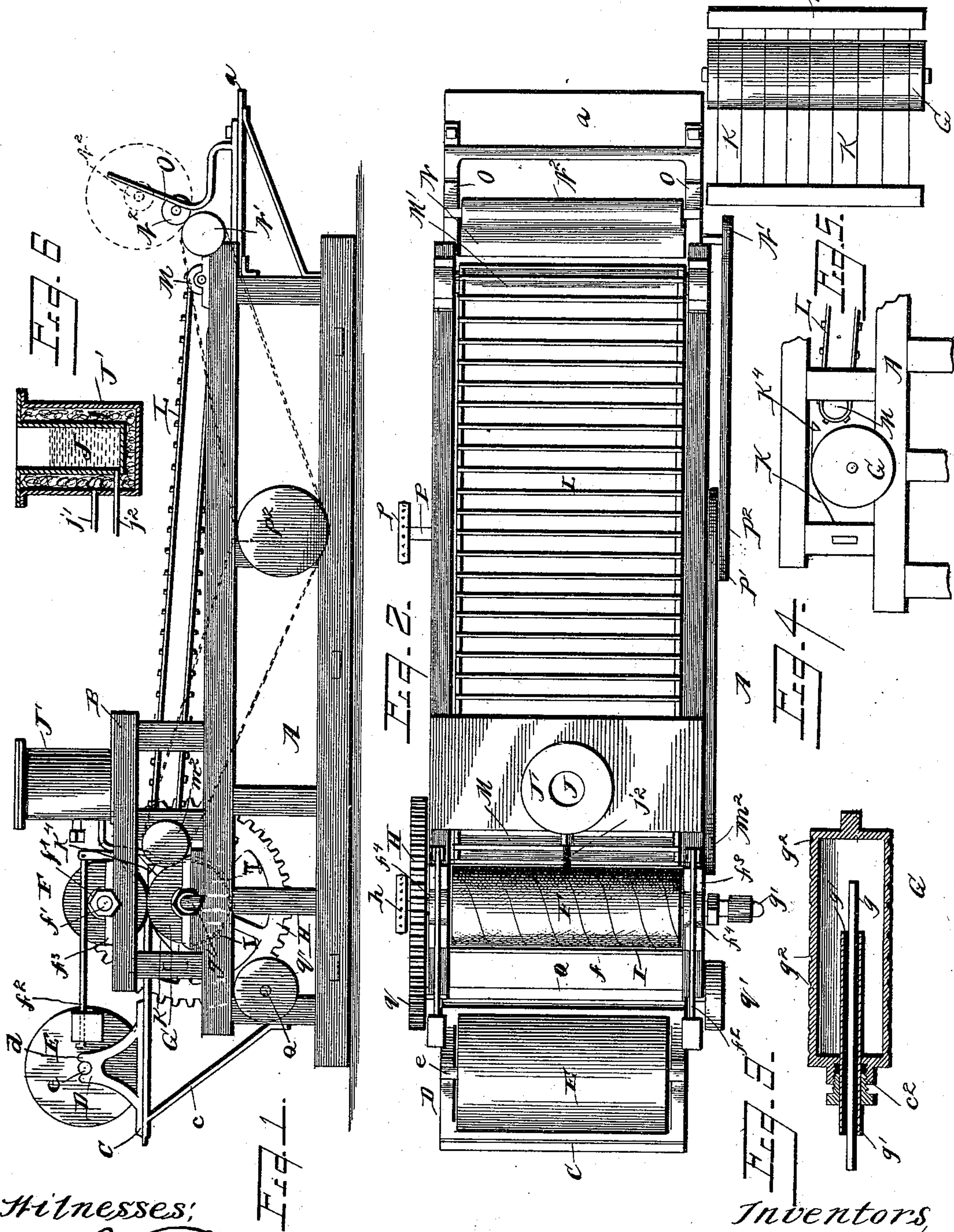


(No Model.)

A. WATTS & R. HENRY.
MACHINE FOR APPLYING WAX TO PAPER.

No. 428,190.

Patented May 20, 1890.



Fitnesses:

Geo. J. Froese
Douglas, Dismal

Inventors,

Alfred Watts and
Robert Henry,

by

Res. Dyrenforth.
their Attorney.

UNITED STATES PATENT OFFICE.

ALFRED WATTS AND ROBERT HENRY, OF BRANTFORD, ONTARIO, CANADA.

MACHINE FOR APPLYING WAX TO PAPER.

SPECIFICATION forming part of Letters Patent No. 428,190, dated May 20, 1890.

Application filed September 6, 1886. Serial No. 212,868. (No model.) Patented in Canada July 21, 1886, No. 24,554.

To all whom it may concern:

Be it known that we, ALFRED WATTS and ROBERT HENRY, subjects of the Queen of Great Britain, residing in the city of Brantford, in the county of Brant, in the Province of Ontario, Canada, have jointly invented certain new and useful Improvements in Machines for Applying Wax to Paper, (for which we have obtained Letters Patent in Canada, No. 24,554, bearing date July 21, 1886;) and we hereby declare the following to be a full, clear, and exact description.

Our invention relates to machines for applying wax to paper.

The object is to produce a machine for this purpose which shall possess merit in point of simplicity and cheapness of construction, and which will apply the wax in a rapid and perfect manner.

To these ends the invention, briefly stated, consists in a suitable frame having journals thereon and two revolving cylinders, one of which is formed with peripheral grooves and takes up wax from a trough and transfers it to the paper, while the other is covered with soft material and acts as a friction-cylinder to hold the paper in contact with the waxing-cylinder. A series of wires or their equivalent, to serve as guides for the paper to the rollers, are mounted in the manner hereinafter described. A wax-reservoir, provided with a hot-water, steam, or air jacket, is mounted upon the frame and communicates with the wax-trough. An endless apron or band is suitably arranged to carry the paper from the cylinders to a take-off roller, which latter is adapted to slide up and down to compensate for the increased diameter of the paper wound thereon after being waxed, and details of construction and arrangement of parts are adopted, substantially as hereinafter more fully described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of our machine. Fig. 2 is a plan view of the same. Fig. 3 is a sectional view of the waxing-cylinder, showing the means for heating the same. Fig. 4 is a detail view of a part of the machine. Fig. 5 is a plan view of the guide-wires and waxing-cylinder, and Fig. 6 is a sectional view of the wax-reservoir.

A is the frame of the machine, upon which is mounted the frame-work or extension B.

In suitable bearings provided in the extension B is mounted the waxing-cylinder G, the construction of which (shown in detail in Fig. 3) is as follows: The cylinder is hollow and provided with peripheral grooves g^2 . One end is perforated to receive the steam-pipes g g' , one within the other, the former conveying steam thereto from any suitable source, and the latter serving to discharge the steam therefrom. It is preferred to provide a stuffing-box c^2 for its ordinary function. By this construction it will be apparent that the waxing-cylinder is uniformly heated by a constant supply of steam.

F designates the friction-cylinder, which may also be hollow and is covered with soft material, such as flannel. It is mounted in open journal-boxes f^3 in the frame or extension B, and upon its journal f' rests blocks or pins f^4 , which are held in place in said journals by weighted levers f^2 , pivoted in the extension. By this construction the cylinder is permitted to yield, and the weighted levers serve effectually to prevent the journals thereof from leaving the boxes. The journals of the friction-cylinder are directly above those of the waxing-cylinder, and by the construction adopted in connection with the former a frictional contact between the two cylinders is maintained, serving to prevent the paper from adhering to the waxing-cylinder in its passage through the machine. A trough I, which may be of thin metal and semi-cylindrical in form, is located below the waxing-cylinder G, and is in such a position that it may supply wax to the latter for transfer to the paper. Between the waxing and the friction cylinder, and arranged in the grooves g^2 of the former, are the wires k of the paper-guide K, (see Figs. 4 and 5,) for guiding the paper between said rollers. The wires are secured at one end to a cross-piece in the frame and at the other to a cross-piece k^4 , which may be free to have a slight vertical movement.

At the upper end of the frame is provided a table C, supported by a brace c , and carrying the bracket D, having the bearings d for the journal e of the paper-feed drum or roller E, from which the paper to be waxed is supplied over the guide-wires to the cylinders.

Suitably supported on the extension B, in a plane preferably above the waxing-cylinder,

is the wax-reservoir J', which, as shown in Fig. 6, comprises an interior wax-receptacle J, surrounded by the steam, hot-air, or hot-water jacket *j*. The heating-fluid is fed from any suitable source through the pipe *j'*, and the melted wax is conveyed from the wax-receptacle through the pipe *j*² to the trough I, its flow being regulated, if desired, by a valve or cock (not shown) in the ordinary manner.

Directly in front of the guide-wires *k*, and journaled in the frame or extension B, is a roller M, carrying the sprocket-wheel *m*² on the outside of the frame. A similar roller M' is mounted at the opposite end of the machine in bearings formed on the frame A, and these two rollers carry the endless belt or band L. A table *a* is mounted at the end of the frame A in the form of an extension of the latter and carries the inclined frame O. Journaled near the lower end of said frame O is a guide-roller N, having the sprocket-wheel N' outside the frame, and a take-off roller is mounted in sliding bearings above the roller N and in contact with the frame O. The purpose of the roller N² is to receive the paper after it is waxed, and as the roll increases in radius the roller rises, thus compensating for the increase. We have shown in dotted lines, Fig. 1, the location of the roller N² after a quantity of paper has been wound thereon.

Operation is given to the parts by the following mechanism: The waxing-cylinder carries the external gear-wheel H, meshing with a pinion *q* upon a transverse shaft Q, carrying a sprocket-wheel *q'* on the opposite side of the machine, which is driven from a suitable source of power. The spindle of the waxing-cylinder also carries a small sprocket-wheel *h*, which transmits motion by means of a chain or belt (not shown) to the sprocket *p*, mounted on the shaft P, centrally located in the frame A. The opposite end of the shaft P carries the sprockets *p'* *p*², which are connected by a chain or belt with the sprocket *m*² on the roller M and the sprocket N' on the roller N. The effect of the gear-connection explained is to cause by the revolution of the sprocket-wheel *q'* the revolution of the waxing-cylinder G, the friction-cylinder F, the endless apron L, and the take-off rollers, as will readily appear.

The operation of the device is as follows: A roll of paper being provided, as at E, and the end of the paper fed to the waxing-cylinders over the guide-wires *k*, the gear being

in operation feeds the sheet onward to the take-off rollers, where it is formed into a roll and removed, its under side having been uniformly waxed by the waxing-cylinder. The grooves *g*² are of a sufficient depth to receive the wires and afford a smooth surface upon the waxing-cylinder for contact with the sheet.

An important advantage of our construction is found in its simplicity and the fact that the operating parts can be readily removed for purposes of inspection and cleaning.

What we claim as new, and desire to secure by Letters Patent, is—

1. A paper-waxing machine comprising a main frame and an upward extension, a waxing-cylinder journaled in the frame and formed with peripheral grooves, a friction-cylinder covered with soft material and journaled in boxes, a weighted lever holding the journals of the friction-cylinder in position, a series of curved guide-wires located between the cylinders, a feed-table, a wax-reservoir, and a wax-trough, substantially as described.

2. A waxing-machine comprising a waxing-cylinder formed with peripheral grooves, a wax-trough, a friction-cylinder covered with soft material, a weighted lever to keep the friction-cylinder in position, a series of curved guide-wires, an apron, an inclined frame adapted to carry the take-off roller, and a friction-roller to operate the take-off roller, substantially as described.

3. A waxing-machine comprising a waxing-cylinder provided with a large gear-wheel, a smaller gear-wheel on a driving-shaft provided with a pulley, a wax-containing trough, a wax-reservoir having an inner chamber and a heating-jacket, a friction-cylinder, weighted levers bearing on the journals of the friction-cylinder, an apron, a take-off roller and friction-roller therefor, a pulley on a centrally-located shaft, and a belt connecting the pulley on the driving-shaft with the pulley on the centrally-located shaft, and other belts connecting the friction-roller for operating the take-off roller and the pulley on the centrally-located shaft and the apron-rollers, substantially as described.

A. WATTS.

ROBERT HENRY.

Witnesses:

H. F. LEONARD,
A. WATTS, Jr.