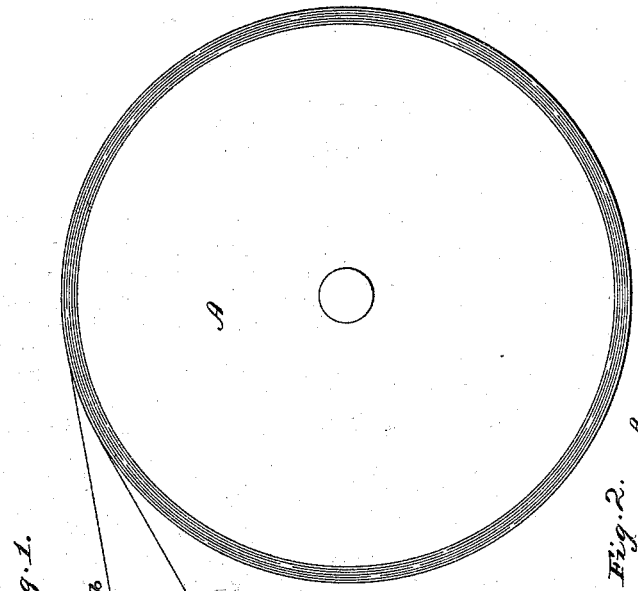
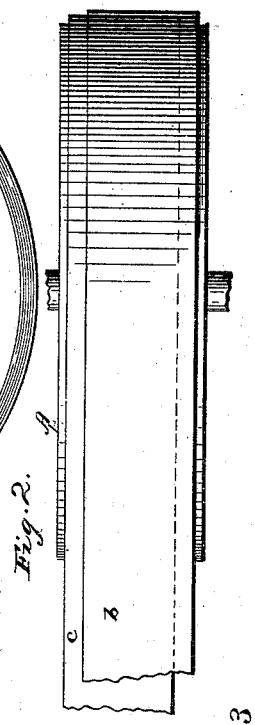
(No Model.)

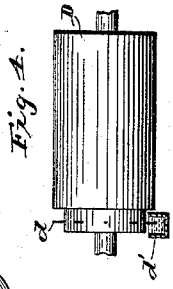
O. H. HICKS.

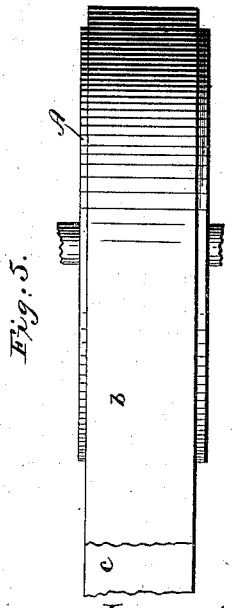
APPARATUS FOR MAKING BUNDLES OF TOILET PAPER.

No. 492,204. Patented Feb. 21, 1893.









Witnesses.
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR MAKING BUNDLES OF TOILET PAPER.

SPECIFICATION forming part of Letters Patent No. 492,204, dated February 21, 1893.

Original application filed January 23, 1886, Serial No. 189,520. Divided and this application filed March 26, 1888. Serial No. 268,585. (No model.)

To all whom it may concern:

Be it known that I, OLIVER H. HICKS, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Apparatus for Making Bundles of Toilet Paper; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, and to the letters of reference marked thereon.

My present invention consists of an improved apparatus for manufacturing bundles of toilet paper, particularly those constructed in accordance with Letters Patent No. 309,717 granted me December 23, 1884, according to a method described and claimed in my application Serial No. 189,520, filed January 23, 1886, of which this application is a division, and it consists of an apparatus hereinafter described.

In the drawings: Figure 1 is a side elevation of an apparatus constructed in accordance with my present invention. Fig. 2 is a top plan view of the winding drum and the paper thereon. Fig. 3 is a side view of the paper when removed from the drum and before being severed into bundles. Fig. 4 is a view of one of the gumming rolls. Fig. 5 is view of a modification.

Similar letters of reference in the several figures indicate the same parts.

As described in my former patent referred to the proximate sheets of paper may or may not be secured to each other at one or both points by a line or lines of gum. When the form of bundle in which the sheets are not secured together, is to be made, I provide a suitable drum A on which the paper is to be wound into a band before being separated into bundles.

B and C represent two rolls of tissue paper, the webs extending from said rolls to the winding drum one above the other and having their ends secured thereto in any suitable manner. These rolls are so set relative to the drum A that the edges of the web *b* slightly overlap the corresponding edge of the web *c* so that as the drum A, to which the power is applied (the other rolls preferably running free or else geared so as to revolve at the same speed as the drum) rotates and draws the paper from the rolls onto it, it will form a band of paper consisting of successive layers one edge of each layer overlapping that of the next preceding. Suitable tension devices B′ C′ may be employed to insure even winding of the paper on drum A. When a sufficient quantity of paper has been wound upon the winding drum, it is cut through from the outside to the drum and removed from the drum forming a bundle of paper as shown in Fig. 3, which is cut through transversely as indicated by the dotted lines, thus forming bundles consisting of sheets having alternate overlapping ends as described in my former patent.

The tension devices shown, consist of stationary boards or projections *m* under which the paper passes, while pivoted weighted flaps *n* bear upon the paper and hold it against said projections causing even tension to be given. These tension devices for the strips it will be seen are arranged in substantially the same plane, thus all the strips may be acted on simultaneously and drawn to one tension forming a smooth regular bundle.

Sometimes it is desirable to form the bundles of paper with the overlapping ends of the sheets secured to the proximate sheet so that when one sheet is removed the end of the next one will be pulled positively in position where it may be more easily grasped by the operator and removed as in my prior patent. When this form of bundle is to be made I preferably, in addition to the instrumentalities described, employ two gumming rollers D, E between the rolls B and C and the winding drum, consisting preferably of a cylindrical roller having a broad bearing surface and at one end provided with a series of pins or projections *d* and *e* which, when the rolls revolve, dip into receptacles *d′* and *e′* containing weak solutions of paste, mucilage or analogous substance. The projections *d* are placed at the left hand end of the roll D, as shown by dotted lines, while those on the roll E are on the right hand end, so that as the webs of paper pass over them the gum will be applied to the inside edges of the two sheets and when they are wound upon the drum the inner edge of each layer will be secured to

the preceding layer a short distance from its corresponding edge so as to form a bundle having one edge of each layer overlapping that of the next preceding, alternately. The gum applied to the underside of web *c* will cause this to adhere at the points mentioned to the outside layer of the paper on drum A, while that applied to web *b* will cause it to adhere to layer *c* as will be readily understood. The paper is separated from the winding roll by being cut through as before and this bundle is then cut transversely into suitable smaller bundles as shown, consisting of a number of sheets of paper one end of each sheet overlapping that of the next succeeding sheet alternately and the inner end of each sheet being secured removably to the next as also described in my before mentioned patent.

If it is desired to form bundles of paper in which the ends of the sheets do not overlap alternately, but in which they are secured to each other a short distance from the end, I move the two rolls D and E so that the web will run to the winding drum with their edges parallel and move the gumming rolls so that as the webs run over them the line of gum will be placed a short distance back from the edges. When a sufficient quantity of paper from these rolls D and C has been wound upon the drum the layers being stuck together, the band thus formed is separated from the drum and cut into bundles, as previously described with relation to the other forms of bundles.

I do not desire to be understood as limiting myself to precisely the arrangements herein shown and described, but modifications, such as would occur to those skilled in the art can be made without departing from my invention, as for instance the rolls of paper could be in line and suitable guides employed for causing one of the webs to overlap the other as described.

Having thus described my invention, what I claim as new is—

1. In an apparatus for winding separate strips of paper together for the purpose specified, the combination with the winding drum of supports for the separate rolls or strips having their axes in planes substantially parallel with the plane in which the axis of the winding drum is located and arranged to guide the strips onto the winding drum with their edges overlapping; substantially as described.

2. In an apparatus for winding separate strips of paper together, the combination with the winding drum, of means substantially as described for holding the rolls for the separate strips with the plane of the end of one roll intersecting the other roll whereby the paper is wound with the edges of the separate strips overlapping said rolls and drum being arranged with their axes in substantially parallel planes whereby the paper is wound squarely on the drum substantially as described.

3. In an apparatus for winding separate strips of paper together, the combination with the winding drum, and paper roll supports, arranged in substantially parallel planes of the tension devices through which the paper passes located in substantially the same plane whereby the overlapping strips may be acted upon; substantially as described.

OLIVER H. HICKS.

Witnesses:
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