Apr. 17, 1923. 1,452,227

L. A. STRAUBEL

PAPER CUTTING MACHINE

Filed Nov. 8, 1921 2 Sheets-Sheet 1

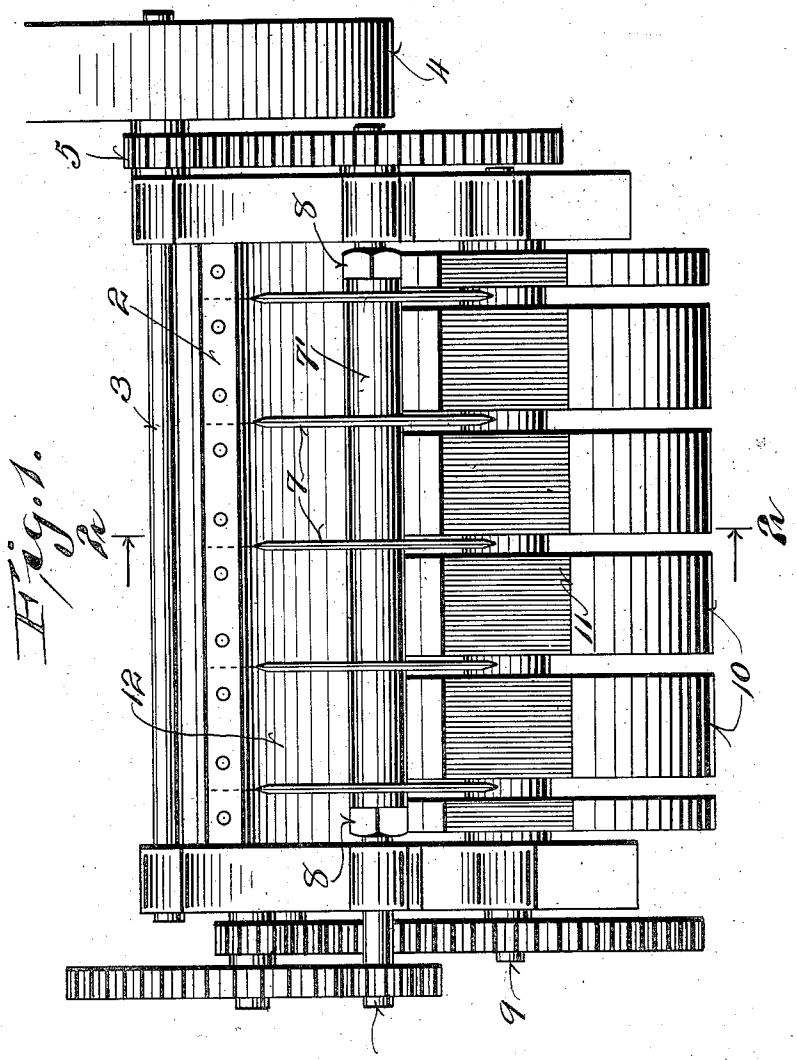


Fig. 1.

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Fig. 3.

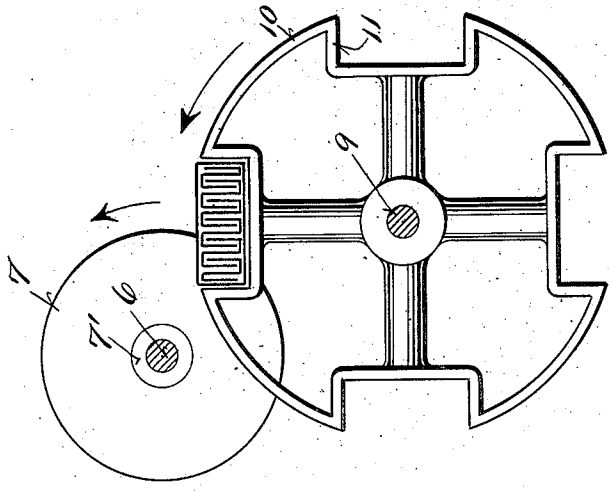
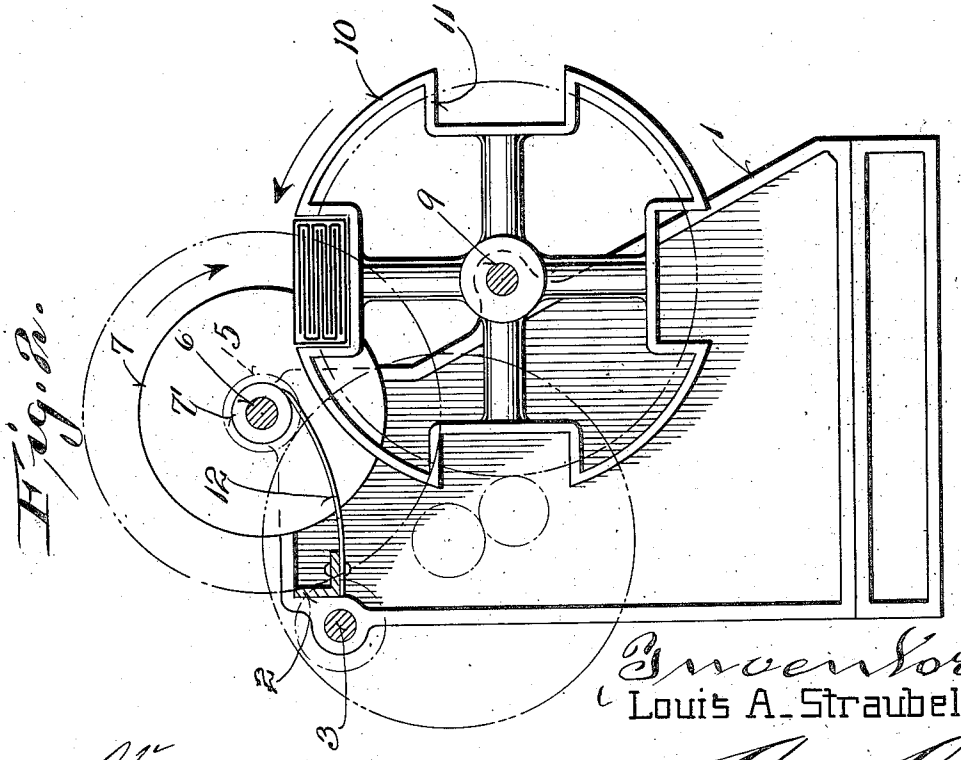


Fig. 3a.



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UNITED STATES PATENT OFFICE.

LOUIS A. STRAUBEL, OF GREEN BAY, WISCONSIN.

PAPER-CUTTING MACHINE.

Application filed November 8, 1921. Serial No. 513,632.

To all whom it may concern:

Be it known that I, LOUIS A. STRAUBEL, a citizen of the United States, and resident of Green Bay, in the county of Brown and State of Wisconsin, have invented certain new and useful Improvements in Paper-Cutting Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention pertains to "paper cutting machines" and more particularly to machines for cutting bundles of interfolded sheets into commercial packages.

At the present time, it is common practice to put up in packages, interfolded sheets of toilet paper, paper toweling, and the like, in which the ends of each sheet are interfolded with the ends of the adjacent sheets. This interfolding operation is performed on exceedingly wide sheets, resulting in a long bundle which has to be cut into proper commercial length or packages. This particular interfolding arrangement of the sheets of paper results in a bundle having lesser density at the folded edges than in the center, due to the fact that the end of the paper disposed between the adjacent fold does not reach to the crease of the fold, leaving only two thicknesses of paper on the folded edge, with three thicknesses in the center.

In using the ordinary paper cutter it is necessary to press the sheets solidly together to obtain a clean cut, and this being impossible with the interfolded arrangement above described, the edges are left rough and uneven.

It is, therefore, an object of my invention to provide a simple and economical machine which will cut bundles of interfolded paper edgewise and leave a clean sharp edge without necessitating any further pressing other than that received during the formation of the bundle.

With the foregoing and other objects in view, which will be more apparent as the description proceeds, my invention consists in what is herein shown and described and more particularly pointed out and defined by the appended claims.

In the drawings I have shown one embodiment of the invention, but it will be understood that various changes in details of construction are contemplated within the scope of the appended claims.

In the drawings,

Figure 1 is a plan view.

Figure 2 is a transverse sectional view taken on the line 2—2 of Figure 1, and

Figure 3 is a view similar to Figure 2, showing the operation of the machine in cutting bundles of double folded sheets.

Referring now more particularly to the accompanying drawings, a pair of side standards are designated by the numeral 1, which standards are connected by the angle iron 2. Journalled in the standards 1 at the rear of the machine, is a drive shaft 3, on which is mounted at one side of the machine, a power pulley 4, having secured thereto, the spur gear 5, which, through a suitable train of gears, transmits power to the cutting knives and paper feeding means, which will be later described.

A shaft 6 is journally mounted in the side standards and carries a plurality of circular knives 7, which are clamped on the shaft 6 between the spacing sleeves 7′ by means of the nuts 8 threaded on the shaft. Journalled upon the front of the standards 1, adjacent the cutting knives, is a shaft 9 on which are secured a plurality of bundle carriers 10, which carriers have formed in their periphery, a series of pockets 11 adapted to receive bundles of interfolded paper and hold the same as the carrier revolves and feeds the bundles to the cutting knives.

Adjacent the cutting knives and secured to the angle iron 2, are a plurality of guard fingers 12 which act as strippers to prevent the severed packages from following the knives.

As illustrated in Figure 3, the circular knives are rotated in a clockwise direction while the carrier rotates in an anti-clockwise direction carrying the bundle across the knives in an arcuate movement, thereby insuring a shear cut, edgewise of the stock, and it will be noted that at the same time, due to the direction of rotation of the knife and the carrier with relation to the knife, the tendency of the former is to compress the interfolded sheets of paper, comprising the bundle, into the pocket 11.

Figure 2 illustrates that form of package in which the individual sheets have a single fold, which constitutes the greatest width of the package.

In Figure 3 I have illustrated a package in which the sheets are provided with a double fold extending the short way of the package.

Inasmuch as it is essential, in order to ob-

tain a clean even cut, to work edgewise of the paper, it becomes necessary in cutting the bundles of the double folded sheets to reverse the direction of rotation of the knife, which is done by a suitable rearrangement of the gears from that shown in Figure 2.

From the foregoing it will be seen that a simple and economical machine has been devised which will perform a shear cut edgewise of a bundle of interfolded sheets, thereby leaving a sharp even edge.

I claim:

1. A machine for cutting elongated folded paper stock into shorter lengths comprising a revolubly mounted carrier having a plurality of aligned pockets and spaces therebetween, a revoluble cutter having a plurality of circular knives adapted to enter the said spaces between the pockets as the carrier revolves, said pockets extending in unbroken continuity from space to space to provide a support for each shorter length of folded paper stock, and means for rotating said carrier and cutter.

2. A machine for cutting elongated folded paper stock into shorter lengths comprising a revoluble cutter, a revolubly mounted carrier having a plurality of aligned pockets of rectangular configuration adapted to receive such paper stock and spaces between said pockets, and a gear positively connecting said cutter and carrier whereby a predetermined number of revolutions of said cutter is assured for each length of folded paper stock.

3. A machine for cutting elongated folded paper stock into shorter lengths, comprising a revolubly mounted carrier having a plurality of aligned relatively elongated pockets adapted to receive the paper stock, said pockets being shaped to conform to the folded paper stock, and having relatively narrow spaces between such pockets, gearing positively connecting said cutter and carrier to secure a predetermined number of revolutions of said cutter for each length of folded paper stock, and power receiving means connected with said gearing.

In testimony that I claim the foregoing I have hereunto set my hand at Green Bay, in the county of Brown and State of Wisconsin.

LOUIS A. STRAUBEL.