2 Sheets—Sheet 1.

W. E. HUDSON.

Expanding-Drum for Paper-Cutting Machine.

No. 203,833. Patented May 21, 1878.

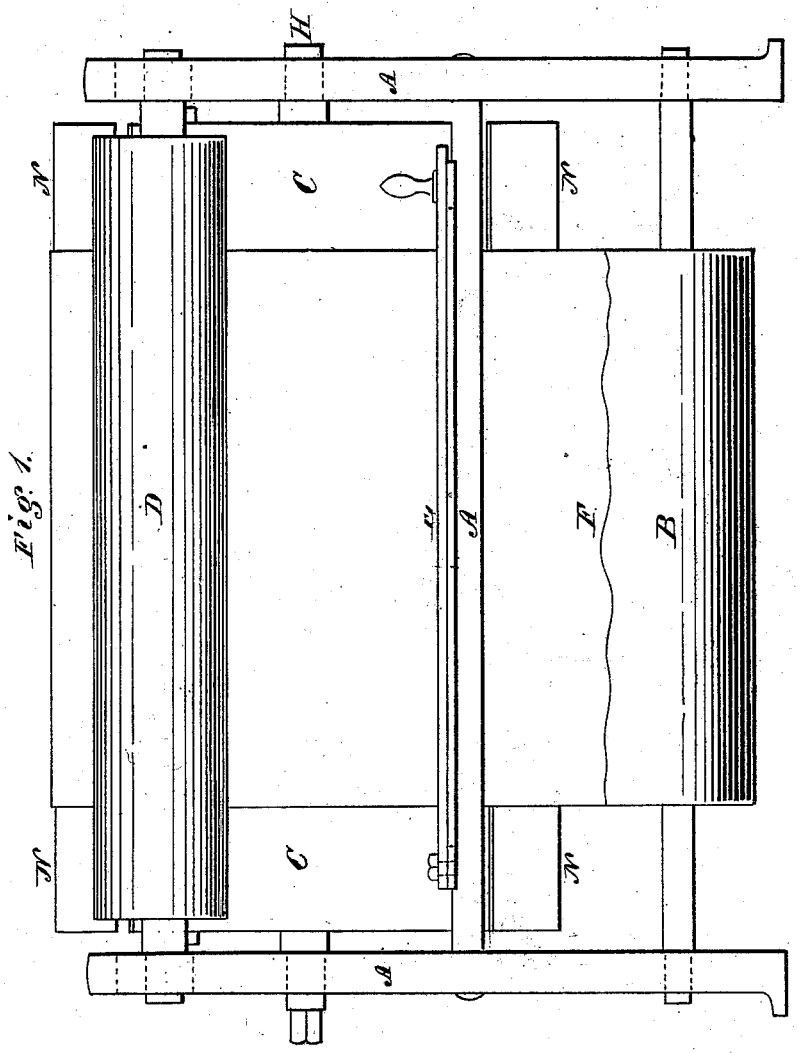

Fig. 1.

Witnesses

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by Theo. G. Ellis, Attorney

2 Sheets—Sheet 2

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Fig. 3.

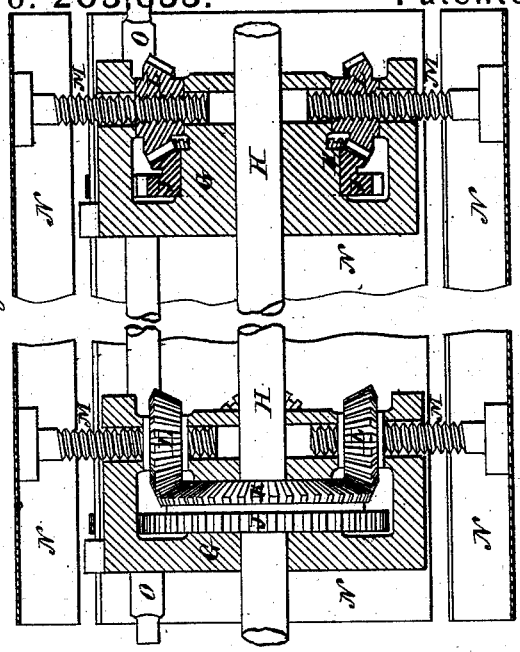
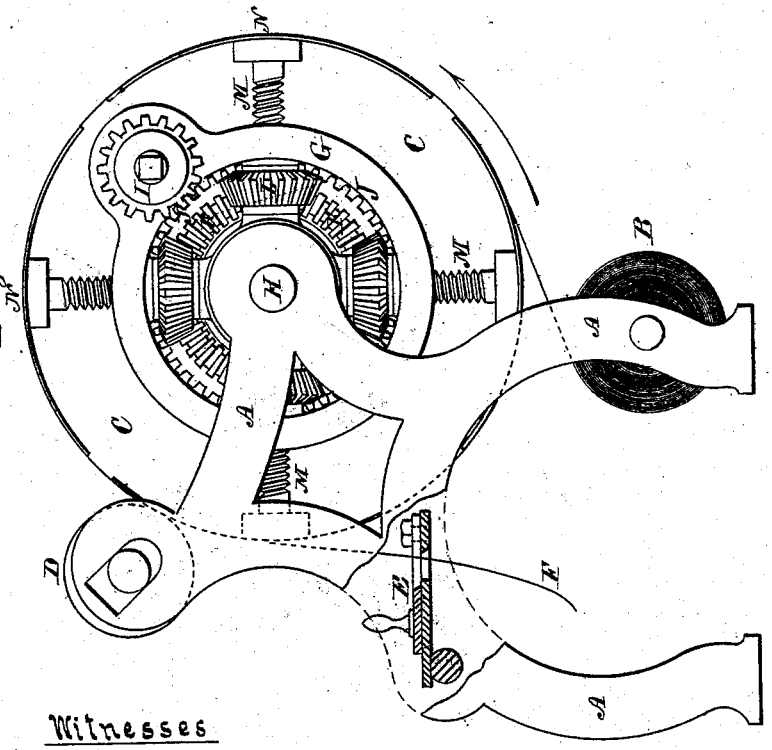


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM E. HUDSON, OF NORTH MANCHESTER, ASSIGNOR TO CHENEY BROTHERS, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN EXPANDING DRUMS FOR PAPER-CUTTING MACHINES.

Specification forming part of Letters Patent No. **203,833**, dated May 21, 1878; application filed May 1, 1878.

To all whom it may concern:

Be it known that I, WILLIAM E. HUDSON, of North Manchester, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Expanding Drums for Paper-Cutting Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

My improvement relates to the drum over which the paper passes to the cutting mechanism for the purpose of regulating the quantity or length delivered between the cuts.

In the cutting up of a roll of paper into sheets for special purposes, in order to save waste it is exceedingly desirable to make the sheets of the exact length required; and the object of my invention is to effect this purpose by providing an adjustable expanding drum the circumference of which can be readily made larger or smaller, so as to regulate the quantity of paper fed to the cutting mechanism between the cuts, and thereby determine the length of the sheet.

My invention consists in the construction of the drum, and in the combination and arrangement of the several parts, which will be hereinafter described.

In the accompanying drawings, on two sheets, Figure 1 is a front view of my improved machine. Fig. 2 is an end view of the same, with a part of the frame cut away so as to show a section of the cutters. Fig. 3 is a vertical longitudinal section of the expanding drum, showing at one end the expanding-gearing in full view and at the other end in section.

A is the frame of the machine. B is a roll of paper from which the sheets are to be cut. C is the expanding drum, over which the paper passes. D is a roller for holding the paper to the surface of the drum. E is the cutter, which may be of any usual construction, and which is operated by the same prime mover as the drum C through the interposition of suitable gearing, so that it cuts at definite uniform intervals in the angular rotary motion of the drum. F is the end of the roll of paper from which the sheet is cut off.

The drum C is suspended upon an axis in the frame in the usual manner, and receives its rotary motion from this axis. The cylindrical surface of the drum is divided longitudinally into segments, which, by being moved out or in without reference to the axis, enlarge or diminish its size.

G is a box, of which there is one at each end of the drum, for supporting the expanding mechanism. H is the axis to which the boxes G are keyed. I is a pinion, gearing into the spur-wheel J, which turns freely upon the axis H. Attached to this spur-wheel, and turning with it, is the bevel-gear K. This bevel-gear drives the small gear-wheels L, which turn freely between cheeks in the box G upon a screw, M, passing through a hollow thread or nut in the wheels L. The screws M are firmly attached to the segments N of the drum C, and slide out and in through suitable sockets in the box G.

It will thus be seen that when the pinion I is turned the nuts in the wheels L are turned, and force the screws M, and consequently the segments N, out or in, as may be desired.

There are two sets of these expanding mechanisms, one at each end of the drum C, and they are both operated at once by turning the shaft O, to which the two pinions I are attached. The shaft O is furnished at its outer ends with squares for applying a key, or it may be turned in any other convenient manner.

The drum C having a certain angular rotation at each movement of the cutter, it is obvious that the length of the sheets cut off may be adjusted at will. If it is desired to make the sheets longer, the segments N are moved outward by means of the expanding mechanism; and if it is desired to make them shorter,

the segments are moved inward. In this manner they may be made of an exact size for any special purpose.

What I claim as my invention is—

1. The combination, in a paper-cutting machine, of an adjustable drum, having an expanding cylindrical surface, with the cutting mechanism, the drum having a definite angular rotation at each movement of the cutter, substantially as herein described.

2. The drum C, having the expanding mechanism I J K L M, constructed and arranged as described, for moving the segments N out or in, as may be desired.

WILLIAM E. HUDSON.

Witnesses:
THEO. G. ELLIS,
CHAS. H. OWENS.