W. T. SHAFFER.

Paper-Cutting Machine.

No. 207,212. Patented Aug. 20, 1878.

Fig. 1.

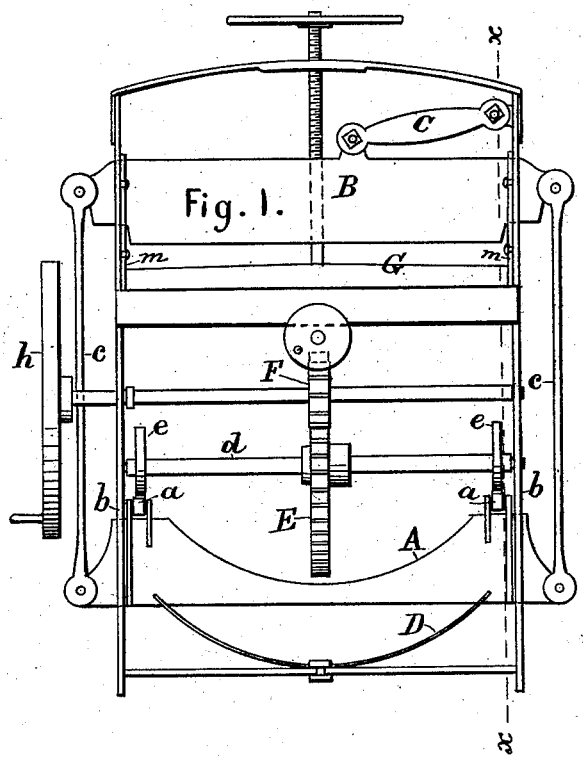
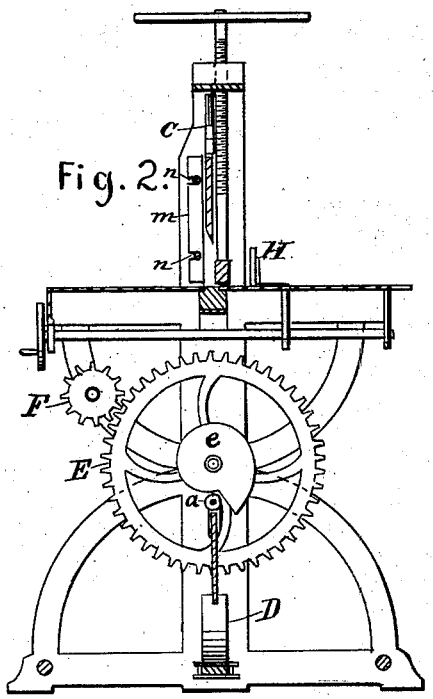


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM T. SHAFFER, OF FREMONT, NEBRASKA, ASSIGNOR OF ONE-HALF HIS RIGHT TO ARTHUR GIBSON, OF SAME PLACE.

IMPROVEMENT IN PAPER-CUTTING MACHINES.

Specification forming part of Letters Patent No. **207,212**, dated August 20, 1878; application filed February 1, 1878.

To all whom it may concern:

Be it known that I, WILLIAM T. SHAFFER, of Fremont, in the county of Dodge and State of Nebraska, 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 of my invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a front view of my improved paper-cutting machine, and Fig. 2 a sectional view taken in the line *x x* of Fig. 1.

Like letters in both figures of the drawing indicate like parts.

The object of this invention is to provide a machine of simple and light construction, which shall have all the power necessary for cutting large packages of paper and doing heavy work generally in binderies or other establishments where such machines are used, cutting the paper perfectly smooth and true, and accomplishing the work as easily and rapidly as other machines in the market selling for about four times the money; and it consists in the combination of a sliding spring-beam, provided with friction-rollers, and connected by rods with the knife-holder, suspended by a swinging arm pivoted to the standard of the machine, cams, and gearing for operating the knife, as will be hereinafter more fully explained.

A is the sliding beam, provided with friction-rollers *a a*, and passing through slots in the standards *b b*, and connected on the outside thereof by bolts with rods *c c*, which extend up and connect by bolts above with the ends of the knife-holder B, which also passes through slots in the standards, both having their bearings therein.

The knife-holder is suspended by the swinging arm C, pivoted at one end to the holder and at the other to the standard of the machine, thus permitting the knife to have a free lateral motion. The holder and beam rest upon the ends of the elongated curved spring D below, which are notched and embrace the lower edge of the beam, and are thus kept from vibrating laterally when pressed down upon by the beam, the spring being secured to a cross-bar attached to and between the side plates of the machine.

Any form of spring or its equivalent may be used that may be deemed preferable.

E is a large driving-gear wheel, attached centrally to a shaft, *d*, provided with cams *e e*, (see Fig. 2 with reference to the form of the cam,) having their bearings upon the friction-rollers of the sliding beam when in operation. The shaft has its bearings under the table in the standards of the machine. A small gear-wheel, F, meshing with the large wheel above referred to, is attached centrally to a shaft provided on the end with a balance-wheel, *h*, with crank attached, and having its bearings in the frame-work of the machine. This simple arrangement of gearing, with the large gear-wheel located centrally between the cams, gives all the power requisite for a most efficient working of the knife in doing heavy work.

As the ends of the holder and beam would, in all probability, cause some wear upon the edges of the slots in the standards in which they work, and thus run loose, adjustable plates *m*, provided with slotted bolt-holes *n*, are attached to the standards alongside of the slots, which can be readily adjusted to the holder and beam to compensate for any wear.

G is the press-beam, and H the sliding gage, both of which are the same as ordinarily used in paper-cutting machines.

The operation is as follows: On power being applied at the crank of the balance-wheel the small gear-wheel is caused to turn the large gear-wheel, and with it the cams, which, acting upon the friction-rollers of the sliding beam, force it down upon the spring until the knife has cut through the paper, when the depression in each cam permits the sliding beam to spring up, and with it the knife, by the recoil of the spring upon the lower edge of the beam, thus automatically putting the knife in position for another cut.

The leverage obtained from the combined action of the gearing and cams upon the knife is such that the work can be easily and rapidly accomplished.

Steam-power can be applied by attaching a loose and a tight pulley to the driving-shaft, in connection with the usual appliances for shifting the belt.

Having thus fully described my invention, I claim therein as new and desire to secure by Letters Patent—

The spring-beam A and knife-holder B, connected by rods *c c*, and suspended by the swinging arm C from the top of the machine, in combination with a shaft, *d*, provided with cams *e*, and having a large gear-wheel, E, arranged to gear with a smaller gear-wheel, F, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

WILLIAM T. SHAFFER.

Witnesses:
J. E. SHERVIN,
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