G. L. JAEGER.

MACHINE FOR DAMPING AND CUTTING AND FEEDING PAPER AND OTHER MATERIALS.

No. 193,161. Patented July 17, 1877.

Fig.1.

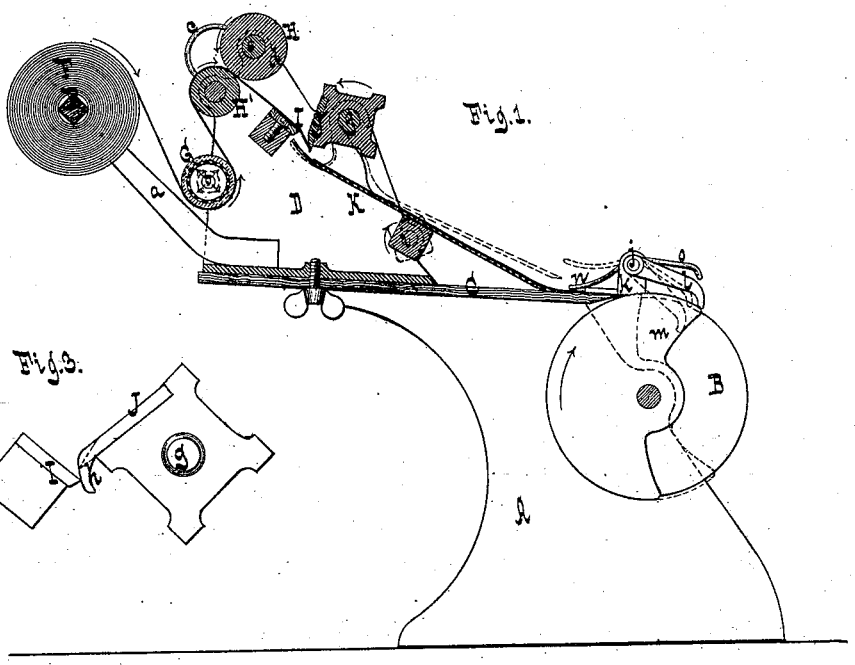
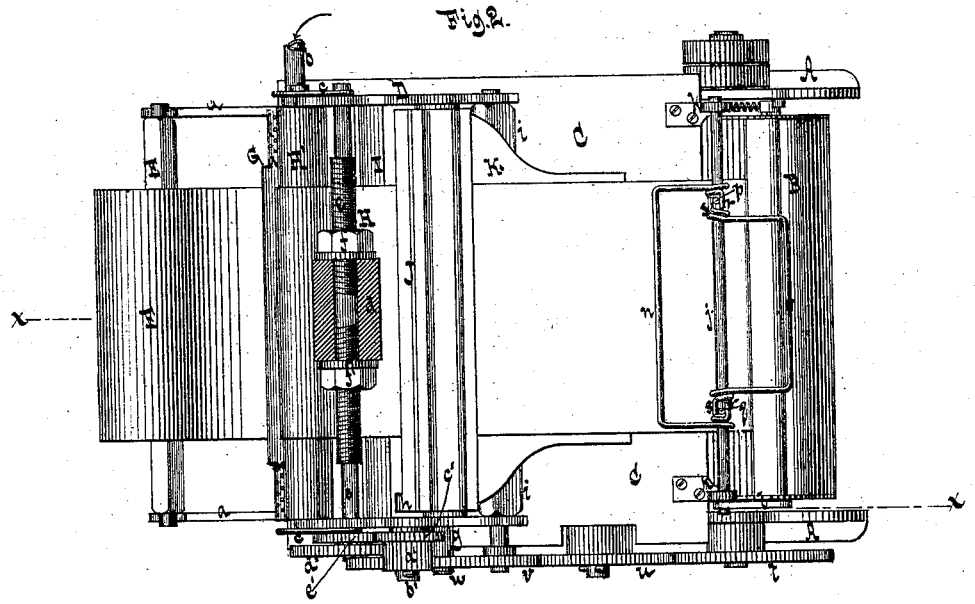


Fig.3.

Fig.2.



Witnesses.

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IMPROVEMENT IN MACHINES FOR DAMPING, CUTTING, AND FEEDING PAPER AND OTHER MATERIALS.

Specification forming part of Letters Patent No. **193,161**, dated July 17, 1877; application filed May 31, 1877.

To all whom it may concern:

Be it known that I, GUSTAV L. JAEGER, of the city, county, and State of New York, have invented a new and Improved Machine for Feeding and Cutting Paper and other Materials, which invention is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a vertical section in the plane *x x*, Fig. 2. Fig. 2 is a plan or top view. Fig. 3 is an end view of the cutting mechanism detached.

Similar letters indicate corresponding parts.

This invention consists in the combination, in a machine for feeding and cutting paper or other materials, of a griper-cylinder, a cutting mechanism, and a hollow foraminous roller or pipe, (one or more,) which may be covered with felt or other absorbent material, and which is connected to a steam-supply pipe, so that the paper, as it passes from the roll to the griper-cylinder, is moistened, and then cut up into sheets which are grasped by the griper-cylinder, and said sheets can be printed upon immediately without being subjected to a separate operation for moistening; also, in the combination, with a griper-cylinder and with a cutting mechanism, of a feed-roller composed of an elastic body mounted on a metallic core, provided with nuts which bear on the ends of said elastic body, so that by manipulating the nuts the diameter of the feed-roll can be increased or decreased to regulate the length of the sheets to be cut; further, in the combination, with the griper-cylinder, a revolving cutter, and a pair of feed-rollers, of two gear-wheels, which are mounted on the shaft of the feed-roller, and which receive motion from a gear-wheel mounted on the cutter-shaft, so that by fastening one of the gear-wheels on the feed-shaft and releasing the other the feed-motion can be changed for sheets of different lengths; also, in the combination, with the revolving knife, and with the stationary cutting-blade, of a curved guard, which prevents the cutting-edge of the revolving knife from coming in contact with the edge of the stationary cutting-blade; further, in the combination, with the revolving knife, and the stationary cutting-blade, and the griper-cylinder, of a vibrating chute for conducting the web from the cutting mechanism to the griper-cylinder; also, in the combination, with a cutting mechanism and a griper-cylinder, of a rock-shaft carrying two gages, and an arm, which bears on a cam mounted on the shaft of the griper-cylinder, so that said two gages are automatically adjusted, and that by their action the cut sheets are safely conducted to the griper-cylinder.

In the drawing, the letter A designates a frame, which forms the bearings for the griper-cylinder B, and on which is secured a table or platform, C, over which sheets of paper or other materials may be fed to the griper-cylinder by hand in the manner usually practiced on printing-presses.

On the platform C is secured a secondary frame, D, which carries the cutting and feed mechanism, and which is so arranged that it can be readily taken off or swung out of the way, whenever it may be desirable to feed sheets to the griper-cylinder by hand.

From the rear end of the secondary frame D extend two arms, *a a*, which form the bearings for a shaft, E, that carries a roll, F, of paper or other material. The web, which is drawn off from this roll, passes beneath a moistening-roller, G, which has its bearings in the frame D, and consists of a foraminous cylinder covered with felt or other equivalent absorbent material, and which communicates with a steam-supply pipe, *b*.

When steam is admitted through this pipe, the felt which covers the roller G becomes moistened and heated, and the web, in passing under this roller and in contact with the felt, becomes moistened. The felt covering may, however, be omitted, and the foraminous cylinder or pipe may remain stationary, so that the steam issuing from the perforations comes in direct contact with the paper passing under this pipe; or two such foraminous pipes or rollers may be used, the paper being made to pass between them. When the foraminous cylinder is covered with felt it must be made to revolve.

This moistening-roller is of particular advantage in printing-presses of that class where the paper is taken from a roll and cut into sheets, which are afterward fed to the printing-cylinder. Without the use of the moist-

ening-roller G the sheets, after having been cut from the web, have to be subjected to a separate moistening operation before they are fit to be printed upon; but by using the moistening-roller, in combination with the cutting mechanism and the griper-cylinder, the sheets cut from the web are fit to be printed upon at once.

From the moistening-roller G the web passes through between the feed-rollers H H′, which have their bearings in the frame D, the lower roller H′ being held in contact with the upper roller H by springs *c*, or by any other suitable means. This upper roller consists of a tubular elastic body, *d*, through which passes the metallic core or shaft *e*, which is provided with screw-threads and with nuts *f*, bearing against the ends of the elastic body *d*. By manipulating these nuts the diameter of the elastic body *d* can be increased or again decreased, and thereby the feed motion can be increased or decreased, so as to produce sheets of different length. This adjustment, however, provides only for a comparatively slight change in the length of the sheets, the principal adjustment being produced by gear-wheels, which will be presently more fully described. The elastic body *d* of the feed-roller, instead of being compressed by the nuts *f*, may be so arranged that it is expanded by conical sleeves entering its ends and bearing on a split lining, which extends throughout the length of the elastic body.

By the action of the feed-rollers the web is carried down over the stationary cutting-blade I, which is firmly secured in the secondary frame D, and which co-operates with the revolving knife J. This knife is firmly secured to a shaft, *g*, which has its bearings in the frame D, and it is provided with a curved guard, *h*, Fig. 3, on one or both ends. As the knife revolves this guard bears against the edge of the cutting-blade and prevents the cutting-edge of the knife from being injured by striking the cutting-blade.

From the shaft *g* of the revolving knife is suspended an apron or chute, K, which rests upon a square or irregular shaft, *i*, so that by the revolution of this shaft a vibrating motion is imparted to said chute whereby the passage of the web down over said chute is facilitated. This chute may be made in one piece or in sections, or, if desired, endless tapes may be substituted for it, so as to carry the web to the griper-cylinder.

Over this cylinder is situated a rock-shaft, *j*, which has its bearings in brackets *k*, secured to the platform C. From one end of this rock-shaft extends an arm, *l*, which bears upon a cam, *m*, secured to the end of the griper-cylinder, or mounted on the shaft of this cylinder. (See Fig. 1.) On the rock-shaft *j* are loosely mounted two gages, *n o*, which extend in opposite directions, and the position of which is determined by pins *p q*, Fig. 2, which are secured in the rock-shaft and bear against lips *r s*, projecting from the eyes of the gages. When the arm *l* of the rock-shaft bears upon the high portion of the cam *m*, as shown in full lines in Fig. 1, the gage *n* bears upon the web passing to the griper-cylinder while the gage *o* is raised out of contact with said web; but when the arm *l* drops down into the cavity of the cam *m*, as shown in dotted lines in Fig. 1, the gage *n* is raised and the gage *o* is depressed.

By these means the correct delivery of the web to the gripers of the cylinder is insured, the end of the web being held down upon the surface of the cylinder until it is caught by the gripers.

The revolving motion of the griper-cylinder is transmitted to the shaft *i*, which imparts a vibrating motion to the chute K, and from this shaft to the revolving knife, by means of gear-wheels *t u v w*. The wheel *w* gears into a pinion, *a′*, which turns loosely on a pin, *b′*, secured in the secondary frame D, and to said pinion is connected another pinion, *c′*, of larger diameter, the connection being effected by a steady-pin, or other suitable means, so that the two pinions can be readily disconnected, and another pinion of different diameter can be substituted for the pinion *c′*.

The pinion *a′* gears into a cog-wheel, *d′*, and the pinion *c′* into a cog-wheel, *e′*, both of which cog-wheels are mounted on the shaft *e* of the upper feed-roller H. When the apparatus is in operation one of the cog-wheels *d′* or *e′* is fastened on the shaft *e*, the other being loose. If the cog-wheel *d′* is fast, the feed-roller H revolves with a certain definite velocity and the sheets cut off from the web have a definite length, which may be increased or decreased to some extent by changing the diameter of the feed-roller, as previously described.

Instead of the wheels and pinions, however, other devices may be substituted for the purpose of changing the speed of the feed-rollers, such as two cone-pulleys or an adjustable friction-gear.

By releasing the cog-wheel *d′* and securing the cog-wheel *e′* the length of the sheets is changed considerably; and if more changes are required, the pinion *c′* and cog-wheel *e′* are removed and replaced by others of different diameters, a number of such wheels being provided, so that the feed-motion can be accommodated to sheets of any desired length.

It must be remarked that the apparatus above described is constructed for the same purpose as the machine described in my Patent No. 186,133, dated January 9, 1877, the principal difference in the two machines being that in the former the feed-motion and revolving motion of the knife are intermittent, while in the new machine these motions are continuous.

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

1. In a machine for feeding and cutting paper or other materials, a griper-cylinder and a cutting mechanism, each constructed substantially as described, and combined with a

hollow foraminous cylinder connected with a steam-supply pipe, substantially as and for the purpose specified.

2. The combination, in a machine for feeding and cutting paper or other materials, of a griper-cylinder, a cutting mechanism, substantially such as described, and a pair of feed-rollers, one of which is composed of an elastic body mounted on an elastic core provided with nuts which bear against the ends of the elastic body, substantially as and for the purpose set forth.

3. The combination, in a machine for feeding and cutting paper or other materials, of a griper-cylinder, a revolving cutter, a pair of feed-rollers, gear-wheels *d' e'*, mounted on the shaft of one of said feed-rollers, and pinions *a' c'*, which are detachably connected, and one of which is in gear with a cog-wheel, *w*, mounted on the cutter-shaft, all constructed and operating substantially as and for the purpose described.

4. The combination, with the revolving knife J and the stationary cutting-blade I, of a curved guard, *h*, substantially as and for the purpose set forth.

5. The combination, with the revolving knife, the stationary cutting-blade, and the griper-cylinder, of a vibrating chute, constructed and operating substantially as and for the purpose shown and described.

6. The combination, with the griper-cylinder and its cam, of a rock-shaft having an arm or lever, *l*, pins *p q*, and pivoted gages *n o*, provided with lips which bear upon the pins *p q*, substantially as described, whereby the gages are alternately operated by the action of the cam on the rock-shaft, as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 24th day of May, 1877.

GUSTAV L. JAEGER. [L. S.]

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.