

G. L. JAEGER.
Machine for Feeding, Pasting, and Cutting Paper and
other Fabrics.

No. 200,307.

Patented Feb. 12, 1878.

Fig. 1.

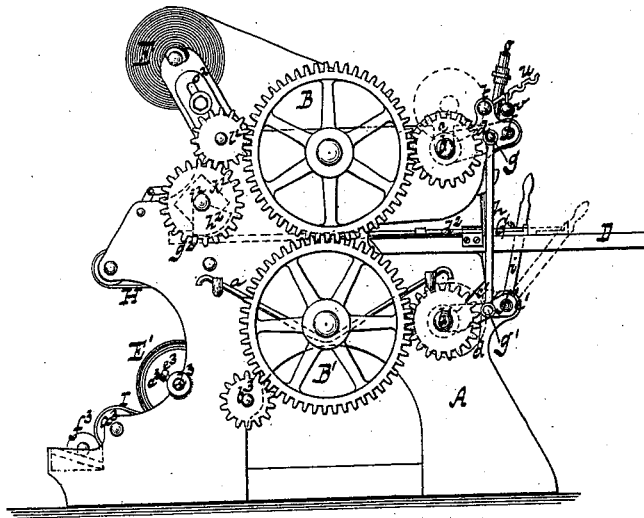
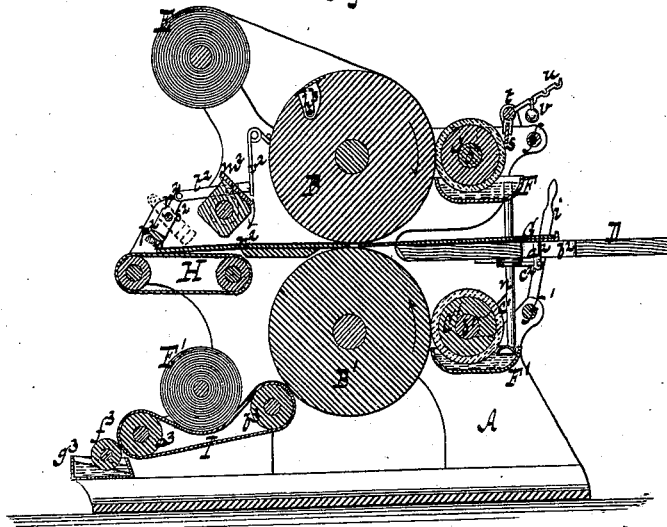


Fig. 2.



Witnesses.

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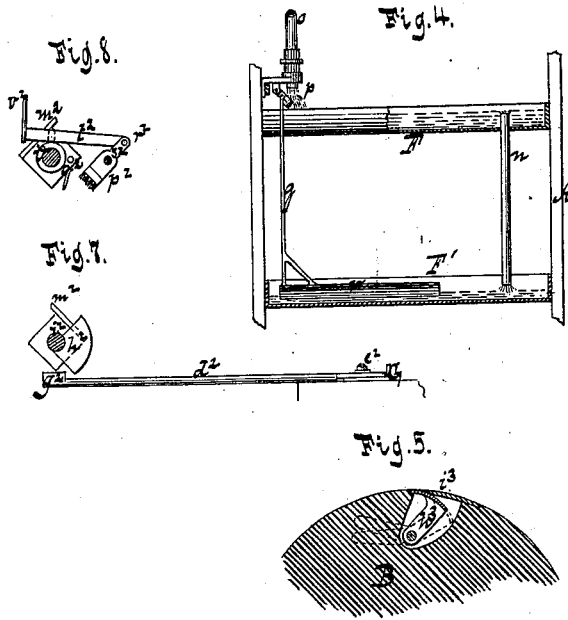
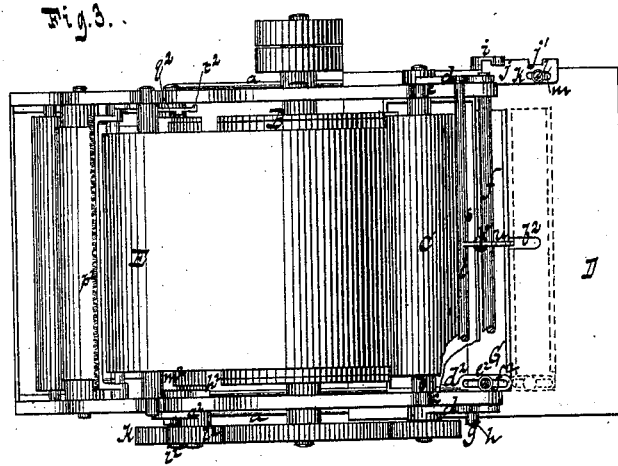
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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN MACHINES FOR FEEDING, PASTING, AND CUTTING PAPER AND OTHER FABRICS.

Specification forming part of Letters Patent No. **200,307**, dated February 12, 1878; application filed January 12, 1878.

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 useful Improvement in Machines for Feeding, Pasting, and Cutting Paper and other material, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a side view. Fig. 2 is a longitudinal vertical section. Fig. 3 is a plan or top view. The remaining figures are details, which will be referred to as the description progresses.

Similar letters indicate corresponding parts.

This invention relates to a machine for feeding, pasting, and cutting paper and other material, in which the paste-roller works directly in the paste-trough, and is adapted to be moved toward and from the cylinder which carries the web to be supplied with paste, so that it can at any moment be thrown out of contact with the web or the web-carrying cylinder, the lever which serves to move the paste-roller being so arranged that it locks said paste-roller in the required position.

When paste is to be applied to two webs at the same time, the paste-rollers are connected to rock-shafts, which receive motion by a single hand-lever, the position of which is determined by a notched plate. A yielding scraper, which is held in contact with the paste-roller by a weight or spring, serves to regulate the quantity of paste to be transmitted to the web. The paste-rollers work in troughs situated one above the other, and with these paste-troughs is combined an automatic paste-feeding mechanism. The pasteboards to be lined are fed to the machine by a slide, which receives its motion from the shaft of a revolving cutter that serves to separate the webs between the succeeding sheets of pasteboard, the motion of the cutter being made adjustable for sheets of different length. A brush, which is also moved from the cutter-shaft, serves to press down the ends of the webs after the same have been cut. The roll which contains the web is placed on two rollers, with or without an endless apron, for the purpose of facilitating the operation of drawing off the web. With these supporting-rollers is combined a

trough containing water or other liquid, so as to moisten the web as the same is drawn off from the roll.

In the drawing, the letter A designates a frame, which forms the bearings for the compression-cylinders B B', the paste-rollers C C', and of all the remaining working parts of my machine. In this frame is firmly secured a table, D, over which the pasteboard is fed to the compression-cylinders B B'. These cylinders are held in contact with each other by springs *a*, Fig. 1, and they are geared together so that they revolve in the direction of the arrows shown thereon in Fig. 2.

In the example shown in the drawing, the pasteboard is fed into the machine in sheets; but it may be fed from a roll the same as the paper.

The paper or other material which serves to line the pasteboard simultaneously on both sides is taken from rolls E E', and as the same is carried round the cylinders to their point of contact it is drawn off automatically by the gripe of said cylinders, and at the same time both webs are supplied with paste by the action of the paste-rollers C C' before they reach the point of contact of the cylinders. These paste-rollers run directly in the paste-troughs F F', and they are geared together with the cylinders B B', so that they revolve with the same circumferential velocity, or nearly so. With the paste-rollers is combined a suitable mechanism for moving the same at any moment away from their cylinders or up to the same, as may be requisite. The mechanism which serves to control the position of the paste-roller C consists of a rock-shaft, *f*, on which are firmly mounted two arms, *d*, one on each end; and these arms are provided with holes to receive the shaft *b* of the paste-roller C. When the rock-shaft *f* is turned in the proper direction, said paste-roller is raised out of its paste-trough, and at the same time moved out of contact with the cylinder B. The mechanism which serves to control the position of the paste-roller C' consists of a rock-shaft, *f*¹, on the ends of which are firmly mounted two cranks, *e*, each of which is pivoted to one end of a strap, *d*¹, the opposite end of which is bored out to receive the shaft *b*¹ of the paste-roller C'. On the rock-shaft *f*¹ is mounted a hand-lever, *i*,

and by moving this hand-lever to the position shown in dotted lines in Fig. 1 the paste-roller Y is caused to slide back in its bearings, so that it revolves out of contact with the cylinder B' . The two rock-shafts f, f^1 are connected by a rod, h^1 , which is attached to one of the cranks d by a pivot, g , and to one of the cranks d^1 by a pivot, g^1 , so that by means of the hand-lever i the position of both paste-rollers can be controlled. This lever engages with notches j' , in the edge of a plate, k , which is secured to the table D by screws l , passing through slots m , so that the same can be moved toward and from the cylinders B, B' . When the hand-lever is thrown in gear with the notch j , both paste-rollers are brought in contact with their respective cylinders, and retained in this position, and by throwing the hand-lever in gear with the notch j' both paste-rollers are moved away from their cylinders, so that no paste is applied to the webs or to the surfaces of the cylinders in case the webs (or one of them) should have given out. By adjusting the plate k the pressure exerted by the paste-rollers against the cylinders can be regulated to suit circumstances. The paste-troughs F, F' , from which the paste-rolls take their paste, are situated one above the other, and the upper trough F is provided with an overflow-pipe, n , Figs. 2 and 4, which extends down into the lower trough. The upper trough is supplied with paste through a feed-pipe, o , which connects with a suitable supply-tank, and with the discharge-opening of this feed-pipe is combined a valve, p , which connects by a rod, q , with a float, r , situated in the lower trough. As the paste rises in the upper trough to a level with the mouth of the overflow-pipe n , it discharges into the lower trough until the float r rises to such a height that the valve p is closed. As the paste is consumed the float sinks down, the valve p opens, and a fresh supply is admitted.

By this arrangement both troughs are automatically supplied with paste, and no personal attention is required to this portion of the work.

With each of the paste-rollers C, C' is combined a doctor or scraper, s , (one only being shown in the drawing,) which consists of a strip of india-rubber or other equivalent flexible material, secured in an arm mounted on a rock-shaft, t , from which extends an inclined arm, u , which carries an adjustable weight, v , so that by the action of this weight the scraper is held in contact with the paste-roller, and by adjusting the weight the pressure of the scraper on the surface of the paste-roller can be regulated, and thereby the quantity of paste transmitted to the web can be controlled.

In the example represented by the drawing a machine is shown in which the pasteboard to be lined is fed into the machine in the form of sheets. The mechanism for feeding the sheets consists of a slide, G , which rests on the table D , and is guided by a pin, a^2 , extending through a slot, b^2 , Fig. 2. A spring, c^2 , forces the slide back to the position shown

in dotted lines in Figs. 1 and 3. The forward motion of this feed-slide is produced by a rod, d^2 , which is attached to it by a screw, e^2 , extending through a slot, f^2 , so that it can be adjusted for sheets of different length. On the outer end of this rod is a nose, g^2 , Figs. 1 and 7, which is acted on by a cam, h^2 , mounted on the knife-shaft i^2 . This shaft is geared together with the upper cylinder B by cog-wheels l^2, l^2 , so that it revolves in the same direction as said cylinder, and by the action of the cam h^2 on the nose g^2 the slide G is drawn into the position shown in Figs. 1 and 2, so that a sheet of pasteboard placed on said slide is delivered to the cylinders between the two webs which extend partially round said cylinders. As soon as the cam h^2 has passed the nose g^2 , the slide G flies back to its original position, while the sheet of pasteboard which has been delivered to the cylinders B, B' is carried forward between these cylinders, and the two webs which have been supplied with paste, as previously described, being pressed against the sheet of pasteboard from opposite sides, are caused to adhere to the same.

The knife m^2 is secured to the shaft i^2 , and it co-operates with a stationary cutting-edge, n^2 . Its motion is so regulated that it acts upon the two webs close behind the sheet of pasteboard to which said webs have been pasted, and the sheets of pasteboard are fed to the machine, so as to leave a small space (see Fig. 2) between the succeeding sheets, allowing the knife to separate the two webs.

In order to adjust my machine to sheets of different length, the cog-wheel l^2 is secured to an adjustable bracket, o^2 , and the cog-wheel l^2 on the knife-shaft is fastened by a set-screw or other means, so that the same can be readily removed and replaced by another of different diameter.

If the speed of the knife is reduced, the feed-slide G has to be set back for sheets of greater length, and vice versa. Instead of the gear-wheels l^2, l^2 , any other suitable mechanism can be substituted for regulating the relative speed of the knife-shaft.

After the webs have been cut, their ends are liable to become detached from the outer edge of the advancing sheet of pasteboard, and in order to press these ends down upon the pasteboard, before the same leaves the machine, I use a brush, p^2 , which is actuated by a cam, q^2 , on the knife-shaft, (see Figs. 2 and 8,) so that its motion takes place at the proper moment, whatever the size of sheets for which the speed of the knife is set.

In the example represented by the drawing, the brush p^2 is secured to a lever, r^2 , which swings on a pivot, s^2 , and the upper end of which is connected to a rod, t^2 , which is subjected to the action of a spring, v^2 , and provided with a nose, against which the cam q^2 acts. By the action of the cam the brush is moved from the position shown in dotted lines in Fig. 2 to that shown in full lines, and there-

by the ends of the webs are pressed down on the pasteboard. As soon as the cam has passed the nose of the rod z^2 the brush returns to the position shown in dotted lines by the action of the spring v^2 .

Instead of using a vibrating brush for this purpose, a revolving brush might be used, and the motion of this brush may be produced by cog-wheels or any other suitable means.

An endless apron, H, serves to discharge the finished sheets at the rear end of the machine.

The rolls E E' from which the webs are taken may be of different nature. In the example shown in the drawing the roll E is provided with gudgeons, which have their bearings in the main frame; but the roll E', which has no gudgeons, is placed on an endless apron, I, Fig. 2, which extends over rollers a^3 b^3 , and receives its motion from the lower cylinder B'. (See Fig. 1.)

In the frame A are secured two disks, c^3 , the stems d^3 of which are adjustable in their bearings by set-screws e^3 , Fig. 1, so that the distance between the disks can be adjusted to conform to the width of the roll E'. The roller b^3 is in close proximity to the cylinder B', so that the web is grasped between the apron I and said cylinder, and as the cylinder revolves a slow rotating motion is imparted to the roll E', and the web is readily drawn off. With the apron I is combined a roller, f^3 , which dips into a trough, g^3 , containing water, so that the apron is supplied with moisture and the web resting thereon is moistened as the same is drawn off. This arrangement is desirable when paper is used that is very hard and stiff. The endless apron I may, however be omitted, and the roll E placed directly upon the rollers a^3 b^3 , said rollers being made sufficiently large for the desired purpose. The moistening-roller f^3 may also be omitted and the roller a^3 so placed that it dips into the liquid contained in the trough g^3 , for the purpose of moistening the web composing the roll E'.

The cylinders B B' may be used with or without grippers h^3 , and in order to be able to use the cylinders either way, I have arranged the gripper h^3 in a cavity in the cylinder, which is covered by a protecting-plate, i^3 , the face of the gripper and that of the protecting-plate being so formed that when the gripper is closed the surface of the cylinder to which the same is applied remains unbroken, as shown in Figs. 2 and 5.

By means of the grippers, the end of the web can be readily secured to the cylinder and drawn off from the roll without difficulty, so as to carry the same round the cylinder in the proper position when the machine is first started. As the pasting operation progresses the grippers are not required.

If desired, the grippers may be made to catch over the edges of the web from opposite sides, the protecting-plate i^3 may be made separate from the cylinder and attached to it in the

proper position, or the cavity containing the gripper may be so formed that the protecting-plate forms an integral part of the cylinder.

My machine can also be used for lining pasteboard on one side only, or for pasting two webs together, leaving the pasteboard out.

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

1. In a pasting-machine, the combination, with a cylinder, B, and with a paste-roller, C, running directly in the paste-trough F, of a rock-shaft, f , provided with two arms, d , for adjusting the position of the paste-roll, substantially as shown and described.

2. In a pasting-machine, the combination, with a cylinder, B', and a paste-roller, C', which has its bearings in slots c^1 , of cranks d^1 and straps e^1 , adapted to impart to the paste-roller a sliding motion toward and from the cylinder B', and to retain the same in close contact with said cylinder, substantially as set forth.

3. In a pasting-machine, the combination, with two cylinders, B B', and two paste-rollers, C C', of two rock-shafts, $f f^1$, connecting-rod h , hand-lever i , and notched plate k , all constructed and adapted to operate, substantially as and for the purpose shown and described.

4. The combination, with a paste-roller, of a yielding scraper secured to a rock-shaft, which is subjected to the action of a spring or weight for pressing the scraper up against the surface of the paste-roller, substantially as set forth.

5. The combination, with two paste-troughs, F F', one situated above the other, of a common feed-pipe, o , valve p , pipe n , and float r , substantially as and for the purpose described.

6. The combination, in a pasting-machine, of a mechanism for feeding pasteboards in sheets, a cylinder for bringing a web in contact with the pasteboard, a roller for supplying paste to the web, and a cutter for separating the web between the succeeding sheets of pasteboard, substantially as set forth.

7. The combination, in a pasting-machine, of a mechanism for feeding pasteboard in sheets, a cylinder for bringing a web in contact with the pasteboard, a roller for supplying paste to the web, a cutter for separating the web between the succeeding sheets of pasteboard, and a brush for pressing down the end of the web after the same has been cut, all constructed and adapted to operate substantially as described.

8. The combination, with the cylinders, running in contact with each other (or nearly so) in opposite directions, of a slide adapted to feed sheets of paper or pasteboard to the cylinders, substantially as set forth.

9. The combination, with the knife-shaft and with the feed-slide, of cog-wheels k^2 l^2 , or equivalent mechanism, for regulating the relative speed of the knife-shaft, and also the motion of the feed-slide for sheets of different length, substantially as described.

10. The combination, in a pasting-machine, of two cylinders, B B', two paste-rollers, C C',

a feed-slide, G, a revolving cutter, m^2 , cam h^2 for imparting motion to the feed-slide, and gear-wheels k^2 l^2 , for adjusting the motion of the cutter and of the feed-slide to sheets of different length, substantially as set forth.

11. The combination, with a roll of paper or other material, and with a cylinder to which said material is to be delivered, of two rollers, which serve to impart to the roll a slow revolving motion, substantially as described.

12. The combination, with two rollers which support the roll E' , of a trough containing water or other liquid, substantially as and for the purpose set forth.

13. The combination, with a cylinder and

with a griper, situated in a cavity in the cylinder, of a protecting-plate, the griper being so formed that when the same is closed its face, together with that of the protecting-plate, produces an unbroken surface of the cylinder, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 5th day of January, 1878.

GUSTAV L. JAEGER. [L. S.]

Witnesses:

W. C. HAUFF,

E. F. KASTENHUBER.