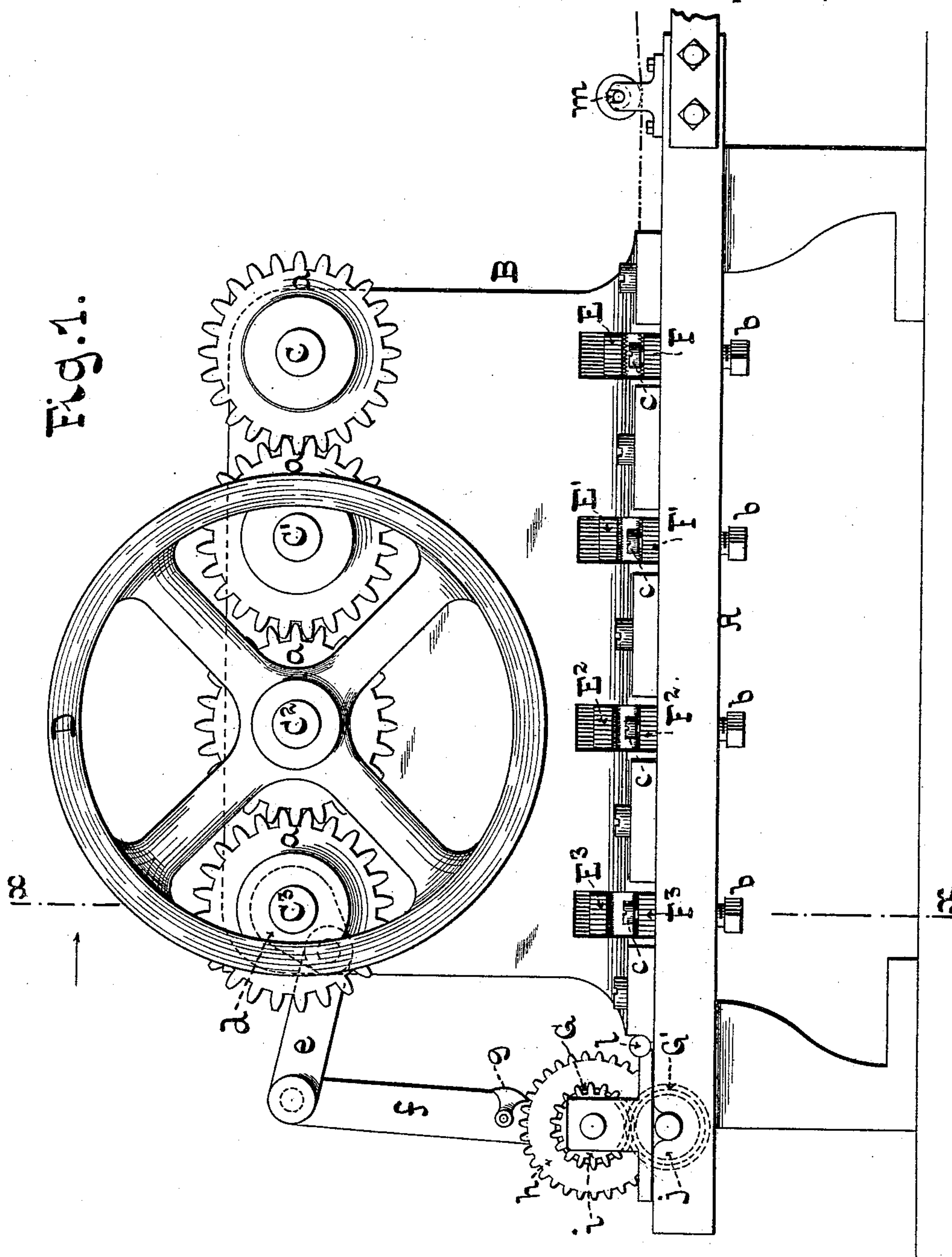


(Specimens.)

4 Sheets—Sheet 1.

G. L. JAEGER.  
METHOD OF MANUFACTURING BLOTTING PAPER.  
No. 495,976. Patented Apr. 25, 1893.



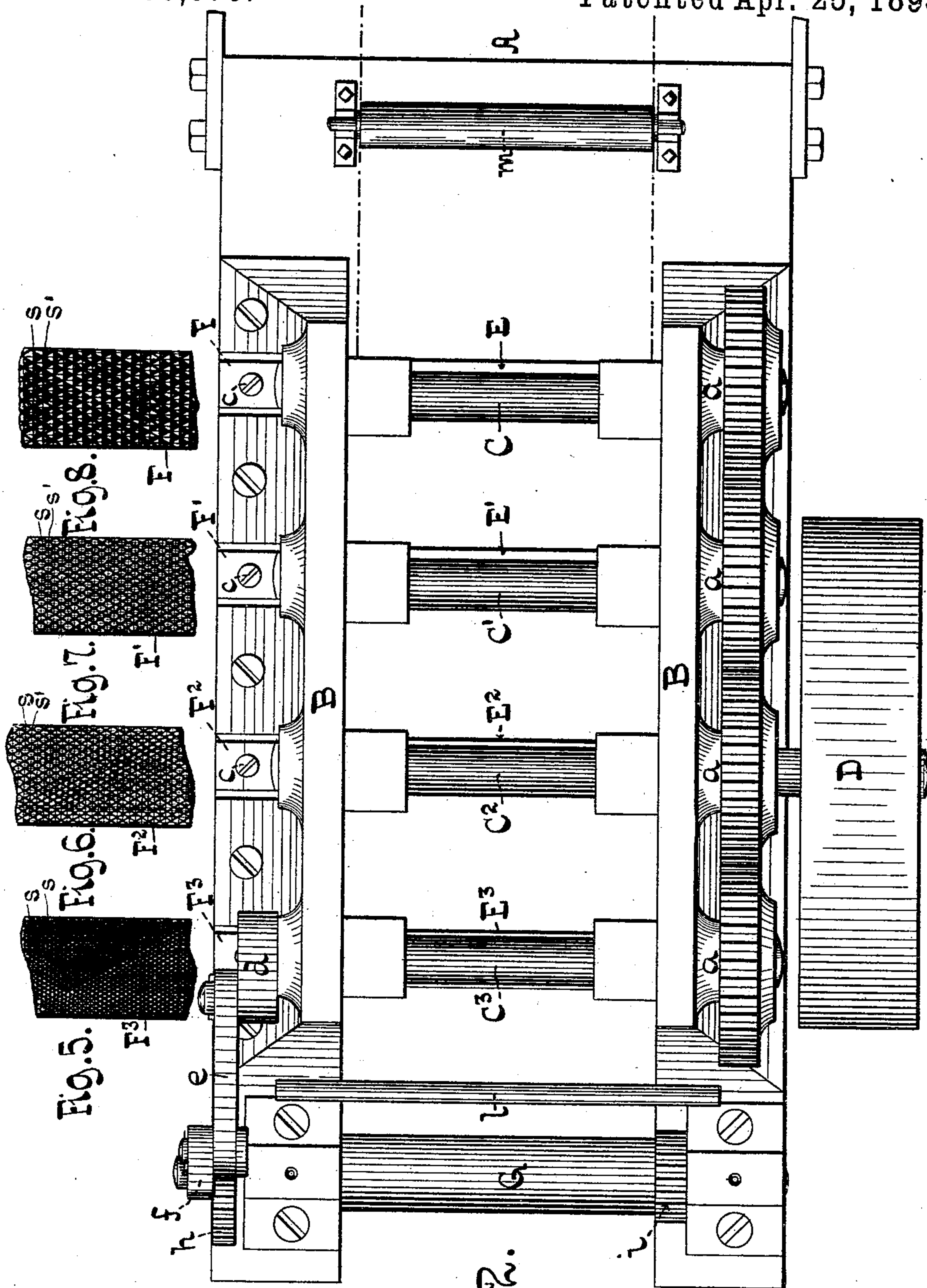
WITNESSES:

Klas H. Perstedt  
J. J. Malle.

INVENTOR:

BY Gustav L. Jaeger  
Atty at Law, St. Louis, Mo.  
ATTORNEY

G. L. JAEGER.  
METHOD OF MANUFACTURING BLOTTING PAPER.  
No. 495,976.  
Patented Apr. 25, 1893.



WITNESSES:  
Klas H. Prust  
J. J. Malle.

Fig. 2.

INVENTOR:  
Gustav L. Jaeger,  
BY  
A. Faber du Faur,  
ATTORNEY

(Specimens.)

4 Sheets—Sheet 3.

G. L. JAEGER.  
METHOD OF MANUFACTURING BLOTTING PAPER.  
No. 495,976. Patented Apr. 25, 1893.

Fig. 3.

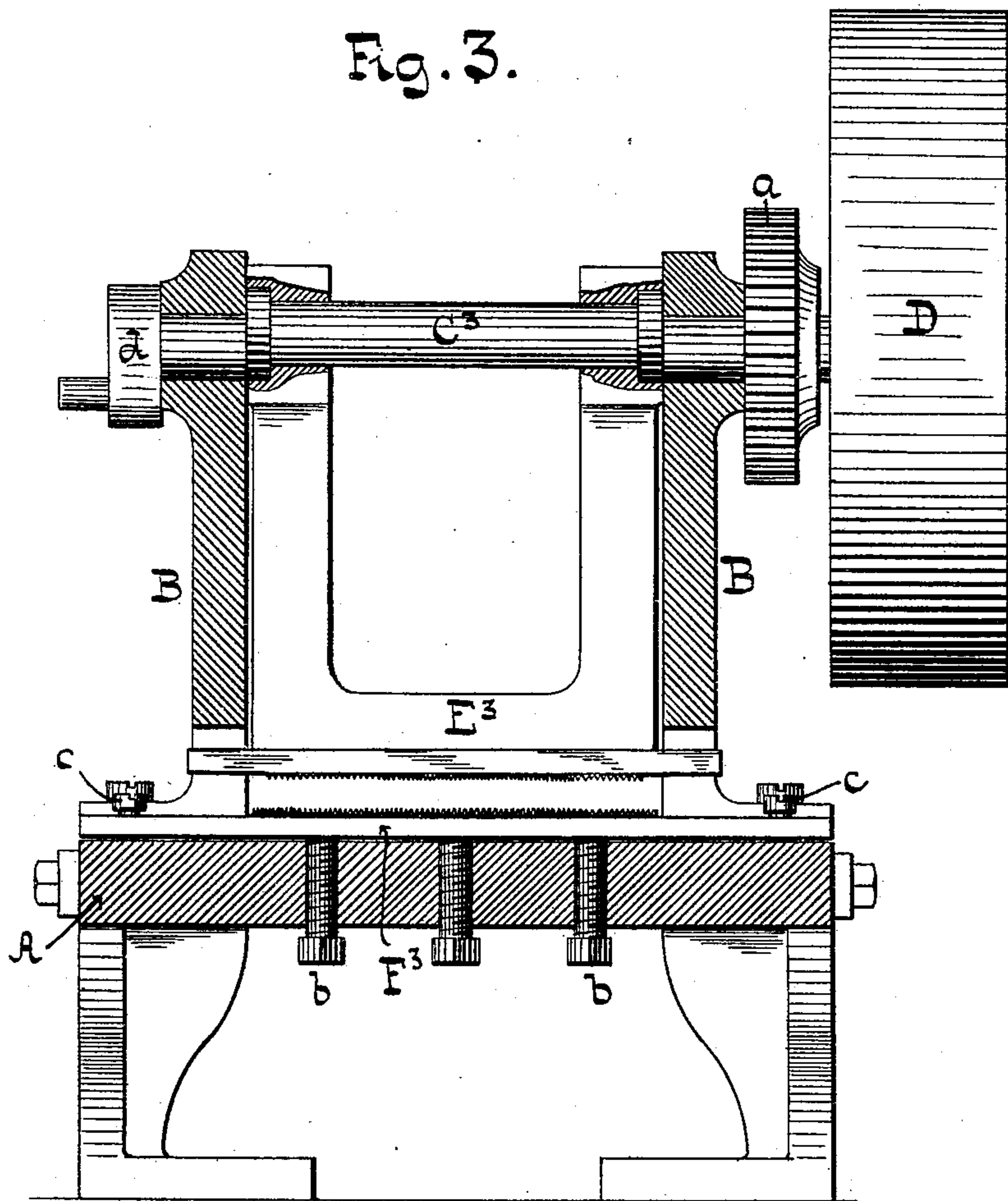


Fig. 4.

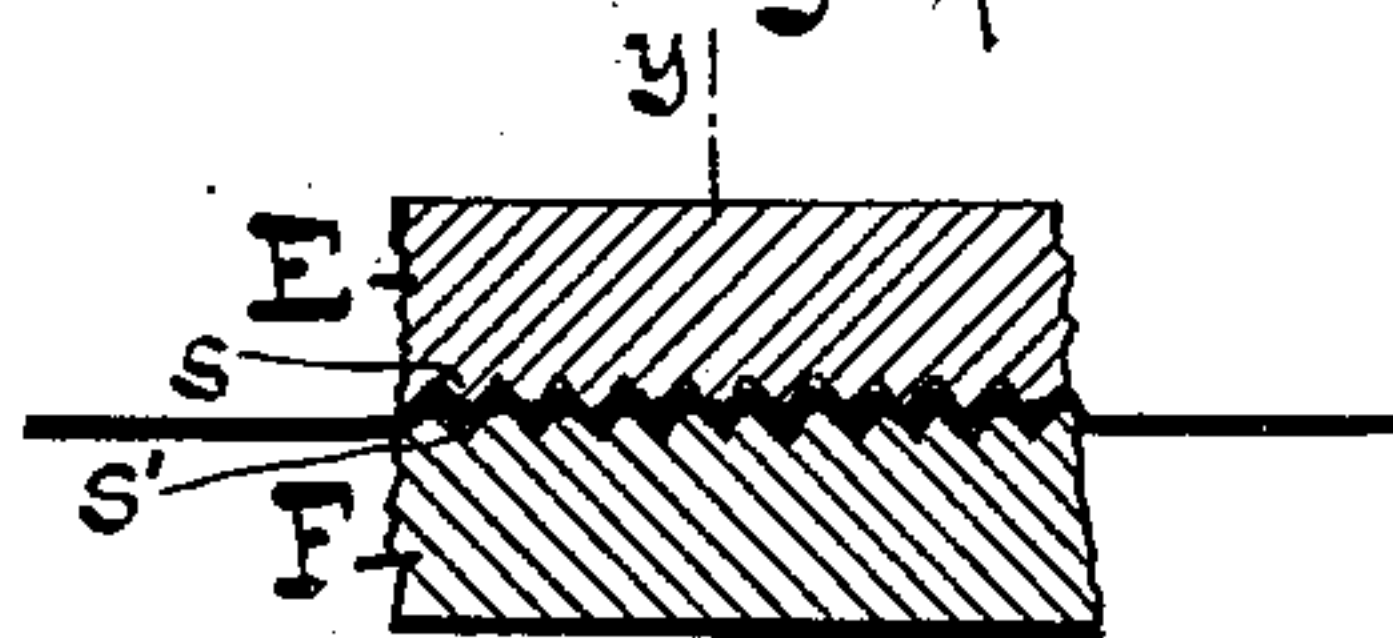
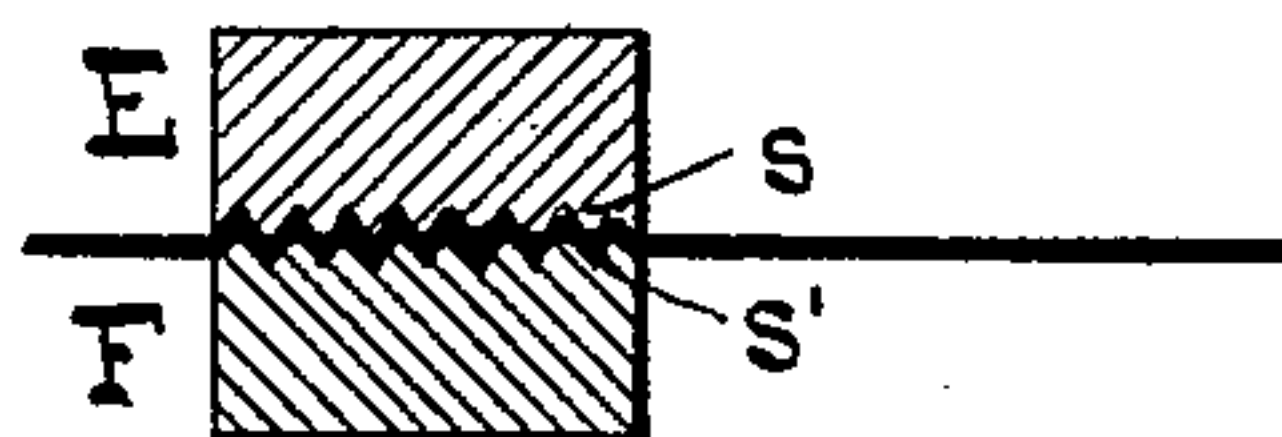


Fig. 4\*



WITNESSES:

Klas H. Perustoff

J. J. Malle

INVENTOR:

BY Gustav L. Jaeger,  
Attorney at Law.  
ATTORNEY



G. L. JAEGER.  
METHOD OF MANUFACTURING BLOTTING PAPER.  
No. 495,976. Patented Apr. 25, 1893.

Fig. 9.

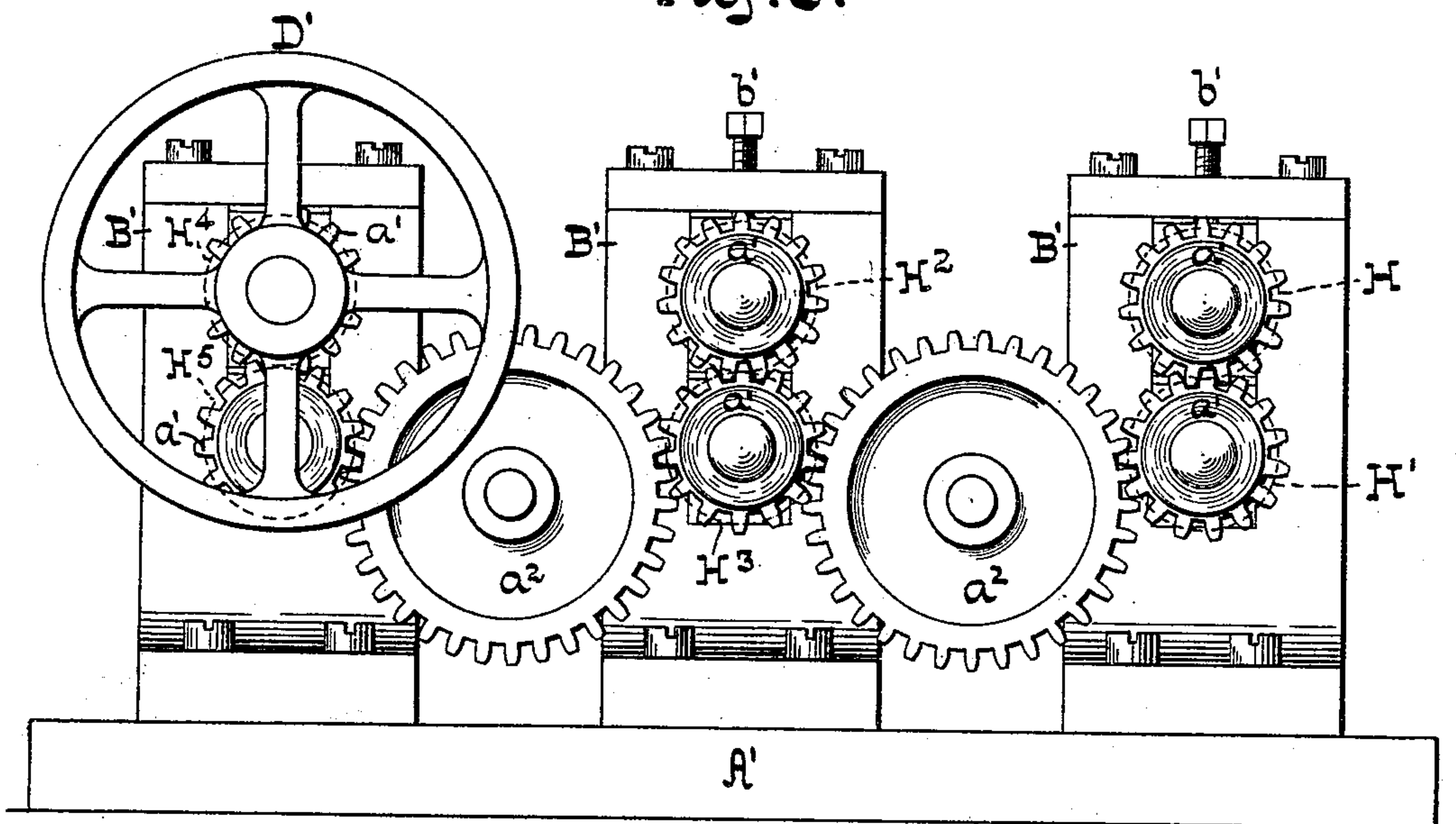
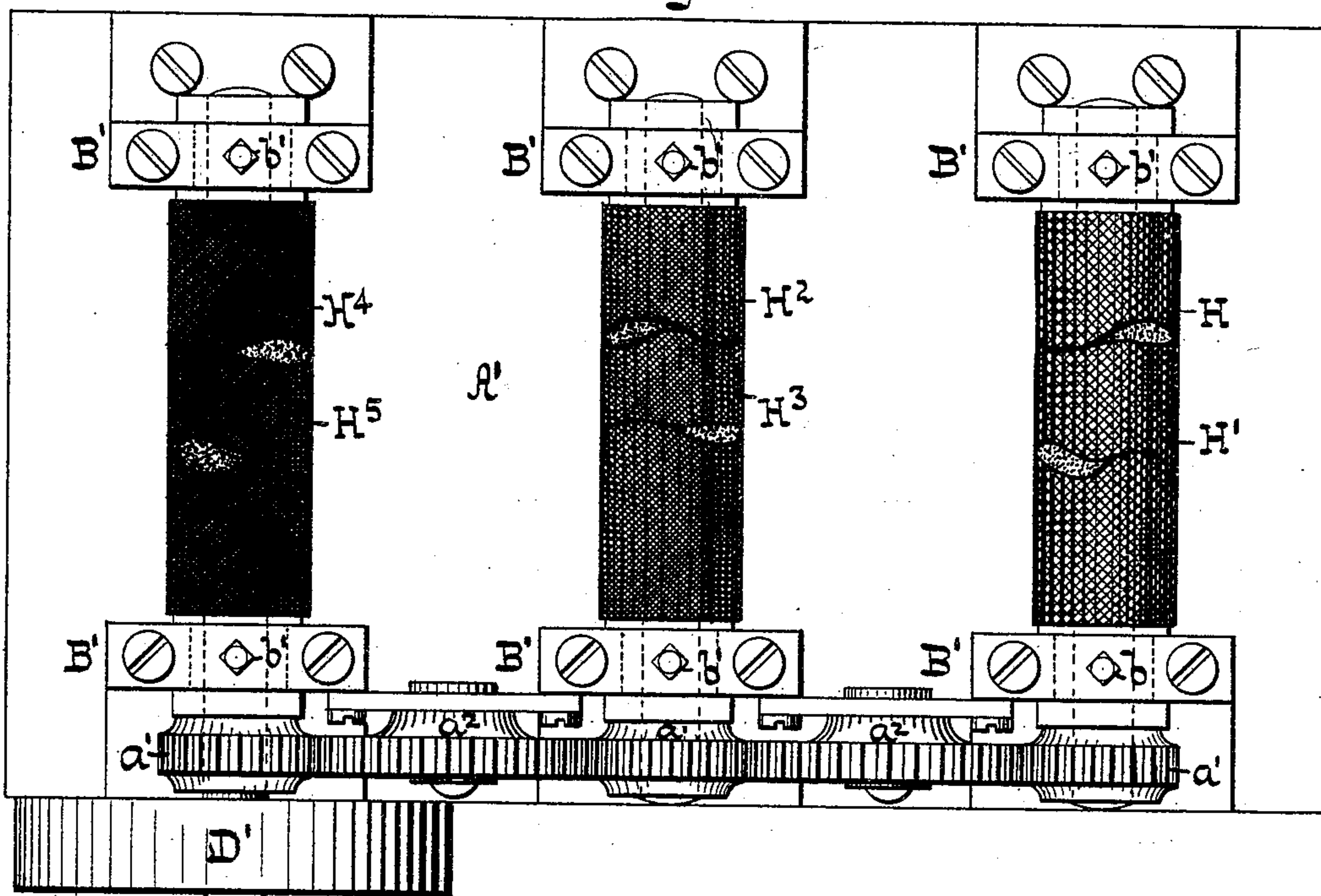


Fig. 10.



WITNESSES:

*Klas H. Perustest*  
*J. J. Malle.*

INVENTOR:

BY *Gustav L. Jaeger,*  
*Alfred du Puy,*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

GUSTAV L. JAEGER, OF MAYWOOD, NEW JERSEY.

## METHOD OF MANUFACTURING BLOTTING-PAPER.

SPECIFICATION forming part of Letters Patent No. 495,976, dated April 25, 1893.

Application filed June 8, 1892. Serial No. 435,992. (Specimens.)

*To all whom it may concern:*

Be it known that I, GUSTAV L. JAEGER, a citizen of the United States, and a resident of Maywood, in the county of Bergen and State  
5 of New Jersey, have invented certain new and useful Improvements in Methods of Manufacturing of Blotting-Paper, of which the following is a specification.

My invention has reference to the manufacture of bibulous paper from ordinary paper, preferably unsized paper as delivered from the machine; and it has for its special object the manufacture, at a low cost, of commercial blotting paper which shall have the appearance and possess all the essential qualities of the paper made by the more expensive and slow processes now in use.

To this end my invention consists in subjecting the stock repeatedly to an indenting  
20 action, as distinguished from a mere fluting or bending action, to disturb, loosen and separate the fibers throughout the body of the paper, whereby it is rendered highly absorbent,—and coincident therewith the paper is  
25 rendered very pliable,—all of which is more fully pointed out in the following specification and claims and illustrated in the accompanying drawings in which:

Figure 1 represents a side elevation of a  
30 machine constructed for the manufacture of blotting paper according to my invention. Fig. 2 is a plan or top view of the same. Fig. 3 is a vertical section in the plane  $x x$ , Fig. 1. Fig. 4 is a longitudinal section through one  
35 of the sets of stamps and dies, said figure being drawn to a larger scale than the preceding figures. Fig. 4<sup>x</sup> is a cross section in the plane  $y y$ , Fig. 4. Figs. 5, 6, 7 and 8 are full size face views of portions of the several dies.  
40 Fig. 9 is a side elevation of a machine embodying rolls, in place of stamps and dies. Fig. 10 is a plan or top view of the same, parts of the upper rolls being broken away.

Similar letters indicate corresponding parts  
45 throughout the several views.

In the drawings, referring at present to Figs. 1, 2 and 3, the letter A designates a suitable base supporting standards B B provided with bearings for a number of eccentric shafts C  
50 C' C<sup>2</sup> and C<sup>3</sup>, which are connected together by suitable gear wheels  $a$ . On one shaft as C<sup>2</sup> is

mounted a driving pulley D for imparting motion to said shaft, and consequently to the remaining shafts by the connecting gears.

E E' E<sup>2</sup> and E<sup>3</sup> designate the stamps which  
55 have a reciprocating motion imparted thereto by the eccentric shafts, and F F' F<sup>2</sup> and F<sup>3</sup> are the dies located below and in line with the said stamps. These dies are supported upon  
60 suitable set screws  $b$  so that they can be adjusted with respect to the stamps, and are guided by suitable means, such as the screws  $c$  passing through slots at the opposite ends of the dies and entering the base A.

G G' are feed rolls for drawing the paper  
65 through the stamps and dies, the same being rotated by suitable means. In this instance the upper roll G is actuated from the shaft C<sup>3</sup> by a crank  $d$ , link  $e$  and arm  $f$ , the latter carrying a pawl  $g$ , engaging with a ratchet wheel  
70  $h$  on the shaft of said roll. The shaft of the lower roll G is driven from the upper roll by gears  $i$  and  $j$ .

$l$  is a guide roll for the paper. At the opposite end of the machine are secured brackets (broken away), which have bearings as  
75 usual for the support of the roll of paper;  $m$  is the guide roll.

The dies F and the lower parts of the stamps are made of steel.  
80

Referring to Figs. 4 to 8, it will be seen that the working faces of the stamps and dies are formed with numerous small projections as  $s$  and recesses as  $s'$ , the same being formed therein by milling, cross cutting or in any  
85 other suitable manner, preferably however by cross-cutting with a diamond pointed tool. In practice I make the milling on each set of the stamps and dies precisely alike so that the paper is worked up from both sides. The  
90 stamps and dies are set into the machine to cause the projections and recesses to mesh when said stamps and dies are brought together, whereby numerous small indentations and protuberances are formed throughout the  
95 body of the paper;—in other words the body of the paper is pushed in and out from both sides in small portions, whereby its fibers are disturbed and loosened. This effect can be increased by gradually decreasing the magnitude of the projections and recesses in the  
100 successive stamps and dies to the action of



which the paper is subjected, or vice versa, by gradually increasing the magnitude of the projections and recesses.

In the example illustrated I make use of four sets of stamps and dies, however more or less could be used; but I have found that this number does the work very successfully. The first set of stamps and dies E F to which the paper is subjected (Fig. 8) is somewhat coarse, having about eight projections to the inch; the last set  $E^3 F^3$  has about thirty-two or more projections to the inch, while the intermediate sets  $E' F'$  and  $E^2 F^2$  are milled or cross cut in proportion. Of course departures can be made from the sizes given. If desired the recesses may be made somewhat larger than the projections, in order to avoid undue compression of the paper, or the same object may be attained by so setting the dies that there shall be a clearance between the same and the stamps when the latter are at the lower end of their strokes.

The stamps are run at about three hundred strokes per minute, while the speed of the paper is about eighteen to twenty inches per minute.

To lessen the power required and also the strain on the machine, the eccentric shafts are preferably set to cause the stamps to act in succession on the paper, and not at one and the same time.

While I prefer to use stamps and dies as being more rapid in working up the fibers of the paper,—rolls provided with faces similar to the stamps and dies may be used. Such a

machine I have illustrated in Figs. 9 and 10, in which  $H H'$ ,  $H^2 H^3$  and  $H^4 H^5$  designate the embossed or milled rolls mounted in bearings in standards  $B'$  of the base  $A'$ . The shafts of the rolls are connected by gear wheels  $\alpha'$  and  $\alpha^2$  and driven by the pulley  $D'$  mounted on the shaft of roll  $H^4$ .

$b'$  are the set screws for adjusting the upper rolls with respect to the lower.

I am aware that paper has heretofore been rendered bibulous to a certain degree by the bending action induced by corrugated or fluted rolls;—such therefore I do not claim.

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

1. The herein described method of manufacturing blotting paper, which consists in subjecting the stock repeatedly to an indenting action, in distinction to a mere bending action, substantially as described.

2. The herein described method of manufacturing blotting paper, which consists in subjecting the stock simultaneously and repeatedly on both sides thereof to an indenting action gradually varying in fineness, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 1st day of June, 1892.

GUSTAV L. JAEGER.

Witnesses:

E. PATTERSON,  
KLAS H. TERNSTEDT.