F. WURTZBACH.

Apparatus for Forming and Cutting Sheets of Paper-Pulp.

No. 217,666. Patented July 15, 1879.

Fig. 1.

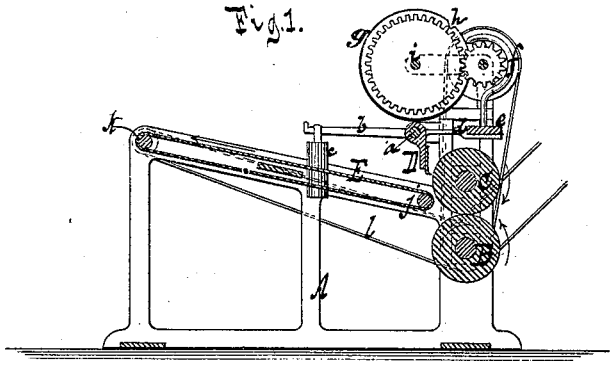
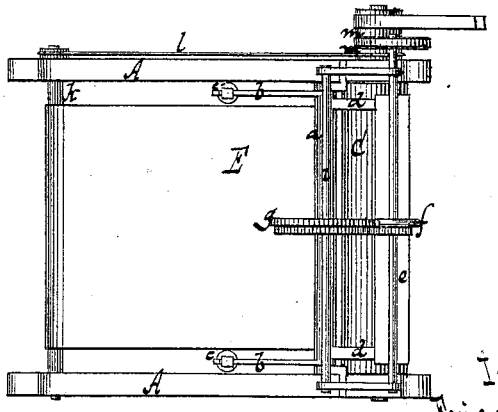


Fig. 2.



Witnesses.
Otto Shipland
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by
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his attys

UNITED STATES PATENT OFFICE.

FRIEDRICH WÜRTZBACH, OF CURTISVILLE, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR FORMING AND CUTTING SHEETS OF PAPER-PULP.

Specification forming part of Letters Patent No. **217,666**, dated July 15, 1879; application filed May 14, 1879.

To all whom it may concern:

Be it known that I, FRIEDRICH WÜRTZBACH, of Curtisville, in the county of Berkshire and State of Massachusetts, have invented a new and Improved Apparatus for forming and cutting Sheets of Paper-Pulp, which invention is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a longitudinal vertical section. Fig. 2 is a plan or top view.

Similar letters indicate corresponding parts.

This invention consists in the combination, with a press-roller, a sheet-forming roller, and with an endless apron which serves to carry off the sheets after they have been cut, of a cutting mechanism which is geared together with the sheet-forming roller, so that whenever a layer of sufficient thickness has been formed on the sheet-forming roller this layer is cut automatically and carried off by the endless apron; also, in the combination, with the sheet-forming roller, and with the apron which serves to carry off the sheets after they have been cut, of a knife which is exposed to the action of a weight or spring having a tendency to throw said knife toward the sheet-forming roller, and a cam which keeps the knife back against the action of the spring or weight acting thereon, and allows said knife to follow said spring or weight whenever a layer of sufficient thickness has been formed on the sheet-forming roller.

In the drawings, the letter A designates a frame of any suitable material adapted to form or to support the bearings of the working parts of my apparatus. In this frame is mounted a roller, B, to which a positive revolving motion is imparted by any suitable motive power, and above this roller B is situated another roller, C, which revolves by frictional contact with the roller B, and which can freely rise and fall in its bearings. The wood-pulp is conducted directly from the pulping-machine to the rollers B C by means of a felt or apron, and as said rollers revolve in the direction indicated by the arrows marked thereon in Fig. 1, the upper or sheet-forming roller C takes up the pulp, so that it becomes covered with a layer of pulp that constantly increases in thickness.

The letter D indicates a knife arranged longitudinally along one side of the roller C, on which the layer or pulp is formed, and E indicates an endless carrying-apron for carrying off the pulp in the form of a sheet after the layer has been severed longitudinally on said roller. The cutting-knife D being arranged longitudinally along one side of the roller C, and immediately above the lower end of the apron E, the lower end of the layer of pulp, when severed on the roller, will fall behind or in rear of the knife, and the entire sheet be by it directed outward and upon the rapidly-traveling apron, and the rapid movement of the latter will tend to draw the sheet from the roller.

In the example shown in the drawings, the knife D is secured to a rock-shaft, *a*, which has its bearings in suitable brackets secured to the frame A, and from which extend two arms, *b*, from which are suspended weights *c*, which have a tendency to throw the cutting-edge of the knife toward the roller C. It is obvious that springs may be substituted for the weights *c* without changing the result. From the rock-shaft *a* extend also two arms, *d*, in a direction opposite to the arms *b*, and on said arms *d* is firmly secured a traverse, *e*, from which rises a curved lever, *f*. By the action of the weights *c* the outer or free end of this lever is held in contact with cam *g*, which is provided with one or more depressions, *h*, so that by its action on the lever *f* the cutting-edge of the knife D is held at a distance from the surface of the sheet-forming roller C until one of the depressions of the cam comes opposite to the end of the lever *f*, when the knife D is free to follow the action of the weights *c*, and to cut the layer of pulp formed on the roller C.

The cam *g* is mounted on a shaft, *i*, to which a slow revolving motion is imparted by suitable gearing from the driving-shaft of my apparatus, and in the example shown in the drawings said cam is provided with only one depression, *h*, so that for each complete revolution of the same the layer of pulp formed on the roller C will be cut, the speed of the cam and of the sheet-forming roller being so adjusted that a layer of pulp of sufficient thickness will form on said roller before the action of the knife takes place.

The apron E is stretched round rollers *j k*,

and the roller *k* connects by a belt, *l*, with a pulley, *m*, mounted on the driving-shaft of my apparatus, so that a rapid revolving motion is imparted to it, causing the apron E to move in the direction of the arrow marked on it in Fig. 1 with a velocity which is greater than that of the felt that serves to feed the pulp to the rollers B C. As soon as the layer of pulp on the sheet-forming roller C has been cut by the knife, said layer is received upon the apron E in the form of a flat sheet, and carried off with great rapidity, so that the cut sheet will not carry off any of the pulp which is fed to the rollers B C by the felt. By these means the operation of cutting the sheets is performed automatically, and the expense of having this operation performed by hand-labor is saved.

It is obvious that the position and the shape of the knife D may be changed from that shown in the drawings; but its position should be such that when said knife is thrown toward the sheet-forming roller its cutting-edge will not be permitted to come in contact with and injure the surface of said roller.

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

1. A machine for forming and cutting sheets of paper, embodying in its construction the combination of a sheet-forming roller, a press-roller, a knife arranged longitudinally along one side of the latter, mechanism, such substantially as described, for carrying said knife at stated intervals toward the sheet-forming roller for severing the sheet thereon in a longitudinal line, and an endless apron for carrying off the sheets after they have been severed by the knife, all essentially as shown and described.

2. The combination, with the sheet-forming roller C and the apron E, of a knife, D, a spring or weight having a tendency to throw said knife toward the roller C, and a cam which keeps the knife back against the action of its weight or spring, and allows said knife to act whenever a layer of pulp of sufficient thickness has been formed on the sheet-forming roller, substantially in the manner shown and described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 19th day of April, 1879.

FRIEDRICH WÜRTZBACH. [L. S.]

Witnesses:

H. M. BURRALL,

F. HOFFMANN.