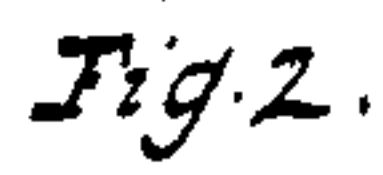


F. H. GROTE.  
PRINTING MACHINE.

Patented June 11, 1889.



INVENTOR:  
*Frederick H. Grote.*

BY *Van Gantwood & Hauff*  
ATTORNEY





# UNITED STATES PATENT OFFICE.

FREDERICK H. GROTE, OF JERSEY CITY, NEW JERSEY.

## PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 405,159, dated June 11, 1889.

Application filed October 25, 1888. Serial No. 289,092. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK H. GROTE, a citizen of the German Empire, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Printing-Machines, of which the following is a specification.

This invention relates to an improvement in printing-machines, as set forth in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a sectional side elevation of a printing-machine. Fig. 2 is a view similar to Fig. 1, showing parts in different position than in Fig. 1. Fig. 3 is a section along the line  $x x$ , Fig. 1. Fig. 4 shows a smoothing-roller.

Similar letters indicate corresponding parts. In the drawings, the letter A indicates a frame or support. A reciprocating carriage B moves back and forth along suitable ways in the frame A. The carriage B supports the type or a printing-block C. In the drawings, Fig. 3, the printing-block is shown as having the representation of a flag.

D E are presser-rollers, between which the carriage reciprocates, the roller D serving as a supporting-roller for the carriage.

F G is an endless apron composed of the rubber blanket or sheet F, and the straps, ropes, or bands G. The entire belt might be made from a rubber blanket; but it is cheaper to make part of the belt of a blanket and the rest of ropes or bands. The belt is fixed or secured at one portion to the carriage, so that as the carriage reciprocates the belt will also reciprocate. The rollers E H serve as supporting-rollers for the belt, and the set-screws I of the roller H enable the proper tension to be given to the belt. To the belt portion F is secured a knife-blade or cutter K, by rivets or other suitable means. From the shaft L the fabric or material M to be printed—such as paper or cloth—can be unrolled. The smoothing-rollers N O remove wrinkles from the fabric M. The rollers N are formed, as shown in Fig. 4, with screw-threads running from the center of the roller outward toward each extremity, so that as the fabric M passes between the rollers N and said rollers rotate,

the wrinkles in said fabric will be smoothed out. The rollers O, pressing upon the fabric, serve to keep the fabric in the smoothed condition in which it came from the rollers N, and also to press out any wrinkles which may still remain in the fabric.

The operation of the device is as follows: The free end of the fabric M is passed over the points or prongs P on the carriage. The points P, piercing into the fabric, hold said fabric, so that, when the carriage passes in the direction of arrow 1, the end of the fabric is carried along with the carriage. The crank Q, Fig. 3, enables the roller D to be rotated, so as to move the carriage B in the direction of arrow 1 from the position shown in Fig. 1 to the position shown in Fig. 2. By this operation a part of the fabric M is printed and the cutter K severs the printed portion of the fabric from the body of the fabric, as seen in Fig. 2. A bearing-cushion R—of soft material, such as cork—is provided for the cutter K, so that the cutter can readily sever the fabric. The crank Q being released, the cord S and weight T move the carriage B back to the position shown in Fig. 1, when the printed portion of the fabric can be removed from the block C, and the free end of the remainder of the fabric M can again be pressed onto the prongs P, and the printing operation can be resumed.

It will be noticed that the apron F G, in addition to carrying the knife K, also serves to hold the material M being printed snugly against the type or printing-block C.

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

1. The combination, with a reciprocating carriage and an endless apron fixed to said carriage, of supporting and presser rollers for said apron and carriage, substantially as described.

2. The combination, with a reciprocating carriage and a reciprocating apron provided with a cutter, of supporting and presser rollers for said apron and carriage, substantially as described.

3. The combination, with a reciprocating apron provided with a cutter, of a reciprocating carriage provided with a bearing-cushion for said cutter, and supporting and presser

rollers for said apron and carriage, substantially as described.

5 4. The combination, with the reciprocating carriage having points or prongs for holding the fabric to be printed, of supporting and presser rollers for said carriage, and smoothing-rollers for said fabric, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

FREDERICK H. GROTE. [L. S.]

Witnesses:

ERNST STELTSMANN,  
W. C. HAUFF.