R. WERNER.

Crimping and Fluting Machines.

No. 134,621. Patented Jan. 7, 1873.

Fig. 1.

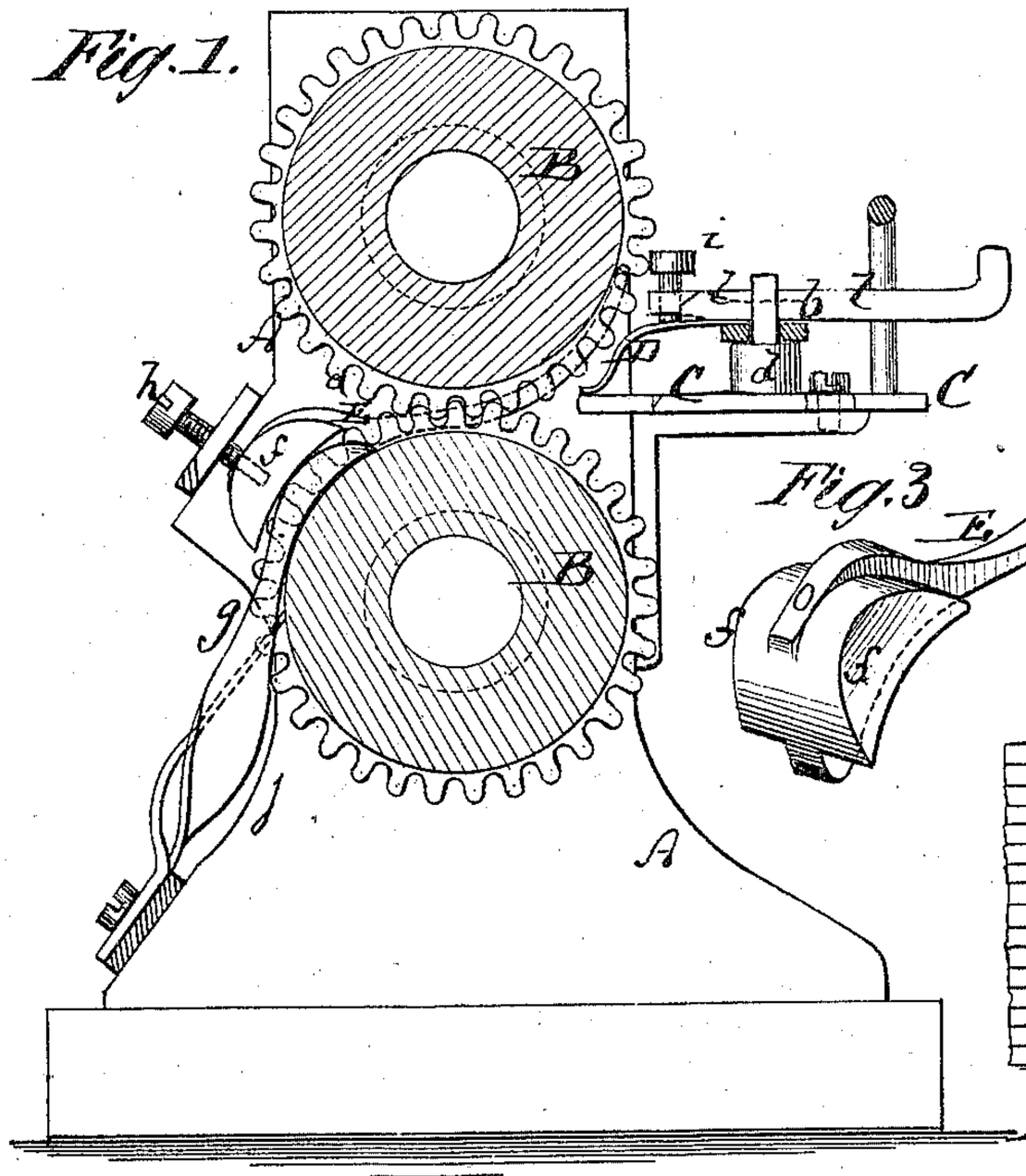

Fig. 3

Fig. 4.

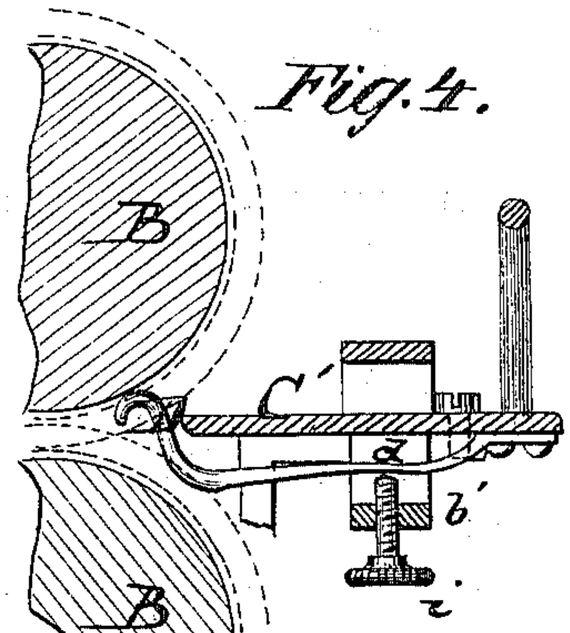

Fig. 5.

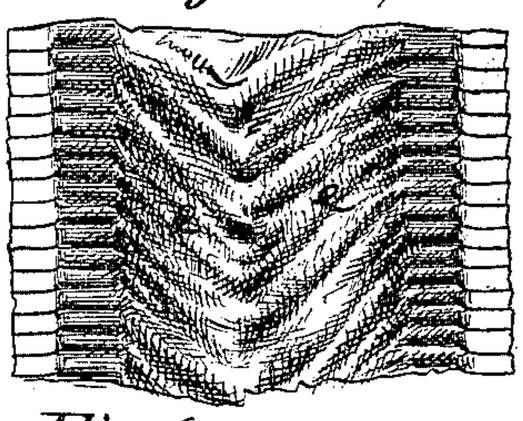

Fig. 7.

Fig. 6.

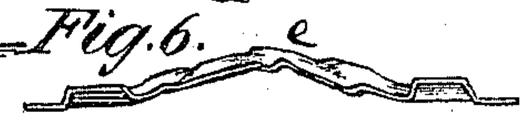

Fig. 2.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN CRIMPING AND FLUTING MACHINES.

Specification forming part of Letters Patent No. **134,621**, dated January 7, 1873.

To all whom it may concern:

Be it known that I, ROBERT WERNER, of Hoboken, in the county of Hudson and State of New Jersey, have invented a new and Improved Combined Crimping and Fluting Machine, of which the following is a specification:

Figure 1 represents a vertical transverse section of my improved crimping and fluting machine, the line *c c*, Fig. 2, indicating the plane of section. Fig. 2 is a plan or top view of the same. Fig. 3 is a perspective view of the device for holding the fluting against the rollers. Fig. 4 is a vertical transverse section of a modification of my invention; Fig. 5, a face view of the crimping and fluting produced on the machine; Fig. 6, a transverse section; and Fig. 7, a longitudinal section of such fluting and crimping.

Similar letters of reference indicate corresponding parts.

This invention relates to a new machine for producing a fluted and crimped fabric, substantially like that for which a design patent was granted to me on the 29th day of November, 1870, from a smooth and flat woven fabric; and the invention consists, principally, in the application to fluting-rollers of a detent or finger by which a portion of the fabric is held back, and thereby formed into V-shaped, but more or less irregular, lateral waves or crinkles, whereby the stated and desired effect is produced. This finger is made to bear against a platform over which the fabric is passed to the fluting-rollers, or directly against one of the rollers, as may be desired. The invention also consists in a new arrangement and connection, with said fluting-rollers, of a device for holding the fluted fabric in contact with the same while the crinkled portion of the fabric is being elevated and puffed up by a projecting rib or stationary plate, all as hereinafter more fully described.

In the accompanying drawing, the letter A represents the frame of the machine. In the same are the bearings of two fluting-rollers, B B, which are parallel with each other, and, by preference, in a horizontal position, as indicated. The rollers B are provided with zones *a a* of fluting or toothed portions, which will cause certain strips of the fabric which pass between the said rollers to be fluted, while the remaining portions of the same fabric will not be fluted. C is a platform secured to the framework A in front of and about in line with the space between the two rollers. D is a detent or spring fastened to a bar, *b*, which rests, by posts *d*, upon the platform C. The free end of the spring D bears against said platform midway between the two inner zones or any pair of zones *a a* on said rollers. The fabric is passed over the platform C before it enters the rollers, or rather in its passage to the said rollers, and is consequently passed under and subjected to the pressure of the spring D, being fed or drawn forward by and between the rollers. That portion of the fabric which is subjected to the pressure of the spring D will be detained or held back or stretched back to be drawn into the V-shaped crinkles or crimping which is indicated in Fig. 5, at *e*. This effect, of course, can only be produced if the detent D bears upon the fabric previous to its being acted upon by the rollers, so that the portion affected by said spring can be drawn back by the detent in the manner shown. The same effect can be produced by the modified form of detent shown in Fig. 4, in which case the said detent is made to bear against one of the rollers B and fastened to the under side of a plate, C′. This modification can only be used when the detent bears against the rollers so far forward of the line that connects the two axes of the two rollers that sufficient material will be at the command of the detent to draw the fabric back into the V-shaped crimping; for, if the detent would apply to the middle of the roller when the fluting has already hold of the fabric, the drawing back could not be produced, inasmuch as the fluting would take up all the surplus fabric and none would be left for the effect by the detent. E E are metallic plates or bars provided with projecting cheeks *f*, which said cheeks bear against the fluted portions of the fabric as it emerges from between the two rollers, and hold said fluted portion in contact with the lower roller, while a projecting rib, *g*, moves the center of the crinkled portion from off said roller. This gives the transverse wave of the fabric which is indicated in Fig. 6. The plates or bars E E can, by set-screws *h h*, be adjusted nearer to or further away from the fluted portions of the rollers, for the purpose of holding the fluted portion of the fabric more or less firmly against the

rollers, and for flattening portions of the fluting between the zones *a*. The rollers may be made hollow to be heated by steam or otherwise, so that the fabric which is passed between them, preferably in a moist state, may retain the form into which it is put by the action of the machine. It will be found convenient to raise the detent D off the platform C, (or withdraw it from contact with the roller B, when placed as in Fig. 4,) in order to enter the end of the fabric between the rollers. With this object, the bar *b* is made detachable and locked by keys *l l*, (or the plate C′ made to be drawn back and forward.)

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The detent D arranged, in combination with the fluting-rollers B B, to produce the crinkles or puffing on the fabric which is partially fluted, as set forth.

2. The platform C or C′ arranged, in combination with the detent D and rollers B, as specified.

3. The cheek-pieces *f* in the plates E, applied, in conjunction with the projecting rib *g*, to the fluting-rollers B B, as specified.

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