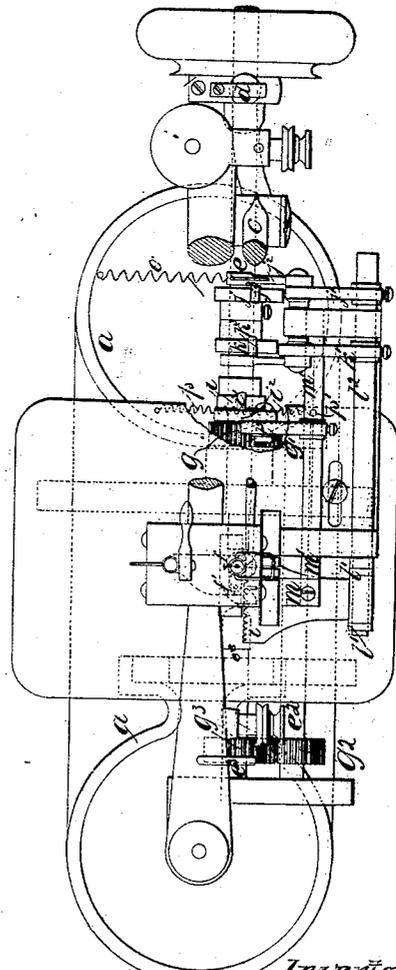
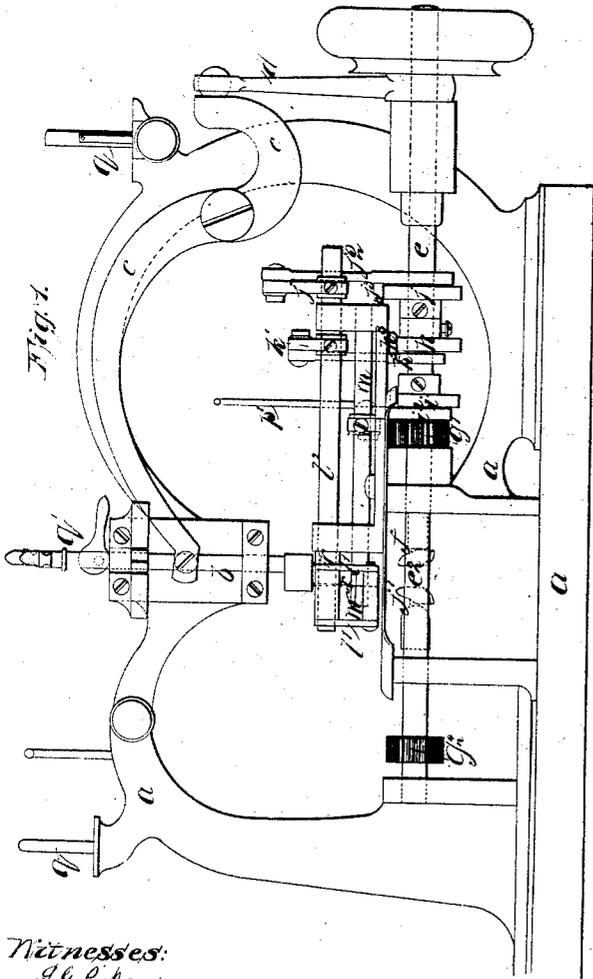
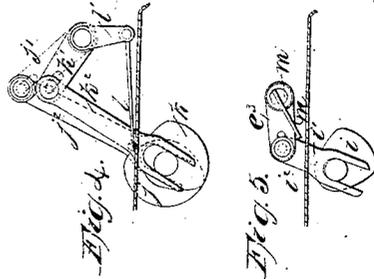
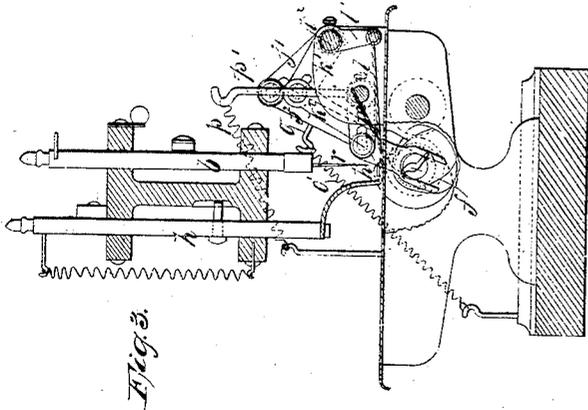


C. O. CROSBY & H. KELLOGG.
MACHINE FOR FRILLING AND CRIMPING.

No. 37,033.

Patented Dec. 2, 1862.



Witnesses:
J. R. Roke
C. H. Shelton

Inventors
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Fig. 7.

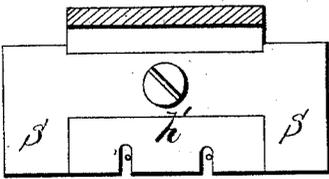


Fig. 8.

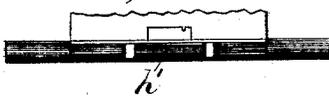


Fig. 9.

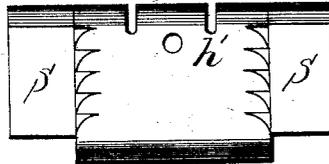


Fig. 10.



Fig. 11.

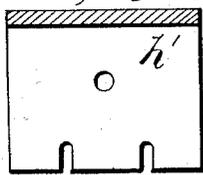


Fig. 12.

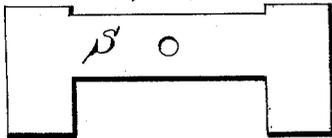


Fig. 6.

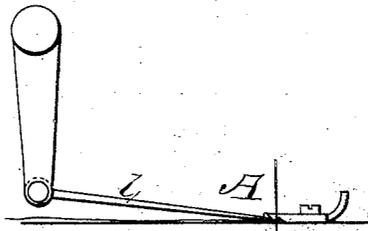
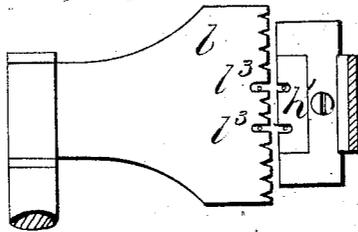


Fig. 14.

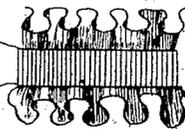
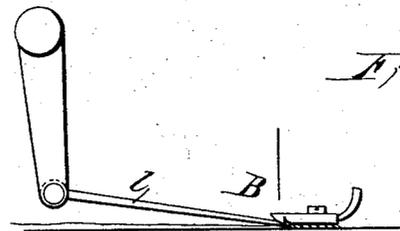


Fig. 13.

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UNITED STATES PATENT OFFICE.

C. O. CROSBY AND HENRY KELLOGG, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN MACHINES FOR FRILLING AND CRIMPING.

Specification forming part of Letters Patent No. 37,033, dated December 2, 1862.

To all whom it may concern:

Be it known that we, C. O. CROSBY and HENRY KELLOGG, of the city of Hartford, in the State of Connecticut, have invented a new and useful Machine for Frilling or Crimping Muslin, Linen, and other Textile Materials; and we do hereby declare that the following, taken in connection with the drawings, is a full, clear, and exact description thereof.

In the drawings, Figure 1 is an elevation of the machine from that side on which the material to be crimped enters. Fig. 2 is a plan of the same, certain parts being represented as broken away so as to show others lying beneath them. Fig. 3 is a vertical transverse section through the machine. Fig. 4 is a detail showing the cams that actuate the crimper and the crimper itself. Fig. 5 is a detail showing the crimper-spring and its actuating-cams. Fig. 6 is a plan in detail of the crimper and presser-foot and its auxiliary smoother. Fig. 7 is a top view of the same on a large scale, without the crimper. Fig. 8 is a front elevation of the same. Fig. 9 is a plan of the under side of the same. Fig. 10 is a section and side elevation thereof. Fig. 11 is a plan of the presser-foot; Fig. 12, a plan of the auxiliary smoother; Fig. 13, a sketch of the article made by the machine, and Fig. 14 a sketch illustrating the operation of the crimper.

This machine consists essentially of two parts or subdivisions, the one for forming the crimps and the other for securing them in place after they are formed, the latter being any ordinary mechanism for making stitches. In the drawings this mechanism is that described in Letters Patent granted to J. E. A. Gibbs August 10, 1858; but any other mechanism proper for sewing a seam may be used in place thereof.

The mechanism for forming the crimps consists of a crimper which both forms the crimps and spaces them, of a holder for holding the goods at rest while each crimp is formed, and of a contrivance for smoothing down or flattening the crimps, the holding and smoothing being performed by the same instrumentality in the machine represented in the drawings.

In the drawings the bed-plate of the machine is shown at *a a*. This plate is continued upward, and supports in proper guides a needle-

stock, *b*, reciprocated by a lever, *c*, moved by an eccentric-rod, *d*, which receives motion from a revolving main shaft, *e*. This shaft carries at one end the ordinary revolving looper of the Gibbs machine, *f*, and has secured upon it a cog-wheel, *g*, into which engages a cog-wheel, *g'*. This latter wheel is mounted upon a counter-shaft, *e*², which carries another cog-wheel, *g*², which latter engages with a cog-wheel, *g*³, mounted on a shaft, *e*³, which latter carries another revolving looper, *f'*. The use of the cogs and shafts is to cause two loopers to revolve at the same velocity. The bed plate or frame also supports a presser-foot stalk, *h*, depressed, as usual, by a spring, and which carries a presser-foot, *h'*, that rests, as usual, with its lower surface on the table or platform that supports the goods. Upon the main shaft are mounted three cams, *i*, *j*, and *k*. The two latter actuate the crimper *l* and the former the crimper-presser *m*. The crimper lies above the table or platform upon which the goods are supported, is pivoted at one end to two rock-shaft arms, *l' l'*, which are fastened to a rock-shaft, *l*², and this shaft has two other arms, *j' k'*, secured to it, each of which is provided with a connecting-rod, *j*² *k*², the rods being pivoted to the arms. These rods embrace at their lower ends the shaft *e*, and are each provided with a pin, *j*³ *k*³. These pins extend over the cams, and the latter act upon them. It is best to make the rock-shaft arms adjustable upon the shaft, the connecting-rod pivots adjustable in the arms, and the cams adjustable upon the shaft, as shown in the drawings, in order to vary the time and extent of the motions of the rock-shaft, and consequently of the crimper. One of the connecting rods has a pin, *o*, projecting from it, to which is hooked a spring, *o'*, the object of this arrangement being to move the shaft in a direction contrary to that in which it is moved by the cams. The crimper has at its acting end a chisel-edge, serrated and slotted, as at *p*, and reciprocates along the platform when no cloth is in the machine.

The cam *i* acts upon a pin, *i'*, projecting from a connecting-rod, *i*², pivoted in a rock-shaft arm, *i*³, which is fastened to a rock-shaft, *m'*, to which is secured the crimper-presser *m*. The object of this contrivance, which is adjustable in its parts, is to lift the crimper-presser, which

is at other times pressed down upon the crimper by a spring, *p*, acting upon a rod, *p'*, secured to the rock shaft *m'*. Spools of thread are to be mounted upon the spindles *q q*, and their threads are to pass through tension apparatus, thread-controllers, &c., to and through the eyes of the two needles *r r*, in a manner usual in sewing-machines.

The operation of the machines is as follows: An end of a strip of muslin is to be laid upon the platform under the crimper and under the presser-foot, and the needles will descend and have their loops secured by the loopers. While the needles are still in the cloth the crimper has retreated as far as possible from them. The crimper-presser then descends, forced down by its spring, and bears the crimper upon the goods. The latter then advances and makes a crimp of the cloth lying between it and the line where the cloth is grasped between the presser-foot and the table, (see Fig. 14^A.) the crimper being actuated by the cam *j*. The latter then holds the crimper at rest, and the needles leave the cloth. The cam *k* then acts upon the crimper, and it shoves the cloth and the crimp just made under the presser-foot, the latter smoothing down or flattening the crimp by its spring-pressure upon the goods. During this second advance of the crimper it pushes the goods along under the presser-foot. The crimper now pauses, and the needles enter behind the crimp just formed. (See Fig. 14^B.) Cam *i* now comes into action and lifts the crimper-presser, relieving the crimper from the pressure of the spring, so that the crimper may slide back without any tendency to ruck up the goods, and when *m* is elevated the cams *j* and *k* permit the spring to draw the crimper back, ready to take a new crimp. The crimper is slotted, as at *l¹ l²*, so that the needles may pass through it while it holds the crimp formed and flattened, and may enter through one thickness of cloth, so that the upper part of the stitch lies over each crimp; but the relative positions of the needles and crimper may be varied so as to permit the needles to pass through the crimps. While *l* moves to crimp it acts as a crimper or folder or friller. After the crimp is formed it acts as a spacer to space the crimps apart and as a pusher to force the goods through the machine. The presser-foot and the table in conjunction act as a holder, holding the goods at rest while the crimp is formed, and the presser-foot alone acts as a smoother, flattening the crimp down smooth and to an edge while the goods are being crimped or pushed forward by the crimper. The needles alone will serve to hold the cloth while the crimp is being made, and we intend to use them for that purpose, or any agency acting as a piercer, like the needles, or as a compressor, like the presser-foot and table, the object of the contrivance being to hold the goods at rest while the crimp is being made.

The crimp may be flattened down while it is being formed by a spring-surface acting above

the crimper in the same manner as the presser-foot, but at a different period of the operation.

The quantity of material taken up by each crimp depends upon the distance that the crimper vibrates downward from the holder or holding-line of the goods. The space between the crimps depends upon the length of the advance of the crimper after the crimp is formed, and in the machine shown in the drawings the range of motion of the crimper either to crimp or to space is adjustable. These motions in the machine shown in the drawings are derived from two cams, and there is a pause between them; but the motions may be derived from one cam or from any other mechanical contrivance, and the motions may also be continuous. We intend sometimes to add to the machine an ordinary rough-surface feed, acting below the cloth (at the time during which the crimper acts as a spacer) and feeding to the same extent as the crimper shoves the goods, in order to aid the latter in forcing the finished crimp along when there is a heavy pressure upon the presser-foot. We also intend to attach a weight to the finished end of the frill, not sufficiently heavy to draw the frill along, but so heavy as to aid in drawing it when the pusher does its work; and we also intend, by means of a cam or other mechanism, to cause the presser-foot spring to relax its pressure to a certain extent while the pusher is forcing the goods along.

The goods or strips of goods which we usually frill are hemmed on each side prior to being crimped; and in order to make such goods pass more easily through the machine, and at the same time flatten down that part of the crimp between the line of seam and the edge, we have contrived an auxiliary smoother, *s*. This is a springy piece of metal screwed down on top of the presser and projecting on each side of it, with a face just above the table, similar to that of the presser. When the finished frill projects on each side of the seam these faces are to lie on both sides of the presser. The spring of this piece of metal is distinct from that of the presser-foot. Its acting surfaces can rise without lifting the foot, and they thus permit the comparatively thick hem to pass easily, and at the same time prevent the hem from lifting the presser-foot, so as to interfere with its holding or smoothing action. A good frill can be made with a presser-foot alone when it is so narrow that the hems do not pass under it.

Both the presser-foot and the smoother are in practice slightly notched on the under edge, the straight sides of the notches being so placed as to resist any tendency of the crimper to draw the goods backward. This is a nicety of construction, not a necessity.

We intend at times to use the machine with one needle, making a frill like one-half of that shown in Fig. 13, and we intend to use any proper sewing mechanism in place of that shown so long as such mechanism is so com-

bined with the crimper and accessories as to make stitches of either one or two threads to hold the crimps in place.

The crimper may be a spring and bear constantly upon the goods, or it may have a spring acting constantly upon it; but as we usually frill delicate goods we prefer to relax its pressure, as described, while the crimper is retreating.

The crimper acts in combination with the table, impinging the goods upon it and sliding them along its surface. It also acts in combination with a holder—such as the presser-foot—and table or the needles while in the goods, or both of them, or some equivalent piercing or gripping mechanism.

We claim as of our own invention—

1. A crimper acting, substantially as described, to crimp goods and to space the crimps, in combination with a table or platform and a holding mechanism or holder substantially such as described, the combination acting substantially as specified, and we claim these also in combination with either one or two mechanisms for making stitches, substantially as specified.

2. In combination, a crimper and a smoother substantially such as described, and acting, substantially as specified, to fold the crimps to an edge.

3. A crimper whose acting edge is provided with slots, substantially as described, to admit the passage of a needle to secure the crimps as formed while said crimps are being held by the crimper.

4. In combination with a crimper substantially such as specified, a spring acting to force said crimper upon the goods while crimping them and relaxing its pressure while the crimper is retreating, substantially in the manner and for the purpose specified.

5. An auxiliary smoother having a mode of operation substantially as specified, in combination with a crimper and a holder or holding mechanism substantially such as described.

In testimony whereof we have hereunto subscribed our names.

C. O. CROSBY.
HENRY KELLOGG.

In presence of—
L. G. PECK,
C. M. SHELTON.