

H. C. KERSTEN & A. SCHAUPP.
Machine for Making Dress-Trimming.
No. 221,465. Patented Nov. 11, 1879.

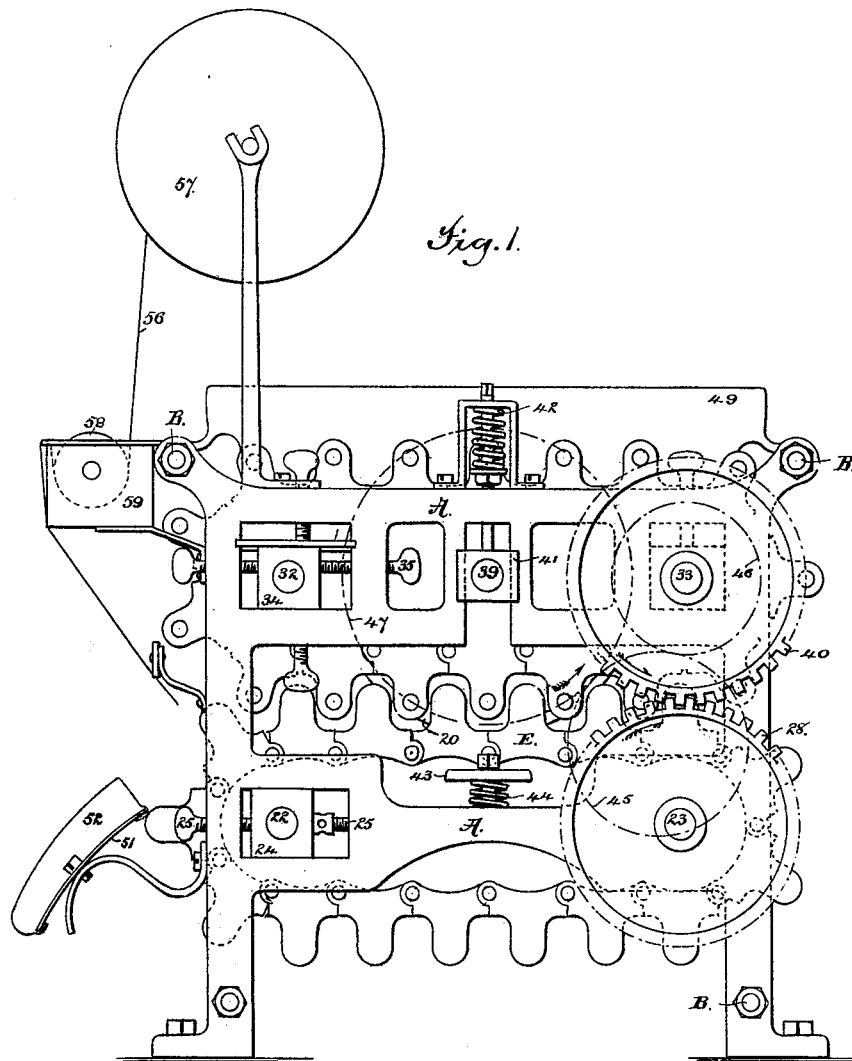


Fig. 1.

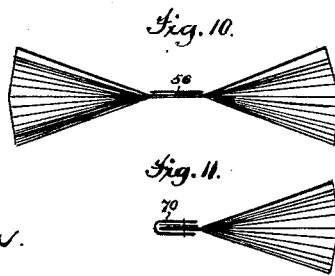


Fig. 10.

Fig. 11.

Attest,
Geo. H. Graham
John Boleschka.

Inventors,
Henry C. Kersten, and
Albert Schapp
by Munson & Philipp
Attys.

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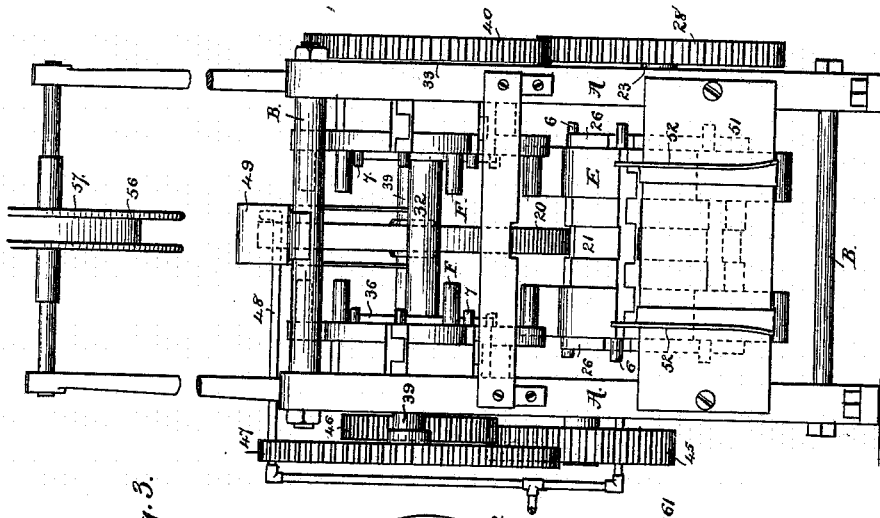


Fig. 3.

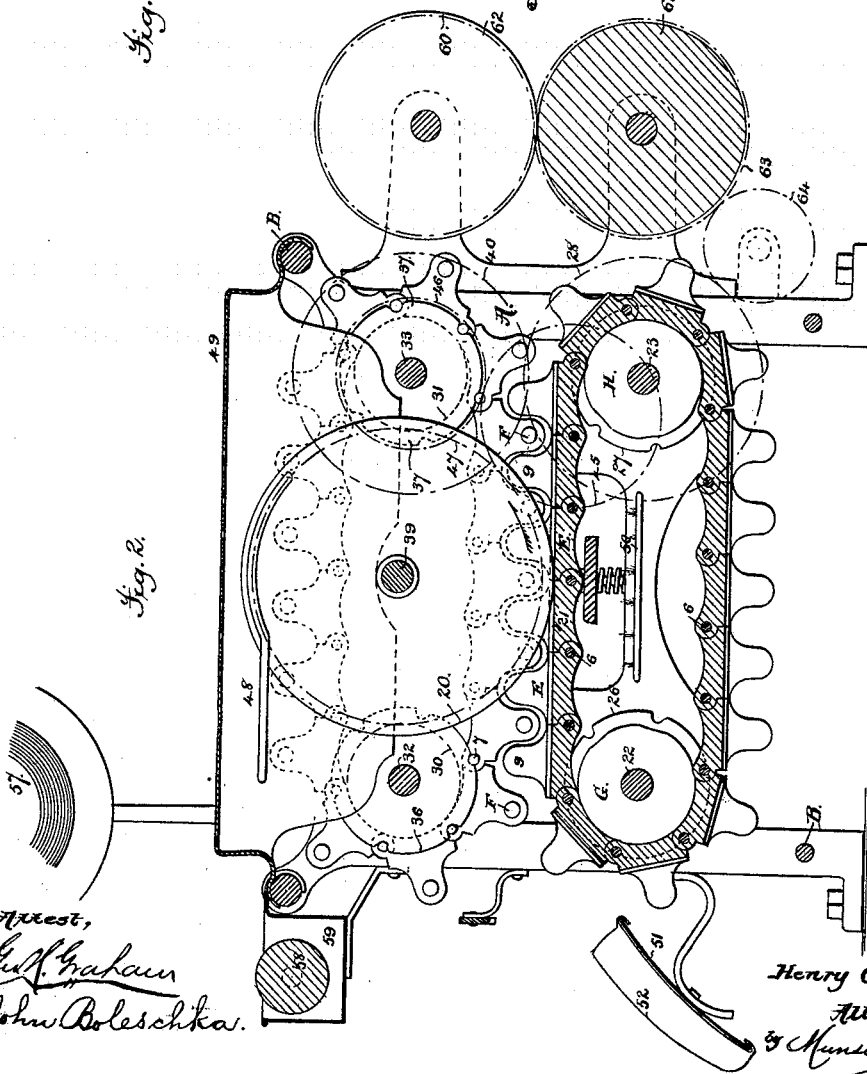
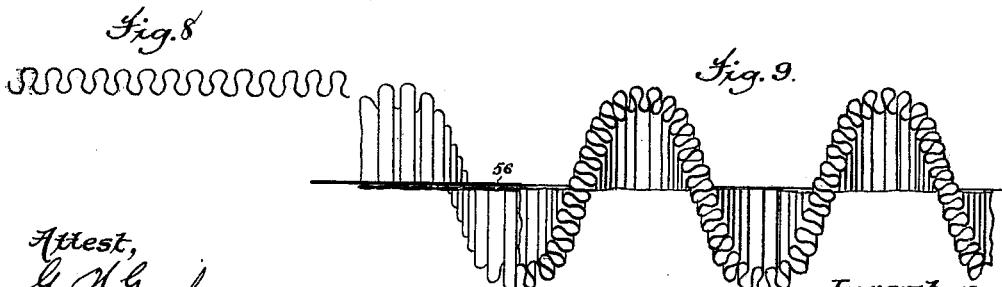
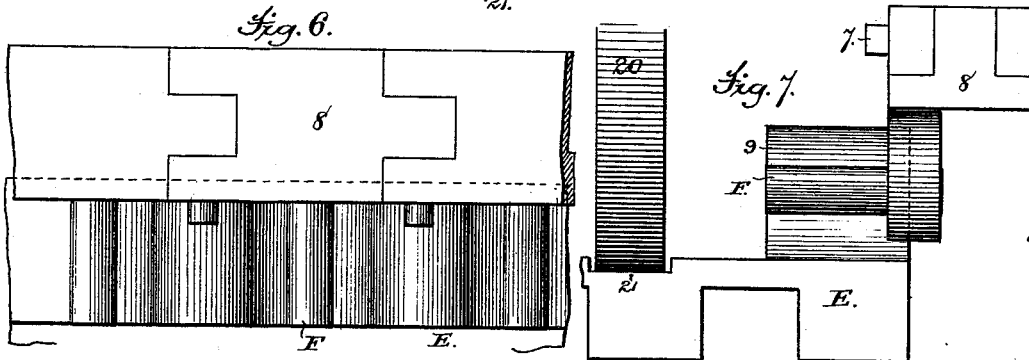
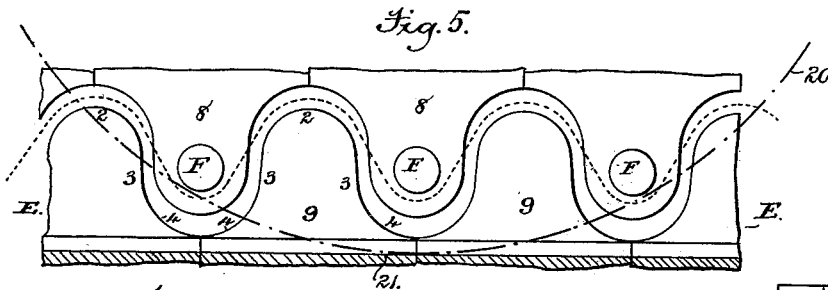
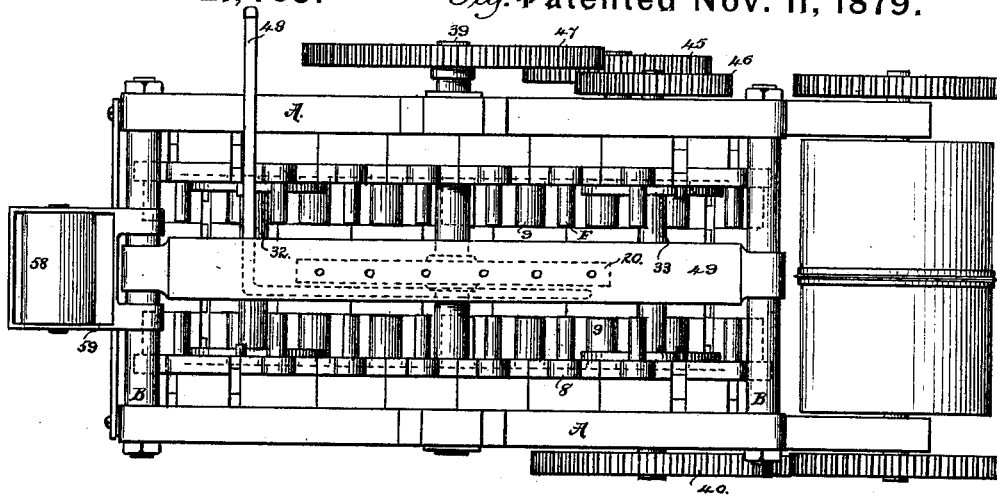


Fig. 2.

Witness,
E. H. Graham
John Boleschka.

Inventors,
Henry C. Kersten, and
Albert Schaupp
by Munson & Phillips

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Attest,
Geo. H. Graham
John Boleschka.

Inventors,
Henry C. Kersten & Albert Schaupp,
by Munson & Phipps
Atlys.

UNITED STATES PATENT OFFICE.

HENRY C. KERSTEN AND ALBERT SCHAUPP, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINES FOR MAKING DRESS-TRIMMINGS.

Specification forming part of Letters Patent No. **221,465**, dated November 11, 1879; application filed June 13, 1879.

To all whom it may concern:

Be it known that we, HENRY C. KERSTEN and ALBERT SCHAUPP, of the city, county, and State of New York, have invented certain new and useful Improvements in Machines for Making Shell-Ruching, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to that class of machines which operate to produce ornamental trimmings from textile fabrics; and said invention consists in an improved machine whereby shell-ruching is produced, the essential features of which are the combination, with an endless chain carrying formers, and endless chains carrying forming-pins, of a pressing-wheel, for laying and pressing flat the central portion of a fluted strip, while the sides thereof are supported in serpentine form, whereby said serpentine form is preserved in the finished product.

The invention also comprehends the combination therewith of other devices, as will be particularly hereinafter set forth.

Our improved machine is illustrated in the drawings, in Figure 1, by a side elevation; in Fig. 2, by a longitudinal sectional elevation; in Fig. 3, by a front end elevation; and in Fig. 4 by a plan view. Figs. 5 and 6 show, respectively, the chain in elevation and plan views, Fig. 7 shows one link of the upper and lower chain in elevation. Fig. 8 illustrates the fabric manipulated by this machine; and Figs. 9, 10, and 11 the product of the machine.

The various mechanisms are supported by side frames A, which are held together by tie-rods B, or suitable cross-bars.

The mechanism for imparting alternate upward and downward bends to each edge of a strip of material consists of formers E, between the adjacent curved parts of which, forming arms F, lie the edges of the strip of material while a pressing-wheel, 20, rolling in contact with a traveling pressing-seat, forces down and presses the central portion of said strip.

The formers E are constructed with upris- ing heads 9 at their opposite ends, which heads

have outwardly-curved tops 2, inwardly-curved sides 3, and outwardly-curved bottoms 4, (see Fig. 5,) which structure is such that as they are traveling in a horizontal plane through the machine their tops, side, and bottom surfaces shall form a succession of ogee curves. Between the opposite heads of each of these formers is a depression having a plane surface which forms a central pressing-seat, 21.

The formers E are each provided with suitable knuckles, whereby they are connected together by pintles 6, so as to constitute an endless lower chain running over pulleys G H, that are mounted upon shafts 22 23, which are journaled at each end of the machine, the journals of the shaft 22 being rendered adjustable by means of sliding boxes 24 and screws 25.

The lower chain, thus constituted by the formers E, is driven by means of sprocket-wheels 26 27, fast upon the shafts 22 23, with which the pintles 6 of said chain project to engage, as in Fig. 3, the shaft 23 receiving motion by means of a toothed wheel, 28, carried by it, and which is actuated by a suitable driving-pinion.

The forming-arms F project inwardly from heads 8, that are provided with knuckles and linked together by pintles 7, so as to constitute endless upper chains, which run over pulleys 30 31, mounted upon shafts 32 33, journaled at each end of the machine, the shaft 32 being rendered adjustable by means of sliding boxes, as 34, and screws 35.

The heads 8 are suitably curved, so as to seat themselves between the heads 9 of the lower chain, constituted by the formers E, whereby the forming-pins F are properly centered between the heads 9 of said formers.

The upper chains are moved in concert by means of sprocket-wheels 36 37, that are fast upon the shafts 32 33, being driven with a motion uniform with that of the lower chain, by means of a toothed wheel, 40, carried by the shaft 33, that gears with the toothed wheel 28.

The pressing-roller 20 is mounted centrally upon a shaft, 39, that is carried in sliding boxes 41, which are seated upon springs 42, whereby the pressure of this wheel is rendered elastic upon the pressing-seats 21 of the formers E, constituting the lower chain, the said chain at the vertical plane of its contact with

this pressing-wheel 20 being elastically supported upon a plate, 43, the ends of which are seated upon springs 44 that rest upon the side frames, *a*. The surface-movement of this pressing-wheel 20 is made in the same direction and rendered uniform with that of the lower chain, by means of the gearing driving one from the other, said gearing consisting of a toothed wheel, 46, on the shaft 33, that drives an intermediate, 45, which meshes with a toothed wheel, 47, on the shaft 39 of said pressing-wheel 20.

The pressing-wheel 20 is heated by means of a gas-pipe, 48, the burning jets from which impinge against its side, while the heat generated by said jets is confined about said wheel by means of a hood, 49, which is supported from the rods B B and incases the upper portion of said wheel, said hood being provided with suitable holes for the escape of the smoke.

The formers E of the lower chain are heated by means of gas-jets 50 burned underneath them. (See Fig. 2.)

The operation of the machine is as follows: A proper movement is imparted to its mechanism by means of power applied to the shaft 23, either directly or by means of a pinion gearing with the wheel 28, carried by said shaft.

The material to be operated upon consists of a fluted strip, (shown in section in Fig. 8,) said strip being of suitable width, and provided with parallel transverse flutings, which have been imparted to it by means of a common fluting-machine—such, for instance, as a chain-fluting machine. Such a strip is led over a curved guide-plate, as 51, and is introduced into the machine and between the forming-arms F of the upper chains and the formers E of the lower chain, the side ledges, 52, (which may be adjustable) of the guide 51 properly directing it. The edges of this strip in thus passing into the machine overlies the formers E, and are pressed down between their curved sides by means of the forming-arms F, said strip being thereby laid in the serpentine form shown by dotted lines in Fig. 5. When the strip thus shaped reaches the point occupied by the pressing-wheel 20, its central portion is forced to enter between the same and the pressing-surface 21 of the formers, and is consequently pressed flat thereby, while its edges remain in the embrace of the formers and forming-arms, and in serpentine form given to them by said forming devices, the result of which is the formation of the product shown in Fig. 9.

As the heated pressing-wheel 20 and heated pressing-surfaces 21 consolidate the central portion of the strip passing between them while the edges thereof are supported in their serpentine form, it follows that the transverse flutes will be pressed flat in their centers, and that at the same time the contiguous portions of the transverse flutes will be so drawn thereby that the sides will, aided by their contact

with the heated surfaces of the formers and forming-arms, be held and set in their serpentine form. In order, however, to retain them in this shape it is necessary to secure the flattened central portion in that form. This is accomplished by attaching to said flattened central portion a fastening-band, as 56, which consists of a narrow strip of material properly charged with size, as starch, which band is fed into the machine over the strip of fluted material and under the wheel 20, by which it is forced down onto the pressed central portion of the fluted strip and united thereto by the drying action of the heated devices, thus holding said pressed portion firmly in its flat form. This band 56 may be previously charged with size, and after being dried be fed into the machine from a reel, as 57, passing thence under a roller, 58, running in a water-trough, 59, to properly dampen it, or said trough may be supplied with size, and coat said band therewith as it passes under the roller 58. When the fluted strip emerges from the machine its opposite sides will have the serpentine form, (shown in Fig. 9,) which sides will be united by the flat band 56 in the center, as in Fig. 10. To produce the shell-ruching (shown in Fig. 11) it is only necessary to divide the strip centrally, which is done by means of the rotary knives 60 and roller 61, which are geared together by wheels 62 63, and driven from the wheel 28 by means of an intermediate wheel, 64. The ruche thus produced may have its flat edge secured and protected by a band, 70, folded over the same and stitched thereto in a common manner, and as shown in Fig. 11.

Having thus described our invention, what is claimed is—

1. The combination, with an endless chain, carrying formers E, and two endless chains carrying forming-arms F, of a pressing-wheel, 20, and pressing-surface 21, whereby a strip of fluted material has its edges converted into serpentine form, and its central portion pressed flat to retain the same, substantially as described.

2. The combination, with the endless chain carrying formers E, and the endless chains carrying forming-arms F, pressing-wheel 20, and pressing-surface 21, of the heating apparatus 48 50, substantially as described.

3. The combination, with the endless chain carrying formers E, and the endless chains carrying forming-arms F, pressing-wheel 20, and pressing-surface 21, of the rotary cutter 60, and roller 61, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HENRY C. KERSTEN.
ALBERT SCHAUPP.

Witnesses:

H. T. MUNSON,
GEO. H. GRAHAM.