

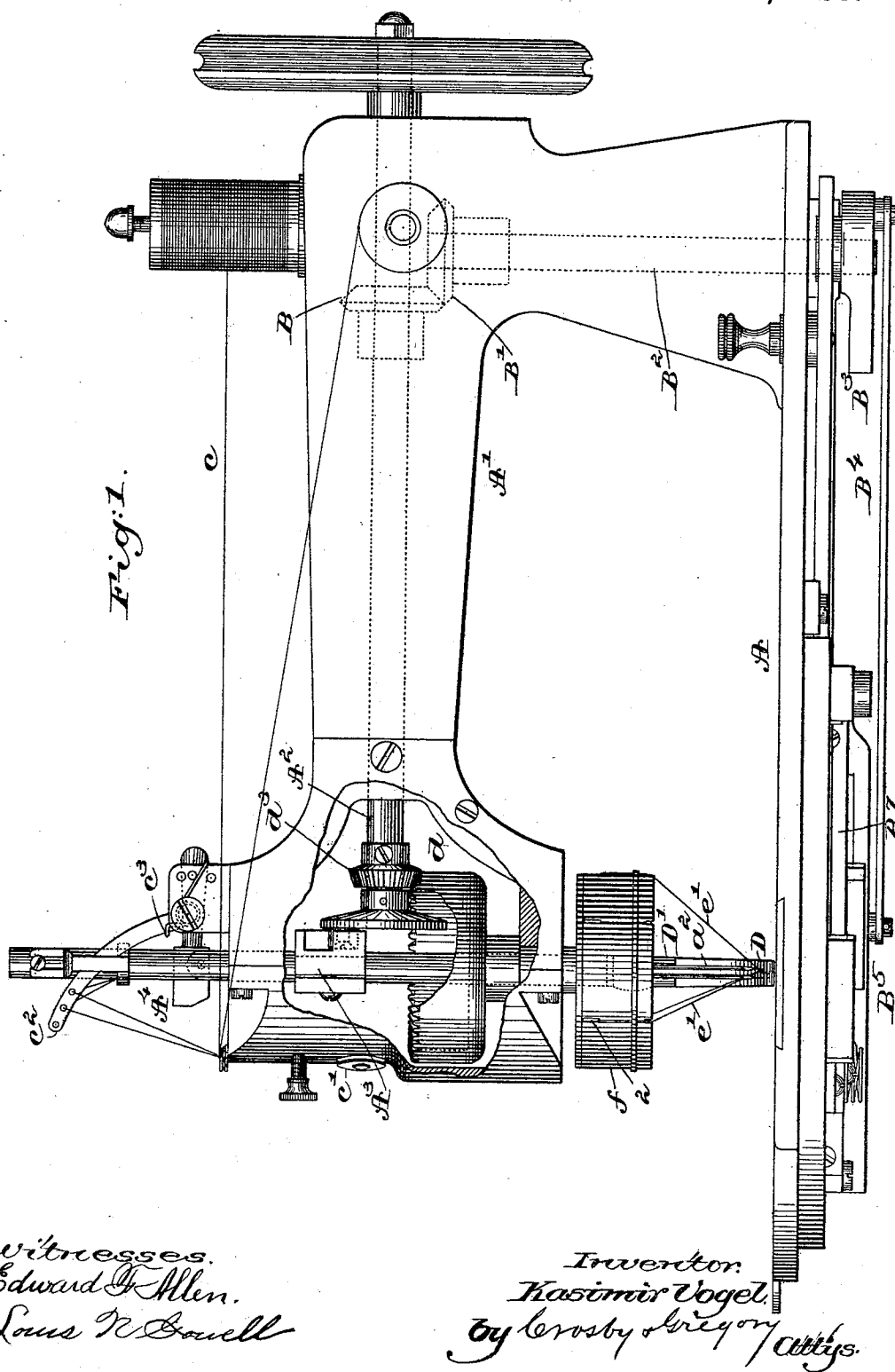
(No Model.)

3 Sheets—Sheet 1.

K. VOGEL.
SEWING MACHINE.

No. 500,518.

Patented June 27, 1893.



witnesses.
Edward T Allen.
Louis R Souell

Inventor:
Kasimir Vogel
by Crosby & Gregory Attys.

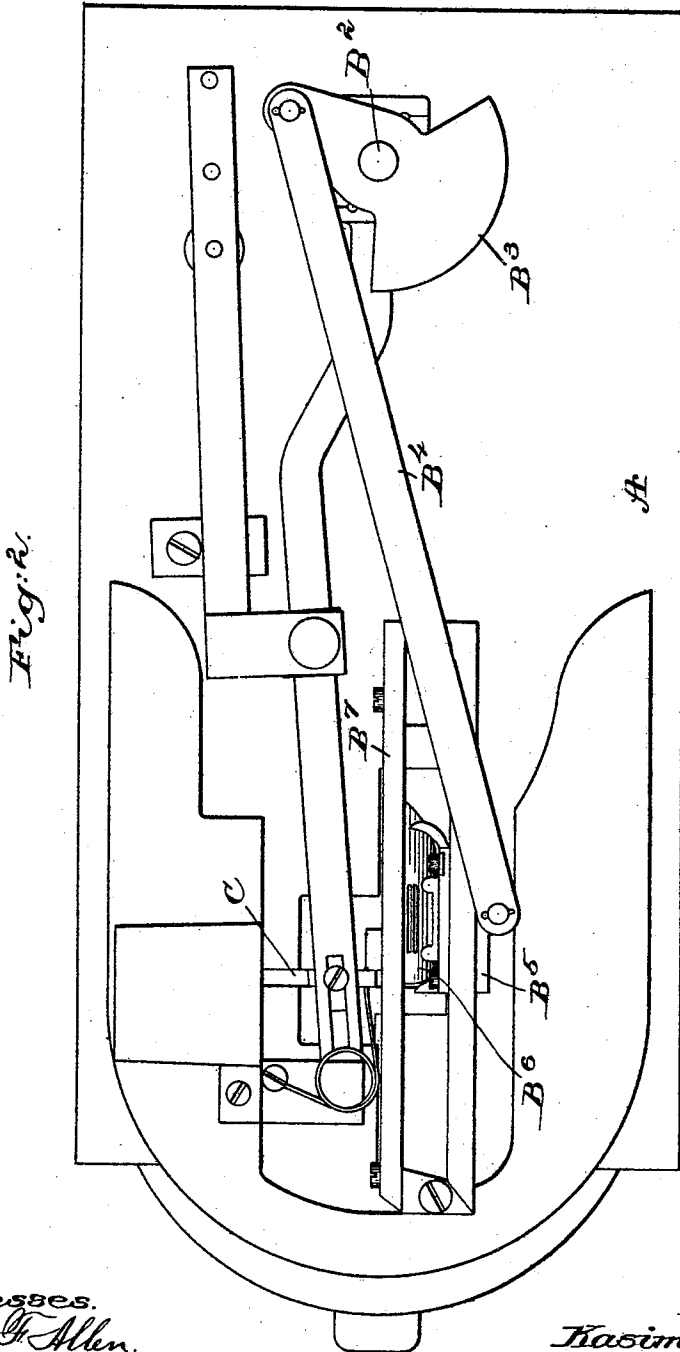
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3 Sheets—Sheet 2.

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Louis W. Cowell

Invention
Hasimir Vogel.
By Leroy Gregory
Attys.

(No Model.)

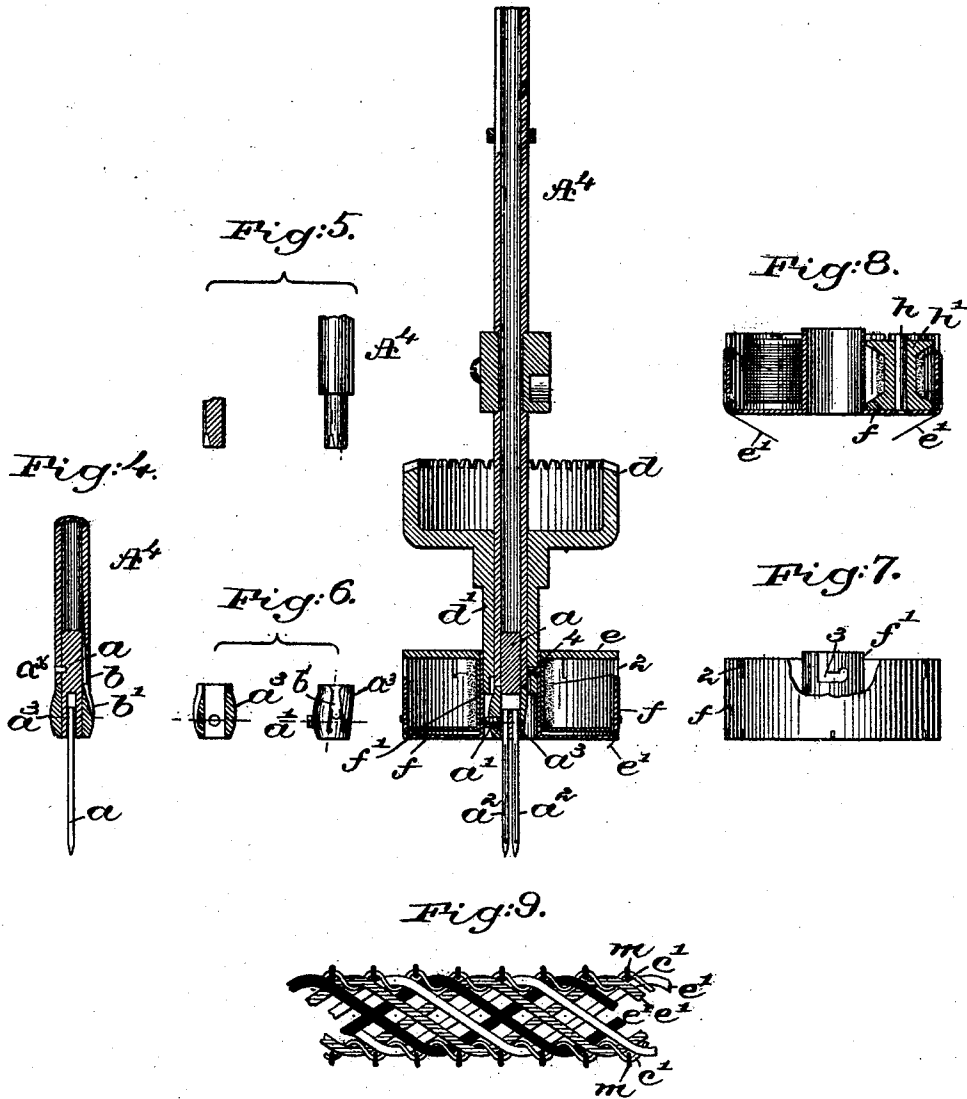
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Fig:3.



Witnesses.

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UNITED STATES PATENT OFFICE.

KASIMIR VOGEL, OF CHELSEA, ASSIGNOR OF ONE-FOURTH TO CHARLES M. REED, OF BOSTON, MASSACHUSETTS.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 500,518, dated June 27, 1893.

Application filed October 10, 1892. Serial No. 448,366. (No model.)

To all whom it may concern:

Be it known that I, KASIMIR VOGEL, of Chelsea, county of Suffolk, State of Massachusetts, have invented an Improvement in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to improve the construction of sewing machines whereby novel stitching composed of several threads may be made in any part of the material to be stitched, *i. e.*, the stitch may be used to produce a strong ornamental seam either in the body of the material or along an edge.

My improved machine herein to be described, contains a needle-bar having one, or it may be more, eye pointed thread carrying needles, and an under thread to lock the loop or loops of needle thread, and the machine also has co-operating with its stitch-forming mechanism a spool having one or a series of auxiliary threads which are led to the stitch making point, the spools carrying such threads being rotated in the same direction rotation after rotation about the longitudinal center of the needle-bar, so that the said auxiliary threads are interwoven or interlocked at the surface of the material with needle thread or threads, and in this way I may make a ridge or wale of thread to resemble a cord or braid, and by varying the colors of the auxiliary threads with relation to each other and to the needle threads said cord or braid may be more or less ornamental in appearance. The greater the number of needles carried by the needle-bar the wider the cord or braid to be made.

My invention comprehends a sewing machine containing the following instrumentalities, viz:—a hollow needle-bar; two or more eye-pointed needles carried thereby; a complementary stitch-forming device; suitable devices to actuate the same to form stitches; an auxiliary thread-carrier surrounding said needle-bar loosely and containing two or more auxiliary threads; and devices to slowly revolve the auxiliary thread-carrier revolution after revolution about the longitudinal center of the needle-bar, the stitch-forming mechanism

making two or more stitches during each revolution of the said auxiliary thread carrier whereby said auxiliary threads leading from said thread carrier down to the material are interlocked or interwoven with first one and then the other of the needle threads at the stitch making point, substantially as will be described.

Other features of my invention will be hereinafter described and stated in the claims at the end of this specification.

Figure 1 in side elevation partially broken out shows a sufficient portion of one well known form of sewing machine with which I have embodied my invention; Fig. 2, an under side view thereof. Fig. 3 represents the hollow needle-bar carrying one or more needles and the spool surrounding the same and adapted to carry the auxiliary threads to the lower end of the hollow needle-bar with the needle-holder in section, and a needle; Figs. 5 and 6, details of the parts at the lower end of the needle-bar to show the thread outlets. Fig. 7, is a detail showing the spool-case detached from the needle-bar, the spool to carry the auxiliary threads being removed; Fig. 8, a modification to be described, and Fig. 9, on an enlarged scale shows several stitches as they will appear on the surface of the material when the number of threads employed corresponds with those shown in Fig. 1, the drawings showing the thread, however, as not drawn up taut into cord or braid form.

Referring to the drawings A represents the bed plate, A' an overhanging arm connected thereto it having suitable bearings for the reception of the shaft A² having at its front end a suitable crank or equivalent device to enter a cam block A³ instrumental in imparting to the needle-bar A⁴ its reciprocating movements.

The shaft A² is represented as provided with a bevel gear B engaging a bevel gear B' fast on a vertical shaft B² provided at its lower end with a suitable crank B³ connected by link B⁴ with and so as to reciprocate a shuttle carrier B⁵ which in turn actuates a shuttle B⁶ carrying the under thread, the face of the shuttle running against a suitable shuttle race B⁷.

The parts for reciprocating the needle-bar and the shuttle and its actuating parts, and the feed device C and its actuating devices are herein shown as of the well known Singer family type, but instead of the particular devices shown I may employ any other usual or well known devices for reciprocating the needle-bar and actuating the under thread carrier. The needle-bar A⁴ employed by me is hollow, as best represented in Figs. 3 and 4, and its lower end receives the shank of a needle-holder *a* which may be confined in place by a screw or pin *a*^x. This holder has suitably confined in it by a screw *a*¹ the two or more eye-pointed needles *a*², said screw passing through a sleeve-like block *a*³ surrounding the needle holder, said block being grooved externally, as at *b*¹.

The needle-holder, as best shown in Figs. 4 and 5, has suitable thread grooves *b* which communicate with thread grooves *b*¹ in the block *a*³ referred to. The needle thread or threads *c* taken from suitable spools or bobbins are led through a suitable tension device *c*¹, through eyes of a suitable take-up *c*², down through the hollow needle-bar, through the grooves *b* *b*¹ and thence through the eyes of the needles *a*². The take-up herein shown, is adapted to be operated in one direction by the needle-bar, and in the other direction by a suitable spring as *c*³, but instead the take-up may be operated in any other usual or well known manner so as to control and take up the slack of and set the stitch. The presser foot D attached to the presser bar D¹ is or may be as is common in the Singer or other family machine. The hollow needle-bar is surrounded loosely by a crown wheel *d*, the shank *d*¹ of which acts as a guide for the auxiliary thread carrier *e*, which may be a spool having a hollow barrel so as to surround the needle-bar and also the hub *d*¹, this hollow barrel having wound upon it one or more auxiliary threads *e*¹, usually a series of threads of the same or different colors or material, said threads being led out through a suitable slot or guide eye as 2 in a curb *f* the hub *f*¹ of which, as herein represented, has a slot 3 to engage a pin 4 on the hub *d*¹ of the said crown wheel so that said curb is supported and carried by and made to rotate in unison with the crown wheel the auxiliary thread *e* partaking of the same movement.

While for convenience and simplicity I prefer to employ as the auxiliary thread carrier a single large spool *e*, yet it will be obvious that my invention will not be departed from should the curb *f* be provided with a series of pins or guides to receive several small spools containing each its own thread, this modification being shown in Fig. 7. The crown wheel *d* is engaged and rotated by a bevel gear *d*³ fast on the shaft A², and in this instance of my invention the teeth in the crown wheel are three times the number of the teeth in the crown gear. I have herein represented the spool as having three threads,

see Fig. 1, to be woven into or combined with the needle threads at the stitch forming point. If I should desire to use two auxiliary threads *e*¹, then the crown wheel would have twice the number of teeth as the bevel gear *d*³, and in case I should use four threads four times the number, or the teeth would be varied to correspond to the number of auxiliary threads to be used.

Referring to Fig. 1, the auxiliary threads *e*¹ are shown as leading down to the material, supposed to be under the presser foot, or to the stitch making point, and it will be understood when the eye-pointed needles are elevated out of the material that the spool carrying the auxiliary threads will be rotated one step so as to lay one of the auxiliary threads across the two threads leading from the eyes of the needles *a*² to the material, and at the next descent of the needle-bar said auxiliary thread will be crossed by the needle threads. At the next ascent of the needles, the needle threads between the points of the needles and the material will be crossed by a second auxiliary thread and so on, one auxiliary thread after another of whatever size, color, or material coming into the cord or braid being made at the surface of the material, it may be either directly upon the body of the material or at the edge thereof, the cord or braid being larger or smaller according to the number of the auxiliary threads used and being also of greater or less breadth or size according to the number of eye-pointed needles used.

It will be noticed in this my invention that the spool containing the auxiliary threads *e*¹ is made to turn rotation after rotation about the longitudinal center of the hollow-needle-bar, and in this way the auxiliary threads are interlocked, see Fig. 8, or interbraided with the needle thread or threads different from what would be the case if the axis of rotation of the spool *e* did not rotate about the longitudinal center of the needle-bar.

Instead of actuating the needle-bar by a crank pin in a cam slot in a block secured to the needle-bar, I may employ any other usual or suitable connection.

Referring to Fig. 8, describing a modification of my invention, it will be seen that the curb *f*, instead of receiving within it the large spool with an open hub or barrel to directly surround the shank *d*¹ of the crown wheel, is supplied with a series of pins, as *h*, to receive a series of spools as *h*¹, each spool having an auxiliary thread to be led to the stitch forming point, as described, of the threads *e*¹. The pins *h* serve only the purpose of keeping the spools in place, and instead of the pins, the spools may be held in any other usual or suitable manner so as to travel with the curb *f*.

Fig. 9, shows enlarged the upper side of the material with threads such as may be laid thereon by the parts shown in Fig. 1. Referring to said figure *c*¹ represents the needle thread, *m* the shuttle thread which may or may

not be drawn up to the surface of the material, but is represented as so drawn up in order to show the needle thread locked into the fabric. The threads *e'* are the auxiliary threads, and I have shown three such threads, each differently portrayed, so that its course may be followed.

In the production of the ornamental stitch shown in Fig. 9, each of the auxiliary threads is laid in succession under the point of first one and then the other needle, and consequently under the needle threads and between them and the surface of the fabric, the auxiliary thread which is laid under the point of one needle being laid under the point of the other needle, as herein shown, after the taking of three stitches, but if the auxiliary thread carrier had four threads and rotated only for ninety degrees during the making of each stitch, then each of the four threads would be brought under each needle only at each fourth stitch, as will be readily understood.

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

1. In a sewing machine, the combination of a hollow needle-bar, two or more eye-pointed needles carried thereby, a complemental stitch-forming device, suitable devices to actuate the same to form stitches, a crown-wheel having a hub surrounding the needle-bar, an auxiliary thread-carrier carrying a number of threads provided with a central barrel and applied to the said hub, means to rotate the

crown-wheel and its hub and through them the auxiliary thread-carrier, the stitch forming devices making two or more stitches during each revolution of the said auxiliary thread carrier whereby said auxiliary threads leading from said thread carrier down to the material are interlocked or interwoven with first one and then another of the needle threads at the stitch making point, substantially as described.

2. In a sewing machine, the vertically reciprocating hollow needle-bar provided with a needle-holder, devices to reciprocate the needle-bar, one or more eye-pointed needles carried by said holder, a complemental stitch-forming device, and an auxiliary thread carrier composed of a curb having a barrel surrounding the needle-bar loosely and supplied with a suitable number of spools, combined with a crown-gear having a hub encircling the needle-bar and receiving the barrel of the auxiliary thread-carrier, a gear-wheel on the needle-bar actuating shaft to engage and revolve the crown wheel and through it the auxiliary thread-carrier less frequently than said shaft, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

KASIMIR VOGEL.

Witnesses:

FREDERICK L. EMERY,
M. J. SHERIDAN.