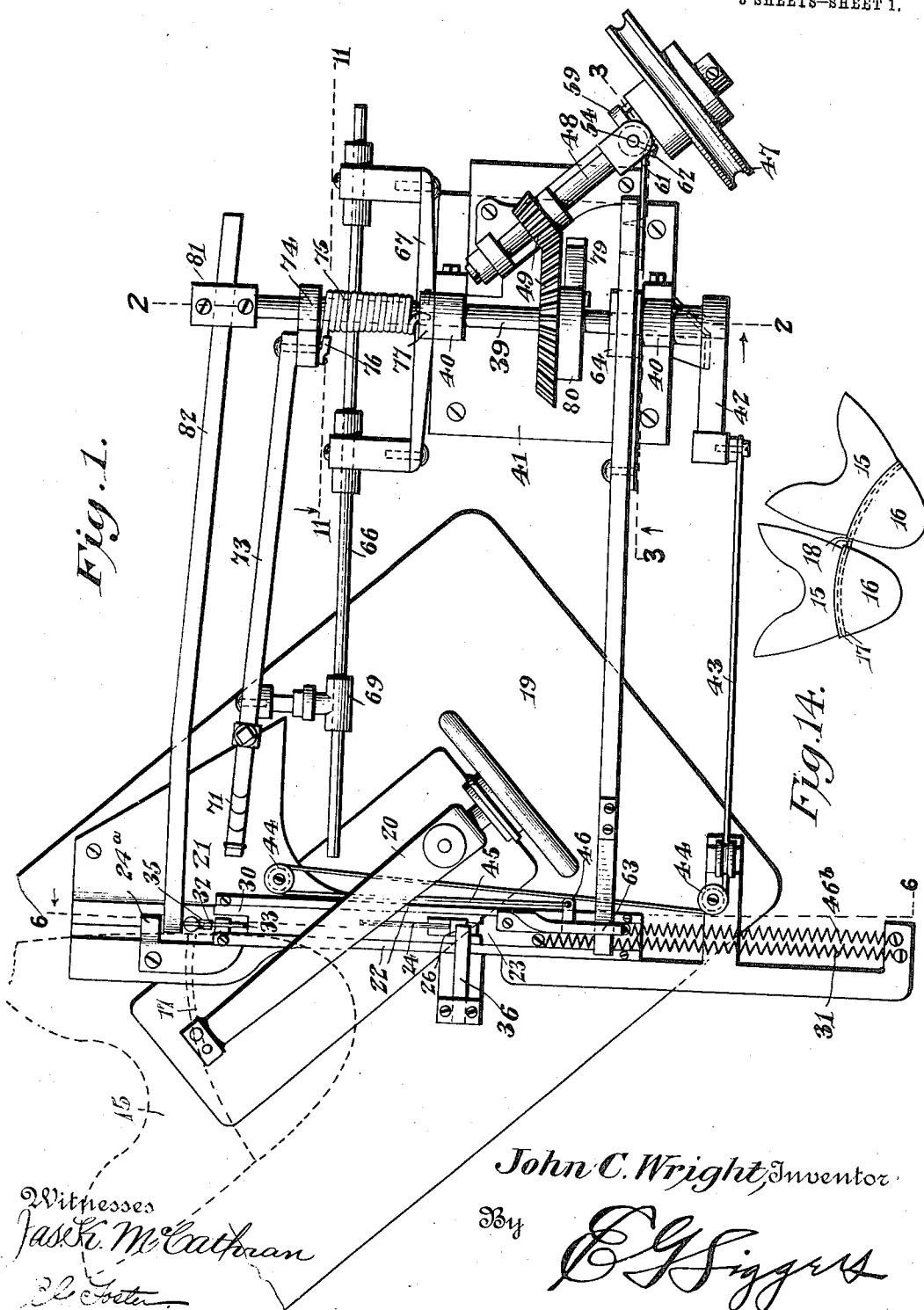


1,043,996.

J. C. WRIGHT.
BLANK SEVERING MECHANISM.
APPLICATION FILED JUNE 29, 1906.

Patented Nov. 12, 1912.

3 SHEETS-SHEET 1.



1,043,996.

Patented Nov. 12, 1912.

3 SHEETS—SHEET 2.

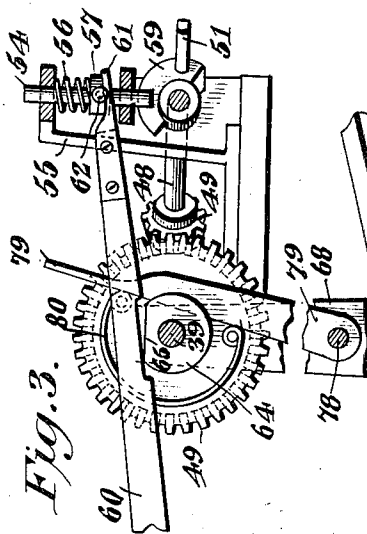


Fig. 3.

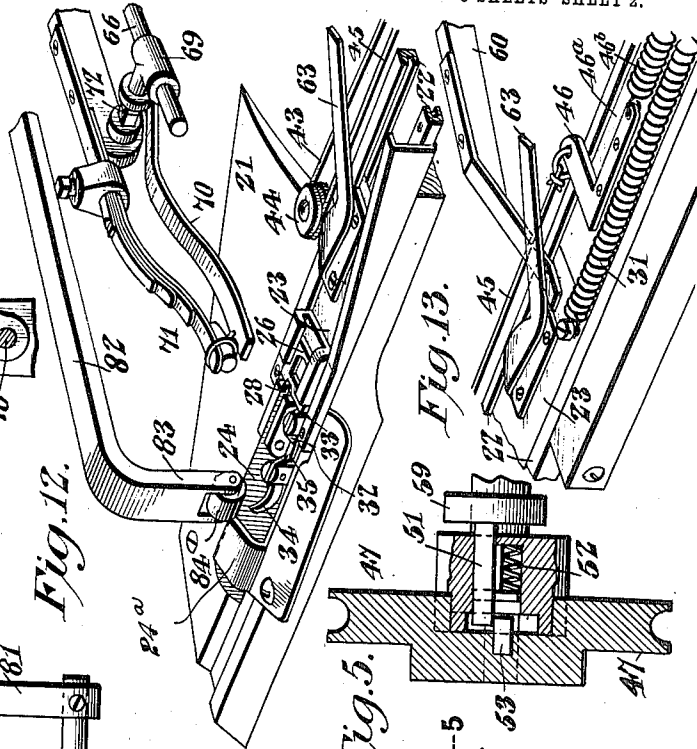


Fig. 12.

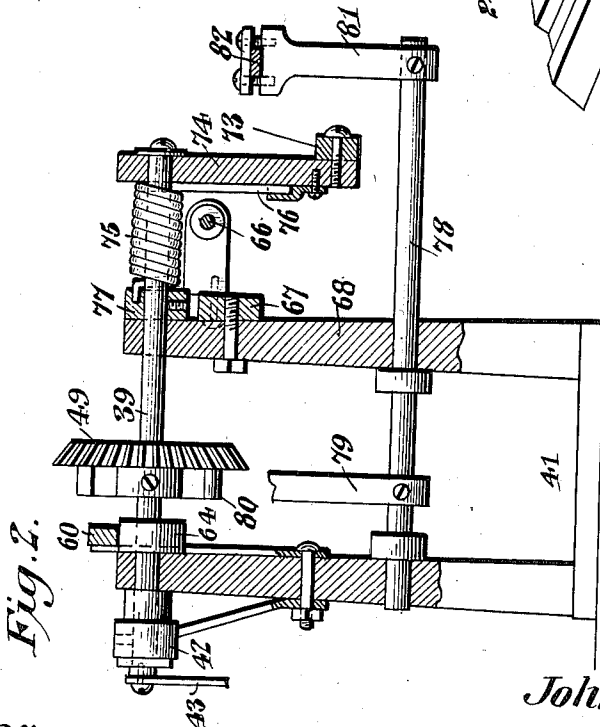


Fig. 2.

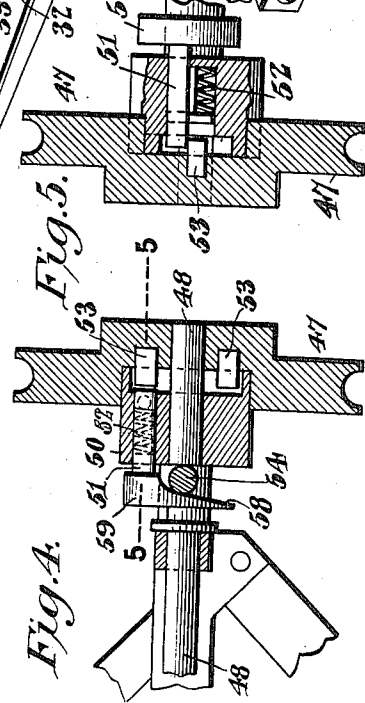


Fig. 4.

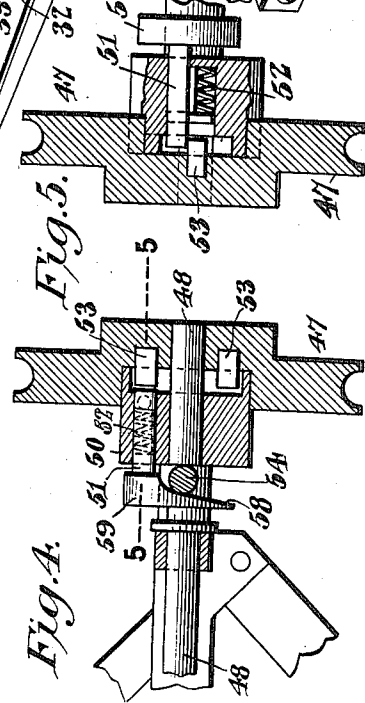


Fig. 5.

Witnesses
 Jas. E. McElathran
 Ch. Foster

John C. Wright, Inventor

By

E. J. Siggers

Attorney

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3 SHEETS—SHEET 3.

Fig. 6.

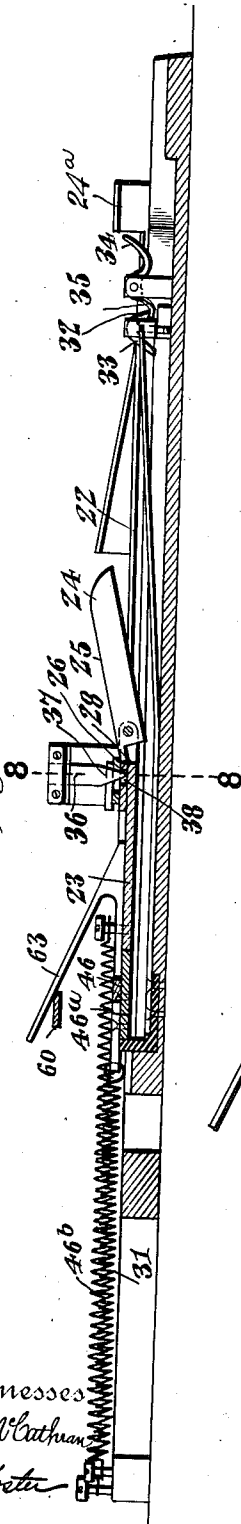


Fig. 7.

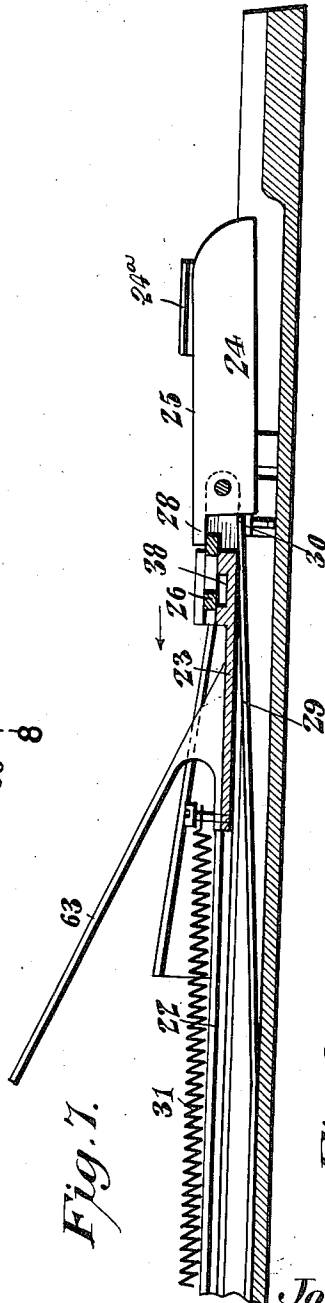


Fig. 9.

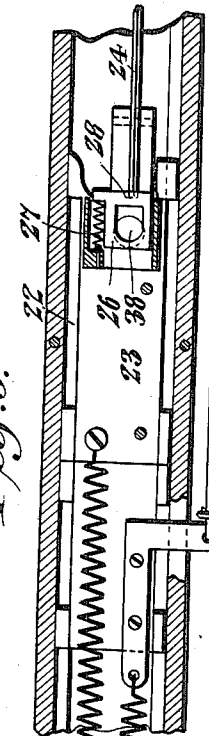


Fig. 8.

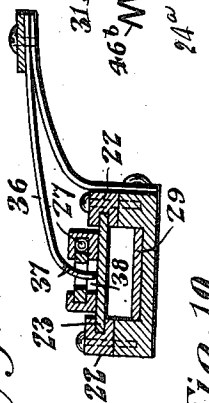


Fig. 10.

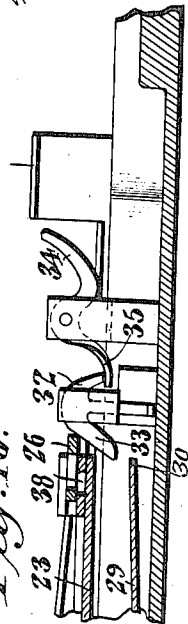
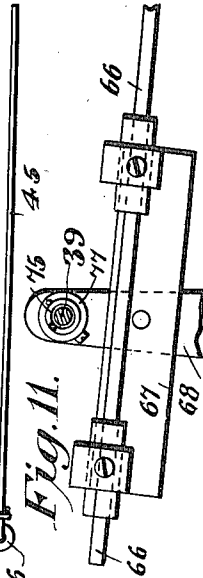


Fig. 11.



Witnesses
Jas. K. McLaughlin
Bl. J. J. J.

John C. Wright, Inventor

By

E. J. J.

Attorney

UNITED STATES PATENT OFFICE.

JOHN C. WRIGHT, OF CARIBOU, MAINE, ASSIGNOR OF ONE-THIRD TO EDWARD G. SIGGERS, OF WASHINGTON, DISTRICT OF COLUMBIA.

BLANK-SEVERING MECHANISM.

1,043,996.

Specification of Letters Patent.

Patented Nov. 12, 1912.

Application filed June 29, 1906. Serial No. 324,098.

To all whom it may concern:

Be it known that I, JOHN C. WRIGHT, a citizen of the United States, residing at Caribou, in the county of Aroostook and State of Maine, have invented a new and useful Blank-Severing Mechanism, of which the following is a specification.

In the manufacture of shoes, the vamps and tips are sewed together, and the blanks thus constructed are formed one after the other, being connected by the threads employed in sewing the parts. It is considerable trouble to cut these blanks apart after the same have been sewed, and the principal object in the present case is to provide novel mechanism, whereby the blanks are automatically severed as rapidly as they come from the sewing machine, said blanks being delivered in rear of the machine, where they are out of the way.

While the invention is particularly intended for carrying out the above operation, it is of course not limited to this employment, as there are broad features of novelty that are clearly applicable to other uses where articles have to be cut or severed.

One embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a top plan view of the mechanism. Fig. 2 is a sectional view on the line 2—2 of Fig. 1. Fig. 3 is a cross sectional view substantially on the line 3—3 of Fig. 1. Fig. 4 is a detail sectional view through the clutch mechanism. Fig. 5 is a detail sectional view on the line 5—5 of Fig. 4. Fig. 6 is a sectional view on the line 6—6 of Fig. 1. Fig. 7 is a detail sectional view corresponding to Fig. 6, but showing the cutting member in its set position. Fig. 8 is a cross sectional view on the line 8—8 of Fig. 6. Fig. 9 is a horizontal sectional view, showing the cutting member in its released position. Fig. 10 is a detail sectional view, illustrating the relation of the parts when the cutting member is locked in its set position. Fig. 11 is a detail sectional view on the line 11—11 of Fig. 1. Fig. 12 is a detail perspective view of the cutting member when in its set position, and the parts coacting therewith. Fig. 13 is a detail perspective view, showing a portion of the cutting member in its released position and in coaction with the clutch-controlling lever. Fig. 14 is a plan view on

a small scale of a pair of the connected blanks, showing the relation between them.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

Referring to Fig. 14, it will be observed that a pair of blanks are shown, each blank comprising a vamp 15, and a tip 16. These are secured together by lines of stitching 17, and in sewing the blanks they are passed one after the other through the machine so that they are connected by short pieces of thread 18. The present mechanism is designed to cut these threads between the blanks, and thus sever said blanks, as well as carry the severed blanks away from the machine.

In Fig. 1, a portion of a sewing machine is illustrated, comprising a table 19 supporting the usual sewing mechanism, and including an overhanging arm 20. Mounted on the table 19, and extending beneath the arm is a base 21, which includes a guideway 22, disposed diagonally of the arm 20 of the machine, as clearly shown in Fig. 1. In this guideway is slidably mounted a carrier 23, having pivoted on its rear end, a knife blade 24, the upper edge 25 of which is sharpened. A latch plate 26 is slidably mounted on the carrier 23, directly adjacent to the pivoted end of the blade 24. This latch is urged toward the blade by means of a spring 27, and is arranged to engage either beneath or above a lip 28, carried by the adjacent end of the blade. It will thus be seen by comparing Figs. 6 and 7 that the blade may be locked either in a substantially horizontal position, or in an inclined position in projecting relation to the carrier. When the latch 26 is above the lip 28, as shown in Fig. 6, the blade will be elevated. When it is beneath the lip, as illustrated in Fig. 7, then the blade will be disposed in substantially horizontal relation.

The carrier 23, with its blade, is movable to and from a "set" position, it being shown in the latter position in Figs. 7 and 12. To hold it in this position, a detent spring 29 is located in the bottom of the guideway, and has an upwardly extending free end 30 that engages in rear of the heel of said blade, as shown in Fig. 7. It will thus be evident that when the carrier is located in its set position with the detent spring 29 behind the heel of the blade and the latch 26 en-

gaged beneath the tongue 28 of said blade, the carrier cannot move from its said set position, and in the direction of the arrow, shown in Fig. 7. A spring 31, connected to the carrier and to the base frame 21, urges the said carrier, however, in the direction of said arrow, as will be evident. A guard 24^a is located over the guideway, and extends over the blade 24, when the latter is in its set position.

In order to release the carrier from its set position, and permit the movement of the spring 31, a latch-operating dog 32 is mounted in the guideway, and is capable of a vertical movement, said dog having an inclined arm 33, arranged to engage the rear end of the latch, and thus force the same forwardly, so that it will disengage the tongue 28. The dog 32 is arranged to be elevated by a lever 34, one arm 35 of which engages beneath said dog, as clearly shown in Fig. 10. It will be evident that if the arm 34 of the lever is depressed, the arm 35 will be elevated, thus raising the dog 32, and forcing the latch 33 forwardly. When this occurs, the blade 24 will be released, and consequently, the spring 31 can pull the carrier forwardly. When this movement occurs, the knife blade 24 will be swung upwardly, because of its movement over the detent spring 29, and consequently the latch 26 being now disengaged from the dog 33, will again be moved rearwardly by its spring 27, so that said latch will then engage over the tongue 28 of the knife blade, and lock it in its elevated position, as shown in Fig. 6. Consequently, when the spring 31 has moved the carrier to the opposite end of the guideway 22, the parts will be in the relation shown in said Fig. 6. Upon the return movement, however, it is desirable that the knife should reassume its horizontal position, and for this purpose, a spring dog 36 is mounted on the base 21, and has a depending pointed end 37 that engages in an opening 38 in the latch. Therefore, as the carrier moves back, the latch will be held by the dog 37 until it is again disengaged from the tongue 28 of the blade, whereupon the blade drops to horizontal position. As the movement of the carrier continues however, the pointed end 37 of the dog will be forced out of the opening in the latch, so that said latch will be released, and will now engage beneath the tongue.

The following mechanism is preferably employed for returning the carrier and cutter blade to its set position: A shaft 39, journaled in suitable bearings 40, carried by a base plate 41, is provided at one end with a crank arm 42, and to the end of this crank arm is secured a cable or cord 43, the same passing around suitable guide sheaves or pulleys 44, so that its terminal portion 45 is located longitudinally of the guideway.

This terminal portion is secured, as shown at 46 to a plunger element 46^a, slidably mounted in the guideway 22 in rear of the carrier 23, and abutting against the same to move the carrier to its set position. The plunger element 46^a is moved in an opposite direction by a spring 46^b, connected thereto and to a fixed portion of the base 21. It will thus be evident that if the shaft 39 is rotated, the cord or cable 43 will be drawn upon, so that the carrier will be pulled back against the tension of its spring 31, and the heel of the blade 24 will thus be engaged behind the holding or detent spring 29. In order to intermittently affect this movement a driving pulley 47, operated from any suitable source of power, is loosely mounted on a shaft 48, that is geared, as shown at 49 to the shaft 39. A clutch is employed for connecting the driving wheel 47 to the shaft 48. As shown particularly in Figs. 4 and 5, the clutch consists of a section 50 that engages in the hub portion of the wheel 47, and has slidably mounted thereon a pin 51, forced inwardly by a spring 52. The wheel 47 is provided with a pair of lugs 53, and when the pin 51 is moved inwardly, its inner end is arranged to engage behind one of the lugs 53, or in other words, moves into the path of movement of the said lugs. Consequently, inasmuch as the section 50 is secured to the shaft 48, it will be evident that then the wheel 47 will be clutched to said shaft, and the two will rotate together, thereby revolving the shaft 39 and the crank arm 42. If, however, the pin 51 is moved outwardly, and out of the path of movement of the lugs 53, then the wheel 47 can revolve loosely upon the shaft.

The pin 51 is moved and is normally held out of the path of movement of the lugs 53 by a vertically slidable stem 54, mounted in a bracket 55, and forced downwardly by a spring 56 that engages a collar 57 fixed to the stem. The lower end of this stem is movable into the path of movement of the inclined face 58 of a head 59, carried by the pin 51, as shown particularly in Figs. 3 and 4. A clutch-controlling lever 60 is fulcrumed between its ends, and one end of this lever, as 61, engages beneath a pin or screw 62 that is carried by the stem 54. The other end of the lever is located in the path of movement of an inclined finger 63, mounted on the carrier 23, which has the cutting blade. A cam 64, secured to the shaft 39, bears against the underside of the lever 60, and has a flattened portion 65 that permits the lever to move downwardly. Under normal conditions, or when the carrier 23 is locked in its set position, as already described, the stem 54 and lever 60 will be in their lowermost positions. Consequently, the lower end of said stem 54 will be engaged with the inclined face 58 of the

head 59 of the pin 51, and said pin will be disengaged from the driving wheel. The wheel can therefore rotate freely, as already described. If, however, the carrier 23 is released, it will be moved by the spring 31, and the finger 63, riding over the adjacent end of the lever 60, will raise the opposite end of said lever, thereby elevating the stem 54, and permitting the spring 52 to move the pin 51 into engagement with the lugs 53 of the driving wheel. When this occurs, the said driving wheel is connected to the driven shaft 39, and as said shaft is operated, the crank 42 is moved and the carrier is returned to its set position. As the carrier moves rearwardly, the lever 60 is of course released, but is held elevated by the curved portion of the cam 64. As soon, however, as the flattened portion 65 of said cam comes beneath the lever 60, it and the stem 54 are moved downwardly by the spring 56. The inclined face 58 of the head 59 thus operates against the lower end of said stem 54, and the pin is again withdrawn. When this has been accomplished, the carrier and blade have been returned to their set positions, and the spring 46^b has drawn the plunger element 46^a back to the opposite end of the guideway 22.

In order to properly position and hold the blanks during the operation of the cutting member, article- or blank-engaging means is provided. While this means may be varied to a considerable extent, in the present embodiment, a guide rod 66 is mounted in a bracket 67, that is pivotally secured to a standard 68 carrying one of the bearings 40. A sleeve 69, reciprocates on the rod 66, and is provided with a pair of jaws, one of these jaws, as 70, being fixed to the sleeve, the other 71 comprising a spring pivotally mounted on a stud 72, carried by said sleeve. The jaw 71 constitutes the extension of a pitman 73 that is connected to a crank arm 74, loosely mounted on the shaft 39, as shown in Fig. 2. A spring 75, coiled upon the shaft, has one end 76 secured to the crank arm, while its other end is fastened to a collar 77 that is secured to the shaft 39. It will thus be evident that when the shaft 39 is rotated, the crank arm 74 will be revolved, and the article-engaging means will be reciprocated. At the same time, the jaws will be opened and closed so as to engage the blanks, as hereinafter described. Means are also provided for releasing the cutting member from its set position. In the present embodiment, a rock shaft 78 is journaled in the standards carrying the bearing 40, and is located beneath the shaft 39. This rock shaft is provided with a crank arm 79 that is operated upon by a cam 80, secured to the gear wheel 49 that is fastened to the shaft 39. Another crank arm 81 is fastened to

the rock shaft 78, and adjustably clamped thereto, is a trip arm 82, having a depending free terminal 83 provided with a roller 84. This roller is located directly over the lever 34 of the dog, as shown in Fig. 12.

The general operation of the machine may be briefly described as follows: Assuming that the cutting member is locked in its set position, the holding stem 54 of the clutch-controlling lever will be in a position to maintain the clutch section separated, so that the driving wheel 47 will be revolved freely. Assuming that a blank is being sewed, the same will pass beneath the roller 84 of the trip, and support said trip in spaced relation to the dog or releasing means for the cutting member. As soon, however, as the blank has passed entirely beneath the roller, and before another one enters beneath the same, the trip 83 will drop into the space between the blanks, thereby swinging the lever 34, elevating the dog 35, and operating the latch 26 to release the blade 24. Immediately said blade will be swung to its projecting relation, and the spring 31, operating upon the carrier, will draw said blade across the threads 18 between the blanks, severing said threads. As the carrier reaches the limit of its movement, the finger 63 will engage the clutch controlling lever 60, thereby elevating the stem 54, permitting the clutch section to move into engagement, and thus throwing the shaft 39 into operation. When this movement takes place, the carrier with the knife is returned to its set position and locked, said knife moving to a substantially horizontal position, as already described. During the rotation of the shaft 39, the rock shaft 78 will be operated by the cam 80, thus raising the trip arm 82, and permitting the next blank to pass beneath the roller, and prevent a second release of the cutting member until said blank has passed on beneath the roller, as above described. The first blank mentioned was already engaged by the jaws 70 and 71, and as soon as severed, said blank is drawn by the jaws away from the machine, the spring 75 being under tension. Upon the return movement of said jaws by the rotation of the shaft and arm 74, they will grasp the next blank, and said blank being held against movement with the same, the jaws also will be held against movement. As the shaft 39, however, continues to revolve for a time after the jaws grasp the blank and the arm is now held against revolving with it, by said jaws, it will be evident that tension will be again placed upon the spring 75, and therefore a continued tension will be placed upon the blank, while the same is being sewed and after the shaft stops rotating. This tension therefore permits the feeding of the blank through the sewing machine, and also acts to hold the

threads taut during the cutting operation. The mechanism will of course continue in operation until the flattened portion 65 of the cam 64 permits the lever 60 to again drop and separate the clutch sections, leaving the parts in condition to be again operated when the blank passes beneath the roller 84, and permits the cutting member to again be freed.

From the foregoing, it is thought that the construction, operation, and many advantages of the herein described invention, will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention. For instance, the trip may be operated between the vamps from an angle or from the bottom, and in like manner the knife may be operated by rotary mechanism, instead of the means herein disclosed.

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

1. In mechanism of the character described, the combination with a carrier movable from and to a set position, of a knife movably mounted on and movable with the carrier, means for moving the carrier from its set position, a holding device engaging the knife for preventing the movement of the carrier from its set position, and means for effecting the release of the knife from said device.

2. In mechanism of the character described, the combination with a carrier movable from and to a set position, of a knife movable on and with the carrier, means for moving the carrier from its set position, a holding device engaging the knife for preventing the movement of the carrier from its set position, said knife upon its movement on the carrier automatically releasing from the holding device, means engaging the knife to prevent its said movement on the carrier, and a trip for actuating said means to release the knife and carrier, said trip being controlled by the article to be severed.

3. In mechanism of the character described, the combination with a carrier movable from and to a set position, of a knife movable on and with the carrier, means for moving the carrier from its set position, a holding device engaging the knife for preventing the movement of the carrier from its set position, said knife upon its movement on the carrier automatically releasing from the holding device, means movably engaging the knife to prevent its said movement on the carrier, and means for moving said knife engaging means to release the knife and permit its said movement on the carrier.

4. In mechanism of the character described, the combination with a carrier movable from and to a set position, of a knife movable on and with the carrier, means for moving the carrier from its set position, a holding device engaging the knife for preventing the movement of the knife from its set position, said knife upon its movement on the carrier, automatically disengaging from the holding device, and means movably mounted on the carrier and engaging the knife to prevent the said movement of the knife on the carrier.

5. In mechanism of the character described, the combination with a carrier movable from and to a set position, of a knife movable on and with the carrier, means for moving the carrier from its set position, a holding device engaging the knife for preventing the movement of the carrier from its set position, said knife upon its movement on the carrier automatically disengaging from the holding means, means movably engaging the knife to prevent its said movement on the carrier, and a trip for moving said knife engaging means to release the knife and permit its said movement on the carrier, said trip being normally held inoperative by the article to be severed.

6. In mechanism of the class described, the combination with a cutting blade movable in a right line from and to a set position transversely across the work being severed, and with its cutting edge disposed obliquely to the line of movement, of a spring for moving it from its set position, means for holding the blade in its set position against the action of the spring, said means including a dog, a trip adapted to operate the dog to release the cutting blade but held out of engagement with the dog by the interposition of the article being severed between the trip and the dog, and means for automatically returning the cutting blade to its set position after making a stroke.

7. The combination with a carrier movable rectilinearly in opposite directions, of a blade movably mounted on the carrier and bodily movable therewith, said blade projecting from one end of the carrier in different angular relations thereto during the cutting and return strokes, said relations constituting operative and inoperative positions of the blade, and means movable with the carrier for holding the blade in inoperative position on the carrier during the return stroke thereof and holding the blade in operative position during the cutting stroke.

8. The combination with a carrier movable in opposite directions, of a straight edge blade pivotally mounted on and movable with the carrier and movable independently thereof to and from a position at an angle to the line of travel of the carrier,

means for holding the blade in different positions during the cutting and return strokes of the carrier, the blade, when in one of said positions, being operative and when in the other position inoperative, and a device for releasing the blade-holding means preparatory to the return stroke of the carrier to permit the blade to gravitate to inoperative position.

9. In mechanism of the class described, the combination with a carrier movable to and from a set position, of a cutter blade movably mounted on the carrier, means for automatically effecting the movement of the blade upon the carrier upon the movement of the said carrier from its set position, and means mounted on the carrier for automatically holding the blade in a predetermined position after its said movement on the carrier.

10. In mechanism of the class described, the combination with a carrier movable to and from a set position, of a cutter blade pivoted on the carrier, means for automatically swinging the blade to a projecting position upon the carrier when the carrier moves in one direction, and means mounted on and movable with the carrier to hold said blade in its projecting position.

11. In mechanism of the class described, the combination with a carrier movable to and from a set position, of a cutter blade movably mounted on the carrier, and a latch mounted on the carrier and movable with respect to the blade for holding the blade in different positions thereon.

12. In mechanism of the class described, the combination with a carrier movable to and from a set position, of a cutter blade movably mounted on the carrier, a latch mounted on and movable with the carrier for holding the blade in different positions thereon, said latch being movable with respect to the blade, and means for effecting the movement of the latch.

13. In mechanism of the class described, the combination with a reciprocatory carrier, of a blade pivoted thereon, a reciprocatory latch mounted on the carrier and engaging the blade for holding it in different positions, a dog engaging the latch at one end of the path of movement of the carrier to move the latch thereon, a dog located at the other end of the path of movement of the carrier and engaging the latch to effect its movement, and means for moving said latter dog.

14. In mechanism of the class described, the combination with a guideway, of a carrier slidably mounted therein, a cutting blade pivoted on the carrier, a latch mounted on the carrier and engaging the blade to hold it in different positions, means for moving the carrier, a device engaging the blade to hold the carrier against movement, and a trip for operating the latch to release the cut-

ting blade, and thereby release the said blade from the holding device.

15. In mechanism of the class described, the combination with a guideway, of a reciprocatory carrier slidably mounted therein, a blade pivoted on the carrier, a latch sliding on the carrier and engaging the blade to hold it against movement, a spring connected to the carrier for moving the same in one direction, a holding device that engages the blade to prevent the movement of the carrier by the spring, a dog that engages the latch to move the same and thereby release the blade, and automatic means for effecting the movement of the dog.

16. In mechanism of the character described, the combination with a carrier movable in opposite directions, of a blade pivotally mounted on the carrier, a device movably mounted on the carrier and movable with the same for holding the blade in one position on the carrier during the movement of the carrier in one direction and in a different position on the carrier during the movement of the carrier in an opposite direction, means for moving the blade to cutting position at the initial part of the movement of the carrier on its cutting stroke, and means for releasing the holding means from the blade to permit the latter to move to inoperative position at the initial part of the return movement of the carrier.

17. In mechanism of the class described, the combination with a cutting member movable from and to a set position, of means for moving the member from its set position, means for moving said member to its set position, including an intermittently rotatable crank member, and means for effecting a rotation of the crank member after the movement of the cutting member from its set position.

18. In mechanism of the class described, the combination with a cutting member movable to and from a set position, of means for moving it to its set position, said means including a continuously operated driving member, an intermittently operated crank member, means for connecting the members including a clutch, and automatic means for intermittently effecting the operation of the clutch.

19. In mechanism of the class described, the combination with a cutting member movable from and to a set position, of means for moving the member to its set position, said means including a continuously operated driving member, an intermittently operated driven member, a clutch for connecting the driving and driven members, and automatic means operated by the cutting member for controlling the clutch.

20. In mechanism of the class described, the combination with a cutting member mov-

able from and to a set position, of means for moving the member to its set position, said means including a continuously operated driving member, an intermittently operated driven member, a clutch for connecting the members, and a device for holding the clutch inactive, said device having a portion located in the path of movement of the cutting member.

21. In mechanism of the class described, the combination with a movable cutting member, of driving means, means for intermittently operating the cutting member from the driving means and including a clutch, and controlling means for the clutch having a portion located in the path of movement of and operated by the cutting member.

22. In mechanism of the class described, the combination with a movable cutting member, of driving means, means for intermittently operating the cutting member from the driving means including a clutch, and a lever for holding the clutch inactive, said lever having a portion located in the path of movement of and operated by the cutting member.

23. In mechanism of the character described, the combination with a movable cutting member, of means for moving the member, said means including a driving member, a driven member, a clutch for connecting the members, and a clutch controlling device having a portion disposed in the path of movement of the cutting member and operated by said member.

24. In mechanism of the class described, the combination with a cutting member movable to and from a set position, of means for moving it from its set position, means for moving it to its set position, said latter means including a driving member, a driven member, a clutch for connecting the members, and a clutch controlling lever having a portion disposed in the path of movement of the cutting member and operated thereby.

25. In mechanism of the class described, the combination with a reciprocatory cutting member movable to and from a set position, of a spring for moving it from its set position, intermittently operated means for moving it to its set position, said means comprising a driving member, a rotatable crank member having connections with the cutting member, a clutch comprising automatically engaged sections, a controlling lever having a portion that engages the sections to separate the same and thereby disengage the crank member from the driving member, and a finger carried by the cutting member and engaging the controlling lever to actuate the same and permit the engagement of the clutch sections when the cutting member is operated by the spring.

26. In mechanism of the class described,

the combination with a reciprocatory cutting device movable to and from a set position, of means for holding it in its set position, a spring for moving it from its set position, means for returning the cutting member to its set position, said means including a driving member, a driven member, and clutch connections between said members, a clutch controlling lever, a finger carried by the cutting member and engaging the lever upon the movement of the cutting member from its set position, and a trip device for releasing the cutting member from the holding means, said trip device being controlled by the article to be cut.

27. In mechanism of the class described, the combination with a guideway, of a reciprocatory cutting member slidably mounted in the guideway, means for moving the cutting member in one direction, means for holding the cutting member against movement by said moving means, a reciprocatory plunger element slidably mounted in the guideway in rear of the cutting member and engaging the same to move it against the action of its moving means and into coaction with the holding means, and means for returning the reciprocatory plunger element after it has moved the cutting member into coaction with the holding means.

28. In mechanism of the class described, the combination with a reciprocatory cutting member, of a spring for moving it in one direction, means for holding the member against movement by the spring, a reciprocatory plunger element that engages the cutting member for moving it against the tension of the spring and into engagement with the holding means, a spring for moving the plunger element in one direction, and an intermittently operated crank connected to the plunger element for moving it against the tension of its spring to move the cutting member against the action of the spring.

29. In mechanism of the class described, the combination with a guideway, of a reciprocatory carrier operating therein and movable to and from a set position, a swinging knife mounted on the carrier, means for moving the knife to different positions upon the reciprocation of the carrier, a detent for holding the carrier in its set position, a spring for moving the carrier from its set position, an article-controlled trip for releasing the carrier and permitting its movement by the spring, a plunger element that engages the carrier to move it to its set position, a spring engaging the plunger element, a rotatable crank, a flexible connection between the crank and plunger element, a driving member, gear connections between the driving member and crank including clutch sections, means for yieldingly urging the clutch sections into coaction, a controlling

lever that engages the clutch sections to normally maintain them out of coaction, and a finger mounted on the carrier and engaging the lever to operate the same.

5 30. In mechanism of the class described, the combination with movable cutting means, of mechanism for moving the cutting means, article-engaging means movable toward and from the cutting means for moving the articles away from the same, and
10 mechanism for moving the article-engaging means away from the cutting means after the movement of said cutting means, said moving mechanism having a yielding connection with the engaging-means.

15 31. In mechanism of the class described, the combination with cutting means, of reciprocatory article-engaging means cooperating therewith, rotary means for reciprocating the article-engaging means, and a yielding connection between the rotary means and the article-engaging means.

20 32. In mechanism of the class described, the combination with cutting means, of movable article-engaging means coacting therewith, a shaft, means for rotating the shaft, a crank connected to the article-engaging means, and a yielding connection between the crank and article-engaging means.

30 33. In mechanism of the class described, the combination with cutting means, of movable article-engaging means coacting therewith, a shaft, means for effecting an intermittent rotation of the shaft, a crank mounted on the shaft and connected to the article-engaging means, and a spring coiled upon the shaft and connected to said shaft and to the crank.

40 34. In mechanism of the character described, the combination with movable article severing means, of means for moving said severing means, mechanism for engaging the articles prior to their being severed and moving the same away from the severing means after being severed, yielding means for placing tension on said engaging and moving means while the same is engaged with an article and said article is being severed, and means for placing tension on the yielding means.

50 35. In mechanism of the character described, the combination with article severing means, of mechanism for engaging the articles prior to their being severed and moving the same away from the severing means after being severed, and means for moving said engaging and moving means into engagement with an article prior to its being severed and placing yielding tension on said engaging and moving means while engaged with an article.

36. In mechanism of the class described, a base plate across which the articles to be severed transversely move, a knife slidably mounted on the base plate to move across

the direction of movement of said articles, means for holding said knife in a set inoperative position, automatic means for releasing the knife to make a cut at periodic intervals depending upon the passage of
70 said article across the base plate, and means automatically actuated when the knife has reached the end of its cutting movement for returning the knife to its holding means.

37. In mechanism of the class described, the combination with a cutting member
75 movable to and from a set position, of means for holding the member in its set position, means for moving the member from its set position, intermittently operated means for returning the cutting member to its set position, a controlling device for the latter means operated by the cutting member on its movement from its set position, a trip
80 for releasing the cutting member from the holding means, article-engaging means movable transversely of the path of movement of the cutting member, and means for placing yielding tension on the article-engaging means.

38. In mechanism of the class described, the combination with a guideway, of a reciprocatory carrier operating in the guideway and movable to and from a set position, a cutting blade pivoted on the carrier, means
90 for effecting the swinging movements of the cutting blade, a spring for moving the carrier from its set position, a detent for holding the carrier in its set position, a plunger element operating in the guideway for moving the carrier to its set position, a crank
100 having a flexible connection with the plunger element, a driving member, gear connections between the driving member and crank, including coacting clutch sections, a controlling lever for normally holding the clutch sections out of coacting relation, a finger mounted on the carrier and engaging the lever for moving it in one direction, a cam for holding the lever out of coacting
110 relation with the clutch sections, a trip for releasing the carrier from the detent, reciprocatory article-engaging means moving transversely of the guideway, a crank for reciprocating the article-engaging means, and means for placing tension on the crank.

39. In mechanism of the class described, the combination with article-severing means, of mechanism for holding said article-severing means against operative movement, a trip held inactive by the articles to be severed for effecting the operative movement of the severing means, and means for periodically moving the trip to permit the articles to pass the same.

40. In mechanism of the character described, the combination with movable article severing means, of mechanism for holding said article severing means against movement, a swinging trip movable from

an inoperative to an operative position to release the article severing means from the holding mechanism, said trip being held in an inoperative position by the article to be severed, a cam for periodically moving the trip to its inoperative position, and means controlled by the article severing means for intermittently rotating the cam.

41. In mechanism of the class described, the combination with reciprocatory article severing means, of latch mechanism for holding said means against operative movement, a rock-shaft, a trip arm carried by the rock shaft and engaging the latch mechanism for operating the same, said trip arm being normally held inactive by the articles to be severed, a crank arm carried by the rock shaft, a rotating cam that engages the crank arm, and means for intermittently rotating the cam.

42. In mechanism of the character described, the combination with means for securing a plurality of independent coacting blanks together into sets, said means also securing the different sets together, of means for automatically severing the sets of blanks after they have been secured together, means successively engaging the sets of blanks to carry the same away from the securing means after being severed, a spring for actuating the carrying means, and mechanism for placing tension on the spring while the carrying means is engaged with a set of blanks and before the operation of the severing means.

43. In mechanism of the character described, the combination with means for securing a plurality of independent coacting blanks together into sets, said means also securing the different sets together, of means that successively engages the sets of secured blanks for carrying them away from the securing means, means for placing yielding tension on the carrying means when engaged with a set of blanks, and means for automatically severing the set of blanks to permit said successive movements away from the securing means.

44. The combination with mechanism for stitching together a plurality of blanks in sets closely united by the stitching, of mechanism for severing the respective sets comprising a knife movable from its set position transversely of the stitching uniting the sets, with its cutting edge disposed obliquely to the line of movement to effect a drawing cut, of means acting to move the knife from its set position, means for holding said knife in its set position against the action of the moving means, and a trip operating on the holding means to release said knife and to permit it to be shifted by the moving means, said trip being held normally inoperative by the article to be severed and operating when the article has passed.

45. In mechanism of the class described, the combination with a reciprocatory blade having a cutting edge and mounted to move to and from set position, of means for holding the knife horizontally in its set position and inclined during its cutting stroke, means for automatically returning the blade to its set position after a cutting stroke, and a gravity operated trip engaging the holding means for disengaging the blade therefrom, said trip being normally held out of engagement with the holding means by the article to be severed.

46. In mechanism of the character described, the combination with a cutting member movable from and to a set position, of means for holding it horizontally in its set position and inclined during its cutting stroke, means for moving it from the set position when released from the holding means, means for returning it to its set position after its movement from the set position, an article controlled trip device for releasing the cutting member from the holding device to permit its movement from its set position, and means controlled by the movement of the cutting member from its set position to throw the returning means into operation.

47. In mechanism of the class described, the combination with a cutting member pivotally mounted and bodily movable from a set horizontal position to an inclined cutting position, of a device for holding it in the set position, a spring for moving the cutting member from its set position, intermittently operated mechanism controlled by the movement of the cutting member from its set position to return it to said set position, and means controlled by the article to be severed for releasing the cutting member from the holding device.

48. The combination with a machine for stitching together articles in sets closely united by the stitching, of taking-away means tending to withdraw the set being stitched by tension applied to a preceding set, and mechanism for severing the respective sets including a knife movable to and from set position along a path extending transversely of the stitching uniting the sets with its cutting edge disposed obliquely to the line of movement to effect a drawing cut.

49. The combination with a machine for stitching together articles in sets closely united by the stitching, of taking-away means tending to withdraw the set being stitched by tension applied to a preceding set, said taking-away means operating independent of and in a line at an angle to the feeding movement through the machine, and mechanism for severing the respective sets comprising a knife movable to and from set position along a path extending transversely of the stitching uniting the sets,

means to move the knife to and from a set position, means to hold the knife in set position, and a trip device for the holding means, said trip device being held out of operation by the article to be severed and caused to operate by dropping into the space made between the articles by the tension of the taking-away means.

50. The combination with a machine for stitching together along a curved line articles in closely united sets, of taking-away means tending to withdraw the set being stitched by tension applied to a preceding set in a line at an angle to the feeding movement through the machine, and mechanism for severing respective sets comprising a knife movable to and from set position along a path extending diagonally of the bed plate of the machine beneath the machine head and at one side of the stitching mechanism in the path of the articles as they leave the machine.

51. The combination with a machine for stitching together along a curved line articles in closely united sets, of taking-away means tending to withdraw the set being stitched by tension applied to a preceding set in a line at an angle to the feeding movement through the machine, and mechanism for severing respective sets comprising a knife movable to and from set position along a path extending diagonally of the bed plate of the machine beneath the machine head and at one side of the stitching mechanism in the path of the articles as they leave the machine, means to hold the knife in set position, and a trip device for the holding means normally held inactive by the article to be severed and caused to act by dropping into the space made between adjacent united sets by the pull of the taking-away means.

52. The combination with mechanism for stitching together a plurality of blanks in sets closely united by the stitching, and means to exert tension upon one of the stitched sets, of mechanism for severing the respective sets comprising a knife movable from its set position transversely of the stitching uniting the sets with its cutting edge arranged uppermost and disposed obliquely to the line of movement to effect a drawing cut, means to move the knife to and from its set position, means to hold it horizontally in set position, a trip controlled by the work pieces to release the holding means, means to hold the knife in inclined position during the cutting stroke, and means to restore it to horizontal position during its return to set position.

53. The combination with mechanism for stitching together a plurality of blanks in sets closely united by the stitching, and means to exert tension on a set to be severed, of mechanism for severing the respec-

tive sets comprising a knife movable from its set position transversely of the stitching uniting the sets with its cutting edge disposed obliquely to the line of movement to effect a drawing cut, means to hold the knife in set position and operating at the commencement of the cutting stroke to move the same to an inclined position, means operating during the return movement of the knife to restore it to a horizontal position, a latch arranged to hold the knife in either inclined or horizontal position, and a trip device controlled by the blanks to be severed to release the knife from set position.

54. The combination with a machine for stitching together articles in sets closely united by the stitching, and taking-away means tending to withdraw the set being stitched by tension applied to a preceding set in a line at an angle to the feeding movement through the machine, of mechanism for severing the respective sets comprising a knife movable to and from set position along a path extending transversely of the stitching uniting the sets with its cutting edge disposed obliquely to the line of movement to effect a drawing cut, means to move the knife to and from its set position, means to hold the knife in set position and operating at the commencement of the cutting stroke to move the same to an inclined position, means operating during the return movement of the knife to restore it to a horizontal position, a latch arranged to hold the knife in either inclined or horizontal position, a trip device controlled by the articles to be severed to release the knife from such position, and means set in operation by the cutting stroke of the knife to return the same to its set horizontal position.

55. An attachment for use in conjunction with a sewing machine adapted to stitch together articles in sets closely united by the stitching, comprising a taking-away means provided with means tending to actuate it to separate the sets one from the other after they are stitched, a single cutter constituting the only severing device and movable along a path transverse to the stitching uniting the finished and unfinished sets, and means operating automatically to move the cutter against the stitching where and when the sets are held apart by the taking-away means under a tension sufficient to cause the cutter to sever said stitching.

56. The combination with mechanism for stitching together a plurality of articles in sets closely united by the stitching and means arranged to exert sustained tension on a set to be severed and along a line at an angle to the feeding movement through the machine, of mechanism for severing the respective sets comprising a knife arranged to move from set position along a path extending transversely of the stitching uniting the

set where and when the same is held taut and the sets drawn apart by the sustained tension, and means controlled by the articles to be severed to actuate the severing
5 mechanism.

57. The combination with mechanism for stitching together a plurality of articles in sets closely united by the stitching, and taking-away means arranged to exert sustained tension on the finished sets to draw
10 them apart and maintain taut the stitching uniting the sets, of a knife movable to and from set position along a path extending transversely of the sets leaving the machine
15 with its cutting edge disposed obliquely to the line of movement to effect a drawing cut, and means controlled by the progress of the work to intermittently operate the knife when the stitching uniting the sets reaches
20 the path of movement of the knife.

58. Means for use in conjunction with a machine for stitching together articles in

sets closely united by the stitching, comprising a taking-away means, and actuating means therefor timed in operation to produce withdrawing tension upon a finished
25 set to separate it from an unfinished set and thereby render the connecting stitching taut, a single cutter constituting the only severing device and movable transversely to the
30 connecting stitching between the sets, and means operating automatically to move the cutter against the taut stitching under a force sufficient to sever the stitching solely
35 because of the resistance offered by the tension under which the stitching is placed by the taking-away mechanism.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN C. WRIGHT.

Witnesses:

BERT G. WRIGHT,
R. F. GARDNER.