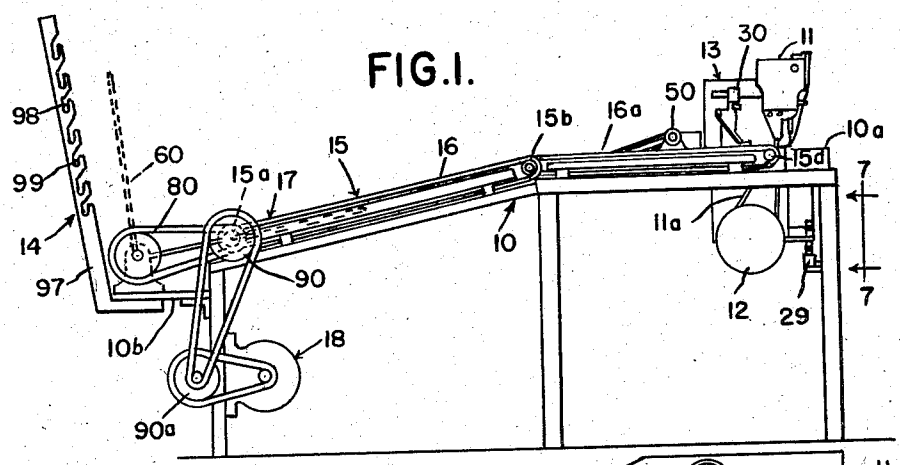
Feb. 24, 1959 C. F. KEHRER 2,874,659

AUTOMATIC SEWING AND HANDLING MACHINE

Filed Dec. 12. 1955 4 Sheets-Sheet 1

FIG.1.



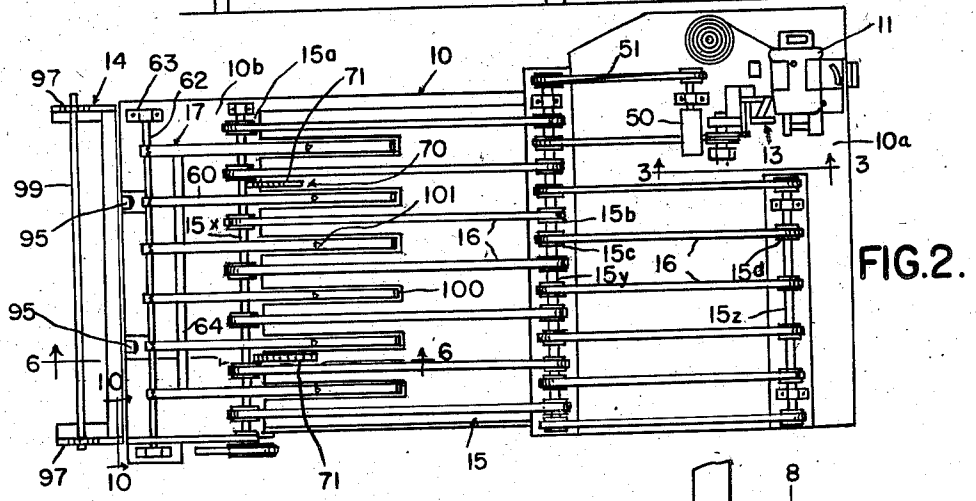


FIG.2.

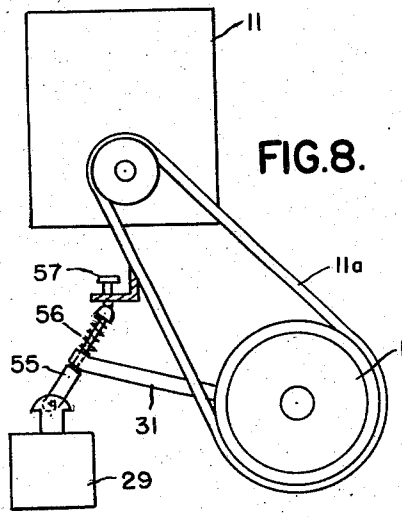


FIG.8.

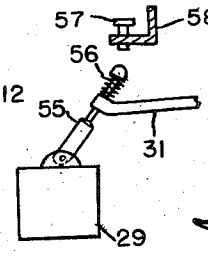


FIG.9.

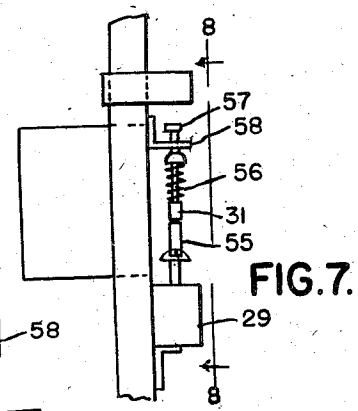


FIG.7.

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AUTOMATIC SEWING AND HANDLING MACHINE

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FIG.13.

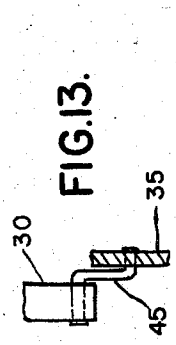


FIG.3.

FIG.5A.

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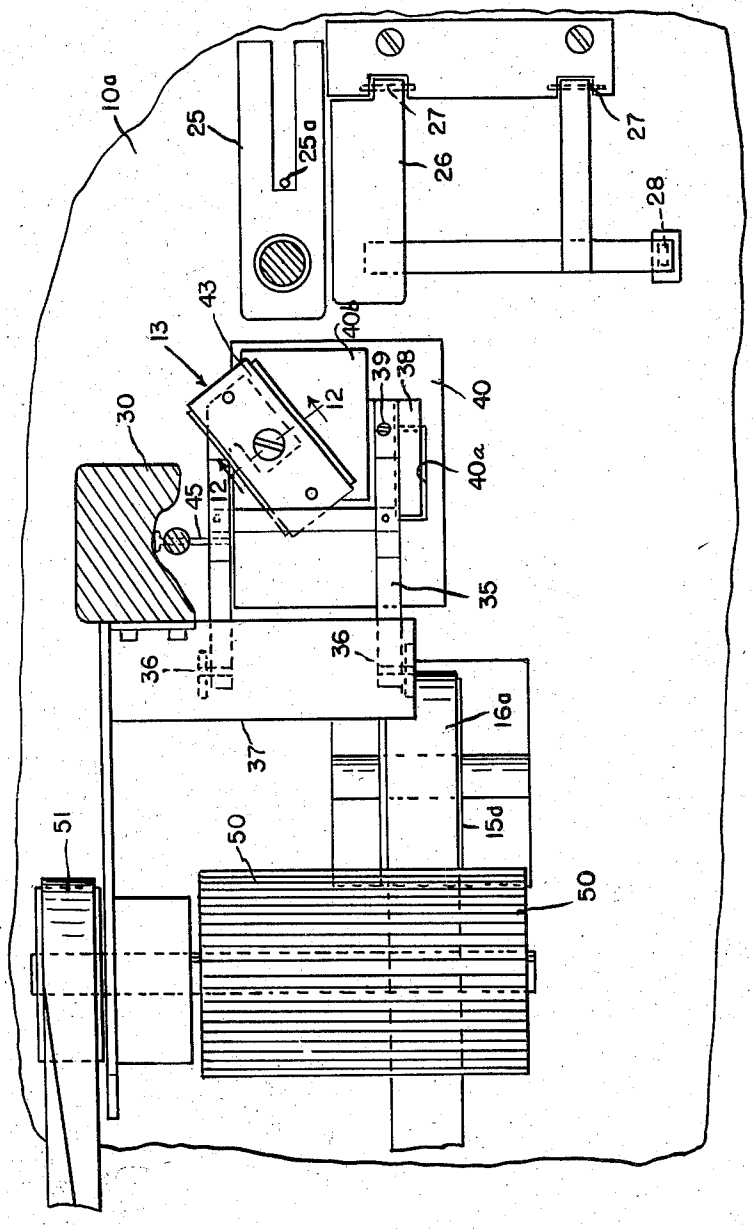
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FIG. 4.



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AUTOMATIC SEWING AND HANDLING MACHINE

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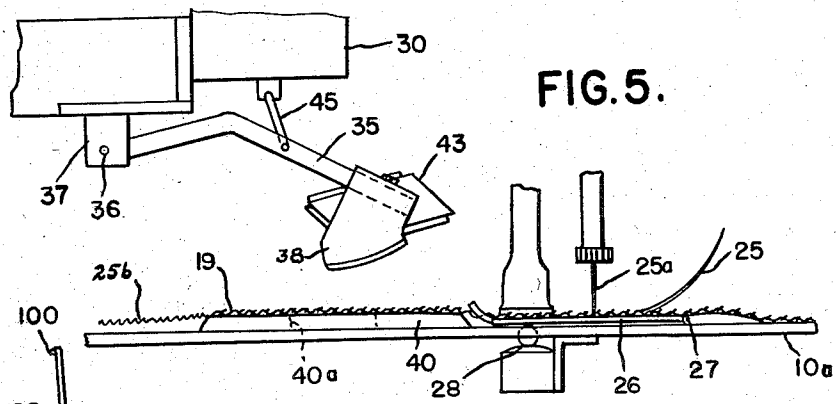


FIG.5.

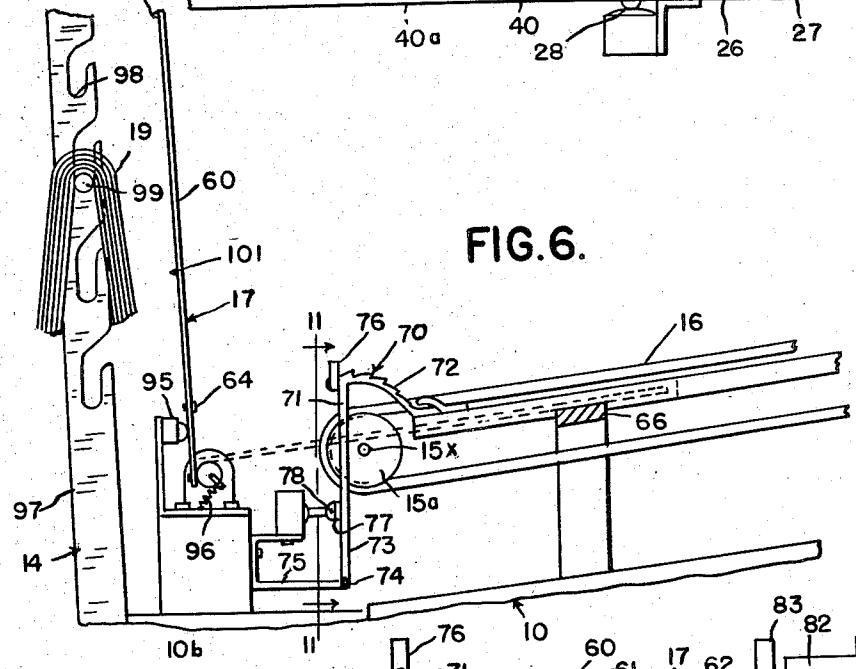


FIG.6.

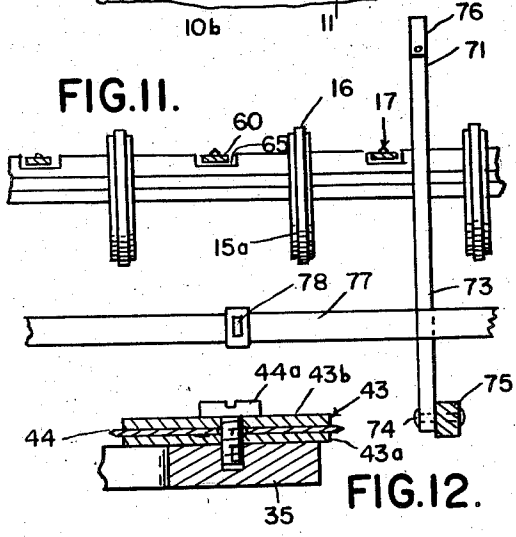


FIG.11.

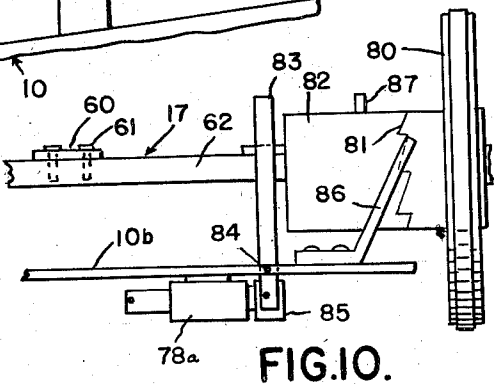


FIG.10.

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FIG.12.

United States Patent Office 2,874,659 Patented Feb. 24, 1959

2,874,659

AUTOMATIC SEWING AND HANDLING MACHINE

Charles F. Kehrer, Detroit, Mich.

Application December 12, 1955, Serial No. 552,345

14 Claims. (Cl. 112—10)

My invention relates to sewing machines and more particularly to an automatic sewing and handling machine for flat flexible workpieces such as fabric or plastic bags and comprising means for sewing, cutting thread to separate the workpieces, and subsequently hanging successively delivered workpieces on an adjustable rack fixture.

Heretofore in the manufacture of fabric bags or other articles in which seams are machine sewn, the number of manual operations necessary required employment of skilled operators for high quantity production. The workpieces are manually handled during sewing and consequently the sewing machine is operated at whatever speed the particular operator can manage. Some operators being less skilled than others, the rate of production is prone to be erratic.

Variations in an operator's coordination in starting and stopping the machine results in uneven and unequal chained thread lengths leading each workpiece and chained thread tail lengths left at the end. Also, it is the customary practice among bag makers to use a continuous stitch, leaving all the bags tied together, and such sewn bags are permitted to accumulate on the floor and are piled up indiscriminately. Then an operator cuts these bags apart and manually stacks or piles the indivdual bags on a table.

These factors cause production rates to be uncertain and variable, and in large scale production, the costs are difficult to maintain accurately. Therefore, an object of my invention is to substantially eliminate all aforesaid production variables by providing a unitary sewing, separating, and racking of flat flexible workpieces rapidly, efficiently, and at a uniform or controlled rate of production.

Another object of my invention is to eliminate sewing irregularities by providing means, actuated initially by manually fed workpieces, for automatically starting and stopping the sewing machine, for providing uniform lead chained thread lengths and tail chained thread lengths, and for successively hanging completed workpieces conveniently over a horizontal rack.

A further object of my invention is to insure uniform quality of sewn flat workpieces by providing adjustable means for predetermining the lengths of the lead and tail chained thread.

A still further object of my invention is to increase production rates in the manufacture of bags and other flat flexible articles by providing an automatic machine, which may be operated at the fastest possible speed and which require only one manual operation; namely, that of feeding the machine.

A yet further object of my invention is to facilitate handling of flat flexible workpieces by providing a device for transferring the workpieces successively conveyed from the sewing machine to a horizontal rack rather than to a flat table as has heretofore been the case.

Additional objects and advantages incorporated in the automatic machine of this invention will become apparent in the following description, and for a more detailed understanding of my invention, reference may be had to the accompanying drawings illustrating a preferred embodiment of the invention in which like characters refer to like parts throughout the several views and in which:

Fig. 1 is a side elevational view of the entire machine.

Fig. 2 is a top plan view of the machine.

Fig. 3 is a more detailed side elevational view of the sewing and thread severing portion of the machine, taken substantially from the line 3—3 of Fig. 2.

Fig. 4 is a plan view taken substantially from the line 4—4 of Fig. 3.

Fig. 5 is a side elevational view of the thread severing device illustrated in Fig. 3, but in another position.

Fig. 5A is another detail view of the thread severing device in still another position.

Fig. 6 is a more detailed side elevational view of the racking portion of the machine, taken substantially from the line 6—6 of Fig. 2.

Fig. 7 is a view as seen substantially from the line 7—7 of Fig. 1.

Fig. 8 is a side elevational view as seen substantially from the line 8—8 of Fig. 7.

Fig. 9 is a fragmentary view of the mechanism of Fig. 8 in another position.

Fig. 10 is a detail view taken substantially from the line 10—10 of Fig. 2.

Fig. 11 is a fragmentary view taken substantially from the line 11—11 of Fig. 6.

Fig. 12 is a sectional view taken from the line 12—12 of Fig. 4, and

Fig. 13 is a fragmentary detail view taken substantially on the line 13—13 of Fig. 3.

Referring in detail to the drawings, a supporting table, platform, or frame 10 of any suitable construction and preferably including a flat work surface 10*a* has mounted thereon a combination of integrated equipment including a sewing machine 11 of conventional design, a power means 12 such as an electric motor suitably connected to operate the sewing machine 11 by gearing, belt drive, or other means 11*a*, a thread severing mechanism 13, a rack fixture 14, a conveying mechanism 15 preferably comprising a plurality of continuous belts 16 and 16*a* as shown, a flyer assembly 17 for transferring finished work from the conveyor mechanism 15 to the rack fixture 14, and a second power means 18 such as an electric motor suitably connected to operate the conveyor mechanism 15 and the flyer assembly 17.

The equipment illustrated is particularly adapted for sewing and handling substantially flat flexible workpieces 19 such as cloth bags or other suitable articles of manufacture. As will be described in detail, the separate workpieces 19 are successively manually fed to the sewing machine 11, which seams them in a generally continuous fashion, and the remaining operations are then automatically performed. The thread connecting the workpieces 19 is cut by the thread severing device 13, the workpieces 19 are transported by the conveyor mechanism 15 to the flyer assembly 17, which successively hangs them on the rack fixture 14. The conveyor mechanism 15 is preferably adapted to be continuously operated, but the other equipment is preferably intermittently actuated as required by the workpiece 19.

The sewing machine 11 is of conventional construction, having a foot 25 under which the workpieces 19 ride, each workpiece being sewn with needle 25*a* and thread 25*b*. When the workpiece 19 is originally manually inserted under the foot 25, it rides over an actuator

assembly **26** disposed closely adjacent to the foot **25**. The actuator assembly **26** is pivoted as at **27** and, when depressed by the workpiece **19**, it actuates a microswitch **28**, energizing solenoids **29** and **30** simultaneously.

Referring to Figs. 7 through 9, the motor **12** has a conventional clutch and brake operating lever **31** (clutch and brake not shown). When energized, solenoid **29** actuates the lever **31** downward, releasing the brake and engaging the clutch, thereby starting the sewing machine **11**.

The thread severing device **13** is an improved modification of the device of United States Patent No. 2,426,026, issued August 19, 1947, to Agnes D. Kehrer. The improved device comprises a frame assembly **35**, which is preferably pivotally secured as at points **36** on a supporting structure **37**. A rider member **38** is secured to the frame **35** with a screw **39** or other means, and is adapted to ride on top of the workpiece **19** as shown in Fig. 5A, the workpiece preferably overlaying a cutting block **40**. When the workpiece is withdrawn from under the rider member **38**, the rider member drops down into a hole **40***a* in the cutting block **40**.

A cutter assembly **43** is mounted on the frame **35**. The cutter assembly preferably comprises a plate **43***a* permanently secured to the frame **35**, a plate **43***b*, and a blade **44**, sandwiched as shown in Fig. 12, the blade **43***b* and the blade **44** being held in place by a screw **44***a* screwed into the frame **35**.

The cutter assembly **43** is inclined to the cutting block **40** and angularly offset from the normal to the direction of workpiece travel as shown. Preferably, the angle of inclination should be approximately 30 degrees and the angle of offset about 70 degrees. The blade **44** is preferably arranged to strike a rubber insert **40***b* in the cutting block **40** to reduce dulling of its edge. The thread severing device **13** is connected to the solenoid **30**, preferably by a connector **45**, so that when the solenoid is energized, the thread severing device **13** is elevated above the work surface **10***a* and the cutting block **40**, as shown in Fig. 5.

A roller **50** is suitably supported above the table **10** and is adapted to be driven by belt **51** or other means in cooperation with a conveyor belt **16***a* as illustrated in Fig. 3, the arrows indicating the direction of rotation of the roller **50** and the belt **16***a*.

In operation, a workpiece **19** is manually inserted between the sewing machine foot **25** and the work surface **10***a*. The workpiece **19** depresses the actuator **26**, actuating the microswitch **28**. Solenoid **29** is energized, pulling lever **31** downward to engage the clutch of the power means **12** and start the sewing machine **11**. Simultaneously, the solenoid **30** is energized and the thread severing device is elevated to the position illustrated in Fig. 5. The workpiece **19** moves along the work surface **10***a* and over the cutting block **40**. The roller **50** engages the workpiece and draws it onward. When the trailing edge of the workpiece **19** finally leaves the sewing machine **11**, the actuator **28** is released, and the microswitch springs to the upward off position, deenergizing the solenoids **29** and **30**. The lever **31** is released to move upward, disengaging the clutch of motor **12** and engaging the brake to stop the sewing machine **11**.

Referring to Figs. 7 through 9 again, it will be observed that the lever **31** is preferably resiliently connected to the solenoid **29** by means of a connecting bolt or rod **55** and a spring **56**. An adjustment screw **57** is suitably mounted as on bracket **58**, and engages the bolt **55**. The lower the adjustment screw is turned, the less the upward movement of the lever **31** when the solenoid **29** is deenergized, and the less the braking action on the power means **12**. This serves to increase the time of over-travel of the sewing machine **11** before the brake brings it to a full stop. Consequently, a means is thus provided for predetermining the length of thread **25***b* which will be left between the cutting blade **44** and the needle **25***a* of the sewing machine **11**. This will be the length of lead chained thread **25***b* on the succeeding workpiece. The length is indicated by the reference character **19***a* in Fig. 3.

Solenoid **30** deenergizes simultaneously with solenoid **29**, permitting the thread severing device to drop onto the workpiece **19** as shown in Fig. 5A. The workpiece, pulled over the cutting block **40** by the roller **50**, withdraws from under the rider member **38**, permitting the cutter blade **44** to drop onto the cutting block **40** and sever the tail thread **25***b* of the workpiece **19**. The blade **44** is angled as described primarily to provide a positive shearing action and to prolong the useful life of the blade. Shearing the thread in two angular directions produces a minimum of wear on the cutting edge by utilizing a greater width thereof. Since a minor detail like replacing a cutter blade necessitates shutting down the entire machine, increasing the useful life of the blade effectively reduces production delays. Over a period of time, sewing and cutting many thousands of workpieces, the saving in costs are appreciable.

The distance of the trailing edge of the rider **38** from the cutting portion of the blade **44** determines the moment when the cutter blade finally cuts the tail thread of the workpiece **19**, and the length L_1 will be the length of the tail as shown in Fig. 3. Various sizes of rider **38** may be utilized to vary the predetermined tail length desired. The cutter assembly **43** of the thread severing device is preferably located in close proximity to the sewing machine **11**, in order to permit the leading thread chained to be as short as possible.

The overtravel of the sewing machine described previously is so adjusted that the length **19***a* of lead chained thread **25***b* sewn on each workpiece **19** will closely coincide with the length L_1 of trail thread cut by the cutter blade **44**. The entire operation serves to automatically sew and cut each workpiece uniformly. Since the only manual operation is that of inserting the workpieces, the sewing machine is preferably permitted to run at top speed when sewing, and the successive workpieces may be fed as rapidly as possible, maintaining a high and uniform quantity of production and quality of workmanship.

The successively sewn and separated workpieces are carried by the conveyor mechanism **15** to the other end of the table **10**, where the flyer assembly **17** is located. The conveyor mechanism preferably comprises a set of spaced directly operated continuous belts **16** mounted on drive pulleys **15***a* and idler pulleys **15***b*, and a second set of spaced follower belts **16***a* mounted on idler pulleys **15***c* and **15***d*. All the pulleys are secured to their respective shafts **15***x*, **15***y*, and **15***z*. The shaft **15***x* is suitably continuously driven by speed reduction pulleys and belts as shown in Fig. 1 from the power means **18**, consequently operating all the belts **16** and **16***a* together.

The flyer assembly **17** comprises a plurality of spaced flyer arms **60** secured by screws **61** or other means to a rotatable shaft **62** suitably supported as with brackets **63** on a shelf portion **10***b* of the table **10**. The flyer arms are also rigidly connected to each other by a rod **64**, so that when the shaft **62** rotates, the flyer arms **60** will all be rigidly rotated in unison, as illustrated in Fig. 6. When the arms **60** are not so upraised, they are disposed in a position between the conveyor belts **16** and preferably lay in recesses **65** in the table **10** and rest on cushions **66**. In this position, the flyer ams **60** are disposed below the upper plane of the conveyor belt **16**.

As each successive workpiece is carried over the flyer arms by the conveyor belts **16**, the leading edge strikes and rides up on an upward projecting actuator mechanism **70**, comprising preferably two actuator members **71** which each have a serrated inclined portion **72**, a rod **73** pivotally supported as at **74** on a bracket **75** secured to the table **10**, and an additional stop portion **76**. The serrated portion **72** and the stop portion **76** in-

sure positive engagement with the leading edge of the workpiece **19**. The rod portions **73** are connected by a bar **77**, which is forced against a microswitch **78**, energizing a solenoid **78***a* to operate a clutch mechanism which rotates the shaft **62** as follows, referring to Fig. 10 particularly:

The shaft **62** carries at one end a pulley **80**, the hub of which is provided with teeth **81** to form one member of a dog clutch. Pulley **80** is mounted to rotate freely on the shaft **62** but is prevented from longitudinal movement thereon. Also carried on shaft **62** is the mating member **82** of the clutch, which member is slidable on the shaft **62** to engage the teeth **81** on the pulley **80**, but is prevented from rotational movement on the shaft **62**. The member **82** is engaged with the teeth **81** on the pulley **80** by means of a lever **83** pivoted at **84** on the shelf **10***b* and connected to the armature **85** of the solenoid **78***a*. Energizing of the solenoid **78***a* will cause the clutch to engage. Disengagement of the clutch is accomplished by means of an inclined member **86** fixed to the shelf **10***b* in the path of a pin **87** carried by the clutch member **82**.

In operation, motor **18** preferably drives pulley **80** through an arrangement of belts and speed reducing pulleys **90** and **90***a* as shown in Fig. 1. The shaft **62** remains stationary unless the solenoid **78***a* is energized through actuation of the microswitch **78**. When the clutch member **82** is engaged with its mating member on pulley **80**, the shaft **62**, carrying the flyer arms **60**, is caused to rotate. The flyer arms **60** underlying the workpiece will pick up and flip the workpiece over the rack fixture **14**. The pin **87** is so correlated with the member **86** that the clutch is released when the shaft **62** has made about a quarter or about a 90 degree rotation.

Two return bumper members **95** are preferably mounted on the table **10** so that two of the flyer arms **60** will strike them and the flyer assembly **17** will be bounced rapidly to its original position. A spring **96** is also preferably connected to the shaft **62** to assist and insure this rapid return. Heretofore, such flyer mechanisms were designed to rotate a full 180 degrees, in order to stack the workpieces on a suitable table. The present 90 degree rotation permits much more rapid operation of the flyer arms by simply flipping the successive workpieces over the rack fixture and then returning to the original position.

It may also be noted that the 90 degree flipping action will generally be sufficient for tossing the workpieces onto said work fixtures, a table or other suitable receiver, such as another conveyor, if such stacking is desired. In any case, the return time of the flyer assembly is halved, permitting much more rapid stacking.

The rack fixture **14** comprises two substantially vertical or slightly inclined end members **97**, suitably mounted on the shelf **10***b*. The end members **97** have a plurality of spaced slots **98** along one edge. A horizontal rack or rod **99** is adjustably positioned in appropriate slots **98** so that, as the successive workpieces are flipped upward, the rod **99** will intersect a horizontal medial portion of the workpieces, and same will consequently be hung over the rod **99**. The bags may be readily lifted off the rod. The rod **99** is positioned in the slots **98** in accordance with the size of the workpieces to be hung thereon. In using the rod on which the bags are hung, a work table may be, if desired, conveniently located to the rear of the machine, so that an operator may very readily grab a pile of said bags and easily slide same off the rod and onto the work table for convenience in inspecting the completed bags.

To insure more positive and efficient performance of the flyer assembly **17**, each flyer arm **60** is provided with an upraised point or any other engaging means **100** adjacent to the tip end of the arms **60**. Other engaging means **101** are also preferably provided at other positions on the arms **60** such as that near the lateral line on which the actuators are positioned. These engaging means **100** and **101** prevent the workpieces from sliding on the flyer arms **60** when the flyer assembly **17** is actuated as described.

Although I have described but one embodiment of the invention, it will be apparent to those skilled in the art to which my invention pertains that various changes and modifications may be made therein without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. An automatic machine for sewing and handling manually fed substantially flat flexible workpieces comprising in combination a sewing machine and means operating same, a thread severing device for separating said workpieces, a receiving means for receiving separated sewn workpieces, a conveyor mechanism for carrying sewn workpieces from said sewing machine and said thread severing device to said receiving means, means operatively contacted by and actuated by successively fed workpieces for automatically starting and stopping said sewing machine operating means, said actuated means operable simultaneously with starting and stopping said sewing machine operating means to respectively automatically remove said thread severing device from and return same to a position contacting successive workpieces preparatory to severing thread, said thread severing device automatically operably coacting with the moving thread sewn on the workpiece independently of said actuated means for cutting a predetermined length of thread tail on the trailing edge of each of said sewn workpieces subsequent to stopping said sewing machine operating means, means engaging and successively urging said workpieces through the sewing and tail cutting operations and operative independently of said sewing machine operation, means continuously operating said conveyor mechanism, and means automatically successively transferring said workpieces to said receiving means and comprising a support, a flyer assembly pivotally carried by said support and having arms normally substantially horizontally underlying said workpieces as they are conveyed toward the receiving means, and means operatively contacted by and actuated by successively conveyed workpieces to actuate said flyer assembly arms to a vertical position whereby the momentum of said workpieces propels same to a stacked position on said receiving means, the extremities of said arms having means engaging a medial part of said workpieces and disengaging from same when said arms stop at the vertical position.

2. In an automatic handling apparatus for bags and like workpieces, a conveyor for delivering substantially flat flexible workpieces to said apparatus, said handling apparatus comprising a substantially horizontal rack fixture, means substantially horizontally receiving said workpieces and actuated to uplift said workpieces and toss same successively on said rack fixture, said means including a support, flyer arms pivotally mounted on said support, means rotating said flyer arms from a substantially horizontal to a substantially vertical position, means immediately returning said flyer arms to the horizontal position, said workpieces individually successively uplifted by said flyer arms, said rack fixture disposed to intersect an intermediate position of said uplifted workpieces whereby momentum of said workpieces operates to propel same into a draped position on said rack fixture, and means operatively contacted by said workpieces for operating said receiving means.

3. In an automatic handling apparatus for bags and like workpieces, a conveyor for delivering substantially flat flexible workpieces to said apparatus, said handling apparatus comprising a receiving means, means substantially horizontally engaging said workpieces and actuated to uplift said workpieces and toss same successively on said receiving means, said engaging means including a

support, flyer arms pivotally mounted on said support, means rotating said flyer arms from a substantially horizontal to a substantially vertical position, means immediately returning said flyer arms to the horizontal position, said workpieces individually successively engaged and uplifted by said flyer arms, momentum of said workpieces disengaging same from said flyer arms and propelling same onto said receiving means, a pivotally mounted shaft adjacent to said receiving means and extending normal to the direction of workpiece travel, said flyer arms laterally spaced and secured to said shaft and adapted to underlie said delivered workpieces, said rotating means driving said shaft and including a clutch, and an actuator arm for said clutch and disposed in the path of said delivered workpieces to be operatively contacted and actuated thereby, said actuator arm having at least one serrated contact member inclined upward relative to the horizontally positioned flyer arms, said delivered workpieces thereby caused to ride up on said contact member and engage the leading of said workpieces with the serrations of said contact member for actuating same.

4. In a handling mechanism for substantially flat flexible workpieces having flyer arms adapted to underlie successively delivered workpieces and to pivot to a vertical position for transferring said pieces under momentum to a receiving means, means closely adjacent the tips of said flyer arms for engaging said workpieces when said flyer arms are pivoted upward and preventing said workpieces from slipping on said flyer arms, said means comprising sharp prongs projecting from said flyer arms and arranged to impale said workpieces upon upward movement of said flyer arms and to release said workpieces at the upward end of flyer arm travel.

5. In an automatic handling apparatus for bags and like workpieces, a conveyor for delivering substantially flat flexible workpieces to said apparatus, said handling apparatus comprising a support, a rack fixture carried by said support, an automatically operated stacking mechanism provided with flyer arms pivoted on said support, said arms normally substantially horizontally positioned to underlie said workpieces as they are delivered to said apparatus, and means automatically operable to intermittently actuate said flyer arms to toss said workpieces on said rack fixture, said rack fixture comprising substantially vertical end members, each of said end members having a plurality of spaced slots along one edge thereof, and a bar adapted to be positioned horizontally in said slots between said end members and vertically adjusted to accommodate varying lengths of workpieces.

6. An automatic machine for sewing and separating manually fed substantially flat flexible workpieces and comprising in combination a sewing machine and means operating same, a thread severing device for separating said workpieces, a substantially flat work surface, a support, means engaging and successively moving said workpieces over said work surface and operating independently of said sewing machine operation, said sewing machine and said thread severing device adapted to successively automatically sew said workpieces and cut a predetermined uniform length of thread tail on each of said sewn workpieces moving over said work support, means operatively contacted by and actuated by said moving workpieces for automatically starting said sewing machine operating means when a workpiece enters the sewing machine and for automatically stopping said sewing machine operating means when said workpiece leaves the sewing machine, said workpiece actuated means operable to raise said thread severing device off of said work surface simultaneously with starting said sewing machine operating means and operable to lower said thread severing device onto said moving workpiece simultaneously with stopping said sewing machine operating means, said thread severing device operative independently of said sewing machine operation and comprising a frame, a cutter secured to said frame, a rider assembly secured to said frame and adapted to rest on said workpiece upon being lowered thereon to elevate said cutter above said workpiece and to lower said cutter to cut the tail upon removal of the workpiece from under said rider, said cutter having a flat cutting blade, said blade angularly inclined to said work surface and angularly offset from the normal to the direction of workpiece movement.

7. An automatic machine for sewing and separating manually fed substantially flat flexible workpieces and comprising in combination a sewing machine and means operating same, a thread severing device for separating said workpiece, a substantially flat work surface, a support, means engaging and successively moving said workpieces over said work surface and operating independently of said sewing machine operation, said sewing machine and said thread severing device adapted to successively automatically sew said workpieces and cut a predetermined uniform length of thread tail on each of said sewn workpieces moving over said work surface, said thread severing device pivotally suspended from said support, means operatively contacted by and actuated by said moving workpieces for automatically starting said sewing machine operating means when a workpiece enters the sewing machine and automatically stopping said sewing machine operating means when said workpiece leaves the sewing machine, said workpiece actuated means operable to raise said thread severing device off of said work surface simultaneously with starting said sewing device operating means and operable to lower said thread severing device onto said moving workpiece simultaneously with stopping said sewing machine operating means, said thread severing device operative independently of said sewing machine operation and comprising a frame, a cutter secured to said frame, a rider assembly secured to said frame and adapted to rest on said workpiece upon being lowered thereon to elevate said cutter above said workpiece and to lower said cutter to cut the tail upon withdrawal of the workpiece from under said rider, said cutter having a flat cutting blade, said blade inclined to said work surface at an angle of approximately 30 degrees and offset from the normal to the direction of workpiece movement at an angle of approximately 70 degrees.

8. An automatic machine for sewing and separating manually fed substantially flat flexible workpieces and comprising in combination a sewing machine and means operating same, a thread severing device for separating said workpieces, means operatively contacted by and actuated by said workpieces for automatically starting and stopping said sewing machine operating means, said actuated means operable simultaneously with starting and stopping said sewing machine operating means to respectively automatically move said thread severing device to an inoperative position and then return same to a position contacting successive workpieces preparatory to severing thread, said thread severing device operably coacting with the moving thread sewn on the workpiece independently of said actuated means for automatically cutting a predetermined length of thread tail on the trailing edge of each of said sewn workpieces, and means engaging and successively urging said workpieces through the sewing and tail cutting operations and operative independently of said sewing machine operation, said sewing machine operating means provided with a brake, and means adjusting the braking time of said operating means to provide for a predetermined timing of overtravel of said sewing machine, whereby to cooperate with said thread severing device for predetermining the length of sewn lead thread remaining to be sewn to the leading edge of each workpiece after said thread tail of each preceding workpiece is cut.

9. An automatic machine for sewing and separating manually fed substantially flat flexible workpieces and including a sewing machine, an operating means for

same, and a work surface for supporting successively fed workpieces during the sewing operation, a control means supported on said work surface closely adjacent said sewing machine and operable to control said operating means, said control means adapted to be activated by an engaging contact with the leading edge of a workpiece inserted in said sewing machine for starting said operating means, means engaging and urging said workpiece through said sewing machine and operative independently of said sewing machine operation, and said control means adapted to be deactivated upon disengagement from the trailing edge of said workpiece for stopping said operating means, a thread severing device for automatically cutting a predetermined length of a thread tail on the trailing edge of said sewn workpieces, said thread severing device operatively connected to said control means, means actuating said thread severing device to an inoperative position upon actuation of said control means and actuating said thread severing device to an operative position upon deactivation of said control means, said thread severing device operative to cut said thread tail subsequent to stopping said sewing machine and independently of said sewing machine operation and said actuating means.

10. A machine for severing and handling manually fed substantially flat flexible workpieces by a series of automatic sequential operations and comprising a continuously operating conveyor for supporting and carrying successively fed workpieces during said operations, a sewing machine at one end of said conveyor, a thread severing device adjacent said sewing machine and disposed in the path of said workpieces, actuating means engaged by each successive workpiece to simultaneously start said sewing machine and remove said severing device from the path of said workpiece, said actuating means operable on disengaging from said workpiece to simultaneously deactivate said sewing machine and return said severing device into engagement with said moving workpiece preparatory to thread severing operation, means coacting with said conveyor independently of said sewing machine operation to engage and urge said workpiece through the thread severing operation, said severing device operable upon disengaging from said workpiece and coacting with the moving thread to immediately cut a predetermined length of thread tail on said workpiece subsequent to deactivation of said sewing machine, means operable to effect a predetermined overtravel of said sewing machine to provide a predetermined length of lead thread from the severed end to be sewn on the next fed workpiece, and a receiving means disposed at the other end of said conveyor for receiving and stacking successive separated workpieces.

11. A machine for sewing and handling manually fed substantially flat flexible workpieces by a series of automatic sequential operations and comprising a continuously operating conveyor for supporting and carrying successively fed workpieces during said operations, a sewing machine at one end of said conveyor, a thread severing device adjacent said sewing machine and disposed in the path of said workpieces, actuating means engaged by each successive workpiece to simultaneously start said sewing machine and remove said severing device from the path of said workpiece, said actuating means operable on disengaging from said workpiece to simultaneously deactivate said sewing machine and return said severing device into engagement with said moving workpiece preparatory to the thread severing operation, means coacting with said conveyor independently of said sewing machine operation to engage and urge said workpiece through the thread severing operation, said severing device operable upon disengaging from said workpiece to coact with the moving thread to immediately cut a predetermined length of thread tail on said workpiece subsequent to deactivation of said sewing machine.

12. An automatic machine for sewing and handling manually fed substantially flat flexible workpieces and comprising in combination a sewing machine, a thread severing device for separating successively sewn workpieces, a receiving means for receiving said separated workpieces, a conveyor mechanism for carrying workpieces from said sewing machine and thread severing device to said receiving means and operating continuously independently of the sewing machine operation, means operatively contacted by and actuated by successively fed workpieces to automatically start and stop said sewing machine, means engaging and urging successive workpieces through the sewing and thread severing operations and operative independently of said sewing machine operation, said actuated means operably connected with said thread severing device and operable on starting and stopping said sewing machine to respectively simultaneously remove said thread severing device from and return same to an operative position engaging successive workpieces preparatory to the thread severing operation, said thread severing device having a cutter and operative only upon withdrawal of a workpiece from engagement with said thread severing device and prior to the succeeding removal of same from the operative position aforesaid to move said cutter into cutting contact with the thread sewn on said workpiece, said cutter thereupon operable to cut a predetermined length of thread tail on the trailing edge of said sewn workpiece subsequent to stopping of said sewing machine.

13. An automatic machine for sewing and handling manually fed substantially flat flexible workpieces and comprising in combination a sewing machine, a thread severing device for separating successively sewn workpieces, a receiving means for receiving said separated workpieces, a conveyor mechanism for carrying workpieces from said sewing machine and thread severing device to said receiving means and operating continuously independently of the sewing machine operation, means operatively contacted by and actuated by successively fed workpieces to automatically start and stop said sewing machine, means engaging and urging successive workpieces through the sewing and thread severing operation and operative independently of said sewing machine operation, said actuated means operably connected with said thread severing device and having means actuating said thread severing device to an inoperative position simultaneously with starting said sewing machine and means actuating said thread severing device to an operative position engaging successive workpieces simultaneously with stopping said sewing machine preparatory to the thread severing operation, said thread severing device having a cutter and means actuating said cutter into cutting contact with the thread sewn on a workpiece and only upon withdrawal of said workpiece from engagement with said thread severing device and prior to the succeeding removal of same from the operative position aforesaid, said cutter constructed and arranged to thereupon automatically shearingly engage said thread only when same is moving and to cut a predetermined length of thread tail on the trailing edge of said sewn workpiece subsequent to stopping of said sewing machine.

14. An automatic machine for sewing and separating manually fed substantially flat flexible workpieces and comprising in combination a sewing machine, a thread severing device for separating said workpieces, a substantially flat work surface, a support, means engaging and successively moving said workpieces over said work surface and operating independently of said sewing machine operation, said sewing machine and said thread severing device adapted to successively automatically sew said workpieces and cut a predetermined uniform length of thread tail on each of said sewn workpieces moving over said work surface, said thread severing device pivotally suspended from said support, means operatively contacted by and actuated by said moving workpieces to automatically start said sewing machine

when a workpiece enters same and to automatically stop said sewing machine when said workpiece leaves same, said workpiece actuated means having means raising said thread severing device off of said work surface simultaneously with starting said sewing machine and lowering said thread severing device onto said moving workpiece simultaneously with stopping said sewing machine, said thread severing device being thereupon operative independently of said sewing machine operation and having a foot contacting said moving workpiece and a blade operative to cut a thread tail of predetermined length only when said workpiece is withdrawn from contact with said foot.

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