INSTRUCTIONS
FOR SETTING UP AND OPERATING

THE MERROW

High Speed

Trimming and Overseaming

Sewing Machines

With Illustrations

Class 60

MERROW

The Merrow Machine Co.
28 Laurel Street
HARTFORD, CONN., U. S. A.
1944

ENGLISH EDITION

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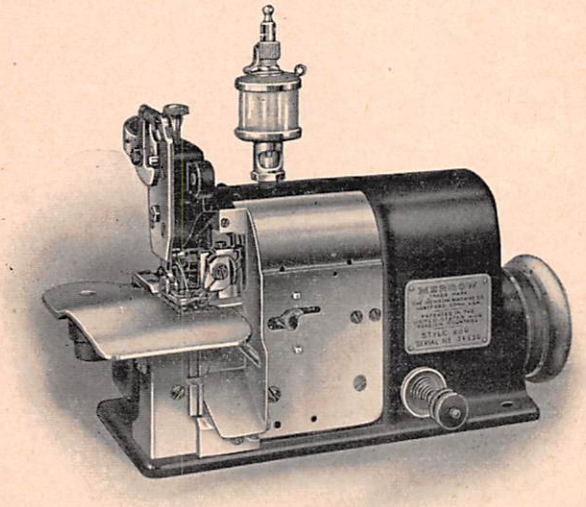

The Merrow Machine Company
28 Laurel Street
HARTFORD, CONN., U. S. A.

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THIS company has exclusive control of numerous inventions for which Letters Patent have been granted, under some of which the machines indicated in this book have been made.

These patents also include many products and methods.

All machines other than those made by this company containing any one or more of the features covered by any of said patents, infringe the latter, and each individual maker or user is liable for the profit obtained by the use of the patented inventions as well as damages sustained by the owner of the patents.

All these machines are especially designed and constructed for continuous running at high speed, and with reasonable care they are always used with great economy in cost of production and repairs.

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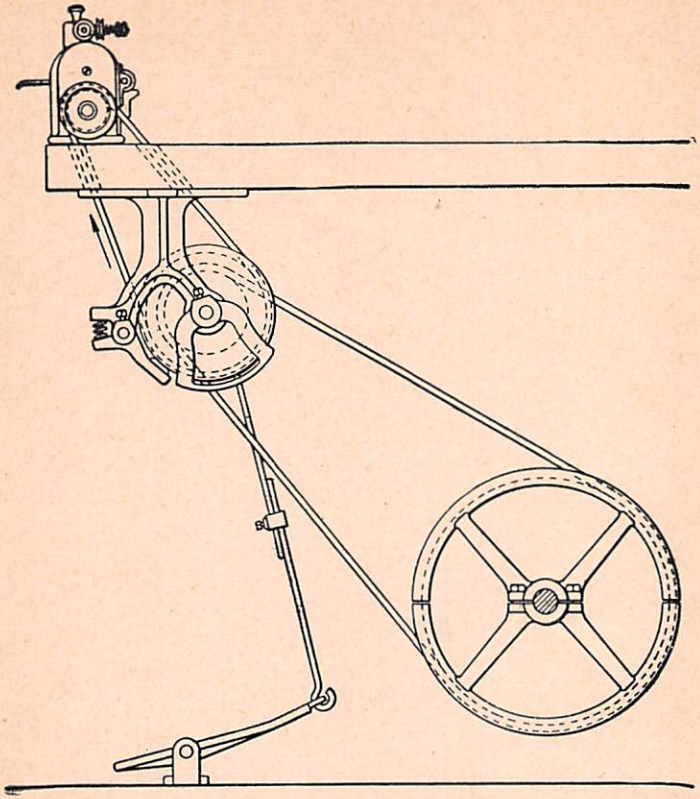

Power Transmitter

In operating our machines it is necessary or desirable to use some kind of power transmitter or underdriver for conveniently starting and stopping the machine by the foot of the operator, the power for driving the machine being supplied usually from a driving shaft near the floor, under the table.

We are prepared to furnish ball bearing power transmitters for round belt from driving shaft and for the usual round belt to the machine, including split pulley for driving shaft.

All our split pulleys are bored to fit $1\frac{3}{16}''$ shafting which is the standard size in general use and which we recommend, but if the driving shaft is slightly larger we can rebore the pulley to fit or if smaller it can be properly bushed.

Any power transmitter suitable for driving sewing machines will answer for our machine.

When a power transmitter is ordered, we should be advised of the size of the driving shaft and the speed at which it runs, in order that we may supply a split pulley of the right bore to fit and of suitable size to run our machines at the proper speed.

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The ball bearing transmitters permit of setting the machine at or very near the front edge of the table and are desirable for continuous running at very high speeds.

The front end of the forward leg of the ball bearing power transmitter should be set under the table about one and one-half inches back from the front edge of the base of the machine set on top of the table.

A convenient guide for boring the belt holes at the proper angles may be made from a short piece of board four inches wide and seven-eighths of an inch thick with either end sawed to the proper angle, which can be taken from a sketch made to scale in the manner indicated on page 3.

HOW TO ORDER SUPPLIES

A Price List of Parts for the Merrow Class 60 Machines, alphabetically and numerically arranged with illustrations of models of parts and code words therefor, is available upon request.

Refer to illustrated parts and order by model number there given, stating both serial and style number of the machine for which the parts are wanted.

When ordering needle plate, specify width of finish desired, whether long or short chaining finger and size of needle used.

Loopers may be ordered by model number, which is stamped on the shank of each looper; or otherwise, by stating whether upper or lower loopers and whether for the one, two or the three-thread stitch, together with the style or serial number of the machine in which they will be used.

We have a complete record of all parts of each machine as it leaves our factory and as all parts are strictly interchangeable we can supply duplicates if given the name of the part with serial and style number of the machine.

Postage, registry, special delivery and insurance cost will be charged.

We shall take every possible precaution to insure prompt and safe delivery but cannot be responsible for delays or losses in transit.

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Instructions for Setting Up and Operating *The Merrow* High Speed Trimming and Overseaming Sewing Machines, Class 60

Introductory

The Merrow High Speed Trimming and Overseaming Sewing Machines are made in many modifications and it is hardly feasible to include in this book complete instructions for all variations.

The general instructions immediately following apply to all varieties of this class except when otherwise stated, and the specific instructions, as therein explained, apply to particular styles or varieties of the same class of machines.

For identification of the various parts named in these instructions reference may be had to the illustrations with names of typical parts in the back pages of this book.

Many of the modified forms of the Class 60 Machines have become standard varieties, some of which are so designated by a letter or letters following the class number as, for instance, 60AD, 60B, 60D, etc.

AD indicates "Sweater" machine with differential feed.
ABB indicates Butted Seaming.
B indicates that the machine produces a deep finish.
BU indicates machine for scalloping Marseilles quilts.
D indicates differential feed, as for instance 60D, 60UD, etc.
D3B indicates extra wide butted seaming.
E indicates two or three thread machine without cutters.
F indicates machine without trimmers for "serging".
H indicates blind stitch hemming for bottom of shirts.
JDC indicates Rayon Seaming.
K indicates the "K" stitch for sewing on cuffs.
Q indicates three-thread shell stitch.
RD indicates retentive edging—for scalloping or straight edging.
S indicates blind stitch hemming for the tops of stockings.
SS indicates selvage seaming.
U indicates scalloping edges on quilts, flannelette and the like.
UD indicates ends of ties, closing toes of stockings and mock seaming.

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W indicates that the machine produces the "W" stitch which is a three-thread stitch with the needle thread drawn down closely on both sides of the goods, making a close, tight seam having the appearance of a lock stitch seam when the two pieces which have been overseamed together are flattened out single, leaving the overedge seam projecting inside the goods, thus finishing or covering the raw edges and producing a tight seam in one operation.

Setting Up the Machine

1. Provide a smooth table with a top at least two inches thick and about twenty-eight inches high.

2. Immediately after removing the machine from its box observe the threading carefully and compare it with the descriptions of threading in sections 100 to 106, and the figures therein referred to. The manner of threading is not exactly the same in all style machines.

3. Secure the machine to the table with the felt pad sent with the machine under the base of the machine using the screws also sent with the machine, the hand wheel being at the right of the operator and the front or base of the machine parallel with the front edge of the table and the center of the main shaft of the machine not more than five inches back from the front edge of the table.

Do not screw the machine to the table very tightly.

If the ball bearing power transmitter described on pages 3 and 4 is used, the machine may be set with the front of its base at the very front edge of the table as has been found desirable in some cases and particularly for the Style 60S Machines.

4. A driving device known as a power transmitter or underdriver should be used for running the machine. See page 3.

5. The shaft which drives the power transmitter should be $1\frac{3}{16}$ inches diameter which is the standard size, and should be located under the table about 9 inches above the floor and sufficiently back from the front edge of the table to be at all times beyond the reach of the clothing of the operator. See page 3.

6. Use round leather belt ¼ inch diameter to drive the machine from the power transmitter.

7. Avoid crossed belts when possible.

8. The top of the hand wheel must turn from the operator.

Speed

9. The Styles 60, 60H, 60K, 60S and 60W Machines, as well as some special varieties which cannot be enumerated here, are adapted to run continuously at very high speed, and we recommend three thousand to three thousand five hundred stitches per minute according to conditions. While the machines may run well with little care they will give better results with suitable attention and care.

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Many Merrow Machines have been known to run a year and longer without a single part being replaced or even an adjustment.

10. The Style 60B Machines are recommended to run at twenty-five hundred to three thousand stitches per minute according to conditions.

11. For the recommended speed of styles not enumerated above, refer to description of the individual style in our catalogue.

Thread Stand

12. Screw the thread stand to the table top back of machine with the left end of the base far enough to the right to be clear of the goods which pass back beyond the machine.

13. The thread, yarn or silk should be wound on cones or conical bobbins which should stand vertically, the thread leading up to the top of the thread stand and thence diagonally downward to the machine.

14. Never run the thread, yarn or silk from cylinders or from two headed spools—cones are best.

15. Use no needles or other parts not made expressly for the machine.

16. Keep the machine clean.

17. Before re-assembling a machine, after having removed any of its parts, be sure that every surface of every part is thoroughly clean and free from all grit and lint and that each frictional surface is oiled.

18. Oil frequently, at least four times a day.

19. These machines are necessarily fitted very closely in order to attain their very high speed and great durability, and therefore they need frequent oiling, especially when new. Use best quality of lubricating oil. We do not recommend so-called stainless oil for the purpose.

20. After continued idleness first use kerosene oil.

21. Parts cannot be changed in form without liability to injury.

The Needle

22. Self-setting needles marked "D", used in all varieties of recent Class 60 Machines, are of the following sizes, viz: No. OOOD, No. OOD, No. OD, No. 1D, No. 2D, No. 2DF, No. 2SD, No. 3D, No. 3SD, No. 3SDF, No. 4D, No. 5D and No. 8D, all have straight shanks, flattened at one side, and curved blades, the No. OOOD being the finest.

23. Use No. 3D needle for general work and always when practicable.

24. Adjust the "D" needles with the end of the shank in contact with the stop pin in the needle carrier.

25. Tighten the nut at the left of the upper part of the needle carrier just firmly but not unduly to hold the needle in place.

26. The blade of the needle must not be too large for the slot in the needle plate. If a needle too large is once forced through the needle slot, the latter is likely to be much injured.

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The Needle Carrier

27. The needle carrier must be perfectly free to swing upon its stud but must have no lateral movement. This adjustment is accomplished by first loosening the needle-carrier-stud set-screw which is located in the frame of the machine, directly back of the center of the needle carrier stud, and accessible from the rear of the machine, outside. If the loosening of this screw is neglected in a single instance the machine will be injured. See cut on next page.

28. Screw the needle carrier stud in or out very delicately until the proper adjustment is attained and then tighten the needle-carrier-stud set-screw and test the needle carrier again. When replacing this stud, after removing it, clean it thoroughly, oil it, and be careful to enter it properly so as never to cross the threads and thus injure the hole, as the threads are very fine.

The Needle Plate

29. The needle slot must always be large enough to permit the blade of the needle to pass through freely without contact with the needle plate.

30. A needle plate for the wide finish or seam cannot be used in machine made for the narrow finish or seam.

31. A needle plate with very short finger must usually be used in conjunction with a presser foot provided with a long finger.

32. A needle plate with long finger is for use in conjunction with a presser foot without finger, but in exceptional cases is used with a presser foot provided with a finger.

See sections 47 to 51, concerning presser feet.

The Lower Looper

33. The lower looper is best set and adjusted before the upper looper is placed in the machine and after the needle has been properly set in accordance with sections 22 to 26, the needle plate being, preferably, but not necessarily, removed.

34. To set the lower looper: First loosen the lower looper screw which is accessible through a hole in the front of the frame cap. As this screw is just to the left of the upper looper screw, be sure to loosen the proper screw. Turn the hand wheel (the top from the operator) until the lower looper carrier has moved to its extreme right hand position and has begun to move towards the left with the needle rising. Then push the lower looper into its carrier (it should pass in easily), at the same time slowly turning the hand wheel until the needle is at or near the extreme upward position. When properly set the eye of the lower looper should exactly register with the hole in the lower

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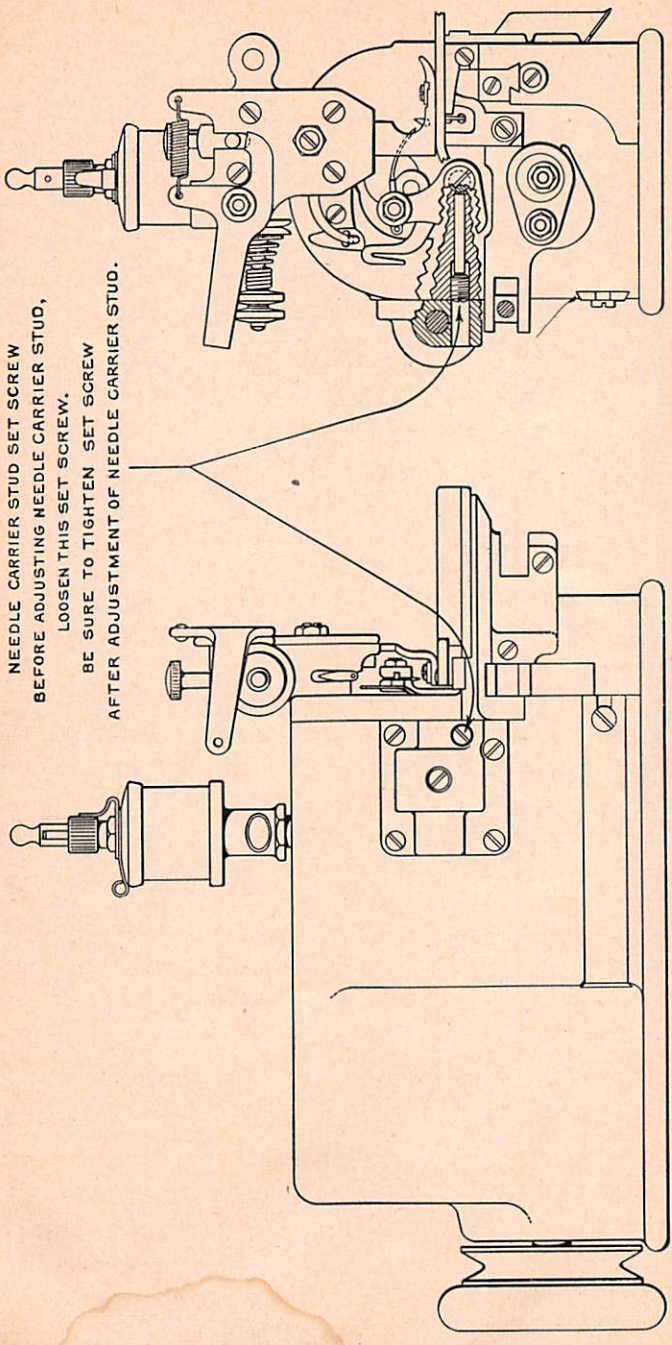

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looper thread tube (just under and supporting the needle plate), which can be determined by using a small wire (the threading wire sent with the machine will do) which should pass through the hole in the lower looper thread tube and directly through the eye of the lower looper when the latter is in its extreme outward (left hand) position and the needle up. Tighten the lower looper screw firmly but not unduly, then turn the hand wheel and see that the point of the lower looper comes into gentle but certain contact with the needle as the looper moves inward. The point of the looper should cause the needle to deflect or dodge slightly in passing.

When the lower looper, without a thread eye, is at its extreme left hand position below the needle plate, the point of the lower looper should extend to the left, beyond the needle at least one thirty-second of an inch.

If the lower looper screw is tightened unduly it may spring the lower looper shank and the lower looper carrier.

The Lower Looper Carrier

35. The lower looper carrier is beveled at its top and bottom edges forming a "dovetail" which is guided and runs between the upper and lower gibs and a reversible plate, all located on the inside face of the frame cap, the lower gib being located permanently, and the upper gib being adjustable by means of the upper gib key held to the frame cap by a screw in a slotted hole. The reversible plate is clamped in positive position by the upper and lower gibs. When worn, this plate may be reversed to present a new bearing surface.

36. The lower looper carrier should be perfectly free to travel its full stroke horizontally in either direction but should have no undue lost motion up and down.

37. Adjustment of the sliding fit of the lower looper carrier can be made by means of the upper gib key above the upper gib. After readjustment, tighten both screws which hold the upper gib and the screw that holds the upper gib key and lastly test the sliding fit of the lower looper carrier as it must not bind the least at any point in its travel.

The Upper Looper

38. Upper loopers are made in two general forms, one style for two-thread stitch and the other for three-thread stitch, the former kind being made with a throat to carry the lower looper thread to the needle above, and the other kind being made with an eye to carry the third thread through a loop of the lower looper thread and over to the needle above the fabric.

The adjustments of two kinds of upper loopers are similar.

39. The upper looper should always be set, with the needle and lower looper previously in adjustment. See sections 22 to 26 concerning the needle, and sections 33 and 34 concerning the lower looper.

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40. The upper looper is secured to the upper looper carrier by a screw accessible through the right hand end of the opening through the front of the frame cap. This screw (which is located just to the right of the screw for the lower looper) must be loosened before introducing the upper looper and care should be taken not to loosen the wrong screw.

41. In setting the upper looper, turn the hand wheel until the needle is at or near its highest position when the upper looper screw will be accessible and the upper looper can be introduced into its carrier after its screw is sufficiently loosened.

42. The upper looper should be pushed into its carrier (it should pass in easily) until by turning the hand wheel forward and backward it is found that the looper when moved from right to left above does not hit the point of the needle. Then turn the hand wheel (top from the operator) until the point of the upper looper is about to pass down back of the lower looper when it should be examined to see that its point does not conflict with the back side of the lower looper. When properly adjusted finally, the point of the upper looper should pass by the slabbed or flattened portion of the lower looper, in very gentle contact therewith, just to the left of the boss or bulge around the eye of the lower looper, the front side of the upper looper at the right of the thread passage being clear of the bulge around the eye of the lower looper. When so adjusted the upper looper screw should be finally tightened, firmly but not unduly, as the parts might be sprung with too much force. Finally turn the hand wheel (top from the operator) a number of turns and see that the loopers and needle are properly adjusted to each other. If the upper looper is set too far outward (to the left) its point may catch the needle thread below and cause skipping or imperfect stitching.

A small percentage of Class 60 Machines employ lower loopers without a thread eye, and in such cases the point of the upper looper, when below the needle plate, should pass to the left beyond and just clear of the extreme left hand end of the lower looper.

See section 44 to 46 concerning looper carrier guide, etc. See sections 100 to 106 concerning threading.

The Upper Looper Carrier

43. The upper looper carrier must be perfectly free to travel its full stroke in either direction but must have no lost motion laterally. This adjustment can be tested by taking hold of the upper looper, when it is in its extreme outward position above the presser foot and needle plate, and alternately pressing it toward and from the operator. If there is any lateral looseness besides a needed freedom, then the looper carrier guide needs adjusting, for which see the following section. If there is undue looseness vertically the cam rolls probably need renewing.

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The Looper Carrier Guide and Adjusting Slide

44. The looper carrier guide is attached at one end to the frame cap by two screws, near the right hand edge of the frame cap, accessible outside. These screws should always be tight and should not be loosened unless to remove the upper looper carrier, after the frame cap is taken from the machine.

45. The left end of the looper carrier guide is designed to rest against the forward end of the adjusting slide which is located in a channel at the left end of the machine frame, between the latter and the head of the machine and is held in adjustment by a screw accessible at the rear of the machine. The adjusting slide should be adjusted to press always against the left end of the looper carrier guide, which is made to spring within limits, to hold the upper looper carrier so that it will have no lost motion or looseness laterally towards or away from the operator. This can best be done by partially loosening its retaining screw and with a hammer gently tapping the adjusting slide forward and testing, afterward tightening the retaining screw.

46. When the looper carrier guide is too tight to allow perfect freedom of movement of the upper looper carrier, the left end of the looper carrier guide may be adjusted backward by first fully loosening the retaining screw at the rear end of the adjusting slide, moving the latter slightly backward, then partially tightening the retaining screw and with a light hammer gently tapping the adjusting slide forward as before explained. The screw which holds the adjusting slide being partly loosened when adjusting the looper carrier guide, must be afterwards tightened.

The Presser Foot

47. For ordinary seaming, where seams or thick and thin places must be crossed, a hinged presser foot with a finger around which the stitches are formed, should be used in conjunction with a needle plate with a very short finger and an upper looper, for producing the two-thread stitch.

48. For plain seaming with the two-thread stitch when seams are not to be crossed, a plain presser foot with finger instead of a hinged presser foot is recommended.

49. For ordinary three-thread work, use a presser foot with a stub finger or a presser foot made to use without presser foot finger, in conjunction with a needle plate with a long finger and an upper looper with an eye.

50. For edge finishing only with two threads, in exceptional cases a presser foot with a finger and a needle plate with a long finger are used together to advantage.

51. Ordinarily use as little pressure for the presser foot as is practicable, the degree of pressure being adjustable by the presser foot adjusting screw

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at the upper part of the head of the machine, which screw may be held in adjustment by the small set screw at the right side of the upper part of the head.

See next following section about presser foot fingers.

Presser Foot Fingers

52. The presser foot finger should be so adjusted upon the presser foot that its left edge just covers the right edge of the slot in the needle plate, so that if the point of the needle should be slightly deflected to the right it would not hit the needle plate. If then the presser foot finger is not wide enough for its purpose use a wider one.

53. For stitching with two threads, use a long presser foot finger of suitable width.

54. For stitching with three threads, use presser foot stub finger, if any, instead of the long finger.

See sections 47 to 51 concerning presser foot.

The Trimmer

55. With few exceptions the Class 60 Machines are provided with cutters for trimming off the surplus material at the edge of the fabric, simultaneously with, but a little in advance of the overseaming or overedging.

The Lower Cutter

56. The lower cutter is held in place in the lower cutter holder by the lower cutter clamp with slotted clamp nut accessible at the left of the lower cutter holder, with the cutting edge at the top end and to the right and about one thirty-second of an inch above the top of the needle plate. It should never be set so high as to come in contact with the bottom or edge of the presser foot. When the cutter is properly located vertically, tighten its clamp nut firmly but not unduly.

57. To remove the lower cutter loosen its clamp nut and push the cutter upward.

58. The lower cutter holder is held in adjustment by a clamp screw in front of the lower cutter holder support and is laterally adjustable by means of a collar screw (usually with slotted head) in the lower cutter holder support, at the left and just below the lower cutter holder. It is best to loosen the clamp screw before adjustment and tighten it when adjustment is completed.

59. As the lower cutter is used in conjunction with the upper cutter it is best to first set the lower cutter in its proper vertical position and then set it laterally to the right distance from the line of penetration of the needle, afterwards setting the upper cutter in accordance with sections 62 to 65, and

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finally very carefully adjust the lower cutter into easy but certain contact with the upper cutter.

60. The lower cutter should press against the upper cutter as gently as possible and yet do its work. When both cutters are very sharp the pressure together may be very light, and after running that way until they begin to show signs of imperfect cutting, the pressure may be slightly increased. In this way the cutters will last a long time under good conditions without sharpening.

61. The adjustments should be made delicately as the cutters (excepting for special purposes) are not held in contact by a spring, all of the movements being positive. If the cutters are forced together tightly they will not last well and the machine may thus be made to run hard.

See sections 72 to 79 for instructions about sharpening cutters.

The Upper Cutter

62. The upper cutter is secured to the upper cutter holder by the upper cutter holder clamp and is adjustable therein diagonally up or down. Ordinarily it should be so set that its cutting edge when in its lowest position will be a little below the top of the lower cutter, the lower cutter being set first in accordance with sections 56 to 61.

63. To remove the upper cutter, first remove the upper cutter clamp.

64. The upper cutter holder is adjustable laterally by first loosening an hexagonal headed binding screw at the top of the upper cutter carrier (using a small wrench sent with the machine) and thus the upper cutter can be set laterally to trim the proper width or depth from the line of penetration of the needle. When adjusted to the proper position laterally, tighten the binding screw, just firmly but not unduly, and then adjust the lower cutter as explained in sections 56 to 61.

65. If the fabric is very thick or if heavy seams are to be cut across, the upper cutter should be set somewhat higher than for thin fabric. In any case the upper cutter must be so set that its downwardly projecting guard will be at all times in contact with the right hand face of the lower cutter. The lower cutter should be in the machine when adjusting the upper cutter.

See sections 56 to 61 concerning the lower cutter with which the upper cutter must co-operate.

See sections 72 to 79 for instructions for sharpening the cutters.

The Cutter Grinder

66. Each customer should have a special cutter grinder particularly adapted for grinding the cutters for the Class 60 Machines.

67. Those not provided with a cutter grinder can have dull cutters ground by sending them to our office in Hartford, or to our distributing points in

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New York, Philadelphia, Chicago, Boston, Baltimore, Cleveland, St. Louis, or other centers in the United States and abroad.

68. The grinder should be secured to a suitable table near the machines, in a good light, with the swinging handle of the grinder at the right of the operator.

69. An ordinary power transmitter such as is used to drive sewing machines is the most economical method of driving the grinder and a quarter inch round belt is best for the purpose.

70. The grinder is provided with a casing surrounding and protecting a grinding wheel, 3⅝" diameter, the top of which should turn toward the operator, and which wheel may be run 2,000 to 2,500 revolutions per minute.

71. Do not use this grinder for anything but these cutters. A picture of the cutter grinder above described is shown on page 48.

See the next following sections for instructions in the use of the grinder.

Sharpening the Cutters

72. The upper and lower cutters are best sharpened by grinding the cutting ends diagonally in a special grinder made for the purpose. See sections 66 to 71.

73. The cutter should be placed in its proper groove in the swinging handle of the grinder, with the cutting end at the left side thereof and projecting from one-sixteenth to one-eighth of an inch outward (toward the wheel) and tightened therein by a thumb-screw which acts on a clamp over the cutter.

74. One each of the upper and lower cutters may be ground at the same time, or only one cutter at a time as desired, but one of each should be inserted in the grooves of the swinging handle of the grinder when grinding only one cutter.

75. If only one cutter is to be ground at a time the one not to be ground should not project to the left beyond the holder.

76. In setting a cutter in the grinder handle or holder, be sure that the retaining groove for the cutter in the holder is perfectly clean and that the handle is adjusted sufficiently to the right (away from the wheel) by means of the fluted adjusting nut at the left of the base so that the cutter cannot at first come in contact with the grinding wheel, and afterwards slowly and very delicately adjust the handle towards the wheel, at the same time slowly swinging the handle back and forth, thus carrying the cutter entirely across the grinding face of the wheel until the cutter comes slightly into contact with the wheel, and continue the operation until the end of the cutter is sufficiently ground, but no more.

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77. If, in grinding, the cutters are not carried entirely across the grinding face of the wheel the latter will soon become worn unevenly and the cutters may then be injured or spoiled in grinding.

78. But very little need be ground off the cutters and if too much is ground at one passage across the face of the wheel the temper of the cutter will be drawn and its cutting quality greatly impaired.

The cutter should not and need not be discolored by grinding.

79. After grinding properly, the edge will be pretty smooth but can be much improved in real sharpness and durability by carefully oil-stoning the edge, at the same time carefully removing any slight burr or feather edge.

Skill and care will be well repaid with good and lasting results.

Tensions

80. There is a separate tension device for each thread and two threads should not be passed through one tension.

81. Ordinarily in the two-thread machines, the needle thread should have relatively considerable tension and the lower looper thread but very little tension, just enough to cause the take-up to lightly act upon it clear to the eye of the lower looper.

82. Ordinarily in the three-thread machines which make the "W" stitch, forming a close, tight seam considerable tension is required on the needle thread and much less tension is needed upon the other two threads.

83. In the three-thread machines which produce an edge finish the three tensions must be balanced to each other so that the lower looper thread will be evenly and not very tightly looped along the edge of the fabric, giving any required degree of elasticity. If the lower looper thread is too tight the stitch will be inelastic, which however, is an effect sometimes wanted. The coarser the lower looper thread the less amount of tension usually required.

84. The edge of the fabric should be finished or overseamed for a short distance while running the machine at its usual speed by power, and the stitching should then be examined to ascertain whether or not the tensions are properly adjusted.

85. In come cases a great difference in the character of the fabric used will indicate some needed slight change in the tension of one or more of the threads.

86. Generally, it is advisable to keep the tension as light as possible and produce good results.

To this end, see that the thread having the least tension has just sufficient tension to properly control it, so that its take-up will operate well, then adjust the tensions upon the other threads to properly balance and form stitches of suitable appearance and tightness. If then, any of the threads break in running the machine at its usual speed, it is possible that all of the tensions need tightening very slightly.

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Take-Ups

87. Take-ups, which are not adjustable are usually provided for the several threads and are referred to in connection with threading in sections 100 to 106.

The Feed

88. The feed dog should generally be set as low as practicable.

89. The length of the feed can be changed by removing the feed eccentric, which is secured to the left end of the lower shaft, and substituting another feed eccentric of different throw.

90. The feed eccentrics are marked to indicate approximately the number of stitches per inch at the edge of the fabric when the latter is not retarded in passing through the machine.

91. The feed dog and the needle plate must match each other.

92. Machine styles containing the letter D in their designation, such as 60D, 60BD, 60HD and 60KD, contain a differential or gathering feed. The differential feed contains two separate feed dogs with their separate feed carriers and separate feed eccentrics. When it is desired to prevent the edge of the fabric from being stretched or lengthened while seaming or finishing, the forward feed dog is made to travel a greater distance than the rear feed dog by using a feed eccentric of greater throw for driving the forward feed dog than is used for driving the rear feed dog, a slight difference in some cases being sufficient.

As these two feed eccentrics are placed in a machine with a differential feed, the innermost one, within the longer of the two links, controls the front feed dog and the outer one within the shorter link controls the rear feed dog.

For overseaming or overedging knitted fabrics the size of the outer feed eccentric controlling the rear feed dog, that is to say the one producing shorter feed is invariably of a higher number than the inner feed eccentric controlling the front feed dog. The number of each feed eccentric and the difference between the two is dependent on the number of stitches required per inch and the elasticity of the fabric itself. The desired combinations are determined by experimenting with feed eccentrics of different numbers.

93. A feed eccentric extractor for use in removing the feed eccentrics from the end of the main shaft is sent with each machine.

Swinging Work Plate

94. All except some special varieties of Class 60 Machines are provided with a swinging work plate, which should be swung backwards out of the way when hemming or finishing small tubular goods such as cuffs, the tops of stockings, etc., permitting the tube of fabric to encircle the needle plate in the manner shown on page 22, where the work plate has been permanently removed for continual use on tubular work.

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95. For general use the work plate is closed as shown in the cut on the title page.

Swinging Edge Guide

96. A quickly adjustable swinging edge guide is used on some varieties of Class 60 Machines, and is supplied at an extra charge.

97. These guides are almost necessary when seaming and trimming such parts of garments as sleeves, to the wrists of which flat cuffs with selvage edges have been previously sewed, and which selvage edges must be seamed but not trimmed.

In using such guides they are swung out of use while seaming the sleeve until the cuff is nearly reached when the guide is swung into place thus holding the selvage edges just barely away from the cutters, to be overseamed together without being injured by the cutters.

When the swinging guide is so used a presser foot to match must be used in connection with it.

98. The swinging guide has a relatively large range of adjustment and is frequently used to indicate and limit the amount to be cut off from the edge of the fabric before overseaming so that the fabric may not be wasted and that the goods will be of uniform shape and size.

99. Numerous other kinds of edge guides have been originated and adapted to these machines for special purposes.

Threading

100. Owing to the great variety of modifications of the Class 60 Machines it has been necessary or very useful to lead and manipulate the threads in many different ways in order to accomplish the most perfect results and it seems hardly feasible to give a description of all the variations for special purposes, but descriptions of threading many of the Class 60 Machines will be found in sections 101 to 106 and in the cuts referred to therein, on pages 25 to 40, both inclusive.

In order to follow out the courses of each of the threads, it will be found convenient to refer to the cut of the particular style of machine in question. Ordinarily, hereafter, a print showing the threading will be sent with each machine as some of the threadings are special, but for general purposes, cuts have been included in this book and may be referred to in connection with the printed description of the threading.

Usually the style number of each machine, as well as its individual number, is stamped upon the name plate of the machine. Special threading instructions will usually be sent with other varieties.

For best results, care must be taken to properly thread each machine. While many of these varieties will run well when threaded in some other

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manner than recommended, it is thought that the best general results will not be obtained in other ways.

The Needle Thread

101. The course of the needle thread while much alike in all machines varies somewhat and the differences are well illustrated in the cuts on pages 25 to 40 of this book. In some of the machines, as previously built, no take-up is provided for the needle thread.

The Threading Wire

102. In threading the looper threads it will be found convenient to use a threading wire sent with the machine, by passing the end of the thread through the loop in the end of the wire and afterwards using the threading wire much as one would use an ordinary threaded sewing needle.

The Lower Looper Thread

103. After threading the needle, slowly turn the hand wheel if necessary to carry the lower looper into its extreme left hand position, with the needle at or near its highest position. Then pass the lower looper thread through the tensions and thread eyes and take-up as indicated in the proper cut illustrating the threading of the same style of machine as is being threaded. (See pages 25 to 40 for cuts.) The last thread eye for the lower looper thread to pass through will be found near the left hand end of and near the base of the machine.

The end of the thread should now be passed through the loop in the threading wire sent with the machine, unless the threading wire has been put into use at an earlier stage of the threading process. As the lower looper has previously been moved into its proper position for threading, the eye of the looper should be directly in line with the passage in the lower looper thread-tube (upon which the needle plate rests). Push the end of the threading wire into and through the passage in the thread tube and through the eye of the looper and pass the threading wire entirely through the eye of the looper, thus carrying the thread through it. Disengage the threading wire from the thread and draw the end of this thread together with the end of the needle thread backward to take out all slack in both threads back to the tensions.

104. In the two-thread machines, the machine is then ready to "chain" which should be tested by turning the hand wheel (the top of the hand wheel turns from the operator) two or three turns and if stitches are formed, cut off the long ends of loose threads and the machine is then ready to stitch excepting the possible need of adjustment of tensions, for which see sections 80 to 86.

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In the three-thread machines, the upper looper must also be threaded before stitches can be formed.

The Upper Looper Thread

105. In the three-thread machines, the upper looper thread after passing through the thread eyes and between the tension discs, and in some machines through a take-up, is then passed diagonally upward in some machines through a tube, the open end of which is found just below the bottom edge of the dust shield near the base of the machine as shown in cuts on page 36 and in some machines through a tube extending diagonally upward through the right hand wall of the dust shield as shown in the cuts on pages 25 and 30. (Refer particularly to the cut illustrating the style of machine to be threaded.)

Pass the free end of the upper looper thread through the loop in the threading wire sent with the machine, at any convenient stage of the threading operation but in any case before trying to introduce the thread through the thread tube before mentioned. Then pass the threading wire upward through the tube. The end of the threading wire should be bent to curve upward slightly so that in passing it upward through the tube it will pass back of the upper looper and upward when the free end of the threading wire can be reached. Draw the threading wire forward and upward out of the machine carrying the thread with it. Turn the hand wheel slowly (the top of the hand wheel must turn from the operator) until the eye of the upper looper is accessible. Then be sure to remove any loop of thread which may be upon the upper looper. This must be done. Then if the thread from the threading wire is back of the upper looper carry it to the left around the point of the upper looper so that the thread will pass upward in front of the upper looper. The thread should then be back of the lower looper and in front of the upper looper. Now pass the threading wire through the eye of the upper looper from the front to rear and draw it with its thread through the eye of the upper looper. Then pass the wire to the front and out of the machine and carry the free end of the thread under the front of the presser foot and to the left.

106. Now if the needle and lower looper have been properly threaded before threading the upper looper and the threads have been placed as described in section 103, then the three threads may be taken together in the left hand and drawn out backward to take out the slack in them back to the tensions. Turn the hand wheel slowly (top must turn from the operator) and if the machine "chains", or in other words if stitches are formed, the machine is ready to sew excepting perhaps some adjustment of the tensions may be needed which cannot be determined until the machine is made to finish the edge of a piece of fabric or make a seam thereon running by power as explained in sections 80 to 86.

Experienced operators frequently dispense with the use of the threading wire.

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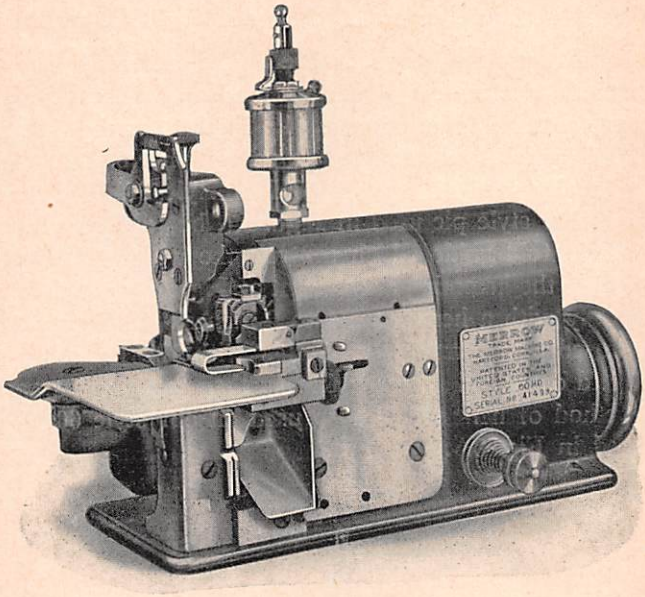
Presser Foot Lifters

107. Unless otherwise ordered the machines are now provided with a foot operated presser foot lifter, thus permitting the use of both hands of the operator in adjusting the work.



Blind Stitch Hemming

108. The Styles 60H and 60S Machines are arranged expressly for trimming and blind stitch overseam hemming but by the substitution of some parts at an additional cost, and the removal of some parts, these machines can be changed to two-thread seaming and trimming.

109. When used for hemming only, the style 60S machines may be used without the work plate as shown on page 22, or if the work plate is present, it may be swung backward from the work.

110. The best results are obtained in blind stitch hemming when the goods are finished the side up shown on page 22, that is, with the needle entering from the outside of the tube or stocking leg with the fold to be trimmed off at the edge, on top, which plan we strongly recommend and the styles 60H and 60S are so arranged unless otherwise ordered.

111. In some factories, however, it is desired to hem with the goods the opposite side up, that is, with the fold to be trimmed off at the edge on the bottom, next to the needle plate, and when so preferred we can supply

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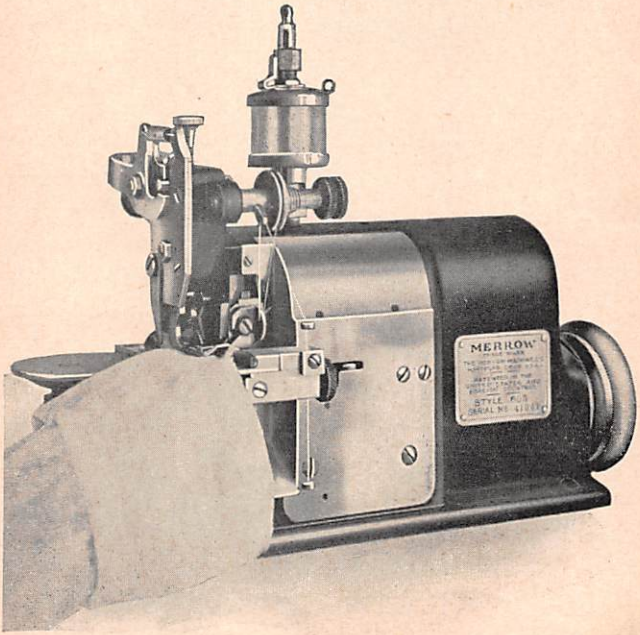
machines well arranged for the purpose, but this arrangement is not supplied unless so specified in the order.

112. For folding a uniform hem preparatory to welting the tops of ladies' stockings there has been designed a hosiery welt folder which we make and can supply and this is pictured on page 23 and in greater detail the functioning of this is set forth in a separate folder which will be mailed upon request.

113. To differentiate between three quite distinctly different types of hemming methods, devices for which are used on different styles of our Machines, we have pictured them on page 24. Figure 1 is the type generally used on a style 60S Machine and described in paragraph No. 110. Figure 2 is the type most generally used on a style 60H or style 60HD Machine. This is quite similar to the style pictured in Figure 1, but different in that it is supplied with a hem fold guide which controls the width of the hem, a feature not so practical in the hemming attachment of Figure 1, which is used for welting and generally with a hem from 4 to 6 inches. In Figure 3 is shown the arrangement used for hemming stockings with the hemming guide on the presser foot and described in somewhat further detail in paragraph No. 111. This same method of hemming is also used on our style 60AD Machine and this is pictured in Fig. 3A.



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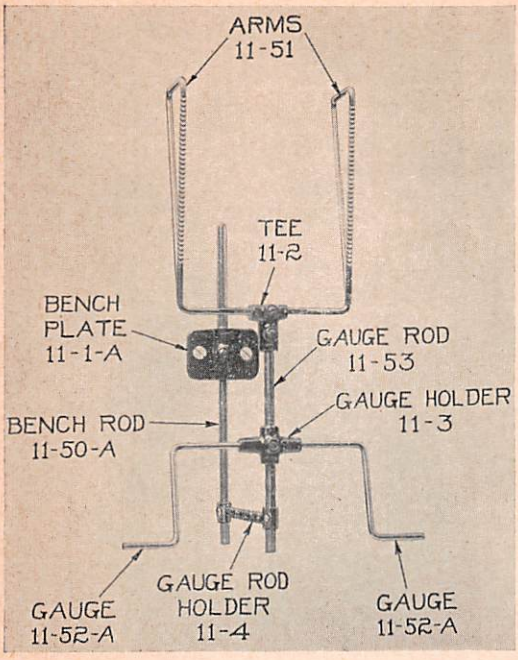
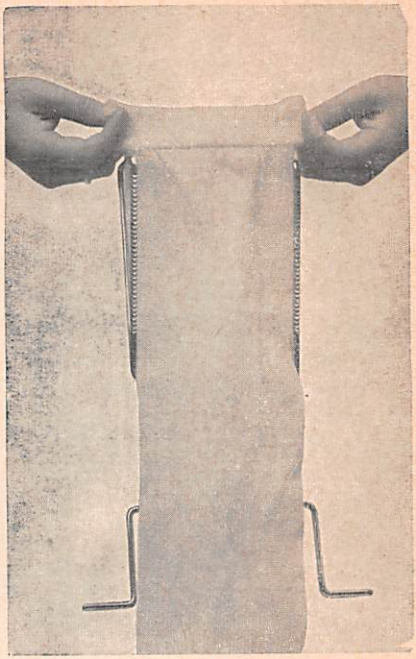
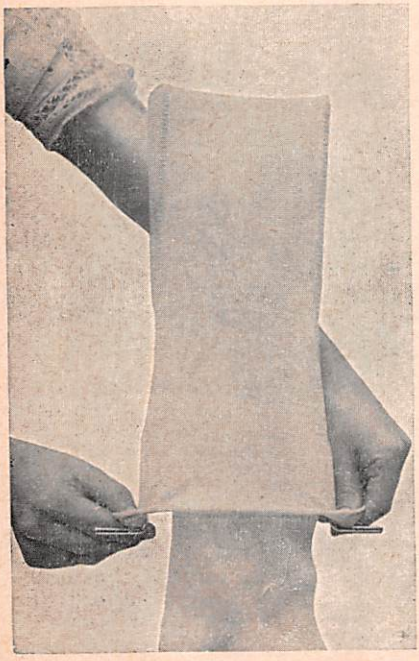


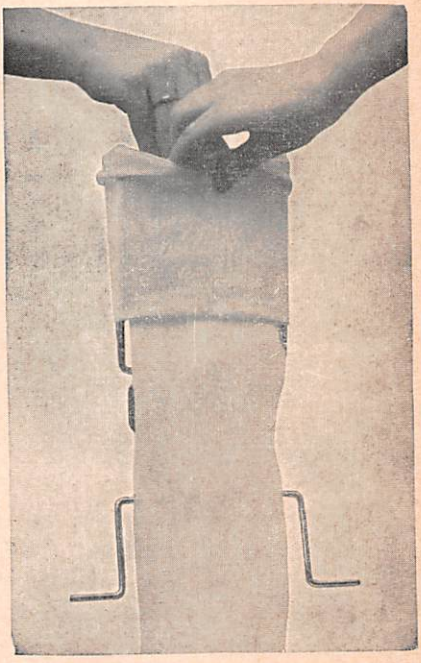
Welt Folder in position to fold six-inch hem



Preparing to place stocking on Welt Folder



Stocking drawn over Welt Folder



Note position of hands when ready to remove stocking to machine

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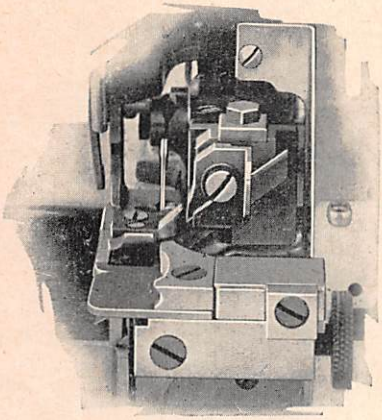

Figure 1

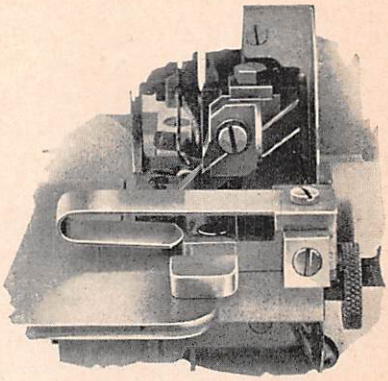

Figure 2

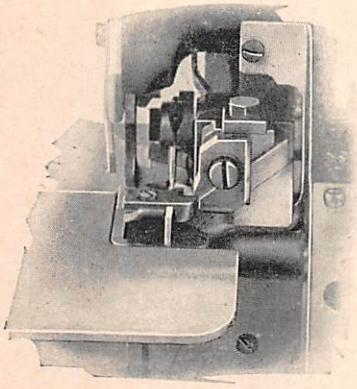

Figure 3

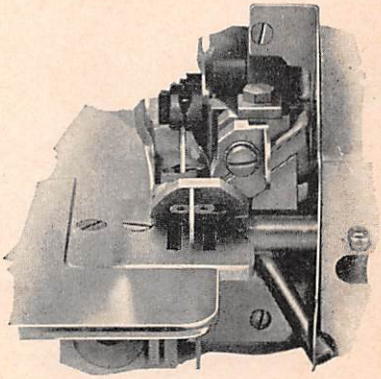

Figure 3A

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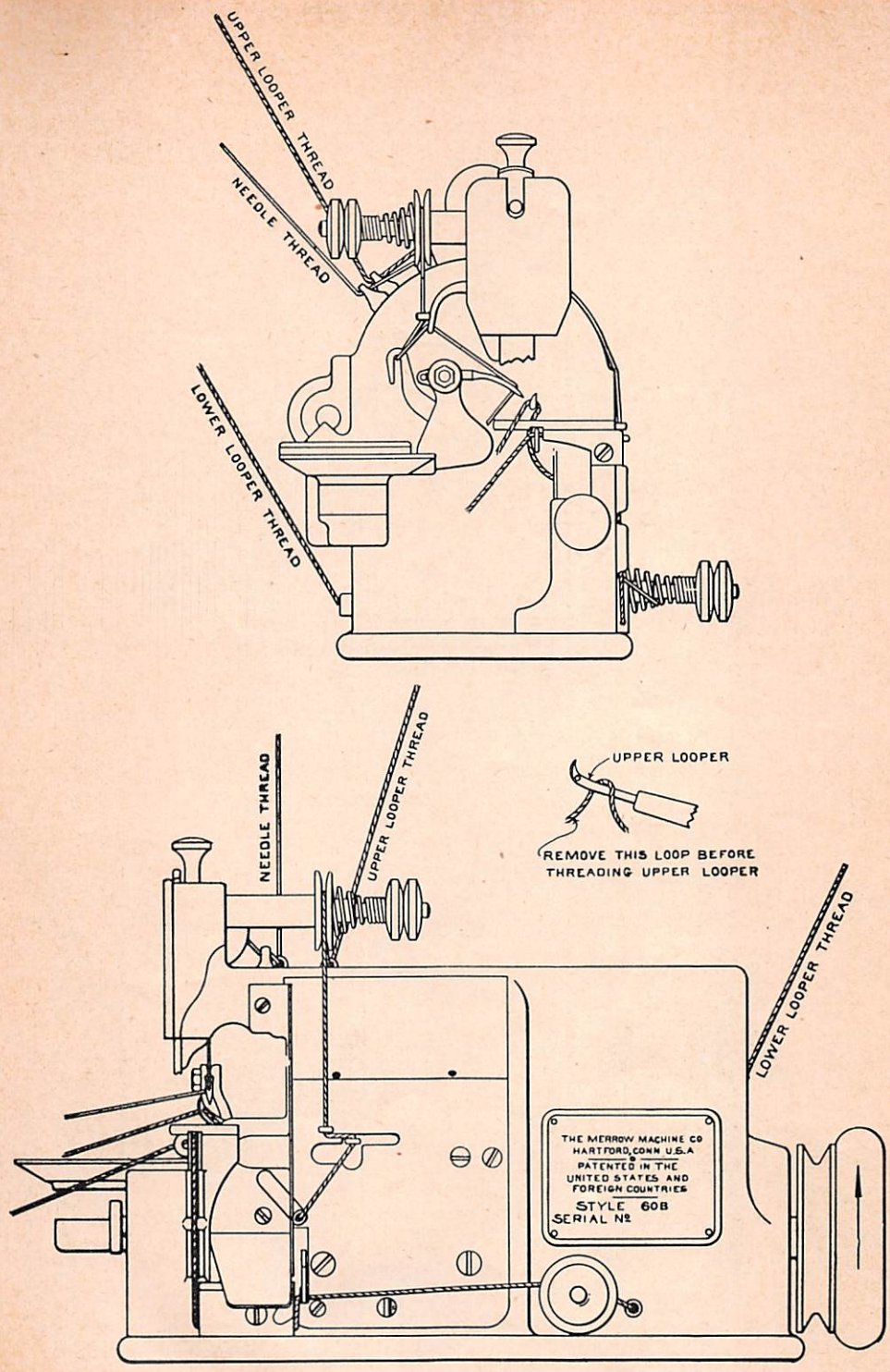

THREADING NO. 4. FOR MACHINE NO.

Threading for *Three Thread Machines*, Styles 60AB, 60ABD, 60B, 60BD and 60BDH.

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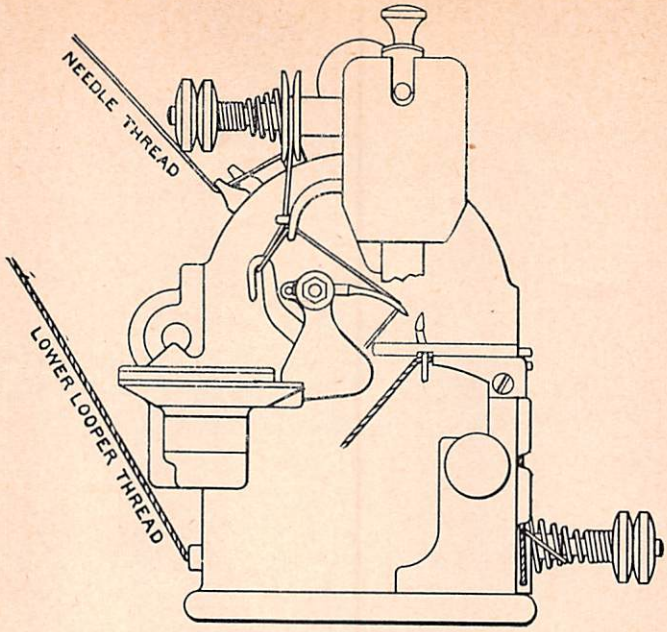

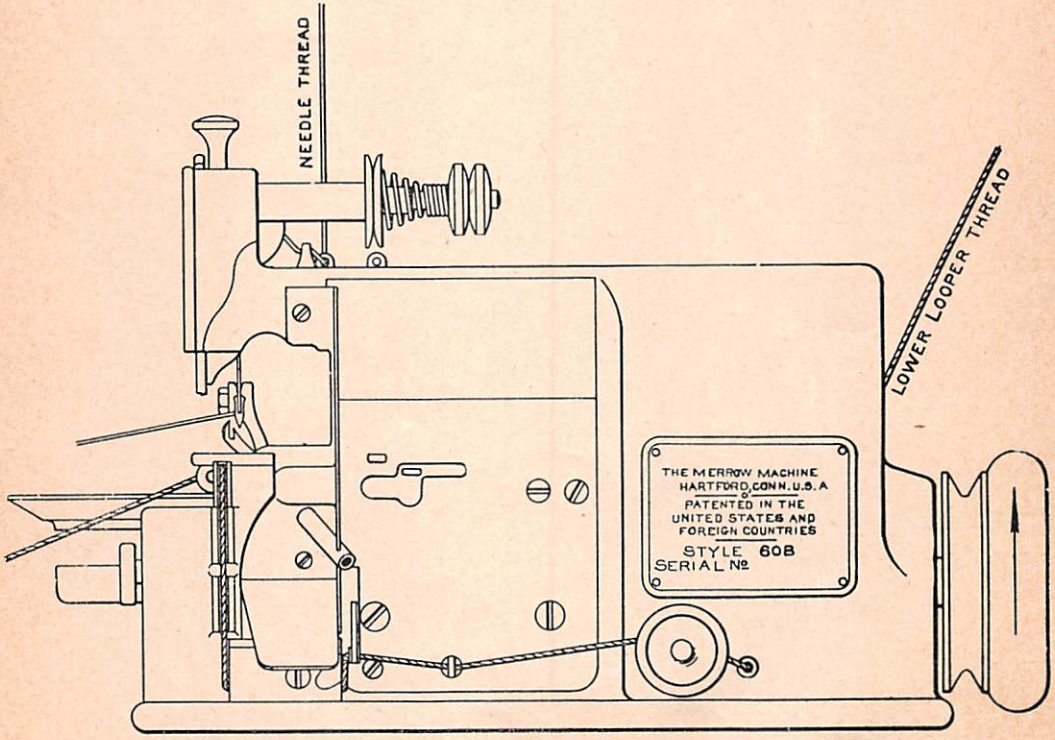

THREADING NO. 6. FOR MACHINE NO.

Threading for *Two Thread Machines,* Styles 60AB, 60ABD, 60ABDH, 60B, 60BD, 60BDH and 60JD.

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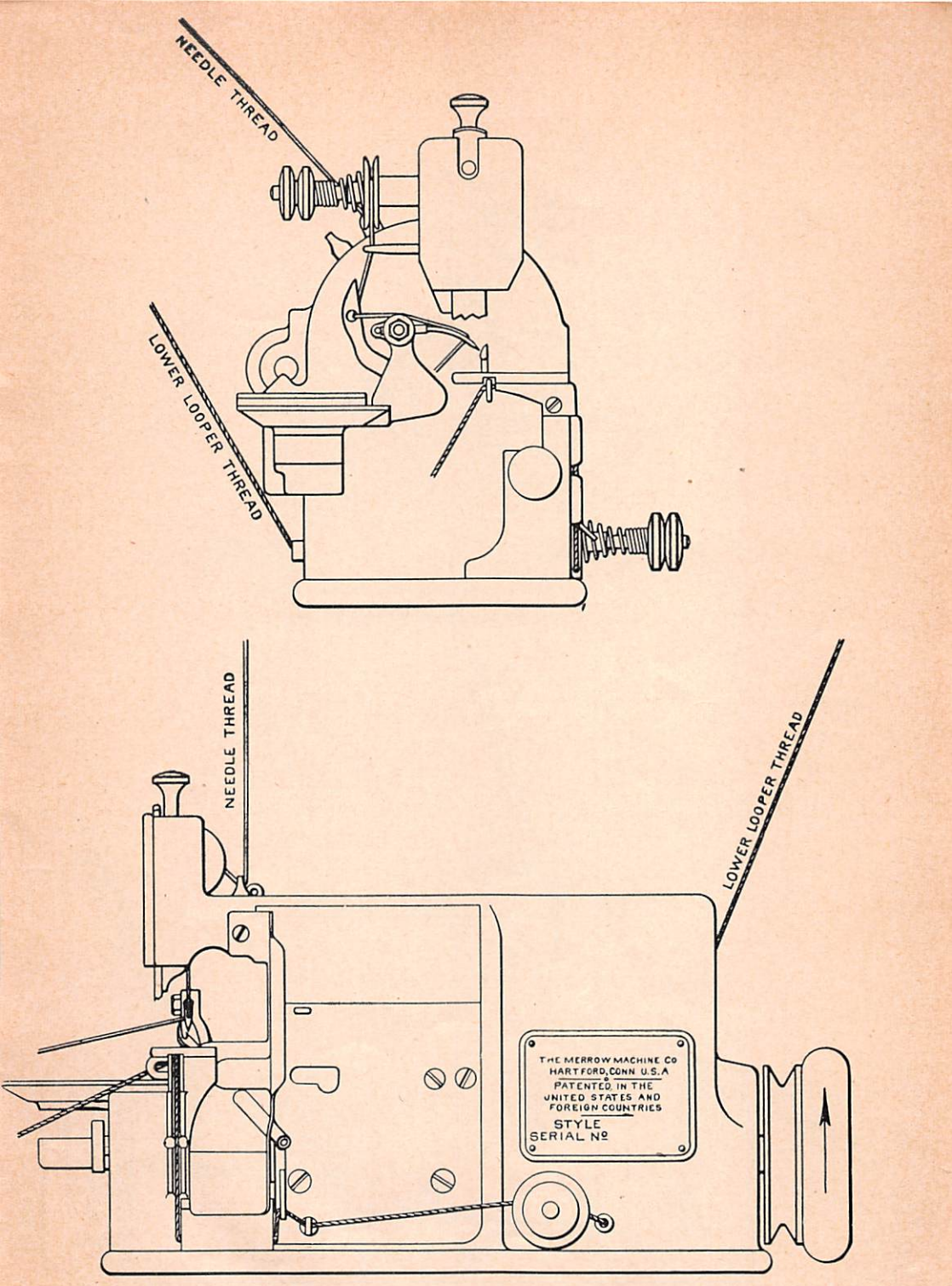

THREADING NO. 16. MACHINE NO.

Threading for machines, Styles 60KD and 60ADK.

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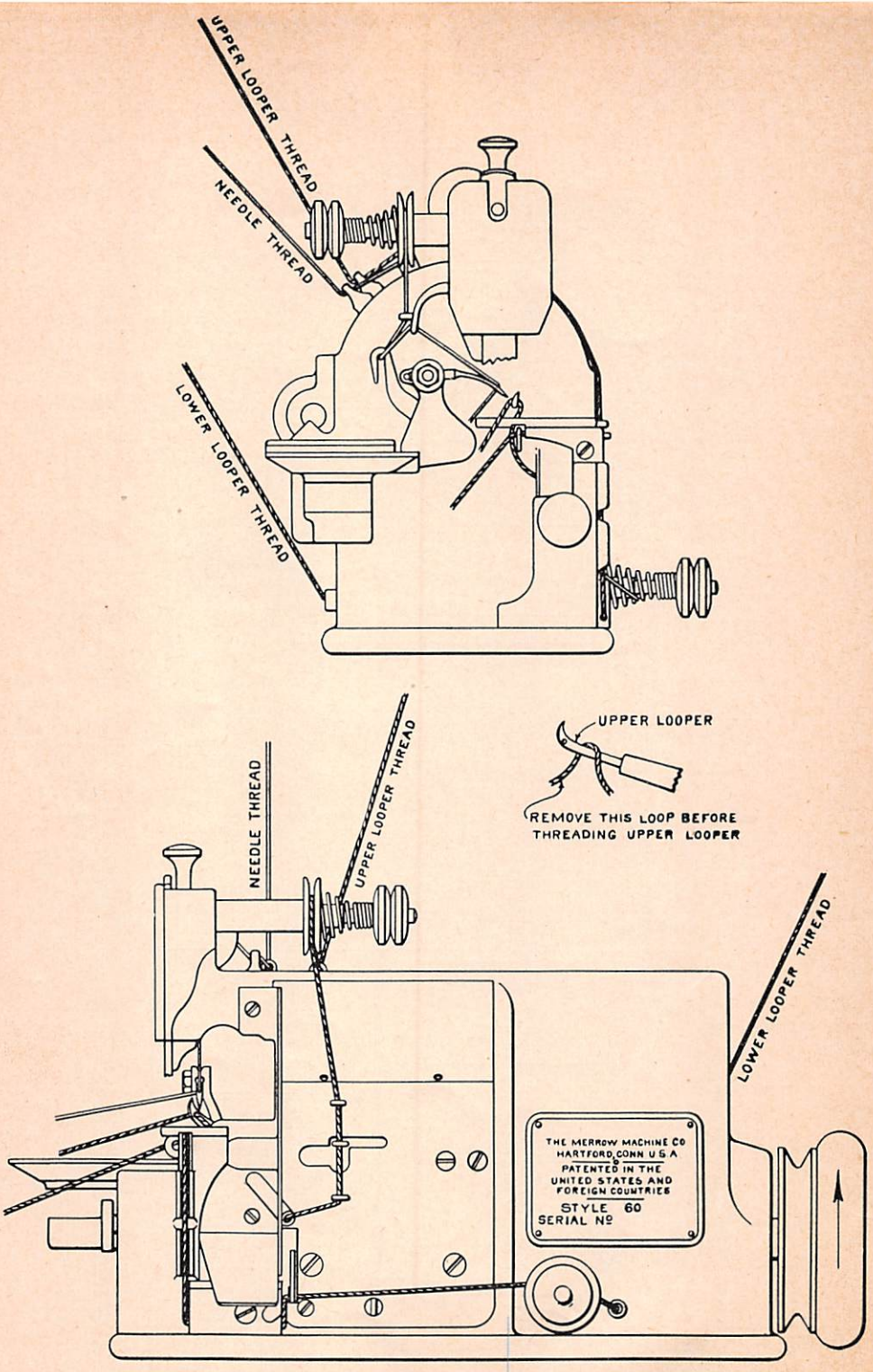

THREADING NO. 17 MACHINE NO.

Threading for *Three Thread Machines,* Styles 60D and 60JD.

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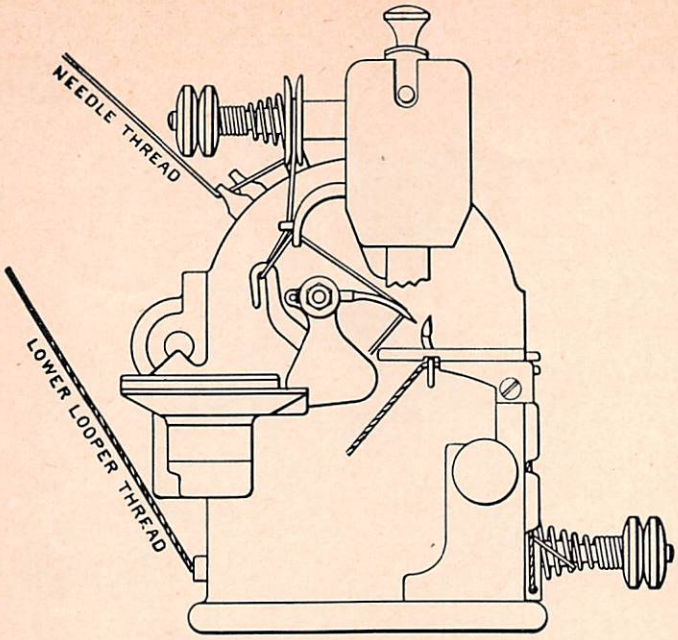

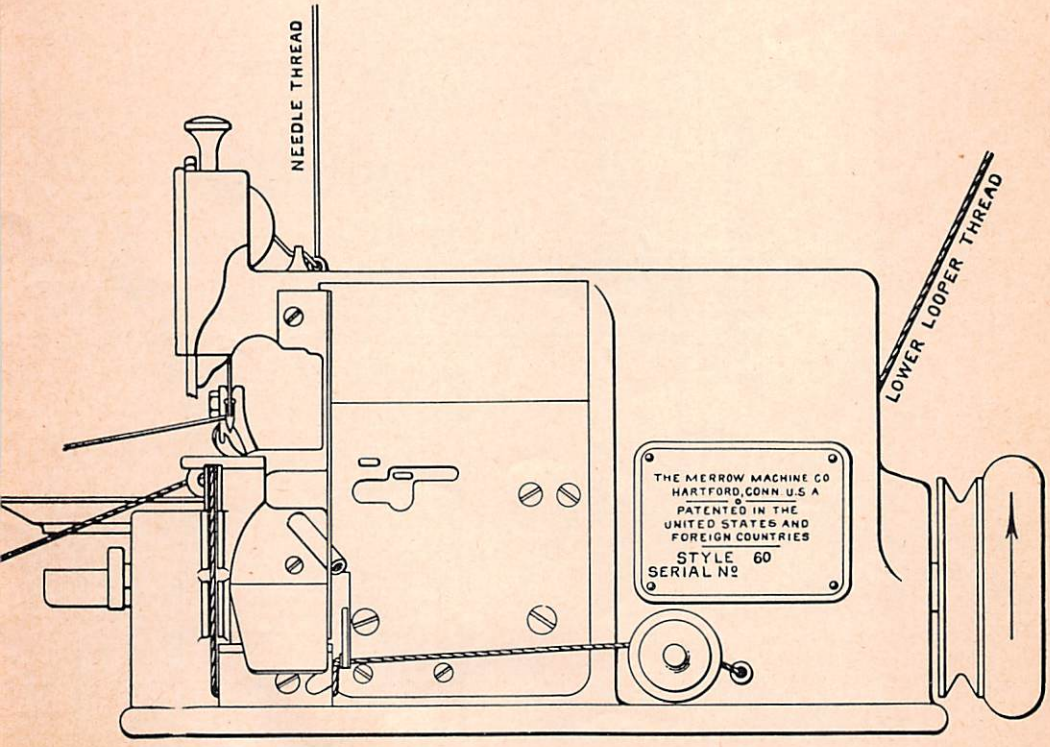

THREADING NO. 18. MACHINE NO.

Threading for *Two Thread* Machines, Styles 60D, 60H and 60HD.

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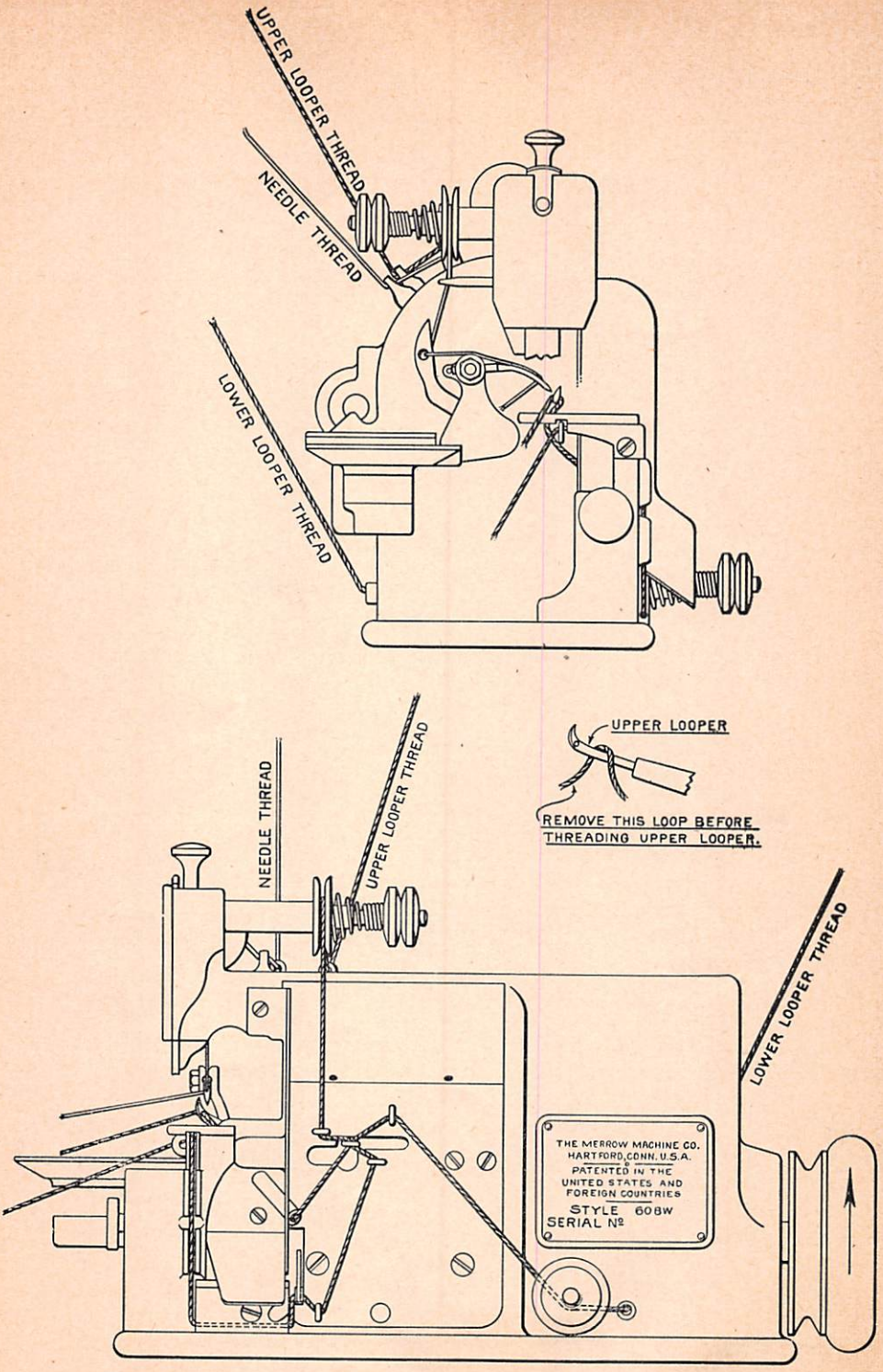

THREADING NO. 20 MACHINE NO.

Threading for *Three Thread* tight "W" stitch Machines, Styles 60BW, 60ABW, 60ABWD and 60BWD.

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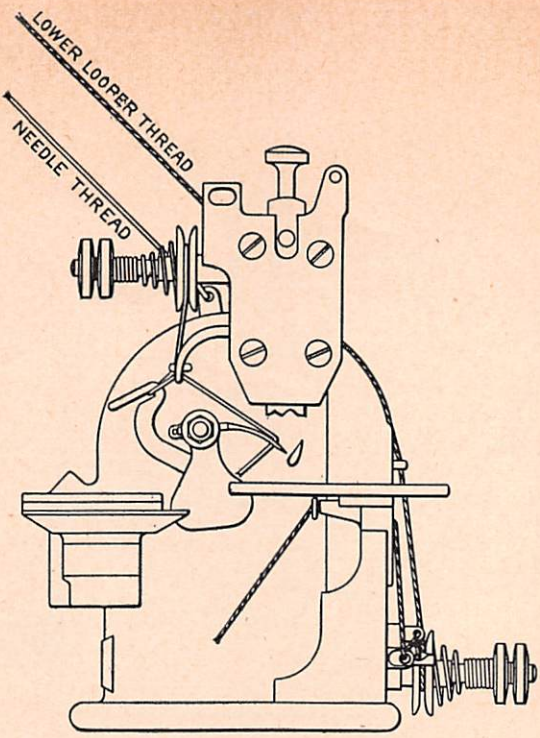

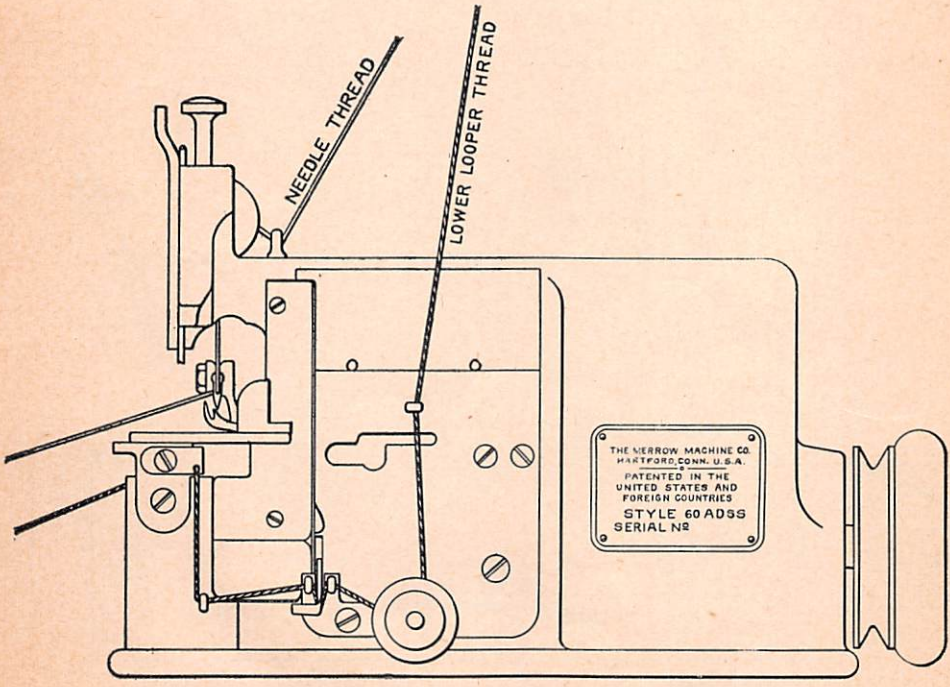

THREADING NO. 21. MACHINE NO.

Threading for *Two Thread* Machines, Style 60ADSS.

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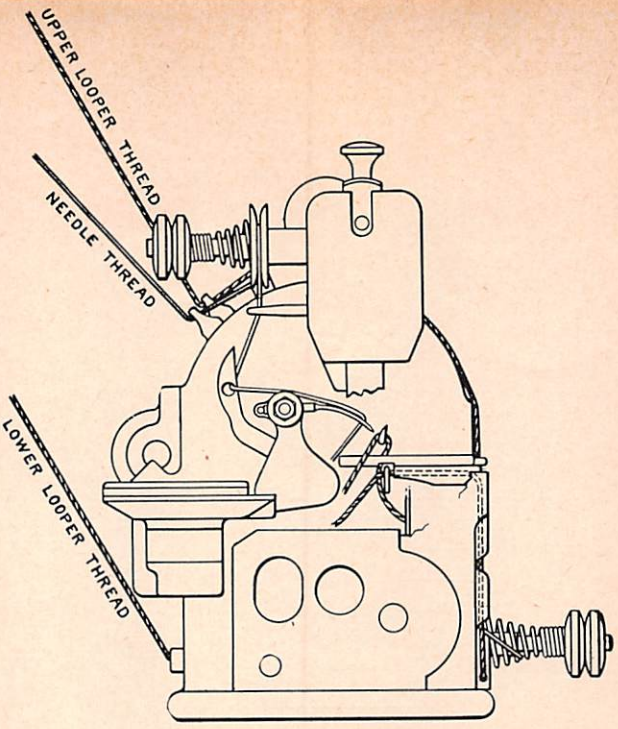

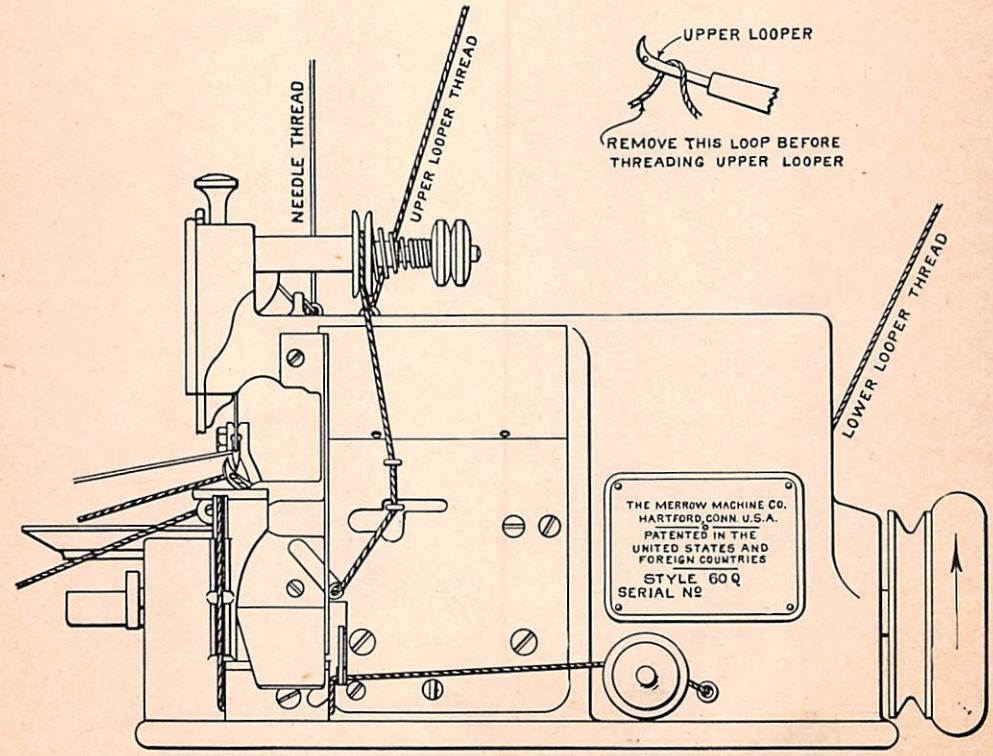

THREADING NO. 22 MACHINE NO.

Threading for *Three Thread* shell stitch Machines, Styles 60Q and 60QB.

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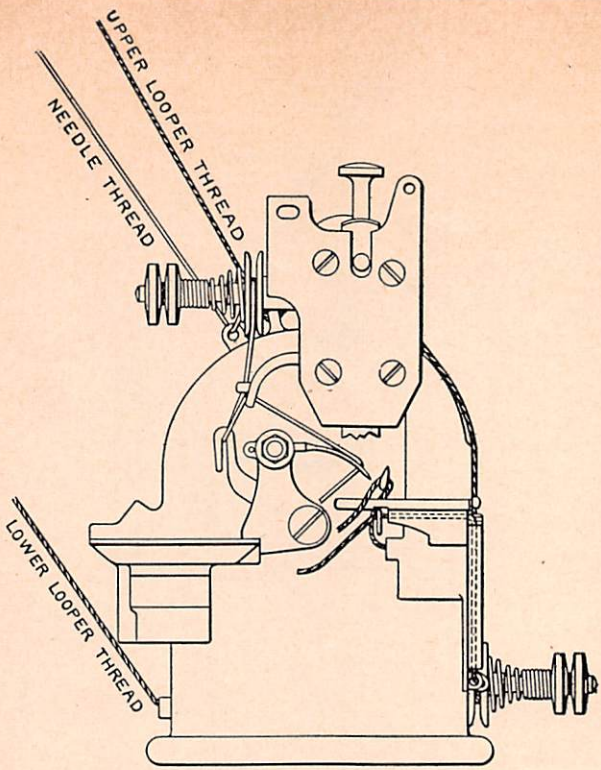

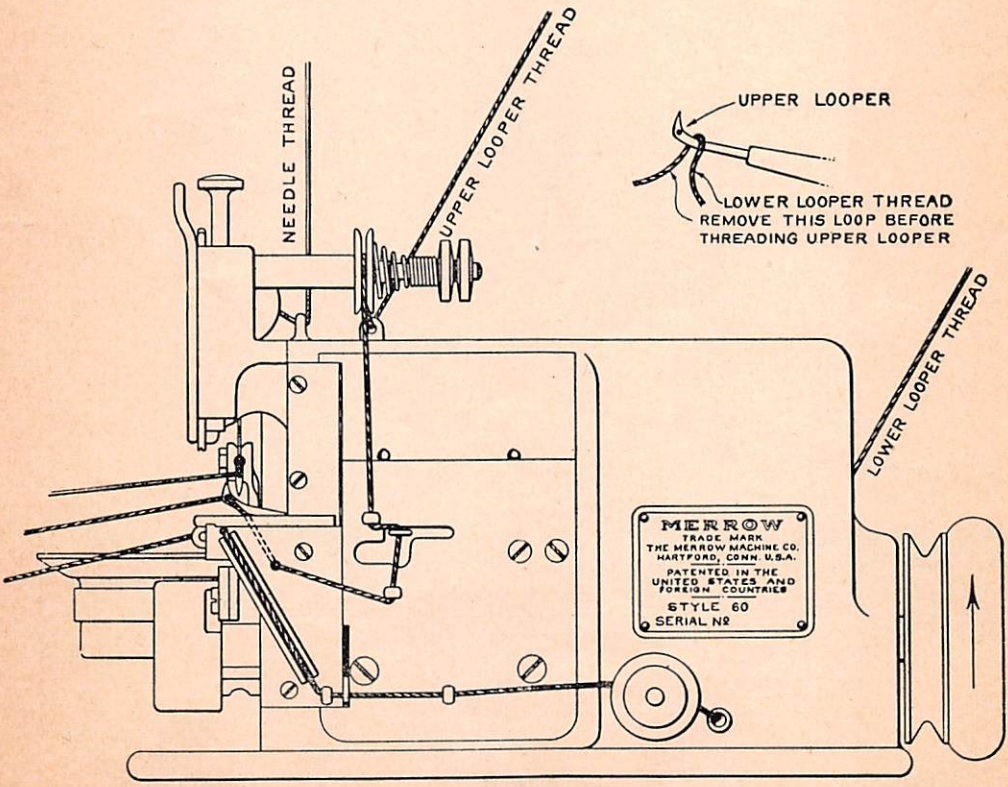

THREADING NO. 23. STYLE 60 SERIAL NO.

Threading for *Three Thread* Machines, Styles 60E and 60BE.

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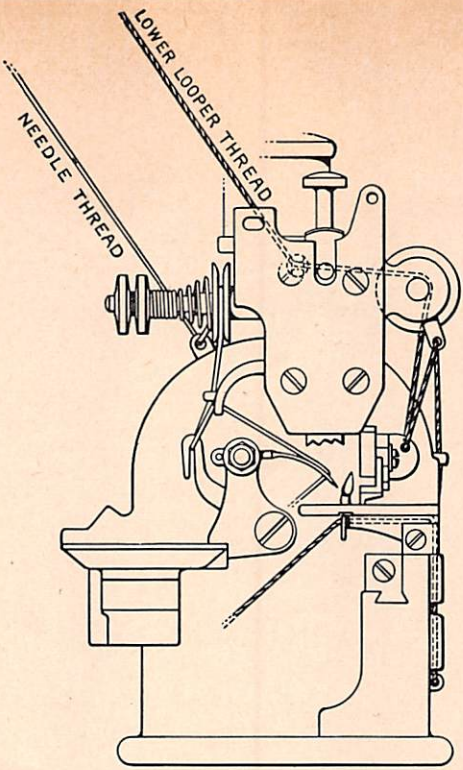

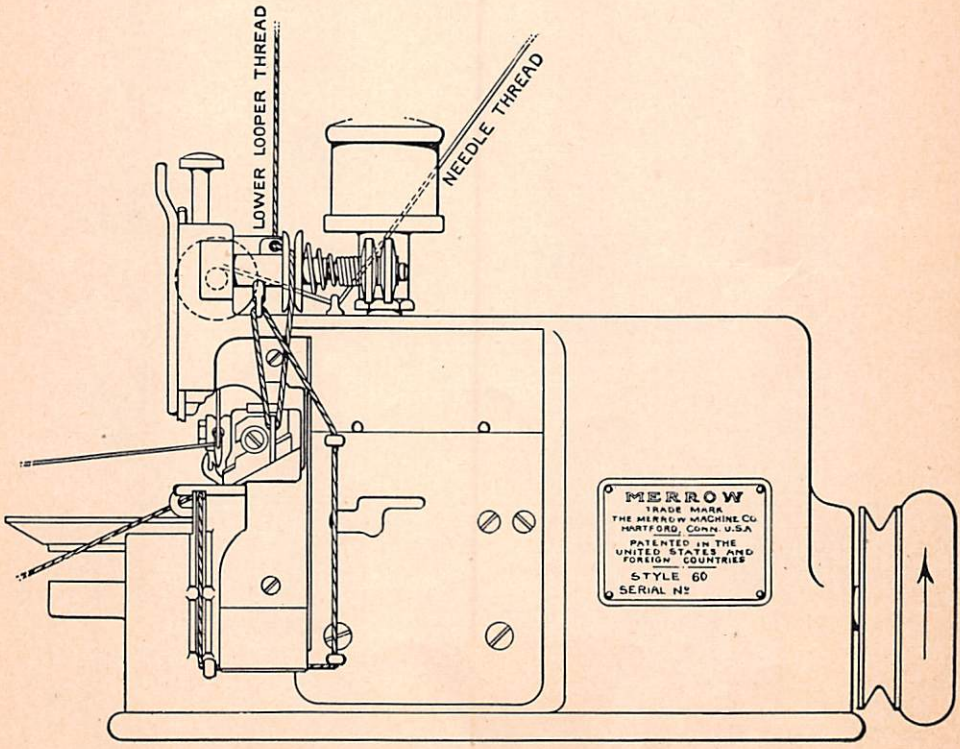

THREADING NO. 24. STYLE 60 SERIAL NO.

Threading for *Two Thread* Machines, Styles 60S, 60SD, 60U, 60UD and 60BU.

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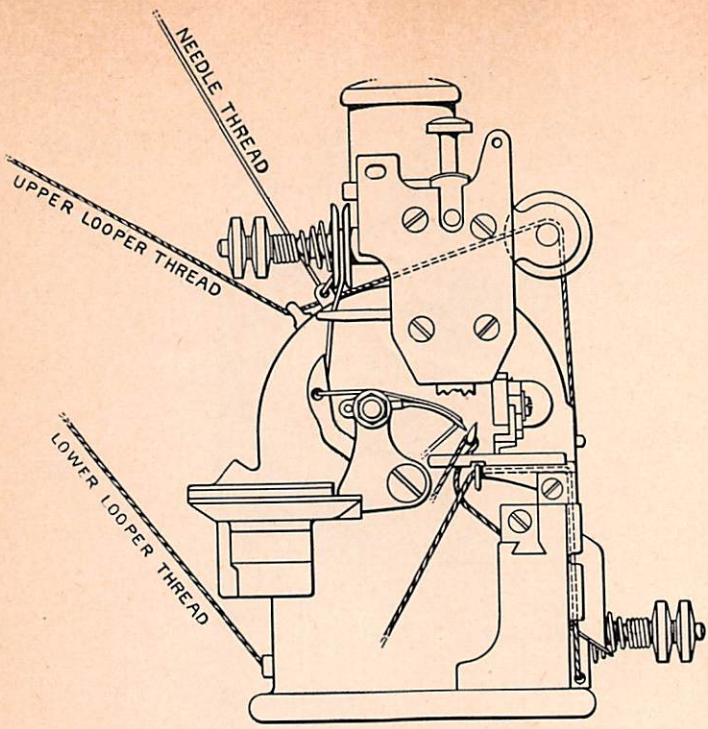

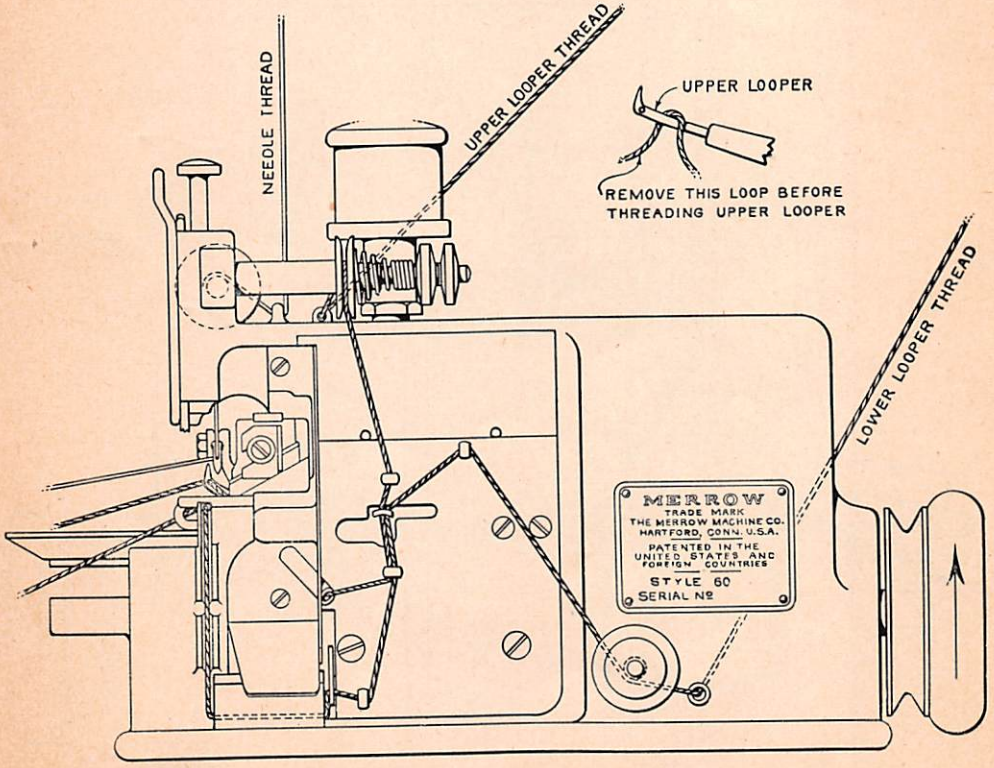

THREADING NO. 25. STYLE 60 SERIAL NO.

Threading for *Three Thread* tight "W" stitch Machines, Styles 60W, 60WD, 60JDW and 60 JDUW.

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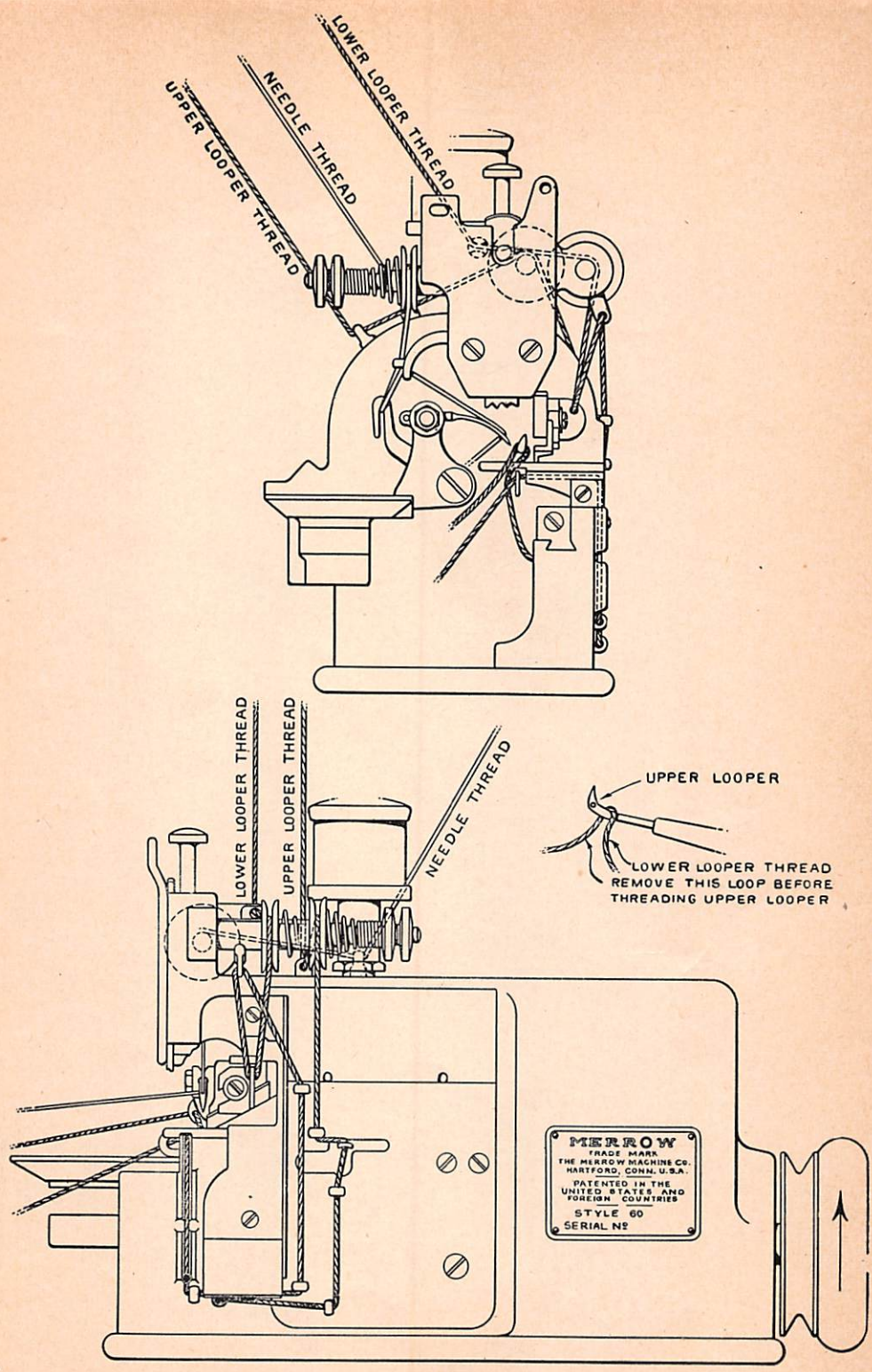

THREADING NO. 26. STYLE 60 SERIAL NO.

Threading for *Three Thread* Machines, Styles 60U, 60UD, 60BU, 60RD and 60RDB.

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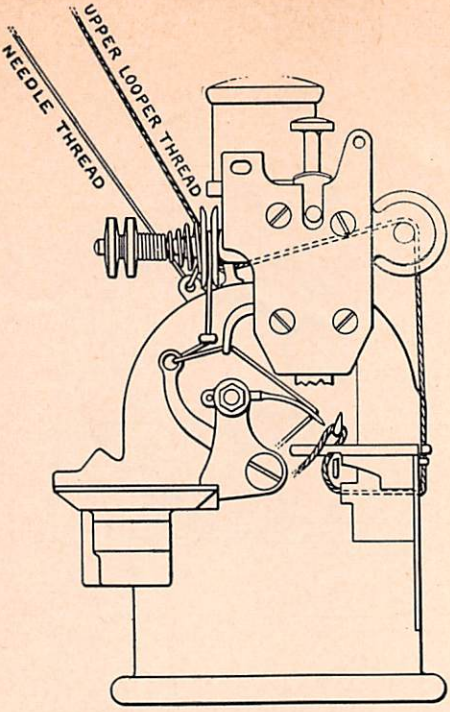

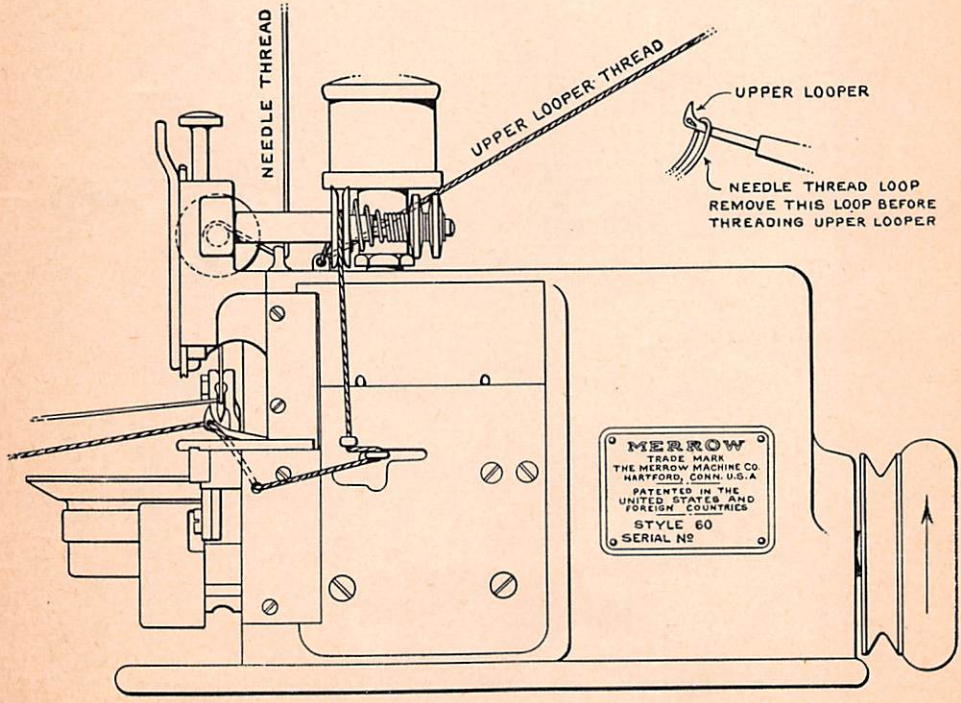

THREADING NO. 28. STYLE 60 SERIAL NO.

Threading for *Two Thread* Machines, Style 60F.

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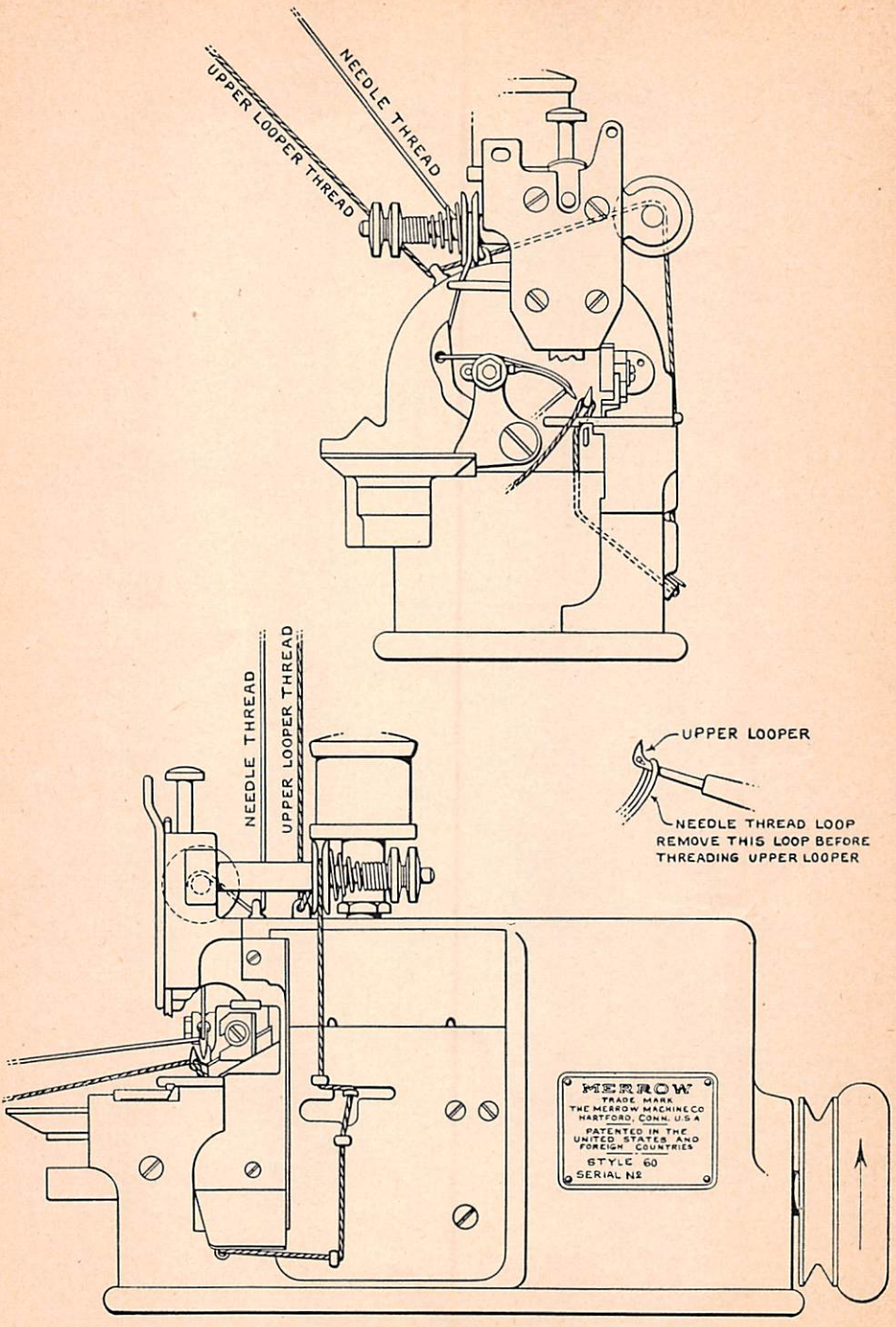

THREADING NO. 29. STYLE 60 SERIAL NO.

Threading for *Two Thread* Machines, Style 60JDC.

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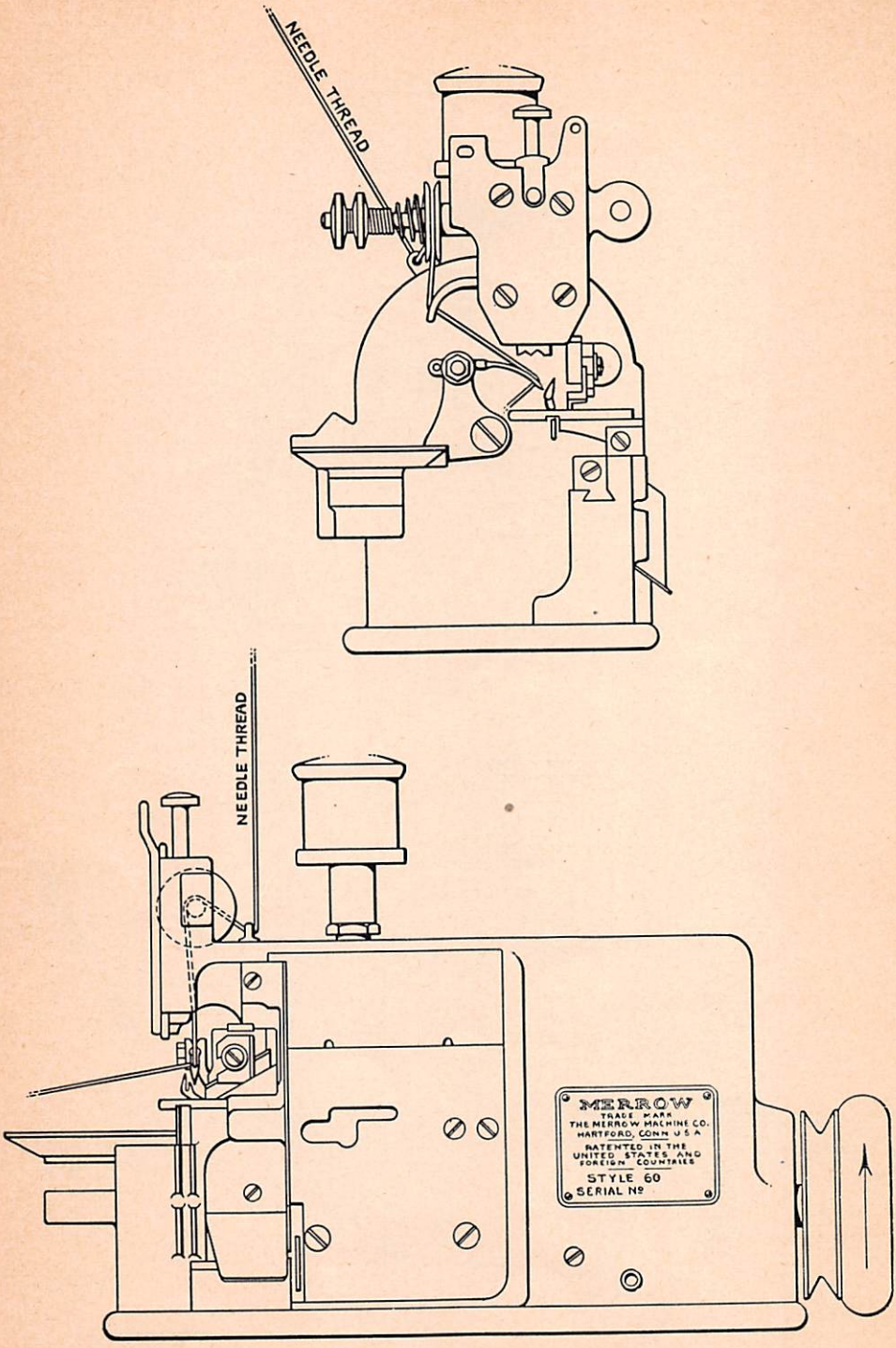

THREADING NO. 31 STYLE 60 SERIAL NO.

Threading for *One Thread* Machines, Styles 60ABB-1 and 60D3B.

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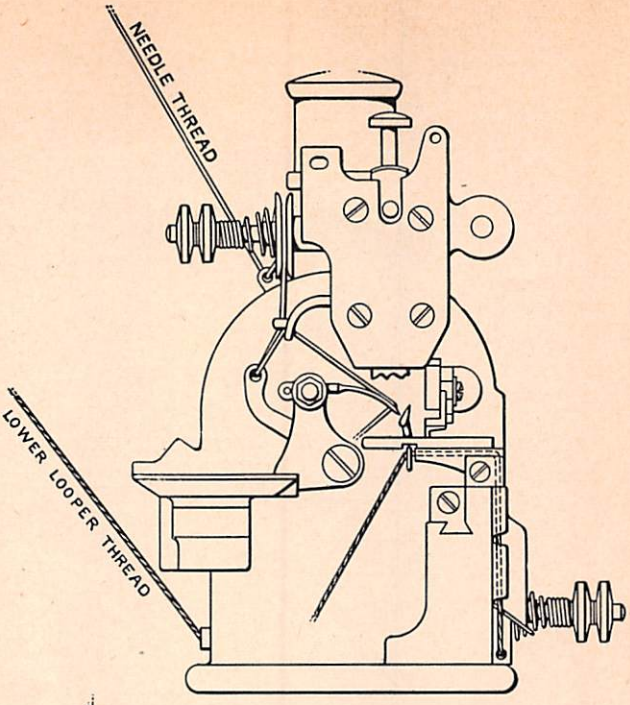

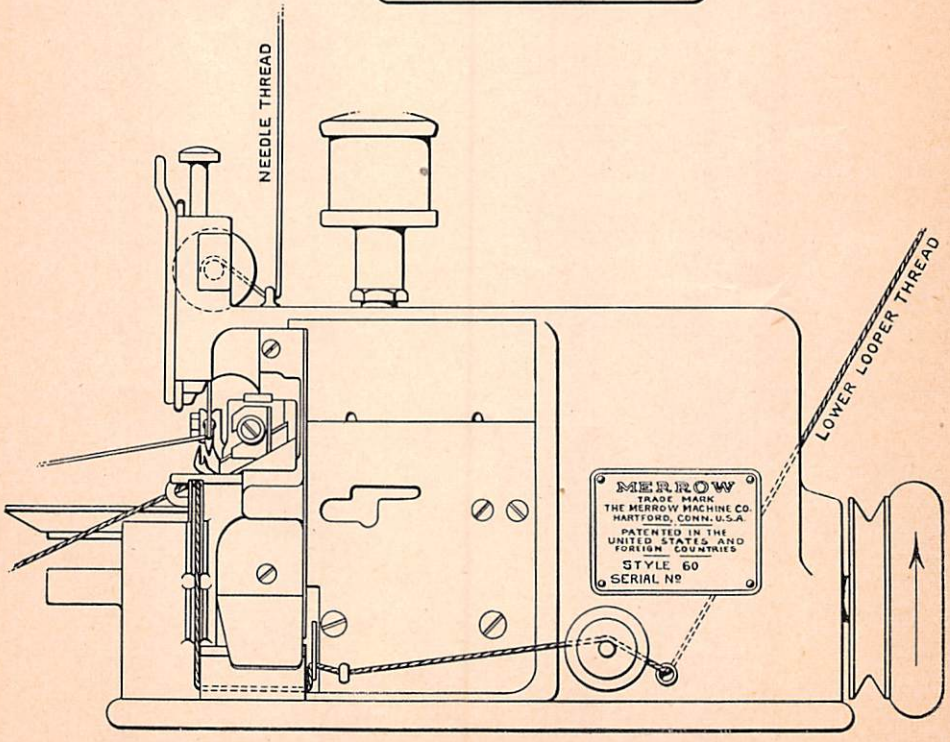

THREADING NO. 32. STYLE 60 SERIAL NO.

Threading for *Two Thread* Machines, Style 60ABB.

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ADVERTISEMENT

During the past forty years and more we have been engaged in the invention, manufacture and sale of overedge sewing machinery and are now offering the best results of our long experience.

The machines we now offer are the results of much labor and cost and nothing reasonable has been left undone to make our product of the highest order

Our machines are designed and built at our works and all parts of the machines are interchangeable, the working parts being made of fine steel hardened and ground to fit.

Our machines are designed and arranged to run to the best possible advantage upon certain kinds of goods and thus they are able to attain at once the best results and the greatest production.

While each machine has considerable range in capacity, it is best to have the machine exactly suited to its use.

While selections can be made from among our standard machines, excellently adapted to most purposes, we make many modifications to adapt our machine to a great variety of extraordinary conditions.

Therefore when we are furnished with samples of the fabric or article to be operated upon we are often able to recommend our standard machines best suited to the purpose, or to specially arrange machines to the great advantage of the user.

When enough work of one kind is to be done to keep one machine or several machines in use, great advantages are usually gained by having machines exactly suited to the purpose and frequently success depends upon some detail which we have worked out.

The attention of the manufacturers of any variety of textile goods requiring a finished or ornamented edge or an overedge seam is called to the great variety and perfection of the modern Merrow High Speed Machines and to the beauty and utility of their productions.

We are regularly building a great variety of standard high speed machines of which the following list includes the most notable types.

Two Thread Plain Crochet Machines.
Single Thread Blanket Hemming Machines.
Two Thread Shell Stitch Machines.
Three Thread Shell Stitch Machines.
Two Thread Overedging Machines.
Three Thread Overedging Machines.
Two Thread Trimming and Overseaming Machines.
Three Thread Trimming and Overseaming Machines.
Blind Stitch Hemming Machines.
One Thread Trimming and Butt-Seaming Machines.
Two Thread Trimming and Butt-Seaming Machines.

See "How to order supplies" on page 4.

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We make many varieties of each of the above types of machines as well as many modifications thereof, and are able to offer the latest improvements in our special adaptations.

Our list includes machines for operating upon a great variety of material, ranging from the tops of felt boots more than half an inch thick, to the thinnest chiffon which will almost float in the air—200 varieties for 200 purposes.

Some of the finishes are more than half an inch deep, made with the coarsest yarn, while others are hardly a sixteenth of an inch deep, made with the finest silk; some are quite ornamental and others are almost invisible; some are made upon a cut edge, some over a cord or tape, and others over a hem.

Many of our machines are made for edge finishing only, while others are made expressly for sewing together two or more pieces of fabric with an overedge stitch, either with or without cutting off the edges simultaneously in advance of the sewing.

We also make several varieties of machines specially adapted for Butt-seaming the ends of bolts of cloth preparatory to subsequent operations, thus saving much cloth and labor.

All of our machines are designed and constructed to operate at the highest speed for manufacturing purposes, with great durability.

See "How to order supplies" on page 4.

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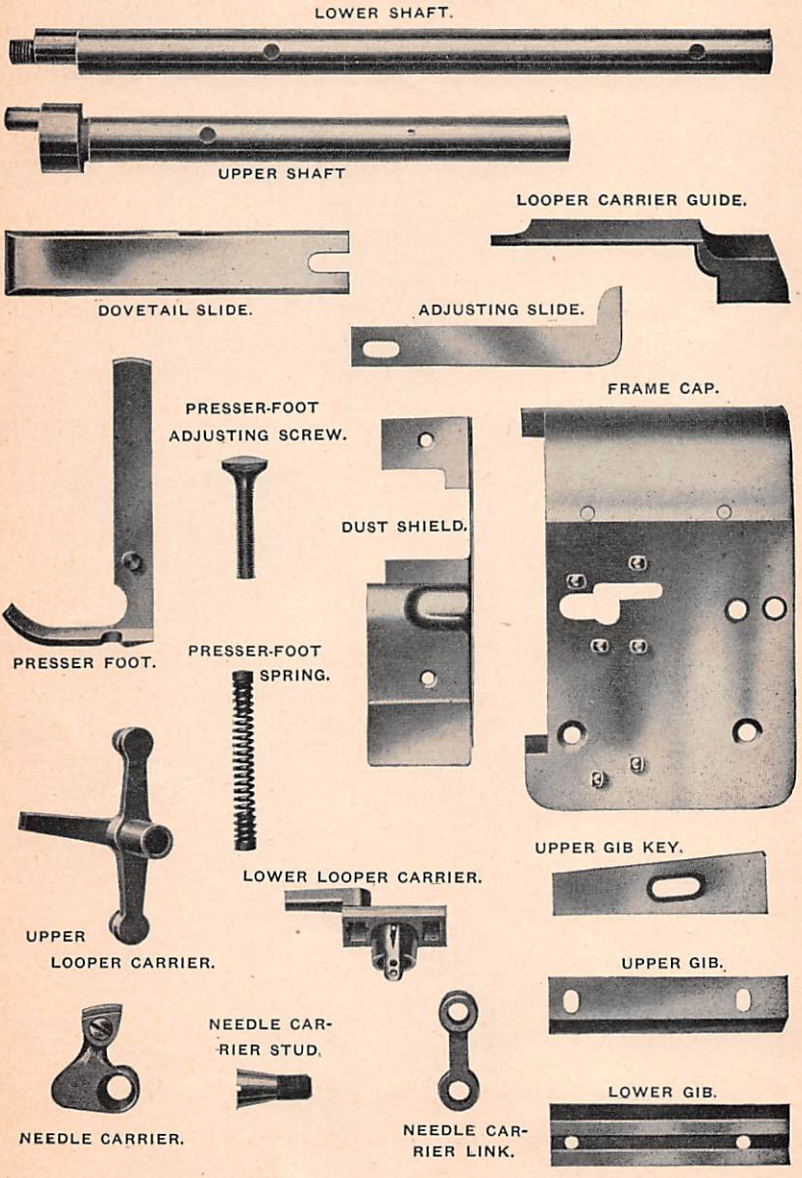

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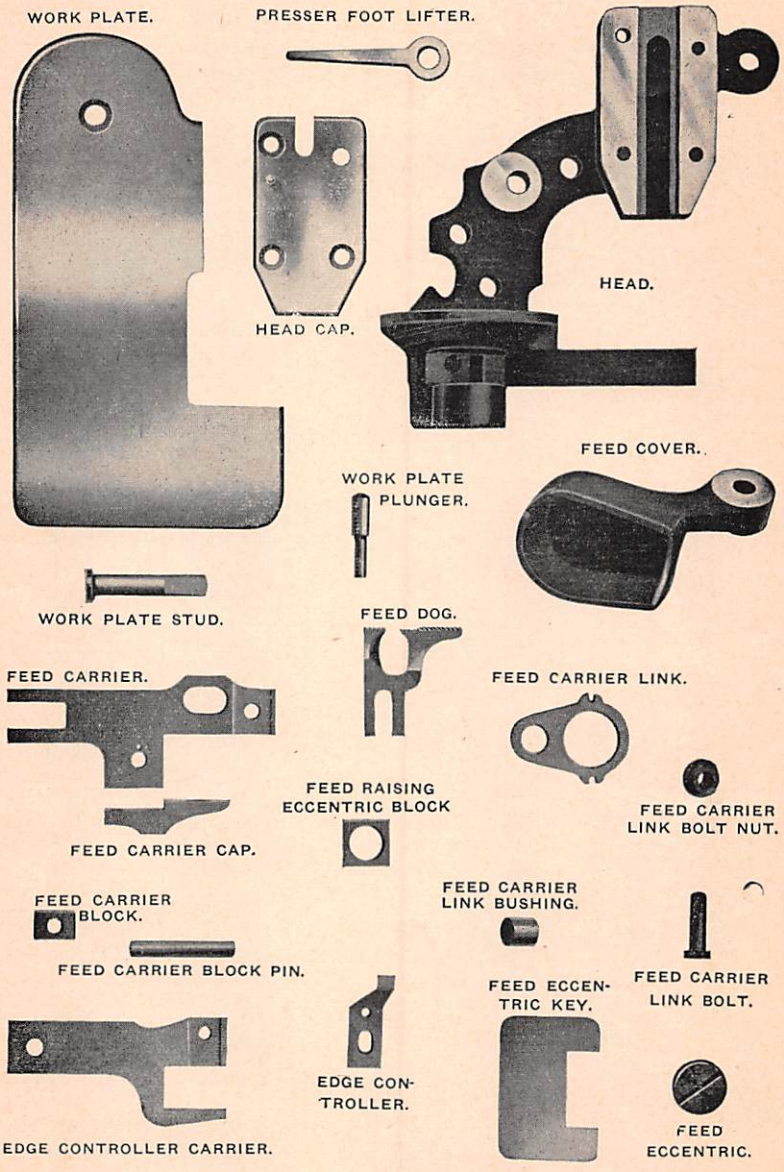

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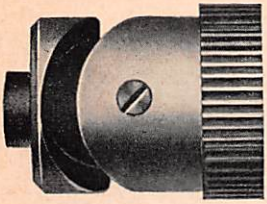
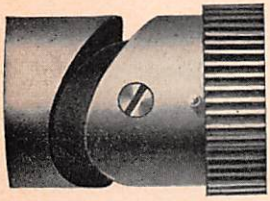


UPPER CAM.

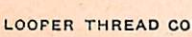


LOWER CAM.

CAM ROLL.

UPPER LOOPER TENSION ROD

UPPER LOOPER TENSION ROD SHELL.

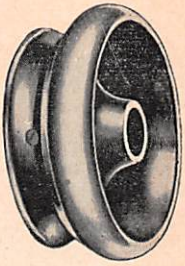


LOOPER THREAD CONDUCTOR.

TENSION SPRING.

TENSION NUT.

TENSION DISC.



HAND WHEEL.

NEEDLE CARRIER SET SCREW PLUNGER.

LOWER LOOPER TENSION ROD.

LOWER LOOPER TENSION ROD SHELL.

NEEDLE TENSION ROD.

LOOPER THREAD CONDUCTOR CLAMP

WORK PLATE PLUNGER SPRING.

OIL TUBE.

NEEDLE.

UPPER LOOPER.

LOWER LOOPER.

THREAD GUIDES.

61 61a 61b 61c

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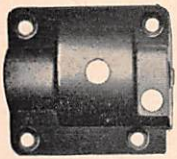


UPPER CUTTER CARRIER SUPPORT.

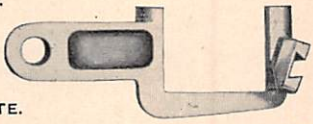
UPPER CUTTER CARRIER CAP.

UPPER CUTTER CLAMP.

UPPER CUTTER CARRIER ECCENTRIC BLOCK.

UPPER CUTTER CARRIER STUD.

UPPER CUTTER BOLT.



NEEDLE PLATE.

UPPER CUTTER CARRIER.

UPPER CUTTER HOLDER.

LOWER LOOPER THREAD TUBE.

LOWER CUTTER.

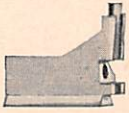
UPPER CUTTER.

UPPER CUTTER HOLDER CLAMP.

LOWER CUTTER CLAMP NUT.

LOWER CUTTER CLAMP.

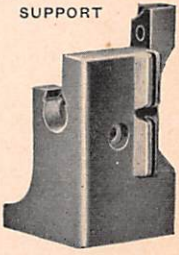
LOWER CUTTER HOLDER



56a.

LOWER CUTTER ADJUSTING SCREW.

LOWER CUTTER HOLDER SUPPORT



FABRIC GUARD.

LOWER CUTTER HOLDER CLAMP.

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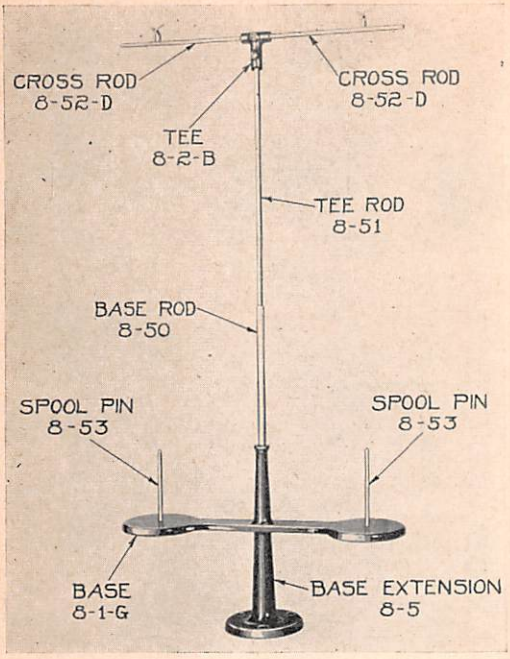
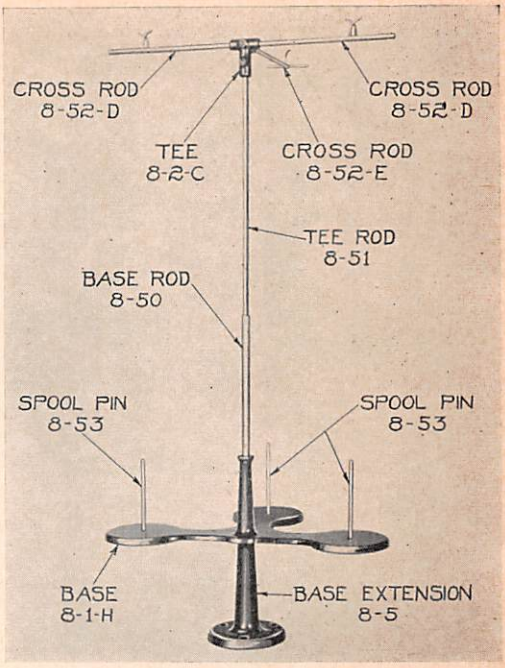
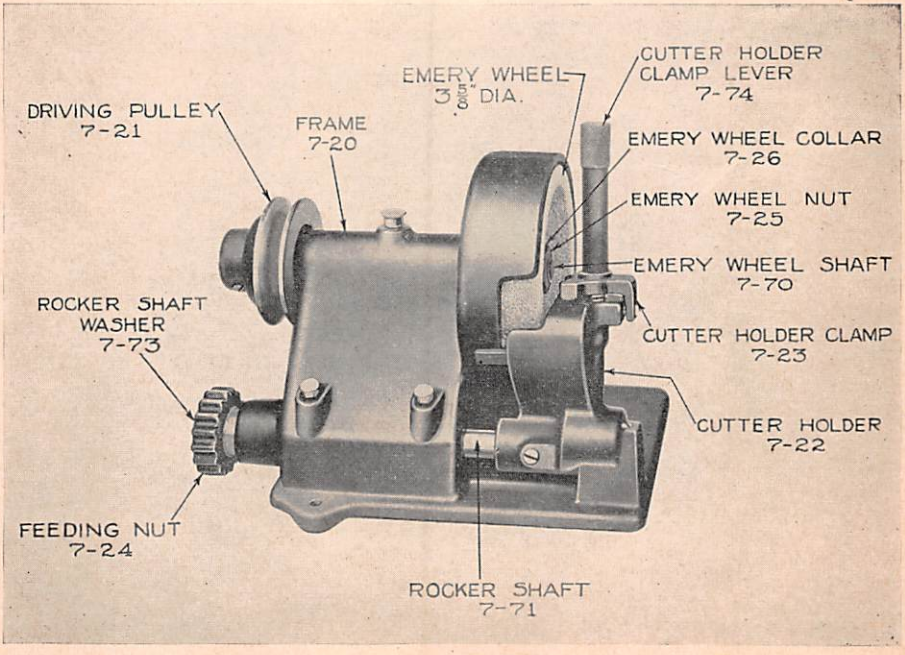


2 Thread Yarn Stand



3 Thread Yarn Stand



Cutter Grinder.

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MERROW

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