

INSTRUCTIONS

FOR INSTALLING AND OPERATING THE

WILLCOX & GIBBS

"FLATLOCK" MACHINE



WILLCOX & GIBBS SEWING MACHINE CO.

Home Office: 658 BROADWAY, corner Bond Street
NEW YORK

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WILLCOX & GIBBS SEWING MACHINE CO., LTD.

20 FORE ST., LONDON, E. C. 2, ENGLAND

PARIS

MILAN

BRUSSELS

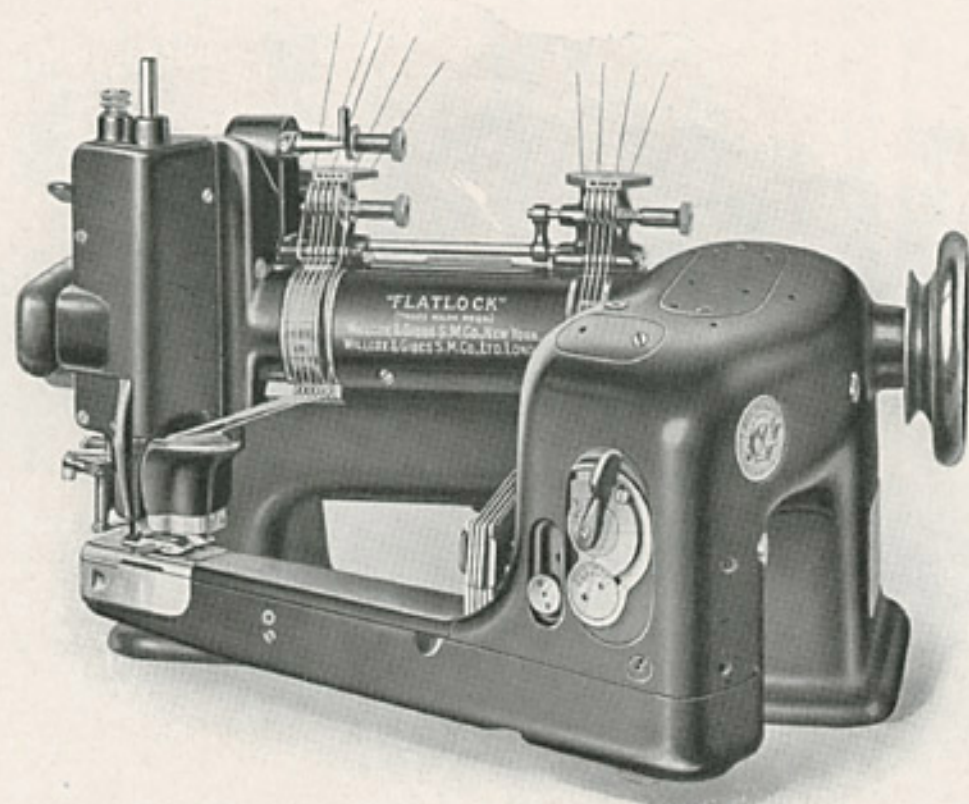
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F.L.L.
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Arts and Industries

INSTRUCTIONS FOR INSTALLING AND OPERATING THE FLATLOCK MACHINE

TRADE MARK



PATENTED IN THE UNITED STATES AND FOREIGN COUNTRIES

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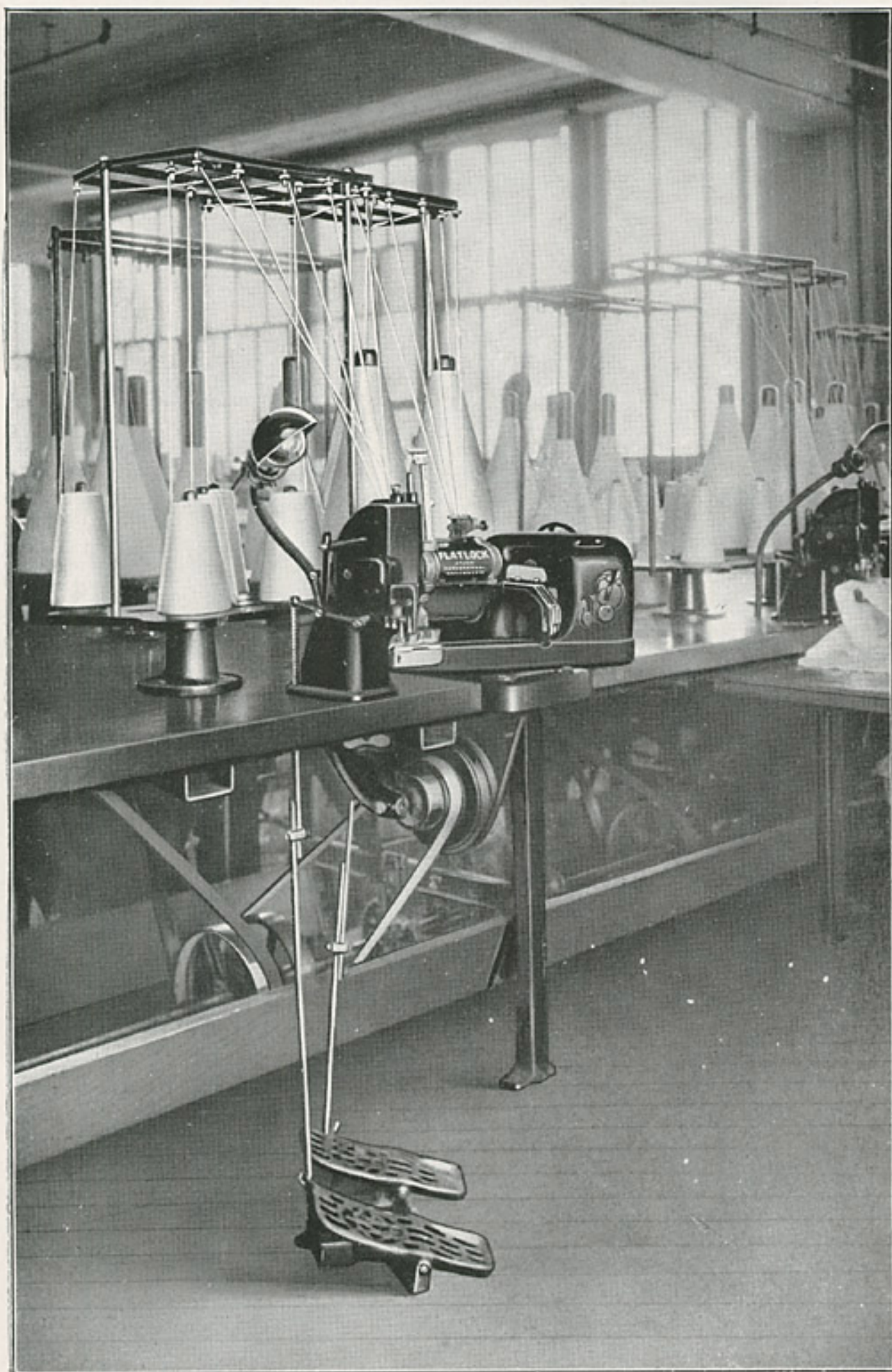
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The Flatlock Machine correctly installed.

INSTRUCTIONS FOR UNPACKING, INSTALLING AND OPERATING THE FLATLOCK MACHINE

Each machine is secured and shipped in a stout case to insure against damage in transit.

TO UNPACK

1st. Remove the four base screws in the bottom of the case.

2nd. Unscrew and remove the top of the case.

3rd. Unscrew the fastening screws in each end of two wooden braces across the top of the machine. After these are removed the machine may be lifted out of the case.

The Accessories and Transmitter are packed and shipped in separate cases.

Caution. After removing the machine from the packing case do not disarrange the sewing threads nor the sample under the Presser Foot until the method of threading up has been noted, and an observation made of the manner in which the edges of fabric are introduced between the toes of the Presser Foot.

PREPARING TABLE AND SETTING UP

The machine should be fastened on a good solid table at least two inches in thickness, and free from vibration. The spacing between each two machines should not be less than 4 feet.

Before marking out the table, observe the direction of rotation of the undershaft. The Flatlock revolves in the same direction as all W. & G. Machines, *i. e.*, right hand. Always run a straight belt from the shaft pulley to the transmitter. If the direction of rotation needs reversing, cross the *upper belt*.

Using Templates Nos. 3623 and 3624 mark out the table, so as to bring the belt holes 15 inches from the right hand end of the machine's allotted space.

Belt Holes to be $\frac{5}{8}$ " diameter and inclined at angles indicated by the template No. 3625 for straight belt, and No. 3625A for crossed belt.

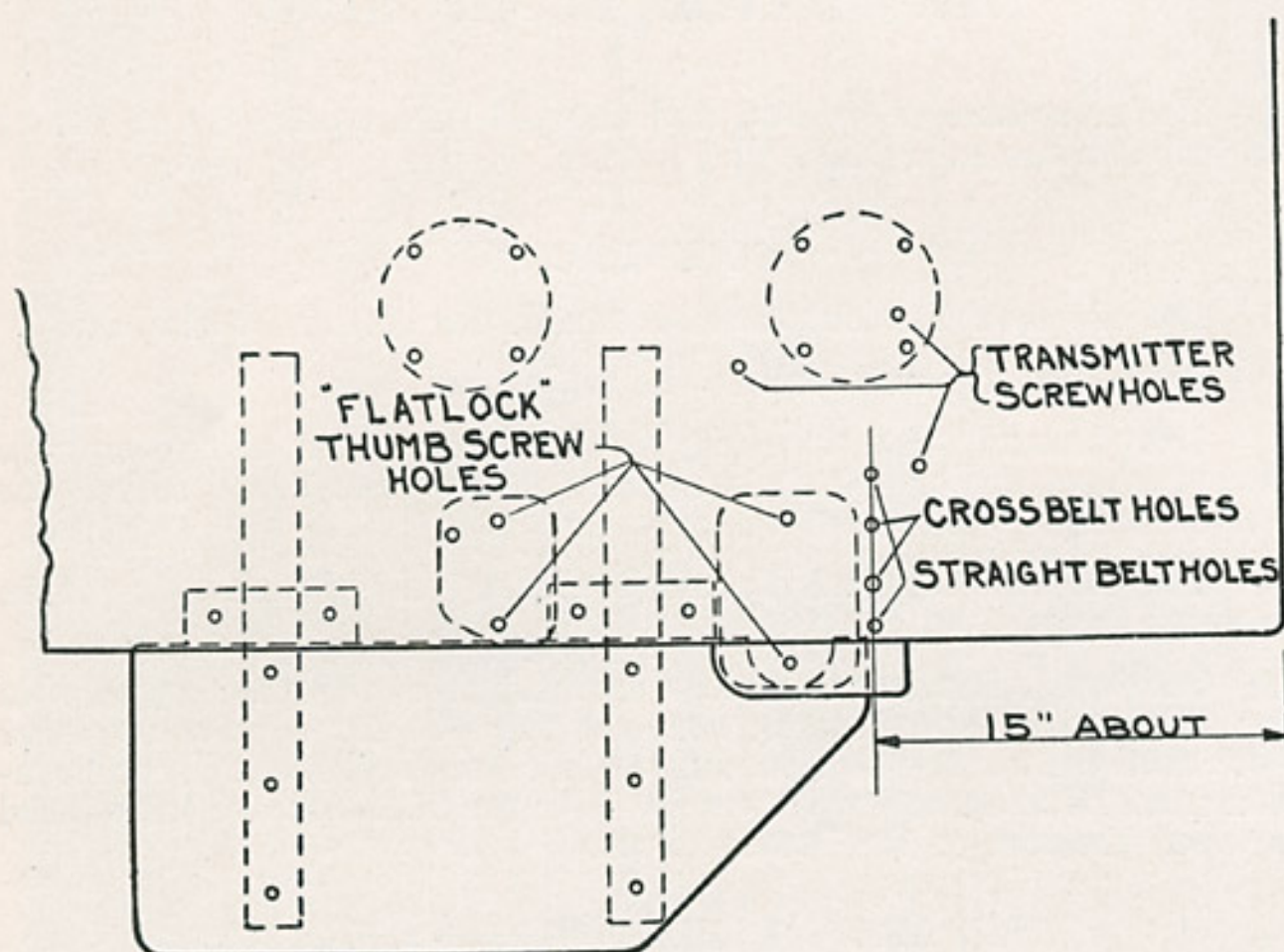


Figure 1.—Diagram for Preparing Table and Setting Up. See Page 3, etc.

Transmitter Screw Holes to be $\frac{3}{8}$ " diameter, and the counterboring which allows the washers to flush with the table, to be 1" diameter.

Thumbscrews and Lifter Rod Holes to be $\frac{3}{8}$ " diameter.

The machine is secured to the table by three thumbscrews, care being taken to obtain a good level surface for the machine to rest upon.

Before tightening up the Thumbscrews pass the Lifter Rod through (1st) hole in Lifter, (2nd) Lifter Rod Spring, (3rd) hole in machine base, (4th) hole in table.

Tighten up Thumbscrews leaving the Lifter Rod capable of sliding freely in a vertical direction.

A small Extension Block is provided to support the overhanging portion of the machine base. Pass a fourth Thumbscrew through the hole in Block and screw into the machine base. Secure Block to the front edge of table with the two long wood screws supplied.

Erecting Thread Stand: Fasten the Shelf to the two Bases by the two Shelf Screws. The Rack which carries the Thread Guides is supported by three vertical rods secured at each end by a nut.

Nine holes in the spool shelf are provided for an equal number of spool pins. (See diagram Fig. 2, Page 6.)

Fasten the completed Thread Stand on the table immediately to rear of, and central with, the machine.

Fasten the Belt Guard to the table immediately in front of the upper belt.

The Table Leaf is shown in position on the diagram (Fig. 1, Page 4). It is fitted with two Runners which slide freely in the bent iron Supports secured to the under side of the table. By this arrangement, the Table Leaf may be withdrawn from the table when necessary, and quickly replaced.

The Transmitter is secured to the bench by three countersunk screws passing through the bench top from the upper side, and is fitted with a hollow Shaft capable of retaining sufficient oil to last several months. The left-hand end is provided with an Oil Cup which should be filled with good lubricating oil *before fixing the Transmitter to the Bench.*

The Interlocking Treadle consists of a Foot Lifter Treadle (left) and Power Treadle (right) mounted so as to prevent simultaneous operation. In other words, when set correctly it is impossible for the operator to raise the Presser Foot while the machine is in operation,

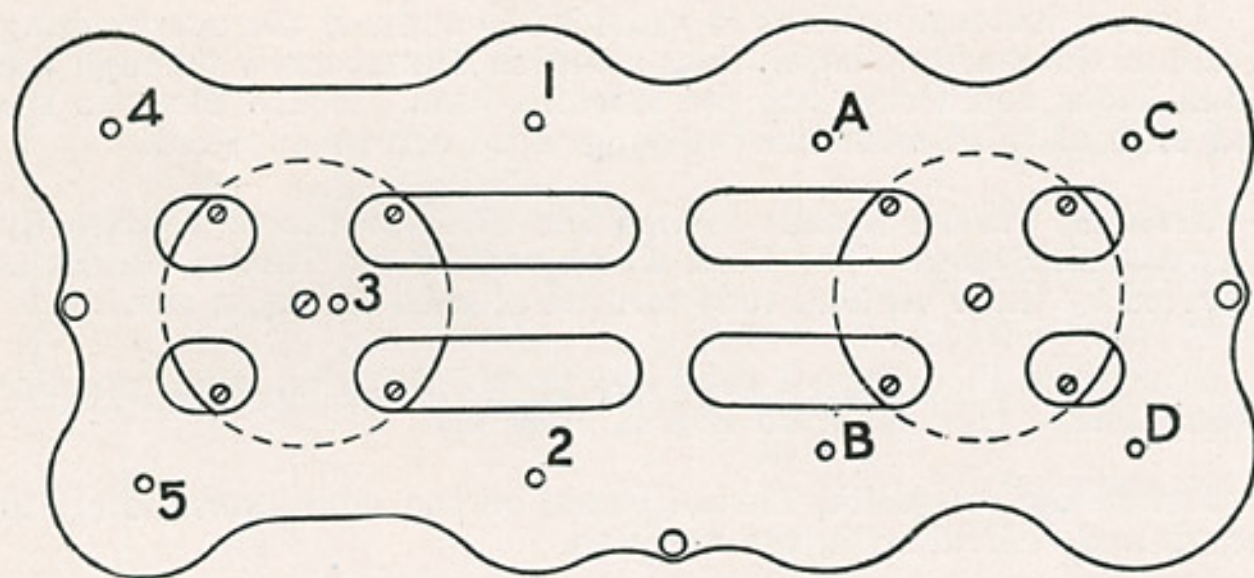


Figure 2.—Diagram of Thread Stand Shelf. See Page 7, etc.

or on the other hand, to start the machine when the Presser Foot is raised. The *Lifter Treadle Rod* hooks through the Foot Lifter Treadle and is coupled at its upper end to the *Lifter Rod*.

The *Power Treadle Rod* is in two sections, the lower part hooking through the Power Treadle, and the upper through the Transmitter Starting Lever.

The frame of the Interlocking Treadle is secured to the floor by three wood screws and set at an angle of about 45 degrees with the bench line, but in such a position as to leave the Lifter Treadle Rod as near vertical as possible.

Set *Lifter Treadle Rod* so that when the *heel* of Foot Lifter Treadle is pressed to the floor, the head of Lifter Rod is about $\frac{1}{4}$ " clear above Foot Lifter (on the machine).

Set *Power Treadle Rod* so that when the Foot Lifter Treadle is depressed to raise the Presser Foot to its highest point (Machine Needle Bar at top of its stroke) the Power Treadle in its inoperative position is just resting on the Interlocking Lever and incapable of downward movement, until pressure has been released from the Foot Lifter Treadle.

Speed of Machine. From 2750 to 2800 revolutions per minute.

SEWING THREADS

Needle Threads, (4) 70/3 or 80/3 right twist, soft finish.

Looper Threads, (4) 25/1 to 28/1 Combed Peeler Yarn.

Cross Thread, 30/2 to 50/2 Mercerized soft twist.

Use the finest sewing for light weight goods.

Threading Up. The 4 cones of Needle Thread should be placed on Spool Pins Nos. 1, 2, 3 and 4, and the cone of Covering Thread on Spool Pin No. 5, and the 4 cones of Looper Thread on Spool Pins A, B, C and D. (See diagram Fig. 2, Page 6.)

In Fig. 3, Page 8—1, 2, 3 and 4 indicate the position of the respective Guides through which the needle threads first pass, the second Guides being indicated by 1A, 2A, 3A, 4A, respectively.

A, B, C and D indicate the position of the respective Guides through which the Looper Threads first pass. A', B', C' and D' indicate the second Guides for A, B, C and D Looper Threads respectively.

5 indicates the position of the Guide through which the Cross Thread will first pass, 5A being the position of its second Guide.

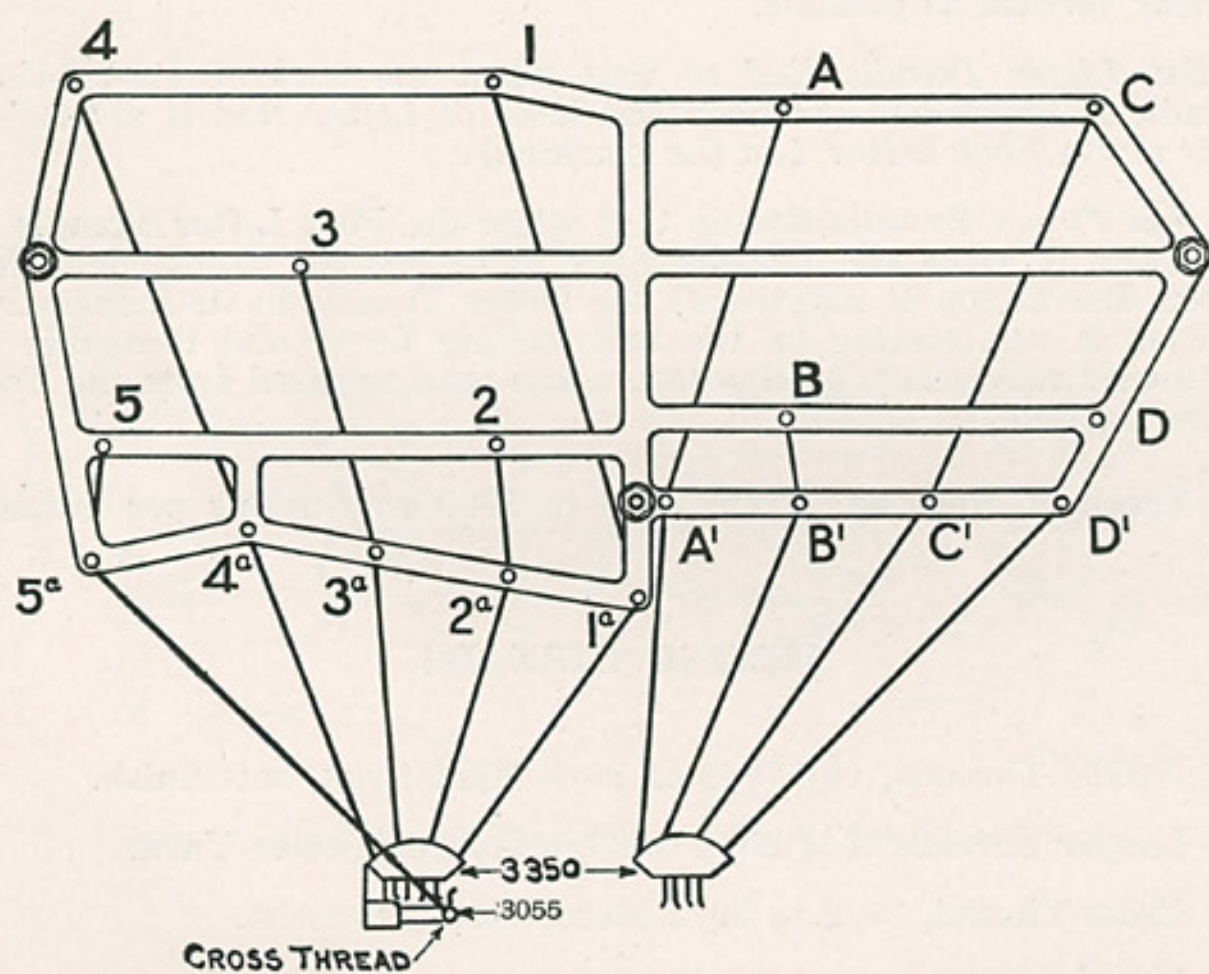


Figure 3.—Diagram of Thread Stand Rack. See Page 9, etc.

The heavy black lines indicate the course of the various threads after passing through the first Thread Guide.

Needle Threads. After leaving the Guides in the Thread Stand Rack pass the threads through the Tension Thread Guide No. 3350 on the machine, and between the Tension Plates No. 3346; under the Takeup Thread Guide Hooks No. 3344 and Takeup Spring No. 3482; over the Takeup No. 3480; under the Needle Thread Guide Hooks No. 3336; through the needle thread Lower Guide No. 3474; through the Needle Bar Head, and into the Needles.

Looper Threads. Turn Hand Wheel so as to bring Needle Bar to the top. Raise Presser Foot. Remove Work Arm Cover by forcing it upward at the wide end, and Looper Opening Cover by sliding it to the rear. The Looper Holder may now be swung outward to its threading position by pressing toward the operator the small handle situated at the side of the Looper Holder.

After leaving the Thread Guides in the Thread Stand Rack pass the threads through Tension Thread Guide No. 3350 and between Tension Plates No. 3346; under the Takeup Thread Guide Hooks No. 3344 and over the Takeup No. 3341; under the Looper Thread Guide Hooks, No. 3336, along the trough in Looper Thread Guard No. 3331 and over the Looper Thread Finger No. 3326; around the Looper Thread Finger Eyes No. 3327; through the Looper Holder Thread Guide No. 3311; along the thread groove in the Loopers, and through the Looper Eyes.

With Needle Bar still at the top, and Presser Foot raised, push Looper Holder into working position, bringing the free ends of the looper threads *over the tops* of the Loopers. Lower the Looper Thread Finger, draw the threads through Loopers, causing them to lie in the Work Arm thread channel. Then replace Work Arm cover.

It is most important that Looper Holder is pushed well home to its correct position after threading the loopers and before commencing to work, and that Looper Holder is securely locked.

Replace Looper Opening Cover, allowing the ends of Looper Threads to slide into the recess in the under side of Cloth Plate Frame. Lower Presser Foot.

N. B. Once the machine has been at work, the Looper Holder must only be withdrawn after *unlocking of threads* has been effected.

Cross Thread should be passed through the Cross Thread Guide No. 3058, between Tension Discs No. 3069 and around the back of Tension Stud No. 3075; behind the Takeup Hook No. 3344; over the Takeup No. 3067; behind the Lower Guide Hook No. 3336; through the hole in Needle Thread Lower Guide No. 3474, and through the hole in Cross Thread Carrier No. 3055.

NEEDLES

For reference, Needle positions are numbered 1 to 4. The left-hand No. 1 has a Short Point and only one flat on the shank. The others, Nos. 2, 3 and 4 have Long Points and two flats on the shank.

Bent or blunt Needles are frequently the cause of stitching troubles, and damage to Loopers or Chaining Plate may accrue from them.

REPLACING NEEDLES

Unlock the threads; raise the Presser Foot and swing out Loop Holder as when threading up. Lower the Presser Foot.

See that Needle Bar is in highest position. Loosen Needle Screws by giving one-half turn only. Use the Tweezers to remove the old Needle.

Take a new Needle and grip it firmly just below the shank with the Tweezers, the flat on the shank facing the front.

Direct the needle point carefully through the needle hole in the Foot, and between the fingers of the Chaining Plate, lowering it sufficiently to allow the shank end to clear the Needle Bar. The Needle must be held upright before it will enter the hole in Needle Bar Head.

Push Needle upward as high as possible and fasten screw making quite sure that the screw is engaging the flat on shank.

For the above purpose use only the small knurled handle Screw Driver No. 3612 supplied with the machine.

TENSIONS

There are three Tension Adjusting Nuts; one for the four Needle Threads, one for the four Looper Threads, and one for the Cross Thread.

Needle Threads require only sufficient tension to produce a clean stitch. If too tight the seam will not be sufficiently elastic.

Looper Threads require little or no tension.

Cross Thread requires only sufficient tension to produce a neat flat effect on the goods. If too tight, the other sewing threads will be affected with the probability of bad stitching on the under side of seam.

The Tension Plates must be kept free from oil and lint. Loose stitching on one row is frequently caused by lint remaining between two of the plates. Oil allowed to enter between the Looper Thread Tension Plates will cause excessive tension and consequently a badly balanced stitch.

FEEDING MECHANISM

The feeding of the goods is effected by the use of two independent feed members, *viz.*; a Fulling Feed Surface in front of the needles, and a Stitch Feed Surface to the rear. The relative movement of these two members is variable and under the control of the operator. On the front of the vertical portion of frame supporting the Work Arm are two dials, the upper one numbered from 0 to 24, and the lower from 0 to 12. The lower dial indicates the length of movement of the Stitch Feed Surface, the movement of the Fulling Feed Surface being indicated on the upper dial. If the same number is indicated on both dials, then the two Feed Surfaces will operate in unison. When the two dials indicate different numbers the movement of the respective feed members differs in proportion as the numbers indicated. Thus, with the upper dial set at No. 6, and the lower at No. 5, the ratio of movement of the Fulling Feed Surface to that of the Stitch Feed Surface is as 6 is to 5.

For all regular classes of goods the best results are obtained with both indicators set at No. 5, but if the seam should turn out unduly wrinkled or stretched, the small lever attached to the upper dial should be pulled rearward to No. 6 or 7 as found necessary. In no case, however, should the adjustment of the lever be such as to deprive the seam of elasticity.

The lower dial should not be altered from the No. 5 position except under very special circumstances.

TRIMMER BLADES

Blades should be replaced as soon as they cease to cut cleanly.

Always remove the Upper Blade first. Loosen the Clamp Screw at the lower end of the Trimmer Arm No. 3536 by making about one-half turn with the small wrench supplied with the machine. This will permit the free withdrawal of the Upper Blade to the right hand.

The Lower Blade which is clamped in a slot in the left-hand toe of the Presser Foot may be withdrawn after loosening its small clamp screw.

Replace the Lower Blade first. The cutting edge should reach approximately to the center of the slot between the Presser Foot toes.

The Upper Blade should be inserted when the Trimmer Arm is at the right hand limit of its movement. Before tightening the Clamp Screw turn the Hand Wheel so as to bring the Trimmer Arm and Blade over to the left hand limit and set the Blade so that its cutting edge clears the Presser Foot by about 1/64th inch; then tighten up the Clamp Screw.

RESHARPENING

Our special Blade Grinder is necessary for correctly sharpening Flatlock Blades.



Operator seated at the Flatlock Machine with her hands in correct position for guiding the work.

INSTRUCTIONS FOR OPERATORS

COMMENCING TO SEW

Take a piece of fabric and place it under the *full length* of Presser Foot.

The ends of Needle Thread and Cross Thread should be cut off about 2 inches from the needle eyes, and allowed to lie over to the right-hand edge of the Presser Foot.

Start the machine, taking care that the thread ends do not pass under the side of Presser Foot as the fabric advances.

When the end of the material is reached, continued operation of the machine results in the formation of a chain which will control the sewing threads in the absence of fabric under the Presser Foot.

The chain must be allowed to leave the machine freely—it must not be pulled away.

The machine is now ready for operating an ordinary seam, that is, one which commences on the edges or ends of two pieces of fabric to be joined, such as when seaming up the inside of drawer legs, closing shoulders of shirts, vests or union suits, attaching ribs or cuffs, etc.

When it is necessary to commence a seam on the interior surface of a garment, that is, at any point that is remote from all of its edges, such as hip or waist shaping seams on the sides of ladies' vests or union suits, it is necessary to "unlock" the threads so that the fabric may be drawn under the Presser Foot to the point where the seam must be commenced.

UNLOCKING OF THREADS

Turn the hand wheel in its *working* direction until the Needle Bar is in its lowest position, then turn it in the *reverse* direction until Needle Bar rises to its highest position.

This operation will have disengaged the needle threads from the Loopers. Then lift Presser Foot as high as possible by pressing the left Foot Treadle, thus opening the Tensions, when the threads may all be pulled together backward under the Foot from the Needles quite freely—they must never be pulled sideways.

The machine is now ready for operating a seam which commences on a surface of the garment away from any of its edges.

When threads are unlocked it must be clearly understood that it is *only to introduce the work under the Foot from behind the Needles* (instead of in the usual way under the front of the foot) *and when the sewing starts actually on the material*. If a start is attempted with an ordinary seam, and the threads have been left unlocked, risk is incurred of breaking the threads and needles.

OILING

Oil twice a day with *best quality mineral oil*, preferably W. & G. Factory Oil No. 6.

Kerosene, either alone or mixed with other oil, *must not under any circumstances*, be used.

TENSIONS

The Tension Plates must be kept perfectly *dry and clean*.

Looper Threads to have little or no tension.

Needle Threads must have only sufficient tension to make a clean stitch. If too tight, the seams will not be sufficiently elastic to ensure perfect strength.

Cross Thread Tension should be as light as possible consistent with a neat effect on the goods.

Do not start the machine unless there is a chain or fabric under the Presser Foot rearward from the Needles.

CLEANING

Thoroughly clean the machine once a day.

Remove the Needles, Clothplate and Feed Surfaces, and brush away all lint, etc., from the exposed parts.

CAUTION. After removing Cloth Plate and Feed Surfaces do not attempt to turn Hand Wheel, or run the machine, without slightly raising the Presser Foot, otherwise parts are liable to become strained.

The slot in the inner wall of Work Arm (near the feed end) enables a wire cleaner to be inserted into the Arm, so that any lint, etc., which has collected around the Looper Lever, may be easily removed.

When draining the machine frame, one complete turn of the Oil Plug Caps to the left is quite sufficient to allow the oil to escape. It is neither desirable nor necessary to *completely* remove the Caps.

BENT NEEDLES

These should be immediately removed. Apart from causing faulty stitching, they are liable to injure the machine.

N. B. When removing or replacing any Screws, setting the Blades, etc., use only tools supplied with the machine for the purpose.

INSTALLATION AND USE OF FLATLOCK BLADE GRINDER

This machine should be installed on a good bench and located conveniently for the machine adjuster's use or supervision. The emery wheel should revolve its top towards the operator, at 3000 R.P.M.

Keep the wheel true and flat on its periphery by occasional dressing with a trueing tool.

The slide rest is provided with 3 Blade-guiding grooves. The first groove from the left hand end of the slide will hold the *upper* blade clamped in place against the wheel to produce the most favorable angle and bevel on its cutting edge.

The second groove from the left hand end of the slide will hold the *lower* blade clamped in place against the wheel to produce the most favorable angle and bevel on its cutting edge.

The third groove from the left hand end of the slide will hold the upper blade in place against the wheel while grinding the end of its narrow teat to the proper length, previous to grinding its cutting edge in the first blade guiding groove.

In using this grinder:

FIRST: With *upper blade* in extreme right hand groove, reduce the length of its teat an amount slightly greater than that which has worn off of its cutting edge.

SECOND: With *upper blade* in the extreme left hand groove and the newly made end of its teat against the stop No. 3839, move the slide by hand slowly to the right until it is stopped at the proper point by screw No. 3834. This screw must be adjusted so that the narrow teat on the Upper blade will not be ground less than $3/32$ " wide.

The correct amount for the wheel to cut at one time can be determined by an adjustment of hand wheel No. 3810.

THIRD: With lower blade in the second groove of the slide, proceed, as in the second operation, to grind the cutting edge until it is in the proper cutting condition.

Do not allow the emery wheel to grind so much stock at one cut that the blades will be blued, as that destroys their temper.

At the right hand end of the slide are two steel templates let into the casting. These templates are for use as guides in shaping the cutting ends of the blades. When finished the blades, upper and lower respectively, should fit these templates.

The round corner on the lower blade must be shaped by hand, on the wheel.

FLATLOCK NEEDLES

must be used in sets consisting of one short point needle in the **left-hand** needle head hole, and three long point needles in the other needle head holes.

SIZES

No. 2 Blade.....	.029" diam.
No. 3 Blade.....	.033" diam.

CAUTION:—Use Genuine Flatlock Needles only. The word **FLAT LOCK** is stamped on the shanks of all needles made and sold by us.

FACTORY OIL No. 6

This oil has been thoroughly tested by us for many years and we earnestly recommend it as the best lubricant for factory use yet brought to our notice. It is a filtrated mineral oil and does not gum the machine, and is especially recommended for the Flatlock and other high speed machines, as well as for the W. & G. Improved Transmitter. We can supply it in cans of $\frac{1}{2}$, 1, 2 and 5 gallon sizes, or by the barrel.

