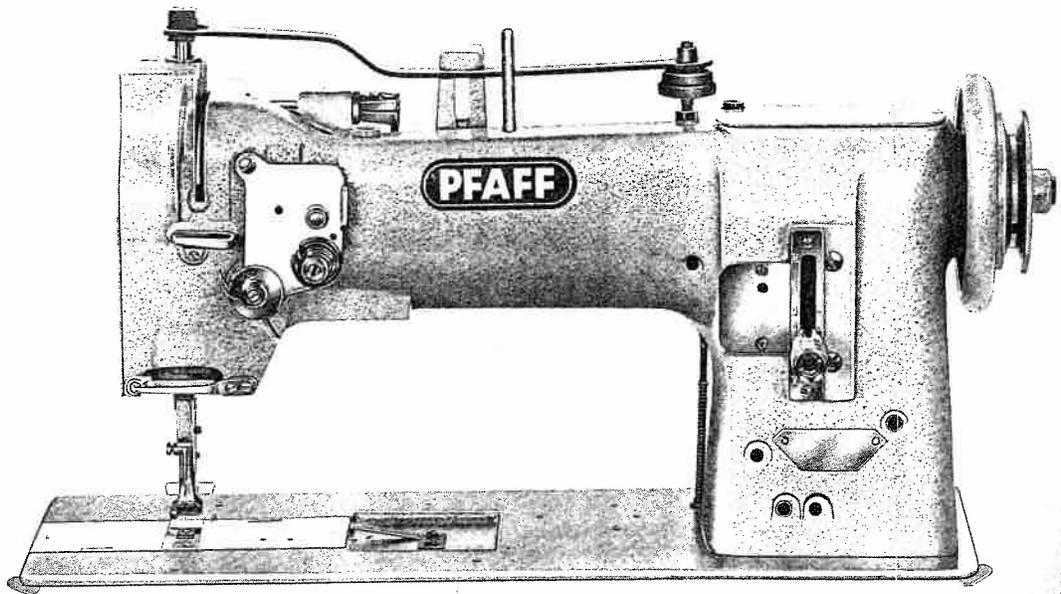


# **PFAFF**® **145**



R 9936

## **Instruction Book**

## 1. General

The Pfaff 145 is a special-purpose sewing machine equipped with unison feed, smoothly working sleeve take-up and vertical rotary hook, which sews forward and backward.

It is chiefly used for sewing multiple plies where it is important that all finish out evenly. Its permissible top speed is 2,800 s.p.m.

When sewing tightly woven and heavily dressed materials, the sewing speed should be reduced in order to prevent overheating of the needle.

The maximum speeds which can be attained with machines fitted with special attachments or trimming mechanisms often are far below the recommended top speeds because the nature of the work and the thickness of the material tend to limit the machine's capacity. If the maximum speed is exceeded, trouble may develop chiefly in the trimming mechanism.

To avoid trouble in the mechanism, run the machine at about 70 per cent of its top speed until the parts which are in movable contact have become thoroughly glazed by their action upon each other. This should normally be the case after about two weeks' constant use.

All machines are regularly equipped with a fixed pulley which is cast in one with the balance wheel. If desired, however, they can be supplied with a disengageable pulley.

If fitted with the latter type pulley, the machine is dispatched with the sewing mechanism disengaged. To engage this mechanism for sewing, hold the balance wheel steady with your left hand and turn the large lock nut clockwise.

## 2. Fundamentals of Machine Operation

Before you put the machine in operation for the first time, carefully remove all dust which has accumulated in transit and oil the machine thoroughly (see Chapter 3).

Oil the machine only with Pfaff sewing machine oil which is non-resinous and acid-free.

Never run a threaded machine unless you have fabric under the presser foot.

Before you start sewing, lay both threads back under the presser foot.

To prevent thread jamming, hold both thread ends until the machine has made a few stitches.

Do not pull the material while stitching; the machine will feed the fabric automatically.

Use needles of the correct system only (see Chapter 6).

Never use rusty needles.

Use high-quality threads only.

Always bring the take-up lever to its highest point before you remove the material.

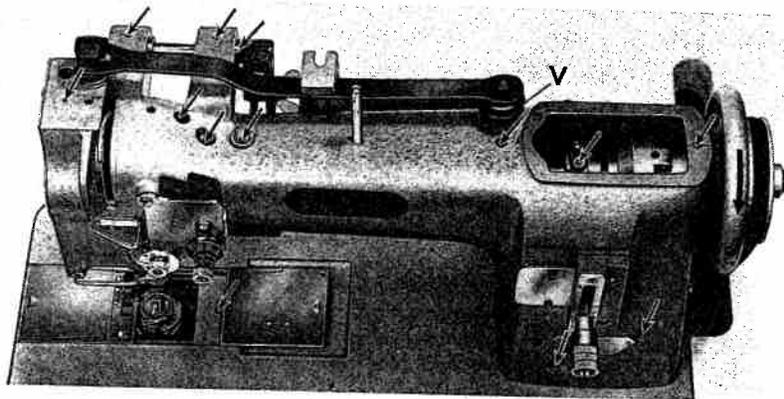
### 3. Cleaning and Oiling

Careful cleaning and regular oiling will increase the service life of your machine.

After you have removed the dust which has accumulated on the machine in transit, take a clean rag and remove the grease from all nickel-plated and polished parts. Apply a few drops of kerosene to all oiling points marked by arrows in Figs. 1, 2 and 3, raise the presser foot, unthread the needle and remove the bobbin case. Twice a week apply a few drops of Pfaff sewing machine oil No. 280-1-120122 to all points of friction.

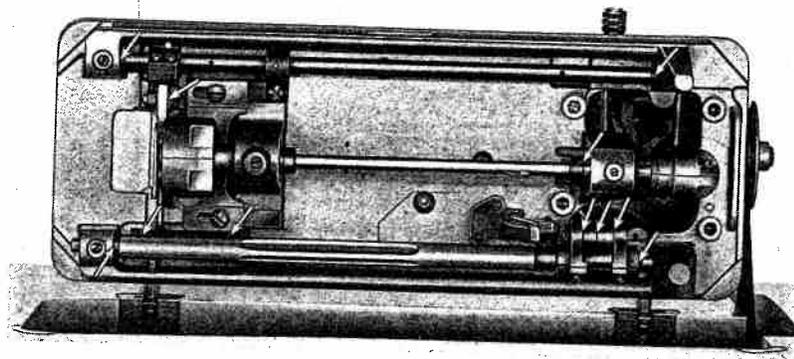
The sewing hook must be oiled each day the machine is in operation (see arrow and oilhole R in Fig. 4).

Although the bevel gears are enclosed in cases and require no special maintenance, it is recommended to replace the old grease by Pfaff grease No. 280-1-120243 once a year. Owing to the special lubricating properties of this grease, the flanks of the bevel gear teeth should be greased only lightly.



R 9925

Fig. 1



R 9926

Fig. 2

From time to time remove the needle plate after taking out set screws 1 and 2 (Fig. 4) and remove the lint which has accumulated underneath. The cleaning of the hook is discussed in Chapter 13.

R 9927

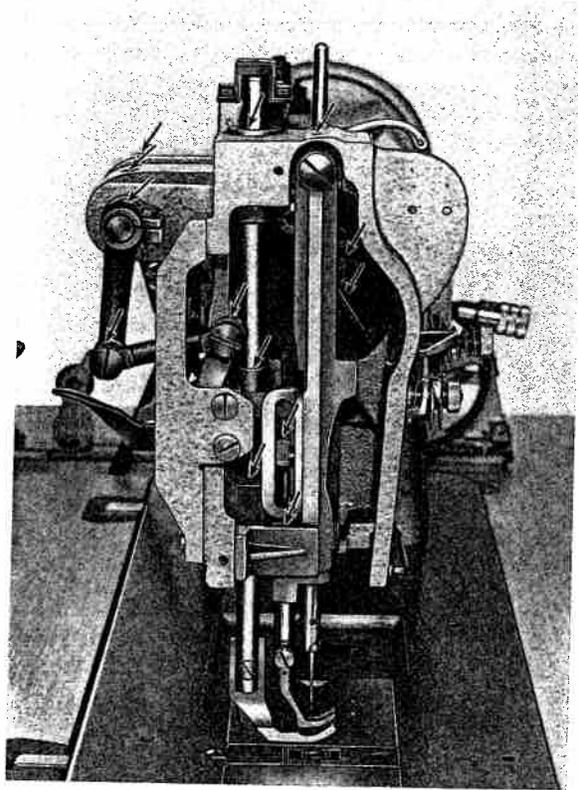


Fig. 3

R 9928

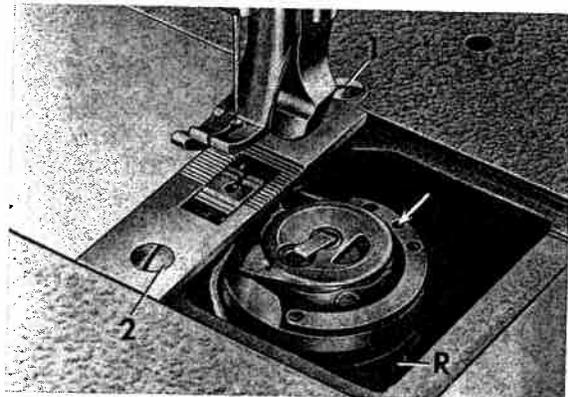


Fig. 4

#### 4. Winding the Bobbin

Place a spool of thread on pin 1 (Fig. 5) and pass the thread from left to right through eyelet 2, clockwise around and between tension discs 3 and from the inside through the slot in the bobbin. Wind a few turns of thread on the bobbin and place the latter on spindle 4. Start the bobbin winder by pressing down lever 5. The bobbin is wound automatically while the machine is sewing. When a sufficient amount of thread has been wound on the bobbin, a latch stops the bobbin winder.

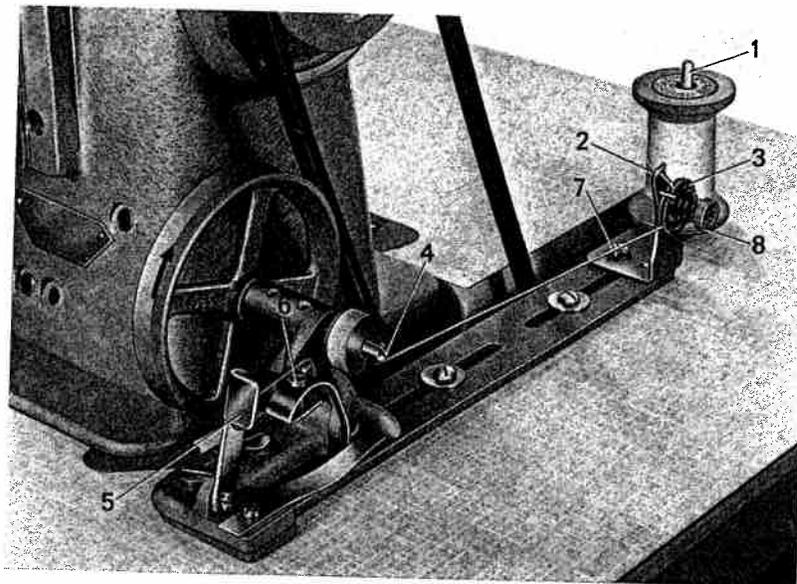
The amount of thread to be wound on the bobbin is regulated by screw 6.

Turn this screw clockwise for more thread, or counter-clockwise for less thread.

If the thread should pile up at one end of the bobbin, adjust the position of the bobbin winder tension sideways, as may be required. To do this, loosen screw 7, adjust the tension and tighten the set screw again.

The tension on the thread is regulated by turning nut 8.

Make sure the bobbin winder pulley rotates in the direction indicated by an arrow in Fig. 5.



R 9929

Fig. 5

## 5. Changing the Bobbin and Threading the Bobbin Case

Raise the needle to its highest position and open the bed slide. With the thumb of your right hand open latch **B** (Fig. 6), then push the thumb nail under the projecting flange **C** of the bobbin case cap and lift the latter out of the machine with thumb and fore-finger. The bobbin is now exposed in the bobbin case base and can be taken out easily.

R 9930

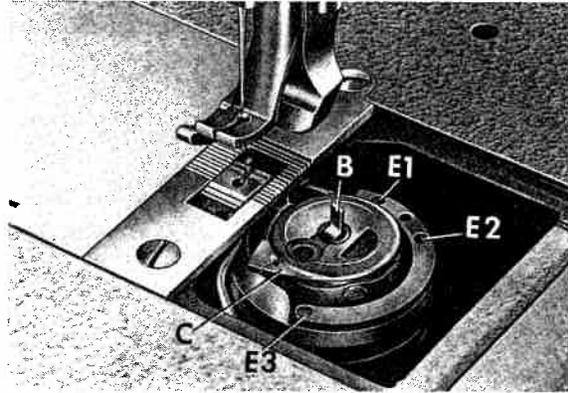


Fig. 6

Place a full bobbin in the bobbin case cap so that the thread draws on top from the left toward the right, as shown in Fig. 7.

Hold the bobbin steady in the bobbin case, pull the thread into slot **X** and draw it under the tension spring **Y**. Leave a loose end of thread about 7 cm (abt. 3") long outside the bobbin case.

Place the bobbin case with the bobbin on the center stud in the bobbin case base and close latch **B** (Fig. 6) as well as the bed slide.

R 9931

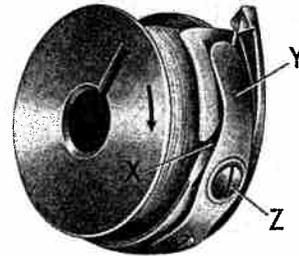


Fig. 7

## 6. Selecting the Correct Needle

To ensure a reliable stitch formation, make sure the correct needle is inserted in the machine.

### Needle Systems

The Pfaff 145 unison-feed machine in Models **H 1** and **H 2** uses System **134** needles, while Model **H 3** uses System **134-35**, and Model **H 4** System **190** needles.

### Needle Point Styles

These needles are available with different type points to suit different requirements. The various needle point styles are identified by a letter following the needle system, e.g. **134 R**.

Fabrics are stitched with a round-point needle, identified by **R**, while for leather work needles are available with the following point styles:

<b>Lr</b>	◆	Narrow reverse twist point
<b>LI</b>	◆	Narrow twist point
<b>Lack</b>	■	Patent leather point
<b>P</b>	■	Extra-narrow wedge point
<b>PCr</b>	■	Extra-narrow wedge point with right-twist groove
<b>PCI</b>	■	Extra-narrow wedge point with left-twist groove
<b>S</b>	■	Narrow cross point; for long, straight stitches.
<b>D</b>	◄	Triangular point; for short, straight stitches.
<b>Vr</b>	♣	Reverse twist spear point
<b>VI</b>	♣	Twist spear point

Rubberized fabrics and plastic materials are sewn with round-point needles.

### Needle and Thread Sizes

The correct needle size is dependent on the fabric and thread weights. For best results, select the needle as thin as possible, but make sure the thread can be pulled through the needle eye easily.

The needle size should be selected to match not only the thread weight, but also the machine model.

The needle size is indicated on the shank in hundredths of millimeters. Thus, a No. 100 needle has a shaft diameter of  $100/100 = 1$  mm.

Select the proper needle and thread sizes from the chart below:

Model	Needle Size	Cotton	Silk	Synthetic	Linen
<b>A</b> H 1, H 2	60	130/3 130/4	140/3	200/3-150/3	
	70	100/3 100/4	120/3	140/3-120/3	
	80	80/3 80/4	100/3	120/3-100/3	
<b>B</b> H 1, H 2, H 3	90	70/3-60/3 70/4-60/4	80/3	100/3- 80/3	70/3
	100	50/3-40/3 50/4-40/4	70/3	70/3	60/3
	110	30/3 30/4 30/6	60/3	60/3	50/3
<b>C</b> H 2, H 3, H 4	120	24/3 24/6	50/3	50/3	40/3
	130	20/3	40/3	40/3	35/3
	140	12/3 12/6	30/3	30/3	30/3
	150	10/9 8/6	25/3	20/3	25/3
	160	6/6	20/3	18/3	20/3
<b>D</b> H 3, H 4	170	6-ply fancy-effect thread	10/3	15/3	18/3
	180	9-ply fancy-effect thread	10/3	10/3	18/3
	190	9-ply fancy-effect thread		0.6 mm dia.	18/4
	200	12-ply fancy-effect thread		1.0 mm dia.	18/4

## 7. Changing the Needle

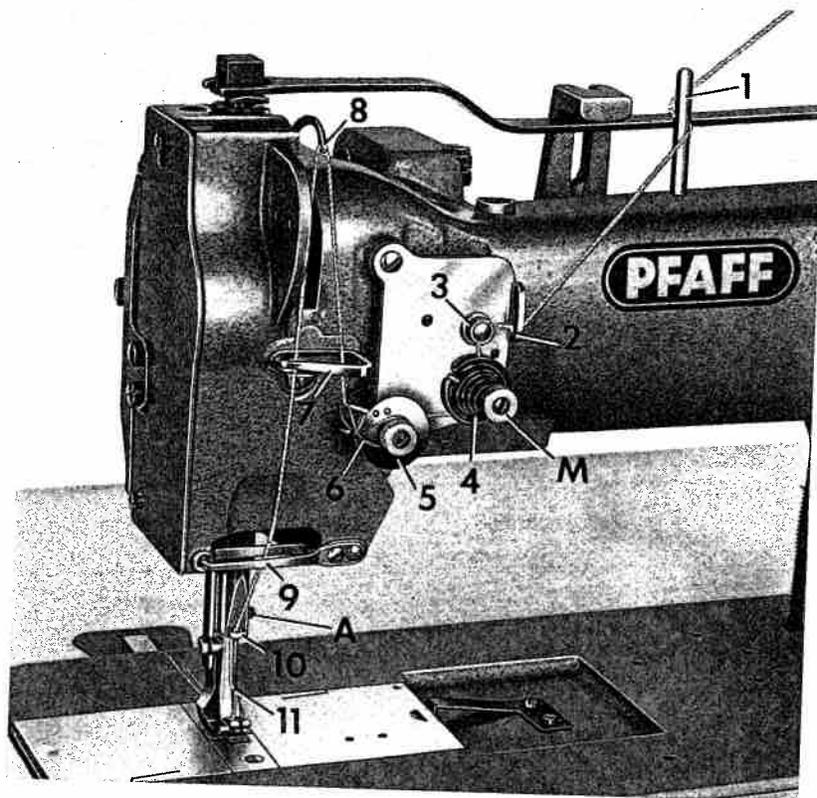
Raise the needle bar to its highest point, loosen needle set screw **A** (Fig. 8) half a turn, and pull the damaged needle out of the needle clamp.

Insert a new needle into the clamp, making sure that its short groove faces toward the sewing hook. Push the needle up as far as it will go and tighten needle set screw **A** securely.

Never use rusty needles .

## 8. Threading the Needle

Pass the thread from the spool up and through the hole in the thread guide of the thread unwinder, then down and through the holes in stud **1** (Fig. 8) and thread guide **2**, around thread retainer **3**, clockwise around and between tension discs **4**, under thread controller disc **5**, through thread check spring **6**, up and through thread guide **7**, from right to left through the hole in take-up lever **8**, then down and through thread guides **7**, **9**, and **10** and from left to right through the eye of needle **11**.



R 9932

Fig. 8

## 9. Drawing Up the Bobbin Thread

Hold the end of the needle thread and turn the balance wheel toward you, as indicated by an arrow in Fig. 1, until the needle moves down and up again. As the needle moves up, it catches the bobbin thread which comes up with it through the needle hole. Lay both threads back under the presser foot, place the material in the machine and lower the presser foot. Hold the ends of both threads until the machine has made a few stitches.

## 10. Regulating the Thread Tensions

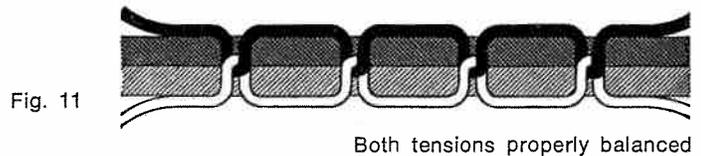
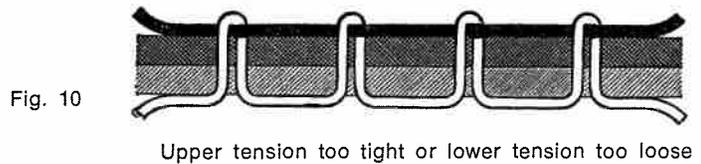
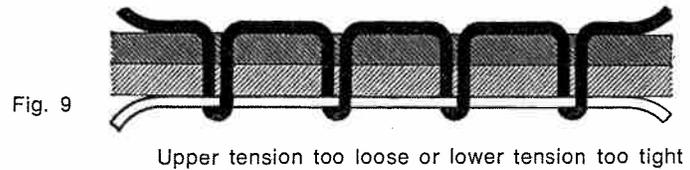
### Adjusting the Upper Tension

Turn tension nut **M** (Fig. 8) clockwise for more tension, or counter-clockwise for less tension.

If the upper tension is too loose, the bobbin thread will draw the needle thread down so that it forms small kinks on the underside of the material, as shown in Fig. 9.

If the upper tension is too tight, the bobbin thread will be pulled up (Fig. 10) or the needle thread will break.

Both tensions are correctly balanced, if the needle and bobbin threads interlock in the center of the material, as shown in Fig. 11.



When you raise the presser bar, the upper tension is released automatically so that the work can be easily removed from the machine. To do this, pull the work back (in forward feeding direction), never forward as this may cause bending of the needle, skipping of stitches or thread breaking.

### Adjusting the Lower Tension

The tension is correct if a noticeable resistance of spring **Y** (Fig. 7) has to be overcome when pulling the thread out of the bobbin case.

Take the bobbin case out of the machine and regulate the tension by turning screw **Z**, (Fig. 7) with the hook screwdriver, as appropriate. Turn this screw clockwise for a tighter tension, or counter-clockwise for a looser tension.

If puckering occurs on delicate materials although the tension has been set correctly, ease both tensions slightly.

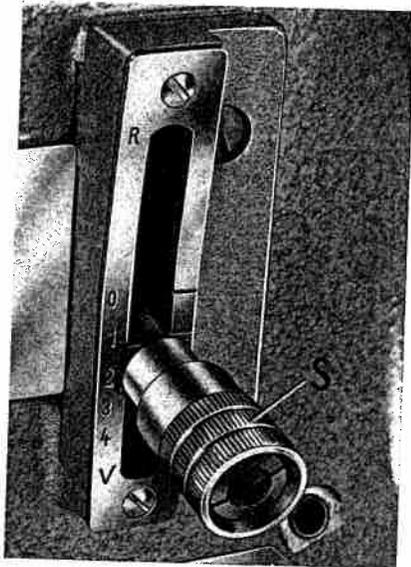
## 11. Regulating the Stitch Length

The stitch length is regulated by turning thumb nut **S** (Fig. 12) on the feed regulator lever.

Turn this nut clockwise for shorter stitches, or counter-clockwise for longer stitches. The numbers on the left of the scale indicate the stitch length in millimeters. The letters **V** and **R** on the left side of the scale (Fig. 12) stand for forward and backward sewing, respectively.

This device incorporates a spring which permanently holds the feed regulator lever down in forward feeding position. When the lever is pushed up as far as it will go, the machine will sew in reverse. And conversely, when the lever is released, forward sewing will be resumed instantly.

If desired, the machine can be fitted with a treadle which makes it possible to reverse the direction of feed by foot action.



R 9933

Fig. 12

## 12. Regulating the Pressure on the Material

The amount of pressure to be exerted by the presser foot must be adapted to the material to be sewn. The pressure is set correctly if the material is advanced through the machine evenly without being injured by the teeth of the feed dog.

The pressure on the material is regulated by turning knurled nut **V** (Fig. 1). Turn this screw in for less pressure, or out for more pressure.

On Model H machines the pressure is regulated by turning the knurled screw in the upper guide bushing of the presser bar. Turn this screw in for more pressure or out for less pressure.

## 13. Cleaning the Sewing Hook

The sewing hook is the most essential part of the whole machine and, for this reason, should be cleaned thoroughly from time to time. To do this, raise the needle bar to its highest point, open the bed slide and remove the bobbin case with the bobbin. Take out the three screws **E<sub>1</sub>**, **E<sub>2</sub>** and **E<sub>3</sub>** (Fig. 6) and remove the hook gib. Turn the balance wheel until point **S** of the bobbin case base is about to enter groove **N** of the hook (Fig. 13). When in this position, the bobbin case base can be tipped out easily by seizing center stud **Z** with thumb and forefinger while turning the balance wheel back and forth lightly.

Clean hook and hook raceway thoroughly with kerosene.

If the cotton wool in slot **O** (Fig. 13) should have become matted, it should be replaced and the new cotton wool be soaked with oil.

It is recommended to clean the vicinity of the sewing hook with a soft brush.

In replacing the bobbin case base, make sure that position finger **F** (Fig. 13) enters slot **P** on the underside of the needle plate. Replace the hook gib and secure it on the hook with screws **E<sub>1</sub>**, **E<sub>2</sub>** and **E<sub>3</sub>**. Put a drop of oil into the hook raceway, replace the bobbin case with the bobbin and close latch **B** (Fig. 6).

R 9934

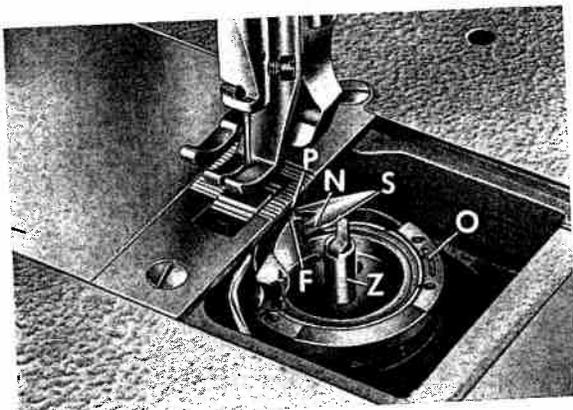


Fig. 13

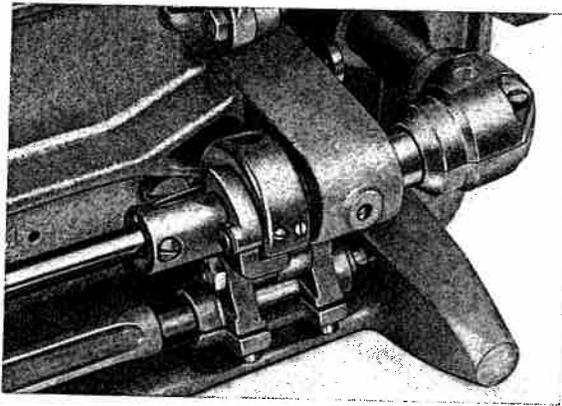
#### 14. The Safety Clutch

Model C and D machines are equipped with a safety clutch which prevents disturbance of the hook timing and damage to the bobbin case base in case of thread jamming in the hook raceway.

If an irregularly spun needle thread should jam in the hook raceway and block the sewing hook, the safety clutch automatically disengages the hook drive.

After the jammed thread has been removed, tilt back the sewing head and rotate the balance wheel, while holding the hook drive shaft steady, until the tip of the latch is positioned exactly above the groove in the clutch bushing. Now push back the spring-loaded pin so that the latch can snap into this groove.

To resume sewing, simply let down the sewing head again.



R 9343

Fig. 14

#### 15. Changing the Alternating Pressers

Raise presser bar lifter **a** (Fig. 15) and rotate the balance wheel to bring the needle to its highest point. Loosen screw **b** and pull out the vibrating presser, turning it slightly to the right and left.

In replacing the vibrating presser make sure you push it up as far as it will go and orient it so that the needle is centered in the needle hole. Then tighten screw **b** (Fig. 15) securely.

The lifting presser can be removed only when the presser bar is raised. To do this, take out screw **c** (Fig. 15) and pull out the lifting presser, tilting it back and forth slightly.

When replacing the lifting presser, push it up as far as it will go so that screw **c** can be pushed through the hole in its shank and tightened securely.

## 16. Setting the Foot Lift

To adapt the foot lift to the thickness of the material to be sewn, loosen wing nut **F** (Fig. 15) and adjust the position of lifting eccentric connection **H** in the slot of the lifting crank. Move the connection upward for a higher foot lift, or downward for a lower foot lift.

R 9935

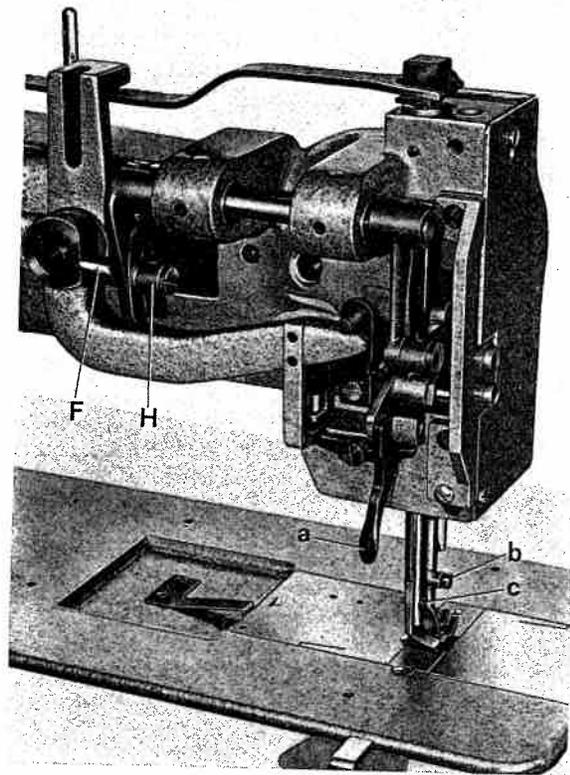


Fig. 15

## 17. Operating the Treadle of the Pfaff 145 Equipped with -900 Thread Puller/Trimmer

On special request, the Pfaff 145 in Models A and B can be equipped with the time- and cost-saving subcl. -900/06 thread puller/trimmer.

On subcl. -900/02 machines, thread trimming, needle positioning and reverse sewing are all controlled by operating two treadles.

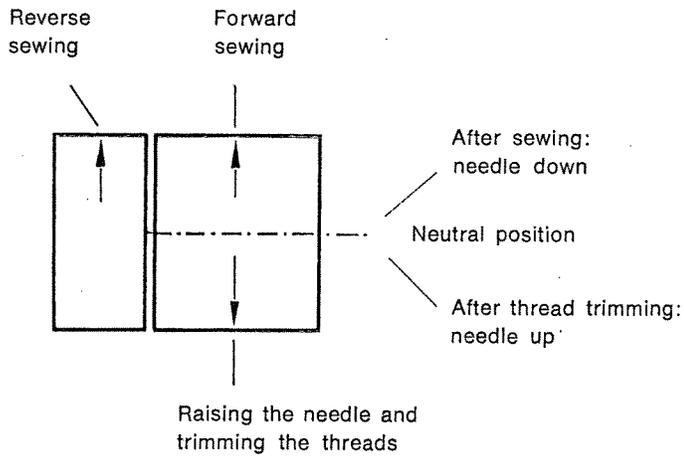
When the tip of the right treadle is depressed, the sewing speed increases until the machine runs at its top speed.

At the completion of the sewing action, the needle is positioned down in the material.

Depressing the tips of both treadles switches the machine to reverse sewing.

When you depress the heel of the right treadle, both threads are trimmed and the needle is raised to facilitate the removal of the work.

The various treadle operations can be seen from the sketch below.



## 18. Trouble Shooting

### Machine Skips Stitches

#### Cause

Wrong needle system.  
Needle bent.  
Needle inserted incorrectly.  
  
Incorrect threading.

#### Remedy

For correct needle system see Chapter 6.  
Insert new needle as instructed in Chapter 7.  
Orient needle so that its short groove faces toward the sewing hook.  
Thread needle as instructed in Chapters 5 and 8.

### Thread Breaks

#### Cause

For any of the reasons indicated above.  
Tread tensions too tight.  
Knotty thread.  
Needle point blunt or damaged.  
Thread snarled up.

#### Remedy

See remedies listed above.  
Regulate tensions as instructed in Chapter 10.  
Use high-quality thread only.  
Replace needle.  
Check upper threading from spool of thread to needle.

### Faulty Stitch Formation

#### Cause

Improper tension.  
Wrong needle size and/or thread used.  
  
Pieces of thread between tension discs or under bobbin case tension spring.

#### Remedy

Regulate tensions as instructed in Chapter 10.  
Correlate needle, thread and fabric as shown in table in Chapter 6.  
Remove thread and re-adjust tension as instructed in Chapter 10.

### Needle Breaks

#### Cause

Wrong needle system.  
  
Needle bent.  
Needle too thin.

#### Remedy

Insert needle of correct system as instructed in Chapter 6.  
Insert new needle.  
Insert thicker needle.

### Machine Works Heavily

#### Cause

Lack of oil.  
Wrong lubricant.  
  
Hook race obstructed by pieces of thread.

#### Remedy

Oil machine as instructed in Chapter 3.  
Use only non-resinous and acid-free sewing machine oil.  
Try to free the jammed thread as you rock the balance wheel back and forth. If this action should fail, dismantle the sewing hook as instructed in Chapter 13.

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Component Parts for the Pfaff 145  
in Models A, B, C, D and H1, H2, H3, H4

Part Name	Model						
	H1 A;B	H2 A;B	H2 C	H3 B	H3 C;D	H4 C;D	
Balance wheel	Standard version	91-009 388-92	91-009 388-92	91-009 389-92	91-009 388-92	C = 91-009 389-92 D = 91-015 652-92	C = 91-009 389-92 D = 91-015 652-92
	Special version	91-010 133-91	91-010 133-91	91-010 172-91	91-010 133-91	C = 91-010 172-91	C = 91-010 172-91
Belt guard, complete		91-008 244-91	91-008 244-91	91-008 244-91	91-008 244-91	C = 91-008 244-91 D = 91-009 424-91	C = 91-008 244-91 D = 91-009 424-91
Arm cover, rear		91-002 504-45	91-002 504-45	91-010 617-45	91-002 504-45	91-010 617-45	91-010 617-45

Hook Components for the Pfaff 145  
in Models A, B, C and D

Part Name	Model				
	A	B	C	D	
Hook, with bobbin case, complete	Fabric	91-010 165-91	91-010 165-91	91-010 896-91	91-010 850-91
	Leather	91-010 896-91	91-010 896-91	91-010 850-91	91-010 850-91
Hook, complete w/o case & base	Fabric	91-010 164-91	91-010 164-91	91-010 895-91	91-010 849-91
	Leather	91-010 895-91	91-010 895-91	91-010 849-91	91-010 849-91
Hook	Fabric	91-010 161-05	91-010 161-05	91-010 894-05	91-010 847-05 <i>010 845-91</i>
	Leather	91-010 894-05	91-010 894-05	91-010 847-05 <i>845</i>	91-010 847-05 <i>845</i>
Hook gib	Fabric	91-010 178-05	91-010 178-05	91-010 893-05	91-010 848-05
	Leather	91-010 893-05	91-010 893-05	91-010 848-05	91-010 848-05
Hook washer	Fabric	91-010 167-05	91-010 167-05	91-010 167-05	91-010 853-05
	Leather	91-010 167-05	91-010 167-05	91-010 853-05	91-010 853-05
Bobbin case cap, complete	Fabric	91-010 159-91	91-010 159-91	91-010 159-91	91-011 498-91
	Leather	91-010 159-91	91-010 159-91	91-011 498-91	91-011 498-91
Bobbin case base, complete		91-010 157-01	91-010 157-01	91-010 157-01	91-010 157-01

Same

Hook

use