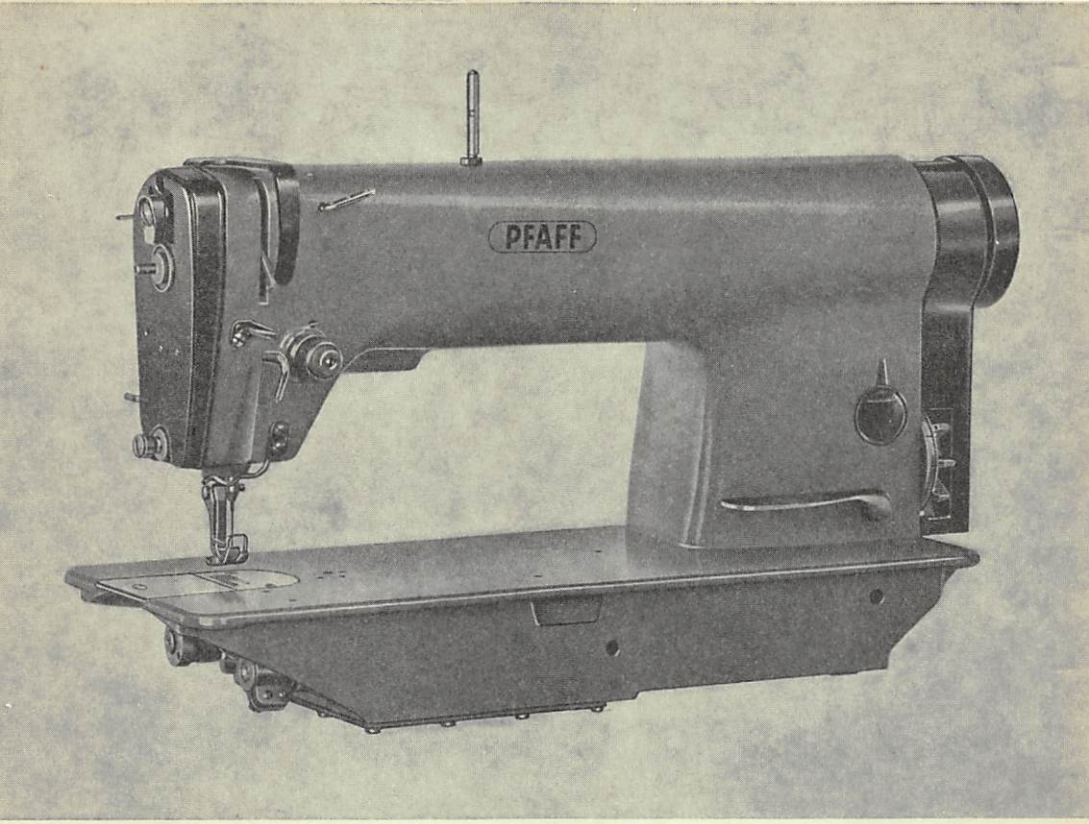


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# PFAFF 463

## Standard High-Speed Sewing Machine

### Organized with drop feed

## Instructions

G · M · PFAFF AG · KAISERSLAUTERN BRANCH
Industrial Sewing Machine Division

# PFAFF 463

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## Instructions

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## Foreword

The scope of this booklet is confined to such instructions as are conditioned by variations in the design of the new Pfaff 463 high-speed sewing machine as compared with previous Pfaff high-speed seamers.

An outstanding feature of the Pfaff 463 is the incorporation of sealed-for-life ball and needle bearings of the latest design which obviate the use of an automatic lubrication system.

Another salient feature is the arrangement of the feed driving and feed lifting eccentrics on the bottom rather than the arm shaft. The bottom shaft is driven from the arm shaft by a Synchroflex belt and drives the hook shaft by means of helical gears.

These driving elements are enclosed in an oiltight gear case and are lubricated by means of an oil-soaked foam rubber sheet. The only part that requires special lubrication is the sewing hook. Lubrication of this part is accomplished by means of a reservoir oiling system incorporating a centrifugal switch.

Since the arm shaft is belted to the motor, the machine can be tilted back without removing the V-belt.

Additional features of the new high-speed seamer are a novel stitch length control, separate forward-reverse feed control, built-in bobbin winder and built-in lifting lever.

Operators will like the modern functional design and the streamlined belt guard which is attached to the machine arm.

G. M. PFAFF AG

## 1. Setting Up the Machine

The Pfaff 463 drop-feed sewing machine, like the other models in the new line of high-speed seamers, can be set up only on a power table fitted with the new rubber hinge bracket and cushion set.

The front corners of the bedplate are face-milled on the underside and rest on matching rubber cushions which are recessed into the tabletop.

At the back, the new-type hinge studs connect the sewing head to the pins in the two rubber hinge brackets. This mounting prevents the machine from coming in contact with the tabletop.

The machine is carefully balanced and causes practically no vibration. Whatever vibration there is, will be absorbed by the rubber hinge brackets.

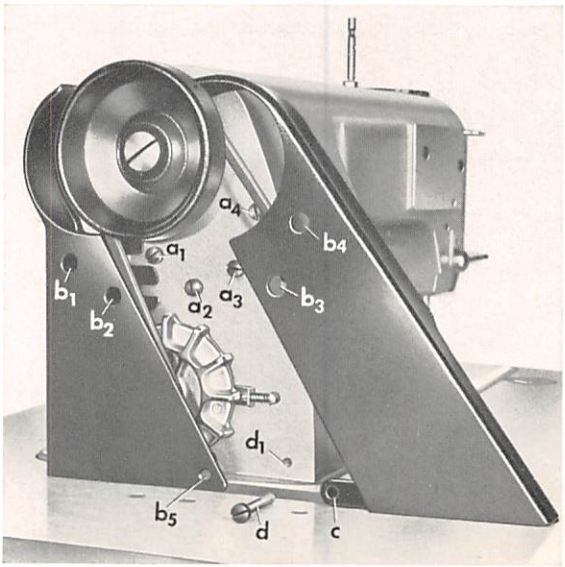


Fig. 1 R 8642

## 2. Mounting the V-Belt

The machines are shipped with the belt guard removed.

To mount the V-belt, lift the sewing head slightly and place the belt on the machine and motor pulleys.

Slightly turn out screws **a1, a2, a3,** and **a4,** and push the two belt guard sections together, holding them close to the machine so that the above screws enter the appropriate slots in the back wall of the belt guard.

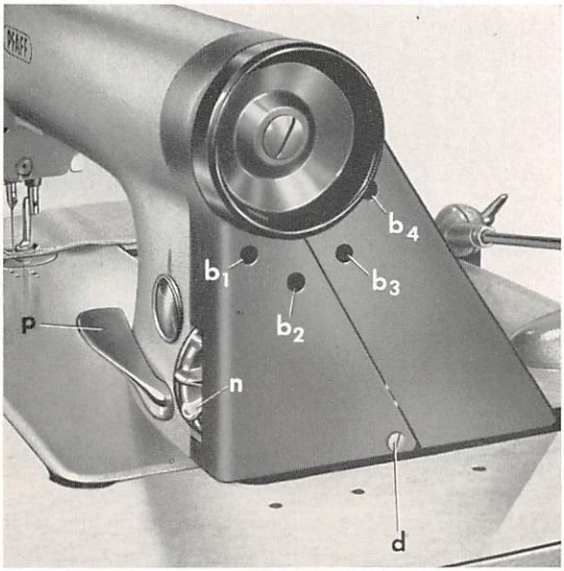


Fig. 2 R 8608

To tighten the screws again, insert the screwdriver through openings **b1, b2, b3,** and **b4** (Fig. 2).

Both belt guard sections are secured to the vertical portion of the machine arm by inserting screw **d** (Fig. 1) through holes **b5** and **c** into screwhole **d1** and tightening it securely.

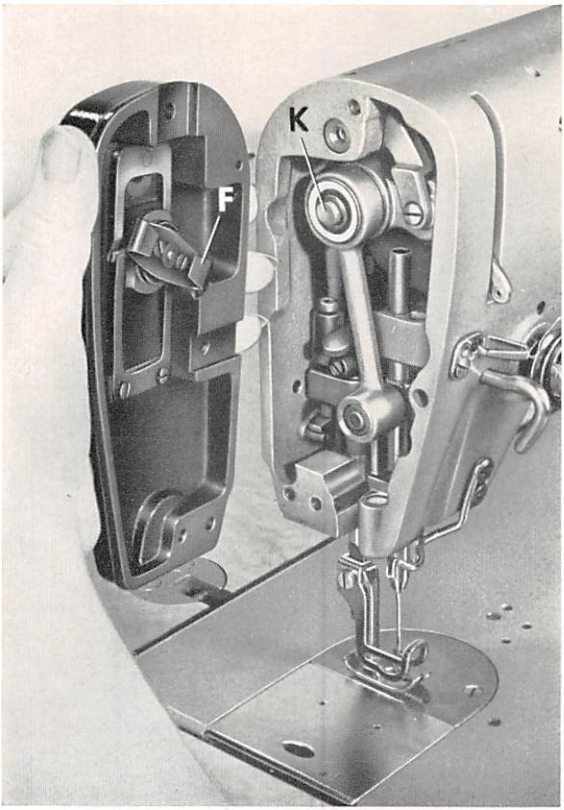


Fig. 3
R 8643

### 3. Test-Running the Machine

Before you test-run the machine, carefully remove all dirt which may have accumulated in transit. Use only a brush and a cleaning rag for this purpose.

The Pfaff 463 must never be rinsed or cleaned with kerosene because there is a danger that the cleaning fluid enters the sealed-for-life bearings and dissolves the grease. For the same reason, kerosene or gasoline must not be used for the regular servicing of the machine.

Never attempt to eliminate hard working of the machine by squirting oil freely into the bearings which, you believe, may be responsible for this fault. If oil enters the sealed-for-life bearings, the grease will be thinned and flung out of the bearings, thus eliminating permanent lubrication.

## 4. Winding the Bobbin

The new high-speed seamer is fitted with a bobbin winder which is incorporated in the face cover rather than mounted at the balance-wheel end, as customary. Arranged at a convenient height, it is easy to operate and enables the operator to wind bobbins quickly and neatly.

The bobbin winder driving motion emanates from the take-up crank. When the bobbin winder is engaged, driving crank **F** at the rear end of spindle **17** is pushed into the circular path of stud **K** which engages the crank and in this way drives the bobbin winder (Fig. 3).

The bobbin winder spindle is carried in a self-lubricating sinter-metal bearing which requires no additional lubrication. To engage the bobbin winder, simply depress stop latch **a** located above the bobbin winder spindle (Fig. 5). This action causes the spindle to move slightly to the right in which position it is

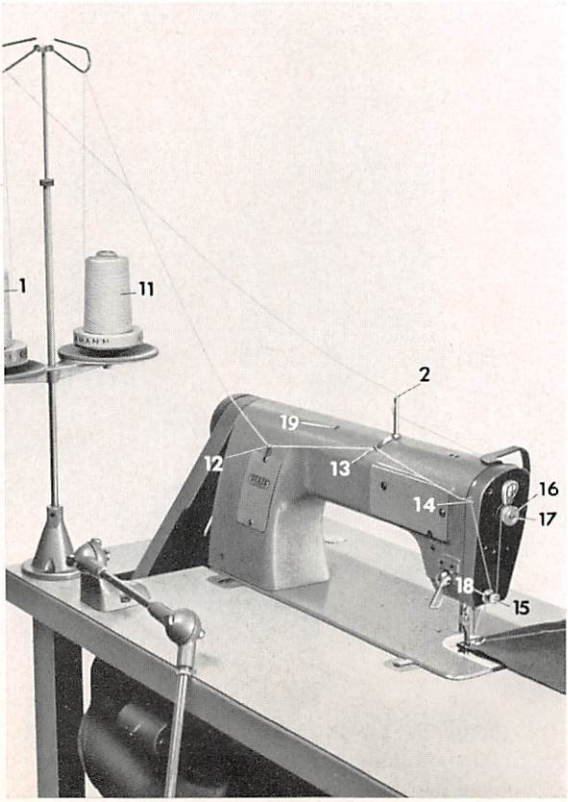


Fig. 4
R 8928

retained until sufficient thread has been wound on the bobbin. The thread wound on the bobbin pushes the cam up and thereby stops the bobbin winder.

The amount of thread to be wound on the bobbin can be regulated by loosening screw **b** and setting cam **a** higher or lower, as may be required. Set the cam higher for more thread, or lower, for less thread.

Figs. 4 and 5 show how to guide the thread to the bobbin winder.

Place the spool of thread on spool pin 11 and bobbin 16 on spindle 17. Lead the thread from spool 11 up and through the top thread guide of the thread stand, down to thread guide 12 on the rear arm cover, through thread retainer 13 below thread guide 2, through thread guide 14 and around thread tension 15 to bobbin 16.

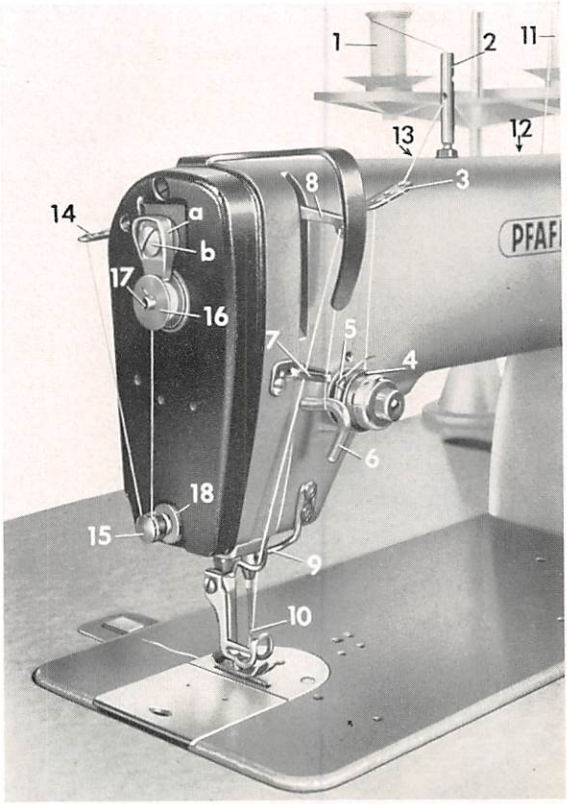


Fig. 5 R 8929

To facilitate threading, it is recommended to wind a few clockwise turns on the bobbin **16** first, and then to lead the thread around thread tension **15.** Depending on the material to be sewn, the thread should be wound tighter or looser.

The thread tension is regulated by turning thumb nut **18** back of the tension discs. Turn the nut counter-clockwise for a tighter tension, or clockwise for a looser tension.

If the thread should pile up at one end of the bobbin, adjust the position of the tension stud. The set screw securing this stud in position can be reached from below.

### 5. Threading the Needle

Because of the high speed of the seamer the smooth passage of the thread to the needle is especially important.

Lead the thread from spool pin **1** up to the top thread guide of the thread stand and down to thread guide **2.** It is recommended to lead the thread first through the vertical hole from top to bottom and then through the transverse hole of the guide, as shown in Fig. **4** and **5,** in order to prevent it from snarling up on the guide and breaking.

Now lead the thread through two or three holes of thread retainer **3,** as may be required, clockwise around and between tension discs **4,** through thread check spring **5,** under slack thread regulator **6,** through thread guide **7,** from right to left through the hole in take-up lever **8,** through thread guides **7** and **9** and from left to right through needle eye **10.**

### 6. Regulating the Stitch Length

The stitch length is regulated by means of stitch length control **n** (Fig. 6). The large diameter of this control makes for an exceedingly fine stitch length regulation. When control **n** is turned by one tooth, the stitch length is increased by 1/64". The stitch length is indicated on the teeth in millimeters.

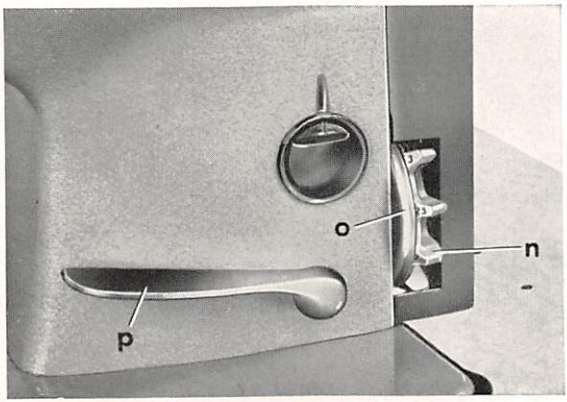


Fig. 6 R 8607

In order to avoid that the stitch length setting will be disturbed while sewing, stitch length control **n** has been provided with a locking device in the form of disc **o** (Fig. 6). This disc must be pressed back slightly when setting the stitch length.

Finger-tip control **p** serves to reverse the direction of feed and is used for back-tacking. When lever **p** is pressed down, the machine sews in reverse, making stitches of the length set.

When lever **p** is released, the direction of feed is instantly reversed by spring action and the machine resumes forward stitching.

If desired, the machine will be fitted with a small treadle for switching from forward to backward sewing.

Upon special request, the Pfaff 463 high-speed seamer can be fitted with a stitch length limiting device for backward sewing if a shorter backward stitch is desired for backtacking the ends of seams. The length of reverse stitches is then limited by turning in grub screw **S** of crank **R** on shaft **L** (Fig. 10).

### 7. Lifting the Presser Bar

Since the arm standard of the new high-speed seamer has been set closer to the rear edge of the bed plate, it was possible to enclose the presser bar lifting mechanism in the machine arm so that it is not visible on the outside.

To mount the knee lever, push it over the lower end of vertical shaft **r** under the tabletop. The lever is held in place by angular bracket **s** which snaps into place after transverse driving pin **u** has entered the cutouts **t** in the right-angled coupling sleeve **q** (Fig. 7).

When the coupling sleeve is pushed onto the end of the shaft, resilient bracket **s** must be compressed to open it slightly.

Motion is transmitted from the vertical shaft to the presser foot by means of a crank, a connection and a bellcrank lever which raises the presser foot.

A small hand lever **C** at the back of the machine serves to lock the presser foot in its highest position. This lever is flicked to the left to retain the presser foot after it has been raised by knee action (Fig. 9).

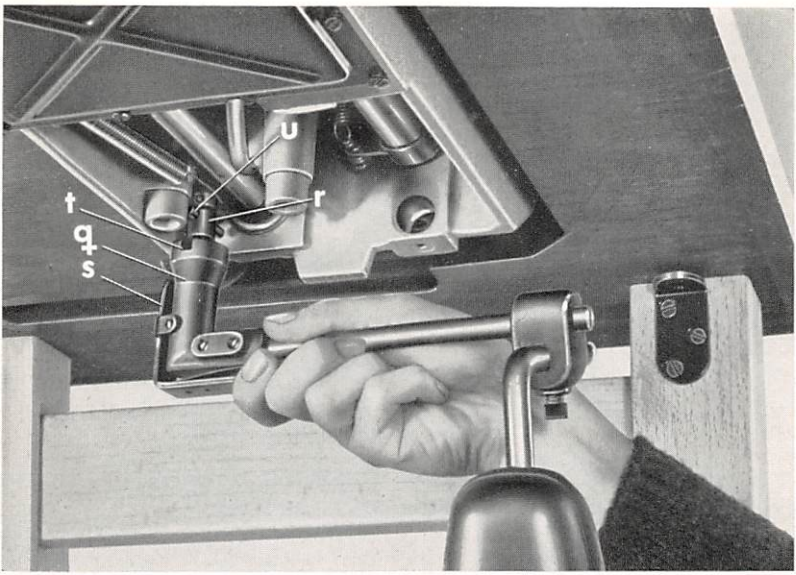


Fig. 7 Attaching the knee lever R 8408

To facilitate the tilting back of the sewing head without removing the knee lever completely, the knee lever rock shaft is no longer screwed to the angular sleeve, but rather held in place by a spring-loaded pin. As a result, the knee lever can be pulled forward off the shaft with a slight jerk.

A new feature of the knee lever is its hinged foam-rubber-padded knee plate which adapts itself well to the shape of the leg. If desired, the knee plate can be locked by tightening a square bolt.

### 8. Regulating the Pressure on the Material

A powerful flat spring in the machine arm exerts the necessary pressure on the sewing foot. The amount of pressure is regulated by turning a small set screw which can be reached by inserting a screwdriver through the hole **19** at the right of the spool pin. Turn the screw in for more pressure, or out, for less pressure (Fig. 4).

### 9. Lubrication

Recent advances in the design of needle bearings have made it possible to ensure satisfactory permanent lubrication of this new high-speed sewing machine without the use of an automatic lubrication system.

Since the use of sealed-for-life bearings does not require the machine to be oiltight, the incorporation of various feeding mechanisms can be easily accomplished. This feature opens a practically unlimited field of application to this high-speed sewing machine.

The incorporation of sealed-for-life ball and needle bearings requires the use of a reservoir oiling system merely for the sewing hook. From a reservoir built into the machine arm, oil is fed to the sewing hook through a plastic oil tube. The oil flow is controlled by shut-off valve **V** which is built into the oil tube. When the machine is running, the stud of centrifugal switch **F** on the hook shaft actuates the valve stem and opens hook lubrication shut-off valve **V.** The same valve prevents oil from seeping out when the machine is inoperative.

The oil level can be inspected through the oil sight glass. If it is below the mark on the oil sight glass, the reservoir should be refilled by inserting the spout of an ordinary oil can into the small hole **v** above the oil sight glass.

The flow of oil to the sewing hook can, in addition, be regulated by screw **w** (Fig. 8). Turn this screw in for less oil, or out, for more oil.

The correct setting can be obtained through the following test:

Remove needle plate and feed dog and place a sheet of paper over the opening. Run the machine for about ten seconds. The setting is correct if two thin lines of spray oil have appeared on the paper. Adjust the flow of oil at screw **w** to suit special operating conditions (Fig. 8).

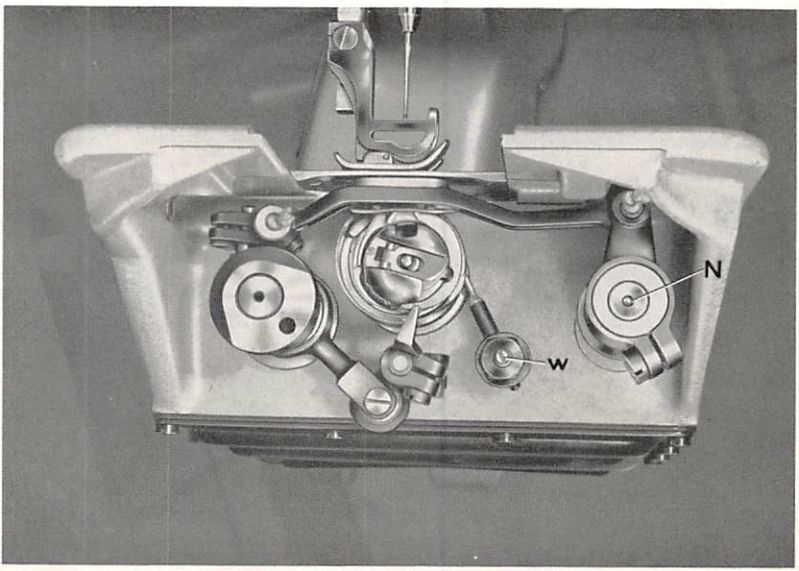


Fig. 8 R 8603

In contrast to the sealed-for-life ball and needle bearings at the needle-bar end of the machine which require no lubrication at all, take-up lever link **z** is lubricated from the hook oil reservoir by means of a wick enclosed in a tube (Fig. 9).

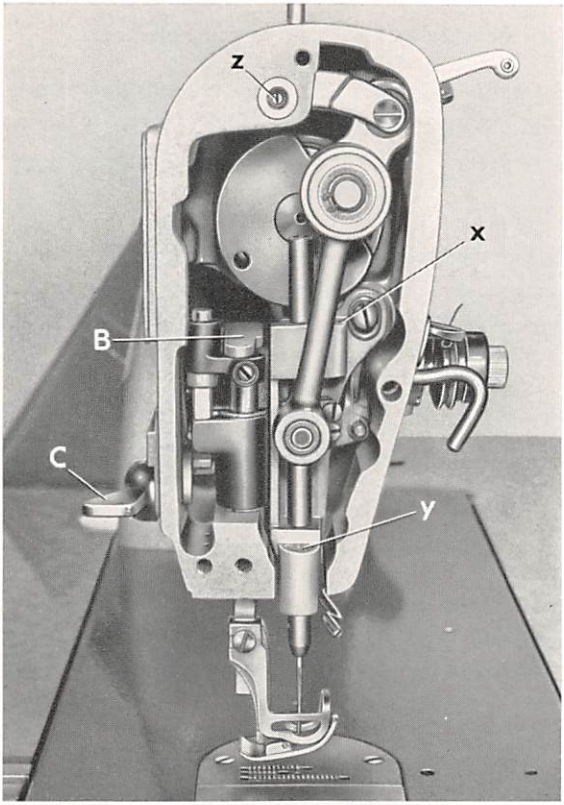


Fig. 9 Face cover removed R 8605

Flat spring **B** exerts pressure on the presser foot. Lever **C** serves to retain the presser foot in its highest position after it has been raised by the knee lever.

The oil supply in the foam-rubber-lined reservoir **x** and **y** for the upper and lower needle bar bushings should be replenished more or less frequently according to the time the machine is in operation each day.

From the foam-rubber-lined reservoirs **x** and **y**, oil is supplied to the upper and lower needle bar bushings (Fig. 9). The oil supply in these reservoirs should be replenished frequently, particularly while the machine is being run in.

The feed driving and feed regulating mechanisms as well as the hook shaft driving gears in the gear case are lubricated by means of two oil-soaked foam rubber sheets.

To change the oil (once a year is sufficient), tilt back the machine and remove the gear case cover. The foam rubber sheet should be washed thoroughly in order to remove the metal grit which has accumulated on it.

In most instances, however, it will be better to insert new foam rubber sheets (Nos. 69299 and 69302) which must be soaked with 17 oz, or 160 ccm, of the same oil as is used in the hook lubrication system, namely 2.7° E/50° C (No. 120110).

When you replace the foam rubber sheet, make sure that it fits properly. The large spur gear should run freely in the cutout of the sheet. The oscillating feed rock shaft is grease-lubricated. Grease nipple **N** closes the left end of the shaft (Fig. 8).

When screwing on the gear case cover, make sure that the gasket is not defective and that the screws are lightened uniformly in order to prevent oil from seeping out.

**Note**

In replenishing the oil supply for the sewing hook, take care that no air bubble forms in the oil line to the centrifugal switch because this would interrupt the flow of oil.

The simplest procedure for removing an air bubble from the oil line ahead of the centrifugal switch is as follows: Pull the left end of the oil tube off the nipple and hold it up so that the air bubble rises to the surface. Then replace the oil tube on the nipple carefully.

An air bubble which may have formed in the left section of the oil tube is of no consequence because it can escape through the regulating valve (Fig. 10).

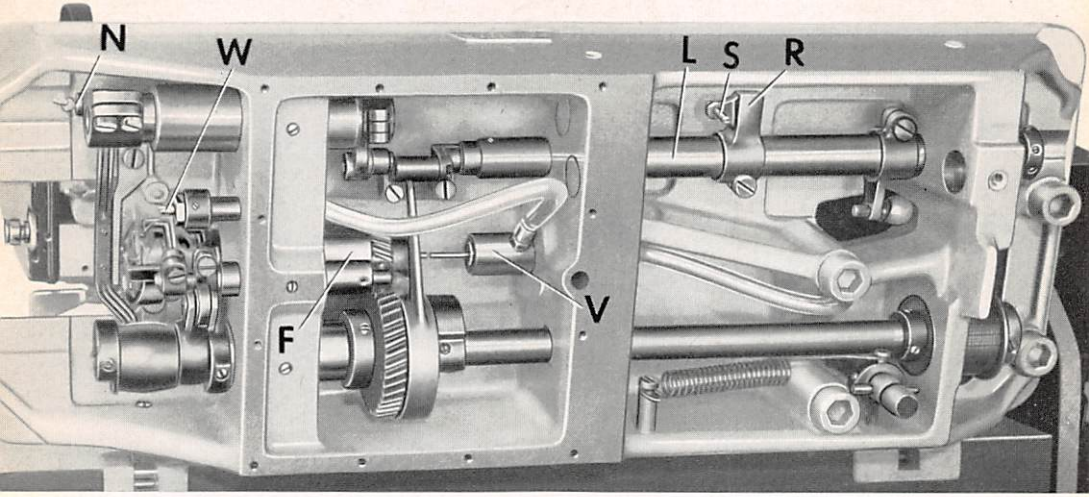


Fig. 10 Bottom view of the Pfaff 463 R 8606

The gear case cover and the foam rubber sheet are removed.

The lower drive shaft carries the feed driving eccentric and the hook shaft driving gear in the gear case, and the mechanical opener driving mechanism and the feed lifting eccentric near its left end.

The hook shaft carries centrifugal switch **F** whose stud pushes the valve stem to the right and opens hook lubrication shut-off valve **V.** The same valve prevents the oil from seeping out when the machine is inoperative.

The stitch length setting is transmitted from the stitch length control to shaft **L,** a crank mechanism in the gear case, the feed rock shaft, and an adjustable crank which, in turn, transmits it to the feed bar.

Upon special request, the machine can be fitted with a stitch length limitating device for backward sewing. To limit the length of the reverse stitch, turn in grub screw **S** of crank **R** on shaft **L.**

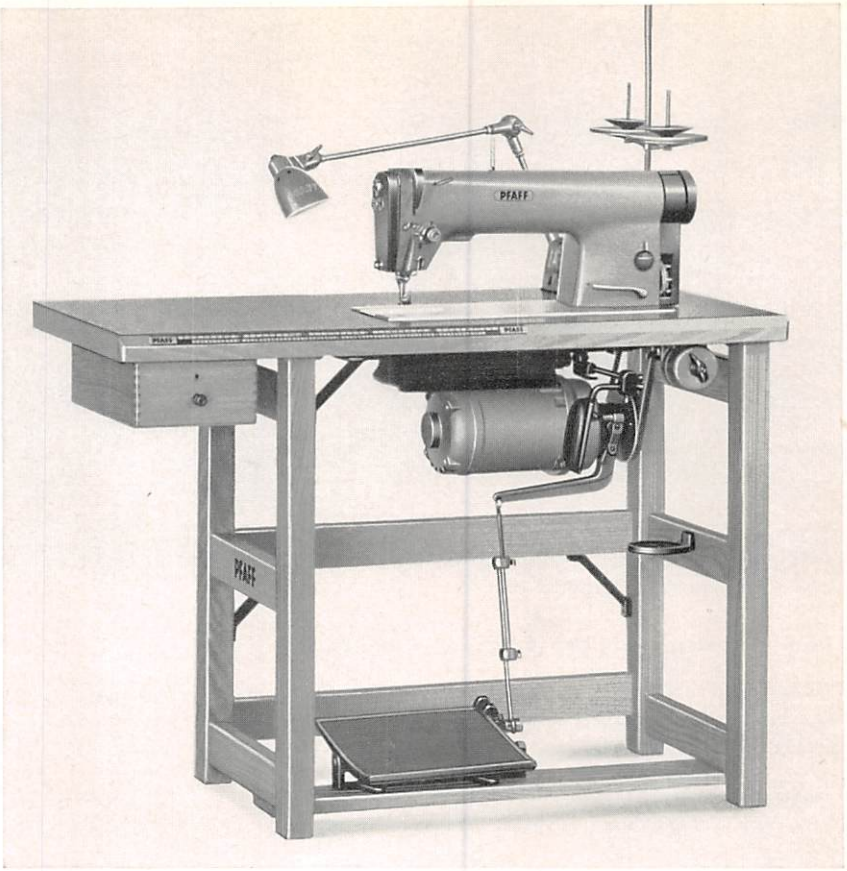


Fig. 11 R 8604

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