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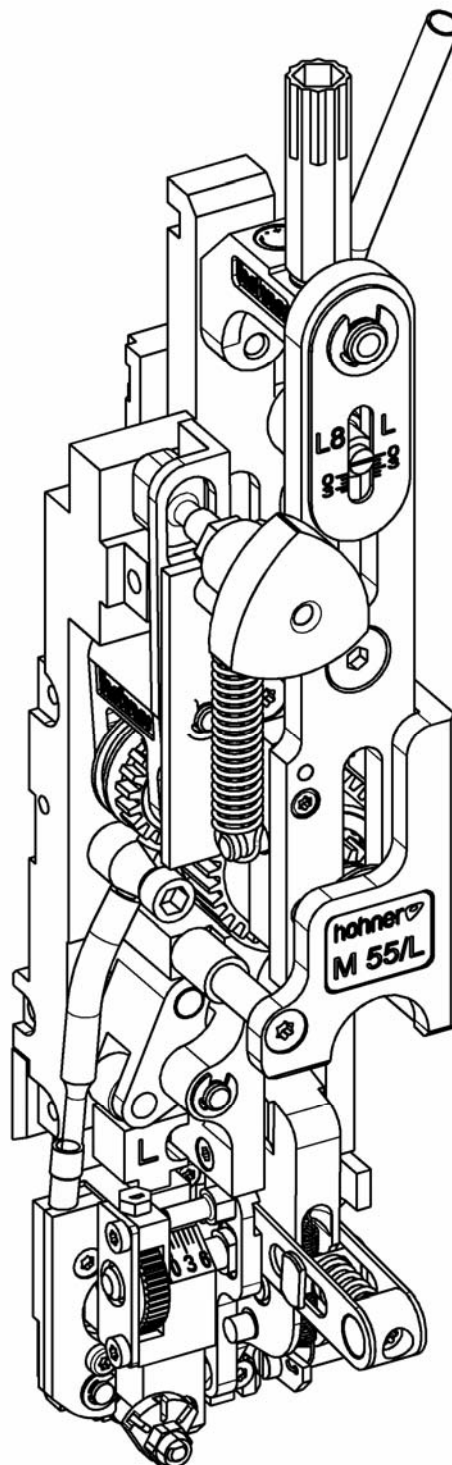
M 55/L

Edition 07/2008

Stitching Head



CE



Customer Entries

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Type of manufacturer:

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List of Contents

1 SAFETY INFORMATION	6
1.1 Purpose of this document	6
1.2 The operator.....	6
1.3 Safety symbols and the displays that have been used.....	6
1.4 Obligation and liability	7
1.5 Correct use.....	7
1.6 Organisational measures	7
1.7 Safety and protective devices	7
1.8 Non-formal safety measures.....	7
1.9 Staff training	7
1.10 Parts of the equipment which are particularly dangerous.....	8
1.11 Maintenance and repair work, elimination of faults.....	8
1.12 Structural modifications to the stitching head	8
1.13 Cleaning the machine and the disposal of waste products.....	8
2 DESCRIPTION OF THE STITCHING HEAD	9
2.1 General overview	10
2.2 Conformity.....	10
2.3 Marking and type plate.....	10
2.4 Technical data.....	10
2.4.1 Loop-stitching clamp	11
2.5 Dimensional sheet.....	13
2.6 Outfitting of the stitching head	13
2.6.1 Basic features.....	13
2.6.2 Additional equipment.....	13
3 OPERATION	14
3.1 Installation of the stitching head.....	15
3.1.1 Clamping the stitching head.....	15
3.1.1.1 Lateral adjustment of the stitching head.....	15
3.1.2 Fitting the wire guide	17
3.1.3 Fitting the clincher box	19
3.1.4 Adjusting the clincher box	21
3.2 Feeding the stitching wire	23
3.3 Removing the stitching wire	23
3.4 Removing the wire guide parts in the event of a stitching wire jam.....	23
3.5 Straighten the stitching wire.....	25
3.6 Setting the stitch length.....	27
3.6.1 Basic setting of the stitch length.....	27
3.6.2 Fine adjustment of the stitch length	27
3.6.3 Setting the leg length of the stitch	29
3.7 Setting the former.....	31
3.8 Spine centering parts	33
3.8.1 Fitting the centering device (standard model).....	33
3.8.2 Adjusting the centering device (standard model).....	33
3.8.3 Fitting the centering device (optional narrow model)	33
3.8.4 Adjusting the centering device (optional narrow model)	33
3.8.5 Fitting the centering device roller	33
3.8.6 Adjusting the centering device roller	33
4 SERVICING	34
4.1 Lubrication.....	35
4.1.1 Lubricants.....	35
4.1.2 Lubrication plan	35
4.2 Installation and replacement of parts	36
4.2.1 Replacing the former	37
4.2.2 Replacing the driver	39
4.2.3 Replacing the bender	39

4.2.4 Replacing the knife	41
4.2.4.1 Rotating/Changing the flat knife	41
4.2.4.2 Replacing the circular knife	41
4.2.4.3 Adjusting the circular knife	41
4.2.5 Replacing the clincher.....	43
5 FAULTS	44
5.1 Causes and elimination of faults.....	44
 SPARE PARTS LIST	 E1

1 Safety Information

1.1 Purpose of this document

This document will inform the operator of the **Stitching Head M 55/L** of the following:

- The safety symbols and signs
- The packing of the machine and its transportation
- The function and operation of the machine
- Commissioning the machine
- The elimination of faults which arise
- Servicing

Familiarity with this Operating Manual is thus a prerequisite for the safe and correct operation of the stitching head. It must be read carefully by the operator before the machine is commissioned. Keep the manual safely in a place where it is readily available and which is close to hand for persons working on the machine.

1.2 The operator

The **Stitching Head M 55/L** must only be operated by trained personnel.

Training will be undertaken by the manufacturer or by persons who have been authorised by the manufacturer to undertake such training.

1.3 Safety symbols and the displays that have been used



This symbol indicates immediate danger to the life or health of persons in the immediate vicinity of the machine.

Non-observance of dangers which are so indicated can have grave consequences and can cause serious damage to health, or may even to lead to deaths.



This symbol indicates that a potentially dangerous situation has arisen.

Non-observance of dangers which are so indicated can lead to slight injuries to persons or damage to equipment.



TIP

This symbol indicates that tips on how to use the machine or particularly useful information are available.

These will help you to use all of the functions of the machine in an optimal manner.

■ ***This symbol requires you to take action.***

● ***This sign serves as a symbol for listing items.***

1.4 Obligation and liability

The **Stitching Head M 55/L** has been built according to state-of-the art technology under observance of all the recognised safety regulations. However, dangers to life and limb of the user or third parties and damage to the system or other material assets can still occur during use. The stitching head should only be used,

- for the purpose for which it was designed
- when it is in a perfect technical condition.

Faults which could reduce levels of safety when using the machine must be eliminated immediately.

Warranties and liability on the part of the manufacturer are fundamentally covered by the regulations laid down in our "General sales and delivery conditions".

Warranty claims will only be valid if the number label is affixed (number label on stitching head housing).

1.5 Correct use

The **Stitching Head M 55/L** is designed exclusively for binding brochures and leaflets or similar items.

Any use of the machine contrary to that described above is forbidden, since incorrect use of the machine can present a danger.

1.6 Organisational measures

The user of machine is required to provide the required personal safety equipment. All existing safety devices should be checked regularly.

1.7 Safety and protective devices

All safety and protective devices must be correctly attached to the machine and should be in full working order before every start-up of the machine and **Stitching Head M 55/L**. Safety and protective devices may only be removed:

- After the machine has come to a standstill **and**
- As security against the machine starting up again.

1.8 Non-formal safety measures

The Operating Manual must be kept so that it is permanently at hand at the machine with **Stitching Head M 55/L**. There are also generally valid local regulations concerning accident prevention and environmental protection measures which should be made available and observed in addition to those described in the Operating Instructions.

All safety and danger signs on the machine should be maintained in a legible condition and should be renewed where necessary.

1.9 Staff training

Only trained and instructed personnel may install, operate, set and maintain the stitching head.

Safety Information

1.10 Parts of the equipment which are particularly dangerous

There is a **risk of injury** in the area of moving parts of the stitching head.



1.11 Maintenance and repair work, elimination of faults

Undertake the required setting, servicing and inspection work on schedule.

The machine may only be operated in cycle mode during all servicing, inspection and repair work on the **Stitching Head M 55/L**.

Always make absolutely sure **that the machine is only being operated by one person in order to avoid any influence to the machine by any other persons.**



1.12 Structural modifications to the stitching head

Changes to the stitching head, additions or modifications may only be undertaken with the manufacturer's permission.

1.13 Cleaning the machine and the disposal of waste products

The functionality of the stitching head and perfect processing of the product can only be guaranteed over a prolonged period of time if the stitching head is regularly cleaned and maintained in accordance with the standard methods of mechanical engineering.

In this regard, particular attention should be paid to the regular removal of trimmed paper residue and paper dust, as these can result in jamming of the stitching head or increased wear.



Substances and materials used (e.g. solvents and lubricants) must be handled correctly and disposed of in an environmentally friendly manner.

2 Description of the Stitching Head

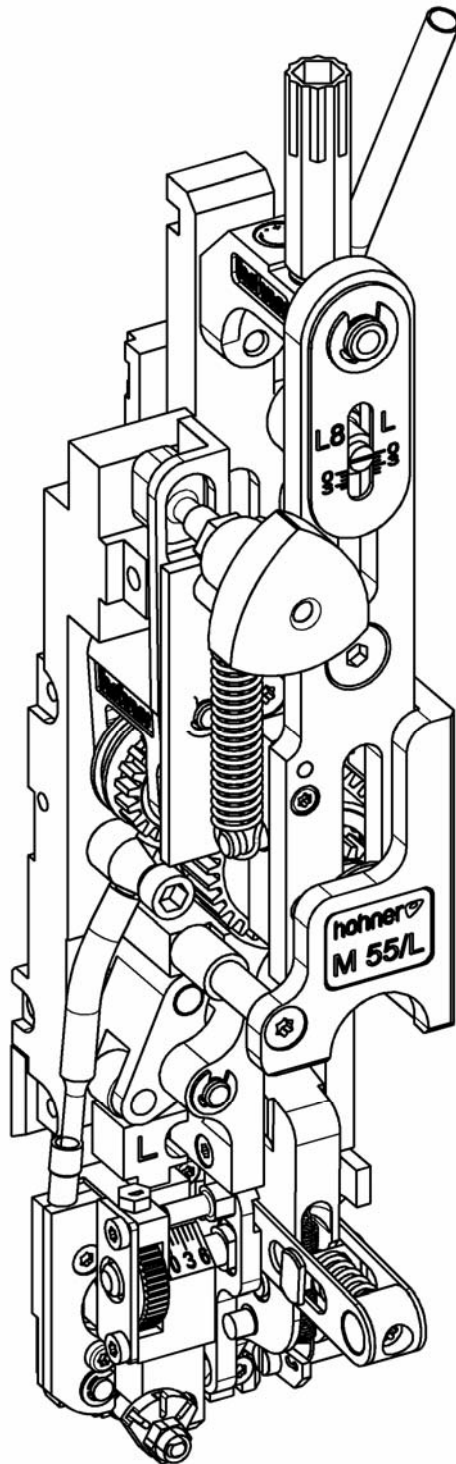


Fig. 1

Description of the Stitching Head

2.1 General overview

- Fig. 1 -

2.2 Conformity

The **Stitching Head M 55/L** conforms to the following guidelines and standards:



- Machine Guideline (98/37/EEC)
- EN 1010-1:1998 (final draft version) and EN 1010-4:1997 "Machine safety – safety requirements in connection with the design and manufacture of printing and paper processing machines", "Part 1: General requirements" and "Part 4: Bookbinding, paper processing and paper finishing machines".
- This Operating Manual takes account of DIN EN 292, machine safety, basic terminology, general principles of design.

2.3 Marking and type plate

The type plate is located at the front of the stitching head.

The stitching head serial number is located on an adhesive plate on the right side of the housing.

2.4 Technical data



Net weight of the stitching head	2,1 kg / 4,63 lbs
Quality of the stitching wire	Only use perfect quality classes, in normal or steel strength as required. Pay attention to abrasion resistance, as heavy abrasion will clog the wire-guidance parts.

2.4.1 Loop-stitching clamp

	Standard - L6 -	- L8 -
Dimensions of wire stitch		
Max. stitch thickness		
Stitching wire round No. 24 – 28 Ø 0.60 – 0.50 mm (Ø 0.024 - 0.020 in.)		
Possible distance between wire stitches and stitch thickness in mm		
With centering device		
With centering device roller		
Optional: with centering device, left		

Description of the Stitching Head

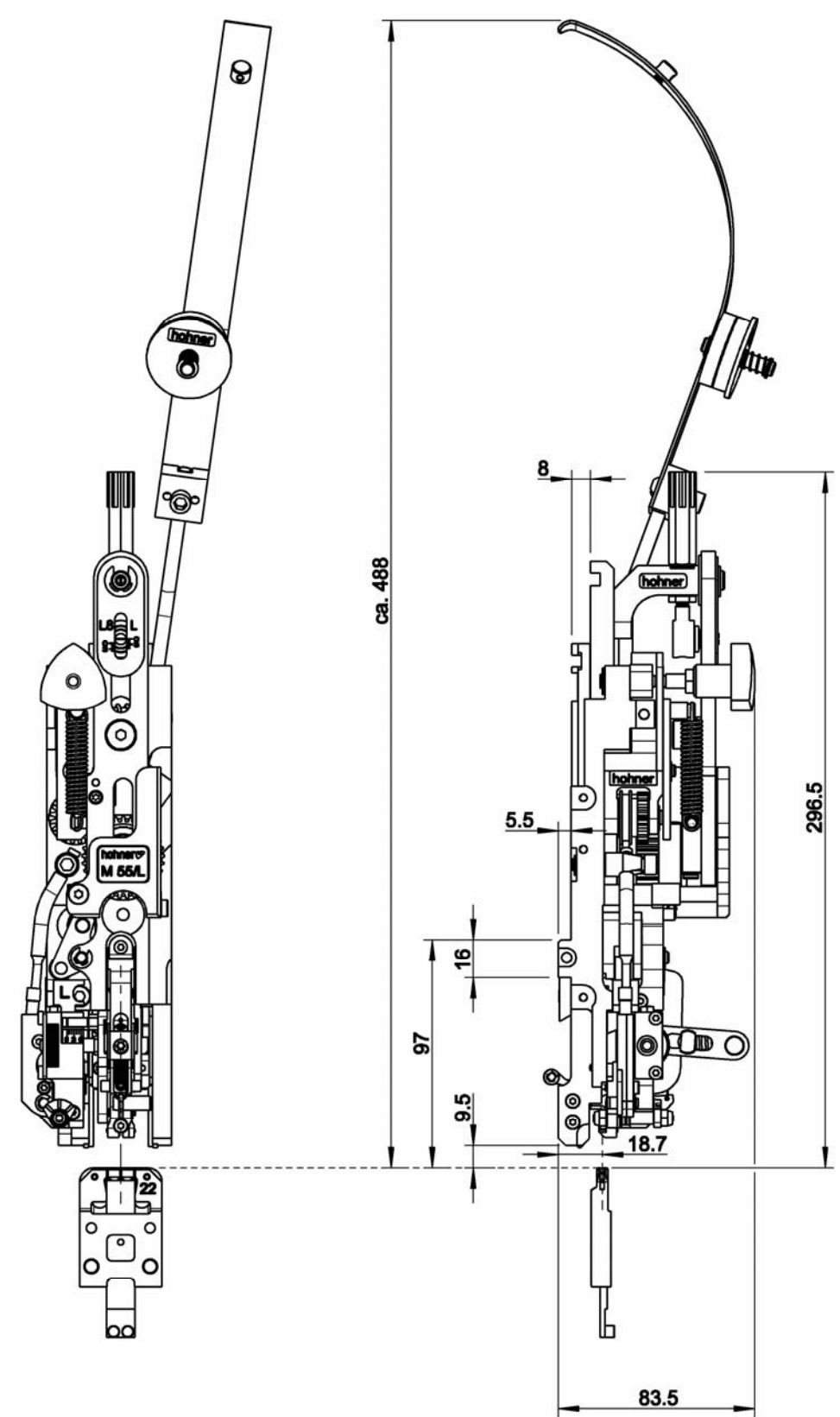


Fig. 2

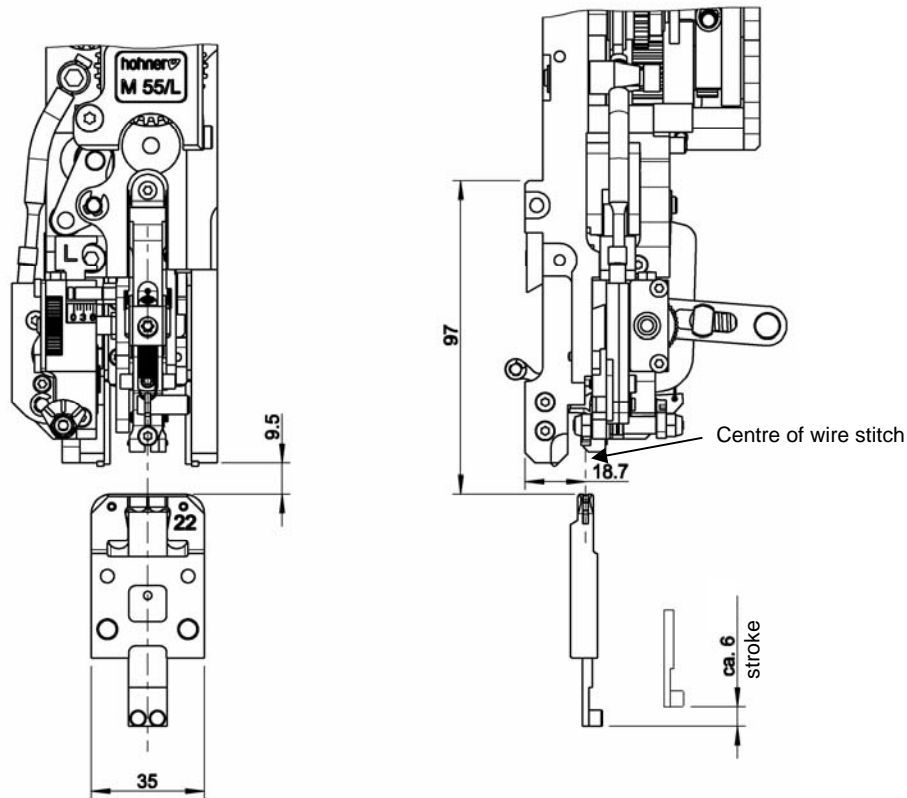


Fig. 3

2.5 Dimensional sheet

- Fig. 2, Fig. 3 -

2.6 Outfitting of the stitching head

2.6.1 Basic features

The stitching head is delivered with the following accessories:

DESCRIPTION	ORDER NUMBER
Distance bolt - distance between the staples 80 mm	31 55 417
Clincher box adjustment gauge	31 64 448
Allen key with T-handle SW4 x 150	46 00 033
Torx screwdriver T10	46 00 044
Torx screwdriver T20	46 00 045
Adjusting handle	94 55 096
Centering device -L-, complete kit	99 55 455
Wire clamp, complete	99 55 150
Clincher box, complete	Depending on machine type

2.6.2 Additional equipment

The following optional accessories are available:

DESCRIPTION	ORDER NUMBER
Tenon block strip for stitching head - distance 80	31 59 014
Clamping strip for clincher box - distance 80	31 59 414
Centering device -L-, narrow model, complete kit	99 55 445
Set of interchangeable parts - L8 -	99 55 468
Pan area	99 55 515

3.1 Installation of the stitching head

3.1.1 Clamping the stitching head

- Fig. 4 -

The stitching head is held by a tenon block which is inserted into the stitching head mounting on the machine.

- Loosen tenon block ① with Allen key SW4 ⑤.
- Fit the stitching head by inserting the tenon block in the stitching head holder ②. The two driver lugs ③ on the stitching head must be located in the guides of the lifting bar.
- Fix stitching head in stitching head mounting by tightening the tenon block ① with the Allen key.

3.1.1.1 Lateral adjustment of the stitching head

- Fig. 4 -



The center of the wire formed parts within the stitching head must be set to the desired stitching position for the wire stitch by lateral adjustment.

- Loosen the tenon block ① with the Allen key ⑤.
- Move the stitching head sideways, until the desired position is reached.
- Fix the tenon block in the stitching head mounting ② with the Allen key.

Operation

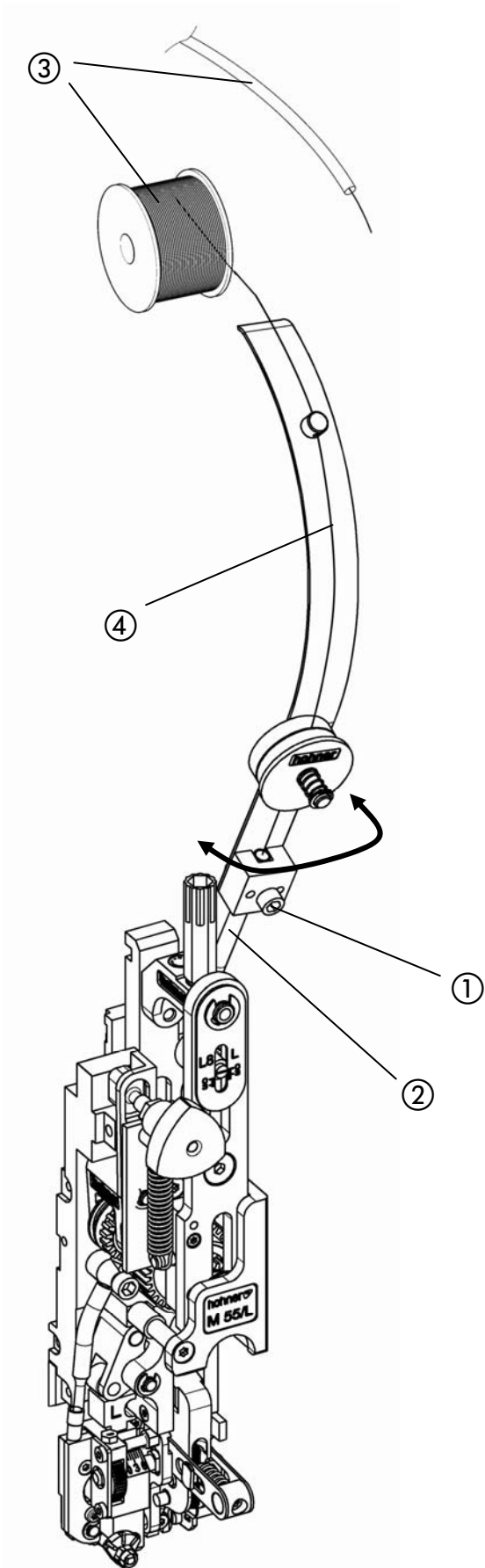


Fig. 5

3.1.2 Fitting the wire guide

- Fig. 5 -

- Loosen screw ① and place wire clamp ④ on wire guidance tube ②.
- Align wire clamp ④ with wire roller and wire feed tube ③, in order to ensure perfect wire guidance.
- Fix wire clamp ④ by tightening screw ①.

Operation

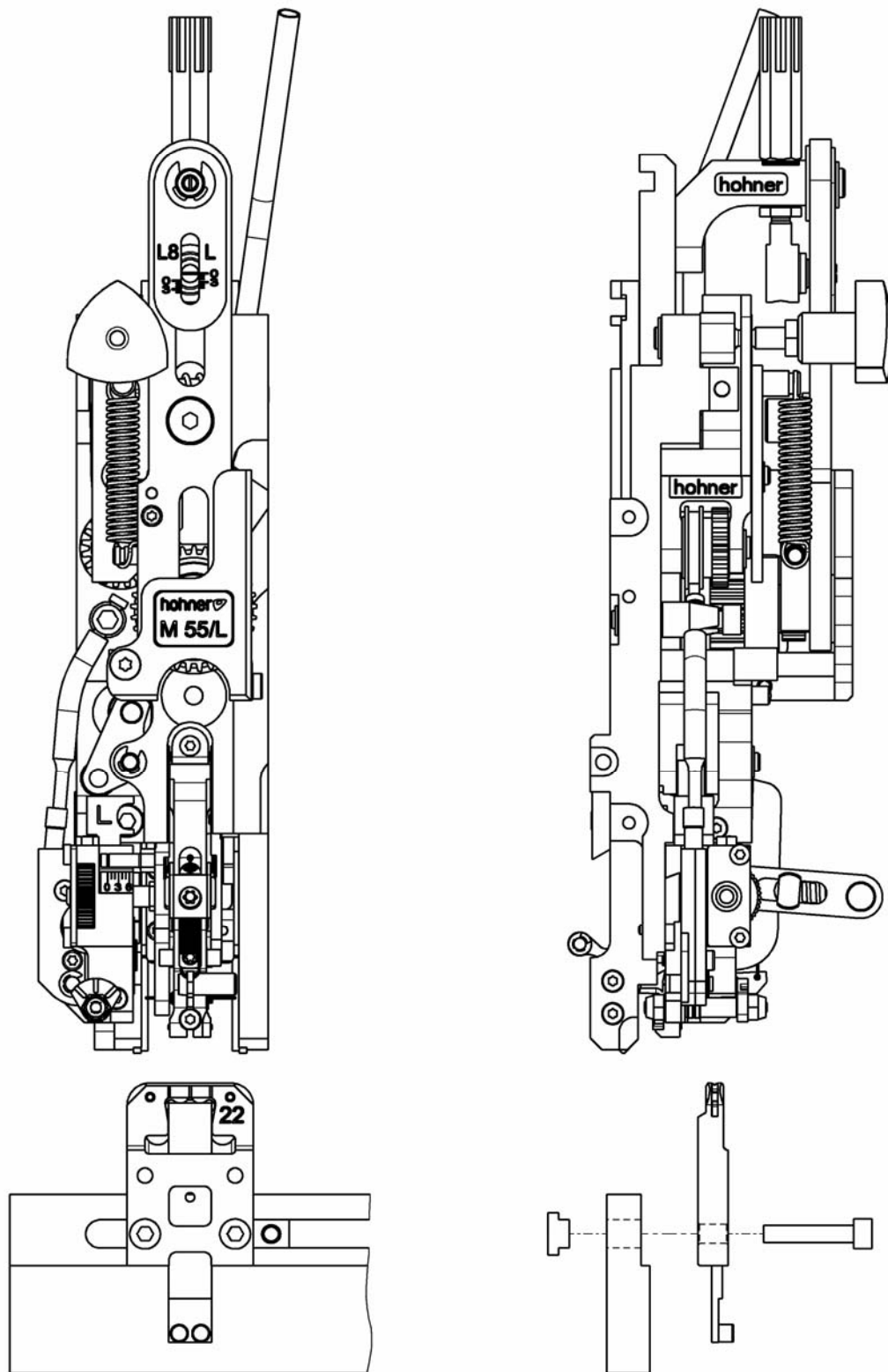


Fig. 6

3.1.3 Fitting the clincher box

- Fig. 6 -

The procedure for fitting the clincher box is described in the stitching unit instruction manual.

Operation

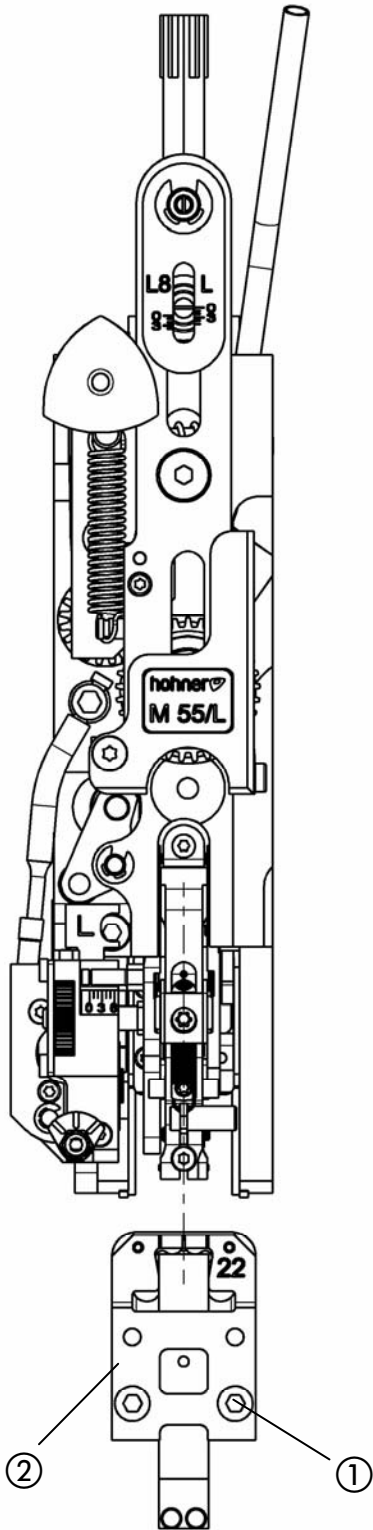


Fig. 7

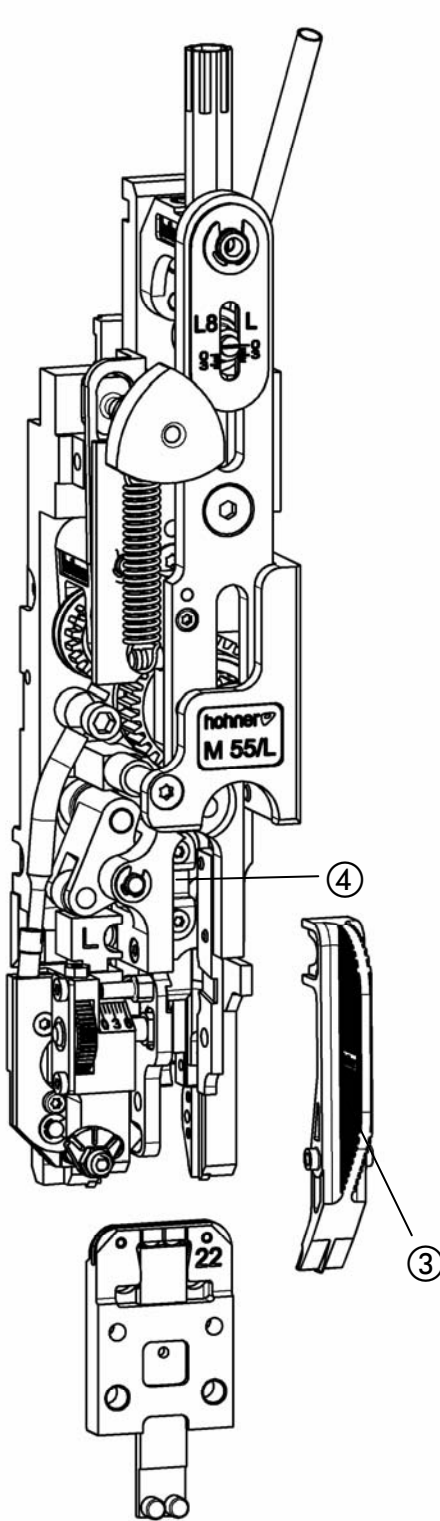
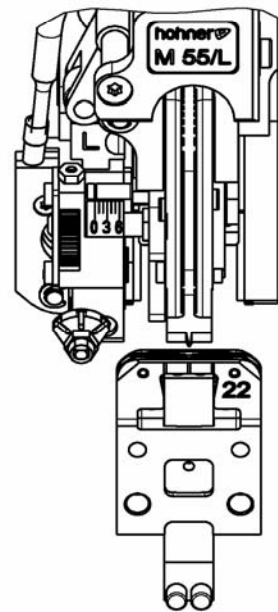


Fig. 8



3.1.4 Adjusting the clincher box

- Fig. 7 -

The center of the bender inside the stitching head must be precisely aligned with the center of the clincher box.

- Loosen clamping nuts ①.
- Move clincher box ② until it is precisely aligned with the center of the wire formed parts.
- Fix clincher box by tightening the clamping nuts.

Using the clincher box adjustment gauge

- Fig. 8 -

- Remove former (see page 37). Insert gauge ③ in former support ④; the lower part of the gauge should touch the stitching head (keep gauge ③ if necessary so that it cannot fall out). The clincher box can be exactly aligned in this position when the gauge is aligned with the scale marks on the clincher box.
- Tighten clamping nut ① and remove gauge ③. Refit former.

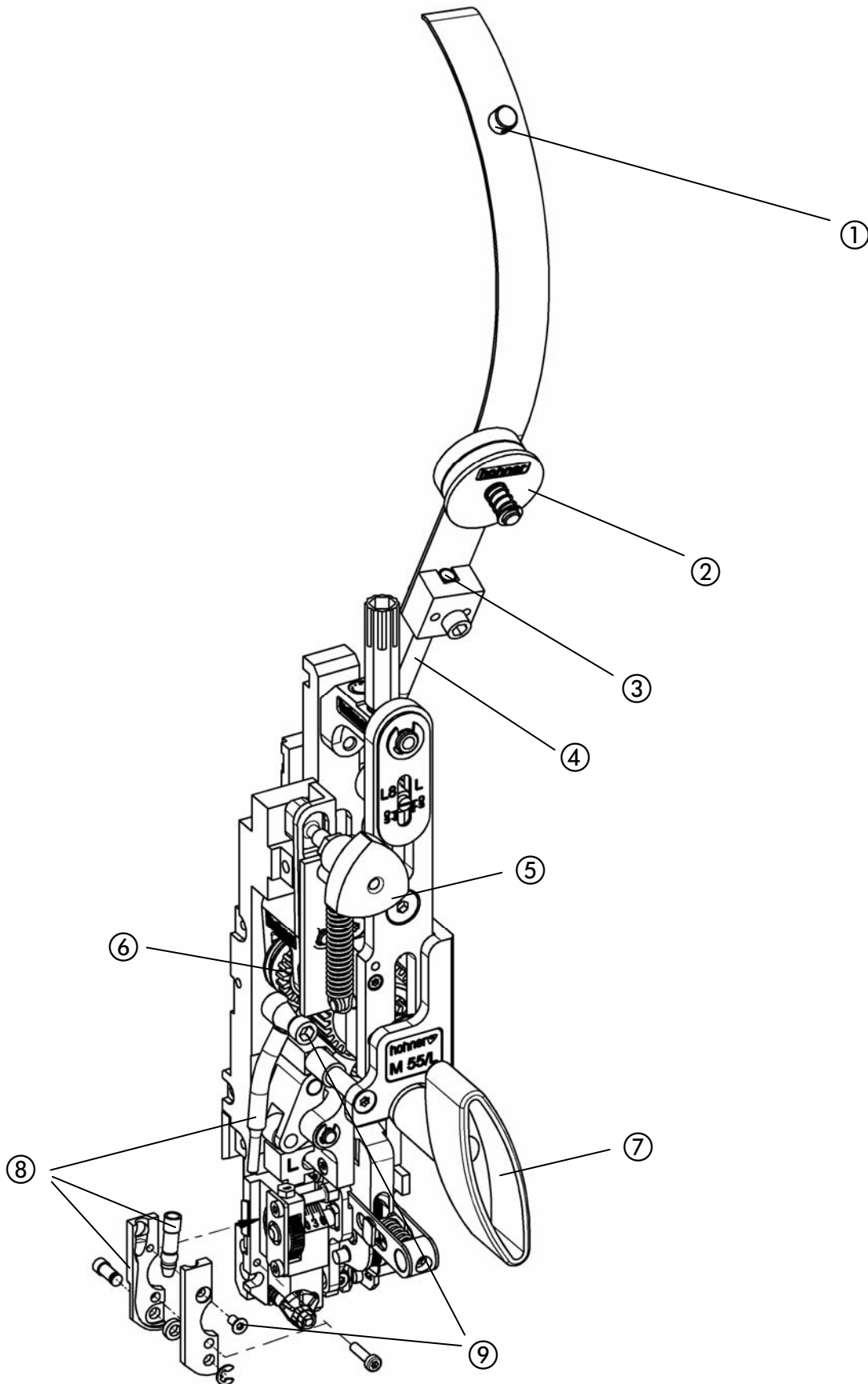


Fig. 9

3.2 Feeding the stitching wire

- Fig. 9 -

- Stop wire feed (move triangular handle ⑤ into "middle position").
- Push stitching wire through from above, as follows:
through the eye ① of the wire clamp – between the two felt disks ② into the hopper ③ – through the wire guidance tube ④ and between the two conveyor rollers ⑥.
- Restart the wire feed (turn triangular handle ⑤ to the left or right).
- Mount adjusting handle ⑦.
- Convey stitching wire by turning the adjusting handle ⑦ to the right as far as the knife.

3.3 Removing the stitching wire

- Fig. 9 -

- Stop wire feed (move triangular handle ⑤ into "middle position").
- Remove wire.

3.4 Removing the wire guide parts in the event of a stitching wire jam

- Fig. 9 -

If a wire jam occurs in the area of the wire guides, this will be easier to eliminate if you remove the wire guide parts.

- Stop wire feed (move triangular handle ⑤ into "middle position").
- Loosen screws ⑨ and remove wire guide parts ⑧
- Disentangle wire and remove from wire guide parts.
- Remove wire.
- Installation occurs in the reverse order.

Operation

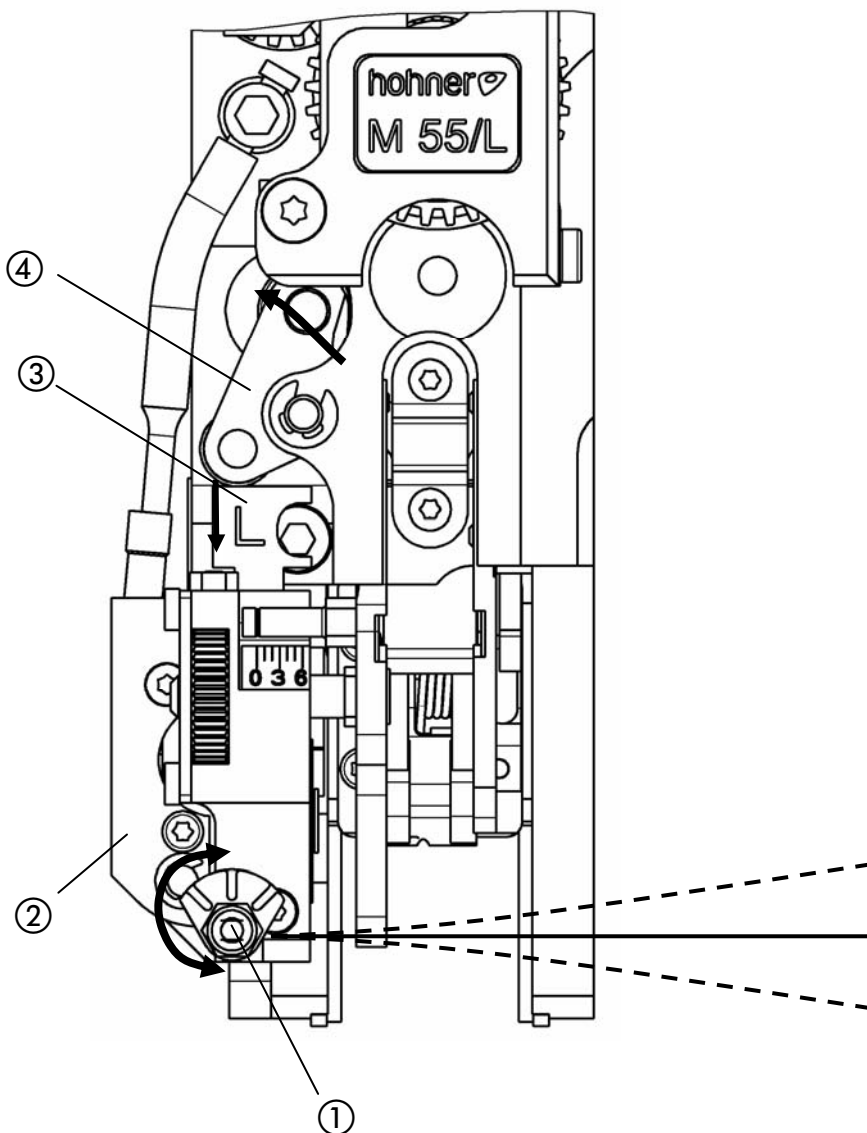


Fig. 10

3.5 Straighten the stitching wire

- Fig. 10 -

The stitching wire must run absolutely straight out of the circular knife. The wire feed can be set to run absolutely straight by turning the wire alignment roller ① which is arranged on eccentric bearings.

Wire straightening procedure:

- First remove former. (cf. 4.2.1)

a) Activate the machine's jog switch if possible.
(may be very time-consuming with some systems)

b) Manual wire feed (cf. 3.2)



Move drive of the stitching unit downwards so that the knives are open.

Wire can be fed by turning the provided adjusting handle in the clockwise direction. When doing this, it is a good idea to cut off any overlong pieces of wire, by pressing down the knife slider ③.

(Made easier by levers on the cutting rocker ④)

- Turn eccentric fixing of the wire alignment roller ① with the screwdriver until the stitching wire runs absolutely straight out of the circular knife.
- Replace former (cf. 4.2.1).

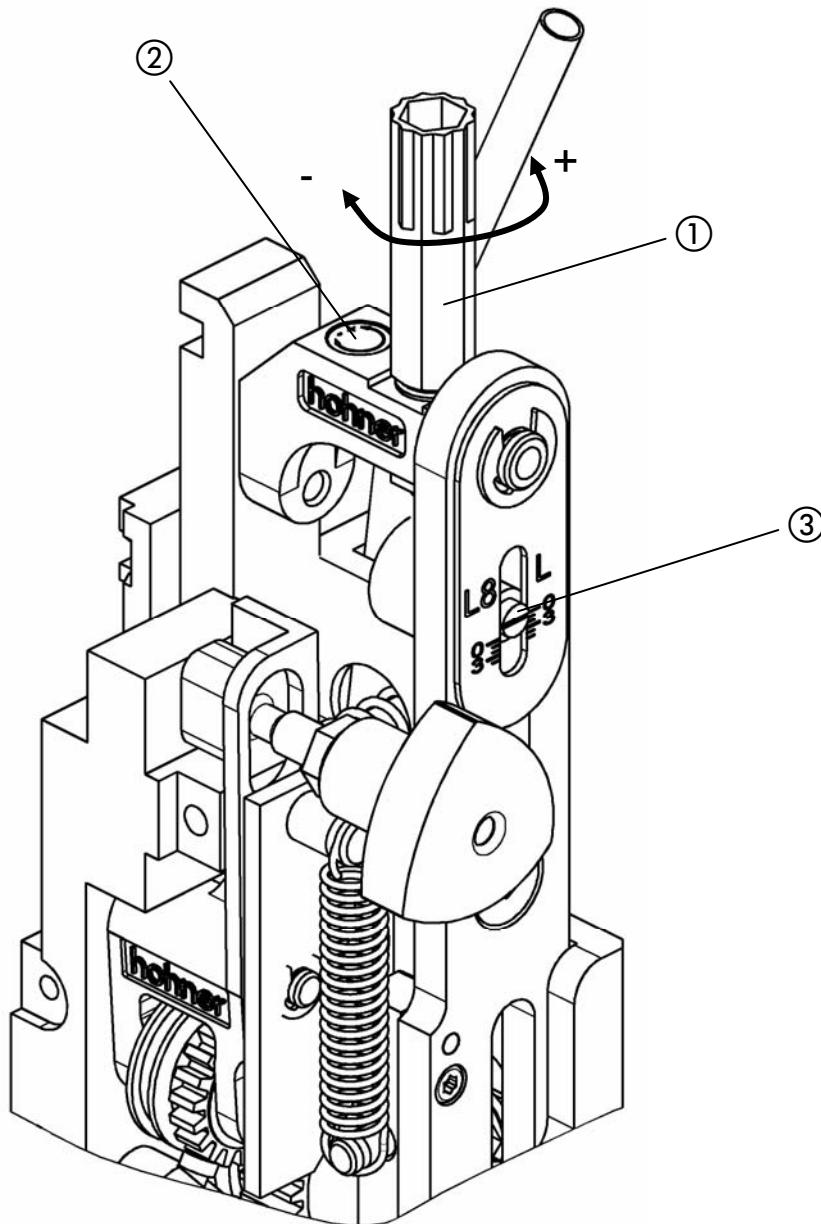


Fig. 11

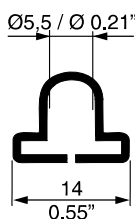
3.6 Setting the stitch length

3.6.1 Basic setting of the stitch length

- Fig. 11 -

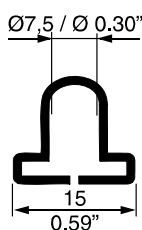
The setting is dependent on the thickness of the brochure sheets. Adjust notch on scale ③ by turning the knurled nut ①. One graduation line corresponds to approx. 1 mm stitch thickness. A slight correction may be necessary after changing the wire thickness.

Loop-stitching standard clamp – L6 -



In case of 2-sheet stitching the required wire length is approx. 33 mm, the stitching aggregate should be set to 2-sheet stitching.

Loop-stitching special clamp – L8 -:



In case of 2-sheet stitching the required wire length is approx. 37 mm, the stitching aggregate should be set to 2-sheet stitching.

3.6.2 Fine adjustment of the stitch length

- Fig. 11 -

Fine adjustment of the wire length is performed by means of test stitches. If the stitch is not the required length, more wire can be fed by **turning** knob ① **anticlockwise (+)**, or less wire can be fed by **turning** the knob **clockwise (-)** (cf. scale ②).
1 revolution of the knob feeds around 2 mm wire.

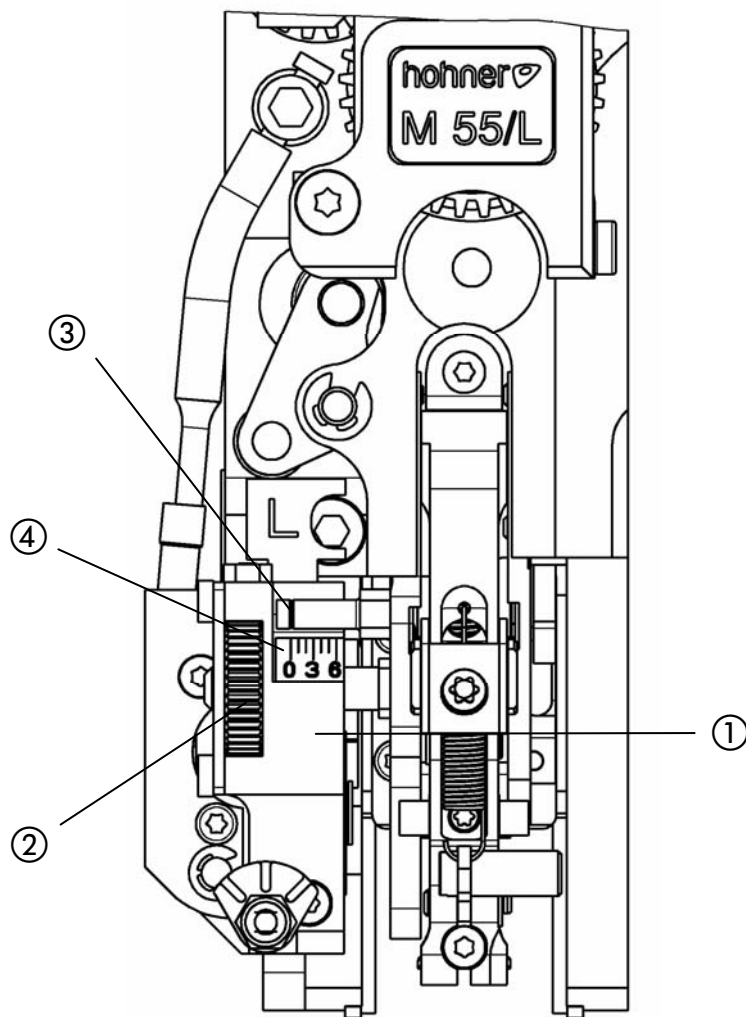


Fig. 12

3.6.3 Setting the leg length of the stitch

- Fig. 12 -

The leg length of the stitch is dependent on the thickness of the product to be stitched. The knife box ① can be adjusted in order to adapt to the thickness of the product. The end of the scale pin ③ marks the set value for the stitch thickness in mm on the scale ④ (0 - 6).

Standard loop-stitching clamp – L6 -:

The notch in scale pin ③ marks the set value of the stitch thickness in mm on scale ④ (0 – 6).

Loop-stitching clamp – L8 -:

The end of scale pin ③ marks the set value of the stitch thickness in mm on scale ④ (0 – 6).

- Adjust knife box ① by turning the knurled wheel ②, until the end of the pin ③ indicates the value of the required stitch thickness (in mm) on the scale ④.
- Test the leg length by a test stitch.
- Set the stitch to precisely the same leg length by turning the knurled wheel ②.



set higher value



set lower value

Operation

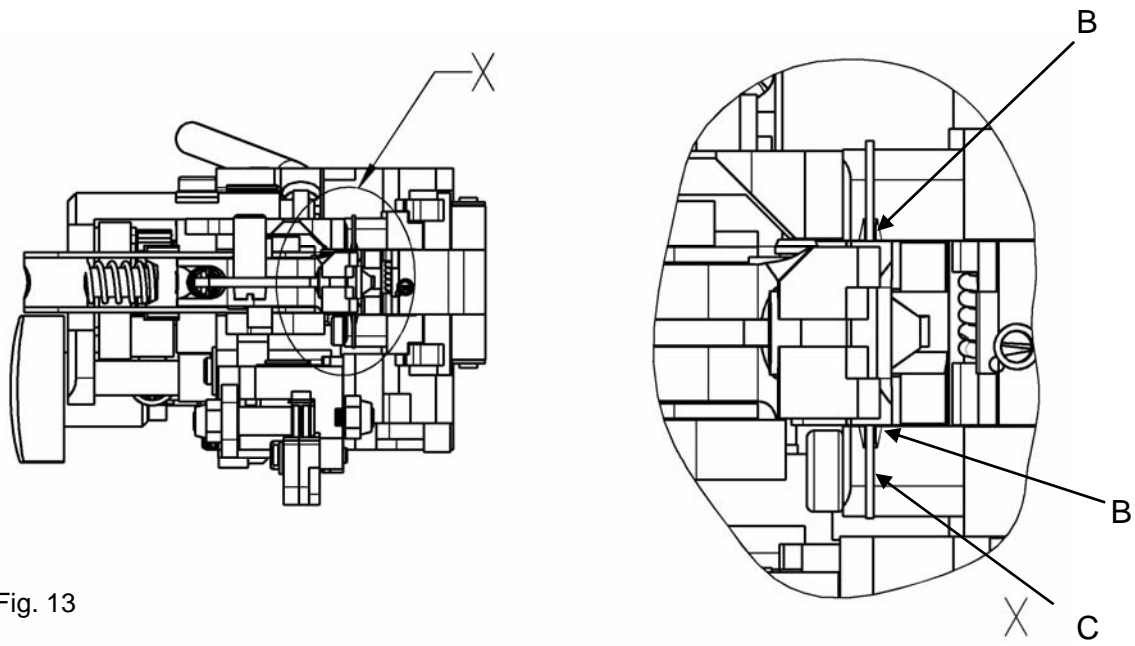


Fig. 13

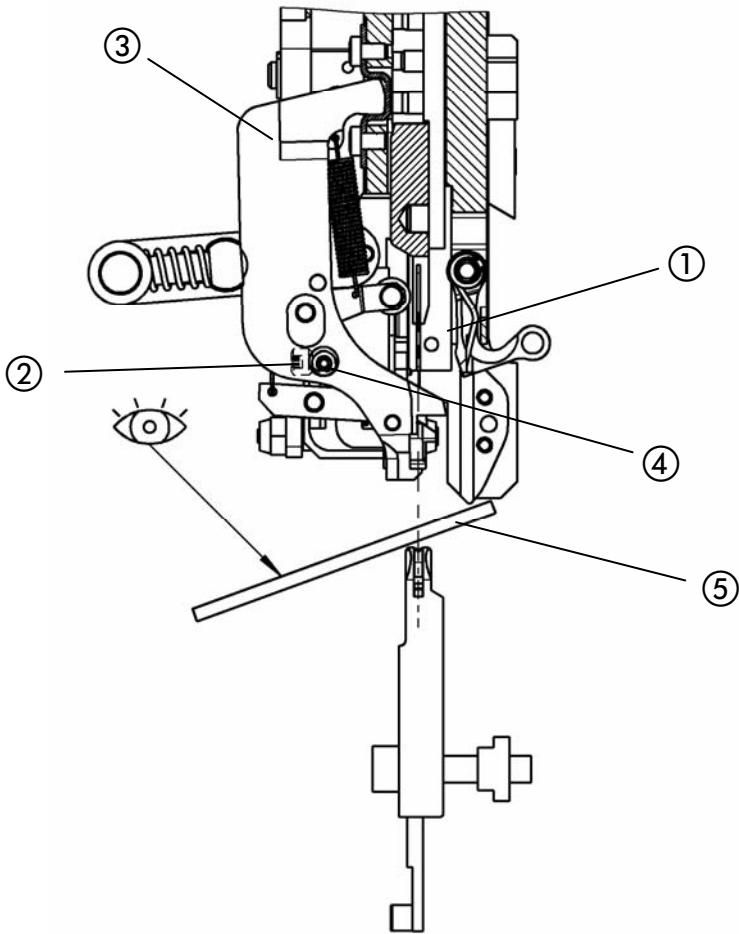


Fig. 14

3.7 Setting the former

- Fig. 13, Fig. 14 -

To guarantee perfect stitching, the former ③ must swivel in far enough for the stitching wire (arrow C) to be positioned exactly beneath the center of the groove (arrow B) of the bender ①.

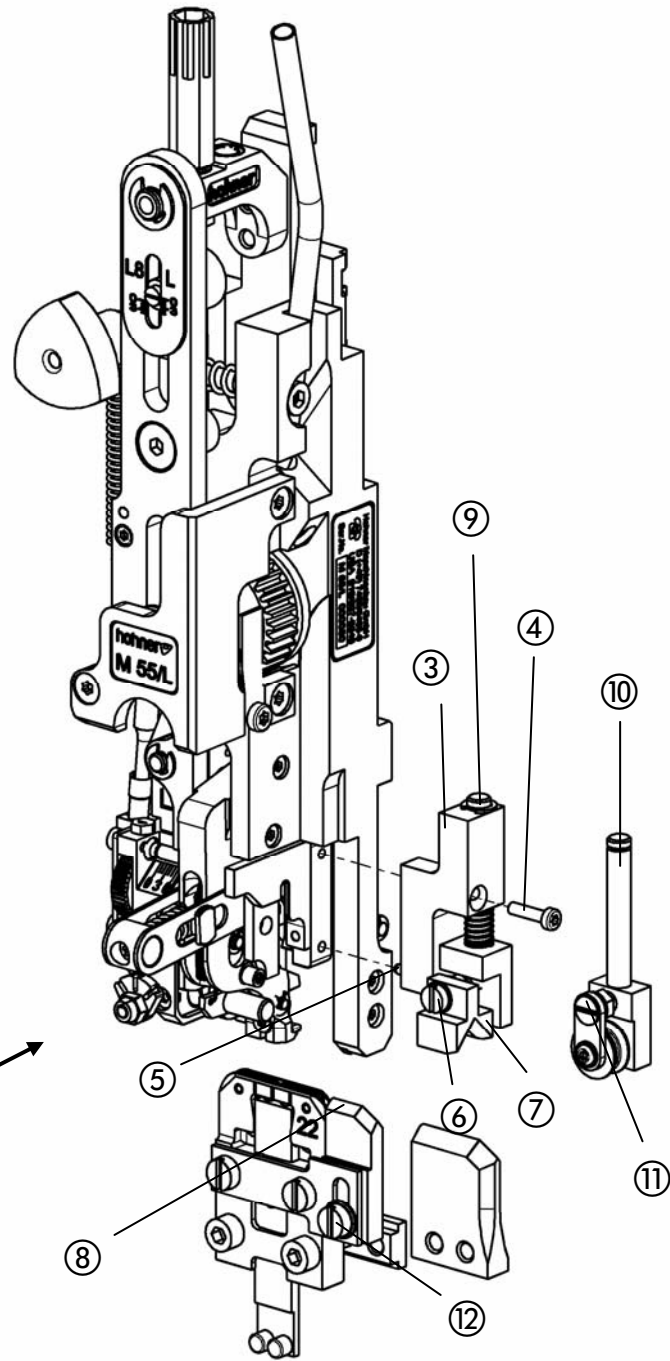
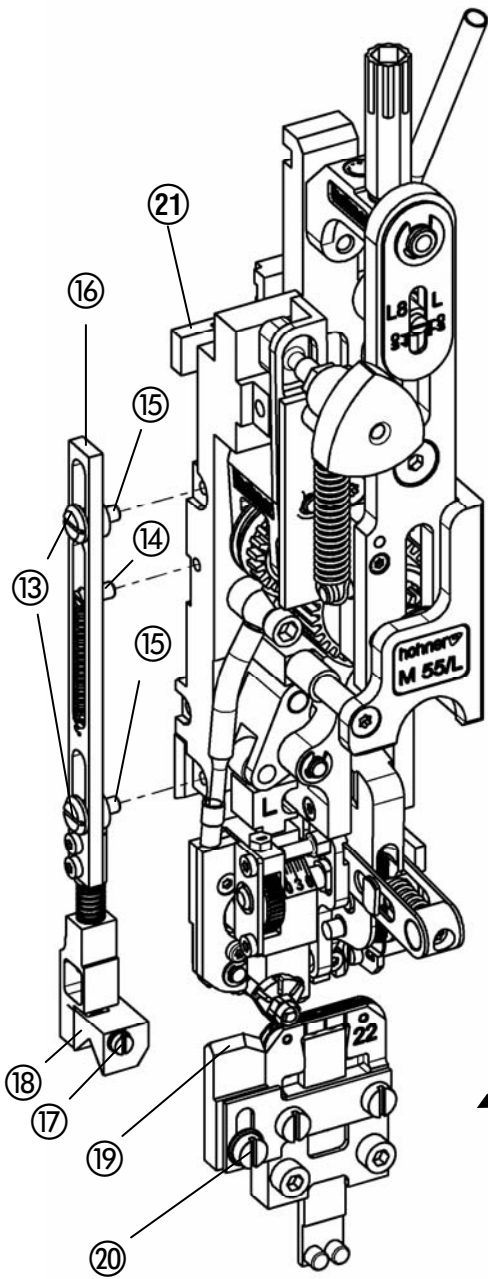
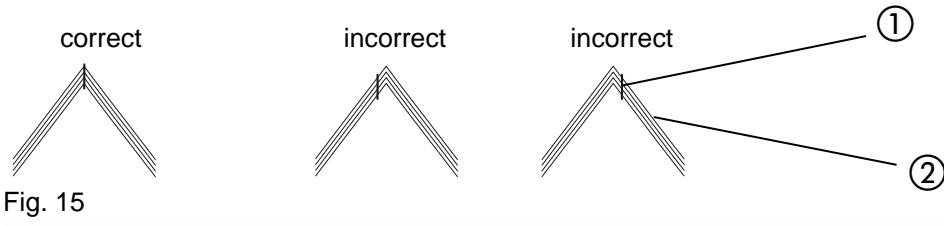
A mirror ⑤ placed on the clincher box can be used to check the setting on the fitted stitching head. The former ③ must keep the wire (arrow C) exactly aligned with the groove (arrow B) of the bender ①.

- Loosen the clamping screw ②.
- Turn the eccentric former stop ④ until precisely aligned.
- Tighten the clamping screw ②.



When changing the stitching wire thickness, the former setting should be checked and corrected if necessary.

Operation



3.8 Spine centering parts

The centering parts are only used for saddle stitching. They serve to precisely position the staple ① in the fold centre of the sheets ② (- cf. 15 -)

3.8.1 Fitting the centering device (standard model)

- Fig. 17 -

- Insert guide bolt ⑤ in the bore hole at the bender and tighten fastening screw ④ to mount the centering device ⑦.

3.8.2 Adjusting the centering device (standard model)

- Fig. 17 -

- The centering prism ⑦ can be shifted to the front or rear by turning the check screw ⑥.
- Set the centering prism ⑦ to the front or rear until it is exactly aligned with the prism guiding cam ⑧.
 - Set the height of prism ⑧ (approx. 0.5 mm above the clincher box) by shifting the prism inside the oblong hole and tighten fastening screw ⑫.

3.8.3 Fitting the centering device (optional narrow model)

- Fig. 16 – please see also Spare parts list/Options, page Opt. 7.
- Screw in spring bolt ⑭ in the bore hole on the stitching head to fit the centering device.
- Hang extension spring in spring bolt ⑭ and rods ⑮.
- Fasten centering device to the stitching head by screwing in fastening screw ⑬ with rods ⑮ and flange sleeve ⑯.
- Pay attention to smooth running of the rods.
- For fitting the carrier ⑮ on the main slide please see Spare parts list/Option page Opt. 7

3.8.4 Adjusting the centering device (optional narrow model)

- Fig. 16 -

- The centering prism ⑮ can be shifted to the front or rear by turning the check screw ⑰.
- Set the centering prism ⑮ to the front or rear until it is exactly aligned with the prism guiding cam ⑱.
 - Set the height of prism ⑱ (approx. 0.5 mm above the clincher box) by shifting the prism inside the oblong hole and tighten fastening screw ⑳.

3.8.5 Fitting the centering device roller

- Fig. 17 -

In order to ensure a perfect transport of the stitching material out of the machine a centering device roller should be mounted on the left stitching head.

- Press safety clip ⑨ out to the side to mount the centering device roller. Push out centering device ⑦ downward. Push centering device roller ⑩ with compression spring in holder ③ from below and press in safety clip ⑨.

3.8.6 Adjusting the centering device roller

- Fig. 17 -

- Adjust the roller guide prism by turning screw ⑪ on the loop-stitching chamber (height of prism ⑧ is stated above).

4 Servicing

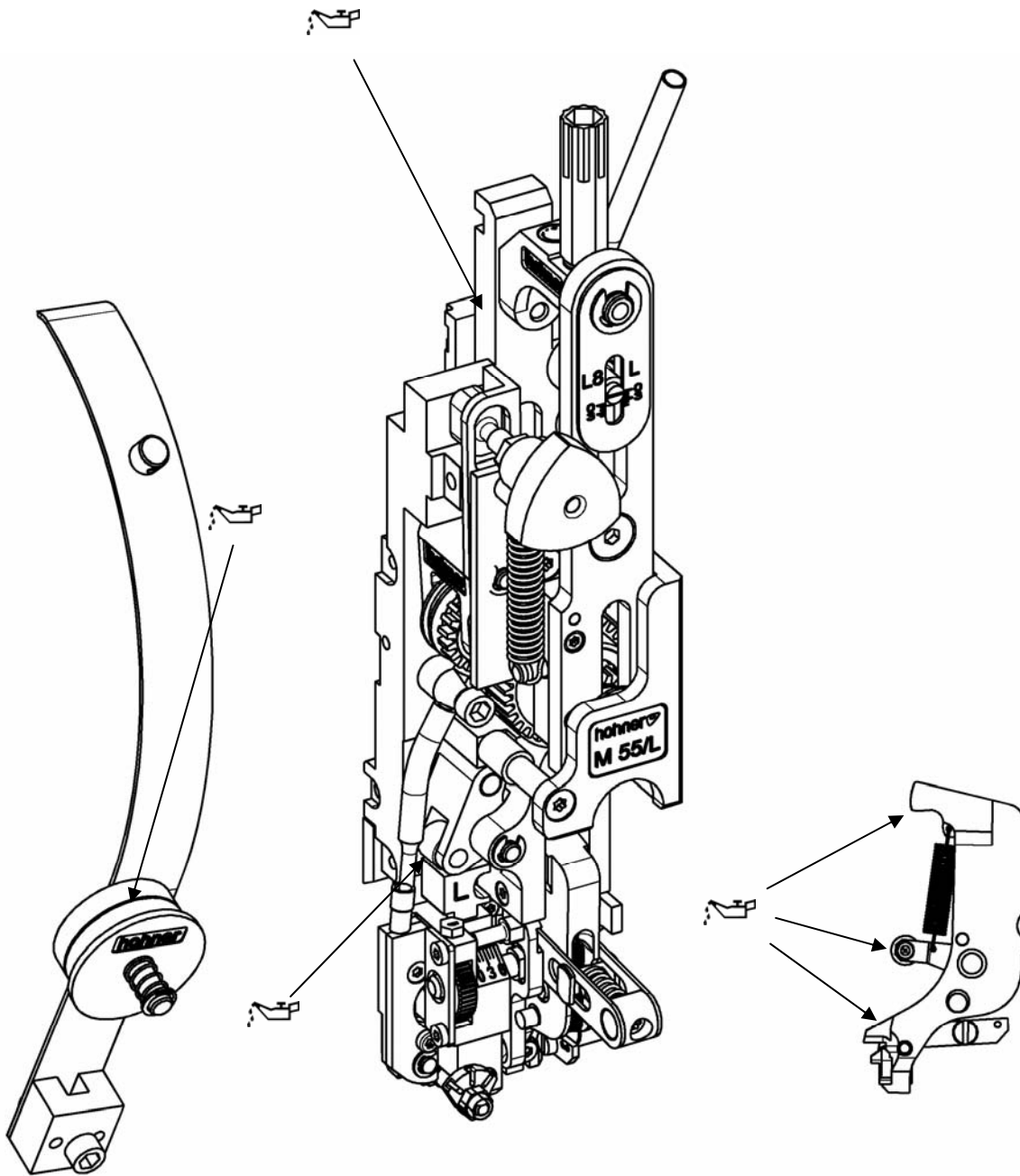


Fig. 18

Servicing

4.2 Installation and replacement of parts

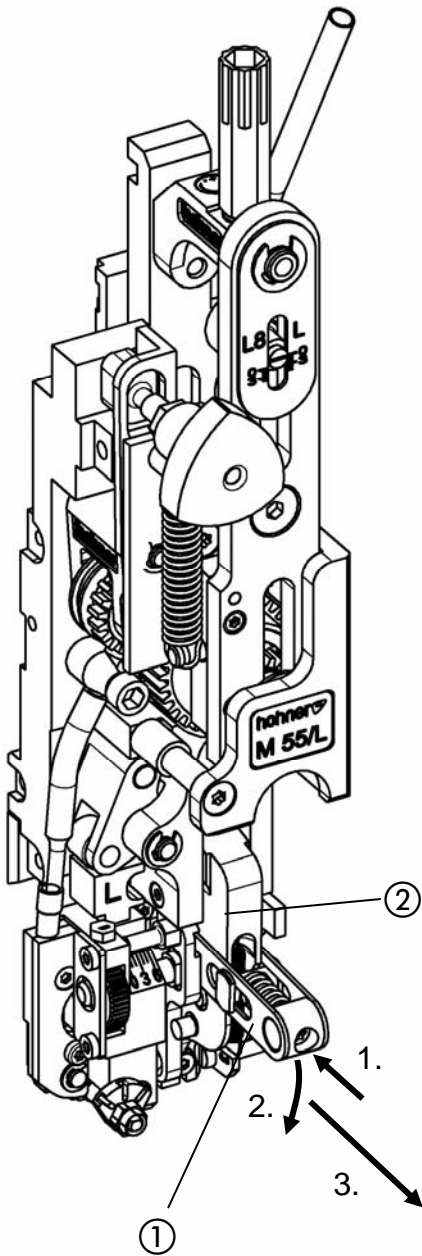


Fig. 19

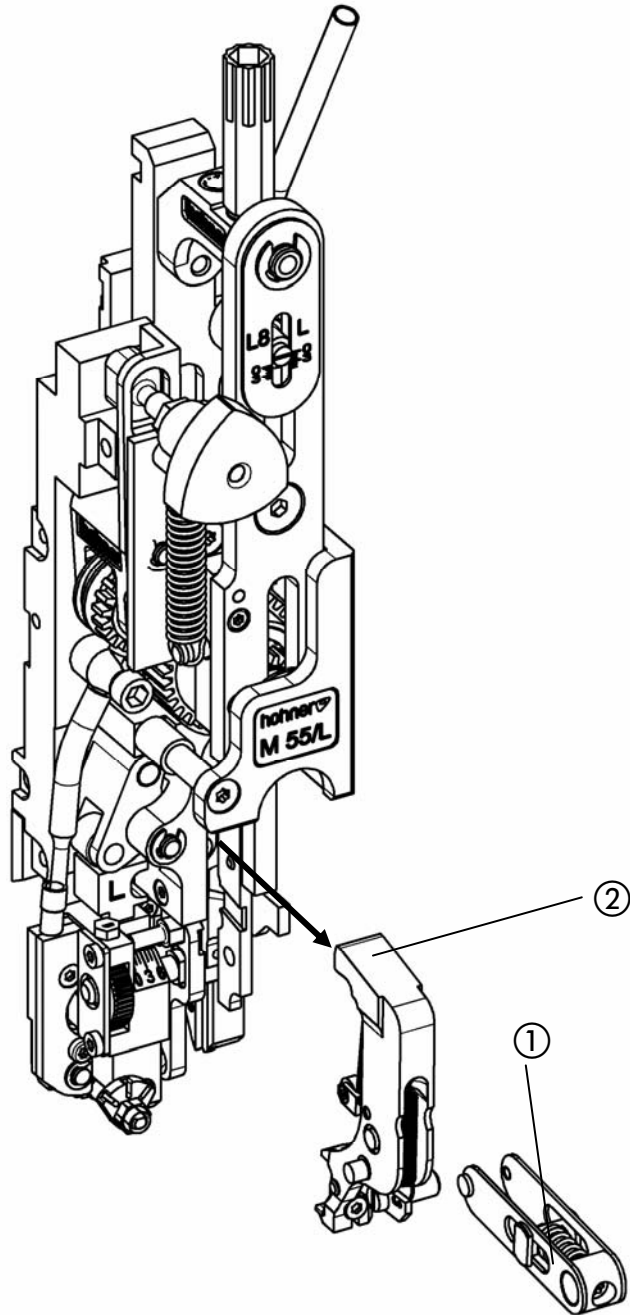


Fig. 20

4.2.1 Replacing the former

- Fig. 19, Fig. 20 -

- Slightly press in gripping yoke ①, swing down and pull out.
- Remove former ② to the front.

Assembly is done in reversed order. Ensure that the former lies properly in the stitching head.



TIP

A magnet prevents the former ② from falling out.

To simplify disassembly and assembly we recommend to use your both hands.

- Adjust former according to Chap. 3.7

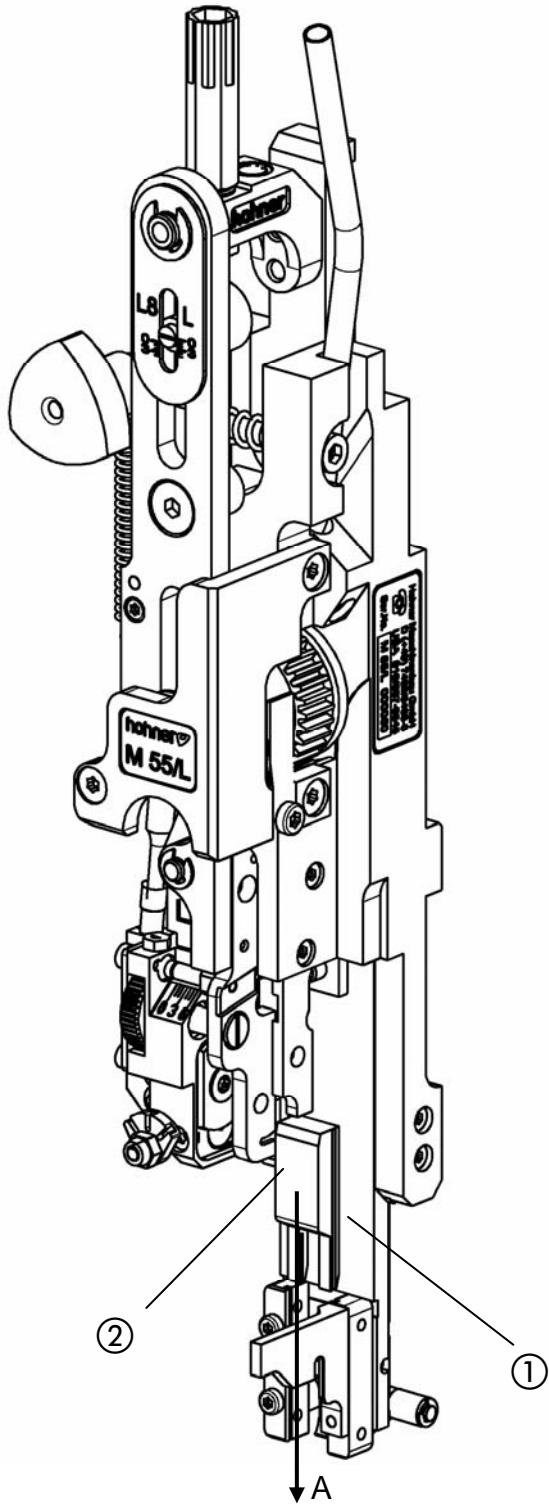


Fig. 21

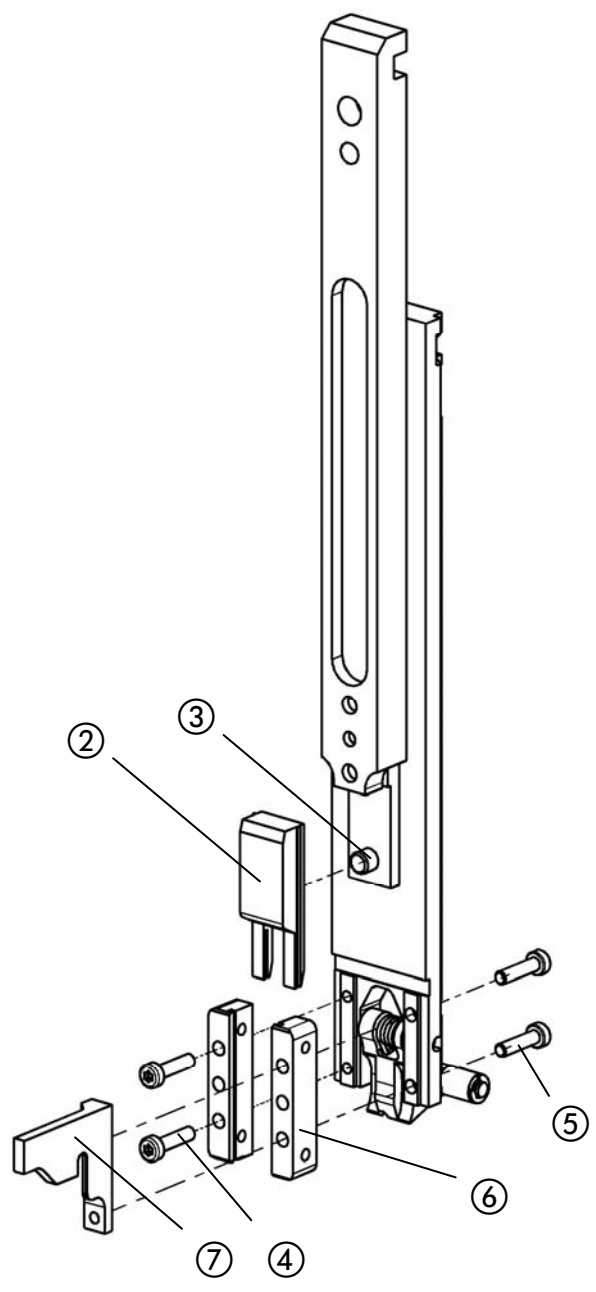


Fig. 22

4.2.2 Replacing the driver

- Fig. 21, Fig. 22 -



Driver and bender are numbered. You must ensure that only drivers with matching benders (see table below) are used, as their wire guidance grooves vary.

Round wire no. 24 - 26	
Driver - L6 -: 31 55 424	with bender: - L -: 31 59 325
Driver - L8 -: 31 55 464	with bender: - L -: 31 59 325

To replace the driver, the central slide must be pulled down completely (arrow A).

- Remove central slide with driver ② downwards from stitching head (arrow A).
- Remove driver ② from driving pin ③.
- Replace driver ②.

Installation occurs in the reverse order.

4.2.3 Replacing the bender

- Fig. 21, Fig. 22 -

To replace or turn the bender, the main slide ① must be pulled down completely (arrow A).

- Remove main slide ① with bender ⑥ downwards from stitching head (arrow A).
- Remove bender ⑥ by loosening the screws ⑦.
- Remove stop prism ⑥ by loosening the screws ⑤
- Turn or replace bender ⑥.

Installation occurs in the reverse order.

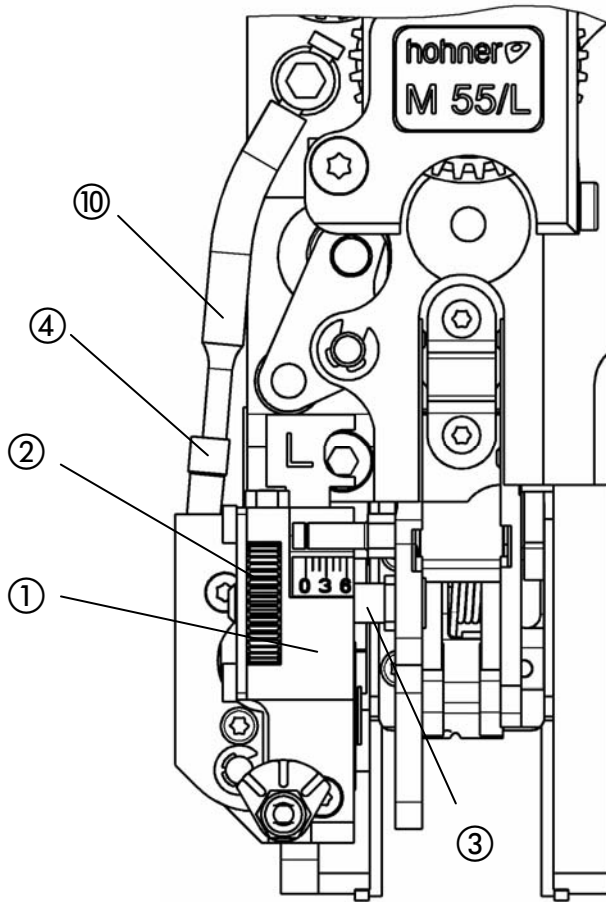


Fig. 23

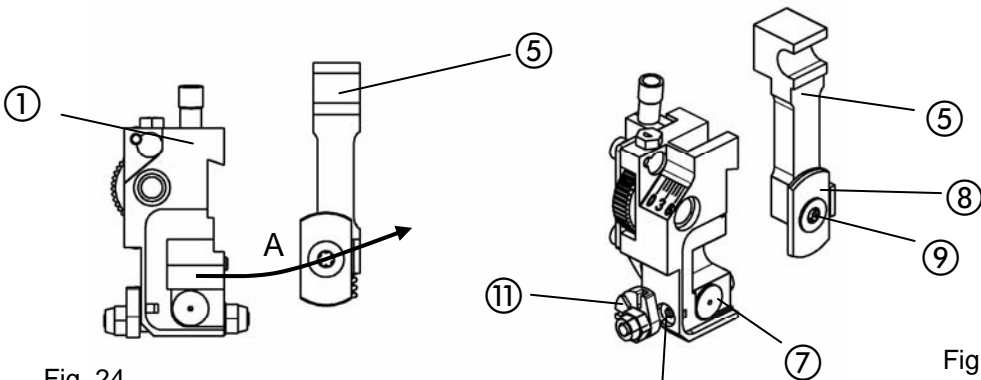


Fig. 24

Fig. 25

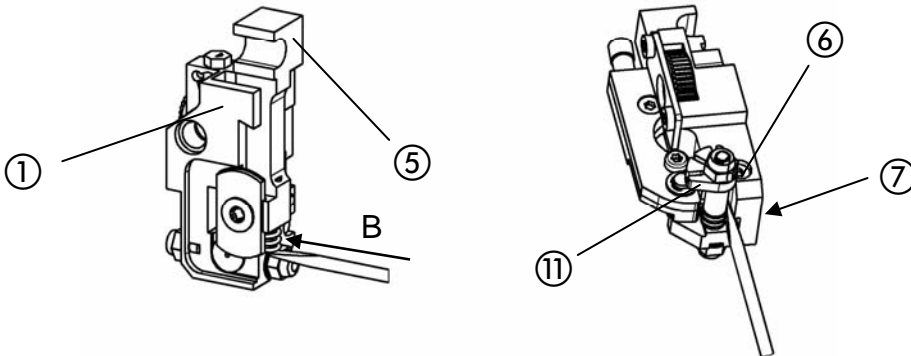


Fig. 26

Fig. 27

4.2.4 Replacing the knife

- Fig. 23 -

- To replace the knife, move the knife box ① completely away from the guide ③ by turning the knurling wheel ② and remove from the stitching head.

- Fig. 24 -

- Push the knife slider ⑤ out of the knife box ① (arrow A)
Make sure that the pressure spring doesn't strip.



- Change the knife (see following chapter)

- Fig. 26 -

- Replace knife slider ⑤ in the knife box ① (arrow B), compressing the pressure spring of the knife slider with a screwdriver, and pushing it into the knife box. Make sure that the pressure spring is not bent.



- Fig. 23 -

- Place knife box ① on the guide ③.
- Attach flexible wire feed to drill hole ④ in knife box.
- Return knife box to the desired position by turning the knurling wheel.



4.2.4.1 Rotating/Changing the flat knife

- Fig. 25 -

The flat knife has 2 cutting edges. Each cutting edge can be used three times by means of rotation.

- Loosen and unscrew fastening screw ⑨.
- Rotate or replace flat knife ⑧ and tighten fastening screw ⑨.



TIP

4.2.4.2 Replacing the circular knife

- Fig. 25 -

- Turn wire adjusting eccentric ⑩ to the left until clamping screw ⑥ is freely accessible.
- Loosen the clamping screw ⑥ and remove the circular knife ⑦.
- Press new circular knife completely into the seat in the knife box.
- Adjust circular knife (cf. Adjusting the circular knife).

4.2.4.3 Adjusting the circular knife

- Fig. 27 -

The circular knife is adjusted so as to ensure clean cutting of the wire.

When the knives are mounted, set the clearance between the flat and circular knives by carefully "levering" with a screwdriver.

- Turn wire adjusting eccentric ⑩ to the left until clamping screw ⑥ is freely accessible.
- Loosen clamping screw ⑥ and position circular knife ⑦ exactly against the flat knife by "levering" from the rear with a screwdriver.
- Tighten clamping screw ⑥.
- The stitching wire is to be aligned according to Chapter 3.5 if necessary after the knives box was installed.



If the distance between the knives is set too close the knife slider ⑤ may block and cause a wire jam.

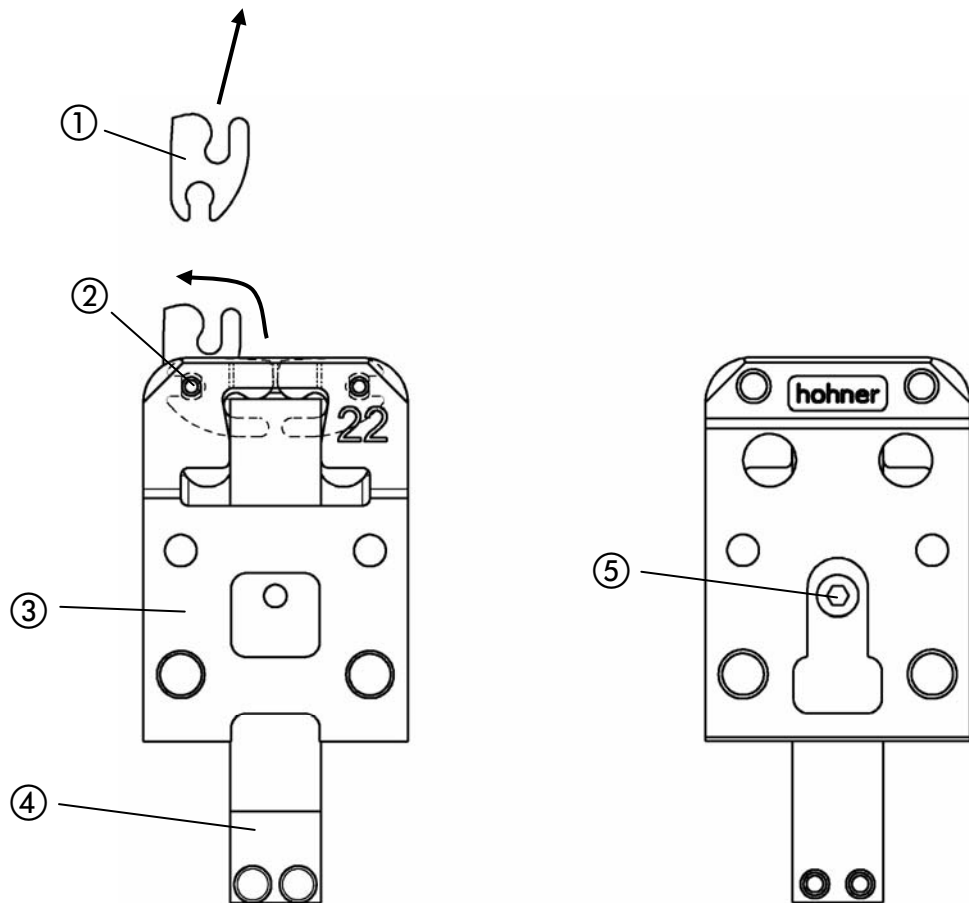


Fig. 28

4.2.5 Replacing the clincher

- Fig. 28 -

- Unscrew locking screw ⑤.
- Remove clincher ram ④ downwards.
- Turn clincher ① upwards in clincher box ③ and remove from the locking pin ②.
- Push new clincher onto the locking pin and turn to center of clincher box.
- Re-introduce clincher ram.
- Screw in and tighten locking screw ⑤.



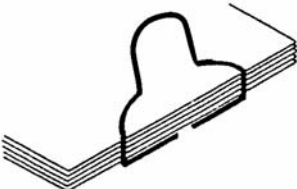
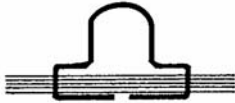

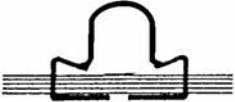


Make sure that you use the right screw-in side of the locking screw ⑤.



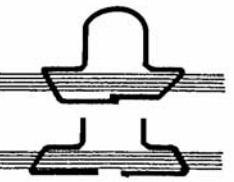

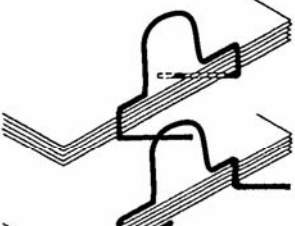

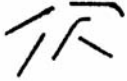
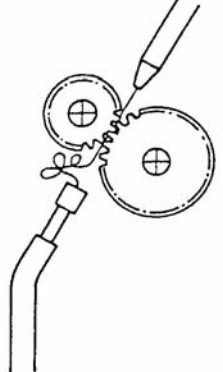

Faults

5 Faults

5.1 Causes and elimination of faults

Below you will find some examples of faults, with information on the potential cause. If various causes come into consideration, sometimes several suggestions may be made for the remedy: You should not follow all of these before testing the result, but proceed step by step, with intermediate testing. Worn parts should always be replaced.

Stitch	Fault	Potential cause and elimination of the fault
	Back of stitch is bent in a banana shape:	<ul style="list-style-type: none"> - Weak or soft wire. - Wire not aligned, cf. 3.5. - Circular or flat knife worn, cf. 4.2.4. - Shoe tongue pressure too weak: remove obstructing wire pieces or replace pressure spring in shoe tongue. - Wire groove in driver soiled, worn or damaged: remove driver, cf.4.2.2. Clean driver groove or replace driver.
	Back of stitch not securely positioned:	<ul style="list-style-type: none"> - Stitching not pressed sufficiently: set stitching unit to stitch thickness.
	Stitch legs are not sufficiently clinched:	<ul style="list-style-type: none"> - Stitching not pressed sufficiently: set stitching unit to stitch thickness. - Clincher is not coming up far enough: adjust clincher lift pressure on stitching unit. - Time from clincher activation to lift movement is incorrect: stitching unit must be reset by the manufacturer.
	Back of stitch is not securely positioned and is sagging in a saddle shape:	<ul style="list-style-type: none"> - Stitching not sufficiently pressed: set stitching unit to stitch thickness. - Weak or soft wire. - Shoe tongue pressure too weak: remove obstructing wire pieces or replace pressure spring in shoe tongue.
	Stitch legs are buckled and are not properly clinched:	<ul style="list-style-type: none"> - Weak or soft wire. - Wire not aligned, cf. 3.5. - Align clincher box, cf. 3.1.4. - Different leg lengths, cf.3.6.3. - Overall wire piece too short, cf. 3.6.2. - Circular or flat knife worn, cf. 4.2.4.
	Wire not penetrating, resulting in loop formation:	<ul style="list-style-type: none"> - Weak or soft wire. - Bender groove blocked by wire pieces. - Circular or flat knife worn, cf. 4.2.4. - Wire groove in driver soiled, worn or damaged: remove driver: clean driver groove or replace driver, cf. 4.2.2. - Shoe tongue pressure too weak: remove obstructing pieces of wire or replace pressure spring in shoe tongue. - Align clincher box, cf. 3.1.4.

Stitch	Fault	Potential cause and elimination of the fault
	<p>Stitch legs break off:</p>	<ul style="list-style-type: none"> - Wire too brittle: use a different wire quality. - Former blocked by pieces of wire: remove wire pieces, remove former if necessary. - Gripper spring or gripper in former defective. - Wire thickness not suitable for the wire guiding parts (bender and driver). - Adjust former to bender groove.
	<p>Hump at a stitch corner:</p>	<ul style="list-style-type: none"> - Weak or soft wire. - Driver damaged, cf. 4.2.2. - Circular or flat knife worn, cf. 4.2.4. - Wire not aligned, cf. 3.5.
	<p>Stitch legs contract or diverge:</p>	<ul style="list-style-type: none"> - Circular or flat knife worn, cf. 4.2.4. - Wire not aligned, cf. 3.5. - Align clincher box, cf. 3.1.4.
	<p>Leg ends clinched the wrong way round:</p>	<ul style="list-style-type: none"> - Weak or soft wire. - Wire not aligned, cf. 3.5. - Circular or flat knife worn, cf. 4.2.4.
	<p>One or both legs are clinched obliquely:</p>	<ul style="list-style-type: none"> - Clincher damaged, cf. 3.1.3. - Adjustment of clincher box mounting to stitching head mounting, cf. 3.1.4. - Wire not aligned, cf. 3.5.
	<p>Stitch legs are clinched obliquely to the same side:</p>	<ul style="list-style-type: none"> - Adjustment of clincher box mounting to stitching head mounting, cf. 3.1.4. - Wire not aligned, cf. 3.5. - Bender worn, cf. 4.2.3.
	<p>Lightly bent wire pieces fall out:</p>	<ul style="list-style-type: none"> - Wire not aligned, cf. 3.5. - Cutting slider jammed: circular knife set too tightly to flat knife, cf. 4.2.4.3. - Cutting rocker locked, pressure spring in cutting block defective.
	<p>Wire loop between conveyor wheels and wire guidance tube:</p>	<ul style="list-style-type: none"> - Former incorrectly set, cf. 4.2.1. - Cutting pusher gets caught: <ul style="list-style-type: none"> - compression spring faulty - knife set too strong - bottom wire guides clogged
	<p>Straight wire pieces fall out:</p>	<ul style="list-style-type: none"> - Weak spring pressure on former. - Wire not aligned, cf. 3.5. - Former set incorrectly, cf. 4.2.1.