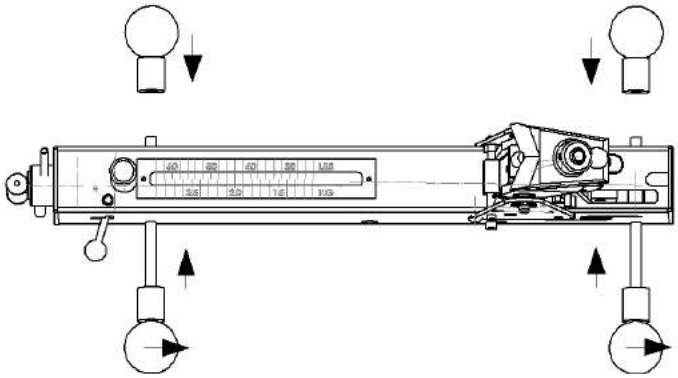
INSTRUCTION MANUAL FOR THE STRINGING MACHINE MS140N and MS140L.

CONTENTS:

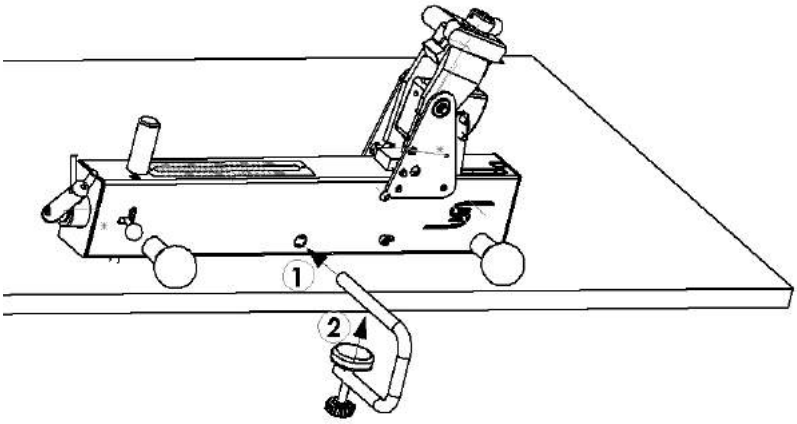
A. TO PREPARE THE MACHINE FOR USE.

A1. Fastening the cross legs



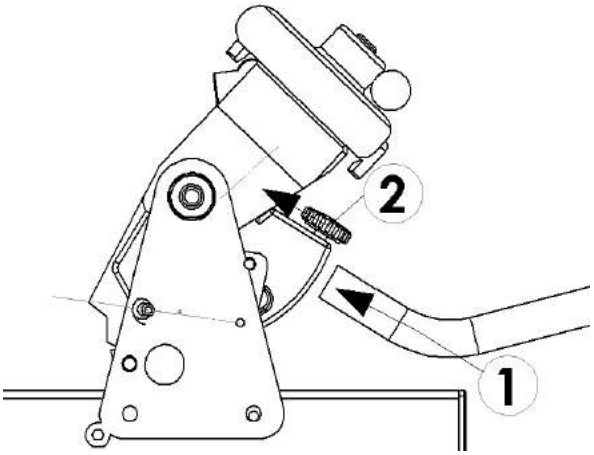
Put the cross leg screws through the frame and the second bush and tighten the ball knob firmly.

A2. Clamping the machine to the table.



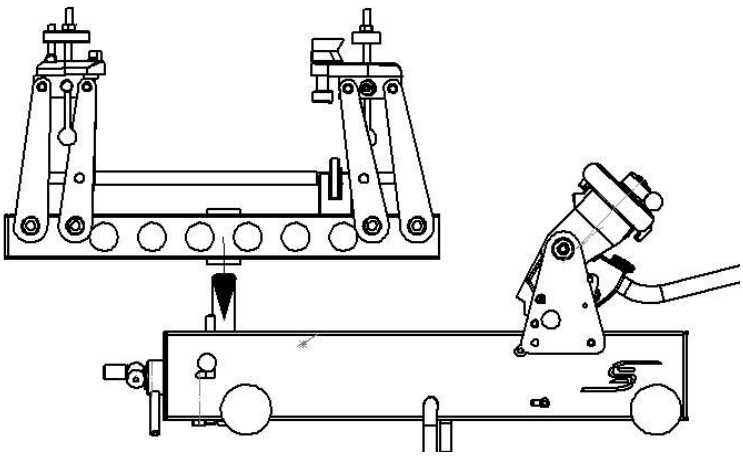
The machine can only be used when it is clamped to the table. Slide the table clamp through the frame and position the machine so far from the edge of the table that the clamping screw is under the centre of the frame. Tighten the clamping screw firmly.

A3 Fastening the lever of the drop weight system.

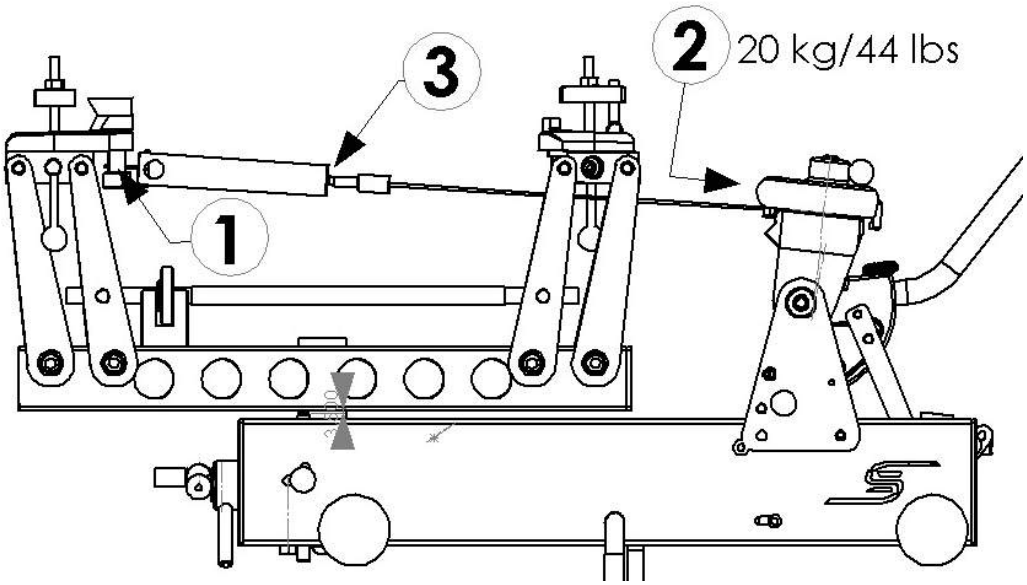


Loosen the clamping screw a little and slide the lever into the tension head with the screw in the slot. Tighten the clamping screw.

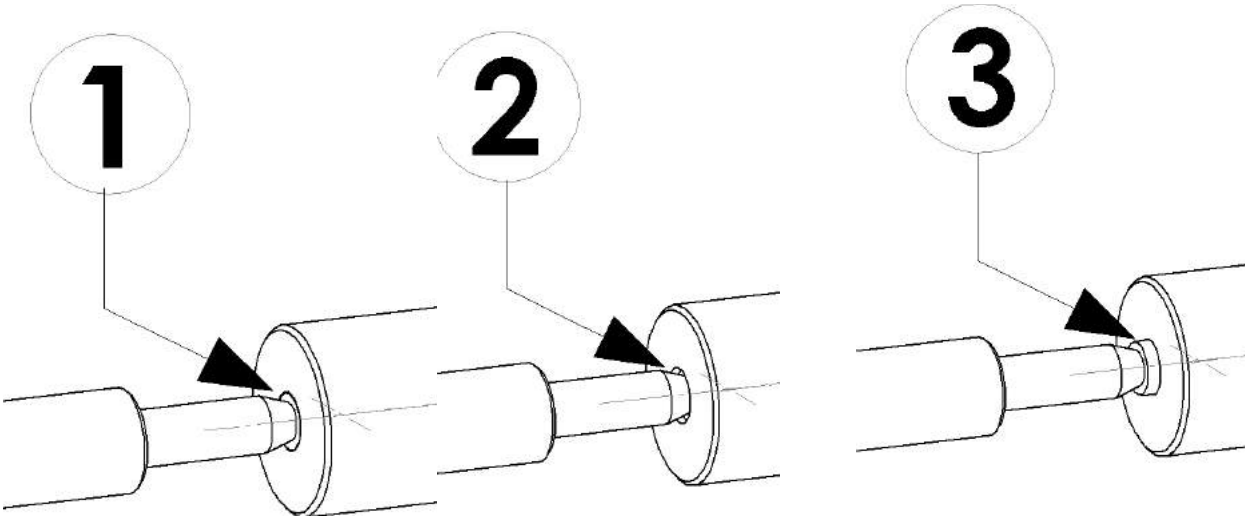
A4. Mounting the turntable over the shaft.
Slide the turntable over the shaft. Check if there is grease inside the delrin bush, if not add a thin layer of grease into the bearing.



A5. Calibrating the tension system.



The tension system can be calibrated with the calibrator which is supplied with the machine. The tension will not vary more than a few percent over the hole stroke. To get the most accurate results calibrate the system in the middle of the stroke between the forward position and the moment that the "end of stroke signal" starts to move.



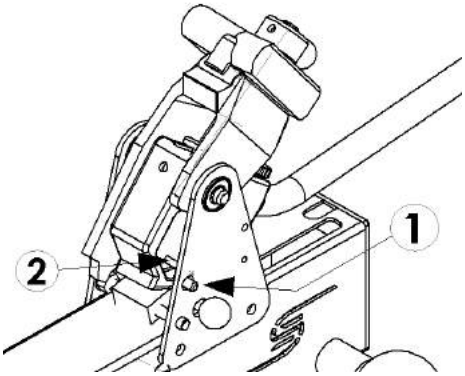
Adjust the tension at 20 kg / 44 lbs and attach the tensioner to one of the adjusting bolts as shown in the picture. Lock the turntable with the calibrator parallel with the main frame.

Tension the string of the calibrator and watch the pull rod of the calibrator:
- In situation 1 the tension is correct, the end of the marks is level with the end of the red housing.
- In situation 2 the tension too low, the end of the marks is still inside the housing.
- In situation 3 the tension is too high.

To adjust the tension.
The tension can be adjusted with the bolt that moves out of the housing when the tension arm is lifted to the maximum. Turn the hexan bolt clockwise to raise the tension and anti clockwise to lower it.

IMPORTANT: Only adjust calibration bolt while the lever is at maximum height.
Check the tension after every adjustment by lowering the lever.

A6. End of stroke indication.

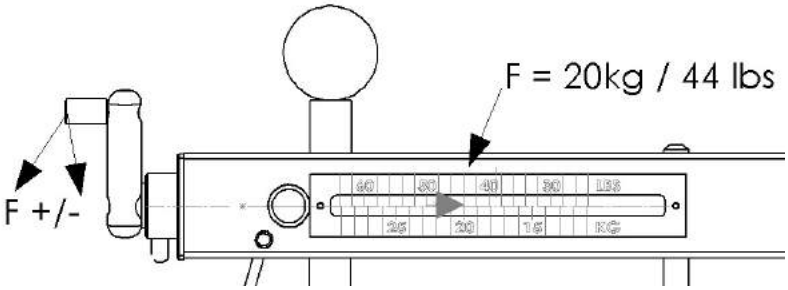


At the end of the stroke the tension drops and the “End of stroke indicationd” moves out. Repull the string without moving the clamp.
IMPORTANT: A string needs less stretch when it is pulled for the second time because the remaining elongation from the first pull is already developed.

A7. Rotate the knob on the Tension handle.
For transport the knob on the tension handle can be rotated.
Loosen the Alan bolt and rotate it parallel with the main frame before you start stringing.

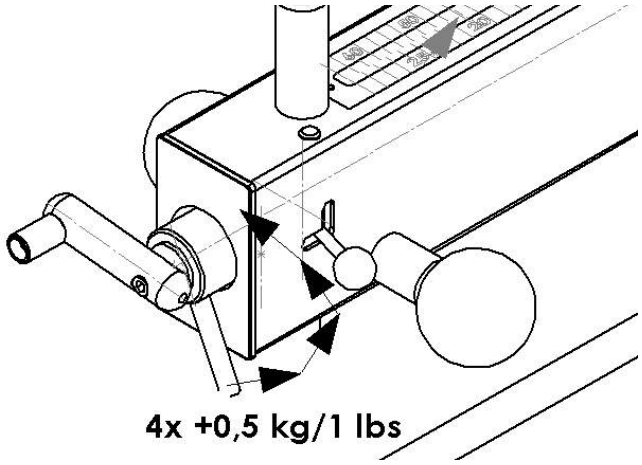
B. THE OPERATION OF THE MACHINE.

B1 Adjusting the tension.



* The tension can be adjusted between 18 and 28 kg or 32 and 62 lbs. The machine can string up to 32 kg or 72 lbs by adding the extra (badminton) weight.

The weight can be adjusted with the handle and the scale.



On the MS140L the tension can be raised or lowered in 4 steps of 0,5 kg (1 lbs) with the handle behind the adjusting handle.

B2. To pull tension on a string.

* The locking system:

The MS140L and N have an automatic locking system on the tension head;

- The tension head is locked in the starting position when no string is clamped in the tension head.
- On the MS140N the lock must be released by hand.
- On the MS140L the lock is released automatically when a string is clamped.

* Inserting the string in the string clamp.

- Lift the lever to open the string clamp.
- The string can be clamped at the front or at the back or both for vulnerable strings.
- Around the back of the system is the easiest and most certain way.
- Pull the string straight along the bottom side of the upper jaw and pull it into the slot between the upper and the lower clamping surface.
- Release the lock (ML140N) by pushing down the release knob.
- Lower the lever to clamp the string.

Always take good care that the string lies against the cams of the upper jaw when the string is clamped!

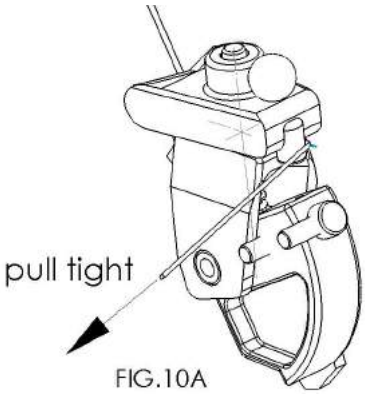


FIG.10A

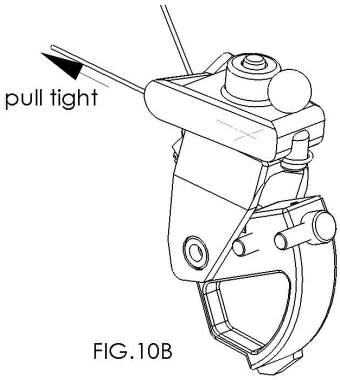


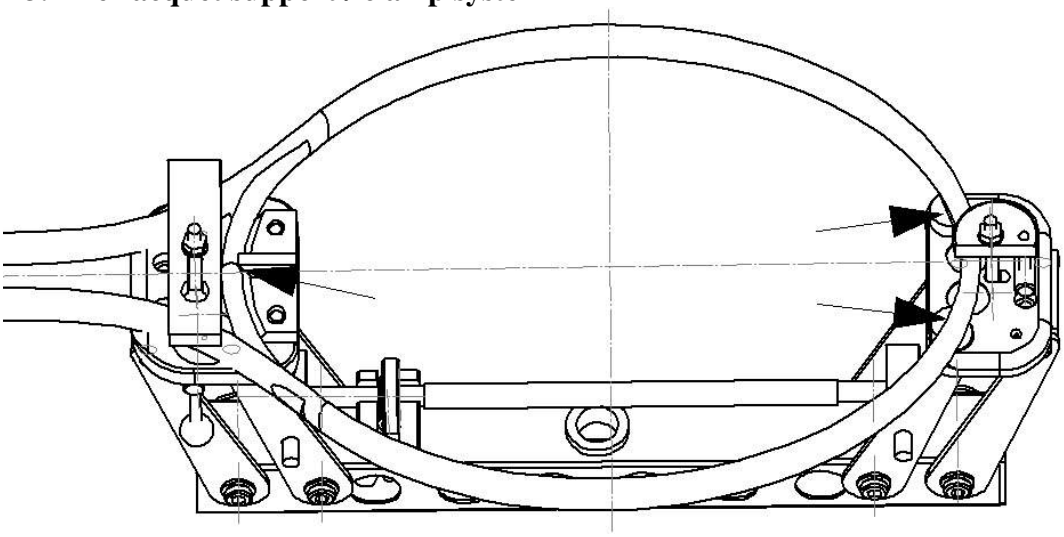
FIG.10B

"TO DOUBLE CLAMP THE STRING" (fig. 10B)

To lower the pressure on the string it can also be clamped "double" using the front and the backside of the string clamp:

- Wrap the string around the tension head.
- Lift the lever to open the string clamp.
- Pull the string straight towards the front.
- Move the string into the clamp at the front side.
- Lower the tension lever.

B3. The racquet support / clamp system



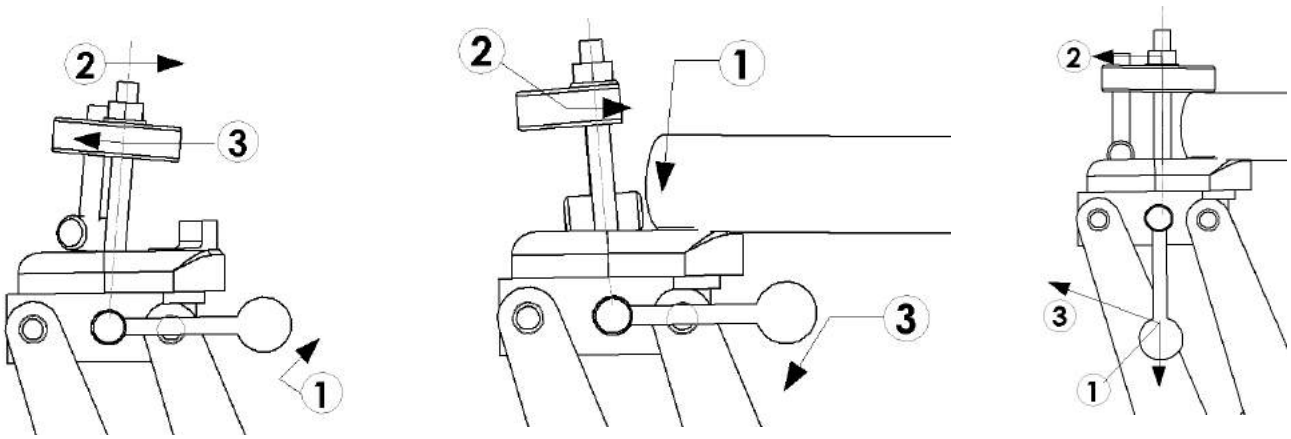
The racquet is supported with 2 supports at the head side and the V-shaped "Babolat retainer" at the

throat side of the racquet.

Clamping a racquet.

HEAD SIDE SUPPORT
The racquet clamp is adjusted to the height of the racquet with the adjustable counter support. Because the clamp can swivel in the slot it can clamp a considerable range without the need to adjust the counter support.

* Fast clamp system:

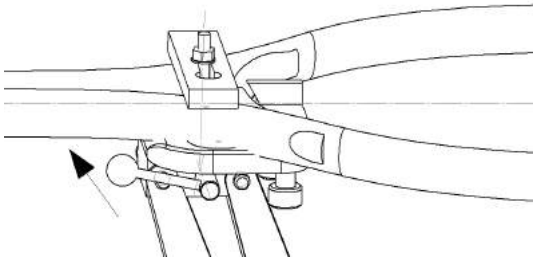


The pictures show the actions needed to clamp the racquet:
- Switch the lever forward.
- Lift the counter support out of the slot.
- Rotate the clamp with the flat side towards the racquet.

Clamping the racquet goes as follows:
- Rotate the clamp above the racquet with the counter support in the slot.
- Switch the lever to the vertical position.
- Rotate the upper nut by hand until it hits the clamp.
- Switch the lever further to the back.

If the clamping force is not as desired switch back to the vertical position adjust the nut and switch the lever backwards again.

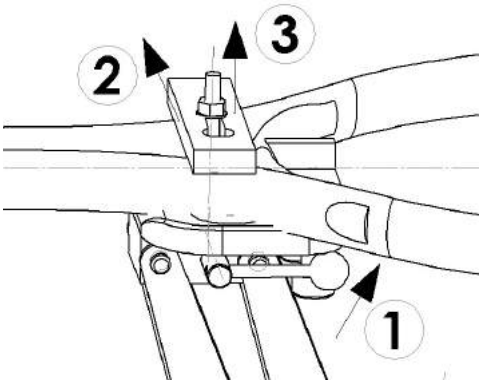
THROATSIDE SUPPORT.

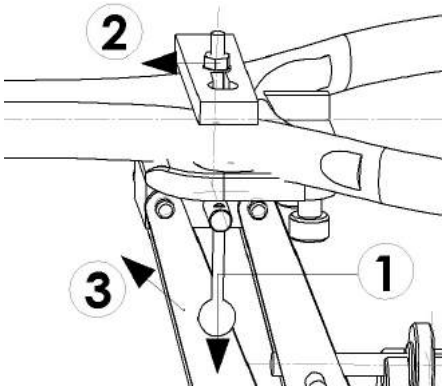


The racquet is clamped with a transparent crossbar so that there is good view on the grommet holes in the bridge of the racquet.

IMPORTANT: The cross bar will bend considerably when you clamp a racquet, this is not a problem.

BUT: Take care not to over-tighten the clamp, because there is no need to use much clamping force.



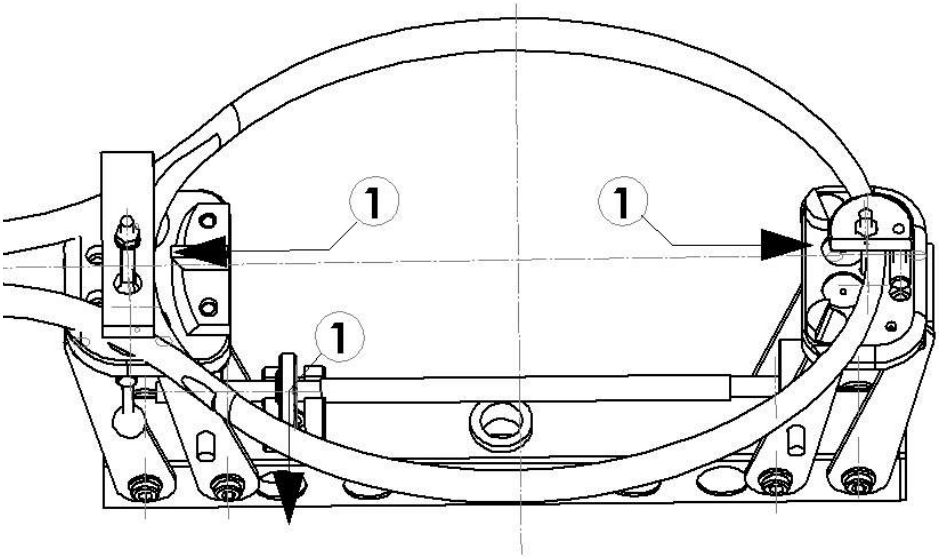


The racquet can be removed by using the slot hole in the cross bar and lift it off the machine.
Or by rotating the clamping bar and move it through the open handle of the racquet.

Clamping the racquet goes as follows
- Switch the lever to the vertical position.
- Rotate the upper nut by hand until it hits the clamping bar.
- Switch the lever further to the back.

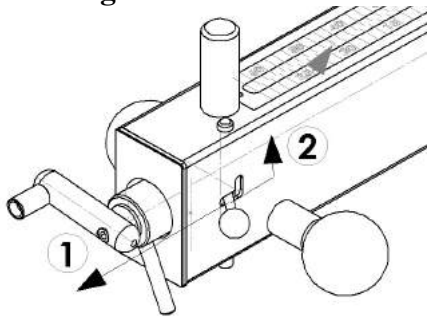
If the clamping force is not as desired switch back to the vertical position adjust the nut and switch the lever backwards again.

B4. Mounting a racquet.



The racquet support is adjusted to the seize of the racquet with the knurled knob on the screw spindle.
Put the racquet on the mounting system and place both clamps above the racquet.
Increase the length of the support by turning the knurled knob.
When the throat- and head side supports hit the racquet create some extra pressure by tightening the knob a little more
Clamp the racquet on head and throat side as described above.

B5. Using the table lock.



The MS140L has a table lock which locks the turntable in 6 positions. When the lever is in the upper position the table will lock as soon as the locking pin meets a hole in the turntable.

B6. Using the clamp systems.
The MS140 is supplied with flying clamps, there is a double and a triple version of this clamp.

B6a Using flying clamps TH.

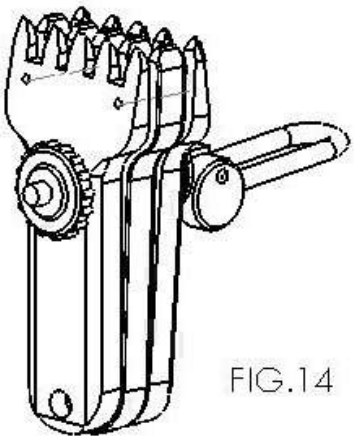


FIG.14

A flying clamps holds the tension by clamping the last string to the string before last.
The knob is used to adjust the clamp to the diameter of the string that is used.

Check the adjustment of the clamps before every string job as

B6d Checking the clamp adjustment.
It is very important to avoid sliding of the strings through the clamps, because that will result in loss of stringbed stiffness.
Therefore it is important to check the adjustment of the clamps for EVERY string job as shown in tdhe figure:

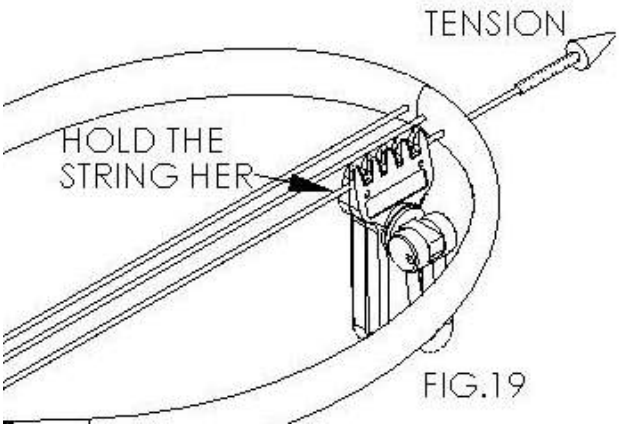
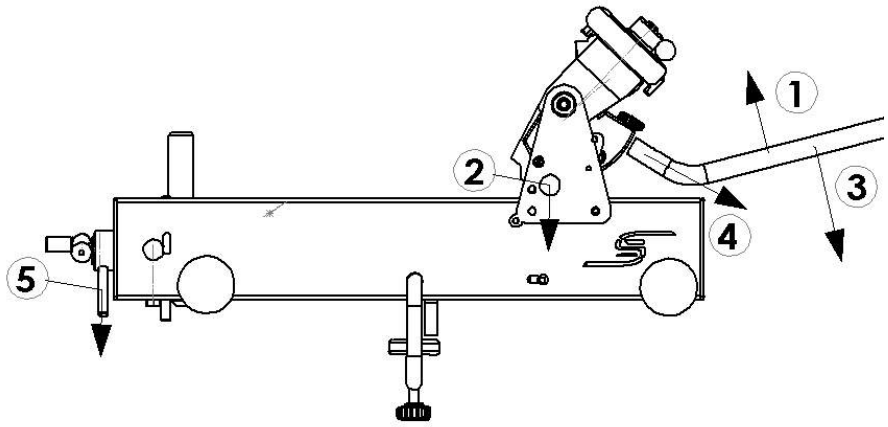


FIG.19

- Hold the string behind the clamp.
- Release the tensioner.
- Check if the string slides through the clamp.

If the string slips through the clamp there can be 2 reasons:
- The clamp is greasy and has to be cleaned. (See D2).
- The clamp has to be adjusted at the diameter of the string and at the tension that is used.

C. OUT OF USE AND TO TRANSPORT THE MACHINE.
C1. Out of use or transporting the machine.



When the machine is out of use or should be transported the tension head should be in the end position against the stop:
- Lift the lever to open the string clamp.
- Push the knob of the locking bar down.
- Lower the lever until the tension head hits the end stop inside the machine.

To remove the lever loosen the clamping knob-scew a little and pull the lever out of the system.

C2. Mounting the machine in the travel case.

A travel case with wheels is available for transport of the machine. The main frame and turntable are bolted on the plate which is fixed in the case.

* Before putting the machine in the travel bag remove the upper jaw and rotate the knob of the tension handle 90 degrees.

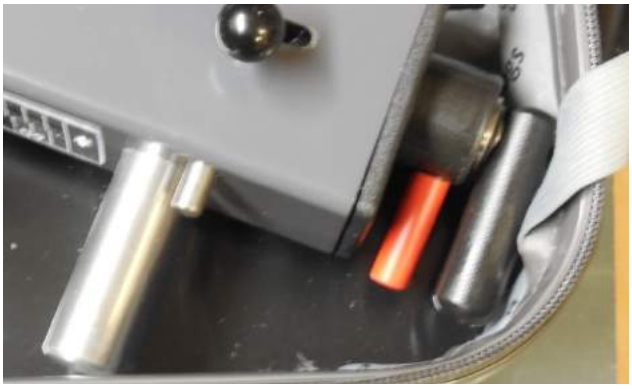
* The machine is fixed on a mounting plate which is fixed in the travel bag with a bolt and 2 big tiewraps.
The main frame and the turntable are fixed with 2 bolts each and clamped between delrin positioners to avoid damage of the paint.

* The main frame and the turntable can not hit each other.

To create maximum support of the turntable make sure that it is supported on the edge of the bracket of the tensioner and on the round support shown by the arrows on the picture.
Create this situation as follows.

- Place the turntable over the bolts and fix it with the positioners and nuts.
- Now “close” the turntable so that head side support plate is supported on the bracket of the tensioner.

* Make sure the “knot tension lever” is in the horizontal position.



* The cross legs are packed behind the zip. If the toolbox is full the upper jaw can be packed there too.

* The toolbox can hold the clamps and parts of the machine.

* The toolbox and table clamp are clamped with a span band.

D. THE MAINTENANCE OF THE MACHINE.

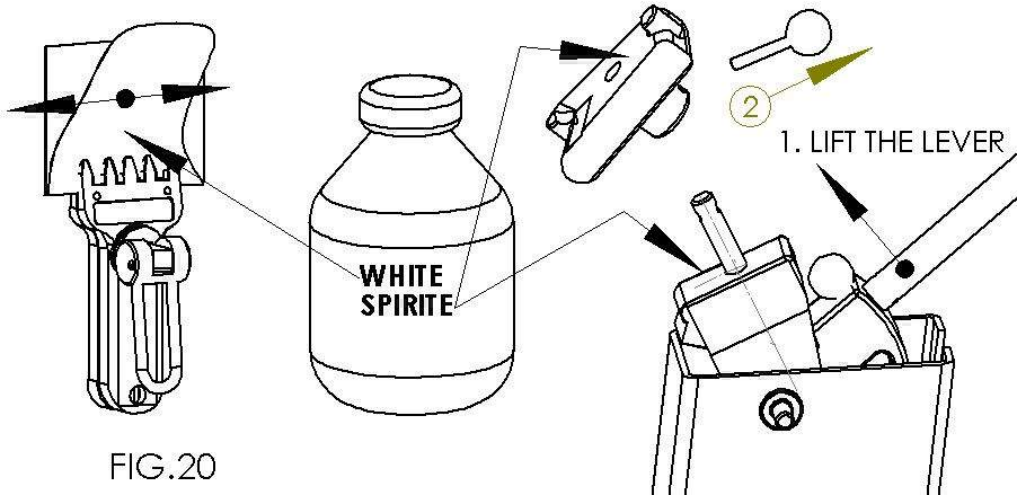
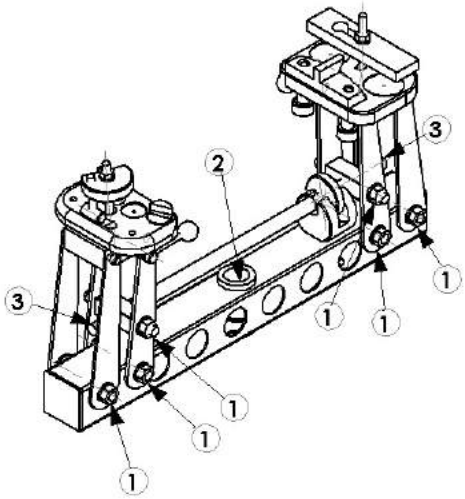


FIG.20

D1. Cleaning the string clamp of the tension unit.
* Lift the lever so that the string clamp opens and pull the pin out of the upper jaw (2).
* Pull the upper jaw off the pull rod and clean the surfaces of the string clamp with white spirit.

D2. Cleaning the clamps.
When the string slides through the clamp this can have 2 causes:
1. The adjustment of the clamp is wrong.
2. The silicone coating of the strings has made the clamp greasy, the clamp has to be cleaned:
* Fold a cloth around a thin plate and wet it with a degreasing fluid (white spirit).
* Move the plate and cloth between the jaws of the clamp, close the clamp and move the cloth and plate up and down between the jaws.

D3. Adjusting and lubricating the turntable.



Adjusting the turntable hinges.
If there is clearance in one of the hinges of the turntable guiding arms you can just adjust friction nuts to minimize it.

Lubricating the bearings.
We advice to put some grease on the shaft every now and then for minimum wear.

E. Overhaul of a Stringway clamp.

After extensive use the clamps of the Stringway machines can be overhauled quite easily. Figure 1 shows the parts of the clamp.

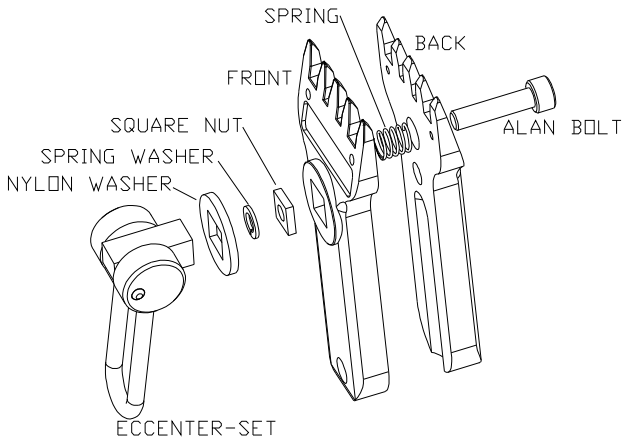


FIGURE 1

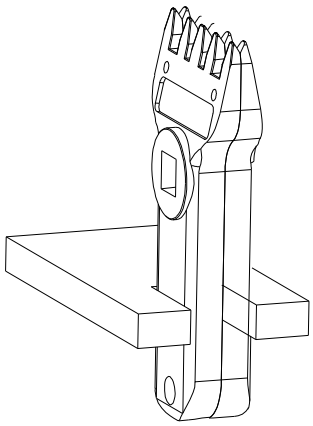


FIGURE 2

DISASSEMBLY

For the disassembly and assembly it is easy to use a vise or a special piece of wood with a slot in it to hold the clamp as shown in figure 2.
To disassemble the clamp unscrew the Alan bolt and take of the closing mechanism.

GRINDING THE CLAMP PARTS.

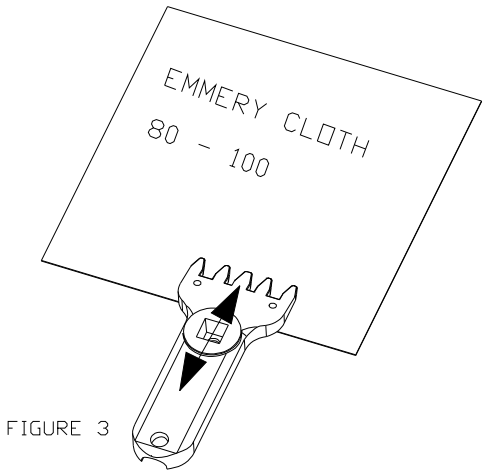


FIGURE 3

To clamp the string with a minimum clamping force the clamping surface must be equally rough.
Grind the clamping surface by moving the clamp up and down over a piece of grinding cloth.
Support the grinding cloth on a flat surface like a table.

THE ASSEMBLY OF THE CLAMP.
- Put the spring in the hole between the front and the back of the clamp.
- Clamp both castings on top of each other in the clamping device.
- Put the Alan bolt in from the back.
- Put the square nut on the Alan bolt and screw the bolt into the nut until the nut is level with the surface of the clamp.
- Slide the spring washer over the Alan bolt.

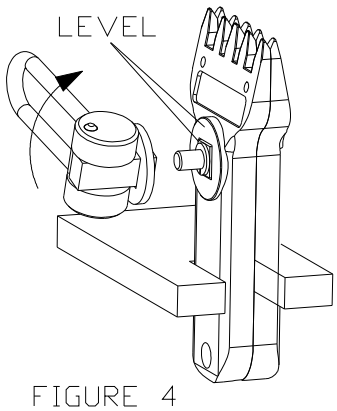


FIGURE 4

- Turn the pull rod of the eccentric set on the Alan bolt until it compresses the spring washer completely.
- Turn the pull rod ¼ revolution backwards.
- If the eccentric is in the right position, with the handle downwards, turn the Alan bolt into the pull rod until the nylon washer hits the surface of the clamp.

If the closing mechanism is in the wrong position:
- Unscrew the Alan bolt holding the eccentric, so that the square nut comes out of the hole in the clamp.
- Turn the pull rod / eccentric in the right position.
- Turn the Alan Bolt into the pull rod until the nylon washer hits the surface of the clamp.

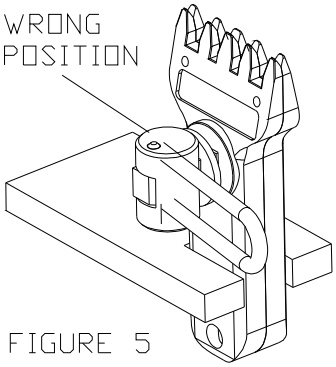


FIGURE 5

GREASING THE CLAMP.

For easy up and down sliding of the clamp it is advised to insert a thick layer of grease into the hollow that clamps the clamp on the pin of the sliding system.

We wish you much pleasure with your MS140 stringing machine

.