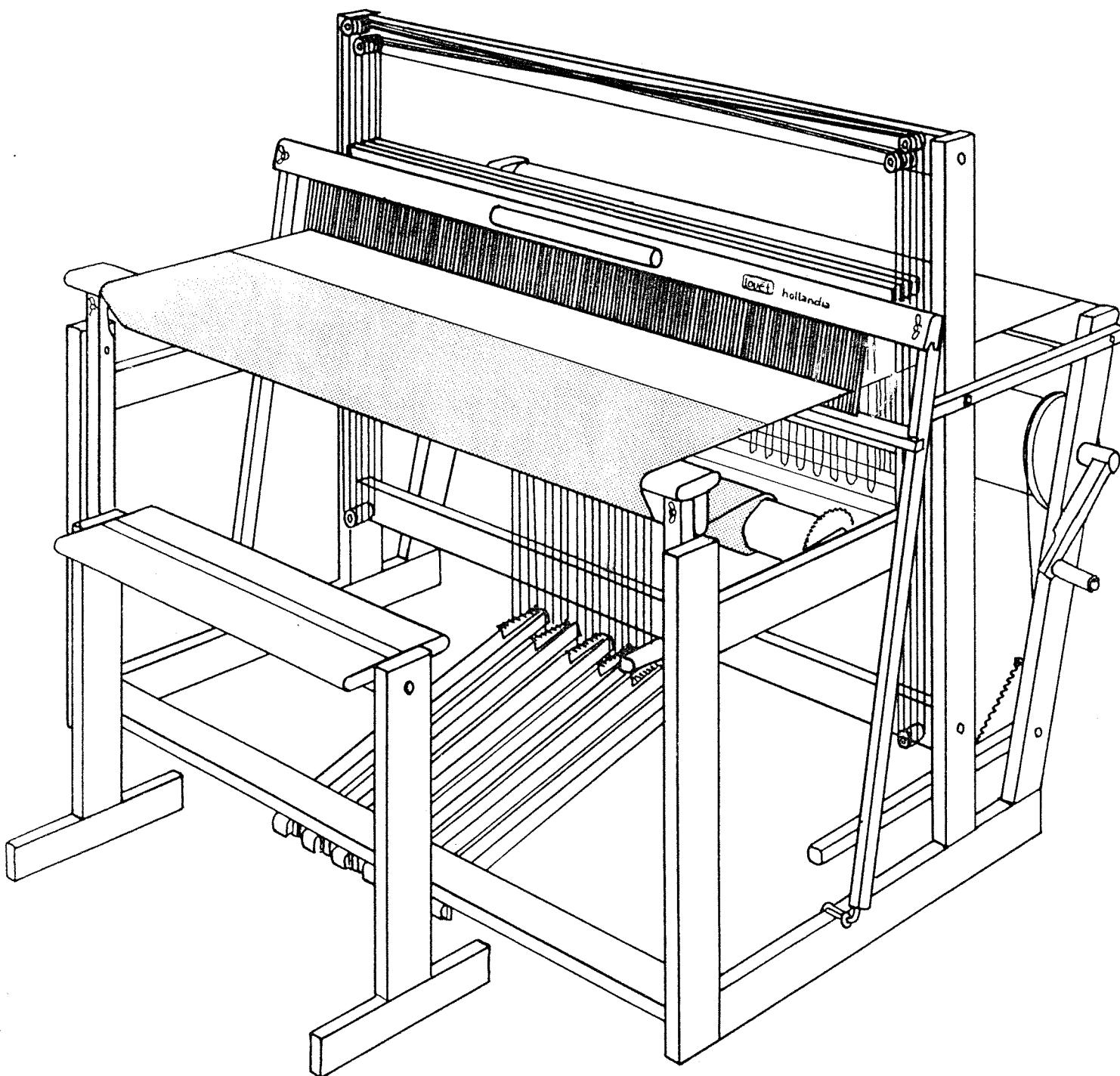




hollandia

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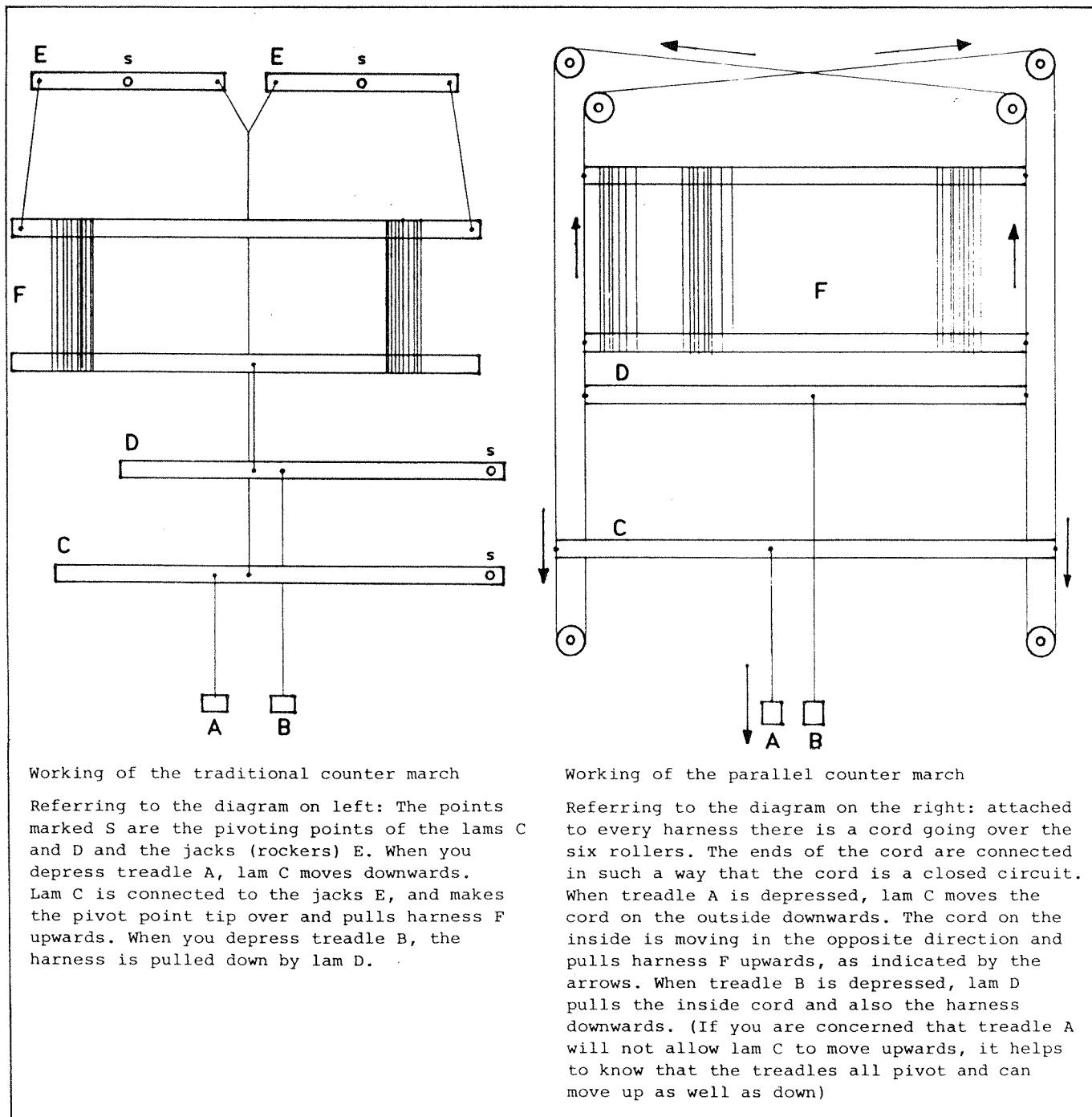
THE PARALLEL COUNTER MARCH SYSTEM.

The counter march system of weaving means, simply, the movement of all harnesses either up or down, when each treadle is depressed. Considered the best system by experienced weavers, counter march looms give the best shed over all varying degrees of warp tension. The weaver is also insured that when the shed is made, the tension on the upper and lower threads is equal.

If you look carefully at the diagram, you will see that the workings of the counter march system is really quite simple. Below every

harness there are two lams, one of them directly connected to the harness and also moving in the same direction. The other lam is connected to the harness in such a way that the harness and lam are moving in opposite directions. When the first mentioned lam is pulled down, the harness moves down with it; when the other lam is pulled down, it pulls the harness upwards.

When tying up, each treadle has to be connected to every harness, either by the lam that pulls the harness upwards, or by the lam that pulls it downwards. More about tying up later.



With parallel counter march the harness bars are only attached at the ends, so heddles are moved easily across the whole width of the harnesses and precise final adjustments can be made to the harnesses and lams by means of the adjusting nuts at the ends of each harness or lam bar. The harnesses can be blocked at any desired height for threading by inserting a holding pin through the texsolv cord and into the castle.

THAT FEAR OF TYING.

Of course this system demands, on average, twice the tie-ups as with other looms. Once upon a time, this meant spending hours tying up treadles, and unfortunately this stigma has remained with counter march looms despite the fact that the time and difficulty factors have decreased dramatically with the use of texsolv materials. Texsolv cord is a looped polyester cord, and by using texsolv cord there is no need to actually tie knots (that slip) anymore, the cord does not stretch, and therefore there is no need for adjustments afterwards. With the Hollandia, regular lengths of texsolv tie-up cord are used, and when you change the tie-up, there is no need to remove the cords from the lams. The cord is also easily attached to the treadles by means of built-in hooks.

With a traditional counter march the lams are fixed at a pivot point and the movement of the treadles and the power required to push down each treadle depends on the spot where the treadle is tied-up to the lam, i.e. the closer to the pivot point you get, the harder it is to push down the treadle. In practical terms, it means that treadles can only be placed in the middle of the loom. In the parallel system, because the lams stay horizontal as they move, it makes no difference where the treadle is tied to the lam, and treadles can be tied-up along the whole width of the loom. The Hollandia can accommodate up to fourteen treadles. This feature is particularly important in counter march looms, as it is not possible to push a combination of treadles.

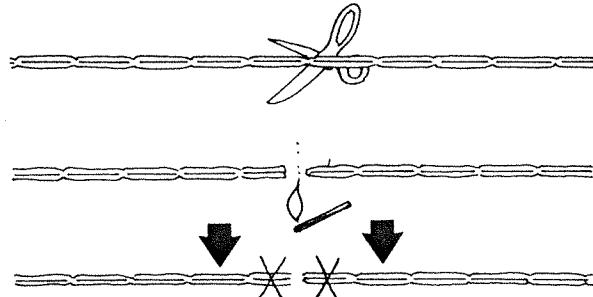
THE COMPENSATION DEVICE FOR THE WARP TENSION.—

The design of a loom is a compromise between contradictory wishes, possibilities and restrictions; the size of the shed, the depth of the loom, the warptension, the power that is needed for moving the harnesses and the elasticity of the warp. The compensation device makes this compromise more favourable, because elasticity of the warp is not a factor anymore. The breast beam is attached resilient to the loom. When the shed is made, the warp pulls the breast beam backwards and the distance between breast beam and backbeam is getting smaller. In the space that comes

about, three things happen that come to the same: The shed can enlarge, less power is needed for moving the harnesses and there is less increase of warptension while the shed is made. This advantage becomes clear, especially when weaving at the last piece of the warp: Even when the end of the warp comes close to the harnesses, you can still make a big shed. The breast beam moves further backwards and only a bit more power is needed to push the treadle. Further advantage of the compensation device is that the warp tension is exactly the same again after beaming the fabric.

THE SYSTEM TEXSOLV.

The texsolv heddles combine the advantages of metal and cotton heddles: noiseless weaving and an open eye. The bundles of 100 heddles consist of a zig zag foulded fine double cord. The two cords are locally connected, by which the heddles are formed. You will notice that both sides of the bundles are tied in a way the harness bars can pass through all heddle loops at once. DO NOT REMOVE BUNDLE TIES UNTIL AFTER HEDDLES HAVE BEEN THREADED ONTO HARNESS BARS. When heddles must be removed or moved to another harness, first bundle the heddles by tying them in four places as they were originally. Except for convenience sake, it is not necessary to cut the heddles apart. If you wish to cut them into smaller numbers, you can speed up thread counting by cutting them into bundles of regular numbers, such as tens, twenties and fifties.



Texsolv cord should be cut at the connection between two loops. To prevent unravelling, the ends should be melted a bit with a lighter or match. Even if this loop end remains closed after melting, it should not be used when tying-up; use the next loop to it.

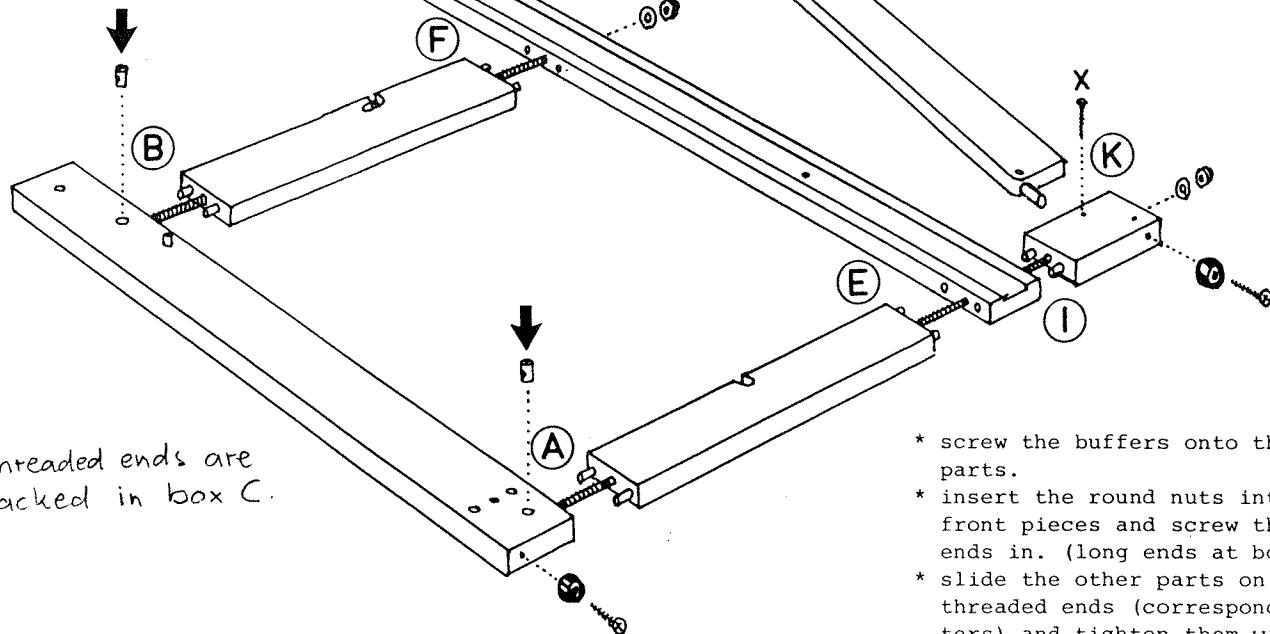
DO NOT OPEN HARDWARE BAGS UNTIL AT RELATED STAGE OF ASSEMBLY -

HARDWARE BAG 0

ASSEMBLING THE SIDES

- * select the parts for the right side and the left side. (pay attention to the corresponding letters A,B,C,D etc.)

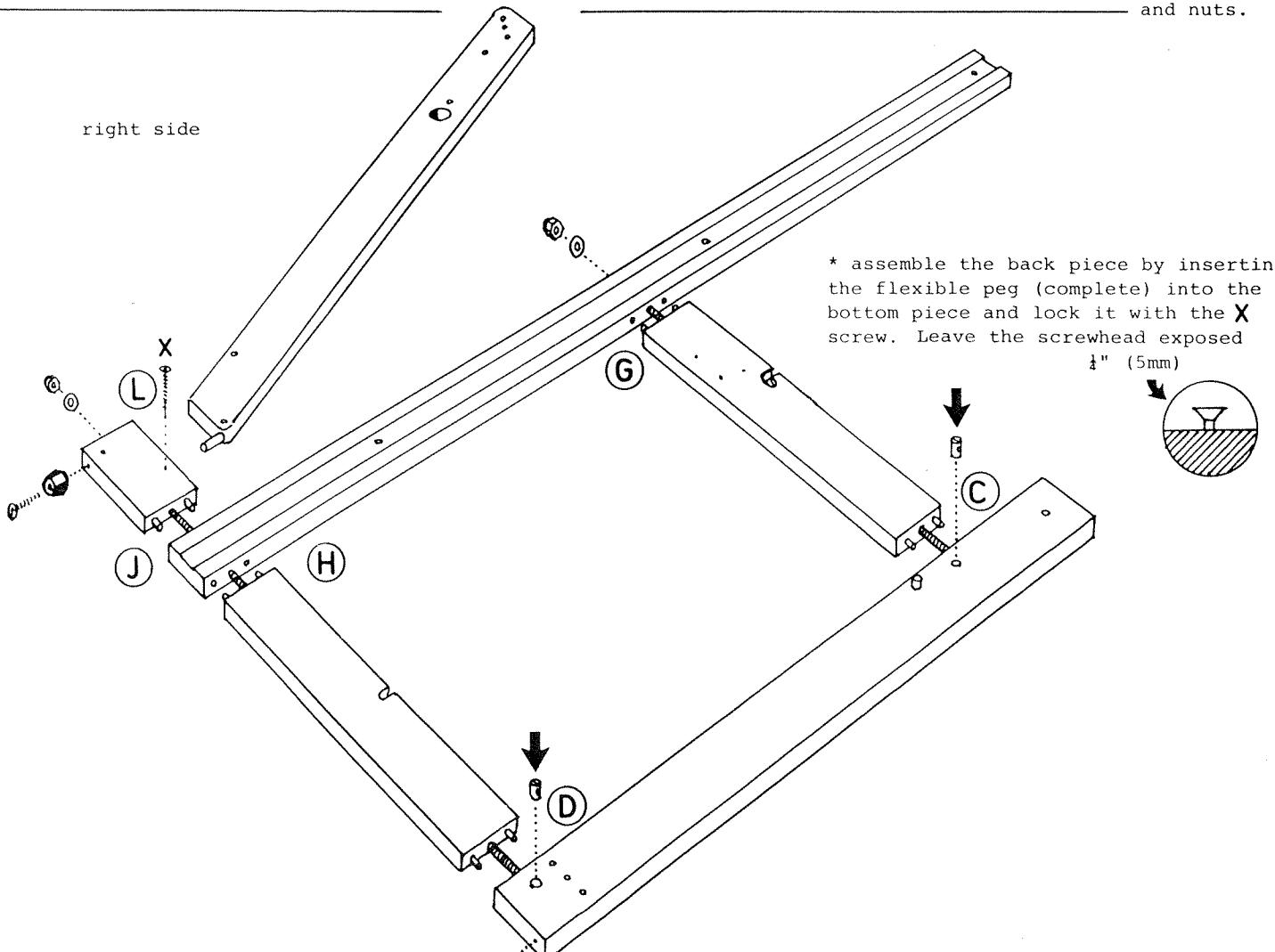
left side



threaded ends are packed in box C.

- * screw the buffers onto the bottom parts.
- * insert the round nuts into the front pieces and screw the threaded ends in. (long ends at bottom side)
- * slide the other parts on the threaded ends (correspond the letters) and tighten them with washers and nuts.

right side

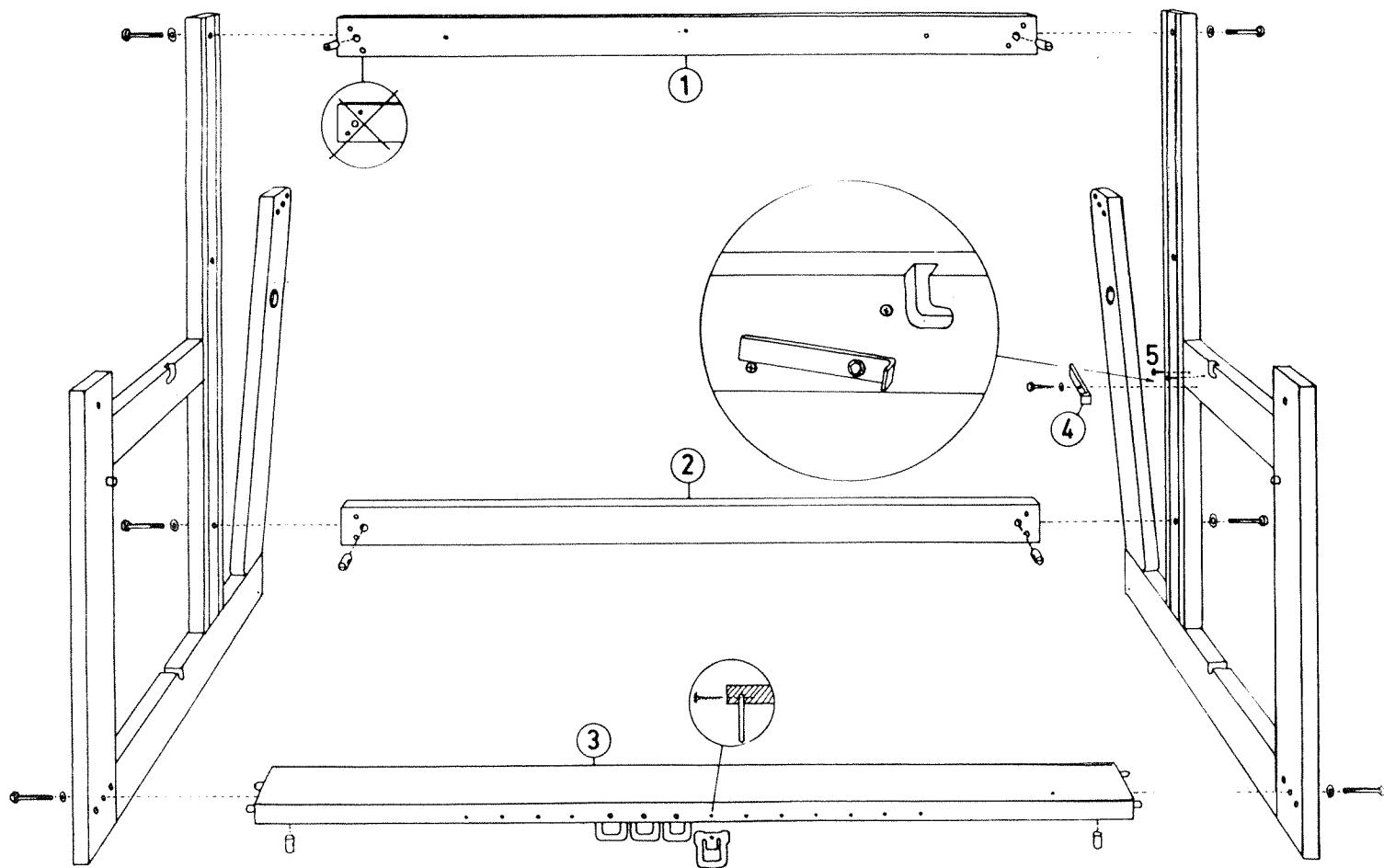


- * assemble the back piece by inserting the flexible peg (complete) into the bottom piece and lock it with the X screw. Leave the screwhead exposed $\frac{1}{4}$ " (5mm)

HARDWARE BAG 1

FRAME ASSEMBLY.

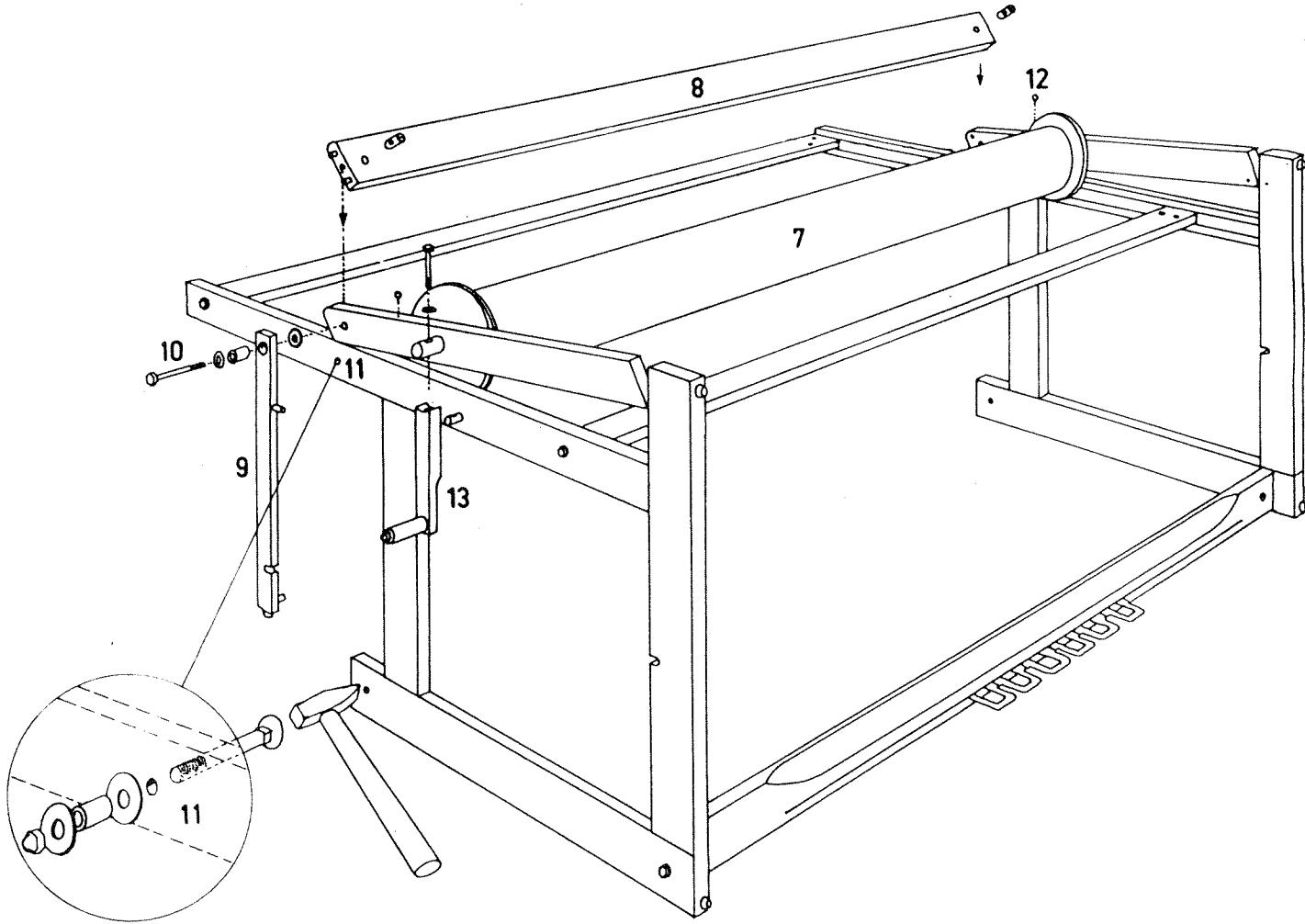
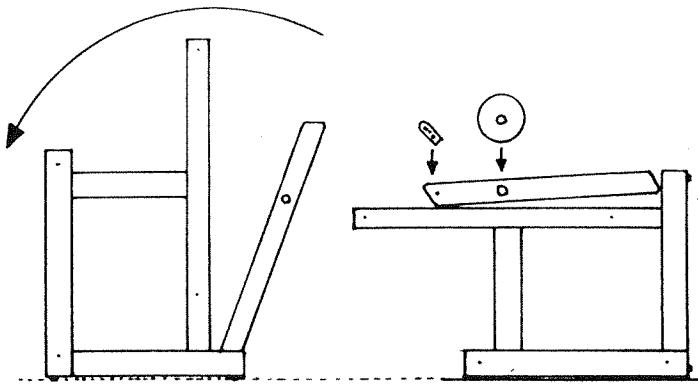
- * After you have opened box A also open box B.
- * Assemble the treadle hinges to bar 3.
- * Assemble pieces 1, 2 and 3 to the sides of the frame; check diagram for the correct position of these parts.
- * Assemble ratchet 4 with the 6mm screw and small washer at the right side of the frame, tighten up the screw a half turn back so that the ratchet can turn free.
- * Assemble screw 5 and 5a; the long side of the ratchet has to be between these two screws.



HARDWARE BAG 2

ASSEMBLING WARPBEAM, BACKBEAM AND EXTENDERS.

- * Open box C.
- * Topple the frame onto its front, putting something under it for protection.
- * Put the warpbeam 7 into the holes.
- * Press the backbeam with its dowels into the holes of the backbars, rounded side up.
- * Assemble the right and left (not visable in the diagram) extender 9 with long bolt 10, small washer, bushing and big washer into the frame and backbeam.
- * Fasten in hole 11 to both sides of the frame, the shores for the extenders 9; hammer the carriage bolt into the hole and assemble it with bushing, two large washers and capnut as shown.
- * Screw the eyes 12 into the holes, eventually inserting the end of a screwdriver through the eye to give force. The eyes are for attaching the cross sticks while weaving.
- * Assemble handle 13 to the axle of warpbeam 7; at one end of the hole the axle has a flat side. The bolt must be put through the hole in the direction that head and washer are against this flat side.



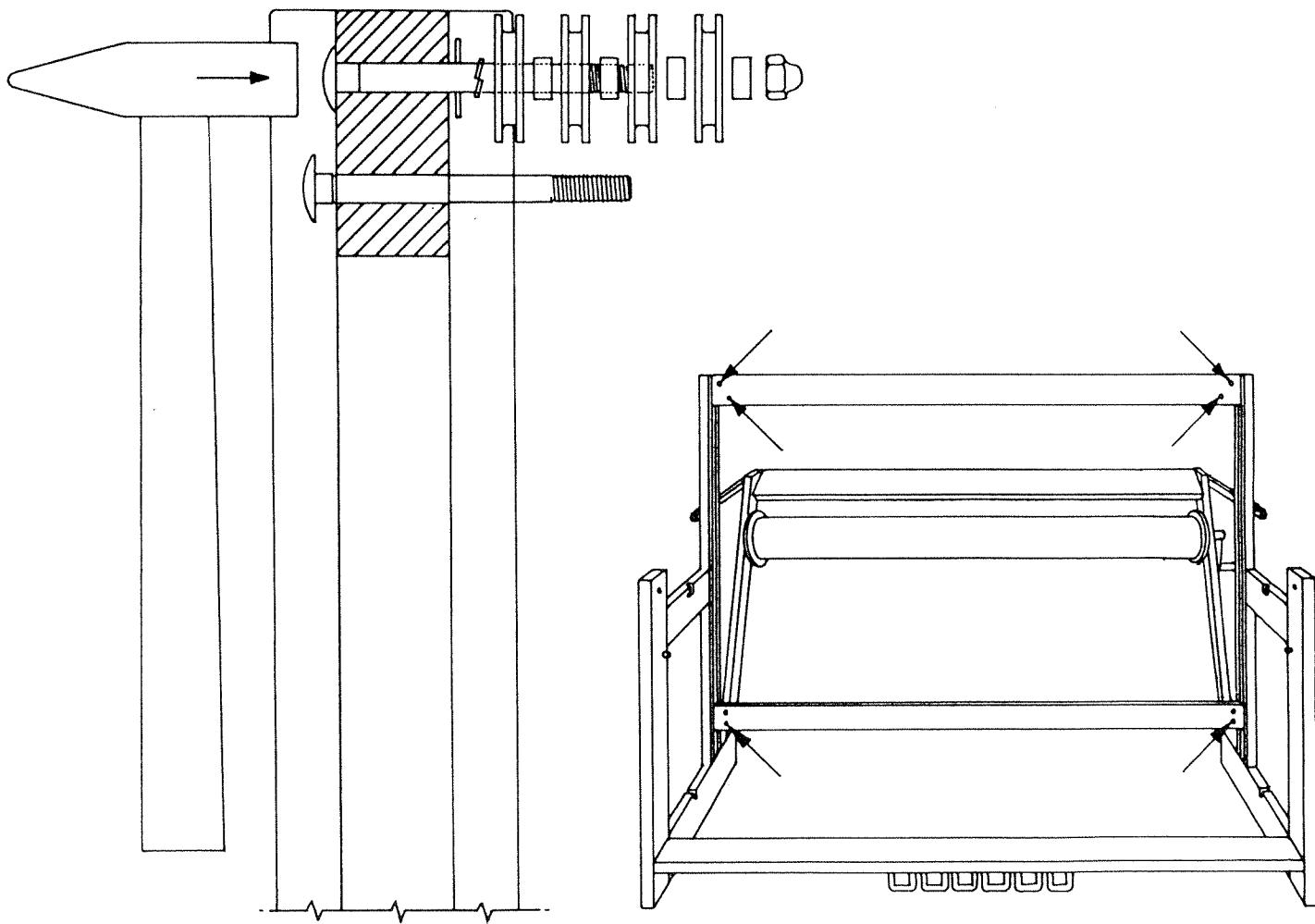
HARDWARE BAG 3

ASSEMBLING THE ROLLERS FOR THE PARALLEL CORDS
FOR FOUR HARNESSSES.

* Place the loom upright.

* Hammer the six bolts from the back to the front into the marked holes (in the lowest bar use the lowest hole).

* Assemble the big washer, springwasher,rollers and spacers in indicated sequence. N.B. For assembling 8 harnesses also unpack the extensionset and assemble the long bolts instead of the short ones (see instructions for extensionset next page).



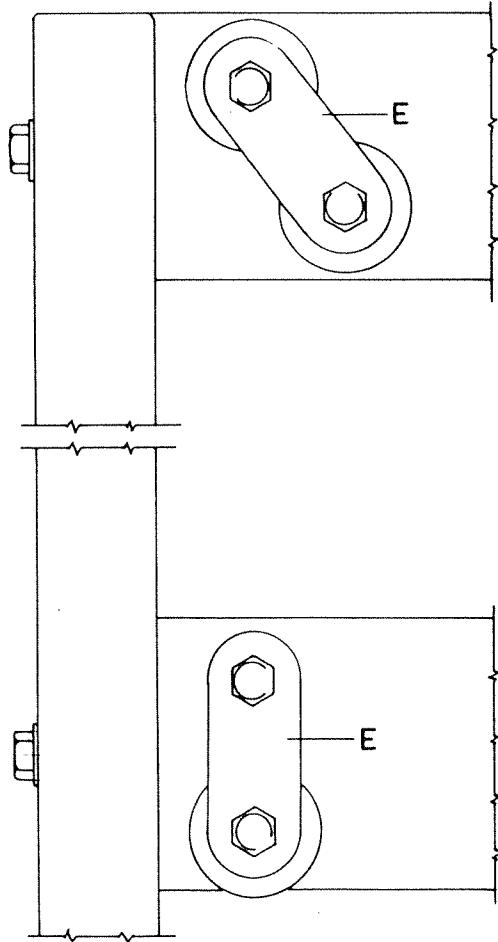
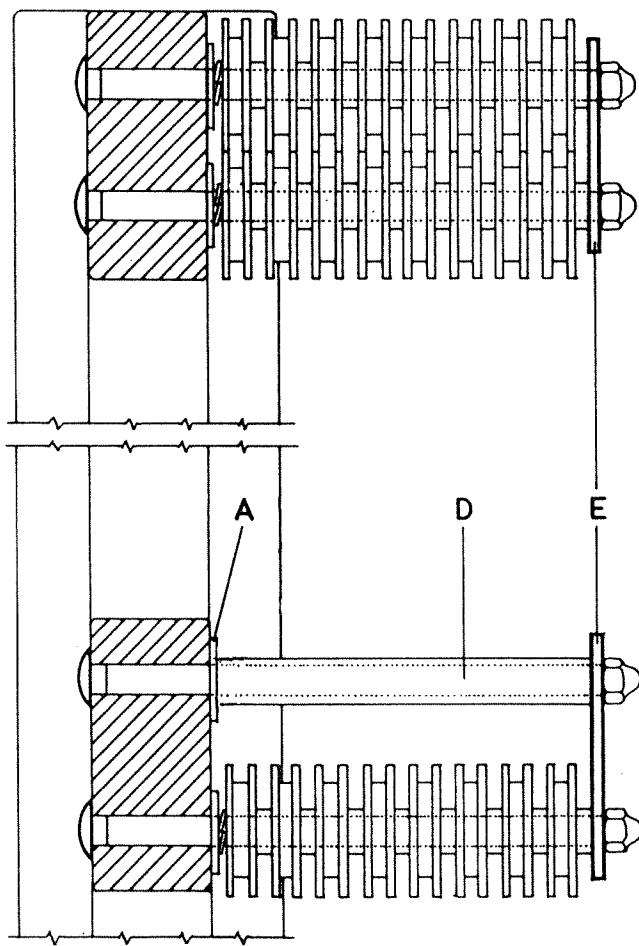
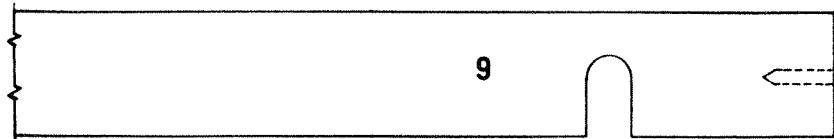
ASSEMBLING THE ROLLERS FOR 8 HARNESSSES.

* Using longer bolts from the extensionset, follow instructions given for 4 harness bolt assembly; hammer remaining bolts from extensionset into upper holes on lower bar and assemble on them big washer A, and long bushing D.

* Connect the ends of each pair of bolts by plates E.

FURTHER ASSEMBLY FOR 8 HARNESSSES.

* Remove the buffers from the ends of extenders 9. * Assemble the long screw F to the buffer again with wooden spacer G on the extenders. * Assemble the four extra treadle hinges into the groove at both sides of the already assembled treadle hinges.



HARDWARE BAG 4 (packed in box C)

FITTING OF THE PARALLEL CORDS AND APRON BAR CORDS (these cords are already cut to length).

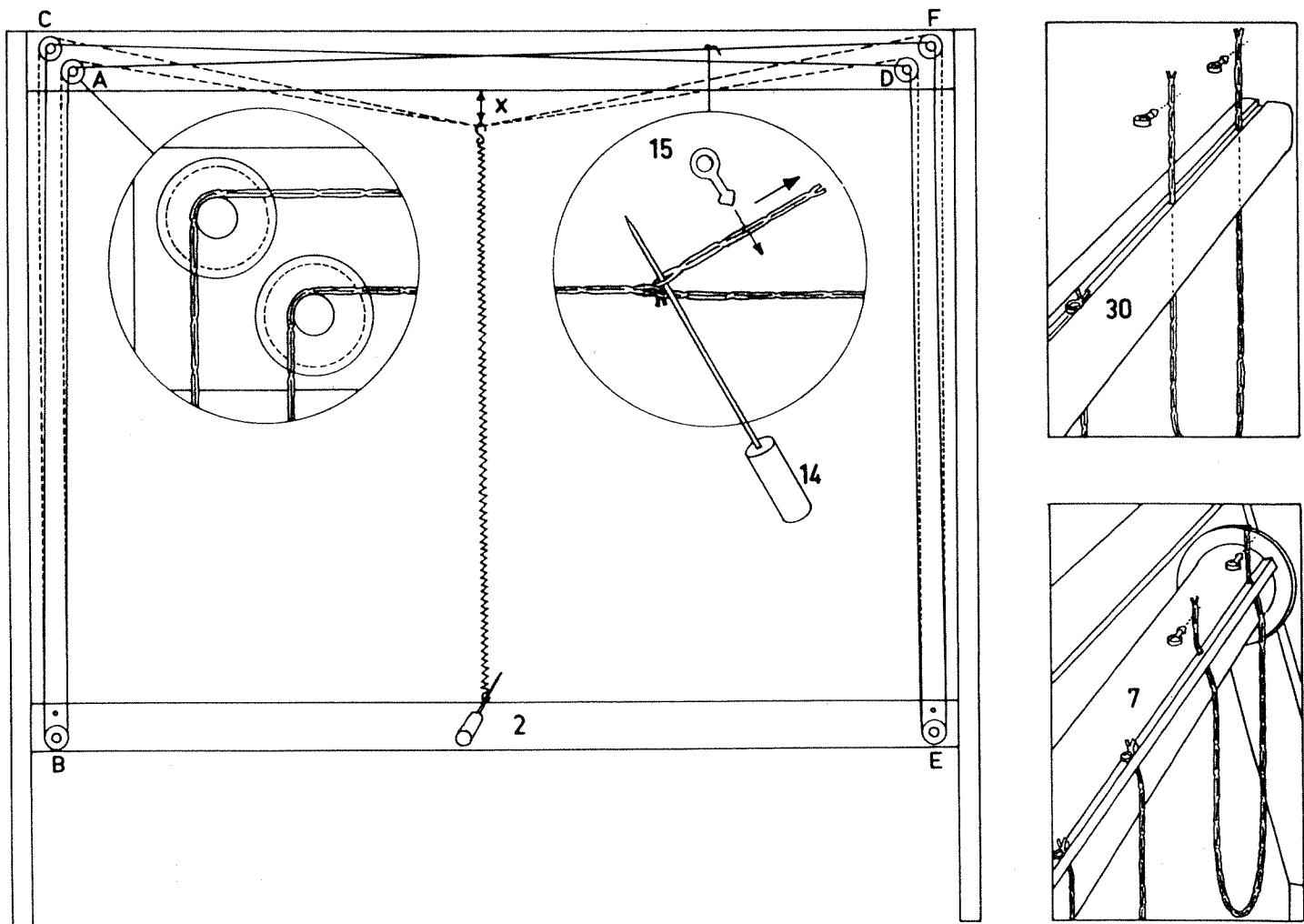
- * Starting with the rollers closest to the back frame piece, guide cords along rollers A, B, C, D, E and F in such a way that they cross each other in the middle; holding onto the ends of cord with one hand, slip the cord off upper rollers A, C, D and F laying the cord just in between the rollers while the following tension adjustment is made:
- * Pull one end of the cord through the last loop of the other end and pull cord tight.
- * Block connection with pin 14 and push plastic peg 15 through indicated loop; pull out pin 14

and lay the cord back on the four rollers.

- * Use one of the draw springs to check the tension of the cord: Hook the spring around the double cord, insert pin 14 into other end of spring and pull until it touches bottom bar 2. The distance X has to be $\pm 7\text{cm}(2\frac{1}{2}')$ for 130cm loom or $\pm 6\text{cm}(2\frac{1}{4}')$ for 110cm loom. Adjust tension of the cord if necessary by replacing the plastic peg into another loop of the cord.

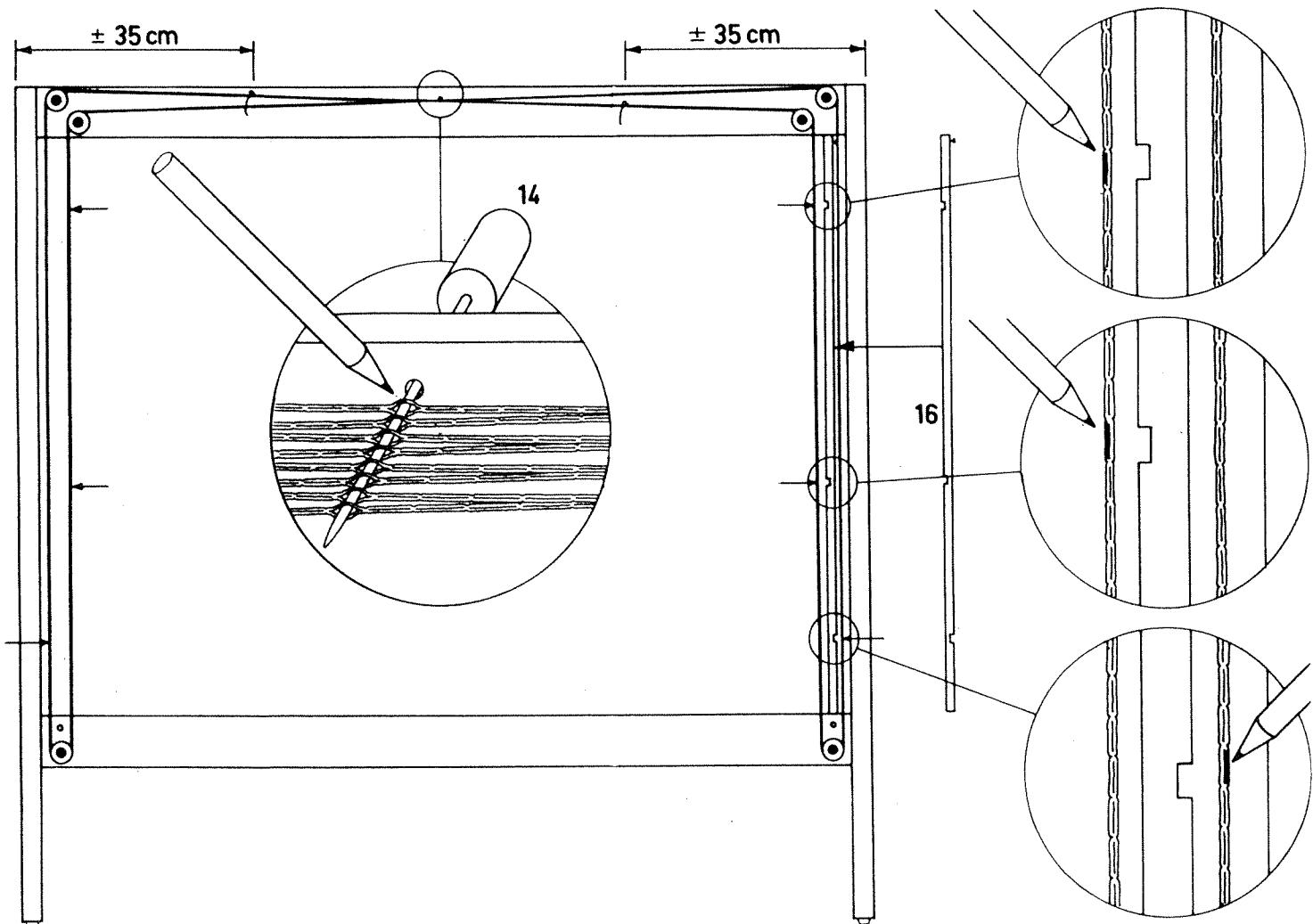
- * Put remaining cords on, following same procedure making sure that all cords are strung with about the same tension.

- * Fasten other cords as indicated to clothbeam and warpbeam.



MARKING THE ATTACHMENT POINTS FOR HARNESS BARS AND LAMS TO THE PARALLEL CORDS.

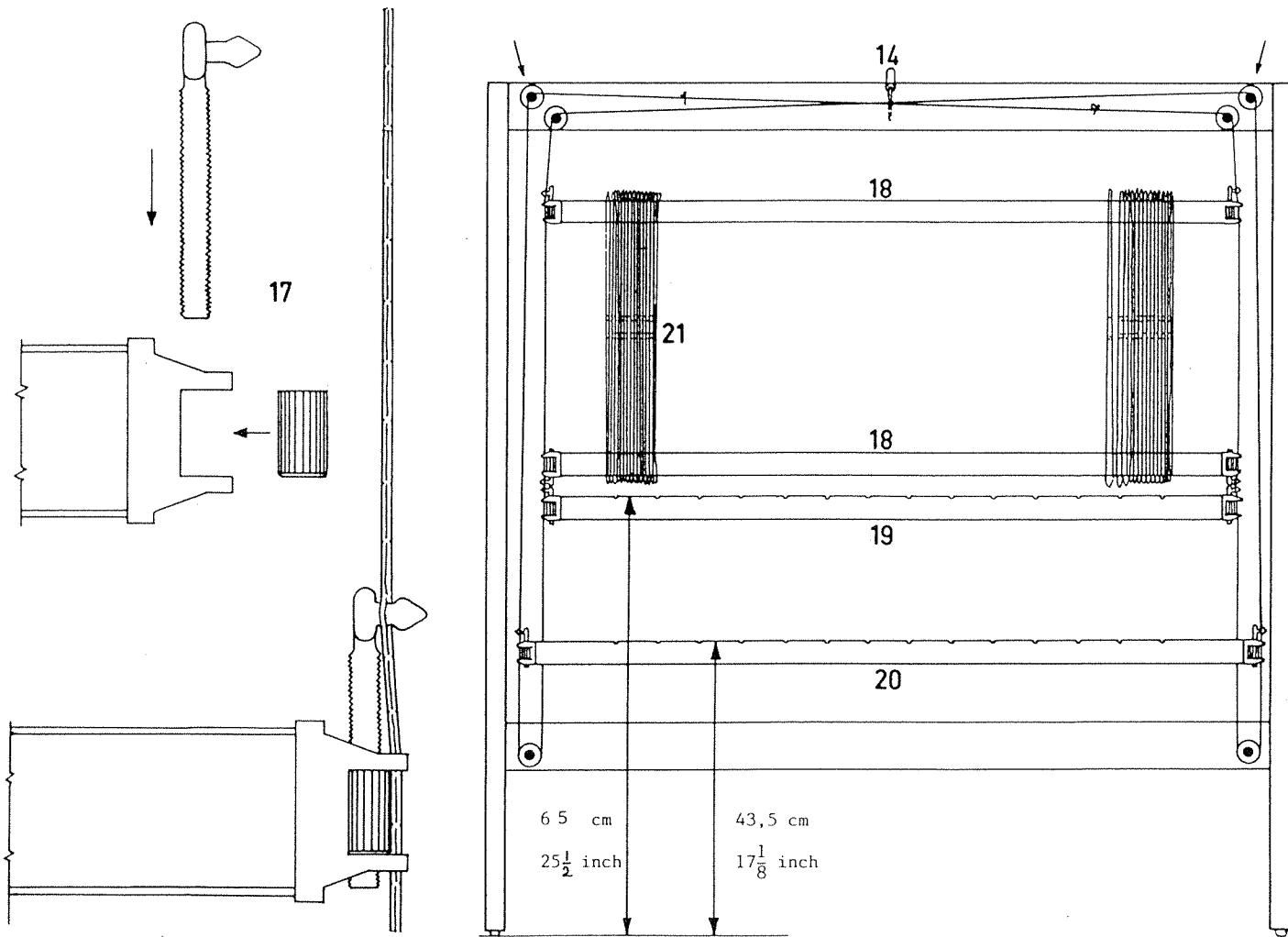
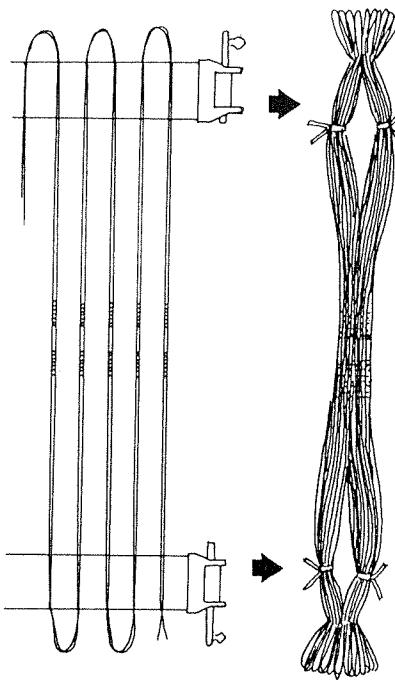
- * Use a feltpen or soft pencil.
- * Lay all cords on the rollers and slide the "knots" alternately on about 35cm(14") from the sides.
- * Block all cords by putting pin 14 into the hole in the middle at the top of the loom and through the loops of the cords.
- * Mark the loops through which the pin is put. This is the starting point for all tying-up; when controlling and correcting the heights of harness bars, lams and treadles the cords should always be blocked in this position.
- * Put the measuring rod 16 with the screw upwards between the horizontal bars of the frame and on every cord mark the loops that are nearest to the notches of the measuring rod; the lower mark has to be on the outer cords. Mark the cords in this way on both sides of the loom.



HARDWARE BAG 5

ASSEMBLING THE HARNESS BARS AND LAMS.

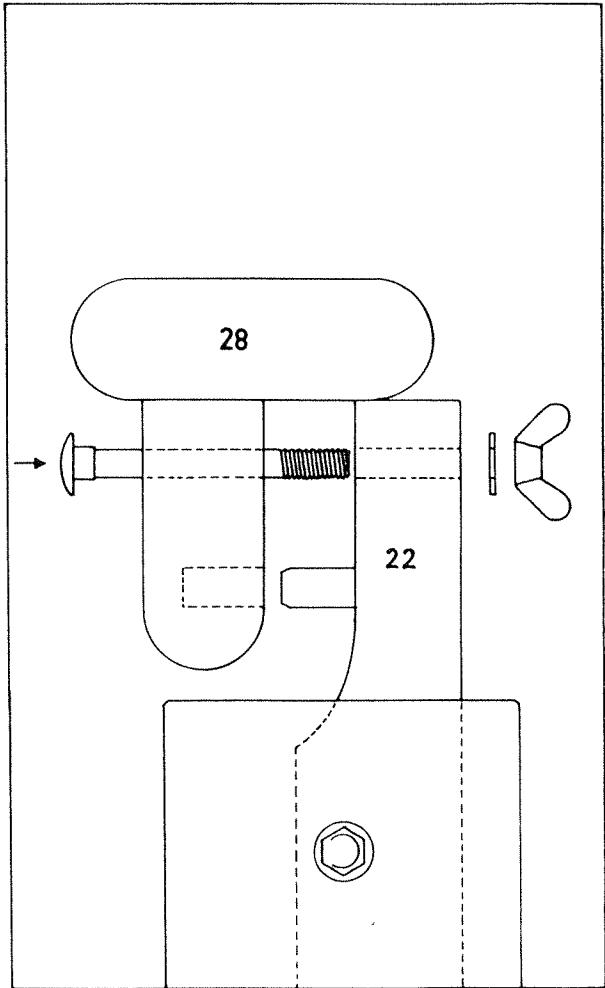
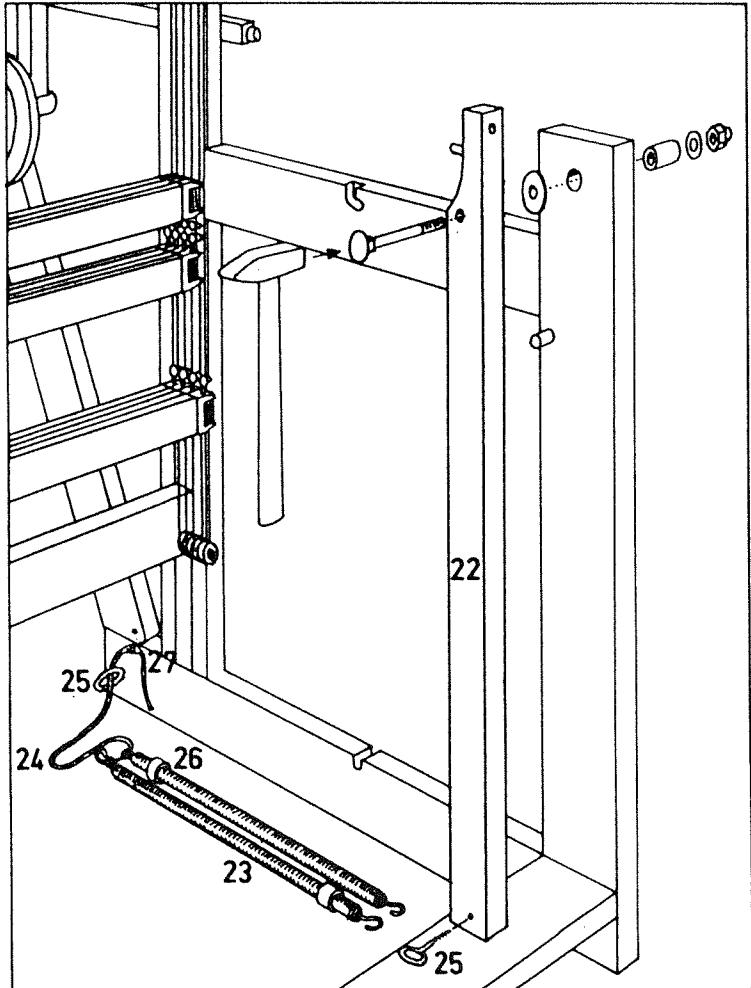
- * Assemble the adjusting hooks to the ends of harness bars and lams with knurled nuts 17; the flat side of the knurled nut has to be up. Make sure that the grooves of the lams are turned up.
- * Relax the parallel cords by laying them next to the four rollers on the bolt.
- * Slide the bundles of heddles onto the harness bars. Do not remove bundle ties until heddles are on the bars.
- * Snap the adjusting hooks into the marked loops of the cords; at the lowest harness bar 18 the hook must be at the bottom; right underneath in the next loop (not marked) is the spot for the small lam 19.
- * Assemble the long lams so that the inner cord passes behind them.
- * Put the cords back onto the rollers, but do not take out pen 14.
- * Using the knurled nuts, adjust the lams to be horizontal and even; distance from floor to uppersides of lams has to be 65 cm and 43 $\frac{1}{2}$ cm respectively.



HARDWARE BAG 6

ASSEMBLING THE COMPENSATION DEVICE AND BREAST BEAM.

- * Assemble arms 22 to the frame; large washer between arm and frame, bushing into hole of the frame. Mind front and back of the arms!
- * Turn four screweyes 25 into the holes of the arms 22 and into the back of the frame, so deep that they are $\pm 2\frac{1}{2}\text{cm}(1")$ outside of the wood. Eventually insert a screwdriver through the screweye to give more force.
- * Pull plastic rings 26 over springs 23.
- * Attach draw springs 23 with the keyring to cord 24.
- * Lead the cords through the screweyes in the frame and hook a cord loop around the extending screw 27.
- * Attach the springs with their hook to the screweyes of the arms 22.
- * Assemble breast beam to both arms 22.

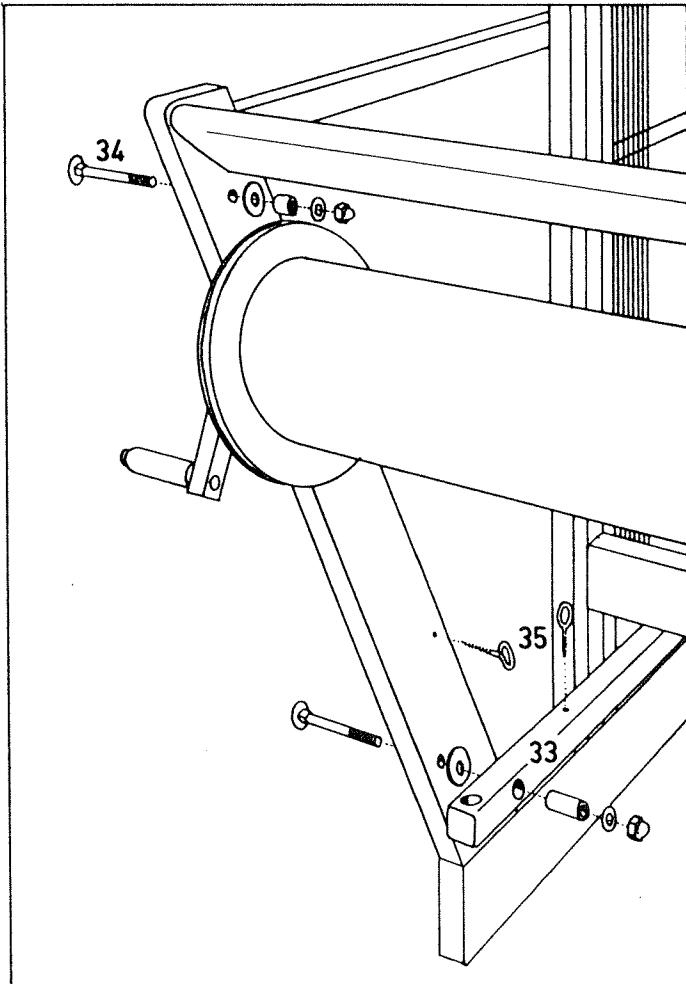
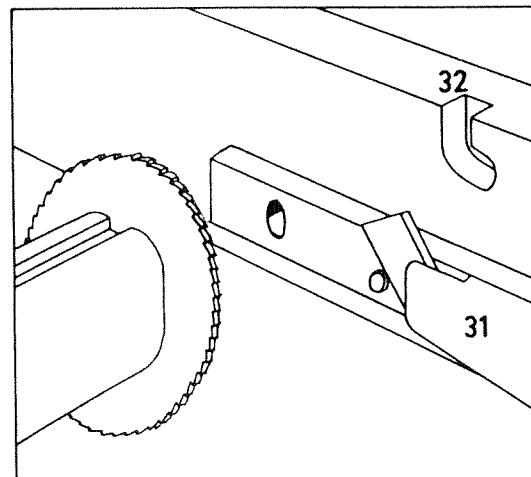
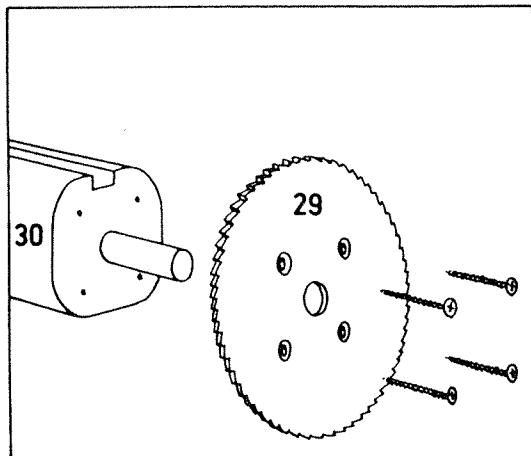


HARDWARE BAG 7

ASSEMBLING THE RATCHET WHEEL TO CLOTH BEAM.
* Screw ratchet wheel to the cloth beam into pre-drilled holes.
* Slide beaming arm 31 over the axle of the cloth beam.
* Lay the cloth beam into the grooves of the frame and let the beaming arm rest on the wooden peg at the front of the frame.

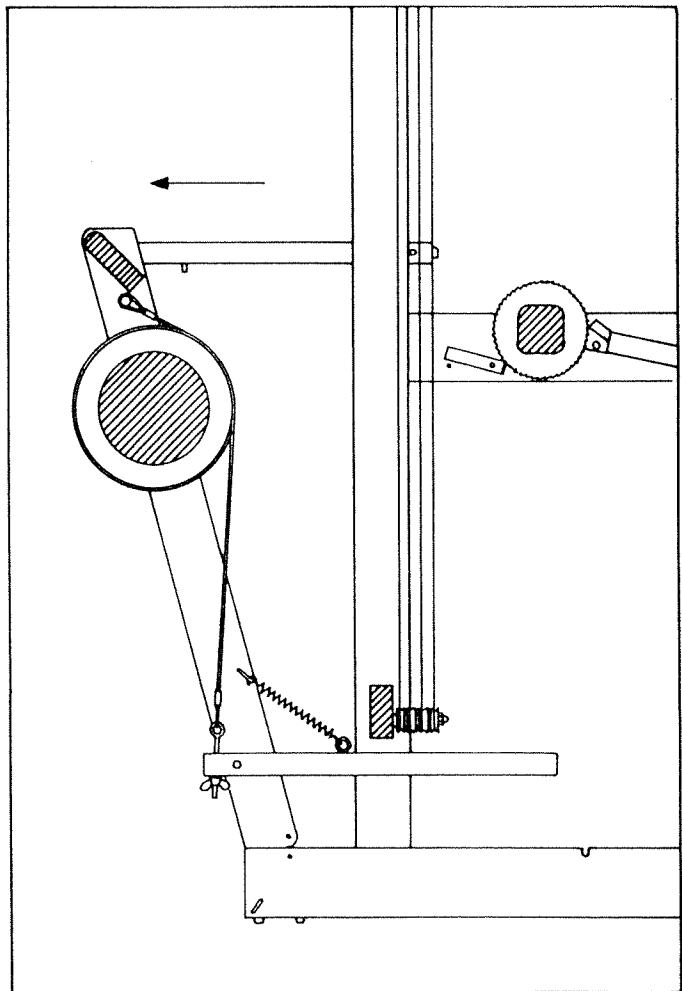
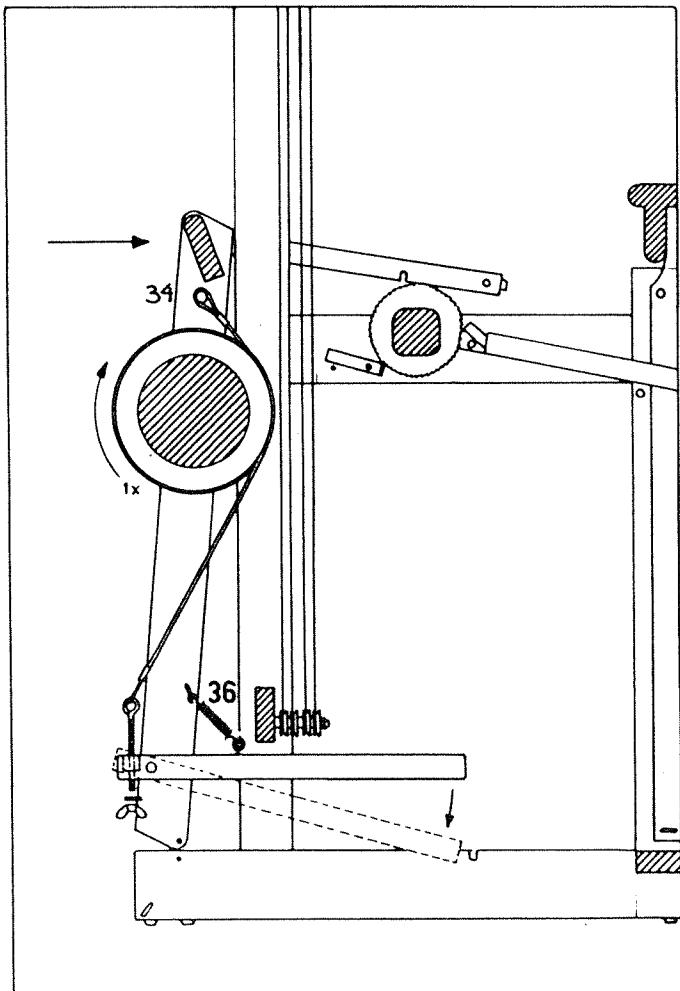
HARDWARE BAG 8

ASSEMBLING THE BRAKE TO THE WARPBEAM.
* Screw the screweyes into the pre-drilled holes of the brake pedal and frame until the eye is into the wood.
* Attach brake pedal 33 to the frame; with large washer, bushing and small washer.
* Assemble attaching bolt 34; with large washer, bushing and small washer.



ASSEMBLING THE BRAKE CONTINUED

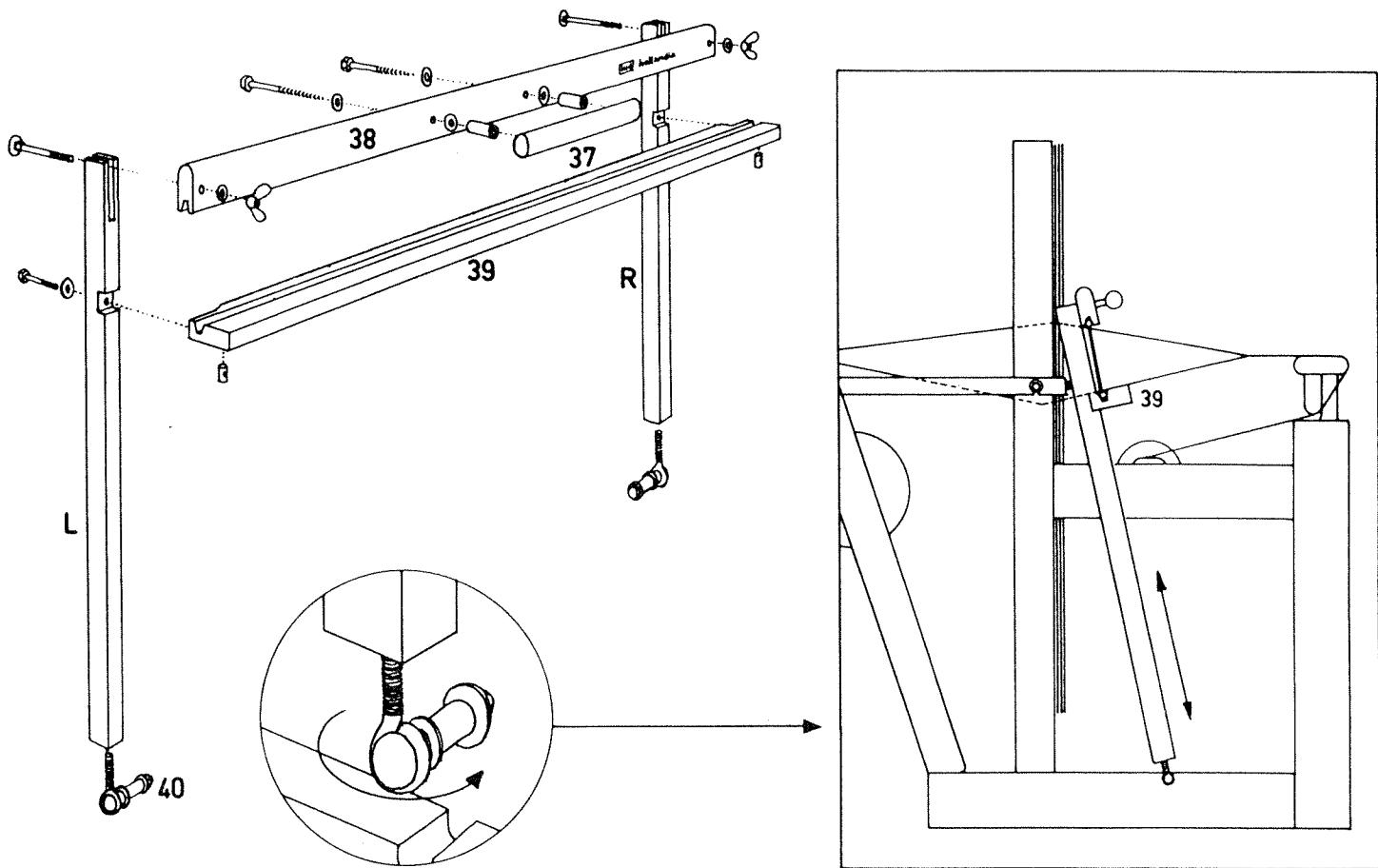
- * Fold the loom together and attach spring 36 to both eyes.
- * Hitch the cable to attaching bolt 34 and lay it once around the brake disc.
- * Unfold the loom, but place a piece of cardboard between the pedal and the rollers to prevent damage.
- * Attach the cable bolt with washer and wingnut to the brake pedal.
- * Press the pedal down and turn the wingnut so far that the pedal stays about horizontal.
- * Pull the pedal up, so that the cable stretches tight.
- * Press the pedal down again and turn the wingnut further till the pedal is horizontal again; after using the loom some time it could be necessary to repeat this.



HARDWARE BAG 9

ASSEMBLING THE BEATER.

- * Attach handle 37 to the upper beater 38.
- * Turn the swiveling feet 40 at the bottom of posts L and R.
- * Attach lower beater 39 to both posts L and R.
- * Attach upper beater 38 also to posts with carriage bolt, washer and wingnut.



HARDWARE BAG 9

TYING UP THE TREADLES.

Lams A move the harnesses downwards and lams B move the harnesses upwards. To easily translate weaving drafts when tying up your loom, mark bottom lams O and upper lams X. Tie the corresponding lam according to whether the draft calls for the harness to rise (O as in jack looms) or fall (X as in sinking shed looms).

* Put the treadles from the inside into the hinges.

* Block the parallel cords.

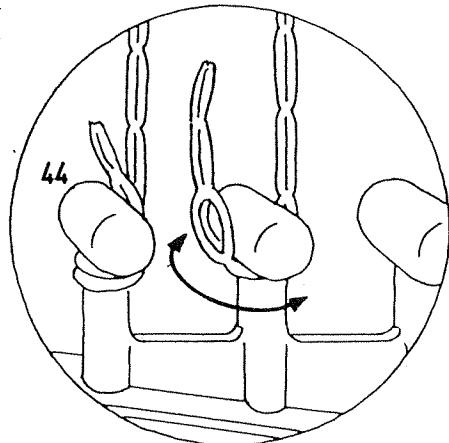
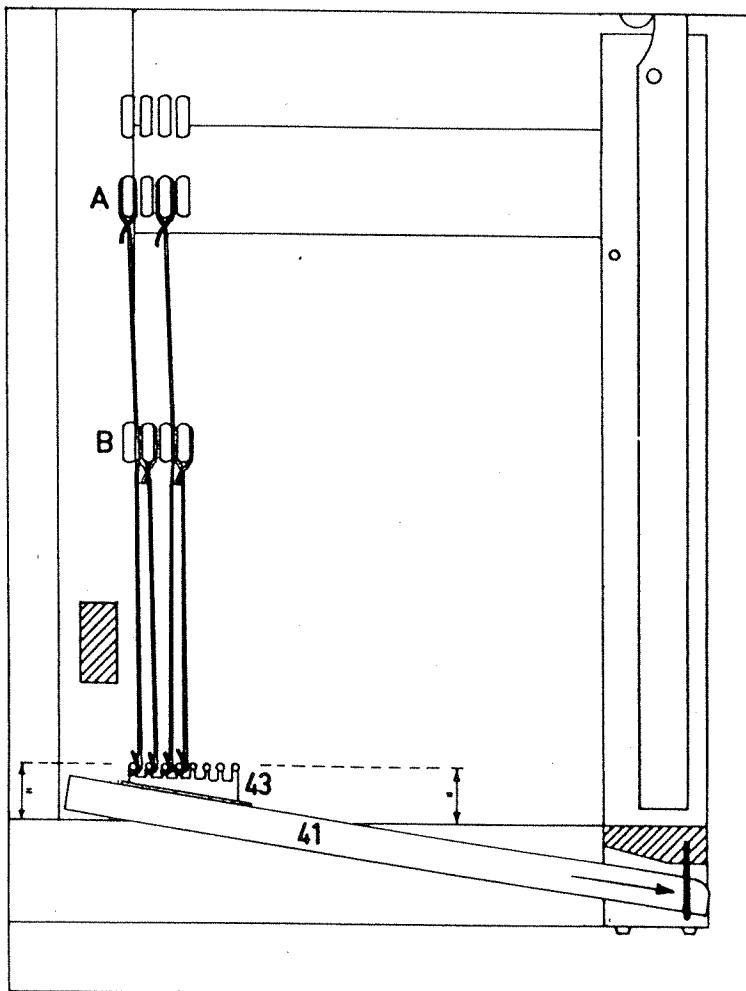
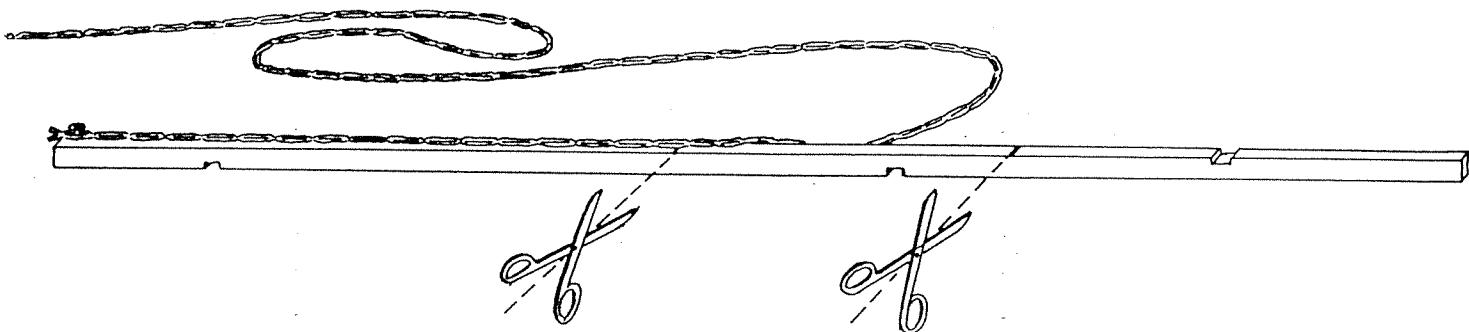
* Cut the long and short cords to the right length: Lay the first loop of the cord around the screw of the measuring rod; there is a stripe for each length on the measuring rod. Cut at the meeting point between the two loops nearest to the stripe.

* Melt the ends of the cords with a lighter to prevent unraveling.

* Loop the cord around the lam and thread one end of the cord through the first loop of the other end. Secure loop at the notch in the lam over the corresponding treadle.

* Make sure cords of lam A run in front of the lower lam B (see diagram).

* Put the third loop of the cord around the tie-up hook of the treadle, then double back and put the second loop around the same hook; on 4 harness loom, use last four hooks of treadle only. When lams are hanging on the right height and the cords have the right length and are tied up correctly, then the eight tie-up hooks must be horizontal and the ends of the treadles have to be slightly above the midpoint between the floor and the horizontal back frame piece of the loom.



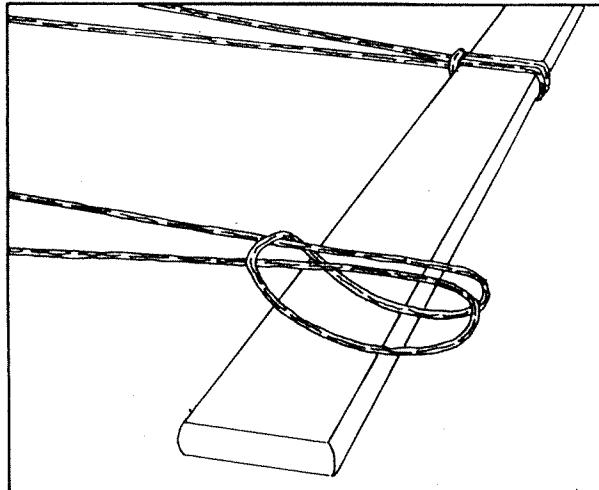
DIRECTIONS FOR USE.

The following directions were written specifically for the Hollandia loom and may not be applicable to other looms as they may lack the same features. Also they are not to be considered as a replacement for weaving lessons. Literature and lessons make up a very important and vital component of this craft and to fully understand weaving and your equipment, we strongly recommend lessons and reading. For information on weaving, contact your local library and weavers guild.

Some weeks after assembly it is important to check all bolts and nuts to insure that they are all still tight. This applies especially to the bolt that connects the handle to the warp beam. Also tighten the brake cable once more.

APRON BARS.

The back (warp beam) apron bar is longer than the front (cloth beam) apron bar. Attach these bars accordingly, using the loops as shown in the diagram.



ADDING HEDDLES.

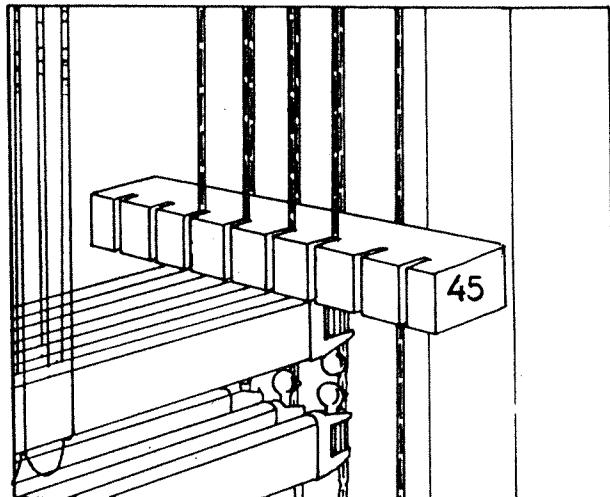
Adding or removing heddles on or from the harnesses must be done by loosening the harness bars from one side of the cord. This can be done in two ways:

1. By releasing the cords (slip the cords between upper rollers) and click the height adjuster hook of the harness bar from the cord.
2. By unscrewing the knurled nut so that only the adjusting hook stays in the cord.

SLEYING THE WARP.

Breast beam, cloth beam, beater and treadles can be removed from the loom while sleying. We recommend that whenever possible, all four harnesses should be used, even when weaving tabby. Using only two harnesses with a high tension on the warp will overload the lams and harness bars. When using only three harnesses out of four, or say only four harnesses out of eight on the extended loom, unused harnesses must be blocked in the neutral position.

The harness blocks 45 are provided to keep the harnesses spaced apart while sleying the heddles, so it is easier to see which heddle belongs to which harness. By blocking the harnesses at ascending heights with the pin through the hole in the castle, controlling the threading sequence of the heddles is also improved; by pulling on the warp ends one can see quite easily whether or not the threading sequence is correct according to ones pattern.



TYING UP THE CLOTH BEAM.

When tying-up the warp to the apron bar of the cloth beam, the springs of the compensation device must be unhooked, so that the breast beam blocks backwards while you are tying on.

ADJUSTING THE HARNESS BARS.

When the warp is tied onto the cloth beam, the harness bars can be adjusted. Block the parallel cords by putting the pin through the marked loops of the cords. Adjust the harness bars with the knurled nuts so that the warp threads go through the middle of the heddle eyes, and that the heddles have some tension.

ADJUSTING THE WARP TENSION.

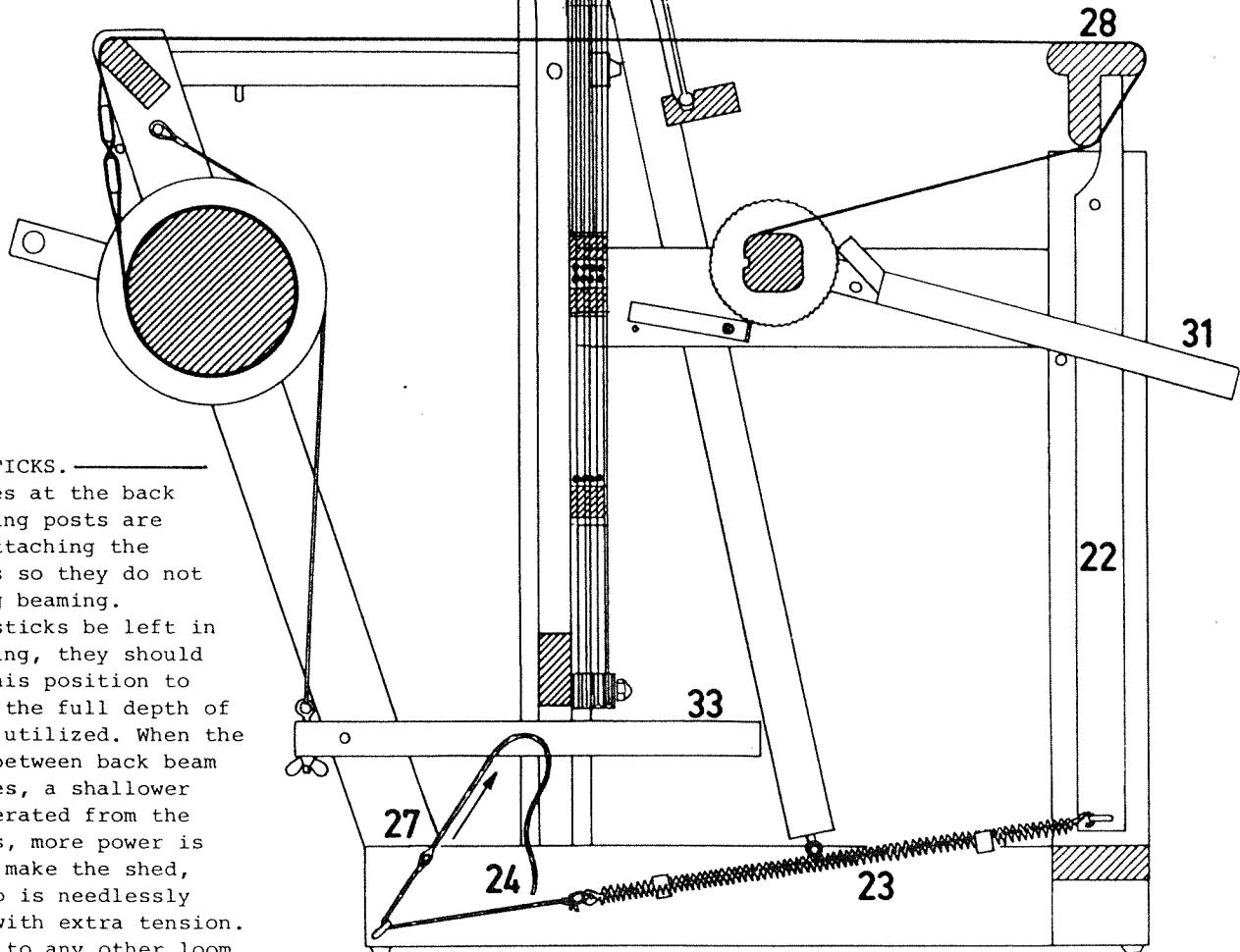
With springs 23 of the warp compensation device you can adjust the required warp tension. This tension can be changed by stretching or shortening the cords 24. The cords are fastened by hooking them with a loop around screw 27. For low warp tensions use only one spring at each side. Take care that the spring tension is about even at both sides. the warp tension must be judged when you beam with handle 31 in that the arm 22 stands about vertical. You get the maximum warp tension when you hook the keyrings around the screweyes.

THE CROSS STICKS.

The screweyes at the back of the sloping posts are there for attaching the cross sticks so they do not slide during beaming. Should the sticks be left in during weaving, they should remain in this position to insure that the full depth of the loom is utilized. When the sticks are between back beam and harnesses, a shallower shed is generated from the cross sticks, more power is required to make the shed, and the warp is needlessly overloaded with extra tension. This applies to any other loom even more.

BEAMING UP AND BEAMING BACK.

While weaving, the cloth should be beamed as follows: Tread brake pedal 33. The tension of the springs pulls a little warp from the warp beam. With handle 31 beam the cloth until arm 22 is vertical once again, so warp tension is the same as it was before beaming. Repeat this until the cloth is beamed far enough. If you beam the cloth too far, do as follows: Release the warp by treading the brake pedal. Turn both ratchets from the ratchet wheel. Tread the brake again and turn the warp beam back. Release the pedal, put the ratchets back into the wheel and beam the cloth till arm 22 is vertical again.



HEIGHT ADJUSTMENT OF THE BEATER.

The Hollandia can make a very big shed. To achieve the full shed, full power must be given to the treadles by the weaver. However, if you are using smaller shuttles, you can do with a smaller shed. The height of the beater can be adapted to the height of the shed, so that the lower shed lays on the lower edge (shuttle run) of the beater. See page 13.

CHANGING THE TIE-UP OF TREADLES.

To change the tie-up of the treadles, the tie-up cords do not have to be removed from the lams. When you retie, start at one end of the lams and use the necessary cords by sliding them into place over the treadle you are tying up. When you come to the last treadle(s) some cords may have to be added and some cords of the wrong length may be left. These unused cords can be slid to one side reused in the future. Any unused treadles can be removed from their hinges.

FOLDING THE HOLLANDIA.

The back of the loom can be folded so that it takes less room and can be moved through a door. To do this the extenders must be taken out of the props. When unfolding the loom, the extenders must be pressed on the props again. The beam handle can also be turned down when there is no tension on the warp and the cloth beam slides backwards.

WHAT CAN GO WRONG.

The shed is to small.

Possible causes:

1. The treadles are tied up too high or too low.
2. The beater is adjusted too high.
3. The cross sticks are between the harnesses and back beam.
4. The cloth should be beamed.

A treadle does not move.

Possible causes:

1. The blocking pin is still in the parallel cords.
2. An error in tying-up the treadle. The treadle is tied up to both the upper and lower lam of the same harness; also check to make sure that upper and lower lam cords are not crossed over each other.

One or more harnesses are difficult to move.

Possible causes:

1. In one or more spots the parallel cords are not running over the rollers.
2. The brake pedal is too high and blocks the roller of the first harness.

During tying up the warp, the warp tension stays irregular.

Possible cause:

1. The springs of the compensation device are not loosened.

The warp does not come loose from the warp beam when beaming.

Possible cause:

This can happen when you are weaving with a very low warp tension. The tension is not sufficient to pull the warp from the warp beam. Usually this problem is rectified by removing the cross sticks. If not, than the warp beam should be turned a little by hand.

The cloth cannot be beamed.

Possible causes:

1. One of the ratchets is not in the ratchet wheel.
2. The apron bar of the cloth beam sticks to one of the arms of the compensation device.

The tension at the warp goes back during weaving.

Possible causes:

1. The bräke pedal is too high and is blocked by the lowest roller of the parallel cord.
2. When you are weaving with a very high tension it is possible that the warp is not tight enough on the warp beam and therefore slides at the warp beam at the moment you beat hard with the reed. Now and than you will have to beam one or two ratchets-worth without releasing the brake of the warp beam. Keep your eye on the arms of the warp compensation device. Whenever they are no longer parallel with the side frame of the loom you will know that it is tyme to tighten the warp.