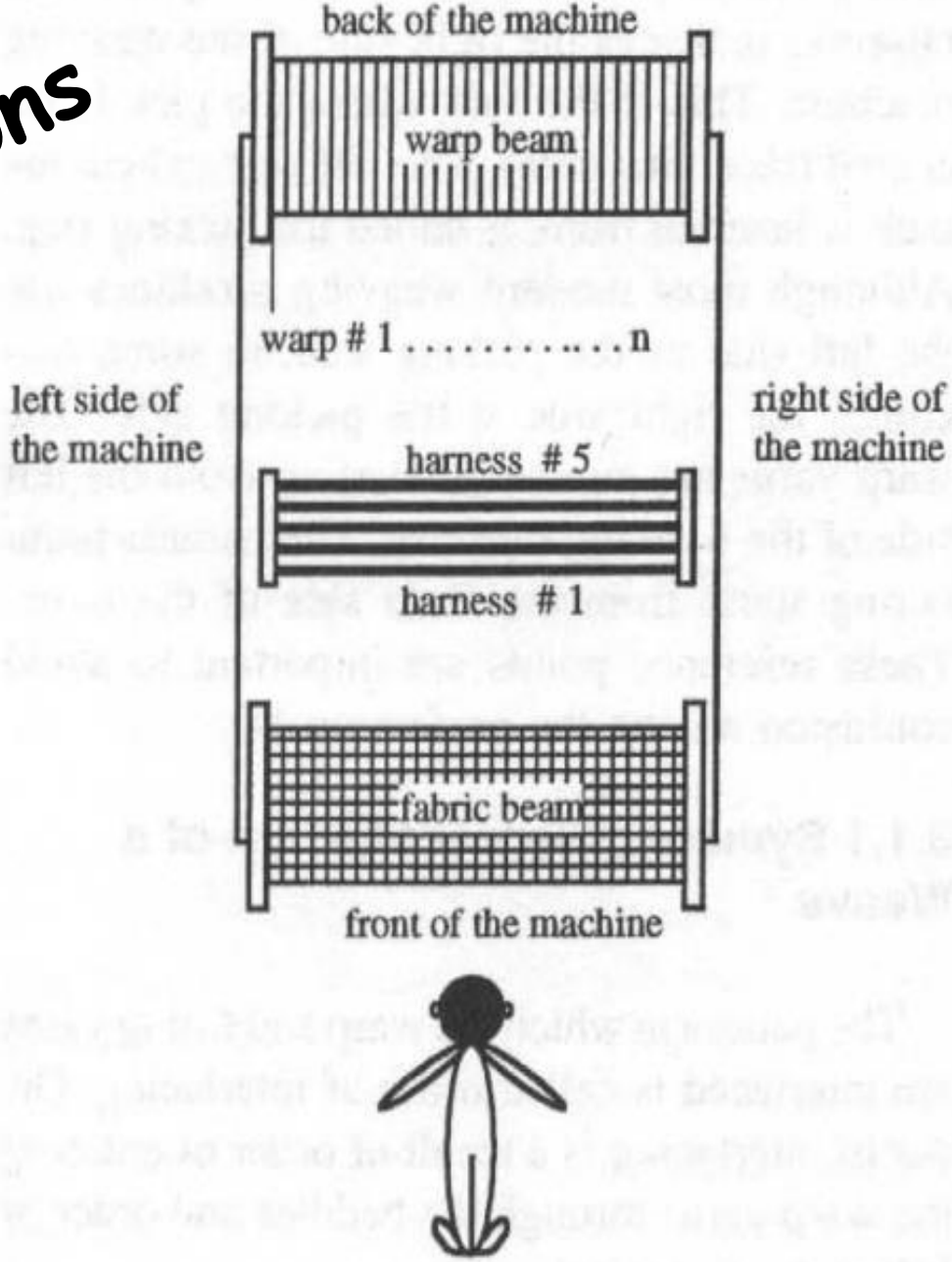
Loom Directions

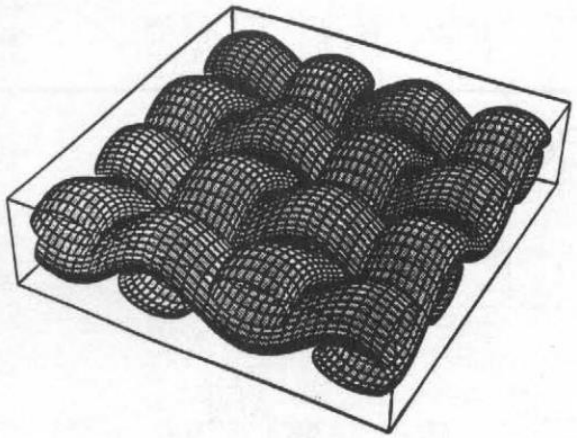


Introduction

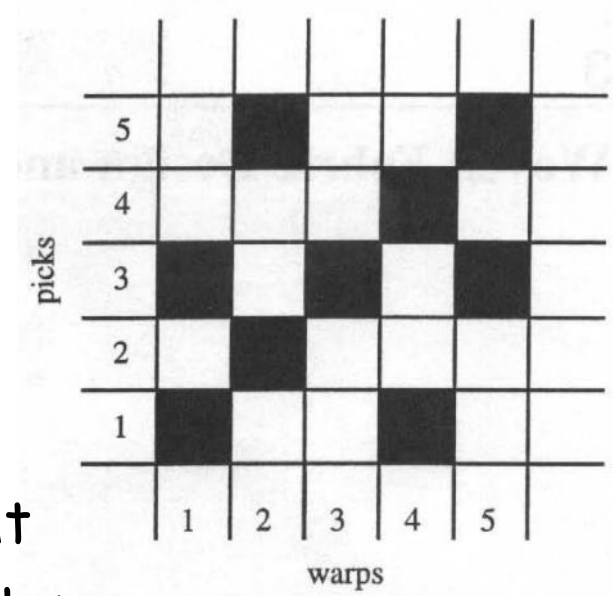
- Weaving is the **interlacement** of warp and weft yarns at 90 degree
- **Weave Design**
  - *The sequence of interlacement of two sets of yarns (Warp and weft)*
    - Structure and
    - Appearance
  - *Unlimited number of interlacement pattern (weave designs)*

Weave Design

- In woven fabric's, yarns interlacement is at 90^0
- *Warp yarns/ends*
  - *length wise through fabric*
- Weft yarns/picks/filling
  - *width wise through fabric*
- Interlacing order, depends
  - *Warp yarns through healed wires,* ***DID***
  - *Order of lifting the frames,* ***Peg Plan***
- **Weave Repeat**
  - *Minimum number of warp and weft needed to identify the weave structure completely*



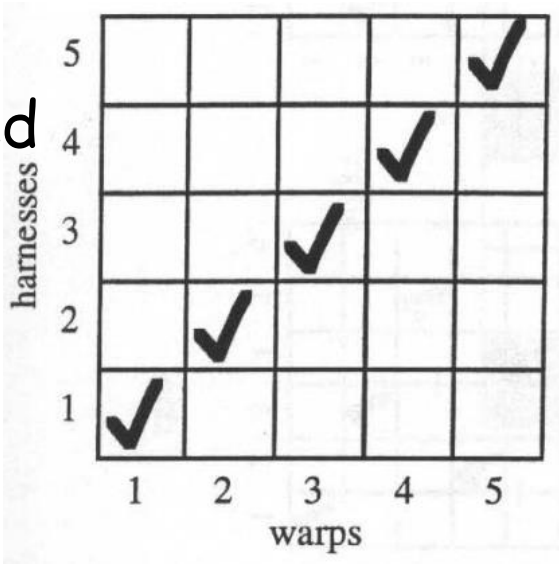
Weave Diagram (Symbolic Representation)



- Weave Diagram
  - *Columns: Warp/ends*
  - *Rows: Weft/picks*
  - *Numbering*
    - Ends: from left to right
    - Picks: from bottom to top
- 1 Square = 1 intersection of 1 end & 1 pick
- Intersection
  - *Warp over weft : square is filled or marked X*
  - *Weft over warp : square is empty or marked .*

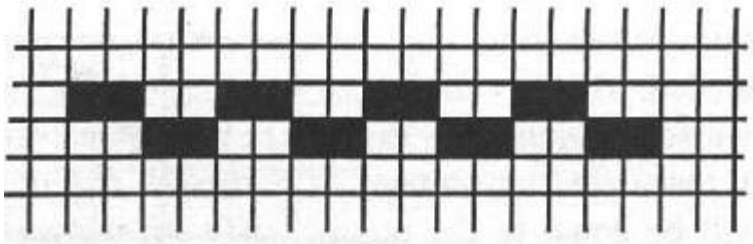
Drawing in draft (DID)

- The sequence of drawing the individual warp through the relative healed frame as per required design
- Indicates which warp is attached to which frame
- Columns : warp yarn
- Rows : frames / harness
- Warp yarns having same interlacing pattern
  - *can be attached to same frame*
  - *Straight, reverse, pointed, mixed*



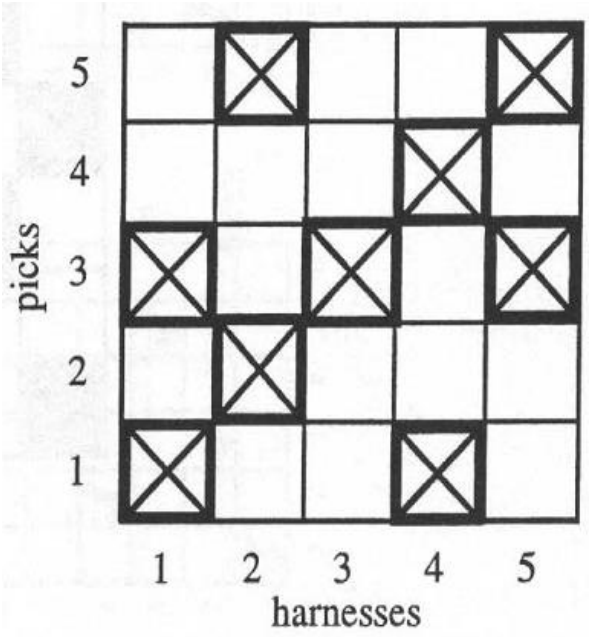
Reed Plan

- Number of warp yarns passing through reed dents
- Upper limit dependent upon
  - *Warp count*
  - *Dents / inch*
- Warp yarns able to move freely

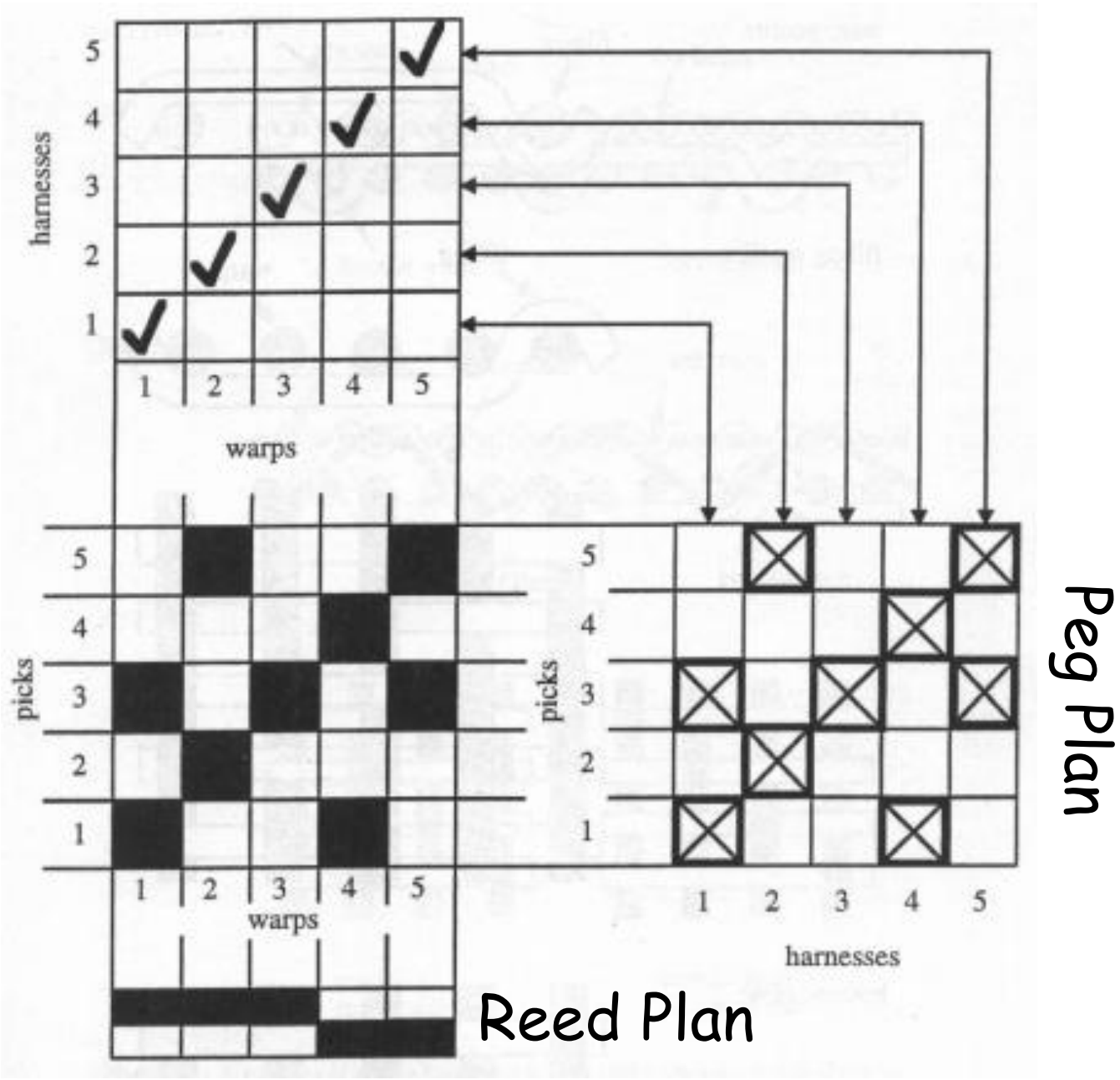


Peg / lifting Plan

- It is the sequence of raising or lowering the warp threads on each successive insertion of pick
- Columns: harness = Rows of DID
- Rows: picks = Rows of weave repeat
- Filled square means frame is lifted



DID

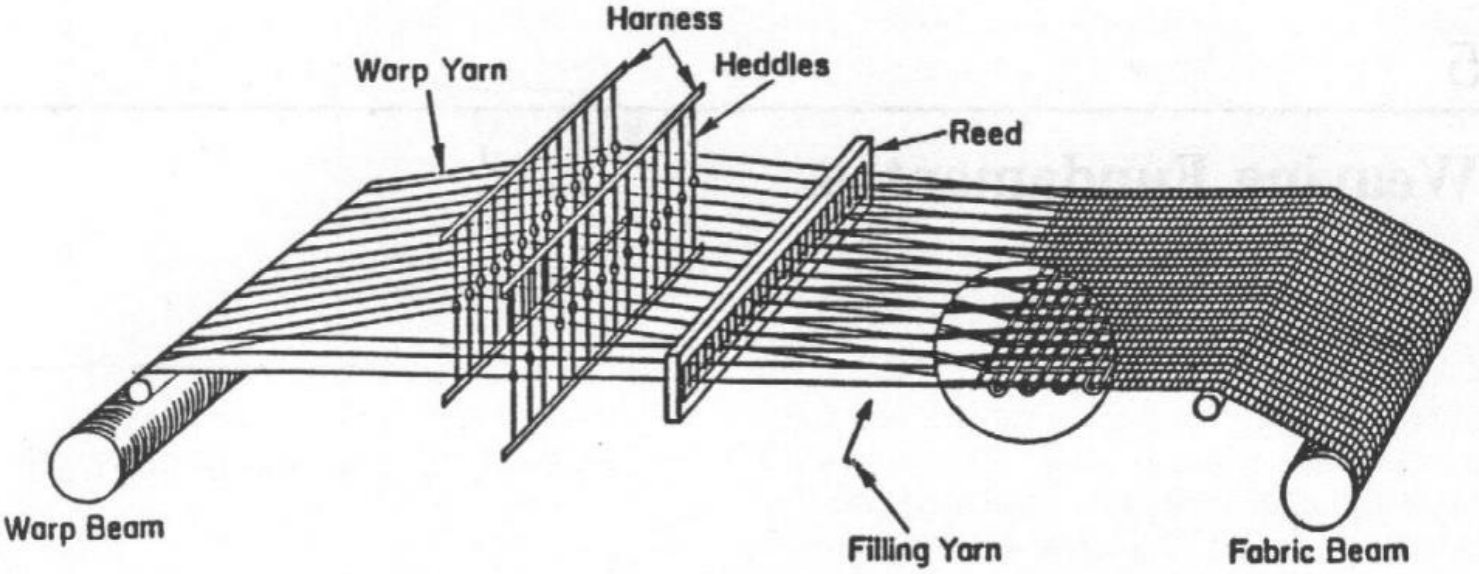


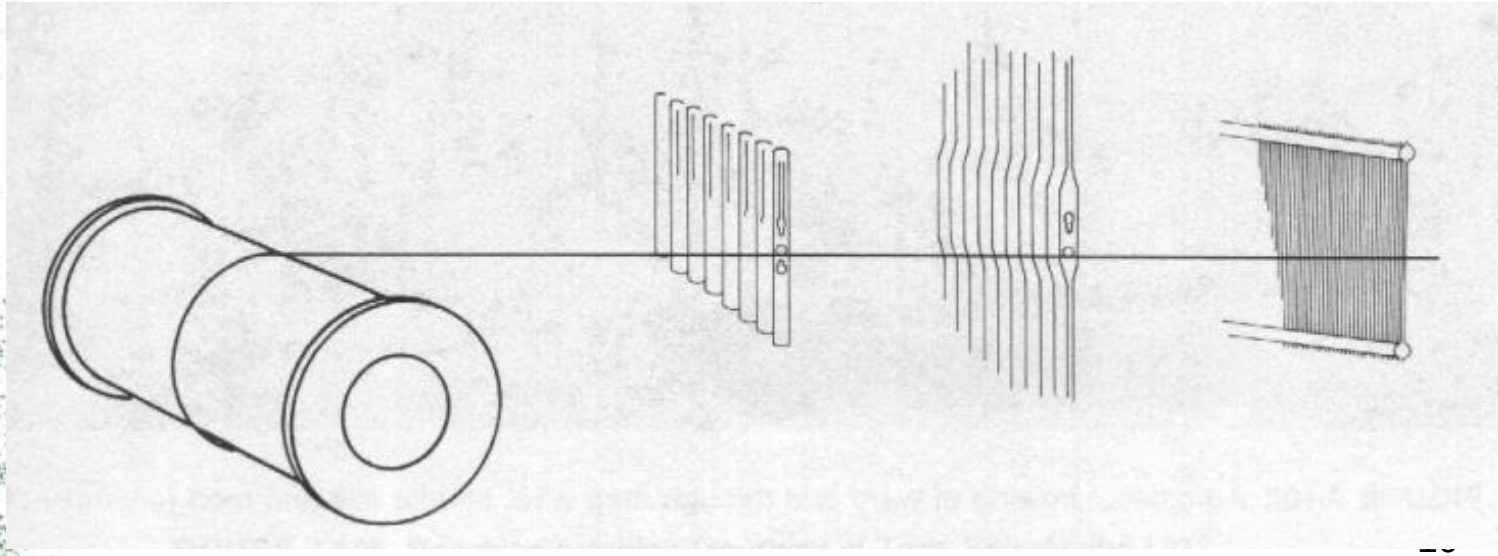
Weave Design (weave repeat)

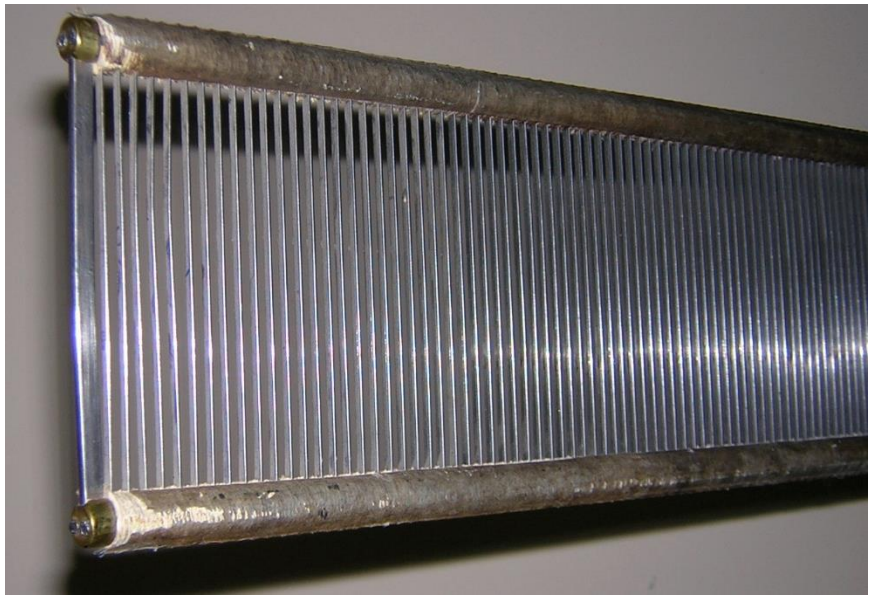
Peg Plan

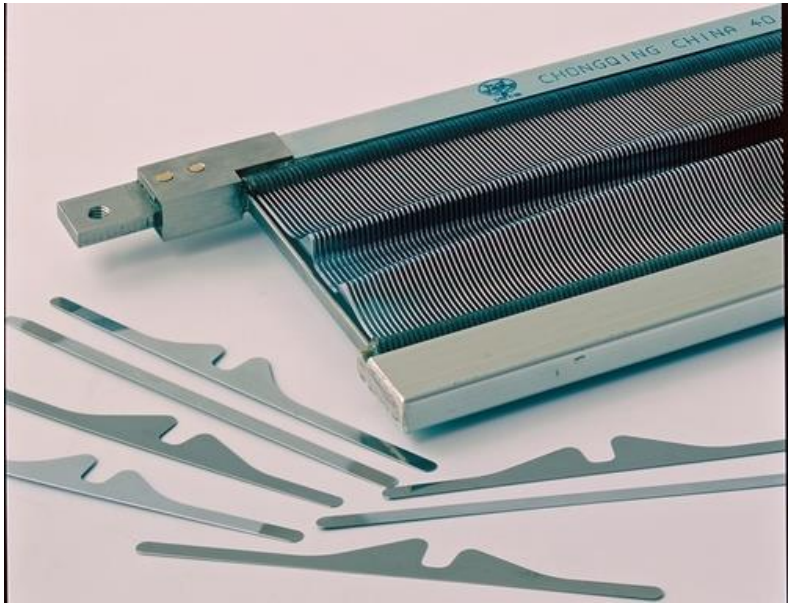
Reed Plan

Passage of yarn





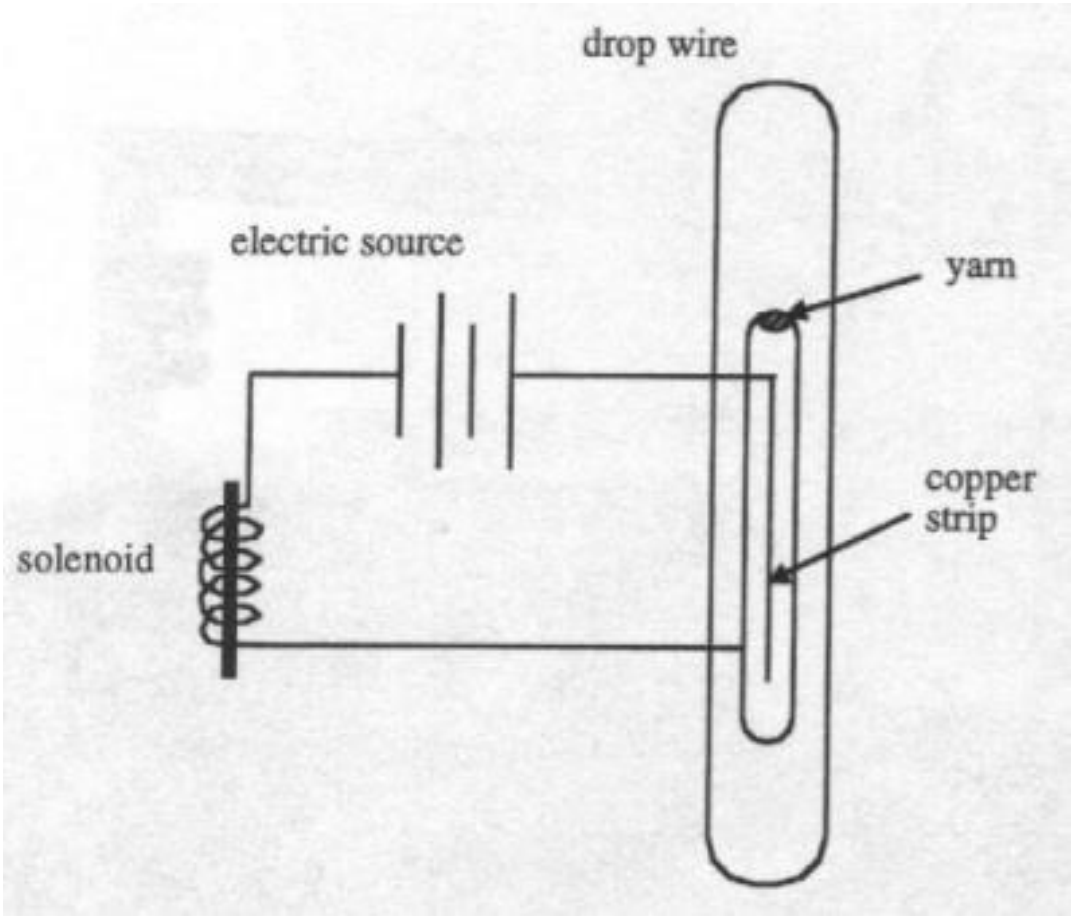



CHONGQING CHINA

Drop wire

- Warp break, stops machine
- Narrow metal sheet
- Hung in air by warp yarn tension
- If warp yarn broke, droper drops and touches the metal bar
- This contact completes the electrical circuit and stops the loom immediately.
- Open and closed

Warp break detector



Drawing In

- Preparation of the sized warp beam to be placed on the weaving machine (loom)
- Entering of the (new) warp yarns, when starting a new fabric style, into the weaving elements of a loom i.e.
  - *Drop wires*
  - *Heald wires*
  - *Reed*

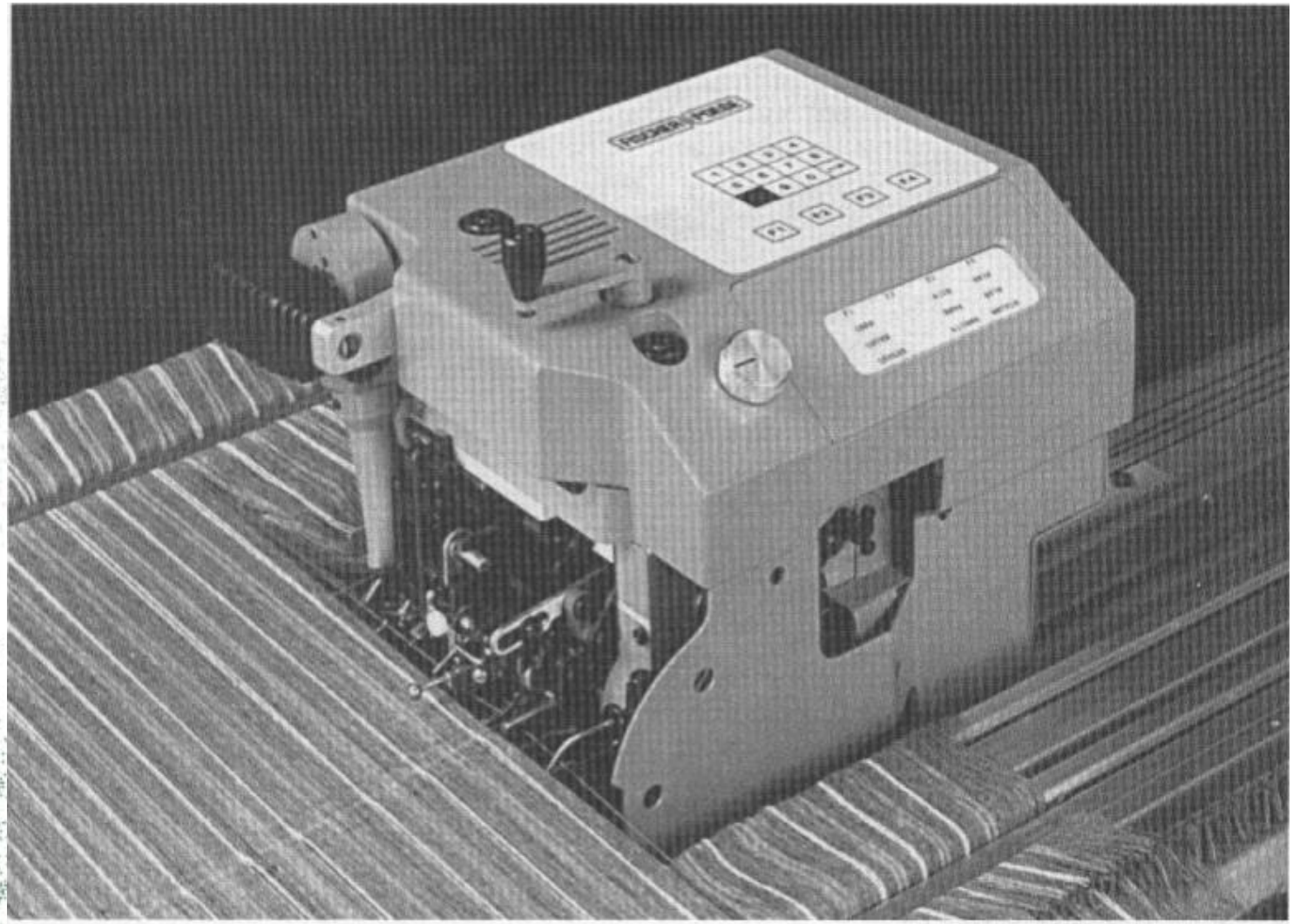
Drawing In

- Manually, two persons
- One sorts the warp yarn
- Other draws it from the opposite side
- Can be done automatically.

Tying In (Knotting)

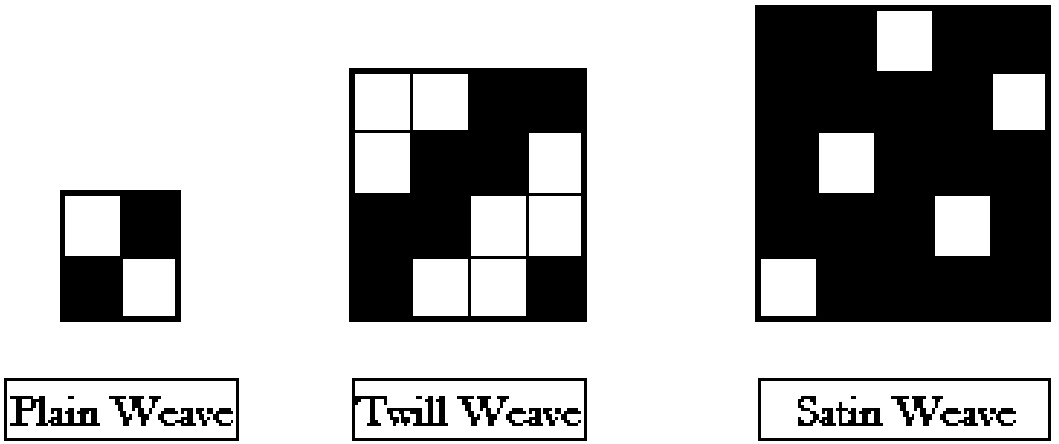
- Tying in of the new warp ends to the depleted warp, when a new pattern is not required.
- Ends of old warp beam are cut and tied to the ends of new warp beam correspondingly
- Warp ends are then pulled through the heald wires, reed until knots are cleared.
- Speed of knotting m/c is from 60 – 600 knots per minute.

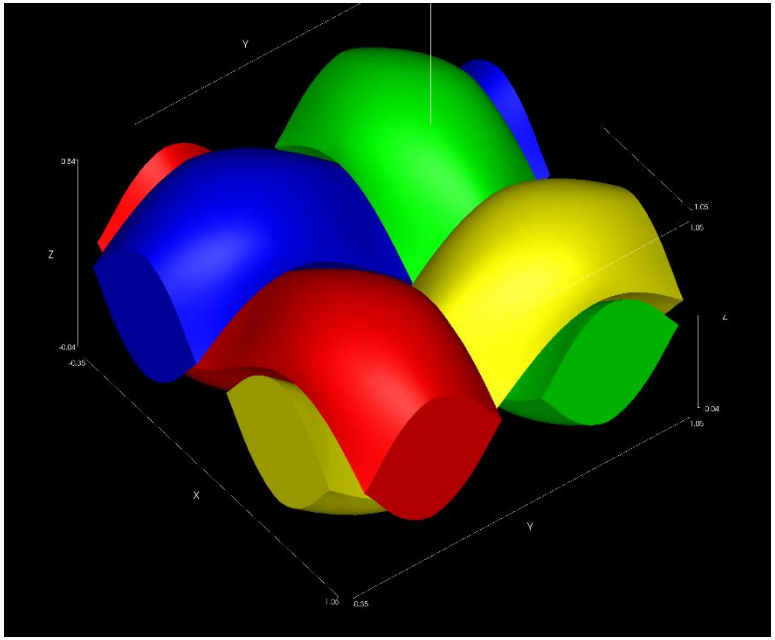
Knotting Machine



Basic Weave Designs

- Plain Weave
- Twill Weave
- Satin Weave




Y
Z
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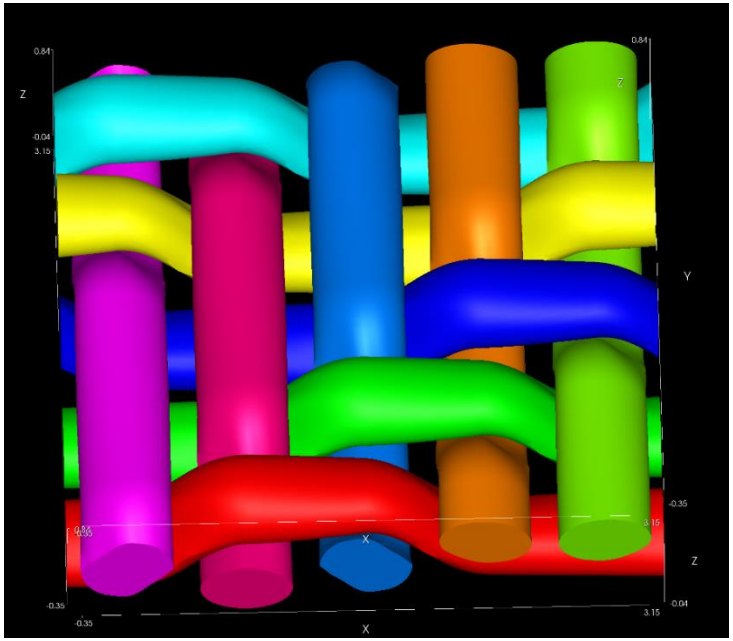
Z
Y
X
Z
X