

SEWING MACHINE

LINEAR
MOTION

RECIPROCATING
MOTION

OSCILLATING
MOTION

ROTARY
MOTION

TAKE UP
LEVER

BOBBIN
CASE

BALANCE
WHEEL

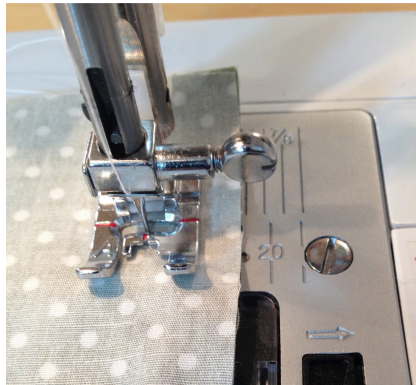
NEEDLE

STITCH



LINEAR MOTION

THIS IS MOTION MOVING IN A STRAIGHT LINE (& PREDOMINANTLY IN THE SAME DIRECTION) E.G. THE MATERIAL MOVING FORWARD AS THE MACHINE STITCHES



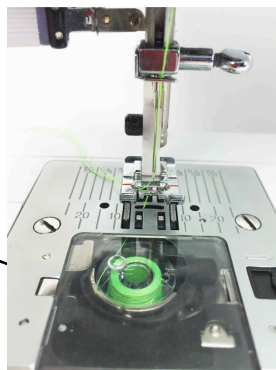
ROTARY MOTION

THIS IS MOTION THAT MOVES ROUND IN A CIRCULAR DIRECTION E.G. THE BALANCE WHEEL TURNS IN A ROTARY MOTION AS THE MOTOR RUNS



OSCILLATING MOTION

THIS IS MOTION GOING FROM SIDE TO SIDE E.G. THE ACTION OF THE BOBBIN CASE AS THE STITCHES ARE FORMED (NOT ALL SEWING MACHINES DO THIS)



RECIPROCATING MOTION

THIS IS MOTION THAT GOES BACKWARDS & FORWARDS IN A STRAIGHT LINE E.G. THE NEEDLE MOVING UP & DOWN, AS WELL AS THE TAKE UP LEVER HOLDING THE THREAD MOVING UP & DOWN



SEWING MACHINE

LEVERS & MECHANISMS

1ST CLASS LEVER

FORCES & STRESSES

BELL CRANK

CAMS

FOLLOWERS

GEAR TRAIN

RACK & PINION

PULLEYS & BELTS

TENSION

COMPRESSION

PULL

PUSH

LINEAR MOTION

RECIPROCATING MOTION

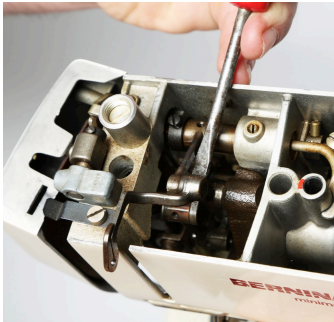
OSCILLATING MOTION

CIRCULAR MOTION

FEED DOG

PRESSER FOOT

FOOT PEDDLE



BELL CRANKS

E.G. THE MECHANISM HIDDEN INSIDE THE MACHINE THAT IS ATTACHED TO THE TAKE UP LEVER & THAT TAKES THE THREAD UP & DOWN TURNING CIRCULAR MOTION INTO RECIPROCATING MOTION. THIS PROCESS USES LINKAGES TO TRANSFER MOVEMENT.



CAMS & FOLLOWERS

A CAM CONVERTS ROTARY MOTION TO RECIPROCATING MOTION, WITH DIFFERENT SHAPED CAMS GIVING DIFFERENT TIMINGS OF MOVEMENT. A FOLLOWER IS A ROD THAT MOVES AS THE CAM ROTATES E.G. THE MECHANISM INSIDE THE MACHINE THAT CHANGES STITCH TYPES.



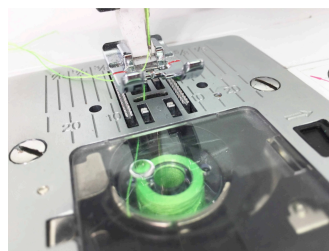
SIMPLE GEAR TRAIN

E.G. RACK & PINION USED FOR CHANGING THE STITCH TYPES



COMPRESSION

A PUSHING FORCE THAT SQUASHES SOMETHING TOGETHER E.G. THE PRESSER FOOT HOLDING DOWN THE FABRIC AGAINST THE TEETH IN THE FEED DOG. ALSO THE PRESSURE OF YOUR FOOT ON THE FOOT PEDDLE.



PULL

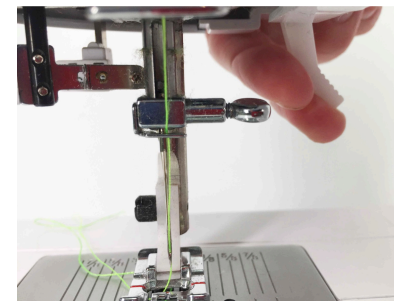
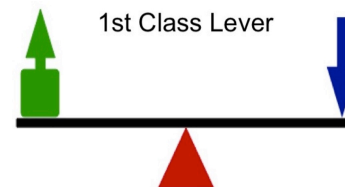
E.G. THE THREAD BEING PULLED THROUGH THE NEEDLE AS THE MACHINE STITCHES

PUSH

E.G. THE FEED DOG PUSHING THE MATERIAL THROUGH THE MACHINE

TENSION

A PULLING FORCE THAT HOLDS SOMETHING TIGHT OR STRETCHED APART E.G. THE THREAD BEING HELD UNDER TENSION TO ENSURE STITCHES INTERLOCK IN THE MIDDLE OF THE FABRIC



THE FULCRUM (PIVOT POINT) IS IN THE MIDDLE OF THE LOAD E.G. THE RAISING & LOWERING OF THE PRESSER FOOT

PULLEYS & BELTS

E.G. BELTS CONNECT THE MOTOR TO ALL OF THE MECHANISMS IN THE MACHINE. THIS IS CALLED A ROTARY SYSTEM.

