Fig.1

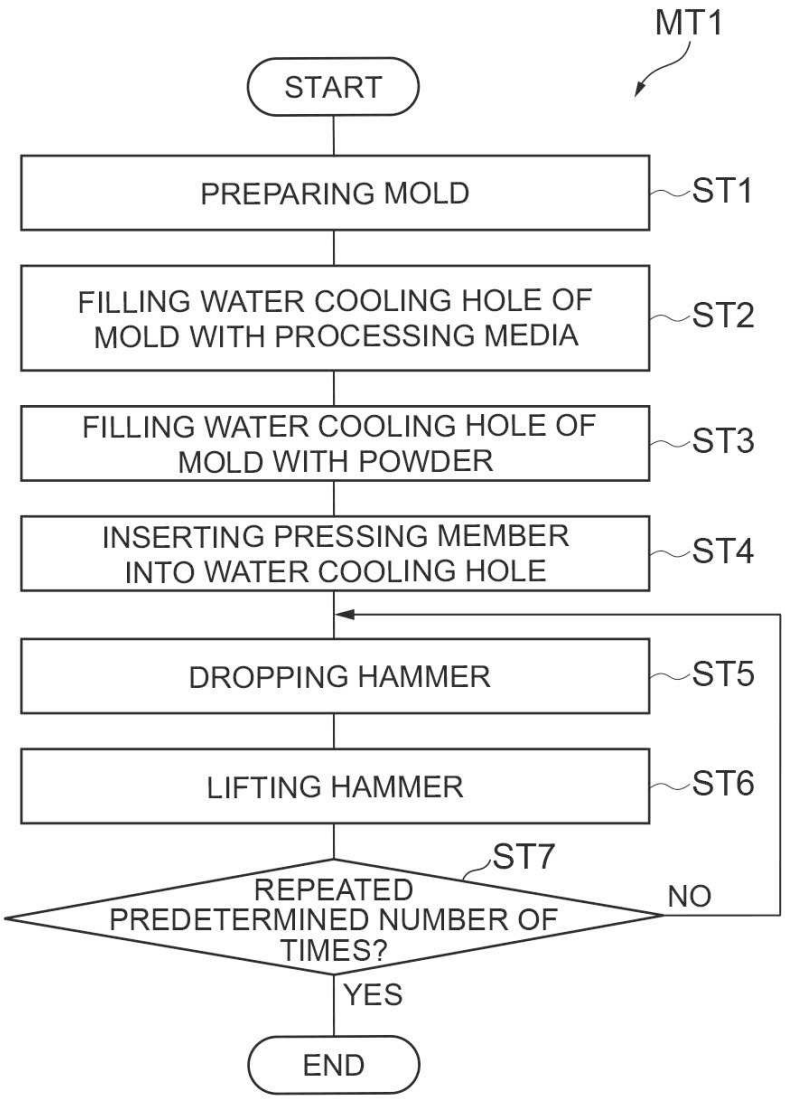

MT1
START
PREPARING MOLD
ST1
FILLING WATER COOLING HOLE OF MOLD WITH PROCESSING MEDIA
ST2
FILLING WATER COOLING HOLE OF MOLD WITH POWDER
ST3
INSERTING PRESSING MEMBER INTO WATER COOLING HOLE
ST4
DROPPING HAMMER
ST5
LIFTING HAMMER
ST6
ST7
REPEATED PREDETERMINED NUMBER OF TIMES?
NO
YES
END

Fig.2

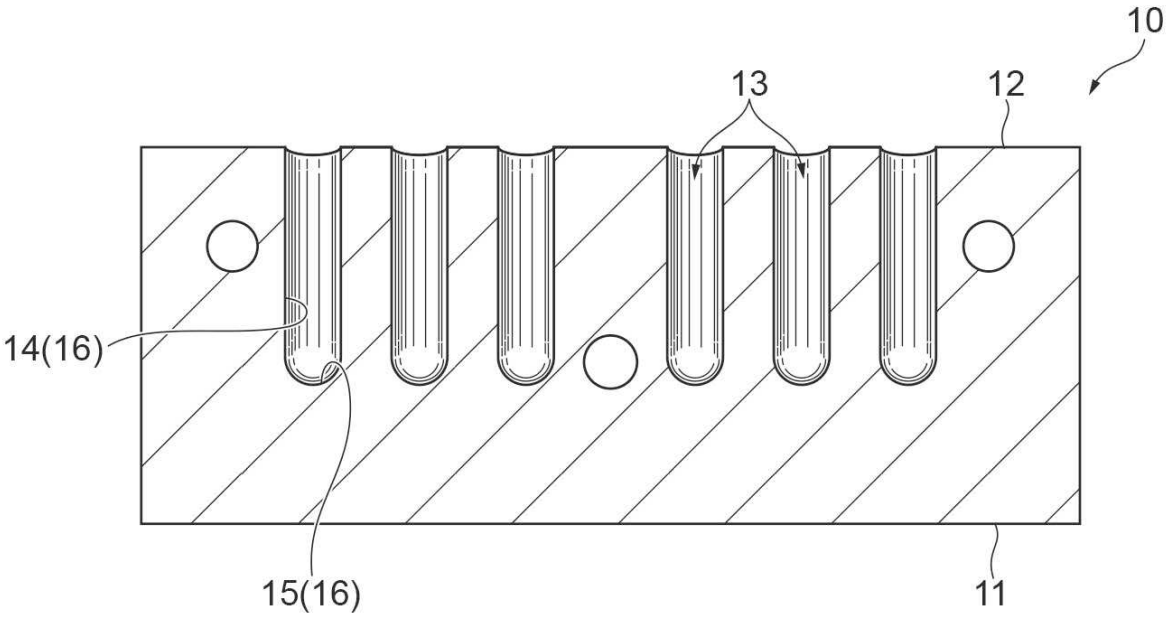
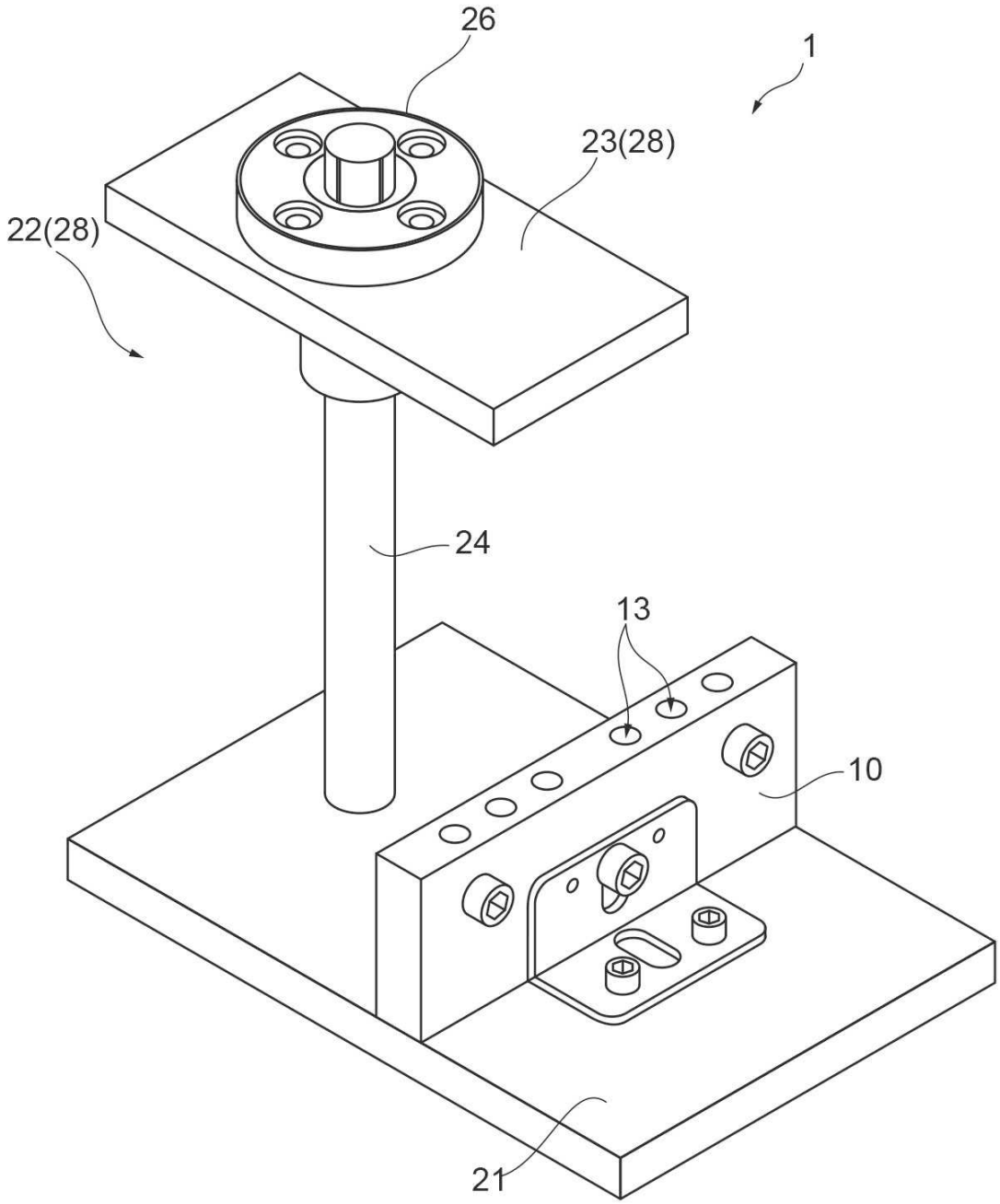


Fig.3



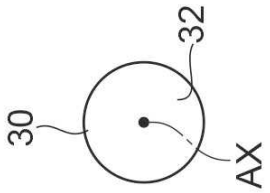


Fig.4B

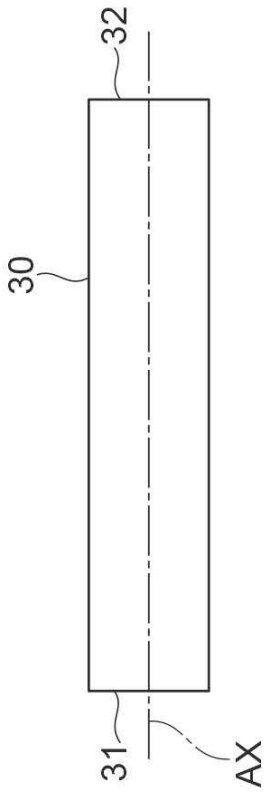


Fig.4A

Fig.5

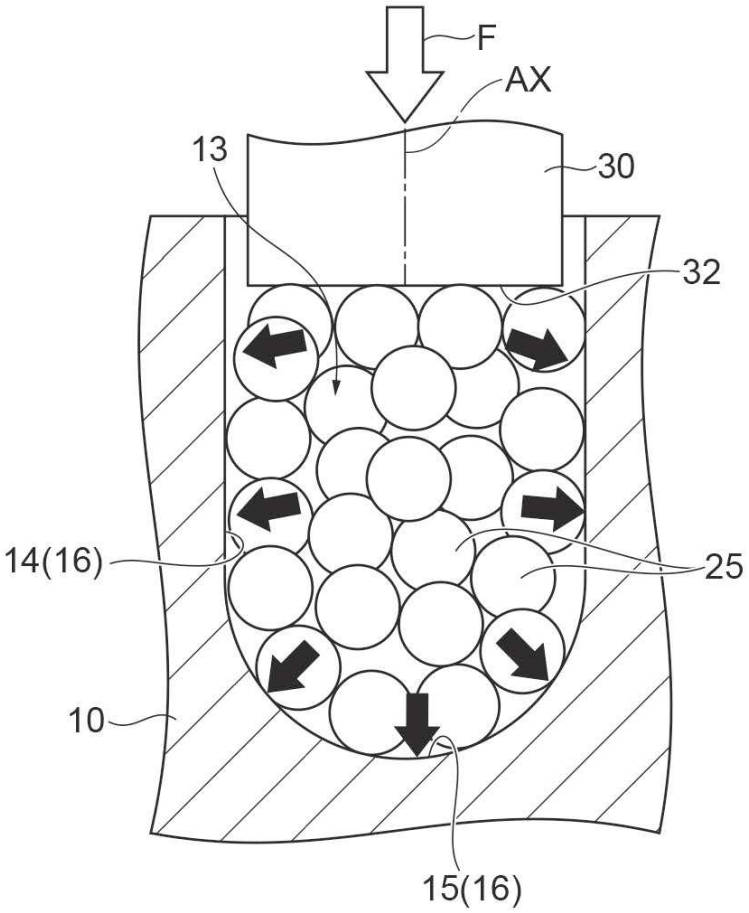
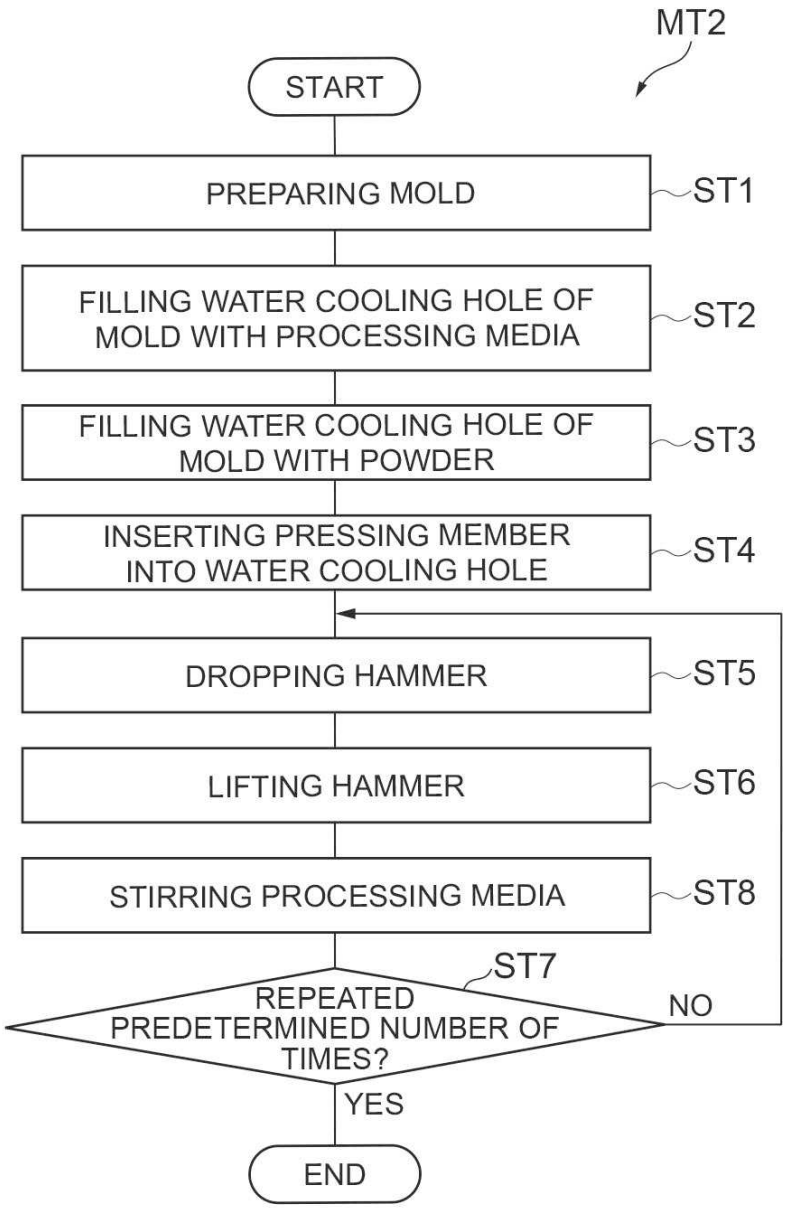


Fig.6


MT2
START
PREPARING MOLD
ST1
FILLING WATER COOLING HOLE OF MOLD WITH PROCESSING MEDIA
ST2
FILLING WATER COOLING HOLE OF MOLD WITH POWDER
ST3
INSERTING PRESSING MEMBER INTO WATER COOLING HOLE
ST4
DROPPING HAMMER
ST5
LIFTING HAMMER
ST6
STIRRING PROCESSING MEDIA
ST8
ST7
REPEATED PREDETERMINED NUMBER OF TIMES?
NO
YES
END

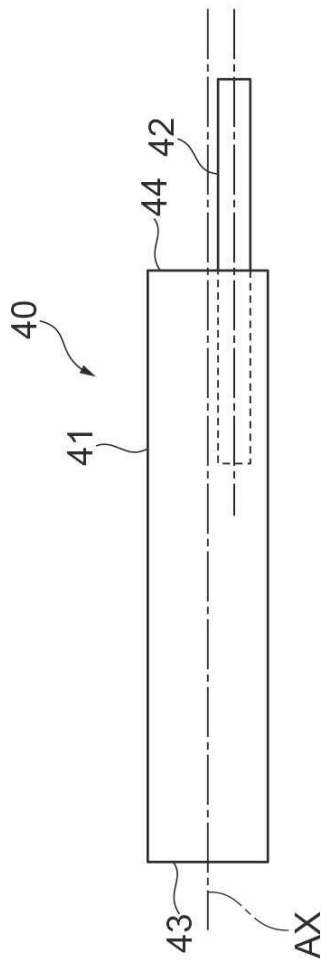


Fig.7A

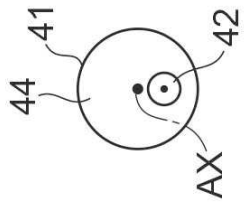


Fig.7B

Fig.8

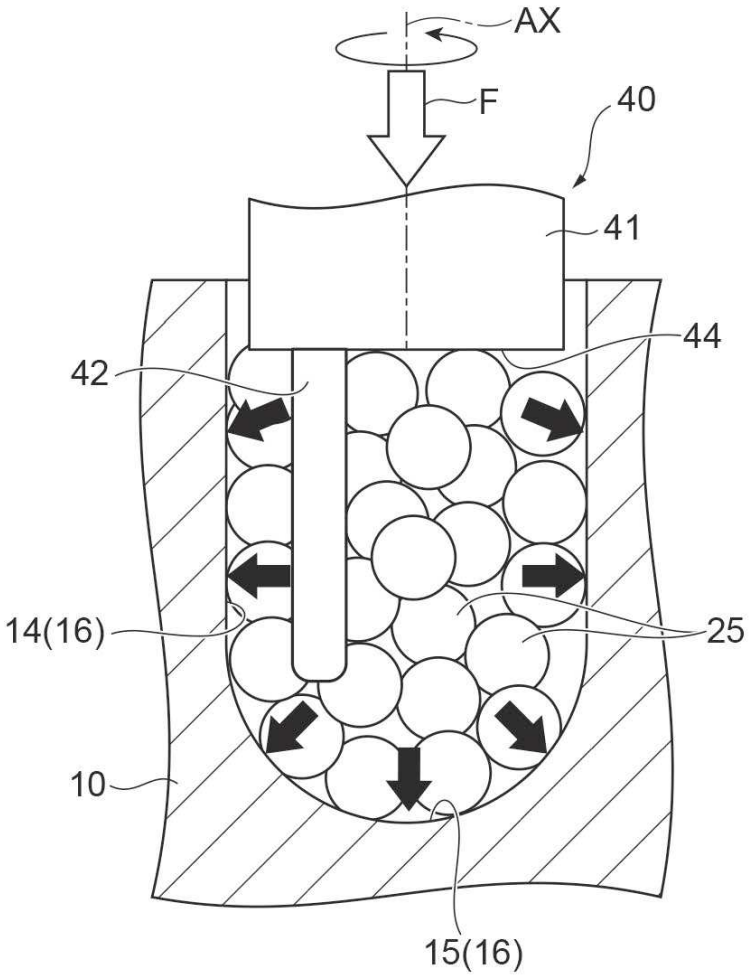


Fig.9

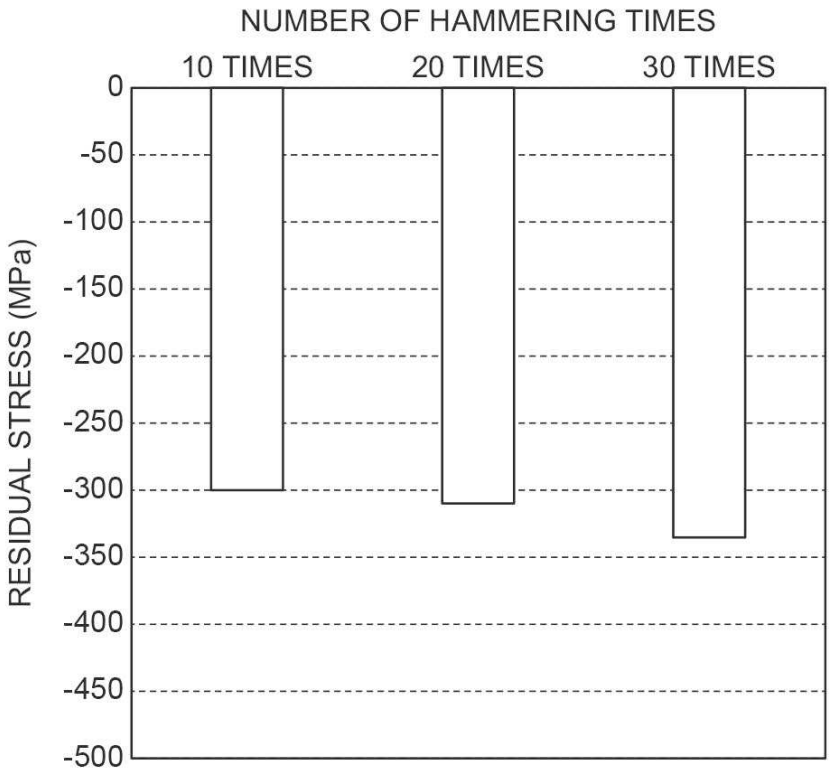
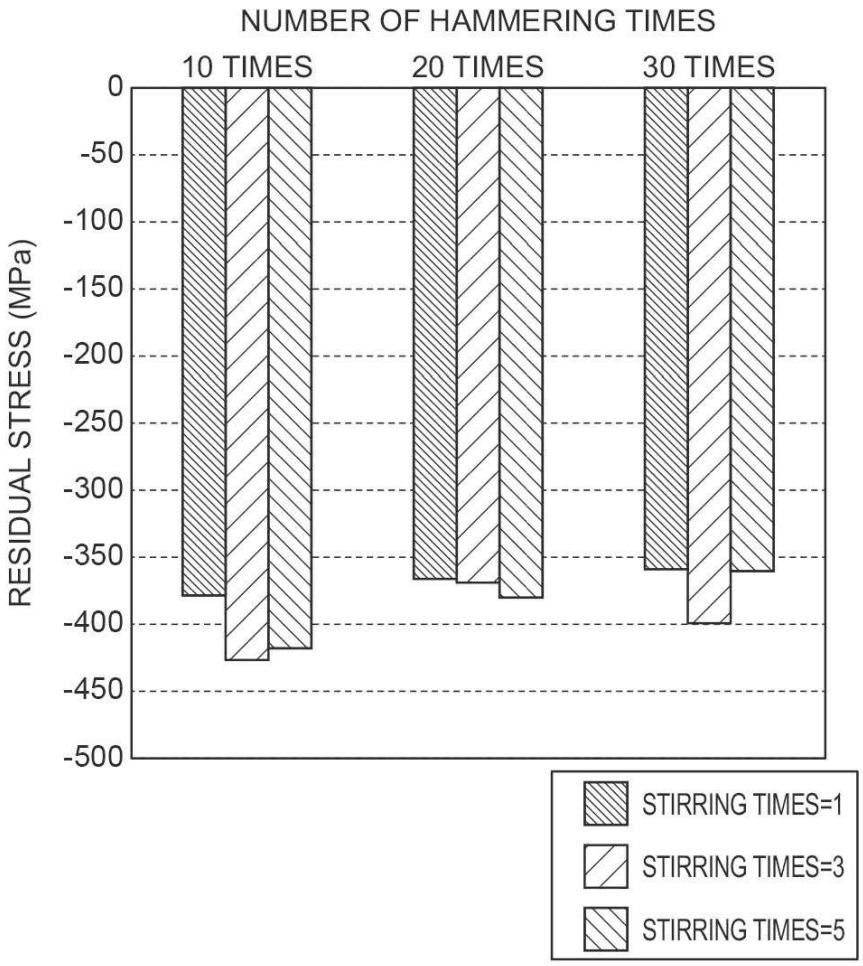

NUMBER OF HAMMERING TIMES
10 TIMES
20 TIMES
30 TIMES
RESIDUAL STRESS (MPa)
0
-50
-100
-150
-200
-250
-300
-350
-400
-450
-500

Fig.10


NUMBER OF HAMMERING TIMES
10 TIMES
20 TIMES
30 TIMES
RESIDUAL STRESS (MPa)
0
-50
-100
-150
-200
-250
-300
-350
-400
-450
-500
STIRRING TIMES=1
STIRRING TIMES=3
STIRRING TIMES=5