

raised will not be raised, and a mispick will result through the harness shaft not being raised. To prevent this the chain should be put on the barrel and every bar examined, and where pegs are not straight, these can easily be straightened. Prevention is better than cure.

As stated at beginning, this has reference to the double dobby. The single index dobby has a wider and heavier finger, the finger being at least  $\frac{1}{4}$  of an inch thick.

**Chain Barrel Set too High.**—The chain barrel should be set just high enough so that when the pegs in the chain raise the fingers in the dobby, the catch on the hooks will be over the knife sufficient for the knife in its outward movement to catch them and so raise the harness. When a chain barrel is set too high, it will cause the fingers to jump and this often causes mispicks. The remedy is obvious. Lower the chain barrel. Many fixers, to prevent the fingers from jumping, hang a weight on the fingers. This should not be done, as in the majority of cases it is caused by the chain barrel being set too high.

**Chain Barrel Set Too Low.**—If the chain barrel is set too low, the result will be that the hooks do not get low enough to get fully on the knife. As the knife moves forward the hooks not being fully on, knife will slip off. Remedy: Raise the chain barrel.

**Chain Barrel Not Set on Time.**—The chain barrel must be set so that the pegs in chain bar will be directly under the fingers just before the knife comes in contact with the catches on end of jack hooks. The reason for this is clear. The fingers must be changed and the hooks in their right positions for the next pick before the knife comes out to raise the harness required. A safe rule to follow in ordinary cases is to have the knife about  $\frac{1}{4}$  of an inch from the catch on hook with the pegs on top. If, for any cause the knife should be set more than  $\frac{1}{4}$  of an inch from the catch on hook, the chain barrel will have to be set to correspond.

There are two methods in general use for driving the chain barrel. One is with a pawl on rocking arm in front of dobby, the other through a worm and gear on back end of chain barrel shaft. In the first method the timing can be regulated by the ratchet on front of chain barrel. The pawl engages this ratchet and turns over chain barrel. Let it be understood by this that the writer means the actual turning over of the chain barrel to get it over on time and not after having been turned over.

In the second method great care is required to set the chain barrel on time. The worm that drives the worm-gear on back end of chain barrel shaft must be set so as to give the chain barrel its lowest movement when the pegs are passing under the fingers. This will give the fingers and hooks time to change and get to their right positions for the next pick. It will readily be seen what would be the result if the barrel was driven at its quickest time when the pegs are directly under the fingers. The hooks would not be in their right positions when the knife comes forward, consequently a mispick would result, or rather, mispicks would result.

**Check on Wrong Time.**—This check which can be called a star wheel, is fixed either on the back or front end of the chain barrel shaft. A small roller is held against the wheel by a spring which holds the chain barrel in position after it has been turned over by pawl. From this it will be seen that the chain barrel can be set in any position after being turned over by the pawl.

The right position to set the barrel it will be remembered, is to have the pegs in chain bar directly under the

fingers just before the knife comes in contact with the catches on hooks. When the check does not hold the chain barrel in its correct position as described, some of the hooks do not catch on the knife and the result is a mispick. The remedy for this is to have the chain barrel set so that the pegs will be on top and directly under the fingers; then set the check to hold chain barrel in this position.

**Weak Clutch Spring on Chain Barrel.**—When a worm and gear is used to drive the chain barrel a spring clutch is used. If the spring is weak the chain barrel is not held in its correct position, consequently when barrel has been changed a mispick often results. The remedy for this is to move the collar that holds spring on shaft nearer to the barrel and this will strengthen the spring.

**Worm Knife.**—If the knife is worn the hooks will catch, but will often slip off before the knife gets full out. On some dobbies the knife is made so that it can be turned when worn on one side. This will have to be done if the hooks slip off as mentioned. In other cases the knife can often be ground down. This will have to be done the full length of the knife, and not only just where the knife is worn. The knife would then have to be set again in the right position. This dropping of the harness shafts after having been part raised, often causes the shuttle to fly out; also yarn on that harness shaft to be broken out.

**Too Much Play of Knife.**—If the knife hole is worn this will cause too much play and mispicks will result occasionally. The only remedy is to replace with a new knife.

**Knife Hook Worn.**—This will give practically the same result as the preceding. The remedy would be to replace with a new knife hook.

**Harness Levers Too Tight.**—If the harness levers are too tight, the harness shafts will not get to their right positions on time; the result is a mispick. The harness levers should be just tight enough to drop of their own weight before the harness is connected to them. When starting up a new dobby, the harness levers will be apt to rub against each other so that the first thing that is requisite is to oil the dobby, taking care to oil the harness levers. If after this the harness levers are too tight and do not drop of their own weight, loosen the set-screws on each side of the frame of the dobby. Try the levers by hand, and if found to work all right after loosening up the set-screws, fix them in this position by the nut on set-screw. Do not have the harness levers too loose.

**Jack Hooks Binding.**—If the jack hook is too tight on the jack where the hook is connected, it will cause the hook to bind. To ascertain whether this is the cause or not, raise the hook up and let it drop of its own weight. It will at once be seen whether it is binding or not. If it is binding, the remedy is to open out the end with a screw-driver, then again try it to see if it will drop of its own weight.

Care is required in opening out the end with the screw-driver, for if opened out too much the end will catch on the next jack, with what result can readily be seen.

**Pin in Pin Board out of Place.**—In double action dobbies there is a pin between each finger to keep the fingers straight. If the pin is out of place, that is, not exactly between the fingers, the fingers will rub against them and bind. The remedy is to fix the pins so that they will come exactly between the fingers.

**Chain Bar Too Short.**—Occasionally a chain bar is a little shorter than it ought to be. This allows the bar to slip about a little on the barrel, and sometimes causes a