

## ABOUT PACKING.

If the rod is in first-class condition almost any kind of packing will answer the purpose, but where it is scored or worn tapering, or is out of line, we must use a packing that will follow up the inequalities in its travel, and to do this without excessive friction the packing must be very elastic. The following plan is a very good one, says the American Machinist.

Suppose that the stuffing box is 4 inches in diameter and the rod is 2.5 inches, leaving a space three-quarters of an inch wide to be filled with packing, and assume that the stuffing box is  $3\frac{3}{4}$  inches deep. Take a piece of pure gum rubber sheet packing, without cloth insertion, which is one-quarter of an inch thick, and cut a piece from it 3 inches wide, and of such a length that when it is rolled up into the form of a circle, it will form a bushing for the stuffing box, reducing the space around the rod to  $\frac{1}{2}$  inch in width. Care must be taken to cut this so that the ends will meet squarely, leaving no space between them, for this bushing of rubber must be a perfect fit in order to be effective. Next take a piece of firmly made packing, which is  $\frac{1}{2}$  inch square, and cut rings enough to pack the rod out flush with the rubber bushing, which we made 3 inches deep, thus taking six rings. These rings should be of such a length that when they are in place there will be at least  $\frac{1}{8}$  inch between the ends. They must never be cut so as to make a tight fit, although it makes a neater looking job in that way, for, unless there is room for the rings to expand, the heat will cause excessive friction, sometimes to the extent of burning out the packing and scoring the rod.

We have left a space  $\frac{1}{4}$  inch deep, which is sufficient for the gland to enter, but the nuts which hold it in place should not be screwed up with a wrench, but with the fingers only. If there is a leak of steam when the engine is started, it will do no harm for an hour or two, but if the expansion does not take it up then, the nuts may be screwed up until the joint is tight, but no further, for obvious reasons. If packing put in according to these directions does not abolish the disagreeable hiss of steam at each revolution of the engine, I do not believe that any other kind of fibrous packing will do it, and the rod should be turned true and put into line.

So far as flange joints are concerned, it is a very good plan to have them ground so that no packing will be required, but as many of them are not built that way, it remains to select the packing which will render the best service. If the steam is not saturated with oil, we may select any elastic grade that is most convenient, but the flanges of the throttle valve, and any other that may be beyond the lubricator, must be packed with something that will not be dissolved by the oil. A corrugated copper gasket for each of such joints will answer a very

good purpose, unless the faces are very rough. If we are to use soft packing, it is well to take a small piece of it, and put it in a cup of oil, and let it remain for about a week. There are several kinds in the market that will not stand this test, for when taken out there will be but little left of them, as they will be either partially or wholly dissolved, but others will be just as good as new after the test, and these should be used exclusively.

Flange joints, when newly packed, should not be suddenly subjected to a heavy pressure, but should be warmed up gradually, and while still under a very light pressure, the nuts should be carefully screwed up until all of the lost motion caused by the relaxation of the packing is taken up. Under no circumstances is it proper to screw up these nuts under a heavy pressure, for if one of them should fail, the additional strain thrown on the others might cause them to break, and a serious accident would be the result.

In making up these joints do not begin on one side and screw up the nuts in rotation, as that will cause the flanges to be brought together on one side, and thrown

open on the other, and then when this side is tightened up also, if it does not break the flange, it will cause a very heavy strain to be brought to bear on the bolts, much of which is entirely unnecessary.

In using old bolts for this purpose, they should be put in a vise, well oiled, and the nuts run down on them, until it is known that they are an easy fit a little farther down than they will ever be needed when in place. If this precaution is not taken, it is quite possible for the bolts to be twisted off before the flange is together properly.

In packing a cylinder head it is not necessary to have a large rubber gasket, as some asbestos wicking will answer every purpose at a very low cost. In packing a large valve stem, which is worn down, or has been turned down until it no longer fills the hole in the bonnet, a washer or gasket cut from thick pieces of cloth-insertion sheet rubber packing will answer a very good purpose, if put in first, or if the gland is a loose fit it may be put in last, to prevent the wicking from working into the space around the stem.

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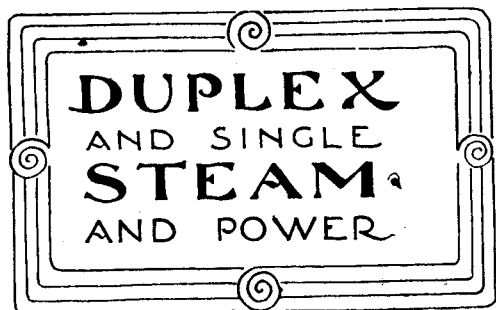
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