PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in or relating to Gauge Devices for Use in Tapping Trees

We, DUNLOP PLANTATIONS LIMITED, a British Company, of 32, Osnaburgh Street, London, N.W.1, and MERVYN ERROLL LEVESON ROBEY, a British Subject, of the aforesaid Company at Bastion House, Malacca, Straits Settlements, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention concerns improvements in or relating to gauge devices for measuring the angle and depth of incisions which are cut into trees on rubber plantations for the purpose of tapping latex.

Latex is obtained from such trees by cutting a spiral groove in the bark of the tree and on one side of tree, the cut being gradually carried down the trunk in a succession of cutting operations of limited extent in order to conserve the plantations and to obtain the most economical output.

For example, where the annual depth of bark which may be stripped from the tree in a vertical direction, must not exceed approximately ten inches in vertical depth, this annual bark allowance as it is commonly called, may be removed in four quarterly stages, corresponding to a quarterly bark allowance of 2¼ inches.

It follows that if the maximum quarterly bark allowance is 2¼ inches, then the total monthly cut must not exceed three-quarters of an inch of bark.

The total monthly cut may conveniently be supervised at the end of three periods each of ten days or so, so that at the end of the first period of ten days one quarter of an inch of bark should have been removed and no more, and half an inch and three-quarters of an inch at the end of the twenty day period and at the end of the month respectively.

Systematic control of bark consumption at the regular intervals of ten days indicated above eliminates compulsory stoppages which are otherwise liable to be necessary before the end of the month in question due to uneconomical cutting.

Uneconomical cutting by native labour is frequently due to a desire to move on, or to counteract the desiccatory effect of a stoppage during the preceding month due to the cut in the preceding month having prematurely reached or exceeded the maximum allowed for that month.

In addition to the above the bark may be incised radially to the axis of the tree to a depth greater than is permissible.

Another common fault which the device is designed to correct, consists in the proneness of native labour to make a cut in the bark which is not at the most economical angle to the trunk or axis of the tree. It is usual to measure the larger angle which is usually between 100 and 140° and is preferably 120°, the native labour employed tending usually towards making the cut too nearly horizontal.

The object of the present invention is to provide a highly portable pocket gauge capable of being kept for example, between the pages of a pocket book, and constructed so that the tapping operations described above may be supervised in the following respects.

1. Measurement of the depth of incision from the surface of the bark towards the axis of the tree.

2. Measurement of the angle of the spiral cut relative to the trunk of the tree.

3. Measurement of the monthly cuts, total monthly cut, quarterly cut and annual cut.

The device is also useful in that cuts from which latex is over-running instead of falling into the cup at the lower end of each cut, may be cleared by using the device to brush away the bark or other matter commonly the cause of such overflow.

According to this invention a device for measuring the angle, and depth of the incisions by which latex is tapped from trees for example on rubber plantations is characterised by a body portion, one end of which merges into an enlarged portion formed with a plurality of projections of graduated size the sides of which projections are inclined at an angle to the sides of the said body portion.

In order that the invention may be

more readily understood and carried into effect, same will now be described with reference to the accompanying drawings in which:—

Fig. 1 is a plan view of the device.

Fig. 4 is an end on view of Fig. 1.

Figs. 2 and 3 are diagrammatic views of the device in use.

The device comprises a body portion 1 constituting a handle and is preferably formed from flat stainless steel strip or other metal which may be chromium plated to avoid any undesirable chemical effect upon the latex.

At the opposite end of the handle 1 the device has an enlarged portion consisting of a plurality of square projections 2, 3 and 4.

The edges 5 and 6 of the handle 1 are preferably about one inch apart and parallel to one another as are also the edges of the square projections 2 and 4.

The handle 1 may be apertured at 13, a loop of string or elastic being passed through the aperture and serving to retain the device on the wrist of the user or in a pocket book when not in use.

The gauge device shown is devised for a monthly bark allowance of three-quarters of an inch reached in three cuts each of one-quarter inch, and for a quarterly bark allowance of 2¼ inches, equivalent to a yearly bark allowance of 9 inches.

The sides *a* of the square projections 2 are in consequence each one-quarter inch in length, the sides *b* of the projection 3 are twice the length of *a*, that is half an inch in length, and the sides *c* of the square projection 4 are three times the length of *a*, that is, each three-quarters of an inch in length. The sides *a*, *b* and *c* are thus multiple lengths of one another.

The length L of the device shown in Fig. 1 is conveniently 2¼ inches which represents the quarterly extent of cut.

It is usual to mark the monthly cut on the tree 14, with a spot of tar and two such marks are shown on the trunk at 7 and 8, Fig. 2 denoting the extent of the cut for the previous month.

By applying the gauge as shown in Fig. 2 it is immediately apparent whether the first cut 9 at the end of the first ten day period of the ensuing month is approximately correct, or otherwise.

The square projection 2 is graduated with a series of parallel lines 10 incised or embossed at an angle of 45° to the edges *a* of the projection 2, and these lines 10 are spaced approximately one millimetre apart.

Consequently by laying the device flat upon the bark 11 with the apex 12, Fig. 1 of the projection 2 of the device pointing to the axis of the tree the radial depth of the incision may be checked in millimetres or other equivalent measurement.

At the end of 20 days, the cut should have reached a vertical depth of half an inch from the mark 8 which is checked by applying the edge *b*, and similarly the total monthly cut of three-quarters of an inch is checked at the end of the month by applying the edge *c*, Fig. 2.

As will be seen from Fig. 1, the device is also marked on one or both sides with incised or embossed lines shown dotted in Figs. 1 and 3.

The angle *x* Fig. 1, is shown as 120° and denotes the preferred angle at which the spiral cut should be made.

The utility of the angles marked on the device is illustrated in Fig. 3 which shows the device held against the tree trunk, the edge 6 being parallel to the trunk and the dotted line denoted 120° being visibly coincident with the cut 11, thereby verifying that the latter is at the correct angle to the trunk.

The extent of the angular deviation, if any, from the preferred angle may be measured if desired by comparison with the other dotted lines each of which is shown in Fig. 1 as marked with its corresponding angle to edges 5 and 6 of the device.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A device for measuring the angle and depth of the incisions by which latex is tapped from trees for example on rubber plantations, characterised by a body portion one end of which merges into an enlarged portion formed with a plurality of projections of graduated size, the sides of which projections are inclined at an angle to the sides of the said body portion.

2. A device as claimed in Claim 1, characterised in that each of the said projections has an edge or edges the length of which is a multiple of one or more edges of the other projections.

3. A device as claimed in either of the preceding claims characterised in that the overall length of the device is a multiple of the length of edge of one of the said projections.

4. A device according to any of the preceding claims characterised by projections the edges of which are inclined at an angle between 110° and 130° preferably at 120°, to the edges of the body portion.

5. A device according to any of the

more readily understood and carried into effect, same will now be described with reference to the accompanying drawings in which:—

Fig. 1 is a plan view of the device.

Fig. 4 is an end on view of Fig. 1.

Figs. 2 and 3 are diagrammatic views of the device in use.

The device comprises a body portion 1 constituting a handle and is preferably formed from flat stainless steel strip or other metal which may be chromium plated to avoid any undesirable chemical effect upon the latex.

At the opposite end of the handle 1 the device has an enlarged portion consisting of a plurality of square projections 2, 3 and 4.

The edges 5 and 6 of the handle 1 are preferably about one inch apart and parallel to one another as are also the edges of the square projections 2 and 4.

The handle 1 may be apertured at 13, a loop of string or elastic being passed through the aperture and serving to retain the device on the wrist of the user or in a pocket book when not in use.

The gauge device shown is devised for a monthly bark allowance of three-quarters of an inch reached in three cuts each of one-quarter inch, and for a quarterly bark allowance of 2¼ inches, equivalent to a yearly bark allowance of 9 inches.

The sides *a* of the square projections 2 are in consequence each one-quarter inch in length, the sides *b* of the projection 3 are twice the length of *a*, that is half an inch in length, and the sides *c* of the square projection 4 are three times the length of *a*, that is, each three-quarters of an inch in length. The sides *a*, *b* and *c* are thus multiple lengths of one another.

The length L of the device shown in Fig. 1 is conveniently 2¼ inches which represents the quarterly extent of cut.

It is usual to mark the monthly cut on the tree 14, with a spot of tar and two such marks are shown on the trunk at 7 and 8, Fig. 2 denoting the extent of the cut for the previous month.

By applying the gauge as shown in Fig. 2 it is immediately apparent whether the first cut 9 at the end of the first ten day period of the ensuing month is approximately correct, or otherwise.

The square projection 2 is graduated with a series of parallel lines 10 incised or embossed at an angle of 45° to the edges *a* of the projection 2, and these lines 10 are spaced approximately one millimetre apart.

Consequently by laying the device flat upon the bark 11 with the apex 12, Fig. 1 of the projection 2 of the device pointing to the axis of the tree the radial depth of the incision may be checked in millimetres or other equivalent measurement.

At the end of 20 days, the cut should have reached a vertical depth of half an inch from the mark 8 which is checked by applying the edge *b*, and similarly the total monthly cut of three-quarters of an inch is checked at the end of the month by applying the edge *c*, Fig. 2.

As will be seen from Fig. 1, the device is also marked on one or both sides with incised or embossed lines shown dotted in Figs. 1 and 3.

The angle *x* Fig. 1, is shown as 120° and denotes the preferred angle at which the spiral cut should be made.

The utility of the angles marked on the device is illustrated in Fig. 3 which shows the device held against the tree trunk, the edge 6 being parallel to the trunk and the dotted line denoted 120° being visibly coincident with the cut 11, thereby verifying that the latter is at the correct angle to the trunk.

The extent of the angular deviation, if any, from the preferred angle may be measured if desired by comparison with the other dotted lines each of which is shown in Fig. 1 as marked with its corresponding angle to edges 5 and 6 of the device.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A device for measuring the angle and depth of the incisions by which latex is tapped from trees for example on rubber plantations, characterised by a body portion one end of which merges into an enlarged portion formed with a plurality of projections of graduated size, the sides of which projections are inclined at an angle to the sides of the said body portion.

2. A device as claimed in Claim 1, characterised in that each of the said projections has an edge or edges the length of which is a multiple of one or more edges of the other projections.

3. A device as claimed in either of the preceding claims characterised in that the overall length of the device is a multiple of the length of edge of one of the said projections.

4. A device according to any of the preceding claims characterised by projections the edges of which are inclined at an angle between 110° and 130° preferably at 120°, to the edges of the body portion.

5. A device according to any of the

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preceding claims characterised by projections one of which is formed with embossed or incised lines parallel to one another and inclined at 45° to adjacent sides of the said projection.

6. A gauge device substantially as described with reference to the accompanying drawings.

Dated the 25th day of June, 1937.

M. F. COOP,
Solicitor for the Applicants.

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