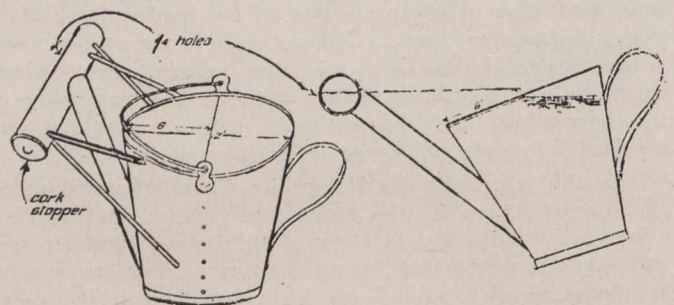


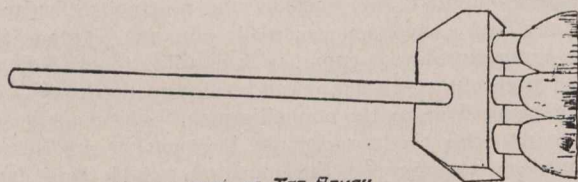
In many patches the tar did not penetrate the new material, and in a number of instances the heavy engine wheels tore out the patches during tarring operations. In justice to the contractors, the author must say that he has seen their small combined tractor and sprayers give perfect results. Patching with small-gauge angular flint coated with tar and pitch was tried after surface-painting. The flint was dried upon old sheets of galvanized iron and mixed with hot tar and pitch.

The holes were filled without picking the surface, a neat patch resulted, but the material did not wear well; a further experiment was made with iron slag obtained from a local foundry. This absorbed the tar and pitch freely, gave better results than the flint, but left too much to be desired, and in consequence, Clee Hill and Rowley Rag 1-in. clean material were tried. These wore better, but the patch was not neat in appearance, and the final experiment of the

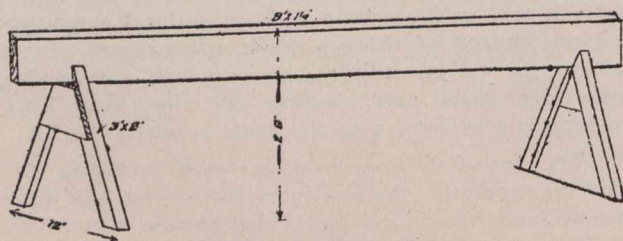


CONVENIENT FORM OF CAN
FOR TAR PAINTING

SECTION SHOWING ADVANTAGE OF
WIDE HALF COVER



USEFUL TYPE OF TAR BRUSH



CONVENIENT FORM OF TRESTLE

Diagram accompanying Mr. Hartfree's Paper.
(Plate No. 1.)

season was made with Clee Hill stone two parts, $\frac{1}{2}$ -in. flint one part, the whole dried, mixed and tarred, using about 9 gallons of crude tar at 2d. per gallon and 8 lb. of pitch, costing 2d. per pound, to ton of metalling; a neat and strong patch resulted. But the experiments clearly showed that best effects could only be obtained by picking around and in the holes to be filled, and this was tried at commencement of the present season, but is now superseded by the use of Tarvia matrix mentioned hereafter.

Surface tarring showed great dust reduction, and has lengthened the life of the roads. The total abolition of dust

has not been obtained, although constant scavenging of the streets prevented the trouble from horse droppings felt in many places; but there still was annoyance from dust blown off by-roads, gardens, pavements, and swept out of premises. In consequence the tarred surfaces were watered weekly and swept clean with the horse broom, and this nuisance was reduced. At the commencement of the present season it was decided, in addition to main roads, to tar portions of the district roads; the main roads estimates also included laying 100 tons of granite upon a tarred matrix and a similar quantity with Rocmac solution.

The area to be tar-painted was intended to be one-third by hand treatment and the remainder to be by contract, subject to a small machine being used. The following prices were received for contract work: Hand treatment, crude tar, including labor in sweeping and dusting, $1\frac{1}{2}$ d. per yard; machine treatment, including labor as before, $1\frac{1}{4}$ d. per yard, using distilled tar $1\frac{1}{2}$ d. per yard. Machine tarring, the council to provide for sweeping and gritting, with distilled tar; prices ranged from 9/10d. to $1\frac{3}{16}$ d. per yard, and crude tar from $\frac{7}{8}$ d. to 1d. In every case about 6 yds. per gal. was quoted. The offer of a firm to supply a horse-drawn machine using distilled tar was accepted, they agreeing to commence work within seven days from signing the contract. This was cancelled owing to their delay in commencing, and the whole of the work was carried out by direct labor.

At first there was only a 40-gallon boiler available, and the tar was dipped out and spread from watering cans provided with horizontal spreaders. This type is preferable to the rose spreader as a more uniform covering is obtained; the tar was well brushed in with special tar brushes and left to dry in by the sun; towards evening dust was sprinkled on by hand, and not direct from the shovel, sufficient to cover only being used.

The best results were obtained on scorching hot days, commencing tarring about 11 a.m. and finishing at 3 p.m.; this allowed a perfectly dry and hot surface before treatment, and good sun drying after. When the tar had reached a rusty brown color it was taken as sufficiently dried. With the small boiler about 1,000 yds. per day could be covered, working from six to six, but tarring during suitable hours only half this quantity could be covered. To further advance the work a "Weeks" 80-gallon boiler and sprayer was purchased at a cost of £29 10s. This gave satisfactory results and 2,000 yds. were treated, working a full day; but, as before, the best effects were obtained by treating about 1,000 yds. during the hottest part of the day. At first, trouble was found with the spray, arising through insufficient knowledge on the part of the men using it, the tar from previous spraying having caked the nozzle. Afterwards, by cleaning it immediately after use and warming the end before the next operation, no further choking occurred. The Phoenix Engineering Company, of Chard, have an excellent arrangement upon their latest machines providing for easy cleaning of valves and nozzles. With the advent of the "Weeks" machine it was possible to make comparisons between crude and distilled tar and Tarvia by hand treatment and machine-sprayed; the crude tar was obtained from local gasworks, and was subjected to no other treatment than well boiling to expel water and free ammonia, and the admission of a little lime to neutralize the fixed ammonia. This gave rise to a noticeable smell, but, the work being carried on in an isolated part of the district, no serious complaint was received.

The cost of various treatments were:—

	Hand Painting.	d.
Crude tar, 1 gallon to 7 yds.	$\frac{3}{4}$	per yard.
Distilled tar, 1 gallon to 5 yds.	$1\frac{3}{8}$	"
Tarvia, 1 gallon to 6 yds.	$1\frac{3}{8}$	"