

the air and water, the water leaving the separator from an outlet at the bottom, tangent to the periphery, and the air passing off at the top. The downward centrifugal action leaves the air quite dry and frees the water entirely from air bubbles.

By this centrifugal arrangement the water is not brought to a dead stop and reversed, with consequent loss of all momentum, as in some older types of boosters, but its direction is gradually changed so that it is carried on to the outlet of the separator without loss of momentum and with proportionately greater efficiency.

PENETRATION "SLIDE RULE"

TO facilitate the determination of the proper penetration of asphalt for various classes of paving, J. R. Draney, sales manager of the United States Asphalt Refining Co., of New York, has devised a "slide rule" which gives the correct answer at once for any given condition. This "rule" is patented and has been manufactured in celluloid by Mr. Draney's company, and is being distributed gratuitously to paying engineers and road contractors. It is very neatly arranged and forms a handy paper weight as well as a ready means of determining penetration.

The "rule" is circular, 4 ins. in diameter, about $\frac{1}{2}$ in. thick and weighs $7\frac{1}{2}$ oz. There are three circular, concentric scales, the inner two having openings through which the readings are taken.

The outer scale is fixed, the circle being divided into four portions, covering (1) asphaltic concrete (Topeka), (2) asphalt macadam (hot mix), (3) penetration construction and (4) sheet asphalt.

The middle scale can be revolved so as to be placed in proper adjustment with the outer scale. The middle scale is divided into three parts: (1) high temperatures, (2) moderate temperatures, and (3) low temperatures.

The innermost scale also revolves, and likewise is divided into three parts, (1) heavy traffic, (2) moderate traffic and (3) light traffic.

The instructions for using the "rule" are as follows:—"Select the quadrant or the outer dial showing the type of construction, then turn the intermediate dial until appropriate temperature conditions are in register. Now turn the centre dial until the sector showing the proper traffic conditions registers with the two outer sectors. The number appearing in the opening in the quadrant originally selected is the number or grade of asphalt to be ordered."

Following are all the readings that can be obtained from the rule:—

Pavement	Temperature	Traffic	Penetration Grade No.
Asph. Conc.	High	Heavy	55
"	"	Mod.	55
"	"	Light	55
"	Mod.	Heavy	55
"	"	Mod.	55
"	"	Light	65
"	Low	Heavy	65
"	"	Mod.	65
"	"	Light	75
Asph. Mac.	High	Heavy	65
"	"	Mod.	75
"	"	Light	75
"	Mod.	Heavy	65
"	"	Mod.	75
"	"	Light	75
"	Low	Heavy	75
"	"	Mod.	75
"	"	Light	85
Penetration	High	Heavy	85
"	"	Mod.	85
"	"	Light	85
"	Mod.	Heavy	110
"	"	Mod.	110
"	"	Light	110
"	Low	Heavy	150
"	"	Mod.	150
"	"	Light	150

Pavement	Temperature	Traffic	Penetration Grade No.
Sheet Asph.	High	Heavy	45
"	"	Mod.	55
"	"	Light	55
"	Mod.	Heavy	45
"	"	Mod.	55
"	"	Light	55
"	Low	Heavy	55
"	"	Mod.	55
"	"	Light	65

The permissible variations in penetration of the different grades of asphalt are given as follows:—

Grade No.	Range in Penetration
45	40 to 50
55	50 to 60
65	60 to 70
75	70 to 80
85	80 to 90
110	100 to 120
150	130 to 170

SUPPLEMENTARY ESTIMATES

SIR Thomas White, Minister of Finance, announced on Thursday, July 3rd, in the House of Commons, supplementary estimates, amounting to \$36,723,120, of which \$23,494,256 will be charged to current revenues and the remainder to capital account. Following is a partial summary:—

HARBOR WORK

Champlain, drydocks	\$ 207,000
Collingwood, breakwater	50,000
Depot Harbor, wharf	34,000
Esquimalt, drydock	500,000
Fraser River, dredging	50,000
Hamilton, harbor improvements	100,000
La Prairie, Que., protection	82,000
Little Current, wharf	54,000
Nicomen Island, improvements	36,000
Owen Sound, wharf	86,000
Port Arthur and Fort William, harbor improvements	200,000
Port Dover, harbor improvements	50,000
Port Stanley, harbor improvements	33,000
River St. Charles, improvements	55,800
Shipbuilding	10,000,000
St. John, harbor improvements	250,000
Sydney, N.S., wharf	100,000
Thessalon, breakwater	48,000
Toronto breakwater protection	200,000
Toronto, harbor improvements	200,000
Vancouver, harbor improvements	18,000
Victoria, harbor improvements	21,000

BRIDGES

Edmundston, N.B., across St. John River	\$ 25,000
Hamilton, across Burlington Channel	100,000

RAILWAY CONSTRUCTION

Edmonton, Dunvegan and British Columbia subsidy—Spirit River through Grand Prairie	\$ 258,797
Hudson Bay	300,000
Quebec and Saguenay	550,000

PUBLIC BUILDINGS

Kamloops, B.C., postoffice, etc.	\$ 20,000
London, Ont., postoffice, etc.	400,000
Montreal, postoffice	24,000
Oshawa, Ont., postoffice, etc.	23,000
Portage La Prairie, Man., improvements	25,000
St. Catharines, additions	28,000
Toronto, postal station A	115,000
Winnipeg, postal station A	10,500

MISCELLANEOUS

Federal Department of Health	\$ 200,000
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