buckets would be filled before passing round upper terminal, and emptied before passing round lower terminal.

Oval.—Where front of paddock and line of rope are parallel, the oval can be the shape and dimensions shown on drawings; but if otherwise send plan of actual position and form of oval required, and so obviate the necessity of alterations on ground.

Felling of Timber.—The whole of the timber and scrub should be felled for a width of 66ft., 33ft. on each side of centre-line, except where line runs along a steep sideling, when 20ft. would be sufficient on lower side, and 46ft. on upper side; in addition to which all leaning or dangerous trees on upper side should be felled, although outside the specified 66ft.

Clearing.—All fallen logs, trees, and scrub should be cleared for a width of 7ft. on each side of centre-line and deposited at lower side; and at each trestle the clearing should be perfected for the whole width of 66ft., and 33ft. along line on each side of each trestle; this provides for safety of trestle in case of bush-fires.

Trestles.—To be constructed with spread and sizes of timbers as shown on drawings, the legs in all cases to rest on a solid foundation; when on rock, to be chipped off level; and in all other cases the sideling to be stepped in, so that leg will rest on solid material. The trestling for terminal structure at lower end (where necessary) to be as shown on drawings.

Framework for Terminals.—To be as shown and figured on drawings; to be placed on stringers at lower end with four sets of wheels, as shown. This allows the structure to be moved backward or forward, as the rope contracts during frosty weather and expands with summer weather. When terminal structure is in desired position make fast to any safe anchorage until it requires shifting again. The framework for terminal at upper end to be placed on three sills sunk into solid rock, and bolted down at each sill, as shown, or other foundation equally good.

When placing sills in position care should be taken that the angle is such that, when structure is complete, the terminal sheave will be in perfect truth with pulleys on first trestle from terminal.

Bolts and Washers.—All bolts to be the sizes figured on drawings, to have two washers, one each at head and nut, washers to be square, with side equal to 3½ diameters of the bolt, and thickness ⅓ diameter of bolt, head and nut to be 2 diameters square and 1 thick.

Timber.—Should be the best procurable and free from all imperfections.

Chairs for Pulley-frames.—Chairs on cap of trestles should be placed at equal distances from centre-line, and the space between chairs should be such that, when pulleys are in position, from centre to centre of pulleys will equal centre to centre of rope, measured across terminal sheave; the chair should be fitted so that the pulleys will work truly vertical, and the contained angle of rope should be taken into account, and chair fitted to half the angle.

Sharp Angles.—In determining height of trestles, sharp angles should be avoided wherever possible.

Putting on Clips.—A piece of canvas, 5in. by 5in., dipped in tar, should first be rolled round rope, then attach clip and screw tight; after which serve with marline for 3in. each way, having marline flush with clip, and taper off to one thickness of marline at other end.

Derrick at each Trestle.—A spar, not less than 8in. diameter at small end, should be placed at each trestle, to act as a derrick, and should be not less than 8ft. above cap when placed at lower side as shown on drawing, and each trestle should have foot-rungs, as shown, for ladder-way.

Speed of Rope.—Will depend on the load and inclination, but should not exceed 250ft. per minute.

Oiling of Rope.—Rope should be kept dry and clean until ready to start working, and should be then oiled or greased, and the operation repeated when necessary—say, once a month; the maker recommends heavy-bodied hydro-carbon oil; where this is not easily procurable, equal parts of tallow and linseed-oil boiled together and applied hot will answer the purpose.

Shifting of Clips.—Clips should be shifted (say, 40ft.) every two months.

Getting Length of Rope.—Measure length of rope for one circumference of terminal sheave; then count revolutions of sheave for the round trip, when exact length of rope is determined.

Spacing of Buckets.—Buckets should be evenly spaced, as the line works much better when the load is even and not lop-sided.

Working Line during Frosty Weather.—After a frosty night, the line should not be worked until the rope thaws, but, after starting, can be kept going until late at night (if necessary) without injury to rope.

Best Working-grade.—The Golden Lead line, with a grade of 1 in 4·36, can transmit 35 cubic yards in eight hours; but perhaps the best grade would be about 1 in 7.

Straining of Rope.—The rope should not be strained too tight, neither should it be too slack. The Golden Lead line has a total fall of 1,000ft. in 66 chains horizontal; this would give 4,469ft. nearly as the hypothenuse, doubled equals 8,938ft.; the actual length of rope when in good working-order is 9,012ft., or equal to an allowance of 74ft. for sag of both sides.

Hints to Person in Charge.—See that pulleys are put into frames the correct way, and, after starting the line, examine pulleys on each trestle, and see that they are not screwed too tight or too slack, and regulate the chairs to bring pulleys into perfect truth with rope. Have upper terminal roofed in, so that brakes can be kept dry; should brakes become wet from any cause start line gently, and dry brakes with waste or rag. Brakes require oiling at intervals; speed and smoothness of running will determine when oiling is required. During cold weather the oil clogs, when the line will run slow; in this case pour about a spoonful of kerosene on the brakes, when the line will come up to required speed. When the bucket is 60ft. to 80ft. distant from terminal, begin to slacken speed gently, and go slowly round terminal, when speed is again increased to its maximum. Never pull up suddenly or with a jerk; the bucket should not come to a standstill to be filled, the filler should be