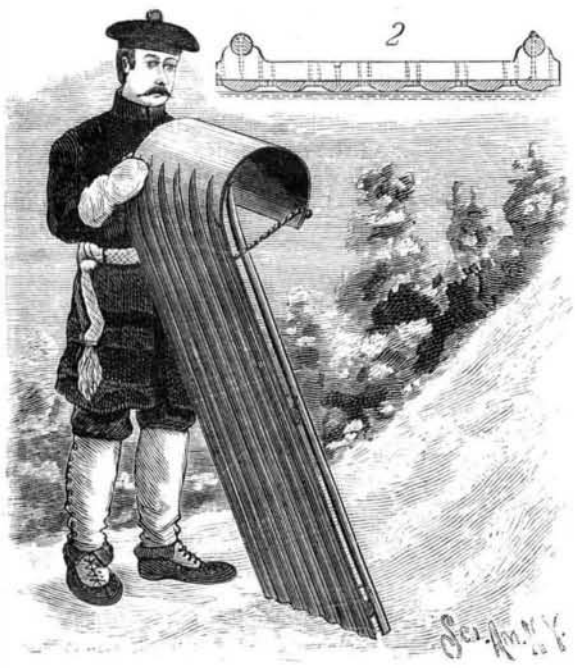
IMPROVED TOBOGGAN.

The slats forming the bottom of the toboggan are made with their middle parts raised longitudinally and rounded, and with flat flanges along their side edges, forming a ribbed surface. The slats are secured to the cross pieces by nails, screws, or rivets passing through the side flanges as shown in the cross sectional view, Fig. 2. The slats may also be held by screws passing through the cross pieces and into their thicker middle parts. The forward ends of the slats are curved to give the usual shape to the front end



CLAPP & AINSWORTH'S IMPROVED TOBOGGAN.

of the toboggan. The hand rails are supported by projections on the upper sides of the end parts of the cross pieces. The forward ends of the side bars are left free to give the requisite elasticity to that end of the toboggan. The front corners of the toboggan are connected with the side bars by cords in the ordinary way. This construction forms a bearing surface free from screw or rivet heads or countersinks to cause friction and scratch the ice, and will polish easily and quickly. It is claimed that this toboggan will run faster and wear longer than those made in the usual manner. This invention has been patented by Messrs. B. W. Clapp and S. Ainsworth, of 75 Putnam Street, Saratoga Springs, N. Y.

GAME CARRIER.

Mr. James H. Stevens, of Grover, Colorado, has recently patented an inexpensive device by which game can be conveniently and safely carried from an ammunition pouch or belt. It consists essentially of a heavy steel wire, bent as shown in the engraving. The edge of the holder or pouch is secured to the inner part of the carrier in any approved way. The ends of a strap, by which the combined carrier and holder is swung from the shoulder of the sportsman, are attached to eyes formed by the upper parts of the wire. These eyes are large enough to allow the heads of game to be passed through them into the spaces between the wires, which are small enough to hold the game by their necks. About at the middle of each side of the carrier is a hook, which, when closed, serves as a brace for the sides of the carrier and also as a support for a small quantity of game, which is thus held as high as possible from the ground, to prevent it dangling about the sportsman's legs. By slightly modifying the construction, this carrier can be applied to an ordinary cartridge belt.

STEVENS' GAME CARRIER.

ENGINES OF THE PADDLE STEAMER OZONE.

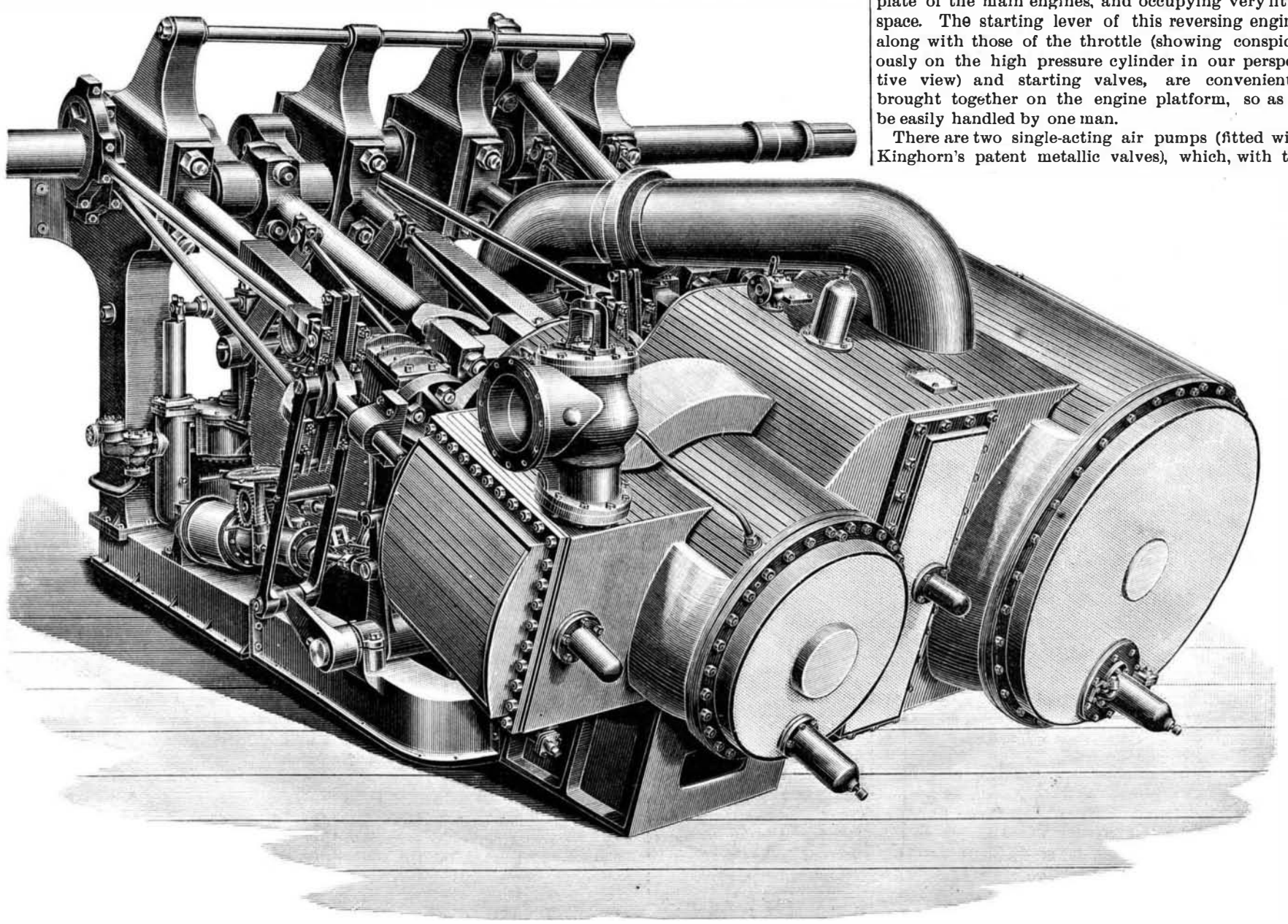
We give a perspective view, from *Engineering*, of the engines of the paddle steamer Ozone, constructed by Messrs. Rankin & Blackmore, of Greenock.

The Ozone was built to the order of the Bay Excursion Company, of Melbourne. The Ozone is 260 feet long between perpendiculars, and has a moulded breadth of 28 feet, and a depth of 11 feet 2 inches, with a plate keel, and the accommodation on her three decks is so arranged that she could, on a push, carry the enormous number of 3,000 passengers.

The engines of the Ozone are of the direct-acting diagonal compound type, and are of 314 nominal horse power (Clyde rule), having two cylinders 47 inches and 85 inches in diameter, the stroke being 5 feet 6 inches. In designing these engines, Messrs. Rankin & Blackmore's effort was to make the machinery as light as possible, consistent with ample strength, and to this end the almost universal exhaust steam jacket round the high pressure cylinder was dispensed with, a jacket being substituted, thus effecting a considerable saving of weight. The exhaust pipe from the low pressure cylinder to the condenser is also made of copper, as against the usual practice of cast iron; and the condenser itself is a cylindrical casting with light malleable iron doors lying snugly beneath the diagonal framings. Messrs. Rankin & Blackmore have hitherto designed their diagonal framings of cast iron, box section, but in this case they are of solid forged malleable iron, with round flanges at the cylinder end, and T heads for attachment to the main framings, which, by the way, are connected to the cylinders at their bases by box-section tie pieces of cast iron.

The connecting rods are of the double jawed type at the piston rod end, and are coupled to the crank pins by solid single jaws fitted with gun metal bushes having extra large surface. The valve motion differs from that of most paddle engines in having double plate links in lieu of the usual open quadrants, and the eccentric rods have forked ends with large adjustable bushes. The high pressure cylinder is fitted with a single-ported, and the low pressure cylinder with a double-ported, valve. The reversing is performed by one of Brown's steam and hydraulic engines of the newest design, working horizontally from the bed plate of the main engines, and occupying very little space. The starting lever of this reversing engine, along with those of the throttle (showing conspicuously on the high pressure cylinder in our perspective view) and starting valves, are conveniently brought together on the engine platform, so as to be easily handled by one man.

There are two single-acting air pumps (fitted with Kinghorn's patent metallic valves), which, with the



COMPOUND ENGINES OF THE STEAMER OZONE.