(Copy)

Conditions of Contract for an 85 inch Cylinder Steam Engine, Boilers, Pumps and other Machinery for the Real del Monte Mining Company, Mexico.

The Steam Engine, Boilers, pumps and other Machinery connected therewith are to be made according to the specifications and drawings furnished by Mr. Michael Loam of Treskerby, Truro.

The Contractors bind themselves to have the whole of the said Steam Engine, Boilers, pumps or other Machinery mentioned in the Specifications No. 1 & 2 hereunto annexed, prepared ready for shipment at the Port of Hayle on or before the first day of August next.

In case of failure of the delivery of the said Steam Engine, Boilers, pumps and other Machinery by the 1st August next as above mentioned the Contractors shall pay to the said Company through their Agent in London by way of penalty the sum of ten guineas per day for every day beyond the said term and until the whole of the said Machinery shall have been delivered.

The Contractors agree to supply the whole of the said Steam Engine, Boilers, Pumps and other Machinery and to deliver the same at the Port of Hayle free on board such ship or ships as the Agent of the said Real del Monte Comp.y may appoint for the sum of £11,730.—

The said Steam Engine, Boilers, Pumps &

other Machinery shall be subject to the inspection and approval of Mr. Michael Loum of Treskerby, Truro. who shall be at liberty to apply such tests as he may think proper to ascertain the strength and efficiency of the several parts of the said Machinery and to reject or approve the same on behalf of the said Company.

The payment for the said Machinery to be in Cash prompt 14 days from the date of Bill of Lading.

Dated in London the Twenty fifth day of February 1857.

(signed) Nich.s Harvey
Joo Harvey & Co.

Witness
John Elphick " John Phillips
Agent to the Real del
Monte Mining Comp.y.

We agree to take the said Machinery in our Ship the "Glencairn" from Hayle to Vera Cruz for the sum of Seven hundred pounds the Port charges at Vera Cruz to be paid by the Real del Monte Mining Company.

(s.d) Nich.s Harvey
Joo Harvey & Co.

Specification of 85 inch, direct acting, condensing pumping Engine and four Boilers for Pachuca Mine Mexico.

The Engine to be 10 ft. Stroke.
The Cylinder 85 in diameter 1 3/8 in thick flanches 2 3/4 in thick well bracketed and prepared to take forty 1 3/4 in bolts in each flanch and 13 feet long. The steam case to be cast steel 1/4 in thick in the body with wrought iron or steel flanches 1 in thick 6 in wide and a T steel bend in the middle 3/8 in thick, about 5 in each part, 10 ft 6 in long; cast iron pieces 12 in long with two flanches prepared to take forty 1 3/8 in bolts bracketed between each bolt and for four holding down bolts bored out taper to fit the bottom of cylinder and the holding bolts sufficient length with nuts cutter and glands complete.

The cover to be fitted to the cylinder and to have a bright false one attached with four grease cups for lubricating the piston. Double bottom for steam 2 ft 4 in deep Top-Flanch fitted to the case, and bottom flanch 12 ft long and the breadth to fit the cylinder lighter between the wrought iron girder and provided with stuffing box complete - the flanches to be 2 1/2 in thick well bracketed and prepared to receive the holding and other bolts, the bottom to rest upon and supported by two wrought iron girders each 18 ft long 3 ft 6 in deep & 2 ft wide - Plates to be 7/16 in thick.

The piston to be fitted with 2 cast iron concentric rings 2½in. thick well fitted to the Piston and in the joints and screwed down with 12 - 1¼in screws. The rod to be properly fitted and collared to Piston and Main cap - to be 8½" diameter in the body, 9½in. in cap and Piston to be about 19 ft. long.

The nozzles to be fitted to the cylinder & bottom, and of sufficient capacity to take the valves - viz:- the Steam and Governor 14½in diameter each, in one nozzle and the equilibrium 18in. diameter and the Exhaustion 24in. diameter in the other the valves to be upon the double beat principle.

The flanches of Nozzles to be 2in thick & well bracketed between bolt holes. The perpendicular Pipe between the top and bottom nozzles to be bright and 24in bore. The nozzles to have the necessary bonnets, glands &c and light cast iron cases or jackets for clothing with the top plates bright.

All the nozzles and hand gear & plug rods above the floor to be bright and the joints of levers and eyes to be case hardened and brass bushed. The rod and balance for two cataracts and Injection gear below the floor line to be fitted true - the weigh posts to be of cast iron to be bright with bright urns.

The condensing work to include air pumps and Receiver, each 38ins diameter 1¼in thick and equal to a 5ft 6in stroke

with Eduction pipe prepared to take the feed one through it, 1¼" thick and 26in. bore. Pan, Foot and head valves, Bucket rod, Hotwater cistern, the condensing cistern wrought iron 8ft. wide, 6ft. deep, 12 ft. long. Injection Pipe, valve & gear, and four 2in. holding down bolts 5 ft. long each complete.

The feed apparatus to include a 6in. Pole with case and the ordinary nozzles with 4½ in. valves and pipes and an extra stop cock and waste nozzle complete.

Two balance beams to be of wrot. iron and cast steel angles with the plate rivets of the best crown iron and the rivet holes to be bored to fit each other accurate - 16 ft. between centres, 5 ft. across the middle and 18ins each end. The Gudgeon to be of wrot. iron 9in. diameter in the journals and 10in. long and 10in. diameter in the middle and about 7 feet long within the journals and provided with blocks & brasses &c., and foundation plate complete.

The beam to be provided with the necessary pins and distance pieces &c complete with balance box if of (?) wrought iron to be 6 ft. wide 7 ft. deep and 9 ft. long. The connecting rods of balance beam equal to 6 in., about 13 ft. long and provided with loop heads and brasses.

Four Boilers to be of pure homogeneous metal, to be 30 ft. long each and of the cylinder form each case to be 7 ft. 6in. diameter ⅜ double rivetted in the fore ends and 6 ft. diameter and

1/4 plates in the back and the tubes to be 4 ft. 6 in. diameter and 3/8 plates in the fire place and 3 ft. diameter and 1/4 in. plates in the back end. The circular joints of tubes in the fire place to be covered and strengthened by T iron or steel 3/8" thick.

The fire place to be 8 ft. 8 in. long and the end closed with 3/8 plates the back end to be closed with 3/8 plates. The outfit of Boilers to include a steam pipe of the same metal as the Boilers 3 ft. diameter 50 ft. long and made of 3/16 plates. A cast iron connecting do. 18 in. bore and pipe 18 ft. long. Drain Pipe 8 in. bore 20 ft. long. four steam boxes connected to reservoir with 9 in. valves, bonnets, glands, and gear complete. Four 4 1/2 in. Safety valves with pipes & gear complete. 4 Manholes doors with bolts and glands complete. 4 Fire doors with Frames plates and sleepers. 10 dozen of 7 ft. fire bars in 2 parts. 4 safety brass cases with metal plugs. 4 Dampers & frames. 12 Guage pipes & Cocks. 4 Glass water Guages and 4 regulating feed nozzles.

The whole of the work including the bolts for joints and every other metallic part necessary to complete the Engine, Boilers & outfit to be of the best material and workmanship and delivered free on board according to the drawing of Messrs. Hocking & Loam, Engineers, and subject to their approval within five months from the 1st March 1857.

The Cylinder Case*, cover, bottom & Nozzles to be of cold blast iron. * qr. Steel

18. February 1857.

Specification of Pitwork for an 85in Engine, for Pachuca Mine, Mexico.

First a Plunger lift 24ins. diamr. 15 fathoms long
Second D° 17ins. do 33 do
Third D° 17ins. do 33 do
Fourth D° 17ins. do 33 do
1 Pole 24ins. diameter 12ft 6ins long & 1¼" thick
1 Case 25 " do 10ft, do 1¾ do with flanches 2ins. thick well bracketed and prepared for twelve 1½" bolts in each.
1 Stuffing box and gland to fit. brass bushed and provided with ten 1½in stuffing box bolts.
1 H Piece to take clacks 28ins diameter 4ft 6in high and 2½ thick in body with door stoppers & clack seats complete.
1 Door piece with door stoppers & clack seats complete.
1 Windbore 24ins bore and 6ft long.
15 Fathoms of cast steel tubes for column 24in bore, ¾ thick in 4. 20 feet length, one 6ft and one 4ft with wrought iron or steel intermediate flanches 1in thick. 3 Poles 17ins diameter 12ft 6in long 1¼in thick each.
3 Cases 18in diameter 10ft long 1⅝ thick with flanches 1¾" thick, well bracketed and prepared for ten 1½" bolts in each.
3 Stuffing boxes and glands to fit, brass bushed and provided with eight 1½" stuffing box bolts to each.
3 H Pieces to take clacks of 20in bore 3ft 6in high and 2¼in thick in body, well ribbed with flanches 2in thick well bracketed and provided

with ten 1½in. bolt poles.
3 Door pieces of same dimensions as the H pieces to be provided with doors, iron clasps & seatings complete.
3 Windbores 17in. bore 6ft. long each, and to fit the H pieces.
3 Columns of Cast Steel tubing 3/16" plates and in twenty four 20 feet lengths.
3 Do. do do 6 " do
3 Do. do do 4 " do with wrot. iron or steel flanches 1in. thick to fit each door and intermediate flanches to fit each other faced.
8 Cast Steel Pumps 3/16 thick of 16in. diameter if welded, or 17in. if rivetted, 9 ft. long.
2 Cast Steel Pumps 3/16 thick of 16in. diameter if welded or 17in. if rivetted, 4½ ft. long.
1 Cast iron Bucket working barrel 15in. diam. 13 ft. long.
1 Cast Steel Windbore 3/8" thick, 15in. diameter 9 ft. long.
1 Cast iron bucket door piece 15in. diameter 6 ft. long, provided with eight 1½ hole flanches 1¾in. thick bracketed between holes complete.
All the cast iron, wrought iron and steel flanches to be faced to fit together.

Wrought iron Rods for the 85in. Engine
First series Twenty eight Flat rods 8in. by 2in. in body with enlarged ends planed to fit each other with clasps constructed similar to those at Wheal Vor in lengths of . . . . . 30 ft.
Second series Twenty two Do. do 8in. by 1⅝ . . 30 "
Third do do do do 8in. by 1¼ . . . 30 "
Fourth do do do do 8in. by 1 — 30 "

These rods to be faggotted from the best scrap iron and the pitwork to be the strongest material and best workmanship and fitted together and delivered free on board according to the drawings of Messrs Hocking & Loam and subject to their approval within five months from the 1st March 1857.

18. February 1857.

(Sd.) Michael Loam