(Prop. No. 181)

Denver, May 9th., 1899.

Mr. P. R. Stanhope,
Dumont, Colo.

Dear Sir:-

We are pleased to quote you upon machinery, material, etc, as follows:-

Compressor.	Leyner 11-1/2" x 14" Compound, Steam Driven,- having sufficient capacity to operate two rock drills of the ordinary piston type or four New Leyner Rock Drills,- complete, with all lubricators and fittings.	$1050.00
Receiver.	Steel Air Receiver, size 30" x 96", complete, with pop safety valve, pressure gauge, drain cock and man head.	$110.00
Boiler.	Forty h. p. Horizontal, Tubular Boiler, complete, with injector and all fittings.	$377.50
Tank.	Wooden Water Tank, size 5 ft. x 7 ft., with lug hoops, complete.	$27.50
Drill:-	One 3" New Leyner Rock Drill, complete, with mounting, air and water hose and couplings; manifold for making air line connections; 18 gal. steel water tank, with fittings; 2 Leyner Patent Starters; wrenches, throttle and pocket oiler.	$250.00
Steels.	One set of 36 drill steels, made up in 12" steps, to drill to a depth of six feet.	$109.00
Tools.	One full set of ten drill sharpening tools.	$20.00
Fittings.	Fittings and pipes to connect boiler to compressor, compressor to receiver, water tank to compressor water jackets, injector to boiler; drains from receiver and from compressor jackets.	$70.00
		$2014.00

Above are cash quotations, for delivery f. o. b. Denver.

S P E C I F I C A T I O N S
of
LEYNER STEAM-DRIVEN, STRAIGHT-LINE
C O M P O U N D-A I R C O M P R E S S O R.

Attached to and made a part of estimate or proposition No. 181,
submitted May 9th, 1899.

From J. Geo. Leyner, of Denver,

To O R Stanhope, of Dumont Colo.

Style:- To be the latest design and pattern of our above dimensioned steam-driven compound air compressor.

Cylinders:- To be cast of a special mixture of hard, close iron; to be accurately bored and to be of sufficient thickness, after being rebored, to withstand all pressure and strains to which they are subject.

STEAM CYLINDER to be 10 inches in diameter by 14 inch stroke and to be provided with automatic water relief valves and drain cocks.

LOW PRESSURE AIR CYLINDER to be 11½ inches in diameter by 14 inch stroke.

HIGH PRESSURE AIR CYLINDER to be 6½ inches in diameter by 14 inch stroke.

Both air cylinders to be provided with Leyner's improved water-circulating jackets for the effective cooling of the air.

Main Frame:- (or Fly Wheel Base):- To be of our improved design, made extra heavy and cast solid in one piece, making a strong base and one well able to resist all strains to which it is subject; bearings for the main shaft to be cast solid in the frame and to be extra large and heavy.

Main Distance Piece:- To be very heavy and faced perfectly true and parallel on the ends, with projections fitting into the air and steam cylinder ends, thereby bringing the cylinders into exact alignment with each other; lugs to be cast on the ends to support the cross-head guides.

Cross-head Guides:- To be of locomotive pattern and adjustable at the top and bottom so that the cross-head and piston can be kept in perfect alignment with the cylinders.

Cross-head:- To be of Leyner's improved double pattern and provided with his improved means of fastening same to the piston rods. (By loosening four bolts, the piston rods can be adjusted in the cross-head to any degree of accuracy, thereby admitting of the clearance in both the air and steam cylinders being kept perfectly equalized, without the use of shims and packing strips ~~&c~~ between the connecting rod ends and the crank and cross-head boxes.

Main Bearings:- To be of large size and cast solid in the main or fly wheel base; to be lined with the best of anti-friction metal, scraped to perfect bearings and made adjustable for wear.

Steam Piston:-To be of the solid locomotive pattern, shrunk onto the piston rod and rivetted; to be provided with self-adjusting packing rings, fitted to the cylinder.

Intake Air Piston:- To be of our improved pattern, provided with large wearing surfaces and secured to the piston rod by taper ground fit and double nuts, with safety caps, and to be provided with self adjusting packing rings and dust grooves.

Compressing Air Piston:- To be of the solid locomotive pattern, secured to the piston rod by taper ground fit and double nuts and to be provided with self-adjusting packing rings.

Stuffing Boxes:- To be of Leyner's latest design, so constructed that the packing gland is drawn centrally and squarely over the piston, thereby relieving the piston of any liability to be cut by improper tightening of the packing glands.

Steam Valve Gear:- Steam cylinder to be fitted with the Leyner Piston Balanced Steam Valve; also with adjustable Cut-off Valve,- adjustable by hand wheel while the engine is in motion and having point of cut-off indicated by moveable pointer; the main valve to be driven by double eccentrics and double connections; cut-off valve to be driven through the stem of the main valve, centrally connected. This method of operating steam valves relieves the yokes or connections of any side or torsional strains and makes a most satisfactory arrangement for operating the valves.

Governor:- The steam cylinder to be provided with the Leyner Pressure Governor, to automatically control the speed of the compressor and maintain a steady pressure of air.

Air Valves:- Air Cylinders to be fitted with Leyner quick-acting, Patented Steel Inlet and Outlet Valves.
(All working surfaces and springs in these valves are enclosed and protected from the dust and the form of the valve is such that guard plates or shields are entirely done away with, thereby reducing the clearance to the least possible amount.

Inter-cooler:- To be of a design peculiar to the Leyner Air Compressors. The Low Pressure Air Cylinder is double walled. Between the inner and outer walls, there is an ample chamber within and through which is maintained a constant circulation of cold water. Passing horizontally through this chamber and from end to end of the cylinder, is a series of tubes which are entirely surrounded by water. The arrangement of these tubes is such that the air is divided into a number of streams and its course is so directed that it cannot reach the inlet to the compressing cylinder until it has fallen to a low temperature, thus ensuring the entrance of cool air only into the compressing (or high pressure) cylinder.

Air Cylinder Connections:- Air Cylinders to be tied together with an improved distance piece, having projections fitted into both cylinders and securely bolted to each, ensuring perfect alignment of these cylinders.

Connecting Rods:- To be of the double rod type, made of cold rolled steel, carefully finished and fitted with cast iron boxes, lined with the best of anti-friction metal, peaned, bored and scraped to perfect bearings.

Relief Valve:- Compressor to be provided with an improved relief valve which permits the starting of the machine while under load, without loss of air already compressed and without danger to the operator.

Fly Wheels:- To be of heavy pattern, turned and finished perfectly true and put into running balance, forced onto the main shaft and secured thereto by well fitted keys.

Crank Pins:- To be of steel, of large diameter, ground perfectly true, forced to their seats and rivetted, -special care being taken to get both into line and parallel with the shaft, to avoid twisting strains upon the cross-head.

Eccentrics:- To be of large diameter; straps to be stiff and rigid and carefully fitted to the eccentrics. Pins and connections to be properly fitted and finished.

Lubricators:- Steam and air cylinders to be fitted with sight feed lubricators and all bearings and working parts to be fitted with adjustable lubricators; all to be carefully fitted and polished.

Weight:- Approximate weight of compressor, complete and ready for shipment, 6000 pounds.

Plans, etc:- Complete foundation plans for compressor to be furnished by us, together with foundation bolts and washers.

Warranty:- Compressor guaranteed to safely maintain 130 revolutions per minute and to run two of the ordinary piston type of rock drills or four New Leyner Rock Drills at 8000 feet elevation above sea level.
These specifications are to be construed as calling for first class workmanship and material throughout the construction of the machine, and any omission herefrom so to specify in regard to any detail of material or construction shall not be understood as allowing anything less, but the engine is to be built to the just and true intend hereof, which is, to furnish a strictly first class compressor and one adapted to heavy and continuous duty.