

MANZEL
FORCE AND SIGHT FEED
OIL PUMPS

— MODELS —
"XD" & "XN."



Richard Garrett & Sons, Ltd.,
LEISTON, SUFFOLK.

Telegrams - "Garrett, Leiston."
Telephone: 16, Leiston.

R. GARRETT & SONS, 40 BUCKHALL ST., PRESTON.

"Great things are made up of little ones. A barrel of oil is only a large collection of drops. Drops lost daily show up as barrels in a year's record."

"Take care of the drops and the gallons will take care of themselves."

—Manzel's Lubrication Philosophy.

THE MANZEL

NEW PATENT

FORCE & SIGHT FEED

OIL PUMP

MODELS "XD" & "XN"

FOR LUBRICATING CYLINDERS

— of —

Steam Engines, Steam Pumps, Air and
Ammonia Compressors, Traction,
Portable and Hoisting Engines,
Locomotive Cranes, Steam
Hammers, Steam Shovels,
Dredges, Etc., Etc.



INTRODUCTION.

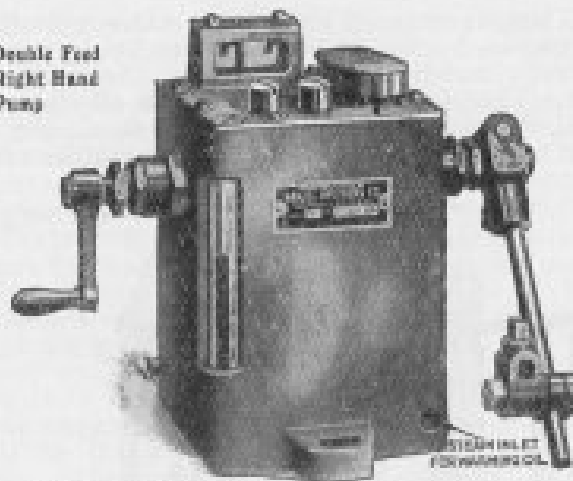
THE advantages of Force Feed Oilers for lubricating steam cylinders are well known, it is therefore unnecessary to go into details, to prove the great saving of oil, time and labour secured by their use.

For nearly twenty years Manzel Force and Sight Feed Oilers have been familiar to builders and users of steam engines as they are universally known.

In the following pages will be found a brief description of the latest model oiler, our Model "XD." This is the outcome of nearly twenty years' experience in manufacturing and designing Force Feed Oilers. It embodies all of the advantages and conveniences of former models, with additional improvements which greatly increases its efficiency, durability and economy.

A careful reading of this booklet will prove of interest and profit to every engine builder, engine owner and engineer.

Double Feed
Right Hand
Pump



The "MANZEL" Force Feed Oil Pump
Piston Valve Type, Class "XD"

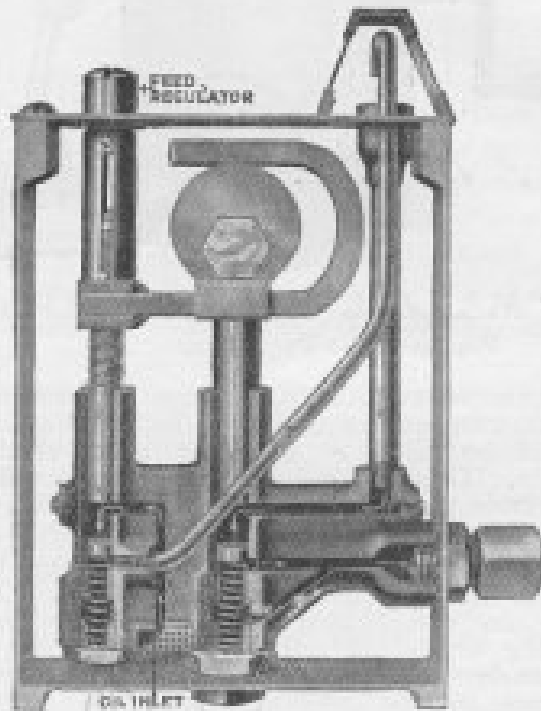
Manzel Class "XD" Oil Pumps are designed to lubricate engine cylinders in the way they should be oiled to give the most efficient service. They make the engine run smoother, give more power and reduce oil bills from 30 to 60 %.

They measure out the oil to the engine just as it is needed, without wasting a drop. They have no complicated mechanism, no parts to clog or to get out of order. They are extremely simple in design and absolutely positive in operation.

They are entirely automatic in action, always adjusting themselves to the speed of the engine and supplying just the amount of oil the engine needs. They will handle either heavy or light oil in warm or cold weather, operate equally well on either high or low speed engines, and will pump against any pressure required on a steam engine.

Manzel Class "XD" Oil Pumps are built on an entirely new principle, the outstanding feature being the total absence of any valve mechanism in the oil channels and the elimination of all ball valves, small checks, etc.

They operate on the piston valve principle, large size piston, or cut-off, valves being located directly underneath the plungers. (See sectional cut.) This arrangement leaves the oil channels entirely clear, and there is no possibility of dirt or foreign matter interfering with the operation of the oiler.



Sectional View. Showing travel of oil, piston valve motion, eccentric on hexagon driving shaft and feed regulator.

The entire operating mechanism, including the ratchet, is inside of the reservoir where it cannot be affected by dust or dirt. It works in the oil continually, thus insuring long life to the oiler.

The amount of oil being supplied to the engine cylinders is constantly in sight. Every drop passes through the sight-feed glass on its way to the cylinder, and the engineer can see at all times just how much oil is being supplied

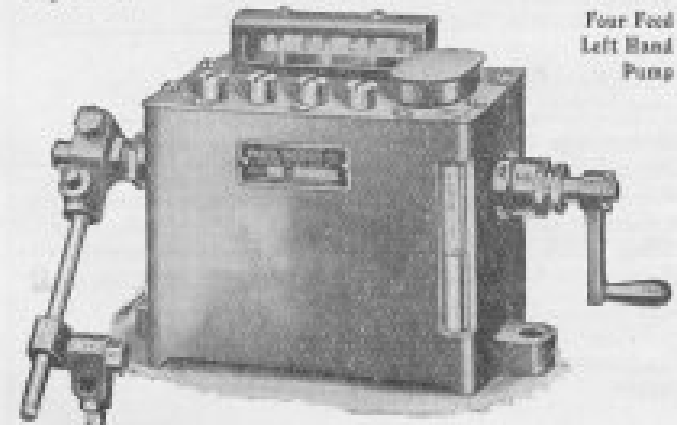
Each feed is regulated independently and may be set to supply as little as a drop or two of oil every three or four strokes of the plunger, or this may be increased to any amount up to 12 drops with each stroke. The feed is adjusted by simply turning the regulating nut to the right or left. This may be done while the engine is in motion.

Every oiler is provided with a hand attachment for use before starting the engine, or if a larger supply of oil is needed for a few moments while the engine is running, and with a gauge glass to show the amount of oil in the reservoir.

With a Manzel, Class "XD" Oil Pump, on your engine you will be sure that the cylinders will be lubricated every moment the engine runs. The instant the engine starts, stops, speeds up or slows down, the oiler will do likewise and will always supply the proper amount for the engine's speed.

Let us send you a Manzel Class "XD" Oil Pump on Thirty Days Trial.

Put it on your engine and use it for thirty days. Give it every kind of test you possibly can. Try it with heavy or light oil—against high or low pressure—running fast or running slow. Keep account of the small amount of oil you use, notice how smooth the engine runs. If you are not satisfied after thirty days that it is the oil pump you need, send it back at our expense.



Four Feed Left Hand Pump

**PRICE LIST OF
Manzel Force Feed Oilers.
Model "XN"**

NICKEL-PLATED FINISH

Feed	CAPACITY IN PINTS					
	1½ Pt.	3 Pt.	4 Pt.	6 Pt.	8 Pt.	10 Pt.
1	72/-*	85/0*	103/-*	127/6	152/6	177/6
2	...	110/0*	127/-*	152/6	177/6	202/6
3	152/-*	177/6	202/6	227/6
4	177/-*	202/6	227/6	252/6
5	227/6	252/6	277/6
6	252/6	277/6	302/6

**Model "XD"
PAINTED FINISH**

Feed	CAPACITY IN PINTS					
	1½ Pt.	3 Pt.	4 Pt.	6 Pt.	8 Pt.	10 Pt.
1	55/-*	64/0*	77/-*	98/-	110/-	145/-
2	...	80/0*	92/-*	119/-	140/-	161/-
3	113/-*	140/-	161/-	182/-
4	140/-*	161/-	182/-	205/-
5	182/-	203/-	224/-
6	203/-	224/-	243/-

All sizes furnished either right or left hand.

NOTE. - Sizes marked * are regularly furnished with fastening lugs on front and back, as illustrated on page three, but can be furnished with lugs on the ends if desired. These sizes are also equipped with heating chambers (for outdoor use) for warming the oil in extremely cold weather. All other sizes are furnished with fastening lugs on ends (same as four feed pumps illustrated on page 5.)

Prices of larger sizes, two compartment oilers, or oilers for special purposes will be gladly furnished upon request.

Instructions for Attaching to Engine.

Place the pump on the frame, cylinder, or steam chest of the engine or steam pump, or any place where it is possible to get the desired motion.

If no convenient place can be found to which the pump can be bolted, make a bracket of ½-inch angle or flat iron as shown below:—



Fasten this to the frame, or slip it back of the nuts on the cylinder or steam chest, and bolt pump to it.

Next run a ½-inch rod from the ratchet arm of pump to the valve rod, or to some other part of the engine which has a backward and forward movement. If the pump has not been set in line with the part from which it is to be driven, a small offset may be bent in the connection rod. This, however, is seldom necessary, as the connection on the ratchet arm is adjustable, and can be adjusted vertically or horizontally, and may be operated in any required position.

Now screw the check valve into the steam chest or steam line, either above or below the throttle valve, the arrow pointing toward the steam line and away from the pump.

Now run pipe from pump outlet to the check valve but before connecting pipe to check valve, it is advisable to fill the pump with oil and work it by hand until the pipe is filled with oil. Then tighten up the connections and the pump is ready to run.

Standard fittings on all pumps are for ½-inch pipe (iron pipe size) but ¾-inch fittings can be furnished if desired.

Check Valve.



One of these check valves is furnished for each feed. It prevents the steam from backing into the oil lines, and keeps the oil pipe filled with oil.

To Connect the Heating Chamber.

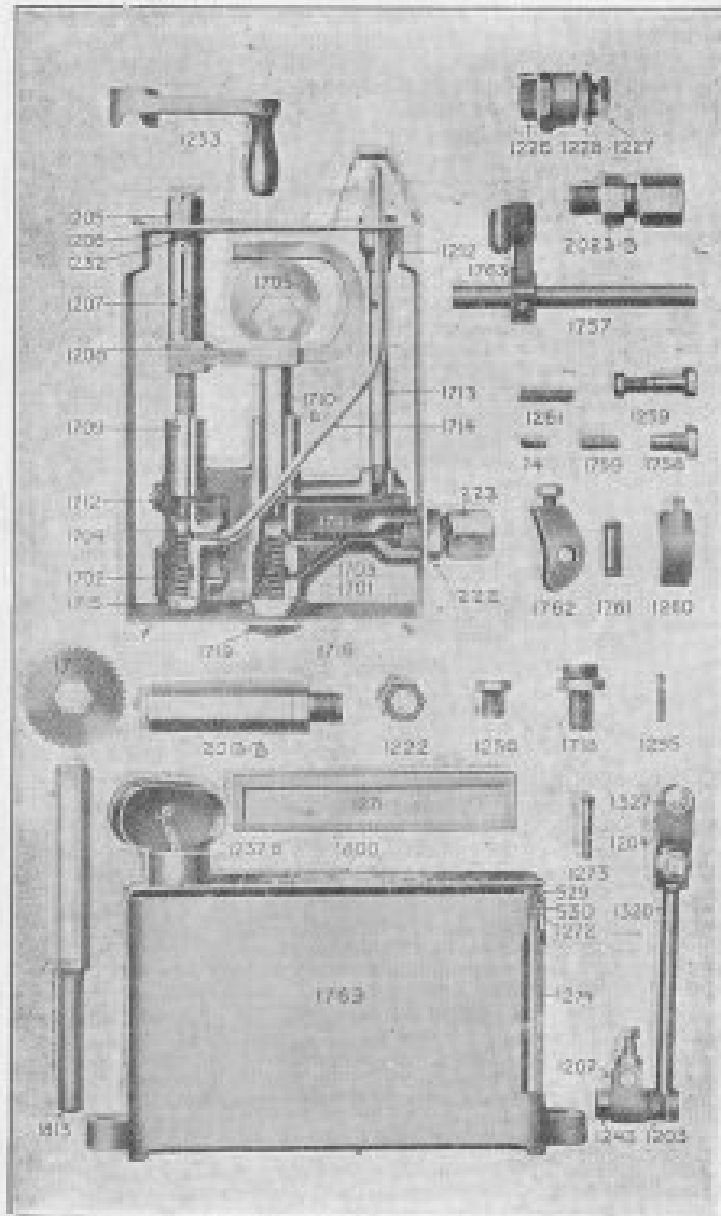
Our small sizes of pumps, for oiling the cylinders of portable, traction, or other engines which are used out of doors, are equipped with a heating chamber for warming the oil in extremely cold weather.

To connect this run ½-inch iron pipe (or annealed brass tubing) from the exhaust steam line to either side of the small opening running through the pump reservoir. From the opposite side have the pipe run to the stack or towards the ground. Do not plug up one side of the heating chamber, but allow the steam to flow through.

A ½-inch globe valve should be placed in the pipe line, close to where the connection is made with the exhaust, to enable the operator to turn off the steam when it is not needed.

REPAIR PARTS

Class "XD" and "XN" Oilers.



PRICE LIST OF PARTS.

Part Number	NAME OF PART.	PRICE.	
		XD Painted.	XN Nickled.
74	Pawl Plunger	s. d.	s. d.
239	Gauge Glass Cap Plug	6	..
339	Gauge Glass Plug	1 0	1 3
1202	Adjustable Engine Connection	1 9	..
1203	Adjustable Connection	1 1	2 1
1204	Outside Rocker Arm	1 1	2 1
1205	Regulating Key Head	2 6	3 0
1206	Lock Spring	9	1 1
1207	Regulating Key Foot	6	..
1208	Regulating Key Fork	1 2	..
1212	Drip Cup	1 9	..
1222	Cylinder Lock Nut	1 2	..
1223	Cylinder Reducer	1 5	..
1226	Stuffing Box	2 1	8
1227	Stuffing Box Gland	2 8	9 9
1228	Stuffing Box Locknut	1 6	3 2
1232	Regulating Key Stem	10	1 8
1237-B	Filling Cup Cover	9	1 3
1243	Adj. Connection Pin	1 1	..
1253	Hand Crank	10	1 8
1255	Hand Crank Pin	1 9	1 4
1255	Hand Crank Pin	1 2	1 0
1256	Pawl Pin	1 1	..
1260	Pawl	1 9	..
1261	Pawl Spring	5	..
1271	Sight Feed Cover (see next page)....
1272	Gauge Glass Washer	1	..
1273	Sight Glass Cover Screw	3	..
1274	Gauge Glass	1 1	..
1286	Drive Rod	1 1	1 8
1287	Rocker Arm Screw	8	1 1
1290	Cylinder	10 6	..
1291	Large Piston Valve Spring	9	..
1292	Small Piston Valve Spring	9	..
1293	Large Piston Valve	1 2	..
1294	Small Piston Valve	1 2	..
1295	Eccentric	1 8	..
1296	Regulating Plunger	1 4	..
1298-B	Cross Head and Plunger	3 2	..
1299	Plug Screw	3	..
1293	Drip Cup Tube	1 1	..
1294	Sight Feed Tube	1 9	8 1
1295	Cylinder Plug	10	..
1296	Cylinder Fastening Plug	1 1	..
1299	Cylinder Fastening Screw Nut	1 1	..
1292	Ratchet Wheel	5 3	..
1297	Ratchet Shaft	1 9	..
1298	Brake Pawl Spring Bolt	10	1 1
1299	Brake Pawl Spring	6	..
1291	Brake Pawl Pin	1 2	..
1292	Brake	1 0	..
1293	Inside Rocker Arm	1 2	..

Continued on next page.

PRICE LIST OF PARTS.—Continued.

Part Number	NAME OF PART.	PRICE.	
		XD Painted.	XN Nickled.
		s. d.	s. d.
2044-B	½-inch Check Valve	5 0	6 0
2047-B	Metallic Union and Nut	2 0	2 6
1471	Sight Feed Cover—		
	1 feed	2 7	3 4
	2 feed 3 pint	3 2	4 0
1769	Reservoir—		
	1½ pint 1 feed	43 6	48 0
	3 pint 2 feed	52 0	45 0
	3 pint 2 feed	56 3	46 3
1800	Reservoir Covers (including filling cup and cover)—		
	1½ pint 1 feed	4 2	6 0
	3 pint 1 feed	4 7	6 6
1813	Eccentric Shaft—		
	1½ pint 1 feed	3 4	—
	3 pint 1, 2 feed	3 0	—
	Pumping Unit Complete	34 6	35 0

Prices of larger reservoirs, covers, eccentric shafts, &c., will be gladly quoted upon request.

NOTE.—All Manual Oilers are numbered. To avoid errors in filling orders for parts, be sure to give serial number and class of pump for which parts are wanted. The number as well as the class letters will be found on the name plate.

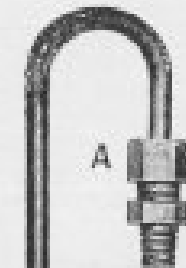
Remittances may be made by check, money order, or in postage stamps.

“ENDURA” SHEET PACKING.

We are sole importers of **Endura** sheet packing, made specially for water (hot or cold) joints; and for crude oils, gasoline, etc. Stands pre-eminent as a gasket material.

It is the outcome of exhaustive experiments. Try it and be convinced.

MANZEL METALLIC UNIONS AND ANNEALED TUBING.



For Making Connections without Thread Cutting Tools.

Our annealed brass tubing and special metallic unions do away with all elbows and tees and short lengths of pipe.

The tubing is of special composition, it is soft and pliable, and can be bent at very short angles, or coiled if necessary, without danger of breaking.

To make the connection, cut the tubing to the length required, with a hacksaw or file, force it into the union, and tighten up on the union nut “A.” This causes the union to grip the tubing and makes a steam tight joint which cannot possibly leak, and will not come apart.

The unions are not soldered to the pipe, and can be taken down and put up again in a few minutes.

Prices of Pipes and Unions.

Anneal Tubing, 8d. per foot. Unions, 2/- each.

We also offer Clamp for Valve Rod, at 5/- each.

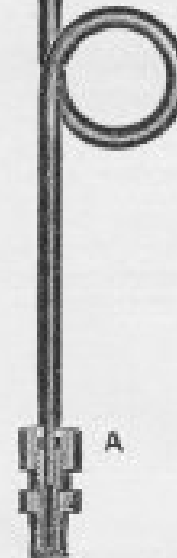


Illustration shows how tubing may be coiled or bent without breaking.

There is a MANZEL Oil Pump for Every Service.

Manzel Oilers have been designed for use on every kind of steam engine—Corliss or slide valve—horizontal or vertical—high speed or slow speed—also for steam pumps, air compressors, etc.

They are made in various sizes from 1½ pint to 1½ gallon and with from 1 to 18 feeds. They can be supplied with either right or left hand drive.

For use in refrigerating plants—on ammonia compressors and other machinery—they are made with all steel parts which are not affected by the ammonia.

For use on traction or other engines which are used outside all the year round, the smaller sizes are equipped with heating chambers for warming the oil in extremely cold weather, and will operate successfully in the coldest temperature.

For steam driven air compressors or ice machines we can supply double compartment oilers for feeding two kinds of oil at the same time.

Manzel Oil Pumps for Gasoline Motors Gas Tractors, Oil Engines, Etc.

For positively and economically lubricating the cylinders and bearings of internal combustion engines. They supply clean fresh oil in just the right quantities, and at exactly the right time.

Made with any number of feeds, and with either rotary, ratchet or direct drive.

Described in catalogue 27. Write for it.

Our Guarantee

W^E guarantee every Manzel Oil pump to give positive lubrication and to feed regularly, regardless of steam pressure, temperature, speed of engine, or kind of oil used, at the same time effecting a large saving of oil.

A \$50,000 plant and equipment is behind our guarantee of every Manzel Pump.