May 10, 1932. F. H. LEWIS 1,857,922

PUMPING APPARATUS

Filed March 25, 1930 2 Sheets-Sheet 1

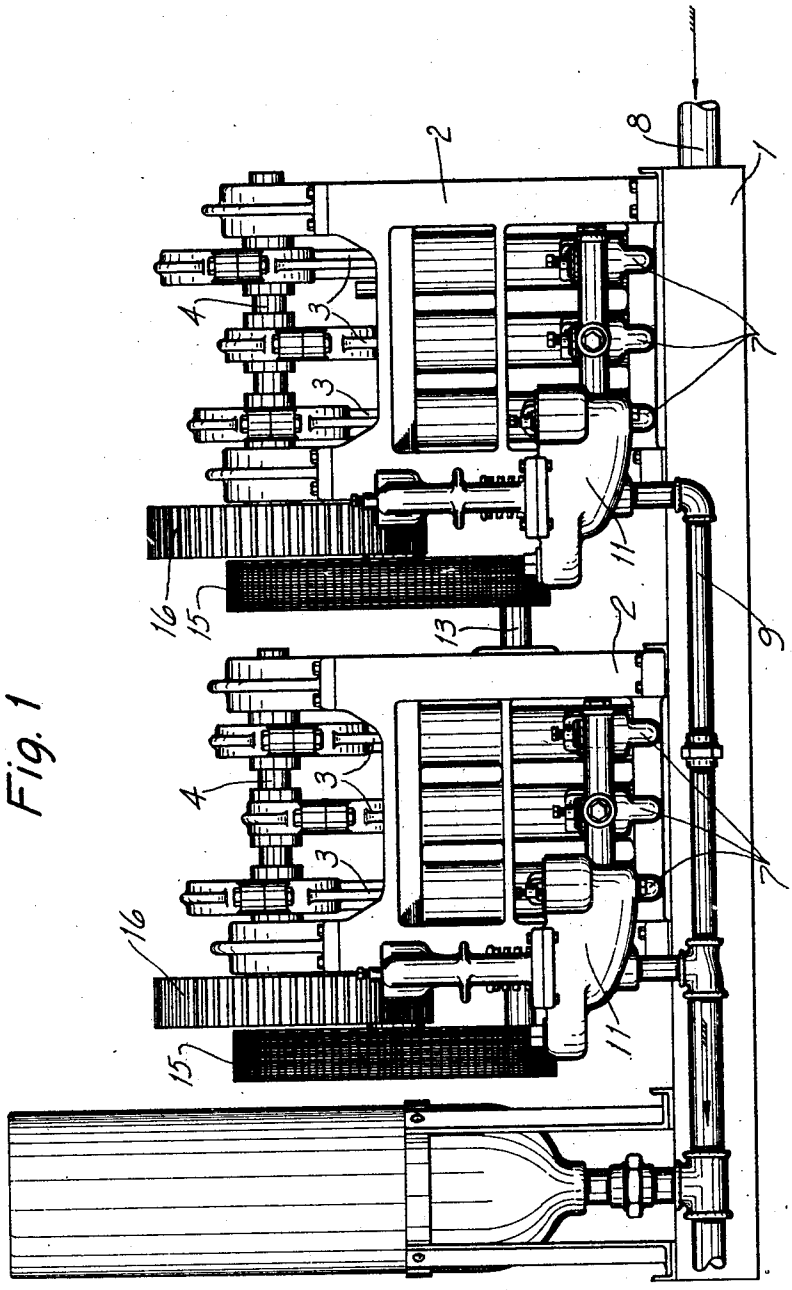


Fig. 1

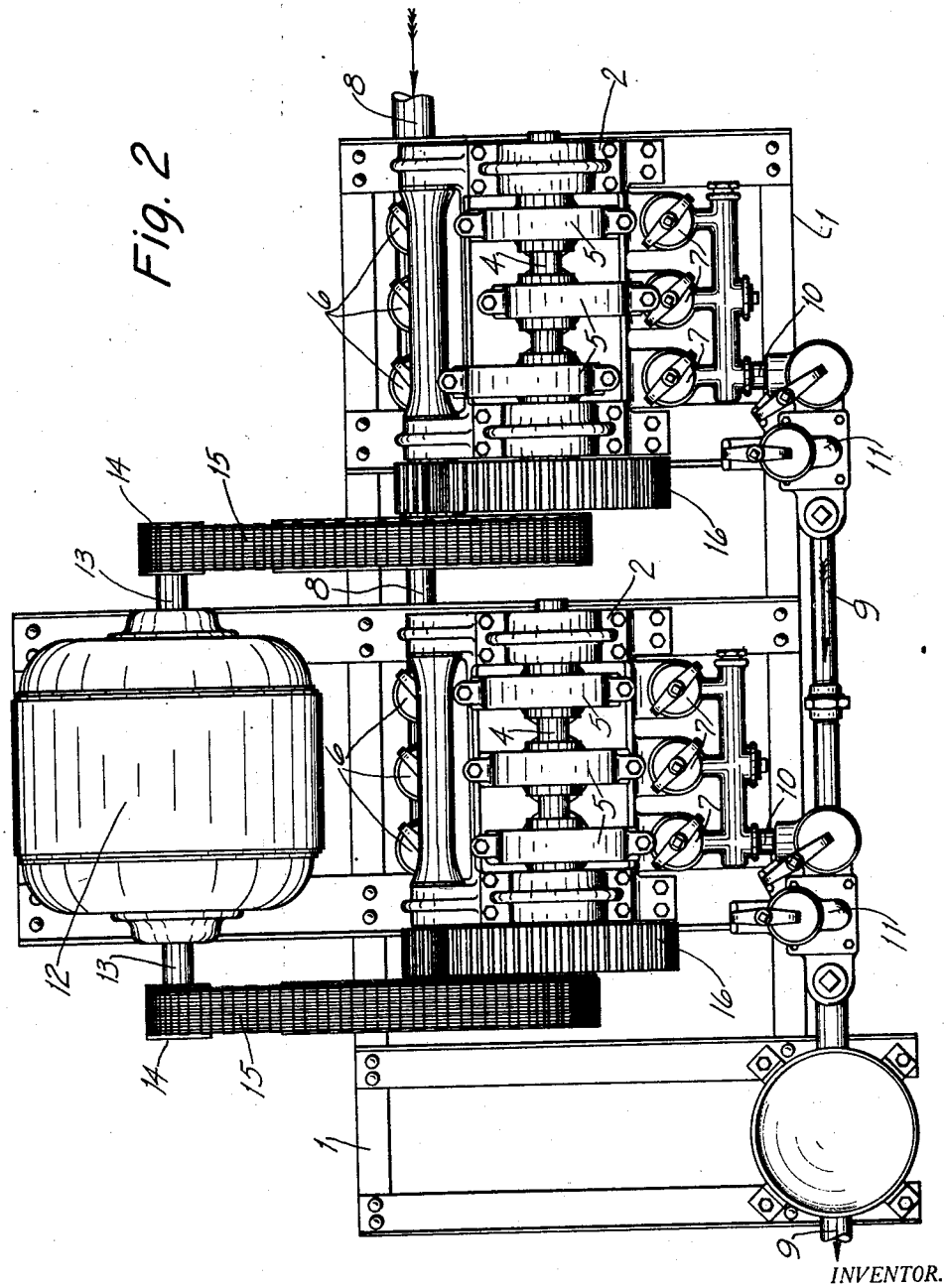
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Fig. 2



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UNITED STATES PATENT OFFICE

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PUMPING APPARATUS

Application filed March 25, 1930. Serial No. 438,810.

This invention relates to pumping apparatus, and has more particular reference to a novel association of such apparatus with the driving means therefor.

Apparatus for spraying fruit trees generally comprises a reservoir for spray material, and a pump which draws the liquid therefrom, and forces it to a nozzle, from whence it issues under high pressure to form a spray, which is deposited on the trees.

Heretofore in spraying apparatus of this type, a single pump has been used of sufficient capacity to deliver the necessary quantity of spray material. Such pumps are run continuously for long periods of time during the spraying season, with consequent heavy strain and wear on the parts. The result has been that when replacement of worn parts became necessary, the entire apparatus had to be shut down, thus wasting valuable time.

This invention has for an object, the construction of a pumping system, whereby when it becomes necessary to shut down any portion of the system, the remainder may continue in operation, and embodies a novel driving means therefor, which is simple, compact and well-balanced.

It is a further object to provide a pumping system, which is efficient, economical to manufacture, and thoroughly dependable in operation.

Other objects and advantages will be apparent as the description proceeds. The invention will be more clearly understood in connection with the accompanying drawings, in which:

Fig. 1 is a side elevation of an apparatus, embodying my invention; and Fig. 2 is a plan view thereof.

The apparatus shown comprises a suitable base 1, upon which are mounted two pumps 2, identical in construction, each having three cylinders in which operate pistons, not shown, which are driven by the pitmen 3, from the eccentric shaft 4, by the eccentrics 5.

Each cylinder is provided with the customary inlet and discharge valves 6 and 7, whereby spraying fluid is drawn from the main supply pipe 8, and discharged to the main discharge pipe 9. Each pump delivers to the main pipe 9, through an individual discharge pipe 10, provided with a pressure regulating mechanism 11. Said regulating mechanism is old and well-known, and further description is believed to be unnecessary here.

Also mounted upon the frame 1, and to one side of the pumps, is an electric motor 12, whose armature shaft is indicated at 13. This shaft is extended at each end, and carries the pinions 14 thereon, which mesh with the silent chains 15, thereby driving the gears 16, which are affixed to the eccentric shafts 4.

It is thus apparent that should circumstances require the discontinuance of one pump, the other could still operate, thus obviating the necessity of shutting down the entire assembly; also when only limited capacity is needed, one pump can be disconnected from the motor, thus allowing the remaining pump to operate alone.

Moreover, it is also possible that with suitable modification, which will be obvious to one skilled in the art, the two pumps can be driven simultaneously for the performance of different functions.

Having thus described my invention, I wish it to be understood that I do not limit myself to the exact details of the construction shown, but consider myself entitled to all changes and modifications which fall within the scope of the appended claims.

What I claim is:

1. In a pumping system, two pumps connected in parallel and having independent drive shafts, a motor provided with an extended shaft and removable drive means connecting each pump shaft with an end of said motor shaft.

2. In a pumping system, two pumps connected in parallel and having independent drive shafts, an electric motor having an armature shaft, said shaft being provided with power take off means at each end thereof and flexible drive means connecting each pump shaft with one of said power take off means.

3. A unit spray device comprising a base member, a single power means and a plurality

of pump means connected in parallel and having independent drive shafts mounted on said base member, separate power transmission means connecting the shaft of each of said pump means with said single power means, a source of spray material under normal pressure connected with said pump means and conducting means for conveying spray material from said pump means under increased pressure.

4. A unit spray device comprising a single power source a plurality of independently operated pressure pumping elements, each element having independent operating connection with said single power source, a single source of spray material connected to said plurality of pumping elements, and a single source means for conveying spray material from said plurality of pumping elements.

5. In a pumping system, two pumps connected in parallel and having separate drive shafts, a motor provided with an extended shaft, and removable driving means connecting the end of each pump shaft with an end of the motor shaft.

Signed at San Jose this 12 day of March, 1930.

FRANK H. LEWIS.