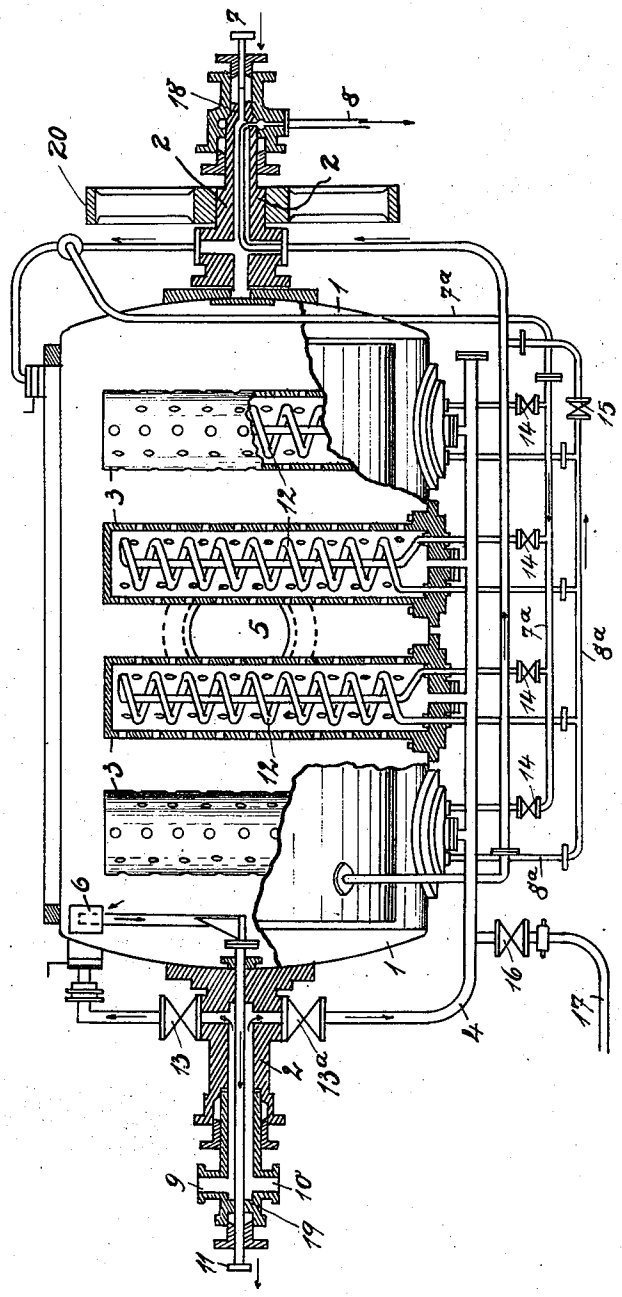
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K. F. WILHELM

OIL AND LIKE EXTRACTOR

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by
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OIL AND LIKE EXTRACTOR.

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I am aware that prior to the invention described below rotating, double-walled extractors with interchangeable pipes have been made which not only caused a continual dividing and mixing of the substances to be extracted but simultaneously permitted the discharge of the filtered solvent during rotation of the extractor as shown in my Patent No. 1,418,503.

The present invention constitutes an improvement over these extractors in so far as a heating device has been built into the interior of the interchangeable pipes.

The technical advantage of the present invention consists in causing a better circulation of the solutions forming within the extractor by means of the heating device and to insure thereby a quicker and more thorough extraction. The heating device has furthermore the additional advantage of accelerating the discharge of the solvent from the substances extracted. This is possible because the heat is transmitted directly and not through the double walls of the extractor.

The object of the invention is illustrated in the accompanying drawing which is a longitudinal section of the apparatus with the jacket partly removed.

To the cylindrical, double-walled extractor 1 are secured the shafts 2, the left one serving for the introduction of the dissolvent and the discharge of the oily solutions, while the right shaft admits the steam and discharges the condensed steam. The extractor has been provided on its inside with pipes 3, each pipe being arranged alongside the other, the pipes being, according to the nature of the material to be subjected to extraction, perforated and covered with a more or less porous filtering substance and serve the purpose of filtering the solution in the extractor. As porous filtering material serve filtering cloths made either from cotton or fine wire-gauze, with which the pipes within the extractor are covered, according to the degree of fineness and structure of the raw material to be used. Through manhole 5 the extractor is filled with raw material and emptied after the oil has been separated from the material. Pipe 6 serves the purpose of guiding gases and vapors from the interior of the extractor through pipe 11 into the condenser which is not shown in the drawing. Pipe 7 admits steam for heating the double jacket, while steam may simultaneously enter coils 12 through pipes 7^a and valves 14, one of such coils 12 being located in each of said pipes 3. The condensed steam from the double jacket and the coils of the filtering pipes is discharged through pipes 8^a, check valve 15 and piping 8.

The dissolvents are supplied at 9 and may enter the interior of the extractor either through lower valve 13^a, pipe 4 and filtering and perforated pipe 3 or directly through upper valve 13. The mixture of dissolvents and oil filtered by the perforated pipe 3 is discharged at 10 through pipe 4 during rotation of the extractor and, if the latter stands still, the mixture of dissolvents and oil is discharged through filtering pipes 3 and piping 4, valve 16 and hose 17.

As bearings for hollow shafts 2 of the extractor serve sleeves 18 and 19. The latter are stationary, while all other parts described are capable of rotating with the extractor. 20 is the gear arrangement to indicate rotatability of the extractor.

Instead of the coils 12 other heating devices of suitable kind may be used.

The method of operation is as follows: the apparatus with the filtering pipes 3 is caused to rotate. The constant rotation insures a complete mixture of the material to be subjected to the process of extraction and the dissolvent. If during rotation the heating device contained in the pipes is put into operation, for instance by transmitting steam through the coils, the process of extraction will be accelerated and more thoroughly carried out, as the close contact of the dissolvent with the steam coil heating devices distributed all over the interior of pipes 3 will cause the dissolvent to be extracted within a much shorter time than would be possible, if the heat were transmitted only through the double walls of the apparatus.

I claim:—

In a device for extracting liquids from solids, the combination of a double-walled

rotatable cylinder having therein a plurality of transversely arranged and detachable filtering pipes, a liquid discharge pipe carried on the outside of the cylinder and communicating with the filtering pipes, means for introducing a solvent into the cylinder, means for circulating steam through the space between the walls, and separate steam-coil heating devices in each of said filtering pipes, to heat the liquid while the latter is passing through the said filtering pipes.

In testimony whereof I have affixed my signature.

KARL FRIEDRICH WILHELM.