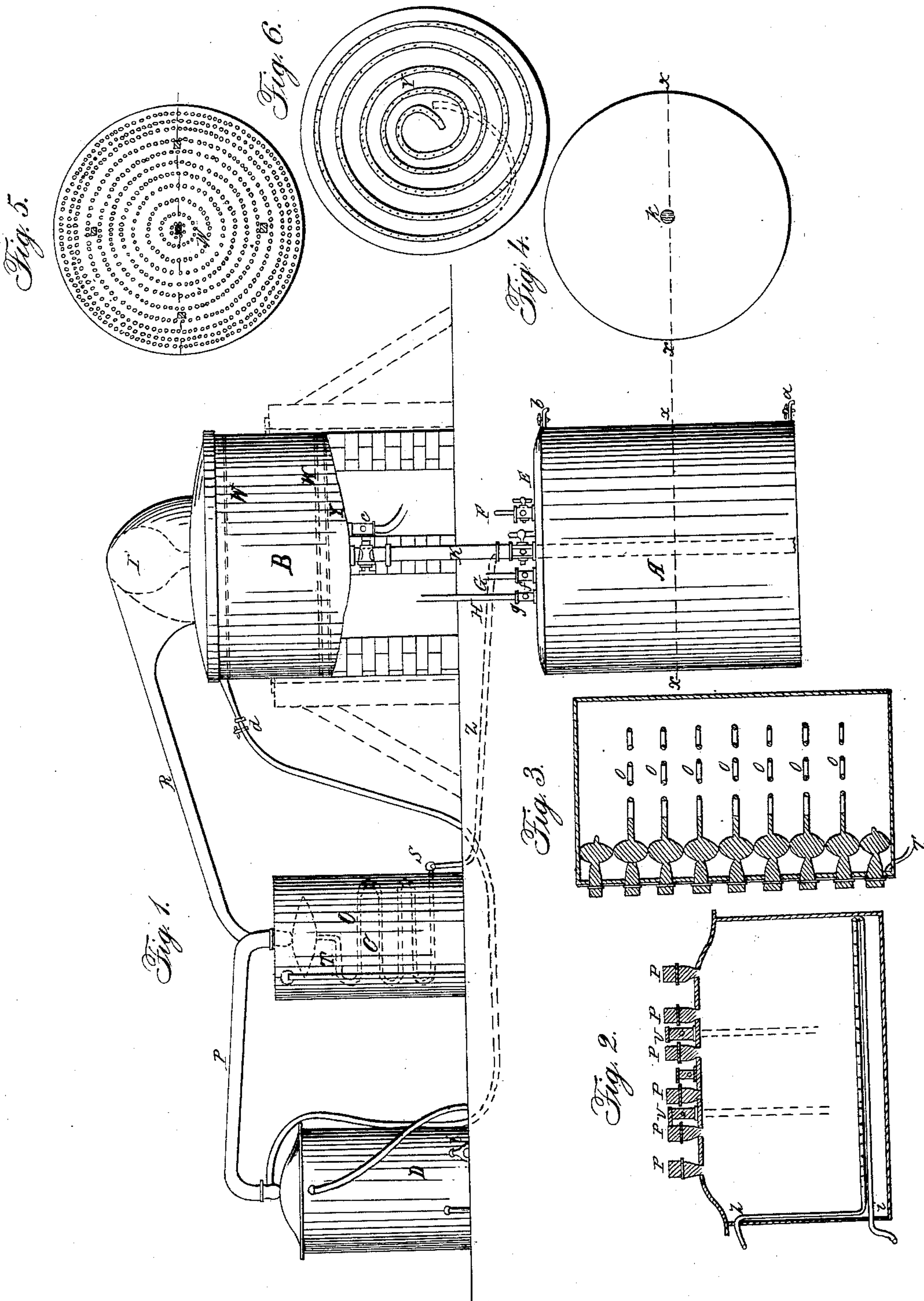


E. DEISS.  
Extracting Oils.

No. 20,048.

Patented Apr. 27, 1858.





# UNITED STATES PATENT OFFICE.

EDOUARD DEISS, OF PARIS, FRANCE.

## PROCESS FOR EXTRACTING FATTY MATTERS.

Specification of Letters Patent No. 20,048, dated April 27, 1858.

*To all whom it may concern:*

Be it known that I, EDOUARD DEISS, of Paris, in the Empire of France, manufacturer of chemical products, have invented a new and improved method or methods of and apparatus for extracting oils, fats, greases, and resins from bones, raw wool, seeds, and other substances containing the same and recovering a certain agent employed in the process; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in extracting oil, fat, grease, and resins from bones, wool, oleaginous seeds, and other substances impregnated with the same, either naturally or artificially by means of sulfuret of carbon, in such manner that these agents employed for extracting the oil, grease from the above substances, cloth, &c., can be separated and employed for similar purposes over and over again.

Figure 1, is a side view of the complete apparatus. Fig. 2 is a longitudinal section of the distilling apparatus D. Fig. 3 is a longitudinal section of the condenser. Fig. 4, is a section of the reservoir at the dotted lines *xx*. Fig. 5, plan of the grate. Fig. 6, view of the worm or coil to be placed at the bottom of the still B.

Fig. 1, A represents the vessel containing the sulfuret of carbon. It is made of metal, cylindrical or otherwise, and is provided with two stop cocks, one at the bottom *a* and the other on the top *b*. This vessel is tightly closed by means of a cover E; through the cover passes a pipe *k*, reaching to the bottom of the vessel. This pipe is cut out somewhat at the lower end and communicates through the upper part with the still B.

The pipe F provided with a stop cock is designed to supply the amount of sulfuret lost during the operation; from the cover E rises a pipe G with a stop cock *f* which communicates with the air pump; next to tube G is another pipe H and stop cock *g* to carry off the air, from the reservoir A.

The still B is made of metal and about of the same diameter as the above described reservoir A; its bottom is concave. This still is closed with a still cap I, said cap fitting tightly into the still and secured with screws.

At the bottom of the still rests a worm or coil Y provided with holes, as represented in Fig. 6. Over this worm is placed a grate W, Fig. 5, upon which is put the substance to be treated, and covered with a similar grate W as shown at Fig. 5. Near the cap is a pipe *d* which leads the sulfuret mixed with oil into the distilling apparatus. The still B has at its bottom a pipe K which communicates with the reservoir A; through this pipe K the sulfuret is introduced into the still B. The still B is represented resting upon brick pillars and with two bearings, upon upright posts, in order to facilitate the operation of emptying the still after the extraction of the oil.

Fig. 1 and Fig. 2, D, show a tinned copper vessel of elongated form, with rounded angles and provided with a cover closing it tightly. This cover is provided with several openings which communicate by means of suitable pipes P, P, P, P, which communicate with the condensing apparatus. Through the cover pass two pipes V, V, carrying the sulfuret charged with fat or oil, through the pipe *d*, into the apparatus D; Fig. 2 is a section of the same; at the bottom of the apparatus D are placed two coilers *h* and *i*, the steam pipe *h* communicates with the worm pierced with holes placed over another worm *i*.

Figs. 1 and 3. The condenser C is a vessel like the precedent of elongated form with rounded angles, but open on the top. Into this condenser several worms *o*, *o*, &c., are placed to the number of eight or more, six of which communicate with the distilling apparatus D, by means of the pipes P, P, and the two extreme ones with the still B, by means of pipe R. The pipe S communicates at a certain height shown in the drawing with the eight worms *o*. T is a tube for letting the water out which is continually supplied to the condenser.

The apparatus which I have just described answers for several purposes. It serves to extract, 1st, oil from all sorts of oleaginous seeds; 2d, fat from grease; 3rd, tallow from the waste from slaughter houses, &c.; 4th, oil from sawdust coming from oil refining works; 5th, it serves to scour raw wools and spun wools and woolen stuffs.

The operations of extracting fat and oil from various substances are all alike. I shall describe the operation of the extracting of oil from oleaginous seeds.



The grain or seed to be treated is first broken up. After having placed the steam coil Y, Fig. 6 at the bottom of the still B, and over it the grate W, Fig. 5, over which  
 5 a cloth or wire gauze is placed to prevent the grain to pass through. I then put in the grain, place again the second grate W and another cloth or wire gauze, having care not to pack the grain too hard, in order that the  
 10 sulfuret has a free passage through all parts. Then I set upon the still the cap I. I close the stop cocks of the pipes communicating with the reservoir except the stop cock of the feed pipe K and the pipe G  
 15 which communicates with the air pump. I have now some air pumped into the reservoir A, which has been previously filled with sulfuret of carbon and which is driven up into the extractor B. The sulfuret rises  
 20 through the pipe K, which leads it through the bottom of the still B, through the worm Y and grate W, penetrates the seeds, mixing with their oil and rising slowly up with it to the level of the grate W, the sulfuret thus  
 25 impregnated with oil passes through the grate and flows out through the pipe *d* into the distilling apparatus D. The first portion which flows out often contains 80 per cent. of oil, but this proportion insensibly dimin-  
 30 ishes till the moment comes when pure sulfuret flows into the apparatus D. At this moment, the action of the pump is cut off, and the pure sulfuret contained in the seed is made to return into the reservoir A. To  
 35 accomplish this, the stop cock of pipe H is opened and the air allowed to escape; then the stop cock of pipe K is opened and the sulfur immediately flows back into the reservoir. After the stop cock of pipe Z  
 40 communicating with the condensing apparatus has been opened, the stop cock C is opened through which steam enters into the interior of the apparatus B, through the coil Y, causing the evaporation of the sulfuret,  
 45 remaining in the apparatus B. When the steam begins to escape through pipe *d*, the extraction of the oil is nearly completed; the steam is then let into the coil *i* of the apparatus D; the sulfuret of carbon rapidly gets  
 50 into ebullition and passing through the pipes P, P, into the condenser is there condensed and then returns by the pipe Z in liquid state into the reservoir A. The oil then remaining in the distilling apparatus contains  
 55 but a slight amount of sulfuret of carbon which however must be removed, for that purpose, I open the stop cock *h* which com-

municates with the perforated coil of the apparatus D, steam causes the oil to bubble and drives from it the last particles of sul- 60 furet which are carried into the condenser C. The injection of steam is thus continued until the oil is entirely deprived of the sulfuret, the water and oil obtained from steaming are allowed to flow into a separate reser- 65 voir where they are soon completely separated. To conclude and recover all the sulfuret which has been employed, it is only yet necessary to force the sulfuret adhering to the seeds into the condenser C. For that 70 purpose, I open the stop cock *c* communicating with the other end of the perforated coil Y; the steam passes through the seeds and carries the sulfuret off with it, and the steam and sulfuret are both condensed in 75 the condenser C. During this operation, the stop cock *b* of the reservoir must constantly be left open to allow the water to run off, for the sulfuret being more dense than water sinks immediately to the bottom. When 80 the pipe R of the cap I grows very hot, it proves that steam alone is passing through the apparatus and the operation is completed.

By a proper management there will be 85 but little waste of sulfuret. If there is an abundance of fresh water to supply the condenser, the operation can be completed in 5 hours. To free the grain introduced in the still B from every trace of sulfuret of car- 90 bon, the steam must be applied at a pressure of 5 atmospheres.

When raw sheep's wool, wool yarn, or woven woollen goods, are to be treated, the steam must be employed at a very low degree 95 of temperature. And having now described the nature of my invention and in what manner the same is to be performed I declare that I do not in any way confine myself to the particular construction and arrangement 100 of apparatuses in connection therewith; but—

I claim—

The extraction of oils, grease, fats and resins from wool cloth, bones, oleaginous 105 seeds, refuse, and other substances containing the same by passing through them mechanically sulfuret of carbon in the manner substantially as herein before described.

EDOUARD DEISS.

Witnesses:

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