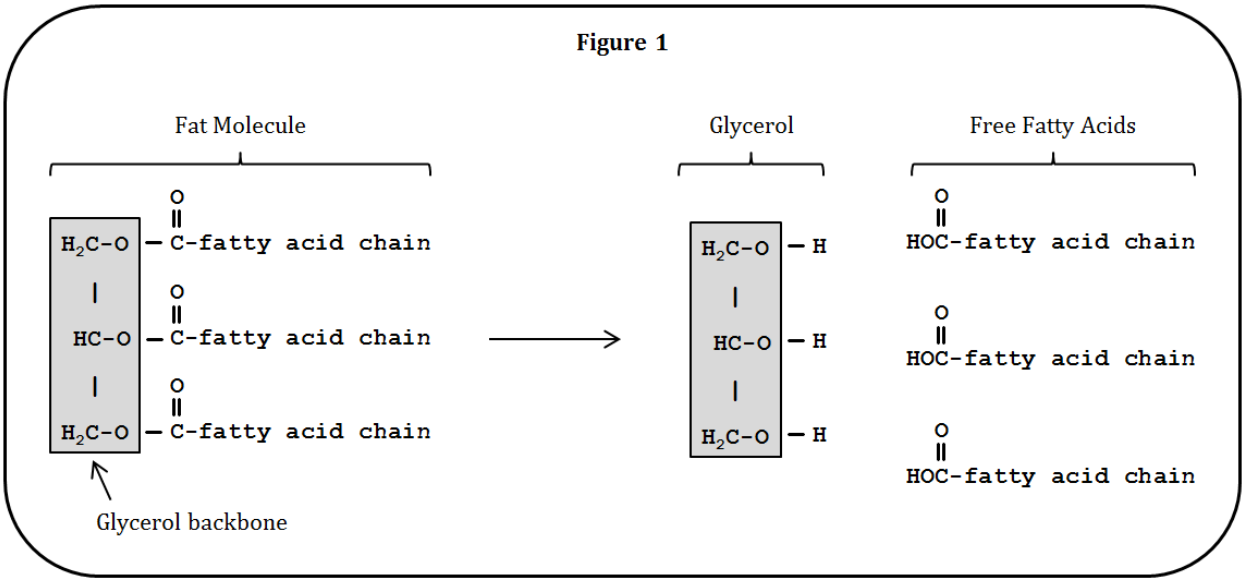
33. Hydrolysis of Fat

This hypothetical example demonstrates the use of the streamlined analysis. The claim below is based on the technology from U.S. Patent 11,766, which was upheld by the Supreme Court in Tilghman v. Proctor, 102 U.S. 707 (1881). As a streamlined analysis would not result in a written rejection, the discussion sets forth exemplary reasoning an examiner might use in drawing a conclusion of eligibility.

Background

Fats are naturally occurring chemicals that are found in many plants and animals, *e.g.*, in tree nuts such as walnuts. As shown in Figure 1, each fat molecule comprises a glycerol backbone to which three fatty acid chains are bound.

Figure 1



As also shown in Figure 1, fat molecules can be broken down into free fatty acids and glycerol (also called glycerine) via a chemical reaction. At the time applicant made the invention and filed the application, it was routine and conventional to carry out this chemical reaction using either the alkaline saponification process, or the sulphuric-acid distillation process. Both of these conventional processes required the use of a steam distillation step in order to produce free fatty acids, and also required the fat to be mixed with either lye or sulphuric acid.

Applicant invented a process of hydrolyzing fat molecules into free fatty acids and glycerol without steam distillation, and using only water as opposed to lye or sulphuric acid. This hydrolysis process begins with a mixture of substantially equal quantities of fat and water in a vessel that is closed and strong enough to resist the effort of the mixture to convert itself into steam. The mixture is then gradually heated to a high temperature (at least 600 degrees Fahrenheit) and kept at that temperature for at least 10 minutes, so that a chemical reaction takes place between the water and fat. While it is heated, the mixture is also subjected to sufficient pressure to prevent the water-fat mixture from forming steam inside the closed vessel.

Hypothetical Claim

1. A process for obtaining free fatty acids and glycerol from fat comprising:

   mixing substantially equal quantities of fat and water in a closed vessel; and

heating the mixture to an elevated temperature of at least 600 degrees Fahrenheit under sufficient pressure to prevent the formation of steam in the closed vessel; and

maintaining the elevated temperature for at least 10 minutes so that the fat and water react with each other to form free fatty acids and glycerol.

Analysis

Claim 1: Eligible.

The claim recites a series of steps for mixing and heating fat and water. Thus, the claim is directed to a process, which is one of the statutory categories of invention (*Step 1: YES*).

Next, the claim must be evaluated to determine if the claim is directed to a judicial exception. But when the claim is reviewed, it is immediately evident that although the claim is founded upon a chemical principle relating to neutral fats, it is not attempting to tie up any judicial exception so that others cannot practice it. In particular, the claim's description of mixing substantially equal quantities of fat and water, heating the mixture to an elevated temperature of at least 600 degrees Fahrenheit under sufficient pressure to prevent the formation of steam in the closed vessel, and maintaining the elevated temperature for at least 10 minutes so that the fat and water react with each other to form free fatty acids and glycerol, makes it clear that the claim as a whole would clearly amount to significantly more than any potential recited exception. For example, the claim as a whole effects a transformation of the fat and water into different chemicals, *i.e.*, from fat and water into the fatty acids and glycerol, by means of specific and unconventional steps. Thus, eligibility of the claim is self-evident in the streamlined analysis, without needing to perform the full eligibility analysis (*e.g.*, Steps 2A and 2B). The claim is patent eligible.

It is important to point out as well that there is no apparent exception recited in the claim, which alone would be sufficient for eligibility. Although the claim is clearly based upon a law of nature (the chemical principle or scientific fact that the elements of neutral fat require that they be severally united with an atomic equivalent of water in order to separate from each other and become free), the law of nature is not recited in the claim. The cases in which courts found claims directed to laws of nature are those in which the law is recited in the claim as part of the invention, such as when the claim sets forth or describes a naturally occurring principle.

If the examiner believes that the record would benefit from clarification, remarks could be added to an Office action or reasons for allowance, indicating that the claim is not directed to any judicial exception.

It is noted that although Tilghman was decided prior to the 1952 Patent Act, the Supreme Court has subsequently described the decision as upholding the eligibility of process claims containing a law of nature. *See, e.g.*, Parker v. Flook, 437 U.S. 584, 590-91 and n.12 (1978); Gottschalk v. Benson, 409 U.S. 63, 70 (1972).