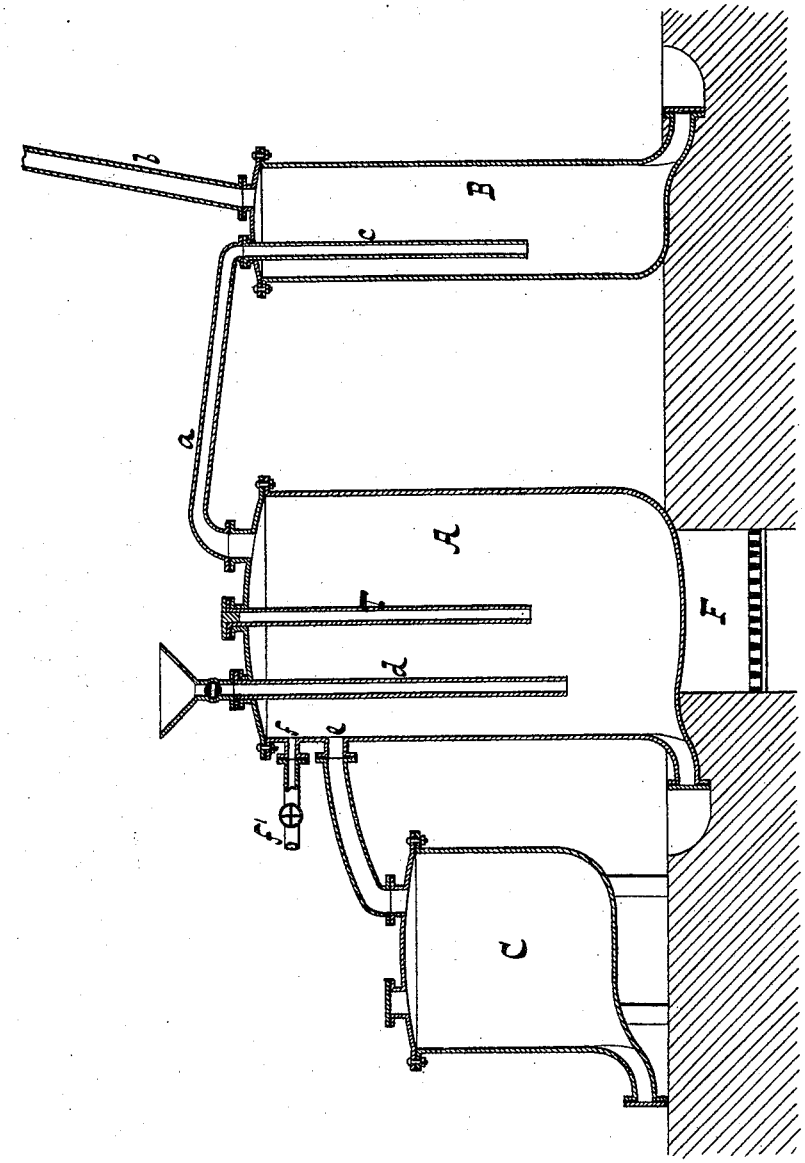
(No Model.)

E. SCHAAL.

PROCESS OF AND APPARATUS FOR THICKENING LINSEED OIL.

No. 493,187. Patented Mar. 7, 1893.



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UNITED STATES PATENT OFFICE.

EUGEN SCHAAL, OF STUTTGART, GERMANY.

PROCESS OF AND APPARATUS FOR THICKENING LINSEED-OIL.

SPECIFICATION forming part of Letters Patent No. 493,187, dated March 7, 1893.

Application filed June 30, 1892. Serial No. 438,550. (No model.)

To all whom it may concern:

Be it known that I, EUGEN SCHAAL, a citizen of the German Empire, residing at Stuttgart, in the Kingdom of Würtemberg, Germany, have invented new and useful Improvements in Processes of and Apparatus for Thickening Linseed-Oil, of which the following is a specification.

It is a well known fact that when linseed oil is boiled for some time till it loses about one-sixth of its weight it becomes thicker, tenacious and viscid and it dries up still more readily than in the fresh state to a tough, turpentine like mass, scarcely soluble in oils. It is also a well known fact that linseed oil heated to about 323°–375° centigrade takes fire and burns quickly (see *Watt's Dictionary of Chemistry*, Vol. III, lines 23–18 from bottom of page 702) and if the oil while being heated to the abovenamed temperature comes in contact with atmospheric air, an explosion takes place. Now I have discovered that by maintaining a current of steam or of an indifferent gas such as carbonic acid gas or nitrogen over the surface of the oil during the grogress of heating, the temperature of the oil can be raised to and maintained at 330° to 345° centigrade and the required consistency can be rapidly attained without allowing the oil to ignite and all danger of an explosion is avoided. Furthermore I am enabled to continue the process of thickening the oil without interruption by admitting fresh oil to the bottom of the mass while the thickened oil is permitted to flow off from the top. I have also constructed a novel apparatus which can be used with advantage in carrying out my new process and the construction of which is pointed out in the following specification and illustrated in the accompanying drawing, which shows a longitudinal vertical section.

In the drawing the letter A designates a kettle into which the oil is fed through the pipe *d* and from the top of which extends a goose neck *a* which connects with a pipe *c* extending down into the condenser B. From the top of the condenser extends a pipe *b* which leads into the open air or into a chimney. From the side of the kettle A extends a pipe *e* which leads into the top part of a vessel C and above this pipe is an opening *f* which connects by a tube *f'* with a steam-boiler or with a reservoir containing an indifferent gas under pressure.

T is a pipe for the introduction of a thermometer.

Beneath the kettle A is a fire place F for the purpose of heating the contents of said kettle.

The kettle A is charged with linseed oil about to a level with the pipe *e* and the oil is heated rapidly to about 270°–280° centigrade while a current of steam or of an indifferent gas is introduced through the tube *f'* in the direction of the condenser B, the temperature in the kettle A being permitted to rise to 330°–345° centigrade, and this temperature is maintained until a test shows that the oil has reached the desired thickness. Then the fire is removed and while the current of steam or gas is maintained, the oil is permitted to cool off to about 290° centigrade when it is ready for immediate use.

By the current of steam or indifferent gas the atmospheric air is driven out of the kettle A and the oil is prevented from igniting. If by inadvertence the temperature in the kettle A should rise above 345° centigrade, cold linseed oil is introduced through the pipe *d* and by carrying this cold oil down near to the bottom of the kettle A while the thickened oil is permitted to flow off at the top through the pipe *e* into the vessel C, the temperature in the kettle A can be regulated and the process of thickening can be carried on for a long time without interruption. The oil vapors which are carried into the condenser B by the current of steam or gas become liquefied and are saved.

What I claim as new, and desire to secure by Letters Patent, is—

1. The within described process of thickening linseed oil which consists in heating the oil to a temperature of 320°–345° centigrade, maintaining a current of an indifferent fluid over the surface of the heated oil, introducing fresh oil into the lower portion of the heated mass and permitting the thickened oil to flow off from the top, substantially as described.

2. The combination with the kettle A and its feed pipe *d*, extending down to the lower

portion of the kettle of a tube f' leading into the kettle, a goose-neck a, a condenser B connected to the goose-neck, an escape pipe b leading from the condenser, an overflow pipe e leading from the kettle A, and a vessel C connected with the pipe e, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EUGEN SCHAAL.

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.