

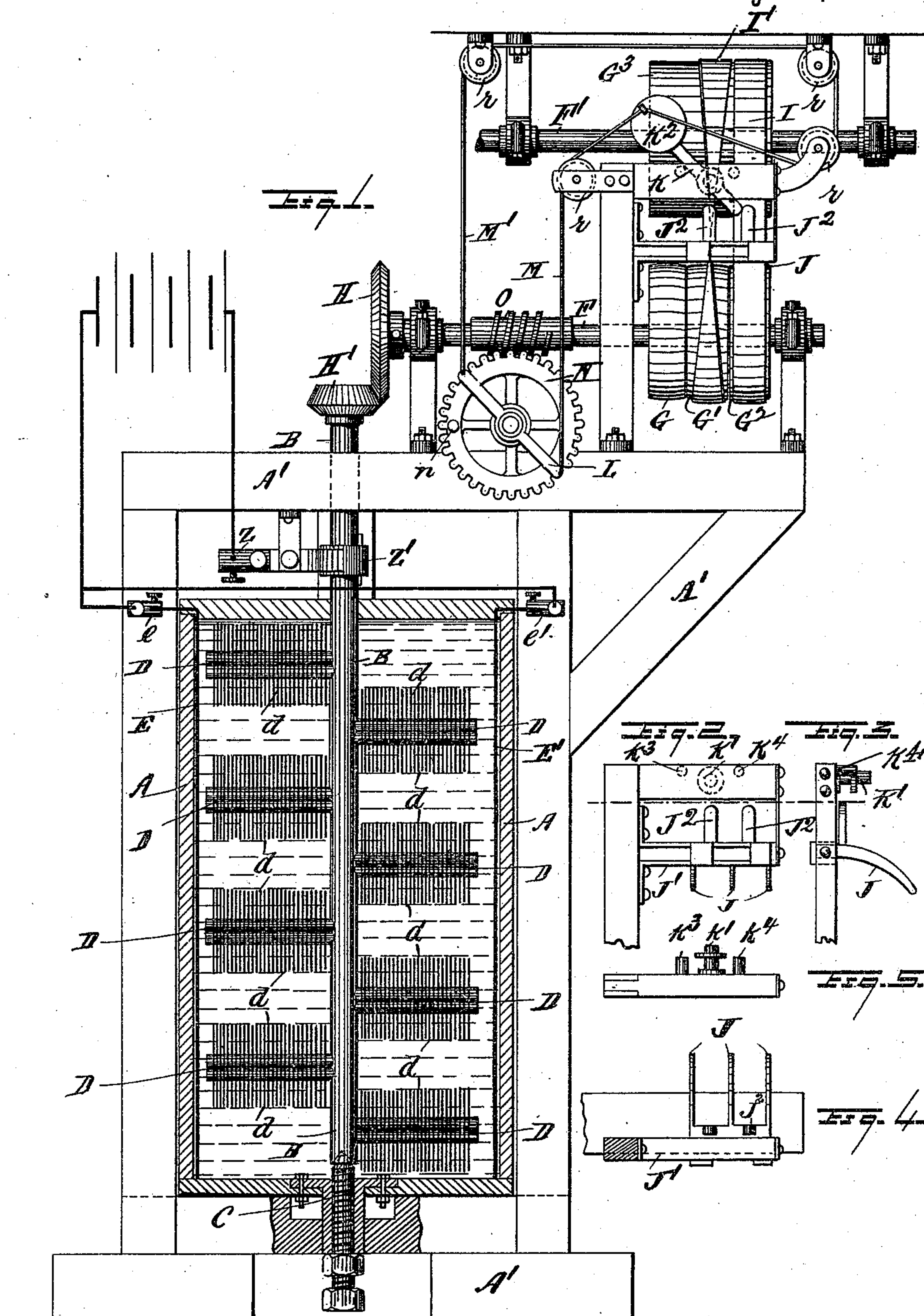
(No Model.)

H. PFANNE.

# METHOD OF MANUFACTURING VARNISH AND APPARATUS THEREFOR.

No. 501,578.

Patented July 18, 1893.



*Witnesses*

A J Hadden  
Oxford

*Inventor*

Heinrich Pfanne  
by his Attorney. P. Haddan



# UNITED STATES PATENT OFFICE.

HEINRICH PFANNE, OF RIXDORF, NEAR BERLIN, GERMANY.

METHOD OF MANUFACTURING VARNISH AND APPARATUS THEREFOR.

SPECIFICATION forming part of Letters Patent No. 501,578, dated July 18, 1893.

Application filed August 29, 1892. Serial No. 444,493. (No model.)

*To all whom it may concern:*

Be it known that I, HEINRICH PFANNE, a subject of the Emperor of Germany, residing at Rixdorf, near Berlin, in Germany, have invented a certain new and useful Improved Method of Manufacturing Varnish and Apparatus Therefor, of which the following is a specification.

This invention consists in a method for the production of varnish from linseed oil by means of an electric current and also comprises apparatus for carrying such invention into effect.

The varnish which is almost colorless and perfectly free from all mineral or metallic admixtures or impurities is according to this invention produced by the following process. Linseed oil which has been purified in a proper manner, is thoroughly mixed and agitated with sulphuric acid and water and subjected for about two to three hours to the passage and action of an electric current so that the oxygen produced in the nascent state by the passage of the current converts the oil into varnish. Apparatus for carrying this process into effect is illustrated in the accompanying drawings in which—

Figure 1 is a sectional elevation of the whole apparatus; Fig. 2 a front elevation; Fig. 3 a side elevation and Fig. 4 is a plan of a belt fork used therein. Fig. 5 is a plan of part of the framework near said belt fork.

A is a vat made of any suitable material with a removable cover.

A' is a framing of suitable form and construction to carry the apparatus.

B is a central vertical shaft in the vat A supported at its lower end on an adjustable pivot bearing C and at its upper end in a suitable collar bearing over the lid of the vat.

H' is a beveled frictional wheel and H is also a beveled frictional wheel on the shaft F. These wheels may be replaced by toothed beveled wheels. By them the motion of the shaft F is transferred to shaft B. The shaft F carries three pulleys G G' G<sup>2</sup> close together, the middle one being a loose pulley and the other two fixed.

On the parallel driving shaft F' is a broad pulley G<sup>3</sup> fixed thereon which is geared with the pulleys G G' G<sup>2</sup> by two belts I I' one of

which is straight, the other crossed. Sliding on the bar J' is the belt fork J engaging both belts I I' and having also the two lugs J<sup>2</sup> J<sup>2</sup> between which one arm of the lever K engages. This lever K is pivoted on the pin K' (Fig. 5) and has on its upper arm a weight K<sup>2</sup> which holds it inclined to the one side or the other against the respective stop K<sup>3</sup> or K<sup>4</sup>. (Fig. 5) and so throws the belts onto the two pulleys G' G<sup>2</sup> or onto the two G, G'. Cords M M' passing over rollers r r r r connect the lever K to a lever L.

On the shaft F is the worm O which gears with the worm wheel N having the pin n adapted to strike and deflect the lever L.

The parts being in position as in the drawing, and power applied to revolve shafting F', the shaft F is revolved through pulley G<sup>3</sup> on which the straight belt is running, the loose belt moves idly with the loose pulley G'. The movement continues until the pin n rocks the lever L. This draws over the lever K which falls to the opposite side moving the belt fork J and carrying the crossed belt onto the pulley G and the straight belt onto the loose pulley G'. The movement is then in the opposite direction until the pin n moving back to its first position, again strikes the lever L and brings the latter again into its former position. The speeds and proportions are preferably such that the shaft B is revolved at the rate of about fifty to sixty turns per minute and reversed every minute.

The shaft B is provided with a number of radiating arms D of metal and on these arms project in all directions metal wires forming brushes d d. On the inside of the vat A are metal plates preferably two in number E E' of zinc or other metal covering the whole surface from bottom to top but not touching each other. To these plates are connected terminals e e' which are both connected with one terminal of a dynamo electric machine or other source of electric current. The other terminal of this machine is connected to the contact spring Z which rises on the contact collar Z' on the shaft B.

To use this apparatus, the vat is filled with purified linseed oil with water and sulphuric acid sufficient when the mixture is agitated to form a sort of emulsion through which the

current will pass. The cover is replaced, the current switched on and the apparatus set in action and continued for three or four hours when the oil will have been converted into  
5 varnish.

I claim—

1. A method of producing varnish, in which an electric current is caused to traverse linseed oil and water and sulphuric acid mixed  
10 therewith.

2. A method of producing varnish in which an electric current is caused to traverse a mixture of linseed oil, and acidulated water kept in constant agitation.

15 3. A method of producing varnish in which an electric current is caused to traverse a mixture of linseed oil and acidulated water

kept in constant rotary agitation periodically reversed.

4. For the production of varnish from linseed oil under the action of electric current, apparatus comprising in combination a vat having its sides lined with metal plate, a rotary agitating shaft therein, metallic brushes on said shaft, a periodical reversing gear for  
20 said shaft and a producer of electric current of which the terminals are connected to said plate linings and agitating shaft respectively.  
25

In witness whereof I have signed this specification in presence of two witnesses.

HEINRICH PFANNE.

Witnesses:

W. H. EDWARDS,

W. HAUPT.