

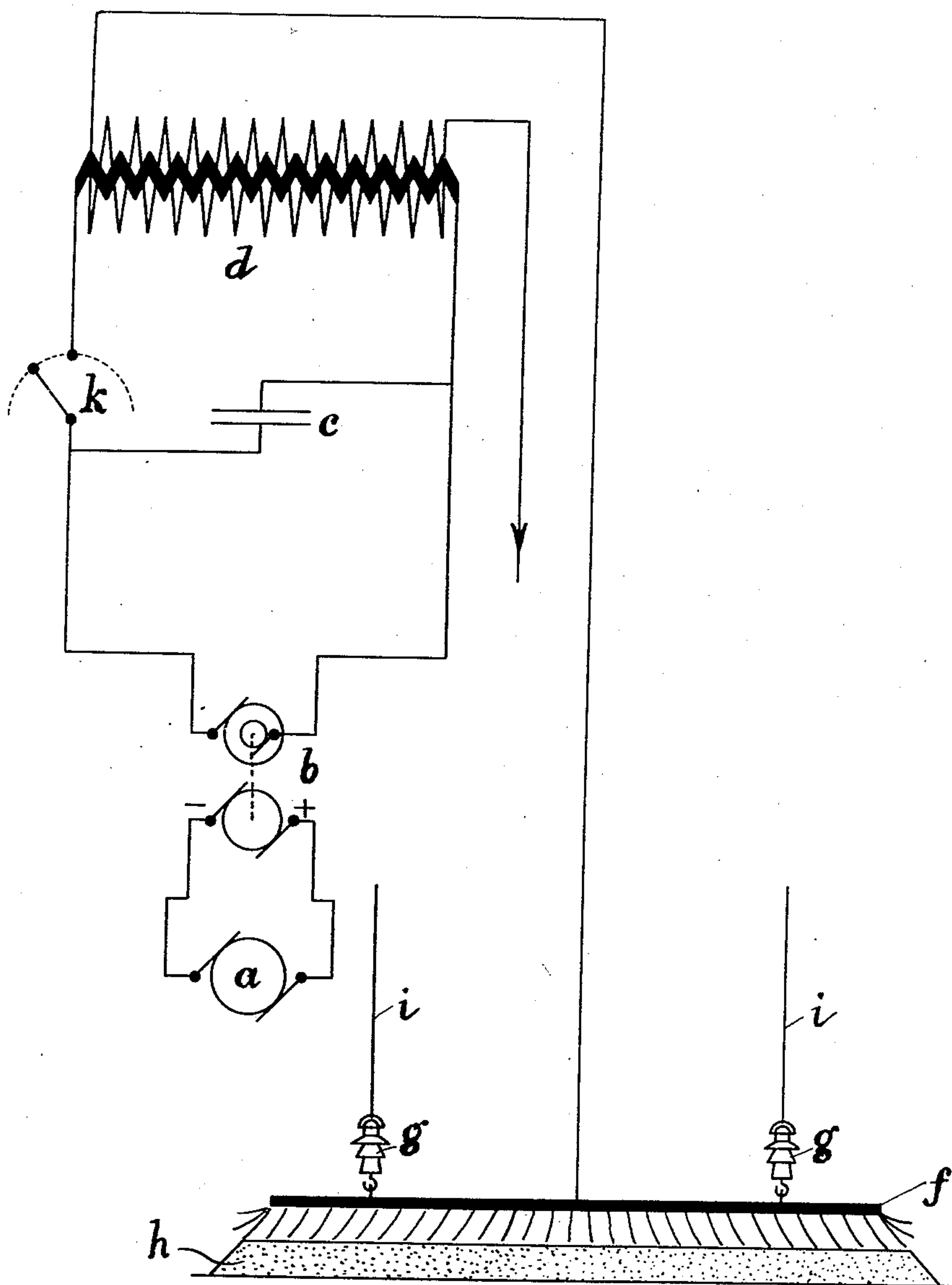
No. 896,752.

PATENTED AUG. 25, 1908.

A. OERTEL.

MALTING PROCESS.

APPLICATION FILED AUG. 26, 1904.



Witnesses:
Fritz Busch
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UNITED STATES PATENT OFFICE.

ALFRED OERTEL, OF GODESBERG, GERMANY, ASSIGNOR TO DEICHMANN & CIE., OF COLOGNE, GERMANY, A FIRM.

MALTING PROCESS.

No. 896,752.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed August 26, 1904. Serial No. 222,337.

To all whom it may concern:

Be it known that I, ALFRED OERTEL, a subject of the German Emperor, and residing at Godesberg, Germany, have invented certain new and useful Improvements in Malting Processes, of which the following is a specification.

This invention relates to malting processes and has particular reference to a process of malting in which the grain is subjected to the action of dark electric rays produced by an alternating electric current having an electro motive force above 1,000 volts and below that of the so-called Tesla currents, whereby a more rapid and satisfactory germination of the grain is produced.

In the practice of my process the grain to be malted is moistened and spread over a floor and high tension currents of the character above referred to are employed to produce brushes of dark electric rays which are passed from an electrode extending over practically the whole surface of the grain, through the latter. The distance between the electrode and the surface of the grain is such that no sparks can pass between them.

In the accompanying drawing, I have shown a diagrammatic view of suitable apparatus for carrying out my process.

In this drawing *h* designates a heap of grain spread out upon a suitable floor. Above the grain is an electrode *f*, which is made of suitable material and may advantageously have the form of sheet metal, lattice work, or wire net. The electrode is suspended by suitable cables *i*, *i* between which and the electrode are interposed suitable insulators *g*, *g*.

The electrode is connected with one pole of the secondary circuit of a transformer *d* for high tension currents. The other pole is connected with the earth. The primary circuit of the transformer is connected with a source of electricity *a* of the usual tension as for example, 110, 220, or 250 volts. The current for feeding the transformer may be taken directly from an alternating current generator, or it can be obtained from a direct current by means of a rotary transformer *b* of ordinary construction.

A liquid condenser *c* may be advantageously connected in parallel in the primary circuit, as illustrated.

The electro motive force of current in the secondary transformer circuit may vary from about 1,000 volts to that of Tesla's currents. The frequency of vibrations of the latter currents are 500,000 alternations per second. Currents of such frequency produce no physiological action.

In the use of the apparatus, the grain to be malted is moistened and spread upon the floor. The electrode *f* is then lowered until it is within a few inches of the grain *h*. The switch *k* is then closed and immediately a high difference of potential occurs between the grain and the electrode causing sparks to pass between them. The electrode is then raised until sparks cease to pass between it and the grain. When the sparks cease, there occurs an invisible discharge of current between all parts of the electrode and grain, in the form of brushes of dark rays which produce the desired effect in securing a more rapid and satisfactory germination of the grain. When the grain is to be turned or stirred, the switch *k* is opened and the electrode *f* drawn up. After the necessary work is done, the electrode is lowered and the process resumed.

This process may also be advantageously used in the steeping process by subjecting the grain in the steeping vats to the dark rays as hereinbefore described. In this case, the ozone which is produced, produces an additional though incidental advantage as, by dissolving in the liquid of the steeping bath, it materially improves it for the purpose for which it is employed.

Having described my invention, I claim:

The hereindescribed malting process which consists in subjecting grain to the action of dark electric rays produced by high tension alternating electric currents having an electro motive force above 1,000 volts and below that of Tesla's currents, substantially as described.

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

ALFRED OERTEL.

Witnesses:

WILLIAM KUEPPERS,
JOH SCHOLZ.