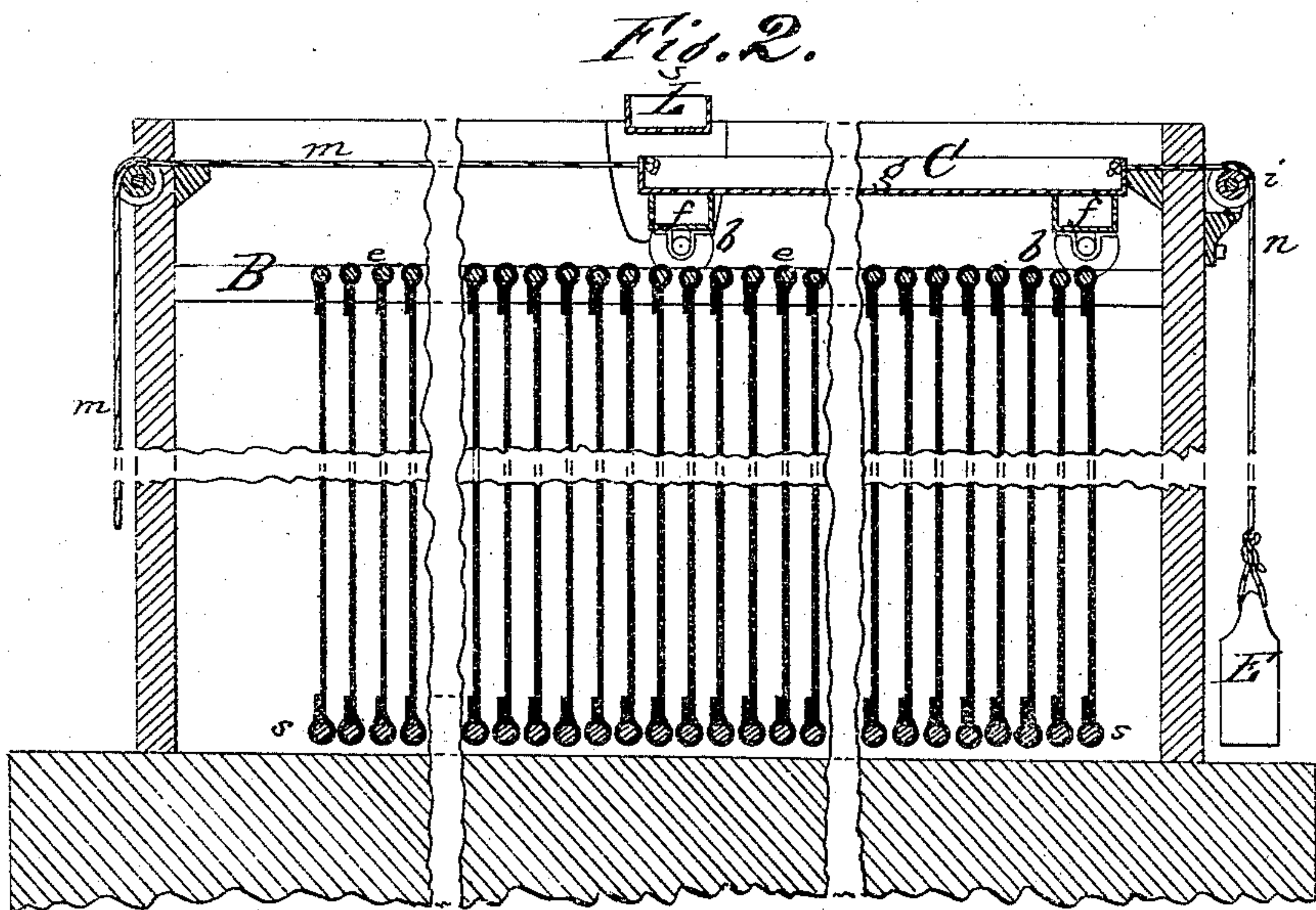
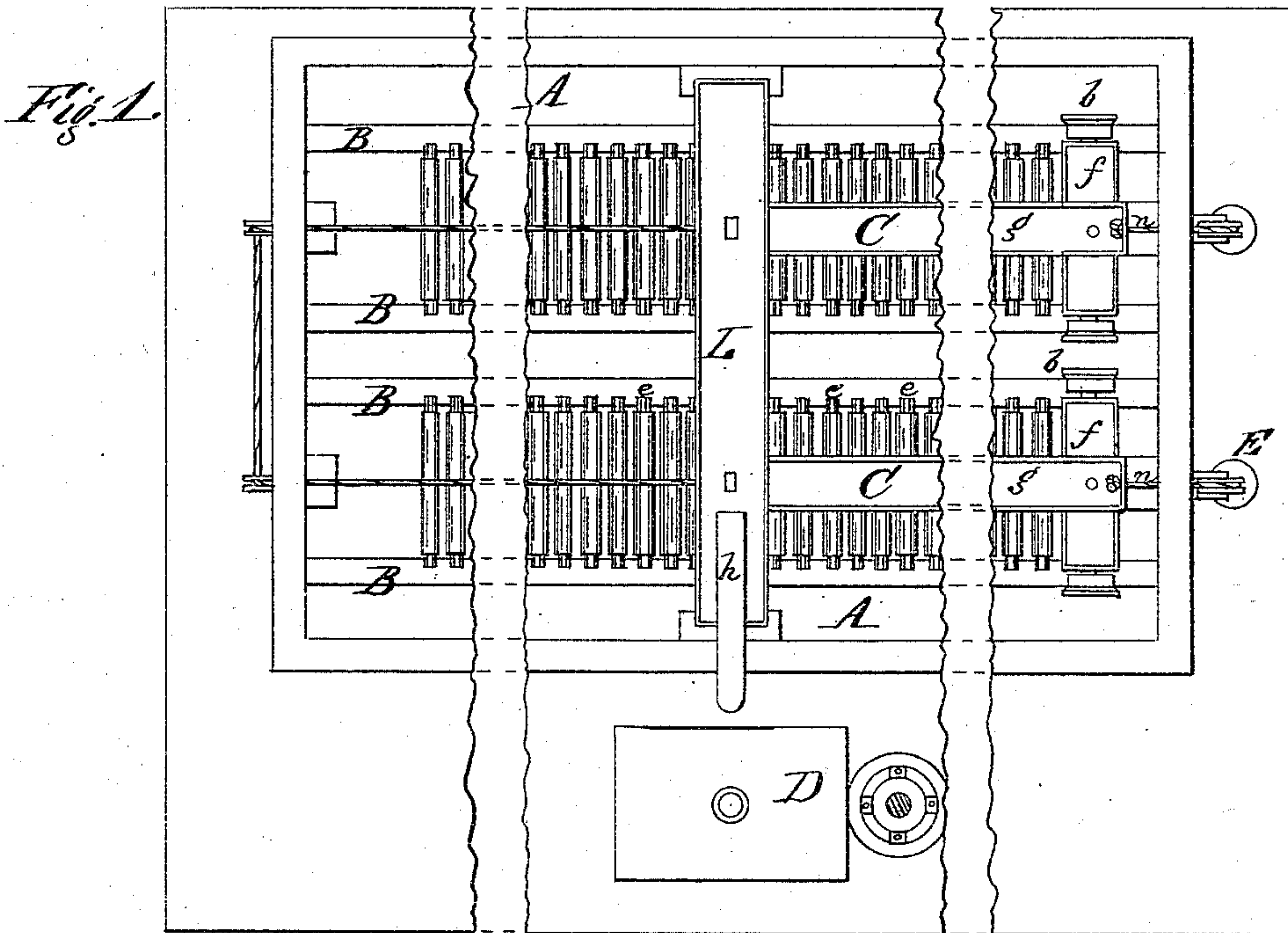


F. WALTON.
Manufacture of Oxydized Oil.

No. 153,867.

Patented Aug. 4, 1874.



Witnesses
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Inventor
Frederick Walton
by his atty.
C. S. Kenwick

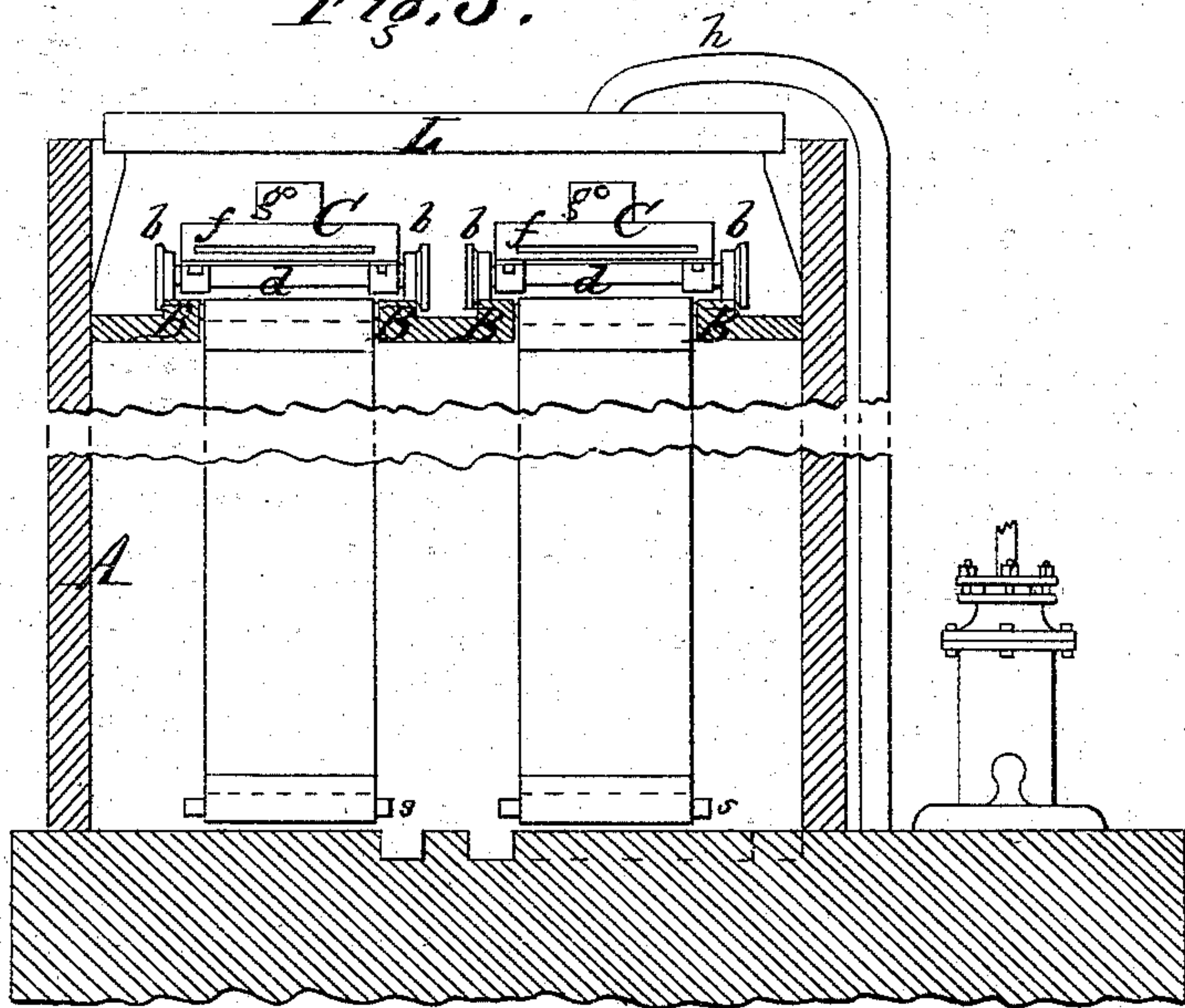
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Fig. 3.



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UNITED STATES PATENT OFFICE.

FREDERICK WALTON, OF STAINES, GREAT BRITAIN, ASSIGNOR TO AMERICAN LINOLEUM MANUFACTURING COMPANY, OF NEW YORK CITY.

IMPROVEMENT IN THE MANUFACTURE OF OXIDIZED OIL.

Specification forming part of Letters Patent No. **153,867**, dated August 4, 1874; application filed July 8, 1874.

To all whom it may concern:

Be it known that I, FREDERICK WALTON, of Staines, in the county of Middlesex and Kingdom of Great Britain, at present residing at Linoleumville, in the county of Richmond and State of New York, have made an invention of new and useful Improvements in the Art of Manufacturing Oxidized Oil and in the apparatus employed therein; and that the following is a full, clear, and exact description and specification of the same.

Previous to this invention oxidized oil has been manufactured in the following manner: A number of strong iron frames were provided, each having two series of horizontal bars separated by an open space. A long piece of strong cloth was strained in a series of folds upon the bars of each of these frames. The frames with the cloths upon them were dipped in succession into a vat of oil, and then suspended in a drying-shed to permit the oil to oxidize. The dipping in the vat of oil was repeated at intervals until a thin layer of oxidized oil was accumulated at each side of the cloth; then the cloth was removed from each frame, and was drawn between a pair of stripping-knives by the action of a pair of drawing-rollers, and the oxidized oil was thus stripped or pared from the cloth, which was used over again for the same purpose, while the stripped oxidized oil was ground in a mill. In this system of manufacture a very strong, firmly-woven cloth was required to withstand the severe strains incident to the drawing of the cloth between the stripping-knives. The presence of knots in the yarn of the cloth obstructed the stripping and tended to produce tears, which rendered the cloth useless. The wear upon the cloth also was excessive, and the effect of the oxidizing process was to rot the fiber; consequently the cloth had to be frequently renewed, and lasted usually for only two operations, so that the cost of the cloth was a large item in the cost of manufacture. Moreover, as the frames had to be brought to the vat of oil, dipped into it, and removed from it, this system of manufacture required the expenditure of a large amount of labor.

The present invention is based on the discovery that after the layer of oxidized oil has attained a slight thickness it will support its own weight, so that for the purposes of oxid-

izing the oil by exposure to air, cloth of slight strength and coarse mesh, only strong enough to sustain a thin coating of oil, is sufficient; and on the further discovery that the layer of oxidized oil which may be accumulated upon such cloth is so great in bulk, compared with the small bulk of the cloth, that the latter may be broken up or ground with the former without practically affecting its value for subsequent operations. The invention consists primarily of the manufacture of oxidized oil by the following operations, viz., first, the accumulation of the oxidized oil upon a weak sleazy cloth by alternately flooding it with oil and exposing the wet surface to the air; and, secondly, the grinding of the entire mass of cloth and oxidized oil together, instead of separating the cloth from the oxidized oil and grinding the latter by itself. My invention further consists of certain combinations of mechanical devices by which the first portion of the above-recited process is effected, and which are recited in detail at the close of this specification.

In order that the invention may be fully understood, I have represented in the accompanying drawings, and will proceed to describe, an improved apparatus which embodies my said combinations in the best form at present known to me; and I will also describe the mode in which I manufacture oxidized oil by my process.

In said drawings, Figure 1 represents a plan of the said apparatus with the top of the drying-room removed. Fig. 2 represents a vertical longitudinal section of the same. Fig. 3 represents a vertical transverse section of the same.

The said apparatus comprises a drying shed or room, A, in which the cloth is suspended, and also means for suspending and flooding the cloth and for regulating the temperature. The shed which I have used with success is sixty-eight feet long, twenty-five feet wide, and thirty feet high up to the eaves for two tiers of sheets of cloth. The sheds may, however, be wide enough to contain a larger or smaller number of tiers, and may also have their other dimensions increased or diminished. Along the upper part of this room there are two pairs of rails, B B B B, from which the cloths are suspended. The distance between the rails of each pair is a little greater than the breadth

of the cloth to be used. The cloths are cut into sheets a little shorter than the distance from the rails to the floor, and are secured at their upper and lower ends to iron rods *e s*. The ends of the iron rods *e* at the upper ends of the sheets project beyond the edges of the cloth, and are engaged in notches made in the inner edges of the rails B B, so that the rods extend crosswise from rail to rail. These notches may be made about two inches from center to center along the lengths of the rails. The rods *s*, at the lower ends of the sheets of cloth, hold them distended, so that when the drying-room is ready for applying the oil, each pair of rails has suspended from it a large number or tier of sheets of cloth, hanging vertically or thereabout. A flooding-carriage, C, is fitted to run upon each pair of rails. This carriage has two pairs of flanged wheels, *b*, and two axles, *d*, and the axles are connected by a trough-body consisting, in this example, of two distributing-troughs, *f f*, and a supply-trough, *g*. The object of the distributing-trough *f* is to distribute the oil across the whole breadth of each sheet of cloth, and for this purpose it extends transversely across the carriage and has a slit in the lower edge of one of its long sides, so as to deliver the oil in a sheet. The object of the supply-trough *g* is to supply the distributing-trough or troughs *f f* from a central delivery-pipe, whatever may be the position of the distributing-trough relative to that pipe, and for this purpose the supply-trough is arranged longitudinally of the carriage, with one of its ends over each distributing-trough, and it has a hole at each end of its bottom to permit the oil to flow into the distributing-trough beneath. The oxidized oil is supplied from a cistern, D, by means of a pump. The pump which I have found best suited to this purpose is a rotary-pump, because it has no valves and does not become clogged with the lumpy oil. The oil from the pump is delivered by the delivery pipe *h* to the trough-carriage, whence it flows down upon the cloth. The oil which drains from the cloths falls upon the bottom of the room, which is made to slope toward a sink connecting with the oil-cistern D, so that any excess of oil passes back to the cistern to be re-distributed to the cloths. Steam-pipes are arranged at the sides of the room, so that it may be heated when the temperature of the atmosphere is not as high as is desirable. Ventilating-apertures also are made in the top and bottom of the room, and shutters are provided for them so that the ventilation may be controlled. In order that the flooding-carriage may be used to distribute the oil to all the sheets of a tier, a tug-rope, *m*, is secured to one end of it and is passed out through a hole at one end of the room, so that it may be pulled or slacked. A second rope, *n*, is secured to the other end of the carriage, and is passed through a hole in the other end of the room and over a pulley, *i*. A weight, E, sufficient to move the carriage, is hung to this

second rope. The carriage is pulled along the rails in one direction, by an operator, by means of the tug-rope *m*, and is pulled in the opposite direction by the weight *n* when the tug-rope *m* is slacked.

In oxidizing oil with the above apparatus, I have used, with success, sheets of coarse-meshed sleazy muslin and boiled linseed-oil. The sheets of cloth are flooded once or twice a day, according to the rapidity of oxidation, as determined by the feeling of the layer upon the sheets of cloth. During the flooding the flooding-carriage is traversed along the rails, so that every sheet is flooded. The flooding generally occupies about fifteen minutes for each tier of cloths. Where there is more than one tier of cloths in a room, the oil is supplied to the several tiers by means of a transverse delivery-trough L, having a hole in its bottom over every carriage. If each tier is flooded separately, the holes in the trough for supplying the carriages of the other tiers are temporarily stopped with plugs.

The heat of the atmosphere in the drying-room is generally maintained at about 90° of Fahrenheit, and a slight ventilation is sufficient to furnish the required supply of air for oxidation. About three months of daily flooding are sufficient to accumulate a layer of oxidized oil of a quarter of an inch in thickness, like a layer of gum, upon the sheets of cloth. They are then taken down, the iron rods are broken out, and the compound sheets of oxidized oil and cloth are ground to a coarse powder for subsequent use.

The mill which I have used with success for grinding the compound sheets consists of two strong cast-iron rollers, one of which is caused to revolve more rapidly than the other, the adjacent surfaces being moved in the same direction, and such mill being the same in construction as that used for grinding india-rubber.

I claim as my invention—

1. The improvement in the art of making oxidized oil, substantially as before set forth, consisting of, first, the accumulation of the oil in a layer upon a sheet of cloth; and, secondly, the grinding of the accumulated oil and the cloth together.

2. The combination, substantially as before set forth, of the drying-room, the rails, and the flooding-carriage.

3. The combination, substantially as before set forth, of the drying-room, the rails, the flooding-carriage, the cistern, the pump, and the delivery-pipe thereof.

4. The flooding-carriage, substantially as before set forth, having a trough-body composed of a supply-trough and a distributing-trough.

Witness my hand this 29th day of June, A. D. 1874.

FREDERICK WALTON.

Witnesses:

W. L. BENNEN,
W. H. ISAACS.