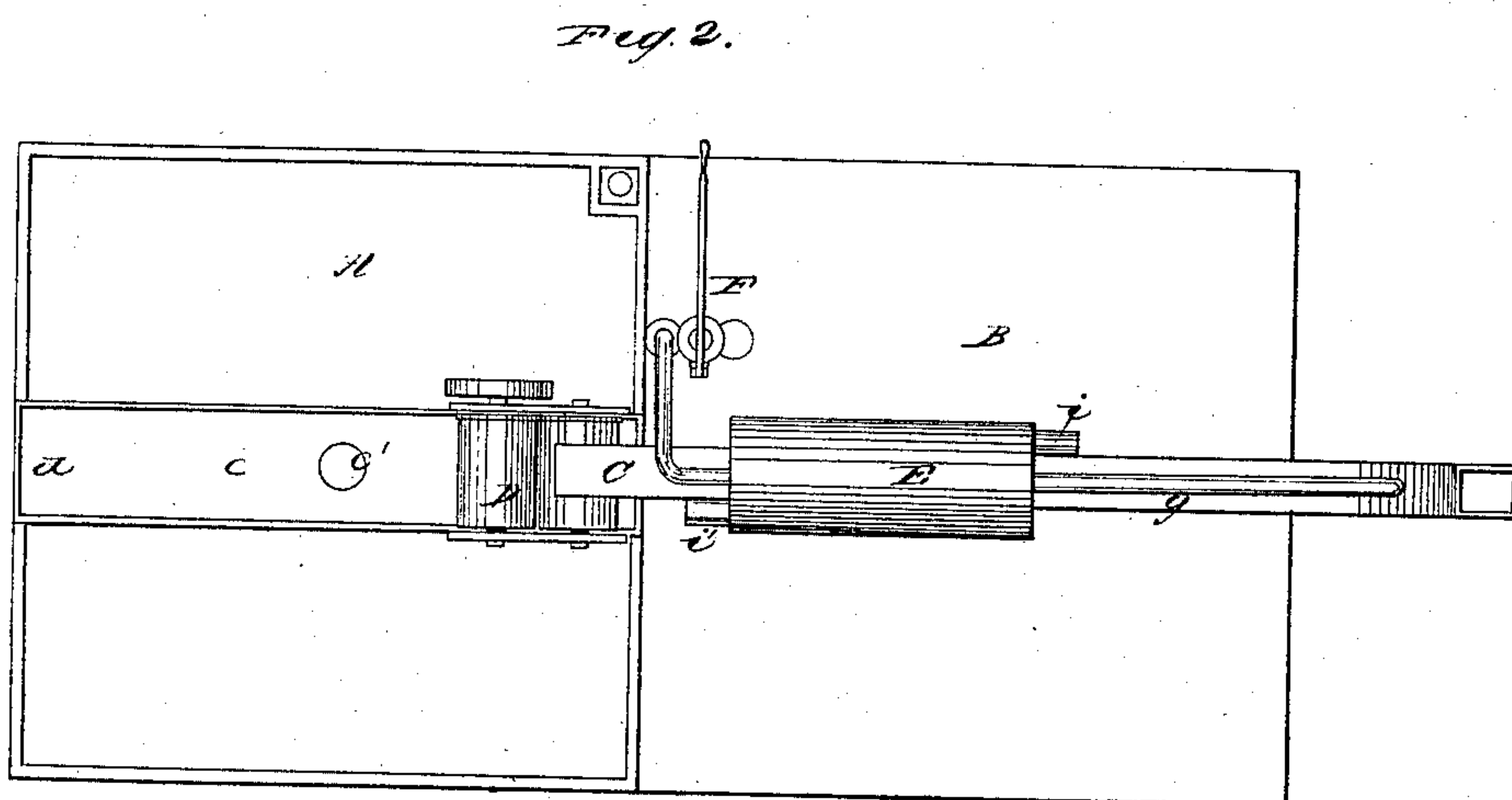
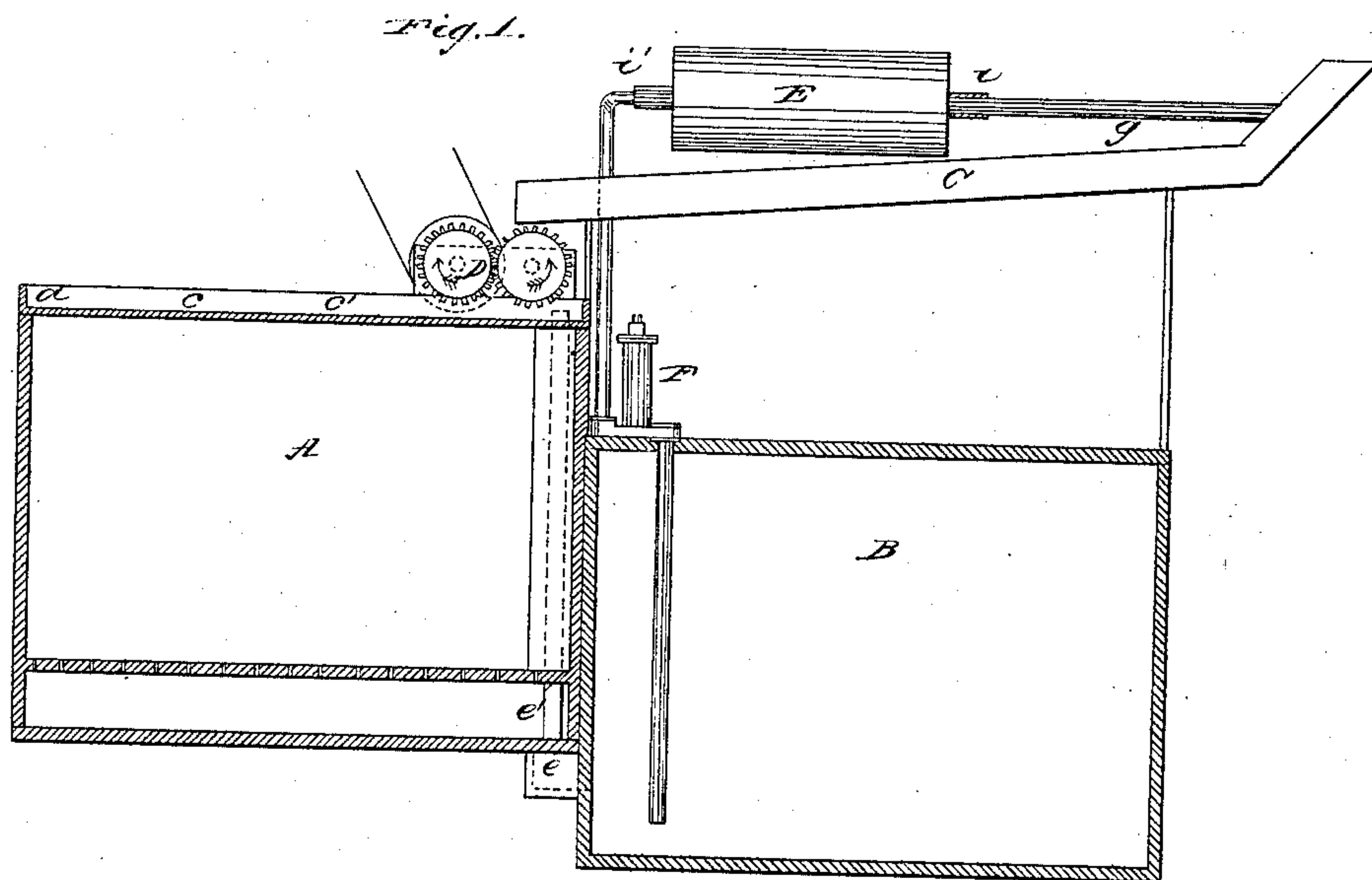


*I. C. England,*  
*Tanning Apparatus,*  
*N<sup>o</sup> 22,717.* *Patented Jan. 25, 1859.*



witnesses

*J. P. Pearson*  
*J. H. Maynard*

inventor

*I. C. England*

# UNITED STATES PATENT OFFICE.

LEWIS C. ENGLAND, OF OWEGO, NEW YORK.

## TANNING.

Specification of Letters Patent No. 22,717, dated January 25, 1859.

*To all whom it may concern:*

Be it known that I, LEWIS C. ENGLAND, of Owego, county of Tioga, and State of New York, have invented certain new and useful  
5 Improvements in Tanning Leather; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being made to the annexed drawing, making a part of this specification, in  
10 which—

Figure I is a vertical longitudinal section, Fig. II is a top or plan view, and similar letters indicate similar parts throughout the figures.

15 My invention lies in the method of treating the bark on its way from the grinding mill to the leach-vat, from which treatment certain useful results follow.

20 The nature of the first part consists in the mode of causing the bark to be conveyed from the grinding mill to the leach-vat, viz: by pumping a continuous stream of the liquid from the "junk" into the trough or tube which leads from said mill to the vat,  
25 and thus carrying the ground bark along by the force of said stream, whereby I am enabled to accomplish three things—the one dispensing with the conveyers as in the old way; another, preventing the loss of bark  
30 by the rising of the dust of the same; and a third, reducing the risk from fire, since the bark dust scattered about has been heretofore the chief cause of this.

35 The nature of the second part consists in heating successive portions of the liquor and discharging the same upon successive portions of the dry bark in the conveyer trough, whereby said bark is more certainly saturated and is also softened by the heated liquor,  
40 for a purpose to be hereinafter set forth.

45 The nature of the third part consists in passing the bark, thus softened, through a pair of crushing-rollers before discharging it into the leach-vat, whereby the particles  
are still further reduced in size, while hard pieces which would otherwise have remained dry in the interior are crushed so thin that the liquor can act readily on them.

50 At A is represented the leach-vat, and at B is the "junk," both being constructed as usual. There is always a series of leach-vats to one junk, being connected with it by a channel into which each leach empties, and from which they may be cut off by proper  
55 gates or plugs so that any vat may be made to communicate separately. This channel is

seen at (e), and the plug-stop at (e'). The leach vats have a trough (c) crossing the top to catch the bark and liquor as discharged from the rolls and conveyer, from  
60 which trough it falls into the leach through a hole (c'). This trough also extends to other vats and carries on the bark and liquor to any others of the range by stopping the  
65 holes (c') and taking down the cross partition (d), putting in such partition at the intended vat and opening its deposit hole. The conveyer trough is shown at C, and is a closed pipe leading from the bark mill to, and terminating over the first leach-vat, as  
70 shown.

At D is shown a pair of rollers geared together and placed under the spout or discharge end of C so as to receive the bark as it is discharged therefrom. These rollers  
75 are placed directly over the channel (C) so as to deliver into it, as shown in the top view Fig. II.

At E is a pump of ordinary construction. This has its suction pipe connected with  
80 the junk B, as shown, and its discharge pipe (g) terminating in the trough C near to the grinding mill, or as shown in the figures. Thus the liquor pumped from B strikes the bark as it falls from the chute into the  
85 trough and carries it along through it. It is important to heat the liquor in the leach-vats, as thereby a larger amount of tannin can be extracted, as is well known. This heating has generally been effected by dis-  
90 charging steam directly into the junk and pumping the liquor over on to the leach-vat. Of course, when it reaches the bark, some of the heat has been lost, whereas the full heat of boiling water is required in order  
95 that the gummy matters may be properly dissolved. I effect the heating by passing the pipe (g) through a closed vessel E within which the pipe (g), is in the form of a worm or coil, the vessel having a receiving  
100 and discharging pipe (i) and (i') through which the exhaust steam from the engine of the bark-mill passes. The liquor in the pipe (g) is therefore readily heated to the boiling point.  
105

The operation will be as follows: The junk containing a suitable quantity of liquor which it is desired to strengthen, and the bark-mill and pump F being put in motion, liquor will be taken from the junk and dis-  
110 charged in a continuous stream into the tube C whereby the bark which is delivered



into said tube from the mill is not only carried along to the leach-vat but it also becomes wet, thereby securing all the finer particles, and the dust is thus prevented from rising. This dust, in the old way, is caused to rise by the conveyers as well as when discharged from the spout of the trough, and being very light falls upon everything in the building, which then becomes easily ignited by a spark, even, and this is the cause of the destruction of so many tanneries by fire. The liquor poured into the tube C has been already described as heated to the boiling point. This is in quantity proportioned to the quantity of bark, and is not so much cooled but that it may soak the bark through before it reaches the crushing-rollers, inasmuch as the action of hot water is so much more rapid than of cold water. The rollers, which are also kept in motion in the direction indicated receive the bark, and in consequence of its being softened by the hot water crush the pieces down flat and thin, rendering the after action of leaching not only more expeditious but also increasing the quantity of extract. This delivery of bark is kept up until the leach-vat is sufficiently filled,

the liquor being drawn into the junk, heated, and used over again in the manner already described until all that can be extracted from that leach has been obtained, when it is turned on to another leach-vat with fresh bark for further concentration, or is drawn off for use, and water supplied in the leach-vat to further exhaust the bark, in a manner well known.

By these improvements I am enabled to obtain liquors of a higher degree of strength from a given quantity of bark, while I can, as a consequence thereof, manufacture a superior quality of leather.

1. I claim, applying the liquor to the bark, while said bark is being discharged from the mill, for the twofold purpose of making it a conveyer of the same and a preserver of the dust thereof, as set forth.

2. I claim, the method of applying the heated liquor to the bark, for the purposes and in the manner substantially as set forth.

In witness whereof I have hereunto subscribed my name.

LEWIS C. ENGLAND.

Witnesses:

J. P. PIRSSON,  
S. H. MAYNARD.