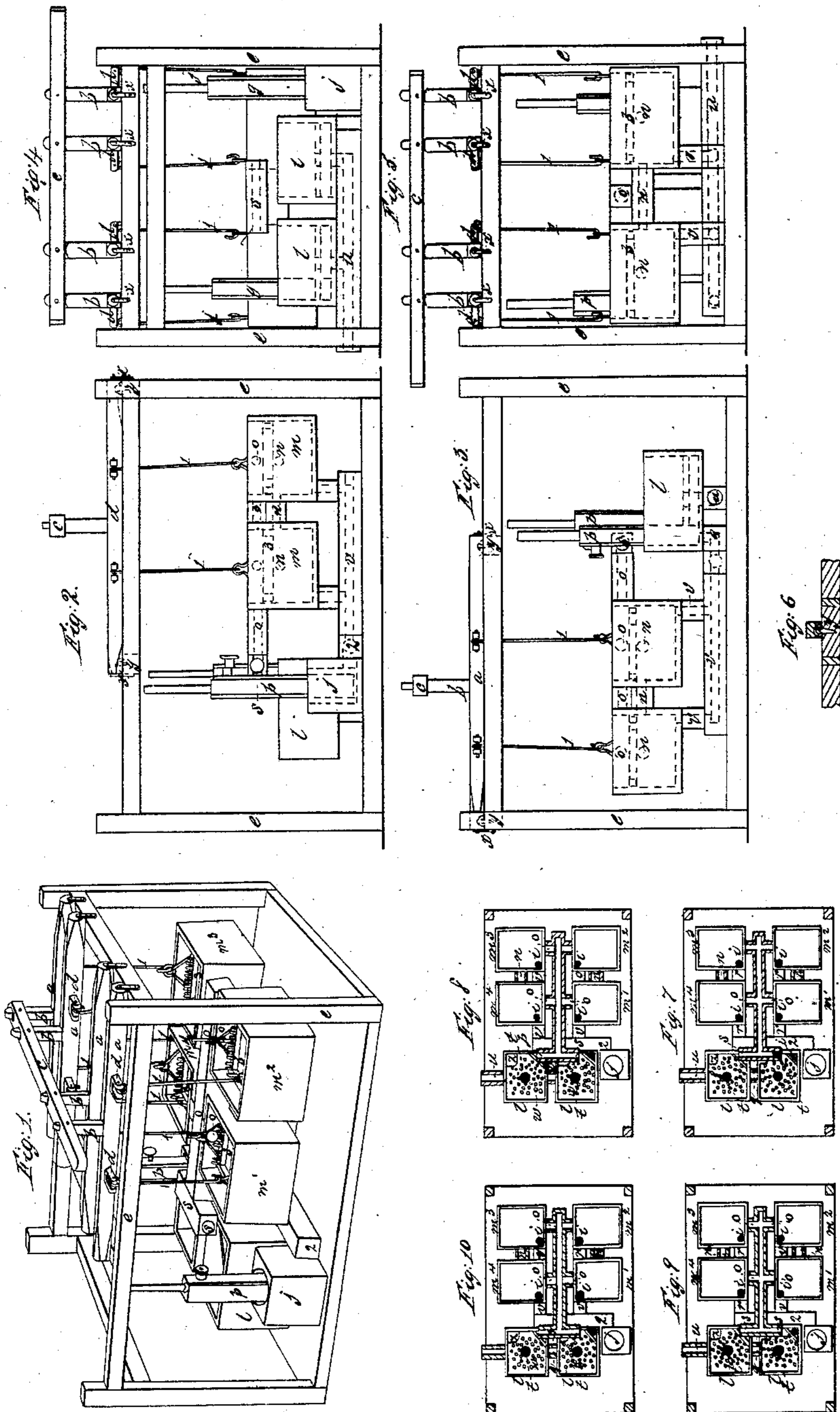


*Taggart & Gray,*  
*Tanning Apparatus,*  
*No 21,705,* *Patented Oct. 5, 1858.*



# UNITED STATES PATENT OFFICE.

A. C. TAGGART AND A. GRAY, OF ALLEGHENY CITY, PENNSYLVANIA.

## APPARATUS FOR TANNING.

Specification of Letters Patent No. 21,705, dated October 5, 1858.

*To all whom it may concern:*

Be it known that we, ANDREW C. TAGGART and ALEXANDER GRAY, of the city and county of Allegheny, in the State of Pennsylvania, have invented a new and Improved Tannery; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, similar letters referring to similar parts.

The nature of our invention consists in an arrangement for agitating, separating and conveying the liquor from one tan-vat to another.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

In the accompanying drawings, Figure 1, represents the tannery in all its parts. Figs. 2 and 3, are side views of the tannery. Figs. 4 and 5 are end views of the tannery. Fig. 6 represents the pivot on which the rocking shaft oscillates. Figs. 7, 8, 9 and 10, are top views of the vats leach-tub and the connecting pipes which connect the vats with each other and which also connects the leach-tubs and vats with the pump and receiving junk.

(a) are the rocking shafts which have their bearings on pivots marked (y) placed in the cross beams of frame (e) and are held on the pivots by the links marked (x). To these shafts (a) are attached arms (d) and upright levers marked (b) which are attached to a beam marked (c). The beam (c) is connected to the driving power. The length of the arms (d) will regulate the dip of the agitating frame marked (3) to these frames are attached rods marked (1). These rods are connected to the arms (d) on the shafts (a), the hides to be tanned are suspended on the frames (3), which are rocked or oscillated in the vats by means of the rods (1) shafts (a) and their appendages. There must be two lines of shafts to each row of vats. The advantages of the above arrangement will readily appear when the fact is considered that in large tanneries there are often from thirty to sixty tan-vats filled with hides the weight of which when taken in connection with the weight of the machinery necessary to suspend and hold up the hides in the tanning liquor, must of necessity be very great. This whole mass in the old mode of tanning is held up and

moved in journals which necessarily creates a great amount of friction and demands the constant use of oil, and great power to move and operate it. But by the use of the pivot (y) as shown in our arrangement we avoid a very great amount of friction, and move and operate the like mass requiring but little power and no oil.

The pipes (v), (r), (q) and (z), are used for the purpose of conveying the liquor from any one of the tan vats or leach-tubs to the junk (j) and from the junk it can be pumped into any tan-vat or leach-tub desired. In one corner of each tan-vat and leach-tub is placed an opening marked (i). These openings lead into the pipes. Plugs are placed in these openings, and when it is necessary to draw off the liquor from any one of the tan-vats or leach-tubs it is only necessary to remove the plug in the corner of the tan-vat or leach-tub and the liquor will flow through the pipes into the junk (j). The pipe (u) which is placed under the leach-tubs (l) is used for the purpose of cleaning out the refuse bark.

The opening in the center of each leach-tub leads into the pipe (u). These openings are marked (t) and are furnished with plugs. In each of the leach-tubs is placed a false bottom perforated with small holes. In one corner of these false bottoms is an opening marked (z). Through this opening one of the pumps marked (p) is passed to the lower bottom. The tan bark is thrown into the leach-tubs and rests on the false bottom marked (w). The tanning liquor which is made from the bark and warm water, collects between the true and false bottoms and is then pumped into a second leach-tub which is arranged in a similar manner. The liquor in the second leach-tub is pumped into a third leach-tub, and thus carried forward from one leach-tub to another until the desired strength of tanning liquor is obtained. The pipes (o) and (n) are used for the following purpose: The pipe (n) is placed below the pipe (o) and connects the vats with each other, thereby forming a complete connection between the whole series of vats. We have represented four vats as forming a whole series for the tanning process, but the number of vats may be increased to any number desired; each vat has a different strength of tanning liquor. Thus in the present case we have four different stages of the tanning process. It will be ob-

served that the constant motion of the hides will keep the liquor of equal strength at the top and bottom of the vats, and the weak liquor as it is created by use is carried  
 5 around through the pipes ( $n$ ) to the vat containing the weakest liquor and from it through the pipe ( $o$ ) into the leach-tub which contains the first preparation from the tan-bark. By this arrangement of vats  
 10 and by forming a complete connection between each and all the vats by means of the connecting pipes ( $n$ ) the process of tanning is carried forward from the first to the last stage of the process without changing the  
 15 hides from one vat to another and without exposing the hides to the action of the atmosphere which will in all cases blacken the leather thereby making it of less value in the market. It will be observed that by thus  
 20 arranging and connecting the vats and by the use of the pipe ( $o$ ) (as above set forth) we avoid the necessity of pumping (which is a great item in the process of tanning)  
 25 for as the strong liquor is put into or added to the vat which contains the strongest liquor in the series, an amount equal to the supply will flow from the vat which contains the weakest liquor which is always the first in the process of tanning.

30 The operation of our improvement is as follows (see Fig. 7): When the tan-vat ( $m^1$ ) contains the weakest liquor and the tan-vat ( $m^2$ ) contains the strongest liquor, the pipe ( $n$ ) which connects these two tan-  
 35 vats is plugged for the purpose of preventing the liquor from flowing from one to the other, the openings in pipe ( $o$ ) leading from the tan-vats ( $m^2$ ) ( $m^3$ ) ( $m^4$ ), and one of the openings in the branch of pipe ( $o$ )

marked ( $s$ ) is also plugged, thus allowing 40 the weakest liquor in the vat containing the weak liquor to flow into pipe ( $o$ ) and through it and its branch ( $s$ ) into the leach-tub which contains the first preparation of tanning liquor; when ( $m^1$ ) in Fig. 7 is the 45 weak vat, ( $m^3$ ) is the strong vat; in Fig. 8, when ( $m^2$ ) is the weak vat, ( $m^3$ ) is the strong vat; in Fig. 9, when ( $m^3$ ) is the weak vat, ( $m^4$ ) is the strong vat; in Fig. 10, when ( $m^4$ ) is the weak vat, ( $m^1$ ) is the 50 strong vat. The advantages of this arrangement of tan-vats is as follows: it makes a stronger and a finer article of leather and yields thirty-three per cent more leather per hide than can be obtained by the old process 55 of tanning.

We wish it to be plainly understood that we do not claim the use of pipes placed on a level with the bottom of the vats; as such device is found in the patent of Abraham Conwell patented November 4th, 1831, but

What we claim as of our invention and desire to secure by Letters Patent of the United States is— 65

1. The arrangement of the pivot ( $y$ ) and links ( $x$ ) as herein described and for the purpose set forth.

2. The use of the pipes ( $n$ ) when placed 70 near the top of the vats and used in connection with the pipe ( $o$ ) as herein described and represented and for the purpose specified.

ANDW. C. TAGGART.  
 ALEXANDER GRAY.

Witnesses:

ALEXANDER HAYS,  
 GEORGE P. STECK.