

No. 756,553.

PATENTED APR. 5, 1904.

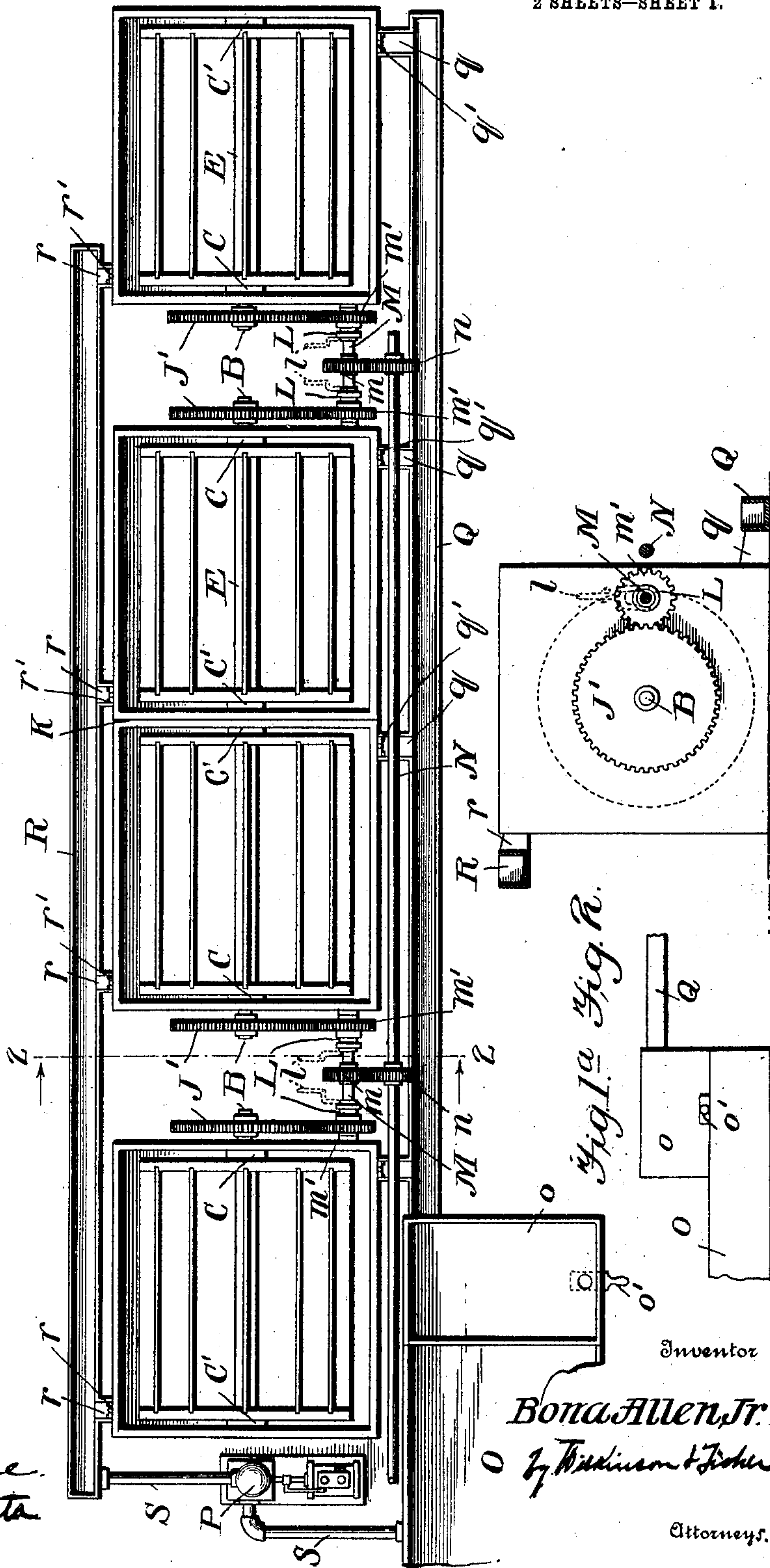
B. ALLEN, JR.
TANNING WHEEL.

APPLICATION FILED JAN. 2, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

Geo. H. Byrne
Stephen H. Hirst

Inventor

Bona Allen, Jr.

By Williamson & Fisher

Attorneys.

No. 756,553.

PATENTED APR. 5, 1904.

B. ALLEN, JR.
TANNING WHEEL.

APPLICATION FILED JAN. 2, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 3.

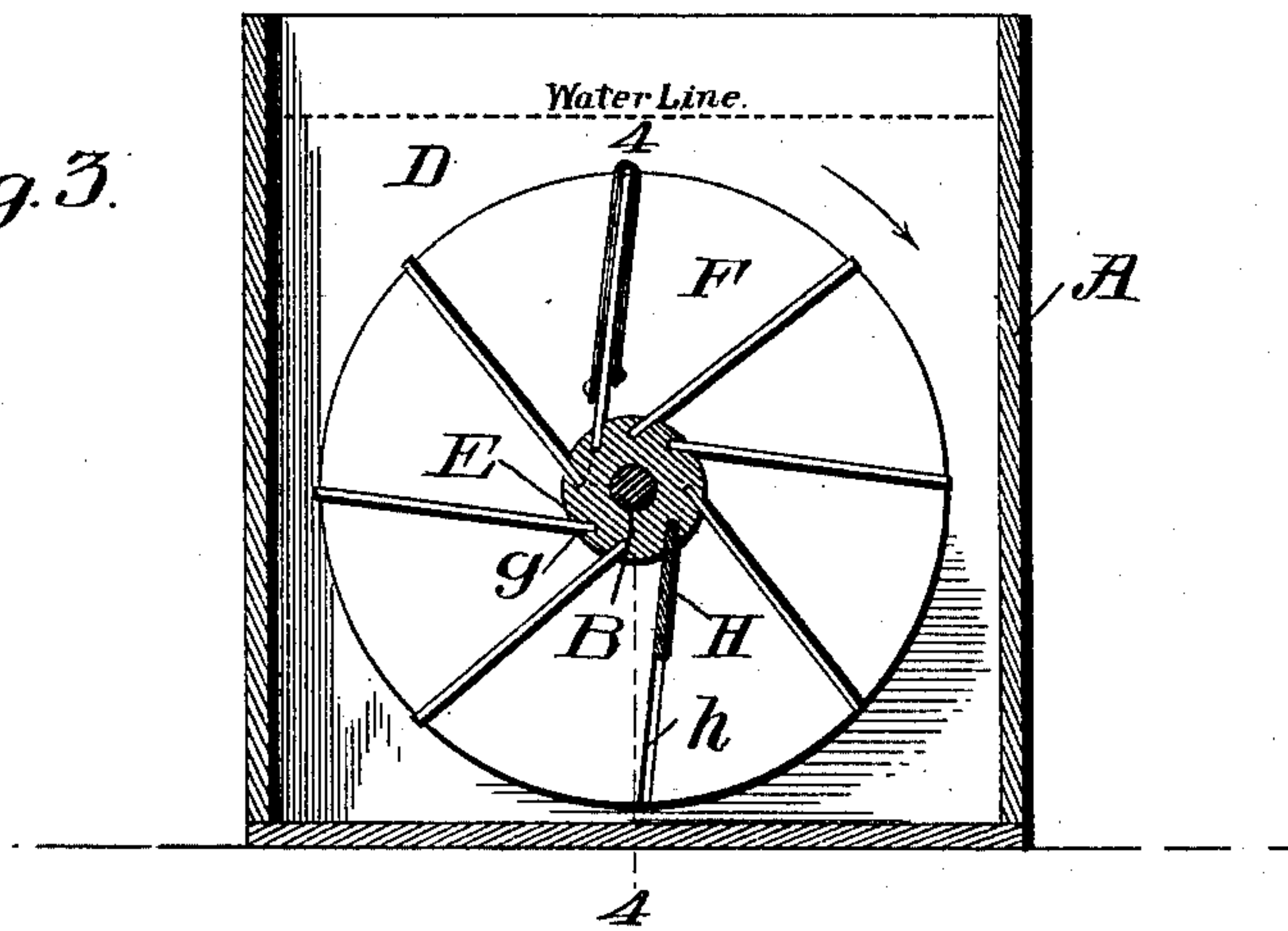


Fig. 4.

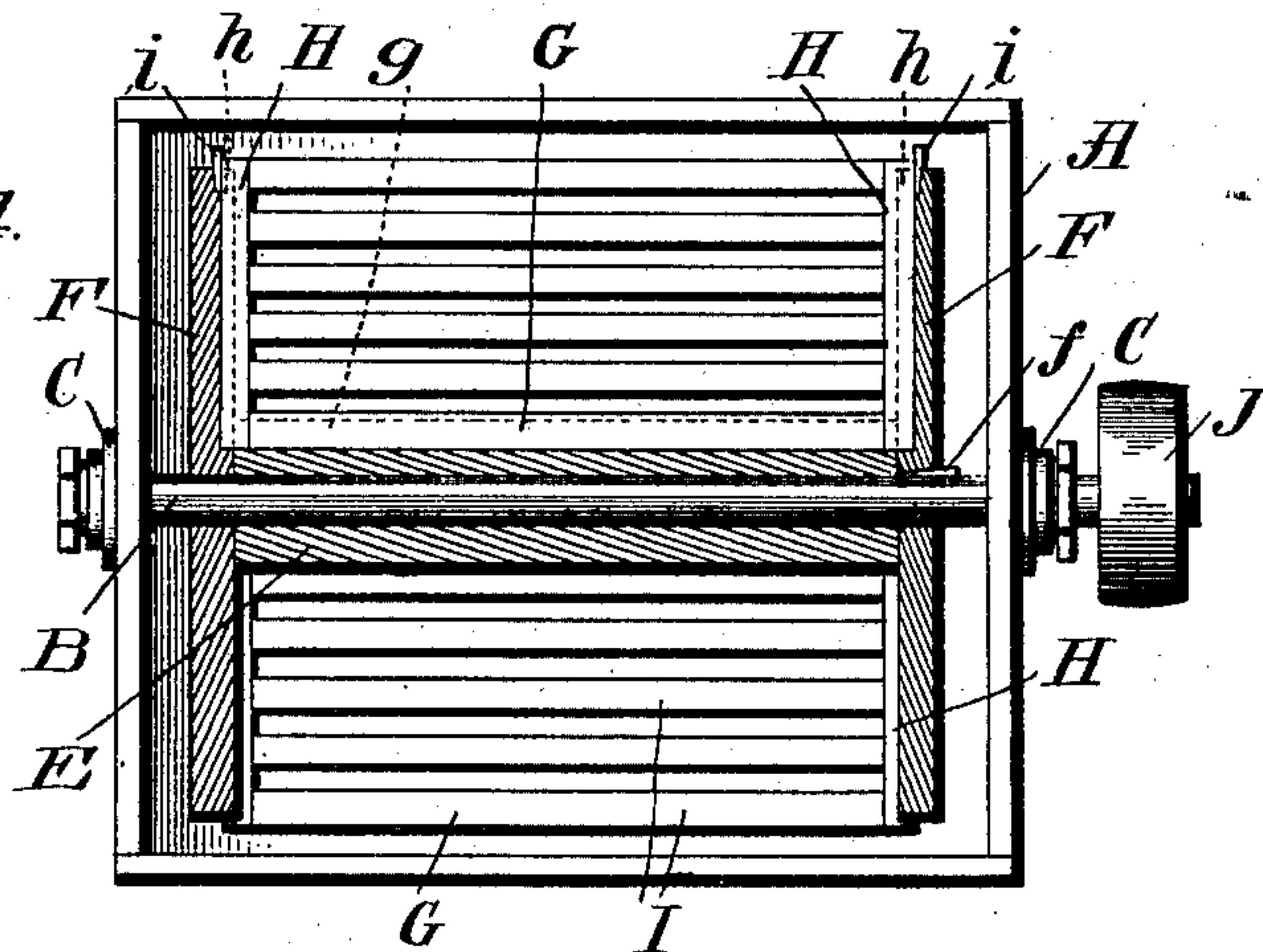
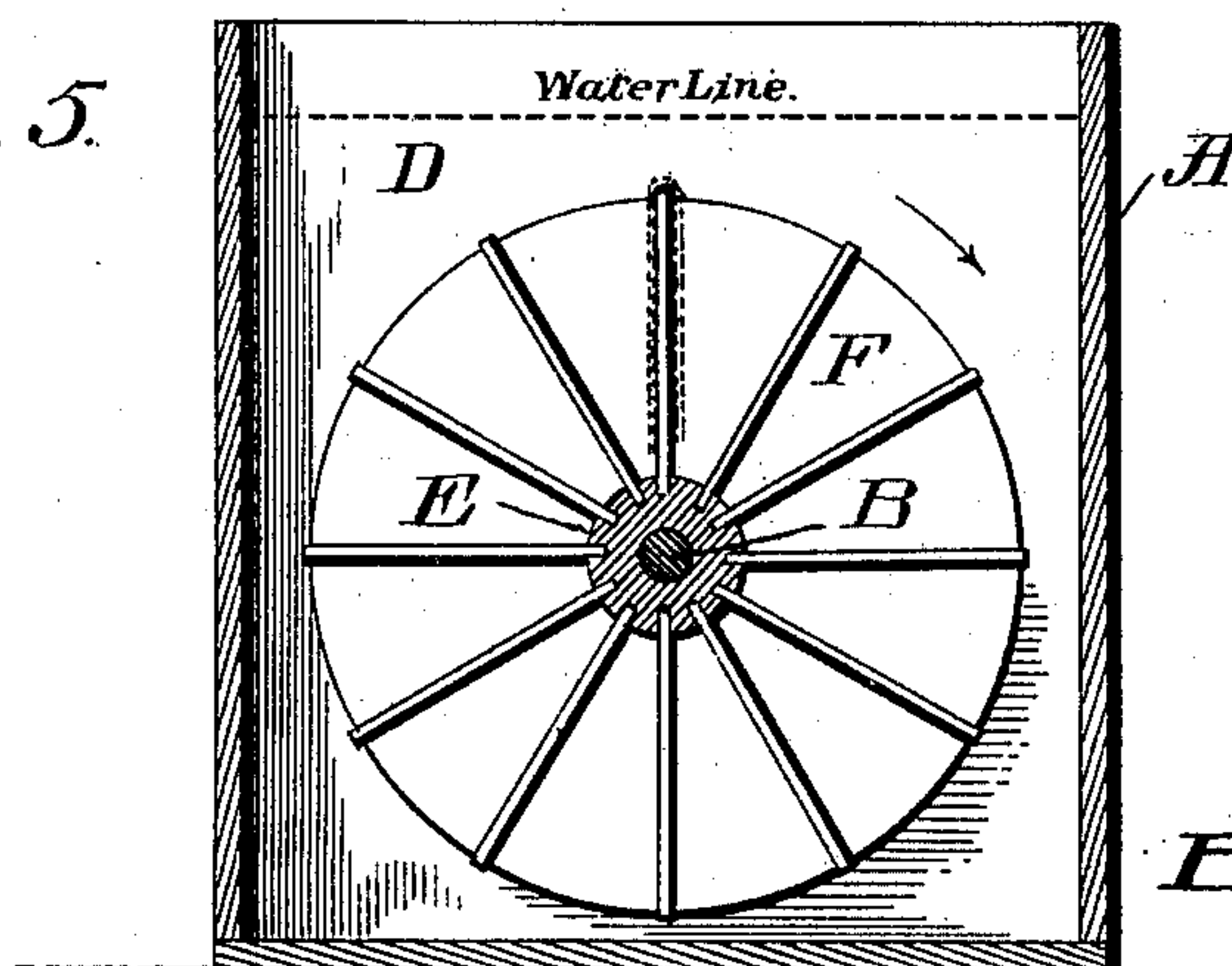


Fig. 5.



Witnesses

Geo. A. Byrne.
Stephen H. Hinta

Inventor

Bonac Allen, Jr.

By

Wilkinson & Fisher

Attorneys.

UNITED STATES PATENT OFFICE.

BONA ALLEN, JR., OF BUFORD, GEORGIA.

TANNING-WHEEL.

SPECIFICATION forming part of Letters Patent No. 756,553, dated April 5, 1904.

Application filed January 2, 1903. Serial No. 137,520. (No model.)

To all whom it may concern:

Be it known that I, BONA ALLEN, Jr., a citizen of the United States, residing at Buford, in the county of Gwinnett and State of Georgia, have invented certain new and useful Improvements in Tanning-Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in apparatus for tanning hides, skins, and the like, and has for its object to provide a revolvable tanning-wheel which will expose the hides to the uniform action of the tanning liquor and at the same time provide readily-removable supports for the hides.

A further object of my invention is to provide a means for readily emptying and refilling the vats or for transferring the contents of one vat into another for changing the strength of the tanning solution in any of the vats as desired when a number of vats are used together.

To more fully set forth my invention, reference is had to the accompanying drawings, in which—

Figure 1 is a diagrammatic plan view of a plurality of my improved tanning-wheels coupled together and showing means for emptying and filling the vats. Fig. 1^a is a front elevation of the storing-tanks, showing their arrangement relative to the eduction-trough Q. Fig. 2 is a sectional view on the line 2 2 of Fig. 1 looking in the direction of the arrows. Fig. 3 is a transverse vertical section through the vat, one of the end pieces of the wheel being omitted and showing all but one of the hide-supporting frames in end elevation. Fig. 4 is a longitudinal vertical section through the wheel, taken on the line 4 4 of Fig. 3, one side of the vat being omitted and showing an operating-pulley J in lieu of the gear-wheel J' of Fig. 1. Fig. 5 is a similar view to Fig. 3, showing a slightly-modified arrangement of the hide-supporting frames.

A represents the vats, adapted to be filled with the tanning liquor up to the water-line. (Indicated in Figs. 3 and 5.)

B is a horizontal shaft mounted in suitable bearings C on the sides of the vat and provided with the usual packing-ring and bushing for preventing the leakage of the liquid in the tank through the apertures through which the shaft passes.

D represents the tanning-wheel and comprises the longitudinally-bored elongated hub E, provided with the circular end plates F, one of which is adapted to be secured to the shaft B in any suitable manner—as, for instance, by a wedge or spline *f*, as shown in Fig. 4.

The hub E is provided with a plurality of longitudinally-disposed grooves or guide-channels *g*, while the end plates F are similarly provided with the grooves or channels *h*, preferably cut on the inside faces of the end plates F in planes out of line with the radial lines of said shaft B; but it is obvious that these grooves may be disposed radially to the shaft B, as illustrated in Fig. 5.

The hide-supporting frames or slides comprise the side pieces G and the end pieces H and are adapted to be readily inserted and withdrawn from the wheel and to be held therein in any suitable manner—as, for instance, by means of the wedges or splines *i*, as illustrated in Fig. 4. The frames are also provided with the cross-slats I, and when the frames are inserted in the wheel the lower side piece G rests in one of the grooves or channels *g* in the hub, while the end pieces H are held in their corresponding grooves or channels *h* in the end plates F of the wheel. A pulley J is preferably mounted upon one end of the shaft B outside of the vat when but an individual vat and wheel are used, by means of which power may be applied to rotate the shaft; but when a plurality of vats and wheels are employed I provide other operating mechanism, hereinafter described, whereby the wheels may be rotated conjointly with or independently of each other.

Upon the slatted frames are hung or stretched the doubled hides or skins to be treated and fastened at their ends thereto by tacks or in any other suitable way, the spaces between the slats I permitting the liquor to circulate freely on the inside of the hides to

prevent their being bulged outwardly at points during their treatment.

It is well known that hides are tanned quicker and more perfectly when they are agitated in the tanning liquor, and by my invention during the rotation of the tanning-wheel, the hides being entirely submerged and hung separately, the action of the liquor will be uniform upon the same and the entire surface of each hide will at all times be fully exposed to the action of the tanning liquor, the objectionable feature of the hides coming in contact or lapping upon each other being entirely eliminated, permitting the hides to be evenly tanned at all points.

In actual practice I can and usually do construct a vat of sufficient dimensions and divided off into compartments to contain a series of tanning-wheels, each compartment containing tanning liquor of different strengths, so that when a fresh pack of hides are put in they are first given the weakest liquor and then the next, and so on until the pack is sufficiently tanned. In order, however, to avoid the necessity of taking the hides out of one vat and placing them in another for treating them with a stronger solution, I prefer to provide means for withdrawing the liquor from any of the compartments independent of the others and refilling said compartment with the liquor of any of the other compartments. It is also preferable that each tanning-wheel be operated independently of the others, and to accomplish these ends I generally adopt the system or construction and arrangement illustrated in Figs. 1 and 2. In this construction the vats are placed end to end in series of two, or, preferably, each vat is sufficiently long to contain two of the wheels and is provided with the central dividing-partition K, having the common bearing C', in which is journaled one end of the shaft B of each of the wheels. For simplicity of illustration, however, in Fig. 1 I have only shown the two central wheels as being thus arranged in series of two; but it is manifest that this arrangement may be adopted for the end vats and wheels of the series also. When thus arranged in series, the gear-wheels J' are substituted for the pulley J of Fig. 4 and mesh with the gear-wheels m', loosely mounted on the shafts M, which are provided with the gears m, fast thereto, meshing with the gears n on shaft N, driven by any suitable means. (Not shown.)

As a means for locking the loose pulleys m' to the shafts M, I have shown the clutches L, operated by the forked levers l, and although I prefer the mechanism above described for rotating the tanning-wheels I do not, of course, restrict myself to this particular mechanism, as any other suitable means may be employed for rotating the tanning-wheels independently of each other—such, for instance, as friction

gearing or belting driven by any suitable source of power.

In order to readily transfer the liquor from one vat to another or for withdrawing the liquor from all of the vats or filling the same, I provide the tank O of a capacity equal to the joint capacity of the several vats, and above the tank O and emptying into the same is preferably arranged a smaller tank o. The smaller tank o communicates with the bottoms of the several vats by means of the trough or pipe Q and the communicating passages q, while the larger tank O similarly communicates with the tops of the several vats by means of the trough or pipe R, passages r, and pipes S, communicating with the pump P. The passages q and r and the opening between the tanks O and o are opened or kept closed by any suitable valves or plugs, (indicated at q', r', and o'.)

When it is desired to replace the liquor of one vat by the liquor in another, the liquor is first drawn off one of the vats into the smaller tank o and allowed to pass into the larger tank O. The liquor in the other vat may then be drawn off into the smaller tank o and there retained, while the liquor from the first vat may be allowed to escape from the tank O or pumped into the second vat, as may be desired, when the liquor from the second vat now in the tank o may be allowed to escape into the tank O and thence pumped into the first vat where it was desired to be transferred.

It is obvious that many modifications might be made without departing from the spirit of my invention; but

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In an apparatus for tanning, the combination with a vat, of a horizontal shaft rotatable therein, vertically-disposed end plates on said shaft, grooves in said plates, detachable hide-supporting frames slidably mounted in said grooves, and means for securing said frames in said grooves.

2. In an apparatus for tanning, the combination with a vat, of a tanning-wheel rotatably mounted therein, comprising a centrally-disposed shaft, end plates on said shaft, grooves formed on the inner face of said end plates and extending inwardly from the periphery thereof, slatted detachable hide-supporting frames slidably mounted in said grooves, and means for securing said frames in said grooves.

3. In an apparatus for tanning, the combination of a vat, a horizontal shaft rotatable therein, vertically-disposed end plates on said shaft, grooves in said plates, slatted detachable hide-supporting frames slidably mounted in said grooves, and means for securing said frames in said grooves.

4. In an apparatus for tanning, the combination with a vat, of a tanning-wheel rotatable

bly mounted therein, comprising a horizontally-mounted shaft, vertically-disposed end plates on said shaft, grooves formed on the inner faces of said end plates and extending inwardly from the periphery thereof, detachable hide-supporting frames slidably mounted in said grooves, and means for securing said frames in said grooves.

5. In an apparatus for tanning, the combination with a vat, of a horizontal shaft rotatable therein, vertically-disposed end plates on said shaft, grooves cut in said end plates in planes out of the radial line with the shaft, detachable hide-supporting frames slidably mounted in said grooves, and means for securing said frames in said grooves.

6. In an apparatus for tanning, the combination with a vat, of a horizontal shaft rotatable therein, a tanning-wheel secured to said shaft, comprising an elongated longitudinally-bored hub provided with vertically-disposed end plates, grooves cut in said hub and disposed longitudinally thereof, grooves cut in said end plates adjacent said hub-grooves, detachable hide-supporting frames slidably mounted in said grooves, and means for securing said frames in said grooves.

7. In an apparatus for tanning, the combination with a vat, of a horizontal shaft rotatable therein, a tanning-wheel secured to said shaft, comprising an elongated longitudinally-bored hub provided with vertically-disposed end plates, longitudinal grooves cut in said hub and disposed angularly to the radial lines of said hub, corresponding angularly-disposed grooves cut in said end plates adjacent said hub-

grooves, detachable hide-supporting frames slidably mounted in said grooves, and means for securing said frames in said grooves.

8. In an apparatus for tanning, the combination with a plurality of vats and tanning-wheels rotatably mounted therein, of means for interchanging the liquor of any two vats, comprising a trough having communicating passages with the bottoms of each of said vats, a second trough having communicating passages with the tops of each of said vats, suitable valves in said communicating passages, a storing-tank connected to said lower trough, a second storing-tank connected to said upper trough, a valve-controlled communicating passage between said tanks, and pumping means for transferring the liquor from said second storing-tank to said upper trough.

9. In an apparatus for tanning, the combination with a plurality of vats arranged in series of two, and means for transferring the liquor of one vat to another, comprising storing-tanks, suitable troughs connecting said storing-tanks with the tops and bottoms of each of said vats; of horizontally-disposed shafts rotatable in each of said vats, tanning-wheels mounted on said shafts; and means for rotating said tanning-wheels conjointly or independently.

In testimony whereof I affix my signature in presence of two witnesses.

BONA ALLEN, JR.

Witnesses:

H. W. CHRISTIAN,
T. CLIFF MAYSON.