

J. D. MARSHALL.

Processes and Apparatus for Softening Hides.

No. 152,908.

Fig: 1

Patented July 14, 1874.

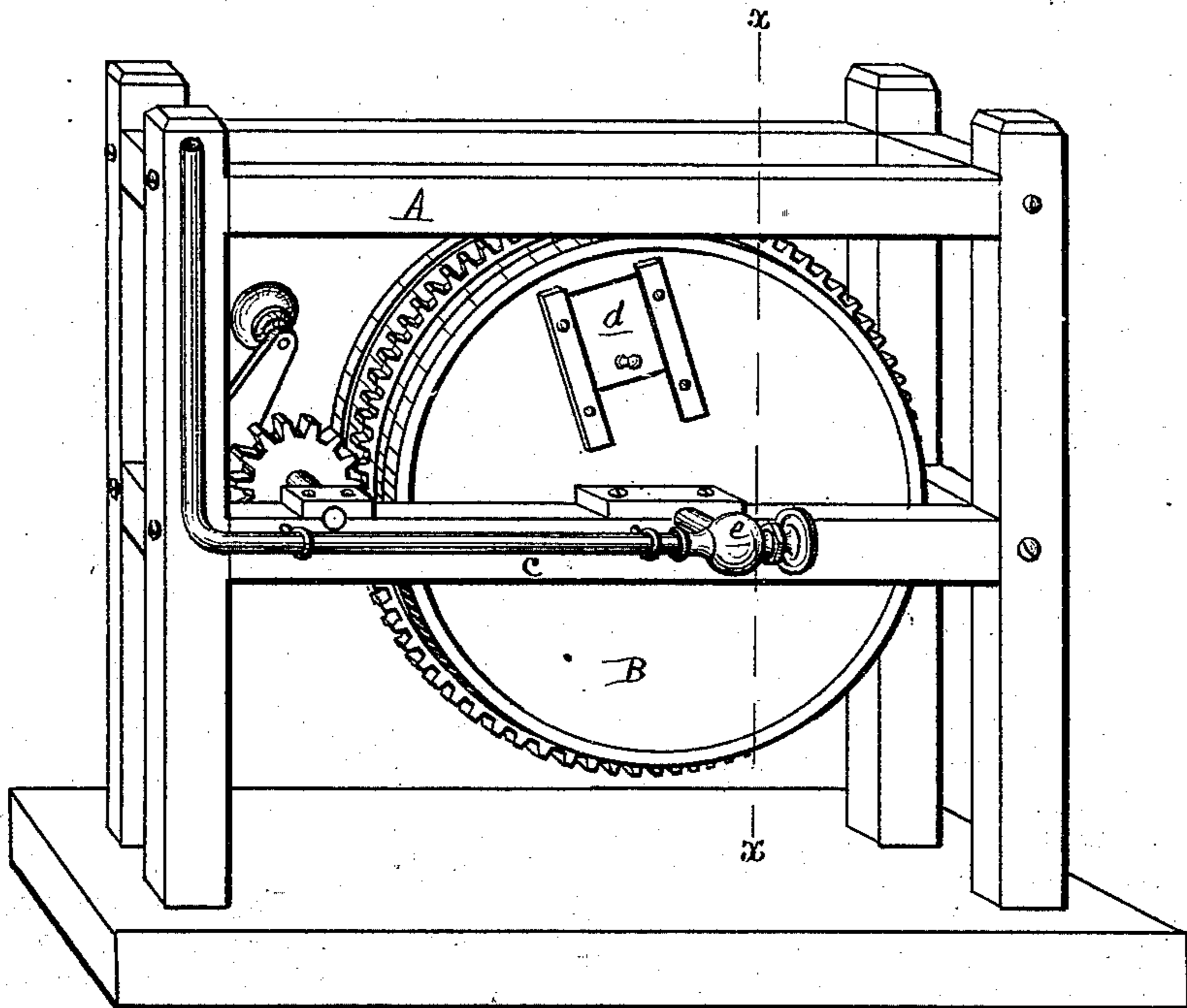


Fig: 3

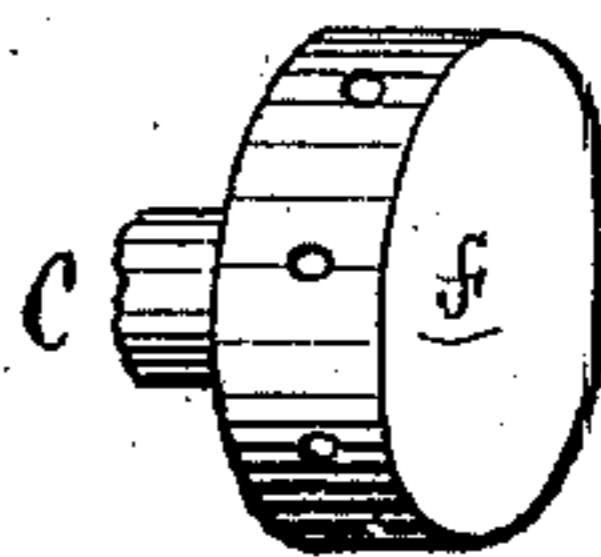
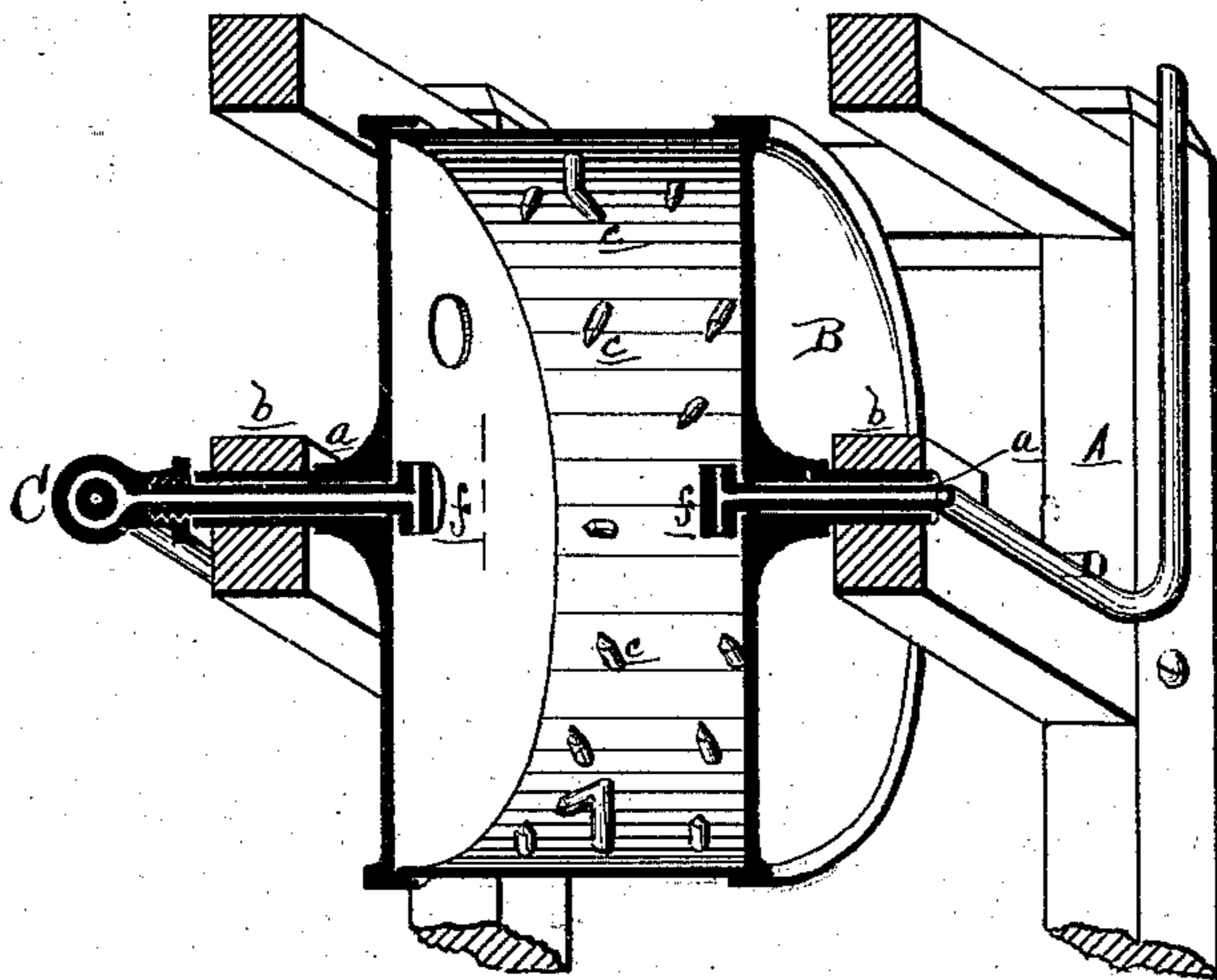


Fig: 2



Attest

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IMPROVEMENT IN THE PROCESSES AND APPARATUS FOR SOFTENING HIDES.

Specification forming part of Letters Patent No. **152,908**, dated July 14, 1874; application filed May 18, 1874.

To all whom it may concern:

Be it known that I, JAMES D. MARSHALL, of Chicago, in the county of Cook and State of Illinois, have invented an Improved Process and Apparatus for Softening Hides, of which the following is a specification:

The nature of my invention relates to a process and apparatus for softening hides preparatory to tanning; and it consists in subjecting the hides, after they have been soaked in water for twenty-four hours, to the action of jets of steam and water in a revolving cylinder of peculiar construction, until the hides will no longer absorb the heated water, when the process is complete, the latter part requiring from thirty to sixty minutes.

Figure 1 is a perspective view of my hide-softening apparatus. Fig. 2 is a sectional perspective view, the plane of the section being indicated at *x x*. Fig. 3 is an enlarged perspective view of one of the trunnion-nozzles used for spraying water or jets of steam into the cylinder.

In the drawing, A represents a frame, in which is hung a metal cylinder, B, its bearings *a a* being hollow trunnions, which are journaled in boxes *b b* of the frame. In the interior of the cylinder blunt studs and hooks, *c*, are arranged about the periphery, to catch and turn over the hides in the rotation of the cylinder. In one end of the cylinder is arranged a tight-fitting sliding door, *d*, through which the hides may be introduced and removed. C is a steam-pipe fitted with a valve, *e*, and entering one of the hollow trunnions. It passes through it into the cylinder, where it is fitted with a spray-nozzle, *f*, drilled with lateral jet-openings. D is a water-pipe, entering in like manner the other trunnion, and terminating in a similar spray-nozzle, *f*. The

cylinder is rotated by a pinion, *g*, mounted on a driving-shaft journaled in the frame, and which meshes with a spur-gear, *g'*, on the periphery of said cylinder.

The hides to be treated are first soaked in water for twenty-four hours, and then split in two for convenience in handling. The cylinder is then warmed to a temperature of 150° Fahrenheit, or thereabout, by blowing steam into it and letting it escape through a plug-hole in the bottom, when the hides are charged in, filling it for about one-fourth its capacity. The plug is then put in, the cylinder set in motion, and the steam and water turned on as long as the hides will continue to absorb water, when they should be shut off, the kneading process requiring from thirty to sixty minutes to soften the hides sufficiently to prepare them for the tanning process.

No more water should be injected than the hides will absorb, it being desirable to dissolve but not to wash out the gelatine contained in them, while the heat softens them and opens the pores to promote the absorption of water.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination, a cylinder, B, provided with studs and hooks *c*, as described, the hollow trunnions *a a*, journaled in the frame A, the steam-pipe C, and water-pipe D, the several parts being constructed, arranged, and operated substantially as described and shown.

2. The method of softening hides by subjecting them simultaneously to the action of steam and water jets in a revolving cylinder, substantially as described.

JAMES D. MARSHALL.

Witnesses:

WM. H. LOTZ,

JOHN C. CHURCH.