

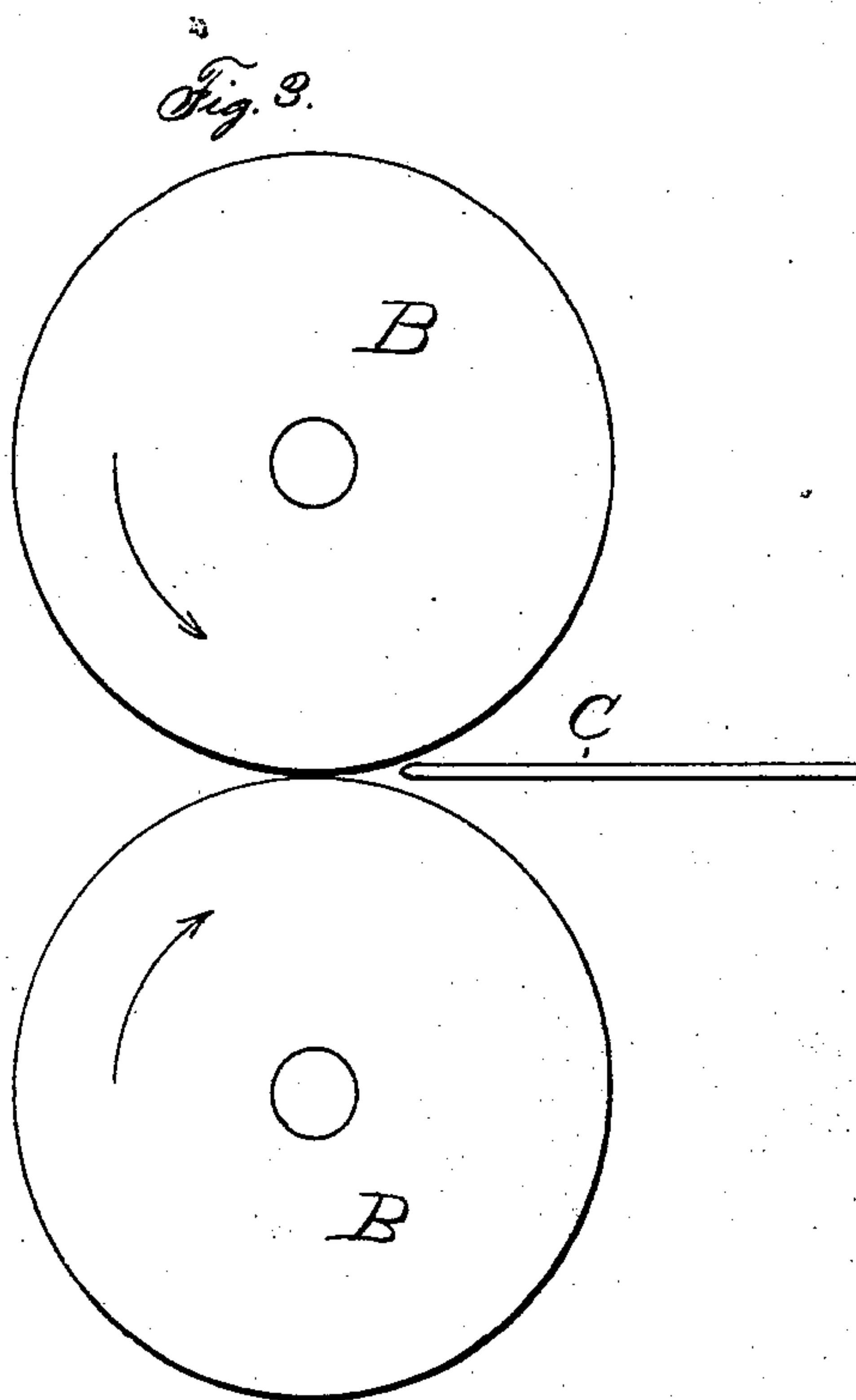
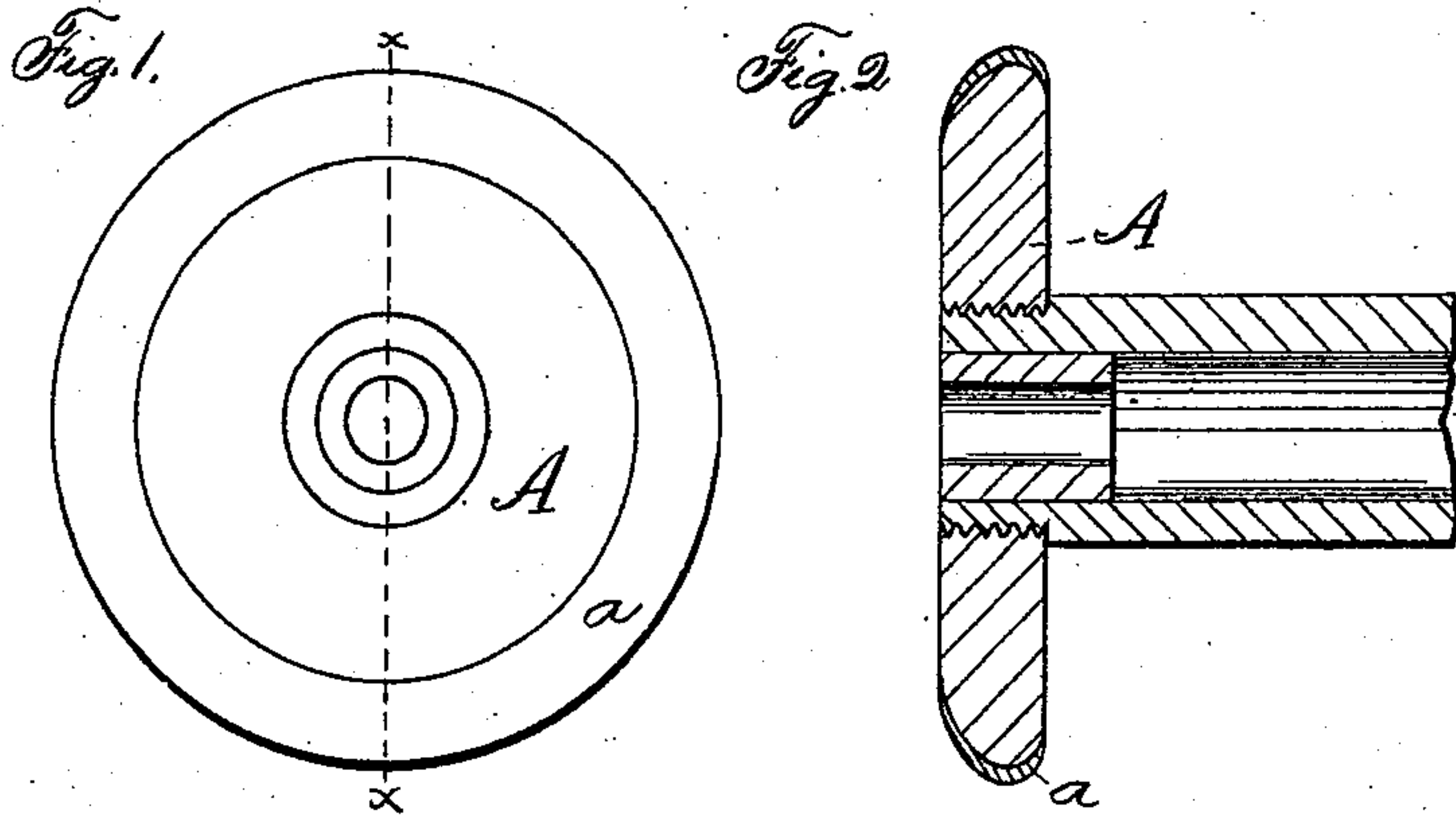
(No Model.)

O. E. WAIT.

PROCESS OF PREPARING RAW HIDE FOR SHAPING.

No. 284,780.

Patented Sept. 11, 1883.



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# UNITED STATES PATENT OFFICE.

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## PROCESS OF PREPARING RAWHIDE FOR SHAPING.

SPECIFICATION forming part of Letters Patent No. 284,780, dated September 11, 1883.

Application filed July 21, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, OSCAR E. WAIT, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in the Process of Preparing Rawhide for Shaping it into or upon Articles of Manufacture; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Heretofore rawhide has been shaped by soaking it soft, placing it in position, and confining it there until dry, or by pressure in heated dies, or by the process patented to F. E. Darrow, dated May 1, 1866, and numbered 54,301.

The objects of my invention are to so prepare the hide that it may readily be applied to spool-heads and other articles, and made to stay in place by simple glue or cement, without the aid of clamps, molds, or other confining mechanism, or so that the hide may be struck up in dies to better advantage than heretofore, producing better work, and also enabling it to be struck into shapes which it was impracticable to strike it into by any prior process; also, to use thinner hides and skivings, such as could not be utilized by any prior process for shaping into or upon articles; and to this end my invention consists in first depriving the moist hide of its elasticity, and then fulling or upsetting it edgewise while still moist.

To carry my invention into effect I take dry hides and soak them in water; or if wet hides, then dry out the water by exposure to the atmosphere until the hide is about as pliable as tanned calf-skin, but not moist enough to prevent thick glue from sticking to it, or to necessitate further drying, nor dry enough to be too hard. As an approximate rule I would say that the hides should contain an amount of water about equal to one-half of their dry weight.

By simply soaking hides in water, or drying wet hides, it is difficult, if not impossible, to get the moisture evenly distributed through-

out the whole hide or whole piece without getting it much too wet. In order to even up the moisture and prepare the hide ready for fulling or upsetting by depriving it of its elasticity, I take the hides cut into convenient pieces to handle, pack them in tight sweating-boxes, and subject to gentle pressure to bring the different layers together. The hides should substantially fill the boxes or be otherwise protected, so as to practically exclude the atmosphere and prevent the edges or other parts of the hides from drying more than the rest, and thereby prevent them from being prepared evenly. The hide is thus left in boxes until it has lost its elasticity, and a corner on being folded over will not straighten up and resume its normal position. Slight fermentation takes place in hides thus packed in sweating-boxes, and the pores are opened by the generation of gas, and the elasticity of the fiber is deadened or lost. When the hide is in the press, it is looked to occasionally to ascertain its condition, and sometimes to change the pieces around to make them sweat more evenly. The time required for thus sweating or preparing the hide so as to deprive it of nearly or quite all of its elasticity varies from one day to one week, according to the condition of the hide and the temperature of the room in which the hide is packed, the shortest time being sufficient in hot weather, especially for soft hides. If desired, instead of cutting the hide into small pieces it may be cut into strips of the whole length of the hide and of the width of the boxes inside, and then folded over in folds of the size of the box in the other direction. I prefer to cut the hides when wet, as they then cut easier; but it is immaterial to my process whether they are cut into pieces or strips when dry or wet. After the hide is thus prepared evenly throughout, it is cut into strips or pieces of the proper size for the use intended, and then fulling or upset by passing it through driving-rollers against some suitable obstruction. As one object of my invention is to prepare hide for covering spool-heads, I will first describe my process as applied to such use.

In the accompanying drawings, Figure 1 is



an end view of a hide-covered spool-head. Fig. 2 is a sectional view of the same on line *x x* of Fig. 1, and Fig. 3 is a vertical section of my upsetting or fulling machine.

5 The hide, after being cut into narrow ribbons or strips large enough to cover the rounded edge of the spool-head A, is shown by the hide *a*, whose edges, when dry, have been turned off smooth in a lathe. These strips are  
10 passed endwise through the rolls B B, Fig. 3, and as the strips are driven along by said rolls they meet the obstructing-bar C, which obstructs their passage, and causes sufficient resistance to upset the hide and make the strips  
15 both shorter and wider than before, and inasmuch as the moist hide has been deprived of nearly or quite all of its elasticity it will remain in this thickened condition. It is best to make the rollers a little roughened on their  
20 surface, so that they will drive the hide over the obstructing-bar without compressing it too tightly, and in this connection, and in order to better direct about the moistening of the hide, I may add that if it is too wet said rolls will  
25 not hold the hide so as to drive it properly, and if it is too dry it will not upset well. The bar C may be made of spring metal, and set as shown in the drawings, and a stripper may be applied to prevent the strips from being wound  
30 around the rolls. The rolls should also be made yielding to and from each other under the action of a suitable spring or springs. When it is desired to split the hide, the fulling or upsetting can be done by an ordinary  
35 splitting-machine, the knife of which performs the office of an obstructing-bar. A second pair of rolls may also be made to perform the office of said bar, and in order that they may do so without firmly compressing the hide they may  
40 be provided with peripheral points, and be geared to run slower than the feed-rolls, or have their movement retarded by other simple means. Immediately after thus fulling or upsetting the hide the part of the spool-heads to  
45 be covered by the hide is coated with glue, and the strips are stretched over said spool-heads by pulling on the middle portion only of the strips, thereby stretching said middle portion, so that the strips of hide conform to  
50 said spool-head without materially disturbing the edges of the strips, which, having been full or upset, as described, have no tendency to spring away from the spool, but will remain in place thereon without the use of clamps or  
55 molds to confine them in place. When dry, the spool-heads are placed in a lathe and finished in any ordinary manner of finishing rawhide-covered spool-heads. Care should be taken not to stretch the full or upset hide until it is  
60 applied to the spool. All laps in the strip should be carefully glued and neatly made.

For striking up articles—for instance, oil-cups, lamps, or any other article—the pieces are treated in the same way, except that they  
65 are passed both ways through the rollers, so as to full or upset the hide edgewise in two

directions instead of only one, so that all of the edges of the blank piece of hide are gathered, and it is only necessary to stretch the middle portion while being struck up in dies. 70 The pieces may be passed several times through the rolls, giving each piece a quarter turned edgewise after it leaves the machine before inserting it the next time. By the employment of hides prepared for shaping, as before specified, 75 much deeper articles can be successfully struck up, and all articles are believed to retain their shape better and to be struck up more smoothly than heretofore.

Occasionally hides may be found which are 80 very refractory and flinty, so that water may not easily soften them. When this is the case, I soak the hides in a mixture of water, twelve parts, and acetic acid, one part, for two or three days, so as to thoroughly soften them. 85 Then they are drained and placed in ammonia-water—one part carbonate of ammonia to seventy of water—for about twenty-four hours to neutralize the acid. Then dry until they are ready for packing in boxes, as before de- 90 scribed. Other acids may be substituted for acetic acid, if desired, and for the purpose of softening the crust of flinty hides will accomplish the same result.

When short-haired tropical hides are used, 95 they can be soaked with the hair on and afterward the hair shaved off with the thin cuticle, which, on account of its horn-like nature, is worthless for most purposes. This will save liming the hides, and thereby they will con- 100 tain more gelatine, &c.

While I have described many of the steps of the process in detail, some of which are very useful, it will be seen that the principal process consists of only two steps—viz, 105 depriving the pieces of moist hide, evenly throughout, of nearly or quite all of their elasticity, and then fulling or upsetting the same edgewise, ready for shaping. It is also evident that when the hide comes from the compress- 110 ing-boxes it is pliable and in condition to be used for striking up with shallow dies into shallow articles, or for use in covering spools and the like, where clamps or molds are used for holding it in place until dry; but the full- 115 ing or upsetting enables me to dispense with the use of clamps and to better shape the hide into articles by means of dies. Without this second step of fulling or upsetting I get the hide into as good, if not better, condition for 120 working than by prior processes and at little expense.

I claim as my invention—

1. That improvement in the process of preparing rawhide for shaping which consists in 125 depriving it evenly throughout of nearly or quite all of its elasticity, and then upsetting it edgewise, substantially as described, and for the purpose specified.

2. That improvement in the process of pre- 130 paring rawhide for shaping which consists in taking the hides when partly filled with water



and packing them in sweating-boxes under pressure until they lose nearly or quite all of their elasticity, substantially as described, and for the purpose specified.

- 5 3. That improvement in the process of preparing rawhide for shaping which consists in soaking the hide in water and acid, then soaking in a neutralizing-bath, and then, when

partially dried, packing in sweating-boxes under pressure, substantially as described, and 10 for the purpose specified.

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Witnesses:

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