

IMPROVED SHEEP SHEARS.

The engraving shows an improved sheep shears recently patented by Mr. Alfred P. Mann, of Kearney, Neb. The improvement consists of flexible padded casings, connected by a strap, and capable of being bent over the shanks of the shears. The strap is made adjustable so as to adapt it to hands of different sizes. This strap prevents the hand from slipping forward while crowding the shears into wool. It also prevents the shears from being kicked from the hand of the shearer.

The soft pad covering the handles prevents the hands from becoming blistered, and in a great measure prevents the tiring of the hand. The inventor says it enables a shearer to shear from ten to twenty more sheep per day than he can shear with the ordinary shears.

IMPROVED FRUIT EVAPORATOR.

In properly evaporated fruit there is no loss of pleasant or valuable properties, but an actual increase of fruit sugar, from the fact that evaporation is essentially a ripening process, the development of sugar ranging from ten to twenty-five per cent in different fruits, as determined by chemical analysis. By the process of evaporation, properly conducted, in a few hours the juices are quickly matured and the maximum development of sugar secured, and water pure and simple evaporated, the change being analogous to the transition of the grape to the sweeter raisin, or the acid green apple to ripeness, with corresponding delicacy. The cell structure remains unbroken, and the articles, when placed in the rejuvenating bath of fresh water, return to their original form, color, and consistency.

In evaporating cut fruits, such as apples, pears, and peaches, the correct method is to subject them to currents of dry heated air, so as to dry the cut surfaces quickly, preventing discoloration, forming an artificial skin or covering, and hermetically sealing the cells containing acid and starch, which yield glucose or fruit sugar. This principle is demonstrated in nature's laboratory, in the curing of the raisin, fig, and date, which are dried in their natural skins—a process not applicable to cut fruits—in a tropical climate, during the rainless season, by natural, dry, hot air, in the sun; though a crude and slow process, the development of glucose or grape sugar is almost perfect.

The annexed engraving shows a practical, economical, and inexpensive fruit drier made by the American Manufacturing Company. In this evaporator separate currents of dry, heated air, automatically created, pass underneath and diagonally through the trays and then off and over them, carrying the moisture out of the evaporator, without coming in contact with the trays of fruit previously entered, and already in an advanced stage of completion. The greatest heat is concentrated upon each tray or group when it first enters the machine, and each tray or group subsequently entered removes or shoves the previous one forward into a lower temperature. This operation is continued throughout, being rendered perfectly practicable by the inclined, divided evaporating trunk. No steaming, cooking, or retrograde process becomes possible.

We are informed that, so perfect is the active circulation of dry, hot air over, under, and through each line of trays, any tray taken from any portion of the trunk at any time, after being in the evaporator ten minutes, will be found to contain fruit that is perfectly dry on the outside, to sight or touch, although the process of complete evaporation may be but one-quarter or one-half finished.

By this construction a maximum evaporating capacity per square foot of tray surface is secured, and the full benefit of fuel consumed is realized, and there is entire freedom from burning or scorching. A bright characteristic color in the product is secured, and the product is, in every way, perfect and capable of commanding the highest market price.

These evaporators are made in various sizes, adapted to home use or to the more extensive requirements of the fruit-evaporating establishment.

As the quality of evaporated fruit has been improved by the introduction of more perfect apparatus and methods, the market has increased and better prices are commanded.

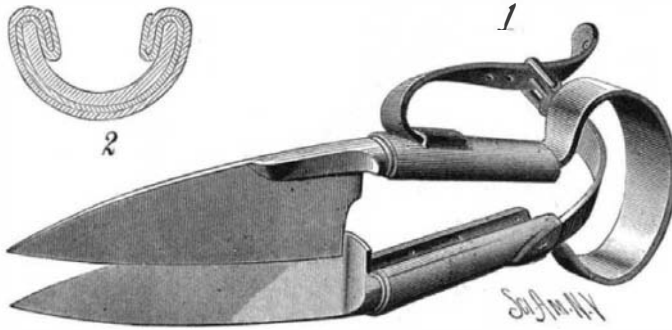
The evaporation of fruits has become a profitable business even to those employing the more costly and extensive

apparatus. The improved evaporator shown in the engraving has all of the advantages of the more complicated and costly apparatus with none of its disadvantages, besides being portable and perfectly adapted to its work.

For further information address the American Manufacturing Company, Waynesboro, Pa.

Stanley in Africa.

The latest published letter from Stanley was written from the general camp of the expedition on the upper Congo, January 16, 1882. The explorer and now pioneer of civilization in Southwest Africa had quite recovered from the ill-

**MANN'S SHEEP SHEARS.**

ness which came so near ending his work last year; and barring the heat, bad water, and the meagerness and monotony of his African diet, he would appear to have nothing to complain of. His party numbers 236, over 200 of whom are Zanzibaris; the rest are West Coast natives and a few whites. Fifty of the Zanzibaris were with him on the expedition across the continent. He describes them as a fine set of fellows, obedient, docile, brave, and hard working. "They will not steal because they are intelligent enough to perceive that this would ruin the peace which we have hitherto kept." Further on he says:

"As for the natives themselves, it would do your heart good to see the crowds that gaze at us while we are at work—the perfect confidence they have in us. In the midst of the best governed European capital nowhere could you see so many children in the same limited area as have been seen in my camp to-day. Not one grown person had a gun, spear, knife, or weapon of any kind within the camp. At the present time I have no cause of discontent with any living person. From the sea to this present camp our life has been peaceful and pleasant, so far as the natives are concerned. They have done much for me and I have done much for them. The first year we had some trouble with the whites, but they were not of my choosing. They were strangers to Africa, and most of them had never been out of their own country. Consequently, one slight fever damaged their African enthusiasm so much that they begged me to send them home. Neither the natives nor the Zanzibaris ever gave me so much trouble as these white men. The misery of spirit I endured in the first year culminated in that sickness. For months I have known neither trouble nor discontent, anguish of spirit, or bodily pain. Instead of looking back we are now looking forward, and this year

certain reticence about the exact nature of his work in Africa, for reasons which most readers will readily understand. He is the agent of companies which have invested large amounts of capital in opening up sections of Africa, and who naturally desire to secure for themselves all the advantages which may accrue from the explorer's labors. In a few months we shall probably hear rather interesting and possibly somewhat startling news from the little camp on the Upper Congo.

New Process for Preserving Iron.

A new process for preserving iron consists in treating the casting with dilute hydrochloric acid, which dissolves a little of the metal and leaves a skin of homogeneous graphite holding well to the iron. The article is then washed in a receiver with hot or cold water, or cooked in steam, so as to remove completely the chloride of iron that has been formed. Finally the piece is allowed to dry in the emptied receiver, and a solution of caoutchouc, gutta-percha, or gum resin in essence of petroleum is injected, and the essence afterward evaporating leaves a hard and solid enamel on the surface of the ironwork. Another plan is to keep the chloride of iron on the metal instead of washing it off, and to plunge the piece into a bath of silicate and borate of soda. Thus is formed a silico-borate of iron very hard and brilliant, which fills the pores of the metal skin. As for the chlorine disengaged, it combines with the soda to form chloride of sodium, which remains in the pickle.

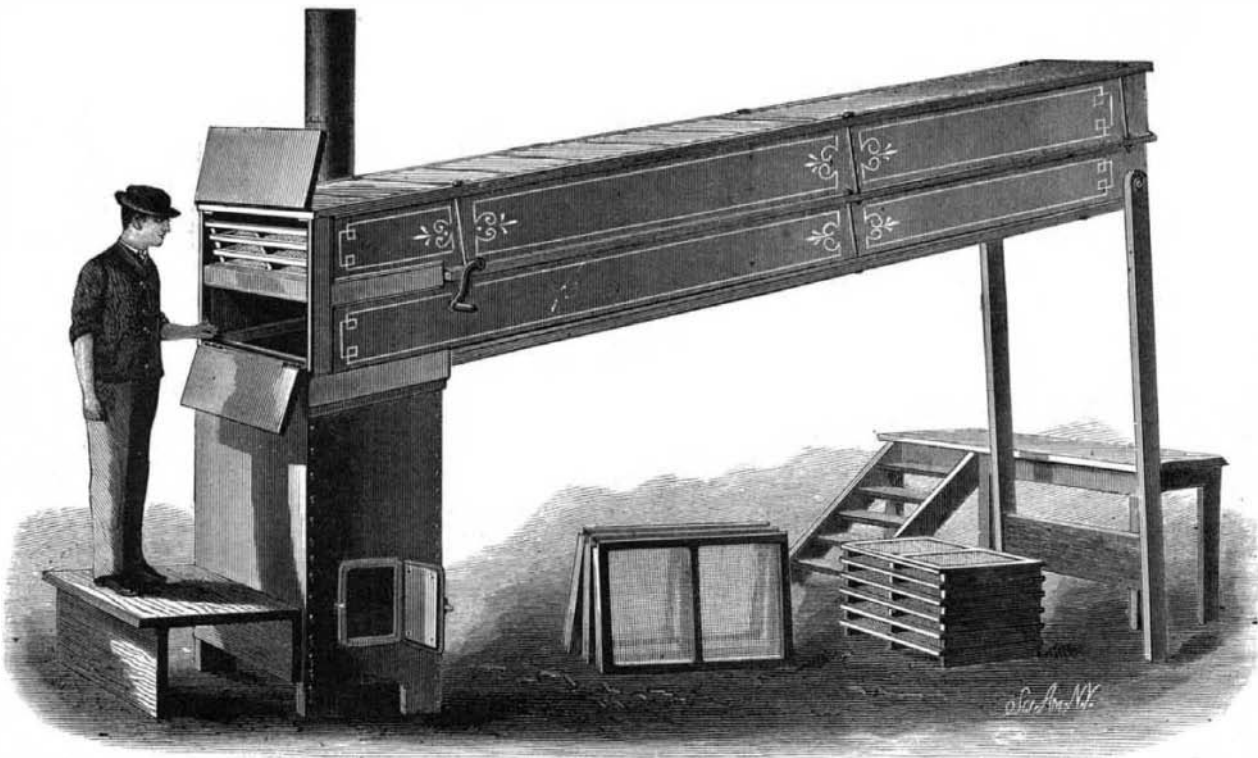
Is the Human Skull Becoming Thinner?

Mr. W. B. Cooper endeavors to show that it is. If, he says, we accept the tenets of evolutionists, a race adapted to certain circumstances will, if these circumstances be altered, become modified in a corresponding degree, and retrogression may result as well as improvement, and this modification may be confined to a certain part or organ. What forces, then, have exerted their influence on the casket of the brain? First, natural selection, in the case of those creatures that engaged in fierce combats, would tend to eliminate those individuals with frail craniums; and, as man comes within the category of belligerent creatures, when barbaric warfare and the dangers of the chase were common occurrences, natural selection would, of course, exercise a powerful influence in maintaining a standard of cranial strength. Then, too, in the presence of repeated violence, adaptation would undoubtedly provide a suitable armor for this delicate and important organ. In civilized man, however—at all events, in the higher grades of modern civilization—natural selection may be said to exert no influence in that direction; war is too infrequent and engages too small a portion of mankind, while the forces with which it deals are of a nature to alter the whole aspects of the case. And while adaptation undoubtedly operates upon other portions of the frame to maintain their rigidity, it is rarely that the skull is called upon to support any greater pressure than that exerted by the head gear. It is not to be overlooked that among semi-civilized people the head is often made to support considerable weights, and, except where rigid rules prevent intermarriage of classes, the joint action

of adaptation and heredity disseminate the effects of this custom throughout the community. A blow that would shatter a European skull falls harmless on that of a negro. There probably never was a time in the history of the world when the skull was subjected to so little violence as since the introduction of modern methods of transportation; and, when we recall the fact that it was but a few centuries ago that the more advanced nations of the present day were barbaric, it is too soon to look for any great change. Yet it is not uncommon to hear of cases of the fracture of the skull which are ascribed to its unusual thinness. May not these be the results of the co-operation of the agencies referred to?

If the force of the position assumed by Mr. Cooper is accepted, the logical conclusion is that we are approaching a time when the human cranium will become much thinner—

so delicate, in fact, that it will be easily fractured; we may then, he thinks, expect a revival of natural selection, and an increase of cases of death from violence to the head.

**THE AMERICAN FRUIT EVAPORATOR.**

will, I hope, see the labor accomplished which I had agreed to undertake. The worst of it is over, thank Heaven!"

This letter was written to the Paris correspondent of the Boston Journal, who remarks that Mr. Stanley maintains a