

**THE GIBBON IN THE BERLIN ZOOLOGICAL GARDEN.**

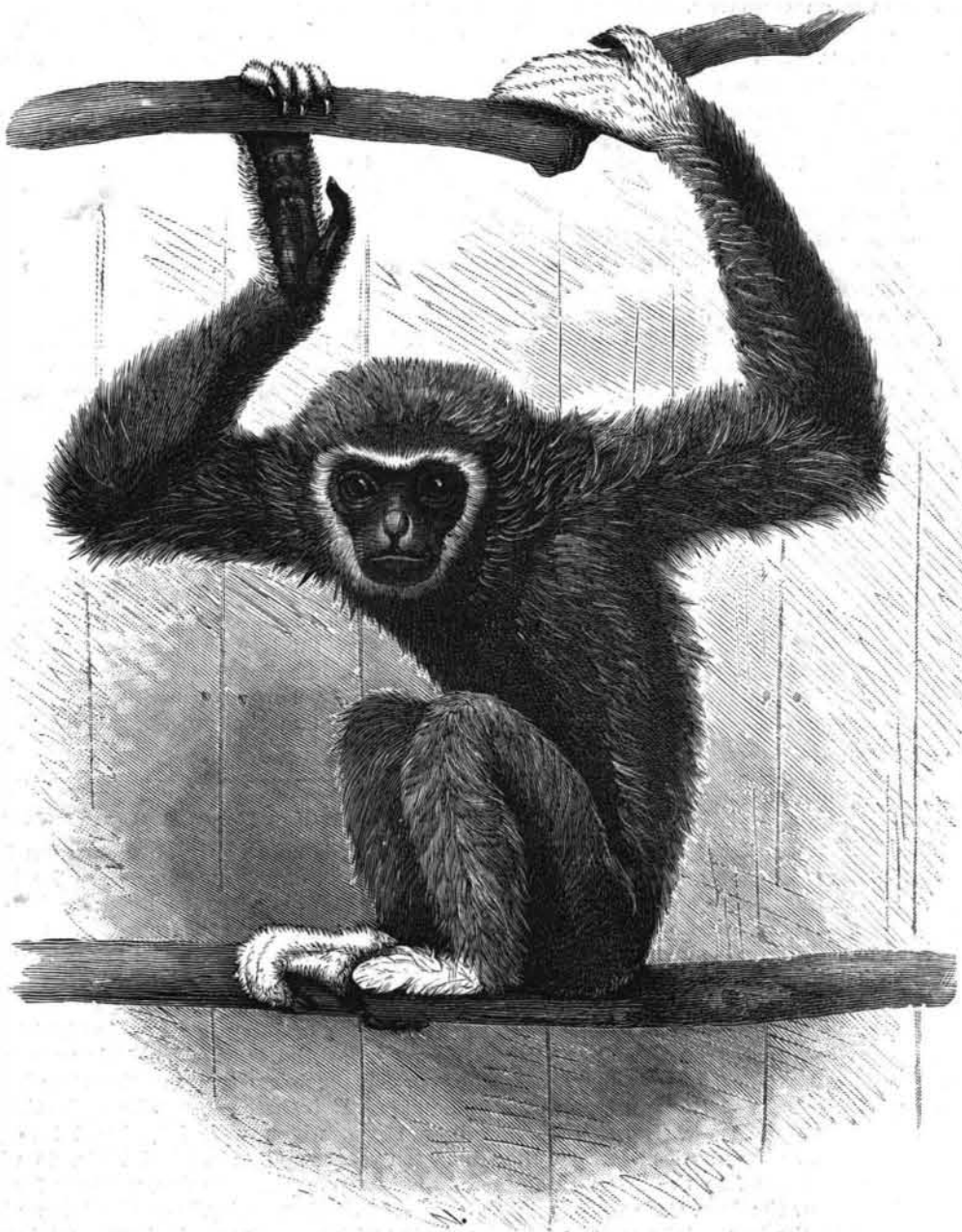
The long-armed ape (*Hyllobates lar*), shown in the accompanying cut, is considered the best representative of the anthropomorphic apes, on account of the finely shaped, human-like head, the lack of a tail, the prominent forehead and jaws, and the nose, which is only slightly flattened; but his upper limbs are very much out of proportion. It is well known that when a man stretches his arms out to their full length, the measure from the tips of the fingers of one hand to the tips of the fingers of the other hand is equal to his height. In the case of the gibbon, this measure is double his height. When his arms are allowed to hang, they reach the ground. This ape has been rightly called "a dwarf among anthropoids." His greatest height is about 2 ft. and 3 in., while other members of this species, such as the gorilla, orang-outang, and the chimpanzee, are considerably larger. The long white hands and the frame of light hair around the face are characteristic features of this animal.

The gibbon is the only one of the anthropomorphic apes which is capable of walking upright without any support, but his gait is very peculiar, his body swinging back and forth, and his arms being extended like balancing poles. The limbs of this animal show to their best advantage when he is in his element, that is, in the trees. His movements are light and elastic as he swings rapidly from branch to branch, making graceful curves, and he flies from one tree to another without apparent exertion. Brehm called the gibbon a "bird in an ape's shape," and "the best rope dancer under the sun."

The home of the gibbon is Farther India. Once caught, he soon becomes tame, and delights his keeper by his affectionate and trusting disposition. An explorer tells of the extraordinary love of the mother gibbon for her young, and, speaking of her care for them, he says:

"I have often seen the mother take her children to the water, and, not allowing herself to be disturbed by their cries, wash their faces so clean that many a human child might envy the young ape the care it received."

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The apparatus operates as follows: The beets make their exit from the washer all covered with water (and often, too, with bits of earth that have not been removed by the washing), and fall into the wiping conveyer. The object of the latter is to remove from them, during their travel to the hopper of the weighing machine, all the water and mud that covers them.

Without this drying and cleaning, the valueless material would be weighed, and pay the same rate of tax as the saccharine material.

The beets enter the conveyer on the upper surface of the rollers, and here are quickly caught by the bristles of the brushes, and are revolved and rubbed by each brush in turn from the moment they enter until they drop into the hopper of the scales. The motion of the roots is continuous. They revolve between each pair of brushes isolatedly, pulled forward by the brush in front and backward by the one behind. In such a situation, they pivot upon themselves and present every portion of their surface to the friction of the brushes.

The roots that follow fall against those that are pivoting between the two brushes, and free them from the hind brush, while the one in front carries them further along. The same operation is effected between each succeeding pair of brushes, in a continuous, regular, and rapid manner. The beets undergo a vigorous rubbing from the bristling rollers, from the moment they enter until they make their exit from the conveyer.

When the roots have reached the end of their journey, they are both dry and clean, and are then fit to be presented for taxation. The apparatus is capable of cleaning from 33,000 to 44,000 pounds of roots per day.

The next apparatus that we shall mention is an automatic weighing machine for use in sugar works. The administration of indirect taxes now levies his tax upon the raw beet, instead of, as formerly, upon the sugar as it comes from the manufactory.

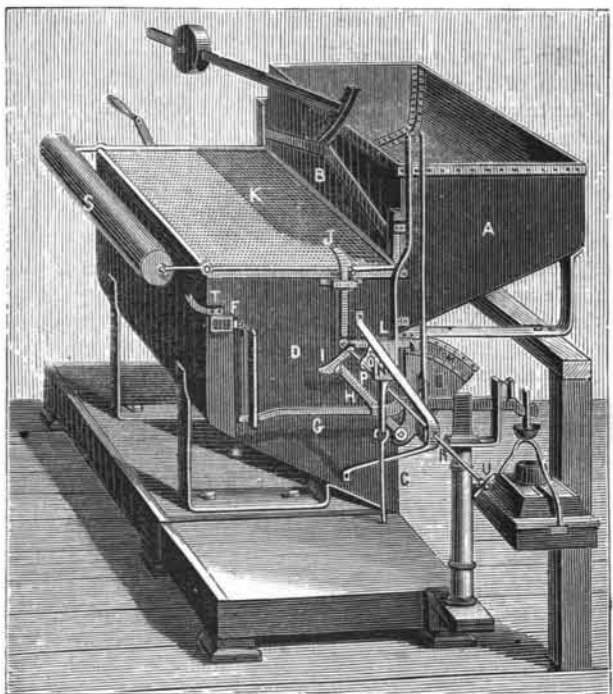
It is therefore necessary for the administration and the manufacturer to use great care in the important operation of weighing. Both parties have to take great precautions to prevent causes of error, and sometimes possible frauds, in the taking of weights and in the verification made by each. Every detail has been foreseen with remarkable minuteness by the law. It has become necessary to devise scales that shall make the mind of the administration easy, and at the same time satisfy the sugar manufacturer. Such apparatus have to satisfy very many conditions in order to be accepted by the administration, and at the same time have to be relatively simple, in order that they may be applied with facility and without any stoppage in their operation.

The apparatus under consideration is one of the best of its kind, and one of the least complex, considering the diversity of the uses required of it. According to law, a weighing apparatus must close the door upon the arrival of new beets when the scale box is full, and

**NEW PROCESSES IN THE MANUFACTURE OF BEET SUGAR.**

Among the new apparatus that have recently been devised for use in the manufacture of sugar from beet roots, there are some that are sufficiently original to be described to our readers.

In this industry, it is necessary, in the first place, to weigh the beets, and this is one of the most important of the new operations, since the tax is based upon the

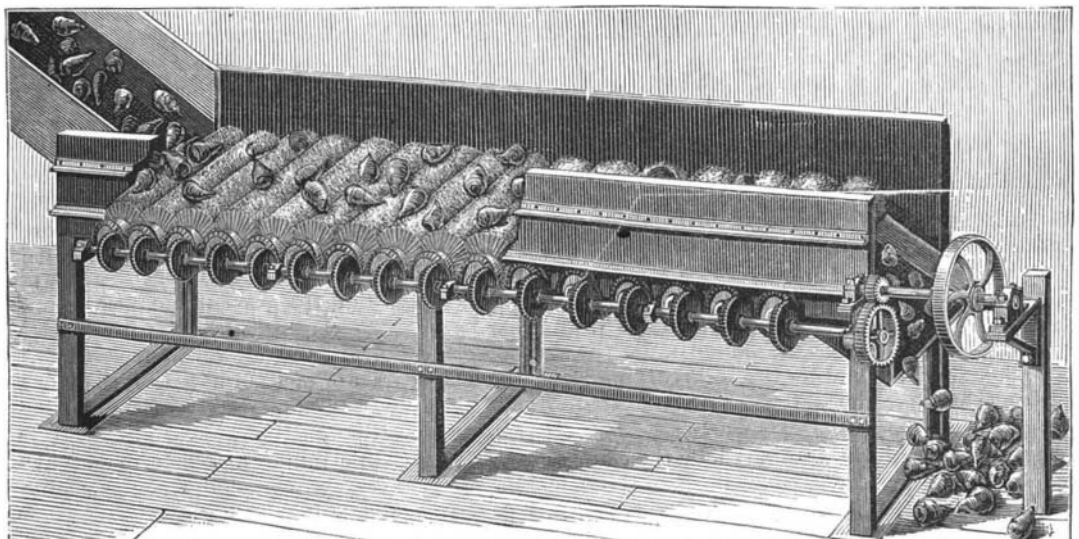


**Fig. 2.—AUTOMATIC MACHINE FOR WEIGHING BEETS.**

gross weight of the roots, and is very high. It is important, then, to weigh only the clean material, that contains only the sugar, and to get rid of all extraneous matter, such as water, earth, gravel, etc.

The apparatus shown in Fig. 1 effects this object perfectly, as has been proved in practice. It is called by its inventor a revolving-brush wiping and conveying machine. The apparatus consists of parallel cylindrical brushes revolving in the same direction. These brushes are composed of pissava, whalebone, or steel wire.

Their core consists of a wooden roller keyed to an iron axle. All the brushes are fixed between the two sides of a wrought or cast iron frame, and their journals run in bearings. One of the ends of each of the axles is provided with a bevel wheel, which is actuated by a series of pinions keyed upon a longitudinal shaft. This latter is fixed upon supports at one side of the conveyer, and is connected with the motor through a belt.



**Fig. 1.—MACHINE FOR CLEANING BEETS.**