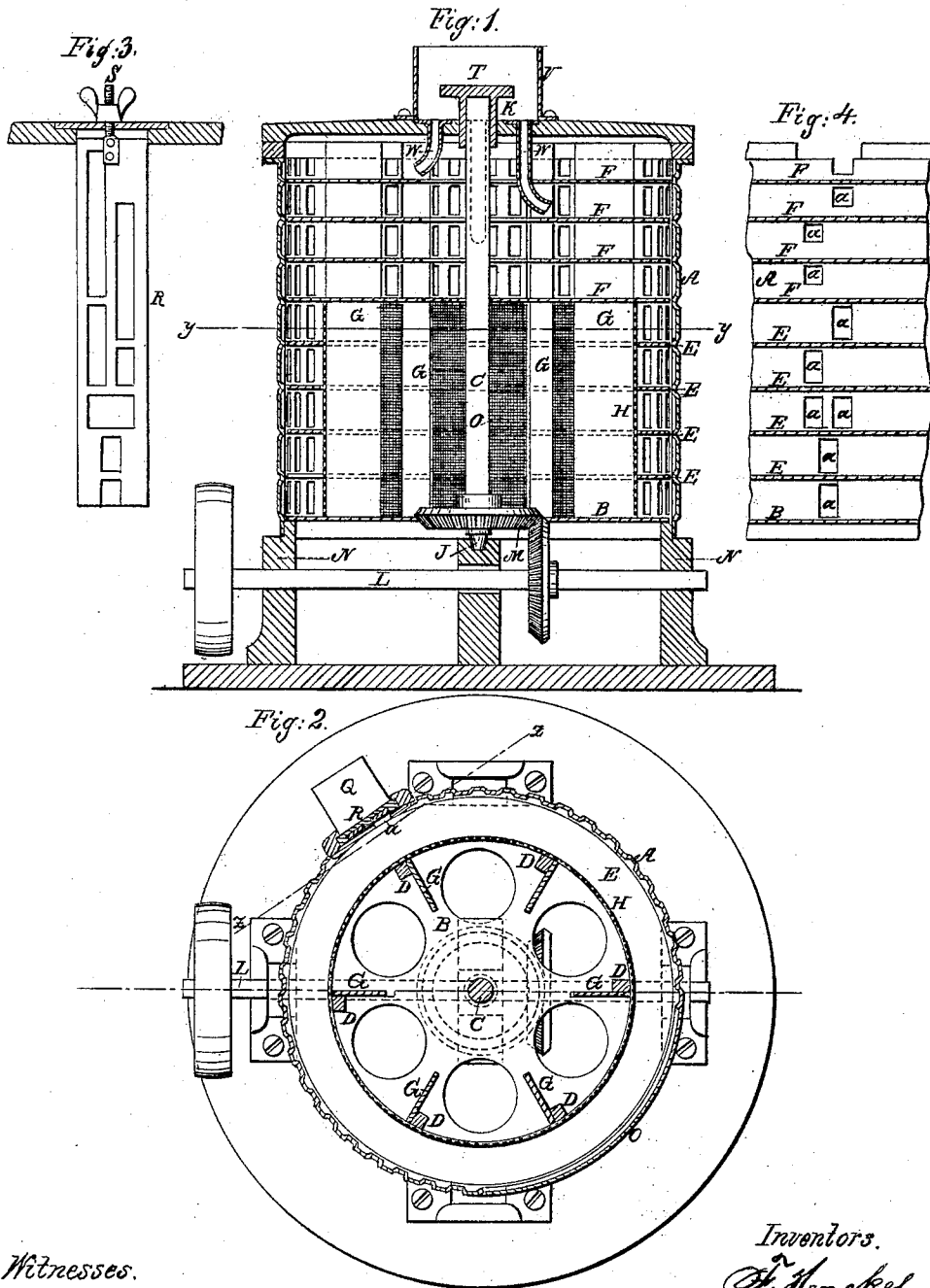


### Hulling Machine.

No. 59,838.

Patented Nov. 20, 1866.



Witnesses.  
J. M. R. Livingston  
Jas. A. Service.

Inventors.  
J. Hengkel  
Wm. Beck  
Der Munnich  
Attorneys.

# United States Patent Office.

## IMPROVEMENT IN GRAIN-HULLING MACHINES.

F. HENCKEL AND WILHELM SECK, OF MUNICH, BAVARIA.

*Letters Patent No. 59,838, dated November 20, 1866.*

### SPECIFICATION.

#### TO ALL WHOM IT MAY CONCERN:

Be it known that we, FREDERICK HENCKEL and WILHELM SECK, of Munich, Bavaria, have invented a new and improved machine for Peeling Grain, and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings forming a part of this specification, in which—

Figure 1 represents a vertical central section of this invention, the plane of section being indicated by the line *x, x*, fig. 2.

Figure 2 is a horizontal section of the same taken in the plane indicated by the line *y, y*, fig. 1.

Figure 3 is a partial vertical section of the same, the line *z, z*, fig. 2, indicating the plane of section.

Figure 4 is a partial inside elevation of the peeling cylinder.

Similar letters of reference indicate like parts.

The object of this invention is to remove the peel from grain by the centrifugal force imparted to the grain; said peel, which consists of fibrous and silicious material, being of no value for nutriment.

The apparatus which we use in carrying out our invention is composed of a cylindrical jacket, A, in which a drum rotates. This drum is formed by one or more plates or stars, B, which are mounted on the vertical shaft, C. From the star, B, extend 6 ribs, D, to which the rings, E, and disks, F, are secured. From said ribs extend, in a radial direction, the fans, G, which, passing up through the entire height of the drum, produce a powerful draught.

To the inside of the rings E, a sieve, H, is secured, which serves to prevent the grain from dropping back into the centre of the drum.

The shaft C, is stepped in a suitable steel socket, J, and it has its bearing above in the metal box, K. Motion is imparted to it by means of a belt stretched over a pulley mounted on the horizontal driving shaft L, which connects with the vertical shaft C, by means of the bevel gear M. The horizontal shaft extends under the drum and it has its bearings in suitable boxes in standards, N, which form the base of the whole apparatus.

The inner surface of the jacket A, is partially corrugated, as shown in fig. 2, and only those parts of the same are left smooth which are opposite the rings E, and disks F, as shown in fig. 1. Between the periphery of the rings and the inner surface of the surrounding jacket, an annular space of one sixteenth of an inch (more or less) is left, so that the drum revolves freely in the jacket. A portion of the jacket is formed by the sieve, O, and in front of this sieve a suitable box will be placed to receive the small fibres which separate from the grain and are driven out of the sieve.

In practice there will be 11 rings and 4 disks to each drum, and by these means 15 terraces or steps are formed, which communicate with each other through a series of holes, *a*, in the jacket, (see figs. 1 and 4,) in such a manner that both the first and second terraces from the top connect with the fifth, the third and fourth with the sixth, the fifth with the seventh, the sixth with the eighth, the seventh with the ninth, the eighth with the tenth, the ninth and tenth with the eleventh, the eleventh with the twelfth, the twelfth with the thirteenth, the thirteenth with the fourteenth, and the fourteenth with the fifteenth, although it must be remarked that this connection can be changed and, in fact, must be changed with the number of terraces. In the drawing only 9 terraces are shown, and the connection is so arranged that the first terrace connects with the third, the third with the fifth, the fifth with the seventh, and the seventh with the ninth, and in the same manner the second with the fourth, the fourth with the sixth, the sixth with the eighth, and the eighth with the ninth, or the connection may be made in any other suitable manner whereby the grain is compelled to pass over the various terraces in a zigzag course.

From the last terrace a spout, Q, serves to carry off the peeled grain. The communication between the several terraces, however, can be regulated by the slide R, an inside elevation of which is shown in fig. 3. This slide is adjustable by means of a screw, S, and it serves to contract or enlarge the channels of communication and to accelerate or retard the peeling process.

The grain is introduced through a centrifugal feeder, T, which is composed of one or more disks mounted on the upper end of the shaft, C, and surrounded by a jacket, V, which is firmly secured to the top or cover of the jacket, A. By the action of the feeder, T, the grain is thrown against the jacket, V, and then it drops down through 4 channels, W, which lead down to the four top terraces.

The operation is as follows: After the drum has attained a circumferential velocity of 2500 feet per min-

ute, the fans produce a powerful current of air, which is sucked in at top and bottom and forced out through the sieve, O. The air in the jacket, A, therefore, is compressed. The grain, after passing through the channels, W, to the terraces, is thrown by the centrifugal force against the inner surface of the jacket. By the combined action of the centrifugal force, of the pressure of the air, of the rolling motion on the corrugated wall of the jacket, and of the friction of the grains or kernels against each other, the wood fibre is gradually separated. On passing the sieve in each revolution the detached fibres are blown out. The four streams of grain unite by the communication channels in two, and in this state they pass the succeeding terraces. In each terrace the same process takes place as on the first four terraces. The peeled grains pass off through the spout, Q.

It is obvious that this apparatus can be made with more or less terraces than above specified, and the grain can be separated in a larger or smaller number of currents, or it can be passed through the apparatus in a single current passing from one terrace to the other.

The jacket can be made of any suitable material, and the rings F may be supplied on their upper surfaces with oblique wings, which throw the grain against the inner wall of the jacket.

We claim as new, and desire to secure by Letters Patent—

1. The method herein described of separating the grain in two or more currents and uniting the same again, consisting of the centrifugal feeder T, channels W, terraces E, F, jacket A, and apertures *a*, substantially as described.

2. The adjustable slide, R, in combination with the apertures *a*, in the jacket A, and with the several terraces of the revolving drum, when constructed and operating substantially as and for the purpose described.

FREDERICH HENCKEL,  
WILHELM SECK.

Witnesses:

KONRAD KOER,  
LADISLAV VOJAREKE.