No. 764,993. PATENTED JULY 12, 1904.

J. F. DUNLAP.

RICE BRUSHING MACHINE.

APPLICATION FILED DEC. 16, 1901.

NO MODEL.

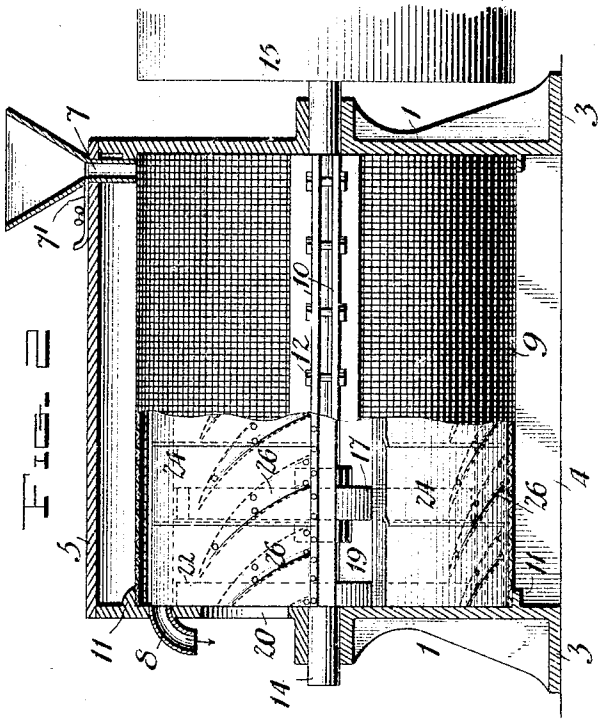


FIG. 2.

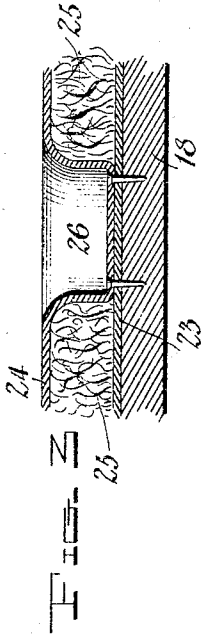


FIG. 3.

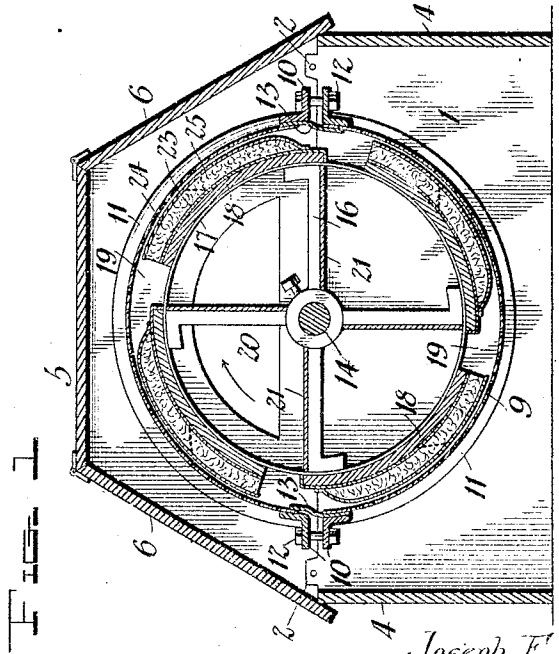


FIG. 1.

Witnesses

Inventor

Joseph F. Dunlap,

By Dudley & Co

His Attorneys

No. 764,993. Patented July 12, 1904.

UNITED STATES PATENT OFFICE.

JOSEPH F. DUNLAP, OF RICEVILLE, LOUISIANA.

RICE-BRUSHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 764,993, dated July 12, 1904.

Application filed December 16, 1901. Serial No. 86,097. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH F. DUNLAP, a citizen of the United States, residing at Riceville, (formerly Dixie P. O.,) in the parish of Vermilion and State of Louisiana, have invented certain new and useful Improvements in Rice-Brushing Machines, of which the following is a specification.

This invention, which relates to grain-brushing machines, contemplates the production of an improved machine of this character designed more especially for use in connection with the cleaning and polishing of rice, the improvements including, among other novel features, means for preventing undue heating of the material during the brushing operation.

The nature of the invention will be readily understood, reference being had to the following detailed description of the construction, operation, and advantages of the machine and to the accompanying drawings, in which—

Figure 1 is a vertical transverse sectional view of a rice-brushing machine embodying the invention. Fig. 2 is a vertical longitudinal sectional view, the screen being shown partly in elevation. Fig. 3 is an enlarged sectional view of a portion of one of the brushes.

Referring to the drawings by numerals, 1 1 denote casing ends each formed of upper and lower sections secured together by means shown at 2 2, the lower sections being each provided with a foot 3, suitably braced.

4 4 designate the casing sides, and 5 is the top, having hinged lids 6 6, affording access to the interior of the casing.

The casing, which is constructed to be dust-tight, has at its top an inlet 7 for the material provided with a regulating-gate 7′, and in the upper section of the opposite end 1 is an outlet 8 for the brushed grain.

Within the casing is a cylindrical screen 9, formed of two upper and lower sections, provided at their edges with strengthening and securing flanges 10 10 and supported from the casing ends by curved flanges 11 11 on the inner side of the latter. Bolts and nuts 12 12 are employed to secure the flanges 10 10 in normally separated relation, thereby permitting adjustment of the screen-sections to and from the brushes, presently to be described, and to close the spaces between the separated edges of the screen-sections there are employed plates 13 13, each having one edge portion secured between a screen edge and a flange 10 and having its free edge portion extending across the opening and contacting with the inner side of the adjacent screen edge. The plates 13 are so disposed as to cause the free edge thereof to extend in the direction of movement of the brushes, thereby avoiding shoulders in the path of the latter. The screen may be made from any material and may have any desired dimensions. If the length of the screen is such as will require more than one piece of fabric in its construction, bands will be employed at the joints to conceal the same and present a smooth surface in the path of the brushes. The orifice of the screen is of the proper fineness to permit only the brushings or "polish" to pass therethrough, the brushings collecting in the casing, from whence they are withdrawn from time to time. 14 denotes a shaft journaled in bearings in the casing ends and having keyed thereon a drive-pulley 15, having belt connection with a source of power. Fixed to the shaft within the screen 9 are a plurality of spiders 16 16, on each of which is secured a rim 17. To the rims are secured longitudinally-extending staves 18 18, of which four are shown, (but this number may be increased or diminished,) and which form a drum, the staves, however, being separated to provide at intervals spaces 19 19, affording communication with the interior of the drum.

One feature of the invention consists in providing means for cooling the rice during the brushing operation. In each of the casing ends 1 is an opening 20 for the admission of air. Secured to the spider-arms are longitudinally-extending fan-blades 21 21, operating when the parts are in motion to create strong currents of air, which are constantly supplied through the inlet 20 and which pass through the spaces 19 19 to the material between the outer side of the drum and the screen and prevent the material from becoming highly heated during the brushing operation. It will be understood that inasmuch as the drum and brushes have a high velocity the tendency

of the material is to become highly heated, owing to the large amount of friction to which it is subjected, and as a high degree of heat is objectionable for many reasons the cooling means just described have been provided. The staves are joined at their ends by circular bands 22, which are secured at the inner side of the staves, and in addition to strengthening the drum they receive the wear due to contact with the casing ends.

On each stave is a brush consisting of an inner strip 23, outer strips 24 24, and an interposed cushion 25. The preferred material of the brush is sheepskin, the parts 23 and 25 being, respectively, the skin and the wool thereon. At intervals in each brush are spirally-arranged grooves 26 26, preferably formed in the following manner: The wool is cut from the skin 23 to form the grooves, and the skin 24 is laid over the wool and tacked or otherwise secured at the cut-away portions, as best shown in Fig. 3. The skin or part 24 is formed in sections or strips arranged transversely of the brush, the strips being overlapped in the direction of the feed of the material, as shown in Fig. 2. The forward edge of the under skin 23 is preferably clear of wool for the distance shown, and the forward edges of the strips 24 are secured at the forward edge of the wool. The rear ends of the strips are unattached and in operation coöperate with the grooves and the cushioned surfaces in brushing and polishing the material.

In practice the screen-sections are properly adjusted with reference to the outer surface of the drum and the machine is set in motion. The gate 7′ is then withdrawn to allow the proper feed of material between the screen and drum, and under the rotation of the latter the material is by centrifugal action carried against the inner surface of the screen and is thoroughly cleaned and polished by the frictional action of the brushes. The material in the movement of the brushes traverses the grooves and is thereby conveyed to the opposite end of the casing, where it discharges through the outlet 8. In its passage the material is subjected to the cooling action of the air-currents passing therethrough, which currents also act to separate the brushings or polish and convey them through the screen into the casing.

I claim as my invention—

1. In a machine of the class described, the combination of a casing, a cylindrical screen therein, a drum within the screen, a plurality of imperforate brushes carried by the drum and each extending longitudinally the full length of the drum and extending transversely to within a short distance of the adjacent brush thereby providing narrow spaces between the brushes for air, spiral feeding-grooves in each brush, and means creating an air-blast through said spaces and through the screen.

2. In a machine of the class described, the combination of a cylindrical screen, a drum carrying circumferential imperforate cushioned brushes at intervals around its periphery, and a plurality of feeding-grooves arranged spirally in each brush said grooves being each contracted toward its rearward end.

3. In a machine of the class described, the combination of a cylindrical screen, a drum, and brushes on the drum each having an under layer of sheet material, an intermediate layer of cushioning material with portions removed to provide spirally-arranged grooves, and an outer flexible layer of sheet material in overlapped sections secured at the forward end and at the grooves and having free rearward ends.

In testimony whereof I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH F. DUNLAP.

Witnesses:
MARTIN H. MANION,
JNO. R. MCMAHON.