To all whom it may concern:

Be it known that I, JOHN T. HUSTON, a citizen of the United States of America, residing at Columbus, in the county of Musco-gee and State of Georgia, have invented certain new and useful Improvements in Hand Peanut Shellers, of which the following is a specification.

My invention relates to a machine for shelling peanuts and the like, which is characterized by the provision of a rotating element, suitable to be turned by hand, which is adapted to carry with it the body of nuts under treatment so as to move them rapidly over the grid or grate having a surface adapted to grind or abrade the shells of the peanuts to weaken them so that they will open and the kernels will be released by friction on the rubbing of the nuts together rather than by a crushing or breaking of the whole shells between the rotor and stator as is the general practice.

It is my purpose more particularly to produce a hand peanut sheller which is quite simple in its structure, readily assembled and repaired, and which is capable of operating efficiently and with large capacity to shell peanuts of different varieties with a minimum breakage of the kernels.

One feature of my invention relates to a novel type of slotted grate or grid which can be formed by stamping from sheet metal, though it may be otherwise produced, and which is characterized by the provision of transverse slots between alternately raised and depressed strips of metal or bars which produce a rough or grinding surface over which the rotating element of the sheller drives the nuts.

A further object of my invention is to simplify the construction and reduce the cost of the rotating element which comprises reversely tapered cones having radial ribs which are secured together at their meeting faces and which are provided with integral cast bearing journals. The rotor element is similar to that claimed in a companion application filed of even date herewith, Serial No. 297,605.

A further object of my invention is to simplify the means for regulating the feed of peanuts into the grinding portion of the machine so that the grinding pressure on the nuts, the quantity of output and the load on the machine may all be suitably regulated in a very simple manner to obtain the best operating results.

A further object is to provide a means for attaching the grid or grate so that it can be readily removed and a different one replaced in adapting the machine for handling different varieties and sizes of peanuts.

A still further object is the provision of means for securing the machine in position on the edge of a receptacle adapted to receive the discharge therefrom.

My invention also comprises the various novel details of construction and arrangements of parts, which in their preferred embodiment only are illustrated in the accompanying drawings which form a part of this specification, and in which:

Fig. 1 is an elevational view of the improved machine secured on the wall of a receptacle for receiving the discharge therefrom.

Fig. 2 is a vertical sectional view there-through on the line 2—2 showing one rotor disk in front elevation.

Fig. 3 is a plan view of the machine.

Fig. 4 is a horizontal sectional view there-through on the line 4—4 of Fig. 1.

Fig. 5 is a view partly in section and partly in elevation of an enlarged type of sheller with a modified arrangement of rotor.

Fig. 6 is a detail view in front elevation of the bearing plate showing one clamp in operating position.

Similar reference numerals refer to similar parts throughout the drawings.

I have illustrated my invention as embodied in a hand operated peanut sheller comprising a hopper body formed of side walls 10 and end walls 11 suitably connected at their meeting edges. The side walls 10 have a semi-circular bottom end 12 which extends below the plane of the bottom edges of the end walls 11. A metallic grate or grid 13 is drawn snugly against the peripheries of the
semi-circular bottom extensions 12 and has its ends disposed in countersunk seats in the inside faces of the end walls 11 and held between said wall 11 and the adjacent edges of the side walls 10. One end of the grate is detachably secured to one end wall 11 by a bolt 14 passing through the wall and through an opening 15 in the plate, while the other end of the plate is detachably secured to the other end wall by a feed regulating screw 16 passed through an opening 17 in the plate and projecting into the hopper body substantially centrally and transversely thereof. The feed regulating screw 16 is threaded in a bearing plate 18 secured to the outer face of the end wall 11.

The grate 13, in its preferred embodiment, is formed by a metal plate having slots or transverse apertures 19 therein for the discharge from the shelling concave of the kernels and fractured hulls, the slots being preferably arranged in two circumferential series. The slots of each series are elongated transversely of the grate and stop short of the ends and the middle wall thereof. The strips or bars between the adjacent apertures of each series are disposed alternately in different planes by either or both being bent or displaced from the plane of the plate and they thus present an irregular grinding or grating surface over which the body of nuts under treatment are driven by the instrumentality hereinafter described. The raised bars are indicated at 20 and the interposed lower or depressed bars at 21.

This rough grating or abrading surface of the plate 13 may be obtained by other deformations of its working surface and the plate itself is detachably secured so that it can be readily removed and a plate having apertures of a different size substituted so as to adapt the machine for different grades and sizes of hulls in the stock to be shelled.

The rotor or cylinder for driving the peanuts over the grate and causing a frictional abrasion of their shells which will cause them to open and free the kernels, comprises in the machine illustrated in Figs. 1 to 4 two frusto-conical disks having flat central plane surfaces 22 and annular marginal inclined surfaces 23 provided with radially arranged spaced ribs 24 which disappear at the outer edge of the surface 23. The surfaces 22 are provided with interlocking annular flanges 25 and 26 which center the assembled disks and bring the shaft portions cast integral with each disk into axial alignment. One disk of each pair is cast with a shaft member 27 which is reduced to form a stop shoulder 28 which turns against the inner surface of a side wall 10. The reduced end 29 of this shaft passes through a hole 30 in a side wall 10 and turns in a bearing plate 31 attached to the outer face of said side wall. The other disk is cast integral with a shaft member 27 having a shoulder 28, as above described, but the reduced end 32 of this shaft member extends through the adjacent side wall and the bearing plate 33 attached to its outer face, and is provided at its exposed end with a square extension 34 having a screw 35 cast in its outer end. A socket in the crank 36 will fit on the square extension 34 and be held in place by a nut engaged with the screw 35.

The bearing plate 33 is provided with lateral wings 37 on each side which terminate approximately halfway between the shaft center and the end walls of the casing in upturned extensions 38. These extensions 38 at their upper ends are provided with notches 39 which receive upper tips 40 on a pair of U-shaped clamp brackets 41. These brackets at an intermediate point 42 are enlarged and provided with a hole through which a bolt 43 passes and receives a wing nut 44 which engages the clamp bracket and forces the latter at its upper end against the extension 38 and at its lower end against the side wall of the box or container 45, (see Fig. 1) the inner face of which is engaged by the adjacent side wall 10 of the casing. The heads of the bolts 43 are countersunk in the inner face of the adjacent wall 10 and they also receive nuts 46, disposed under the clamp brackets, which serve to secure the bearing plate 37 to the casing. By this arrangement the screw bolts 43 serve the double function of attaching the bearing plate and holding the clamp.

In Fig. 5 a larger capacity sheller is shown which differs from that described in the provision of a single shaft 47 which extends through the casing having its inner reduced end mounted in the bearing plate 31 and its outer end provided with a squared extension 48 for the reception of the crank. On the shaft between the walls 10 I mount four frusto-conical disks, the two outer disks 110 having their concave faces turning adjacent to the walls 10 and made fast on the shaft by set screws 49. The two intermediate disks have their concave faces opposite and I thus provide two circumferential V-shaped channels in the rotor, in which channels are provided radial ribs 50. The construction and arrangement of these disks is not herein claimed as such forms the particular subject matter of my pending application Serial No. 297,008. Each of these circumferential channels will be disposed opposite a circumferential series of the slots 19 in the concave plate 18.

With the machine attached to the sides of a hopper or container for the shelled product falling through the slots 19, a batch of peanuts is placed in the hopper and the rotor is turned so that the mass of hulls collected in the V-shaped circumscribing
grooves or channels in the rotor are caused to turn with the rotor and are driven rapidly across the roughened, abrading surface of the concave which will cause the rapid frictional disintegration of the hulls and cause them to open and release the kernels which will fall through the concave slots 10 into the box or container 45. As shown more clearly in Fig. 3, the feed screw 16 projects into the triangular feed opening of the concave defined by the end portion of the adjacent wall 11 and the rotor disks and may be extended or retracted to vary the amount of hulls permitted to pass therethrough with a given speed of the rotor. Thus the degree of congestion within the grinding space may be varied, to consequently vary the pressure on the hulls, whereby a sufficient pressure may be procured to obtain the rapid frictional liberation of the kernels therefrom, but which will not produce a breakage of said kernels, it being obvious that many conditions may arise when a variation of the feed to procure proper pressure would be necessary, and that this adjustment may be most readily effected in the present machine.

The present embodiment of my invention affords a device which is exceedingly durable in nature and which may be manufactured at a comparatively low cost, the relatively heavy boards 10 and 11 being of wood and forming a strong and rigid body whereby a minimum number of metal parts may be employed. It is however obvious that various changes and modifications of structure may be resorted to without departing in any manner from the spirit of the invention as set forth in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A peanut shelling machine including a concave having a foraminous peripheral wall, a rotor in the concave having a circumferential groove defining a deep annular grinding space which is unrestricted throughout its length, and ribs in the groove to hold and carry with it as it rotates an annular whirl of nuts, the rotor and concave being spaced to prevent any positive crushing action between them on the shells, and adjustable means for varying the feed of material to said arcurate space.

2. A peanut shelling machine including a concave having a foraminous peripheral wall, a grooved rotor rotatable in the concave and defining in conjunction therewith an unobstructed arcurate shelling space substantially triangular in axial cross-section, means for rotating said rotor, means for feeding peanuts to said shelling space, a screw adapted to project into said shelling space to control the feed of peanuts therethrough, and means on the rotor sufficiently spaced from the concave to avoid a direct crushing of the shells, which are adapted to carry around with the rotor an annular whirl of nuts.

3. In a peanut shelling machine, the combination with a rotor, of a foraminous plate forming a concave partly surrounding the rotor and provided with transverse slots, the transverse narrow tongues of metal between the slots being relatively displaced with relation to the rotor to provide a rough internal grinding surface for the concave.

4. In a peanut shelling machine, a wall for the shelling concave formed of a sheet of metal plate adapted to be bent on a curve and provided with two longitudinal parallel spaced rows of laterally elongated transverse slots which are closely associated in each row, and a rotor having a bevelled annular ribbed surface turning in a plane with the rows and in spaced relation thereto.

5. A peanut shelling machine including a concave having a foraminous peripheral wall, a pair of substantially frusto-conical grinding members rotatable in the concave and defining in conjunction therewith an arcurate grinding space substantially triangular in cross-section, means for rotating said grinding members, means for feeding material to said grinding space, and a feed adjusting member slidably passed through one wall of the concave to adjustably project across one side of the grinding space.

6. A peanut shelling machine including a hopper body formed of side walls and end walls, the lower ends of the side walls being projected below the end wall in substantially semi-circular shape to form the side walls of a shelling concave, a foraminous peripheral wall plate for said concave having its end portions engaged between the end walls and the adjacent edge portion of the side walls, a pair of substantially frusto-conical grinding members rotatable in the concave and defining in conjunction therewith an arcurate grinding space substantially triangular in cross-section, means for detachably securing one end of the foraminous plate to one of the end walls, and a feed adjusting screw passed through the other end wall and the other end of the foraminous plate.

7. In a peanut shelling machine, the combination with a rotor, of a foraminous plate forming a concave partly surrounding the rotor and provided with transverse slots arranged in parallel rows and divided by tongues of metal which are displaced relatively and alternately to present a roughened grinding surface.

8. In a peanut shelling machine, a wall for the shelling concave formed of a sheet of metal plate adapted to be bent on a curve and provided with two longitudinal parallel spaced rows of laterally elongated transverse slots.
verse slots which are closely associated in each row, the alternate tongues of metal between said slots being bent inwardly near the center of the tongue to project above the working surface of the plate, as and for the purposes described.

9. In a peanut shelling machine, a rotor formed by a pair of concentric dished elements having opposed annular flattened centers provided on their inner faces with interlocking centering lugs and on their outer faces with integral trunnions.

In testimony whereof I affix my signature.

JOHN THOMAS HUSTON.

Witness:

F. L. McEachern.