(No Model.) 2 Sheets—Sheet 1.

F. PRINZ.

COCKLE MACHINE.

No. 345,725. Patented July 20, 1886.

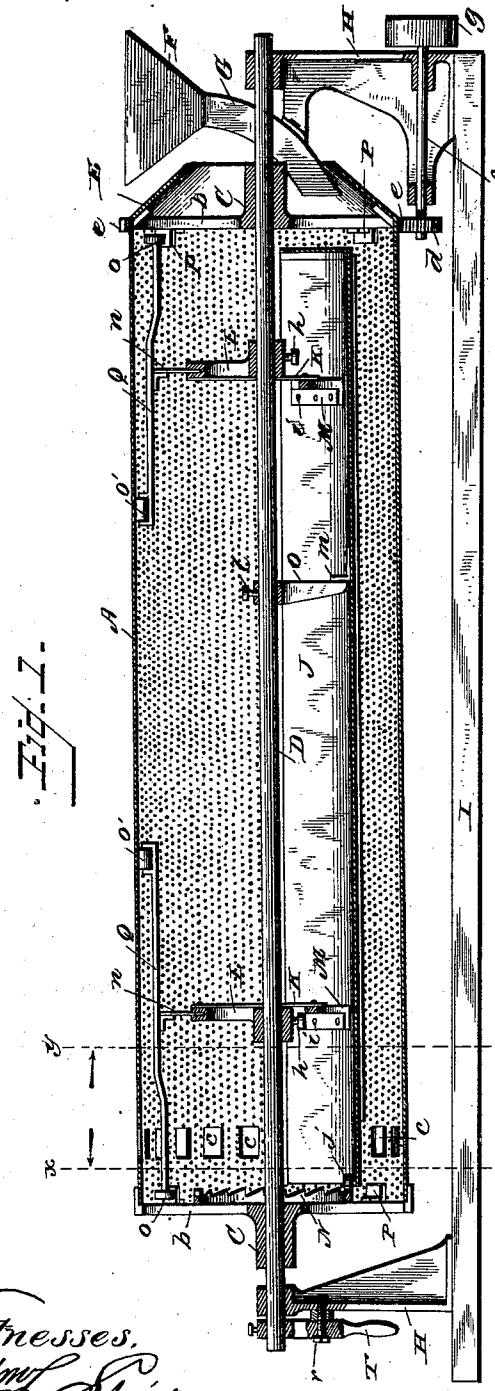


Fig. 1.

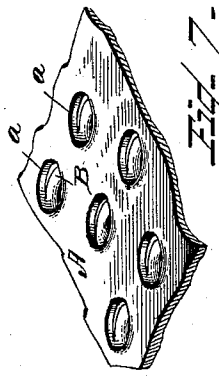


Fig. 7.

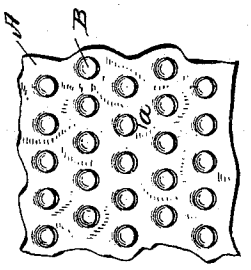


Fig. 6.

Witnesses.
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(No Model.) 2 Sheets—Sheet 2.

F. PRINZ.

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Fig. 3.

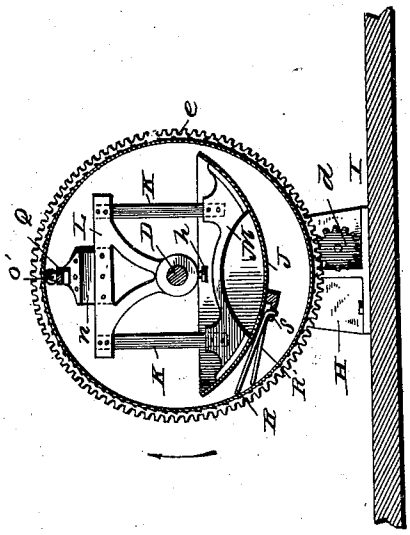


Fig. 5.

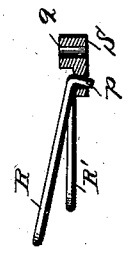


Fig. 2.

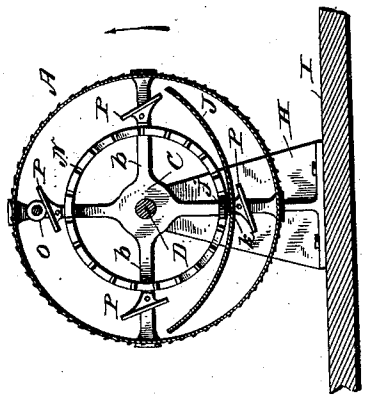
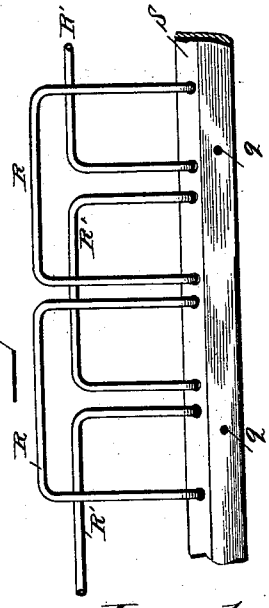


Fig. 4.



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UNITED STATES PATENT OFFICE.

FAUSTIN PRINZ, OF MILWAUKEE, WISCONSIN.

COCKLE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 345,725, dated July 20, 1886.

Application filed November 13, 1885. Serial No. 182,704. (No model.)

To all whom it may concern:

Be it known that I, FAUSTIN PRINZ, a subject of the Emperor of Germany, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Cockle-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to cockle-machines, and has for its object, among other things, to construct the cylinder of malleable or wrought iron or steel, with cut and depressed indentations or cavities on its interior surface, and also to generally improve the construction, with the view of getting better results than have heretofore been attained.

Heretofore the cylinders have generally been constructed of zinc, so that the cavities could be formed by pressing or indenting the metal outwardly. The objections to cylinders thus made are that, being of a comparatively soft metal—zinc—they do not wear well, so far as durability is concerned, and, furthermore, the edges of the cavities are rounding instead of being sharp, and consequently do not take the cockle from the grain or seed as cleanly as is desirable. Wrought or malleable iron and steel cannot be punched to form the cavities, as can zinc, because these metals are not as ductile as the latter, and if the same method of forming the cavities were followed as making them in zinc the metal would break around the cavities and form rough and ragged edges to the cavities. For the above reasons a practical working cockle-machine whose cylinder is made of iron or steel with cut and depressed cavities in its interior surface has never been made and used, to my knowledge, previous to my invention. I have from experiment found that a practical machine of the kind referred to can be made by both cutting and punching the metal to form the cavities. When the metal is cut and punched, the cut portion gives or yields to the pressure, so as to compensate for the lack of ductility in the metal itself, and thus permits the cavity to be formed without breaking the metal and forming a ragged edge. The cut portion also forms a well-defined and sharp edge, which serves well to separate the cockle from the seed.

To the accomplishment of the objects in view the invention consists in the construction, and also in the combination, of parts, hereinafter particularly described, and then sought to be specifically defined by the claims, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a longitudinal section through the machine; Fig. 2, an end view on the line *x x* of Fig. 1, looking in the direction of the arrow; Fig. 3, an end view on the line *y y*, looking in the direction of the arrow. Fig. 4 is a plan view of the extractors, portions of them being broken away; Fig. 5, an end view of two of them, and a section of the bar to which they are hinged; Fig. 6, a plan view of a portion of the cylinder-plate; Fig. 7, a perspective view of a portion of the plate on an enlarged scale.

In the drawings, the letter A designates the cylinder, made of iron or steel, and having a series of cavities, B, formed by cutting the metal with a die or punch, so that when the metal is pressed outwardly it will yield to the pressure without breaking and making ragged the edges which describe the boundaries of the cavities. This method also forms a sharp well-defined edge, *a*, which assists in separating the cockle from the seed. In this way I am enabled to make a cylinder that will wear much longer than one made of a softer metal than iron or steel, and that will more thoroughly do the work required of it. The sharp edges *a* of the cavities will be the lower or rear edges in the revolution of the cylinder in the direction of the arrows seen in Figs. 2 and 3. The cylinder is connected at opposite ends to the arms *b* of the hubs C, which turn on the shaft D, and at the rear end is formed with openings *c*, for the passage of the seed or grain separated from the cockle. The spaces between the arms at both ends of the cylinder are open, and at the receiving or hopper end of the cylinder a funnel or outwardly-converging shield or mouth-piece, E, is connected to the cylinder, so that the seed and cockle fed from the hopper F through spout G will be directed into the cylinder. The shaft D is supported at opposite ends in standards H, connected to a base, I, and the cylinder may

be revolved by any suitable means—say by a pinion, *d*, meshing with teeth *e* on the cylinder and connected to a shaft, *f*, journaled in one of the standards H, and having a pulley, *g*, at one end, to which will fit a belt connecting with some suitable source of power. Within the cylinder there is a trough, J, suspended from the shaft D by means of spring plates or straps K, connected at their upper ends to brackets L, secured, for instance, by set-screws *h* to the shaft D, and connected at their lower ends to brackets M, to which the trough is secured by suitable means—for instance, by bolts *i*. The spring plates or straps K allow the trough to be pushed longitudinally and retract to its first position when the pressure is relieved. The pressure is preferably from the teeth of a ratchet plate or ring, N, secured to the arms *b* of one of the hubs C, so as to press against the end of the trough, and in the revolution of the cylinder vibrate the trough.

For the purpose of reducing friction between the parts and rendering the vibration of the trough easier, I prefer to secure a roller, *j*, by means of a pin, *k*, to the end of the trough, so that the ratchet-teeth will strike against the roller in the revolution of the cylinder. The vibration of the trough feeds the cockle from the feed end of the cylinder to its discharge end, where it passes from the trough to the outside of the cylinder through the end of the latter.

To regulate the throw or limit the extent of the vibration of the trough, an adjustable finger, O, is sleeved to the shaft D, and secured thereto by a set-screw, *l*, and a stud or stop, *m*, is secured to the inside of the trough, so as to strike against the finger, and thus check the movement of the trough. It is obvious that by changing the position of the finger the throw of the trough is controlled.

For the purpose of clearing the cavities from matters collecting therein, brushes may be used on the inside, in the usual way, or knockers may be employed either on the inside or outside, as both methods are commonly practiced. I prefer, however, to use knockers on the inside, and of the construction now to be described. At the two ends of the cylinder are secured—say to the arms *b* of the hubs C—a series of inclined shoes or blocks, P, and to the brackets L are secured, by means of elastic or spring plates or straps *n*, knockers Q, one end of which will lie in the path of the shoes or blocks P and the other end in proximity to the surface of the cylinder, so that when in the revolution of the cylinder the lower end of each shoe is brought into contact with one end of the knocker that end of the knocker will be gradually moved, so as to move the opposite end away from the surface of the cylinder, and then when the shoe or block passes away from contact with the block the tension of the spring plate or strap will cause the other end of the knocker to snap against the cylinder, so as to jar particles from the cavities. Rollers *o* and *o'* are placed on each end of the knockers, so as to lessen friction and wear and tear.

It is obvious that as many knockers may be used as found desirable, and that they may be located at any point desired, although I have illustrated only two, and those as placed directly over the trough, so that the dislodged particles will drop into the trough.

It at times happens that a seed or grain will fit in and project from a cavity, so that a jar alone will not dislodge it. For the purpose of dislodging the grain in such cases, I place within the cylinder a hinged or yielding extractor, which, for instance, may be composed of a series of rods, R, bent to form three sides, as shown, and having bent or hook ends *p*, which will fit loosely into holes formed in a plate or bar, S, which will be secured to the bottom of the trough by means of bolts passed through the raised portion or thickened portion *q* of the bar. A space is thus left between the trough and the thin portion of the bar, so that the extractor will be free to yield or rise and fall as a hinged extractor. The outer or free portion of the extractor will lie quite close to the surface of the cylinder, so as to yield to the movement of the cylinder and catch hold of any projecting grain, so as to withdraw or extract it from the cavity.

Instead of having a single rod extending over the required length of cylinder, I prefer to employ a series of shorter rods, as shown, and in order that the space between the extractors may be covered, so that no grain will escape, I arrange a series of auxiliary extractors, R', so that they will lie across the spaces between the other series, as illustrated in Fig. 4. By such arrangement no grain can escape from being caught by the extractors. The shaft D is held rigid by a lever, T, secured to it and locked to the standard H by a bolt, *r*. This lever serves also as a means for adjusting the trough up or down within the cylinder. This is effected by loosening the bolt and turning the lever, which carries with it the shaft and the trough secured to the shaft, and then tightening the bolt again. One way of adjusting the bolt is to take it out of one hole and set it in another in the arc of adjustment, although only one hole is shown; but I do not restrict myself to any particular means of adjustment. The higher up the trough is set on the working side of the cylinder the less cockle will be taken out; but then what is taken out will be freer from wheat. If the trough be set low on the same side, more cockle will be taken out; but there will at the same time be more wheat in it than when the trough is higher.

The machine is set at an inclination, as shown, and its operation is the same as in cockle-machines generally, except in the particulars pointed out in describing the construction and arrangement of the several parts composing the machine.

Having thus described my invention and set forth its merits, what I claim as new is—

1. A cockle-machine cylinder formed of iron or analogous hard metal, and having portions thereof cut and depressed, such cut and depressed portions forming cavities in the cylinder, substantially as described.

2. The combination of the cylinder, the shaft supporting the same, the brackets secured to the shaft and extending upward therefrom, the elastic straps connected to the upper parts of the brackets, and the trough suspended by said straps, substantially as described.

3. The combination of the cylinder, the shaft passing through the same, the hubs secured to said shaft and provided with the arms connected to the cylinder, the brackets secured to said shaft, the elastic straps depending from said brackets, the trough suspended by said straps, and the ratchet-teeth secured to the arms of one of the hubs, to strike and vibrate the trough in the rotation of the cylinder, substantially as described.

4. The combination of the cylinder, the shaft supporting the same, the trough suspended from the shaft, the finger connected to the shaft, means to vibrate the trough, and the stop attached to the trough to strike against the finger to limit the vibration of the trough, substantially as described.

5. The combination of the cylinder, the shaft supporting the same, the brackets connected to the shaft, the spring strap or plate connected to the brackets, the knocker connected to said strap, and the inclined shoes or blocks connected to the cylinder to strike and snap the knocker against the cylinder in the revolution of the latter, substantially as described.

6. The combination of the cylinder formed with cavities, the trough supported within the cylinder, the perforated bar connected to the trough, and the extractor composed of the rods having hook ends inserted between the trough and bar and passed through the perforations in the bar, substantially as described.

7. The combination of the cylinder formed with cavities, the trough supported within the cylinder, the perforated bar secured to the trough, and the extractors composed of a series of rods having hooked ends fitting in the perforations of said bar, a portion of said rods lying across the other portion to cover the spaces between the several rods, substantially as described.

8. The combination of the rotating cylinder, the shaft supporting the same, the brackets extending above the shaft, the spring-straps secured to the brackets, the trough connected to the straps, the lever connected to the shaft to turn the same, and means for locking the lever, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FAUSTIN PRINZ.

Witnesses:
JOSHUA STARK,
CORNELIUS I. HARING.