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J. D. EMES.

THRESHING SMALL GRAIN.

Patented June 4, 1834.

Fig. 1.

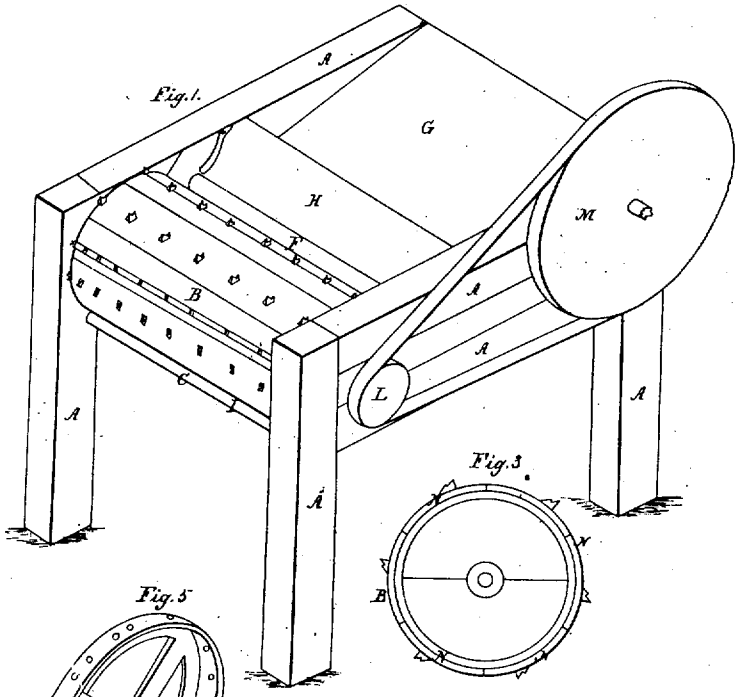


Fig. 3.

Fig. 5.

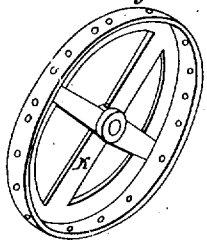


Fig. 2.

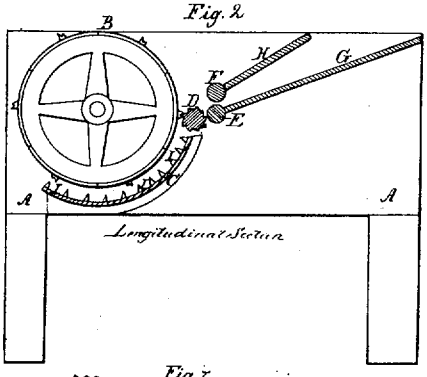


Fig. 4.

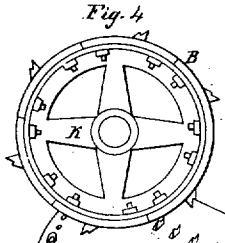


Fig. 6.

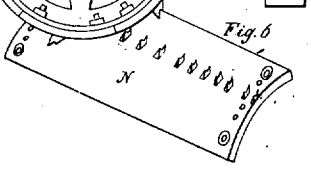
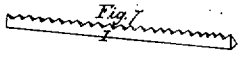


Fig. 7.



THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

June 4. 1834

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James D. Emes

Letters Patent

The Schedule referred to in these Letters Patent and making part of the same, containing a description in the words of the said James Dyer Emes himself of his improvement in the Machine for thrashing all kinds of small grain Rice, and Seeds.

To all to whom these presents shall come.

Be it known that James Dyer Emes of Sansingbury in the County of Rensselaer, in the State of New York, have invented a new and useful improvement in thrashing all kinds of small grain, Rice and Seeds, and that the following is a full and exact description of the construction and operation of the said invention (or the machine) as invented or improved by me. This machine is constructed by a frame, the supporting side pieces of which are about ten inches wide and three inches thick and a corresponding frame of strength sufficient to firmly support the Machinery to be attached, graduated by the size and length of the cylinder, the best proportion of which (the cylinder) is twenty two inches long and in diameter on thirteen inches, but may vary (to produce a good effect) from one foot to three in length, the diameter to be governed & graduated by the length never running above two feet nor sinking below six inches. The cylinder is formed of cast iron, having three heads cast and turned to a perfect circle, these heads having a broad flange from one to two inches wide and about three eighths of an inch thick. Through which holes should be drilled or bosts cast to admit a bolt from three eighths to half an inch in diameter, with a square or round head counter sunk in the bands of the covering or lagging of the cylinder, a fine screw being cut on each bolt to receive a strong nut sufficient to hold the covering or lags of the cylinder which are cast iron, viz. The holes in the flange of each head to be in number

8234X

making in all (if the cylinder is formed with three heads) (which is best) thirty six or if with two heads, twenty four; the heads which will be about ten inches in diameter should be cast. the two end heads (if three are used) about three quarters of an inch in from the End of the cast iron lagging, which should be about three sixteenths of an inch thick with the straps or bands one and a half inch wide, and half inch thick to admit the bolt head four eighths of an inch square or round, and the third head placed in the center, if two heads only are used, they they should be placed upon the cylinder shaft six inches in from the end of the lagging or covering of the cylinder, leaving about ten inches space on the inside between the heads, the straps or bands of the cast iron lagging should in all cases correspond with the heads to which they are to be attached and to prevent the steam and grain from getting into the cylinder when in motion a wooden head about three quarters of an inch thick is to be neatly fitted in flush with the ends of the lagging and confined to them on the shaft by four wood screws in each, entering through holes drilled in the lagging to receive them.— The holes to receive the bolt in the flange of the heads may be tapped after drilling and a screw cut therein to answer in lieu of a nut, but bolts and screws having heavy nuts, on the under side and drawing the lagging firmly to the head is best.— The covering or lags of the cylinder are divided into six equal parts coming together with locked or bevel joints the edges pushing each other from one quarter to half an inch, having a projection from the lagging for a bevel Beater and forming the outer surface and cast solid with it. three quarters of an inch raise more or less and about three quarters of an inch wide at the base having a brace one quarter of an inch thick on face of which beater is grooved ~~one~~ one quarter or half inch deep leaving opposing Mitre edges.— the last edge being lower about one fourth of an inch or one eighth of an inch (in proportion to the diameter of the cylinder) than the back or following edge of each Beater.— Notches being cast or filed diagonally across the Beater beginning at or near the centre of the length of the cylinder to cast or spread the steam from the centre ready to the ends and

return

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return it again to rub the centre by its progress in the operation of thrashing under the cylinder producing the effect of completely husking and dressing the grain.— The different ways in which this beater may be used is thus described, to secure the same operation it may be placed square across, lengthwise of the cylinder in the centre of each lagging or nearly back to its joint, and being so may have; holding the same bevelled surface, points of beaters running diagonally from each extreme end of the cylinder to the centre; on the surface, or from one to two inches from each end to the centre or bevelled from each end running in about two inches having a straight bar in front or running one or two inches more or less from the ends of the cylinder then running in a spiral form found in the lagging and vice versa— Each arrangement being confined to an equal division on the surface of the cylinder— or the cylinder may be cast in bands of equal divisions, and firmly fitted together by bevelled, locked or square joints.— The cylinder when completed should be thoroughfection rollers, and be suspended over a concave for all kinds of grain, and seed excepting flax and broom corn. Here a convex is better.— The cylinder when applied to any power should be so geared as to give from fourteen to twenty hundred revolutions per minute, and set from one quarter to three quarters of an inch from the surface of the concave— The concave is formed first of a single cast or wrought iron roller, from one and a half to two inches in diameter, with grooves bevelled to the centre on one side and square on the other— so that in every turn of it there shall be opposed to the surface of the cylinder a mitre edge with a spiral surface, also a bevelling on one side and square on the other, and contain bags to accomodate the progress of the straw which should be a motion of about, one to five or six of the running surface of the cylinder. This roller is followed to form, continue, and finish, the meanings of slats or bars of wrought or cast iron, made or cast singly or divided, framed or screwed in or otherwise firmly attached to the frame of the machine, the ends of which should be about three inches apart

for

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of an inch or one fourth of an inch from the surface of the roller described and from each following edge of the flats or bars of the concave, and should be continued with a sufficient throat or opening to discharge the threshed straw, throwing up a slow or gradual ascent after it leaves the outer plane surface of the cylinder, these flats or bars are formed of iron cast or wrought about one inch deep and three fourths of an inch wide the surface of each flat or bar being thus made from the first edge to the following a bevel groove should be cut leaving the next entire edge at least three eighths of an inch deep across which should be cut or cast contra diagonal notches, the object of which is to thresh the under side of the straw as turned and operated upon by the motion and surface of the cylinder above it the straw is fed to the cylinder by means of a hopper or pitch board hanging directly between it and running free one or two rollers from three to four inches in diameter, set on the same base line of the centre of the commencement of the concave and driven by leather belts from a sheave or wheel on the end of the cylinder shaft, and like sheaves or wheels on the end of each roller, or from the shaft of the driving wheel— The driving wheel should be about four or five feet in diameter and four inches wide when attached to a portable horse power, directly over the lower feeding roller, above described is placed a pitch board hanging upon a point hinge or swivel to which is attached a free roller moved by nothing but the progress of the straw or unthreshed grain and held upon it by springs sunk in the side pieces of the hopper or feeding box or by spiral springs on the upper side. The cylinder shaft should be made of close strong wrought iron at least one and a half inch square or round the bearings of which should be turned perfectly round and smooth to admit friction bushes seven eighths to one and a half inch to encircle the axle or pivot of the cylinder shaft, which may be made of cast iron with flanges projecting out from the out side of the case two or three inches and half an inch thick through which holes should be drilled to admit bolts to keep the box steady when rising from its stationary position produced by the motion of the cylinder, on the shaft of the

cylinder

Cylinder on the end outside the frame and on the same side with the driving wheel, should be placed a sheave or wheel about six inches in diameter and wide enough to receive a flat leather strap or belt three or four inches wide connected with the driving wheel.—

What is claimed in this improvement is the cast iron cylinder with its fluted Beaters, as described above securing the operation of separating the straw in a shifting position, when under the operation of threshing; also the concave commencing with the Roller described, which may or may not be dispensed with— and the slats or bars as described to continue and finish the concave, and also the feeding motion so far as the two rollers are concerned, together with the free roller in the Pitchboard

Witnesses

Edward A. Cagle

David Delaney

M. H. Kidder

Drawing

James D. Carey

(1807 words)