(12) **United States Patent**
Edgar et al.

(10) **Patent No.: X8862**
(45) **Date of Patent: Jun. 6, 1835**

(54) **THRASHING MACHINE, PORTABLE**

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Letters Patent

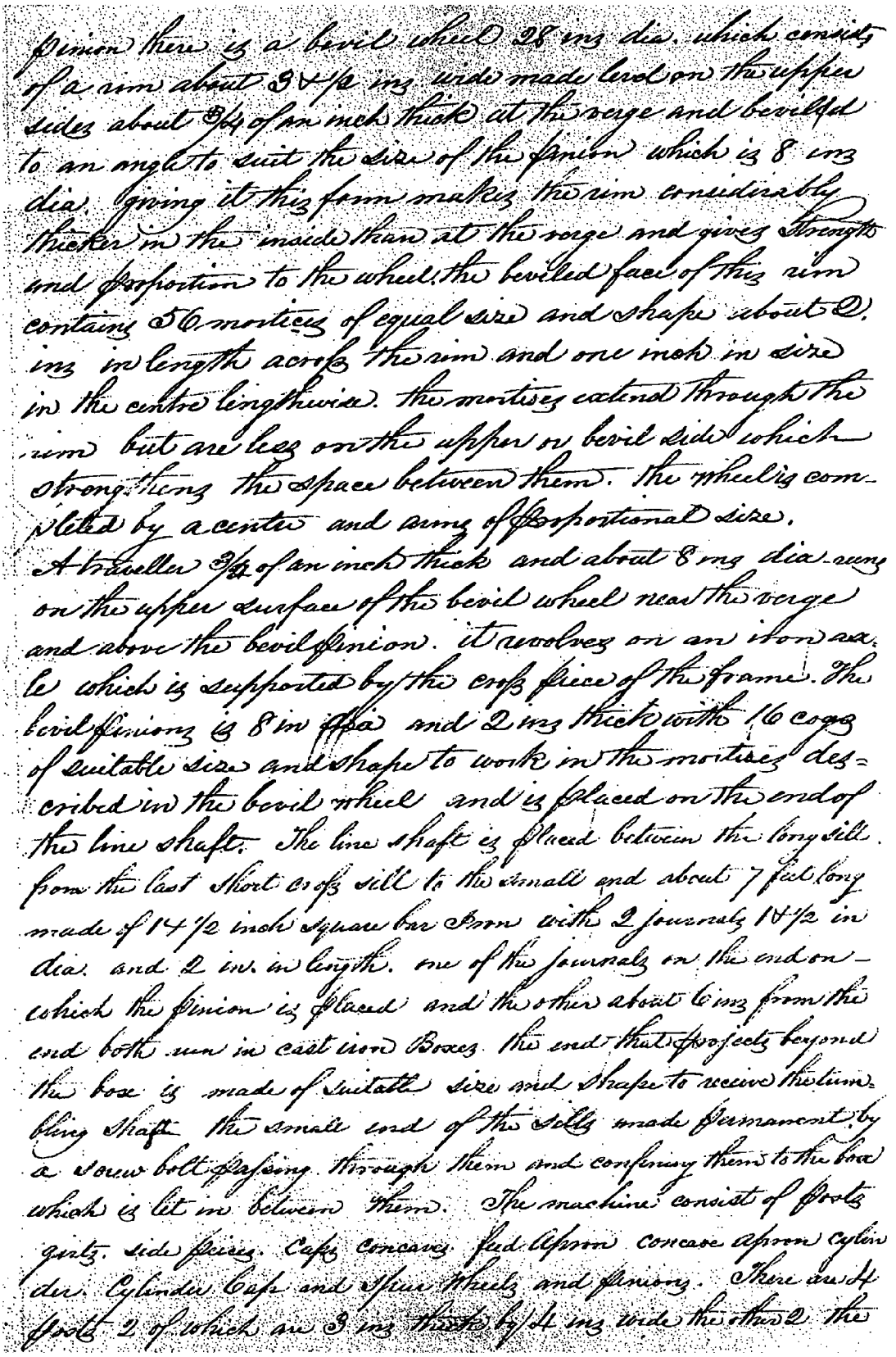
The Schedule referred to in these Letters Patent and making Part of the Same containing a description in the word of the said Hugh Edgar and Isaac W. Edgar themselves of their improvement in the Portable Grain Thrasher

To all to whom these Presents Shall come:

Be it known that we Hugh Edgar and Isaac W. Edgar of Baughman Township in the County of Wayne and State of Ohio have invented a new and useful improvement in the portable grain Thrasher and that the following is a full and exact description of the construction and operation of the Said portable Grain Thrasher as invented by us. The Horse Power is constructed in the following manner Viz. Two sills 14 feet long 6 inches wide 4 ins thick at one end and 3 ins at the other are placed with the edge up 2 feet apart at the largest end and about 2 ins apart at the small end, a cross sill 4 feet long 6 ins wide and 4 ins thick is framed into the underside of the long sills 2 feet 2 ins from the wide end and secured by Screw Bolts. Two other short cross sills are framed into the long sills. the first is 4 by 6 ins in size and framed into the long sills 4 feet 3 ins. 1/2 ins from the wide end. the other same size framed in with the edge up 5 feet 6 ins from the wide end of the long sills. A cross piece is framed on the wide end of the long sills about 3 feet long 4 ins thick and 12 ins wide with the edge up Let down one inch into the sills and secured at each end by screw Bolts passing up through both

another cross piece of sufficient length to extend to the outsides of the long sills 3 ins thick at the top and as much thicker at the bottom as the Build may think necessary to brace against the action of the Horses. Same width framed into the sills and secured in the same manner as the other. Two caps are framed on the top of these pieces, one on each side of the center longitudinal. They are about 6 feet 8 ins in length 3 ins thick 8 ins wide above the center of the long cross sill and 6 ins wide at each end let down into the cross pieces one inch and secured at each end by screw Bolts passing up through both. The main shaft is made of wood about 21 ins in length and one foot square a step Gudgeon of suitable size is inserted into the center of the lower end of the shaft which runs in a cast iron step, placed in the center of the long cross sill (before described) one foot of the lower end of the shaft is square to receive the master Wheel. Then a Neck or journal 3 ins long and nine inches diameter to receive the Caps. The remaining 6 ins of the shaft extends above the caps to receive the Lever Wheel. a circular aperture is cut in the Caps one half in each 9 inches in diameter which receives the journal on the main shaft & made permanent by a screw bolt passing through the cap near the shaft. The shaft stands in a vertical position. The Lever Wheel is made circular about 2 feet 9 ins in dia. made of 2 thicknesses of 1 1/2 or 2 inch Plank. the grain of one thickness crossing the grain of the other and secured together with pins. a Mortice 10 ins square is made through the centre to receive the top of the shaft. Large wrought Iron Staples are placed in this wheel to receive the levers to which the Horses are attached. The Horses attached to the levers from 9 to 10 feet from the centre of the main shaft. The master wheel is made of 2 thicknesses of 1 1/2 inch Plank and a rim 2 1/2 inches thick. The rim is 3 feet 10 inches diam

ches. and 6 ins wide placed in the centre with the one & 1/2 inch planks. on each side of the wheel filling a circle of 4 feet diameter except one half inch of the inner surfaces of the 1 & 1/2 inch plank on each side of the rim. which is cut to the size of the rim leaving one inch thick on each side of the wheel to project one inch beyond the rim which forms a groove to receive the segments of cast iron 3 & 1/2 inches wide. a mortice 13 ins Square is made through the center of the wheel to receive the shaft and 4 pieces of timber the same thickness of the rim are placed round the mortice. and between the surfaces. and the whole pinned together in a permanent manner. the Wheel is secured on the shaft in the usual way. The cast iron which surrounds the master wheel is put on in segments of one eleventh part of the circumference one inch thick and 3 & 1/2 ins wide and might be termed a curved plate with 5 equal sized and equal spaced mortises each mortise 1 & 1/2 in. in size across the plate or segment 1 & 1/2 ins on the outside and 3/4 of an inch in size on the inside of the segment length wise. secured to the rim by spikes passing through holes in the solid part of the segment and into the rim. The second shaft is of wrought Iron 2 ins Square one foot between the Journals. the upper Journal 2 ins long and 2 ins dia. and runs in a Plummer Box which is let into one of the Cases (before described) and secured by screw bolts in the usual manner. The lower end is the same size and shape of the step Gudgeon in the main shaft and runs in a step from the same pattern which is placed in the first short cross sill (before described) On this shaft there is a pinion of cast iron 1 & 1/2 ins thick & 8 1/2 ins diameter with 10 cogs made of suitable size and shape to work into the mortises described in the segments of the master wheel on the same shaft and below the



pinion there is a bevil wheel 28 ins dia. which consists of a rim about 3 1/2 ins wide made level on the upper sides about 3/4 of an inch thick at the verge and bevilled to an angle to suit the size of the pinion which is 8 ins dia. giving it this form makes the rim considerably thicker in the inside than at the verge and gives strength and proportion to the wheel. the bevilled face of this rim contains 56 mortices of equal size and shape about 2 ins in length across the rim and one inch in size in the centre lengthwise. the mortises extend through the rim but are less on the upper or bevil side which strengthens the space between them. the wheel is completed by a centre and arms of proportional size.

A traveller 3/4 of an inch thick and about 8 ins dia. runs on the upper surface of the bevil wheel near the verge and above the bevil pinion. it revolves on an iron axle which is supported by the cross piece of the frame. The bevil pinions is 8 ins dia and 2 ins thick with 16 cogs of suitable size and shape to work in the mortises described in the bevil wheel and is placed on the end of the line shaft. The line shaft is placed between the long sills from the last short cross sill to the small end and about 7 feet long made of 1 1/2 inch square bar iron with 2 journals 1 1/2 in dia. and 2 ins. in length. one of the journals on the end on which the pinion is placed and the other about 6 ins from the end both run in cast iron Boxes. the end that projects beyond the box is made of suitable size and shape to receive the turning Shaft. the small end of the sills made permanent by a screw bolt passing through them and confining them to the box which is let in between them. The machine consists of posts girts. side pieces. Caps Concave. feed Apron Concave Apron Cylinder. Cylinder Case and Spur Wheels and pinions. There are 4 Posts 2 of which are 3 ins thick by 4 ins wide the other 2 the

same thickness 15 ins of the lower ends of them 10 ins wide and the upper ends 6 ins wide. the sides of the posts placed to the back and front of the frame. There are 2 bottom side girts 2 feet 6 ins long between the posts framed into them 8 ins from the bottom, one of them 2 by 6 ins in size is framed to the inside of the narrow posts the other girt same thickness. one half of it same width and the other half 10 ins wide framed in 2 ins from the inside of the wide posts. the wide end placed to the front of the frame a side piece of the same dimensions as the last named girt, is framed into the out edge of the wide posts the same distance from the bottom as the girts let into the posts one inch and secured to them with screw bolts. Two girts in which the concave is placed are framed into the posts one inch above the top of the lower side girt. they are 2 ins thick 3 4½ ins wide at the front end and 16 at the back end and framed to the inside of the posts. the mortises which receive the back end made longer than the width of the tenon to receive keys for the purpose of regulating the distance between the cylinder and concave to suit the different condition of the grain. The upper side girts are 3 by 4 ins in size framed to the inside of the posts 18 ½ ins above and parallel with the inclined surface of the concave girts. the upper side piece same size framed one inch into the outside of the wide posts. the surface of the side piece has the same inclination and placed the same height as the upper side girts and secured to the posts with screw bolts. Two cross girts 2 by 3 ins in size are framed into the back of the frame one of them 3 inches from the bottom and the other 14 ins and one the same size framed into the front of the frame 3 ins from the bottom. Two caps are framed across on the tops of the posts one on the front and the other on the back which completes the frame. The front part of the frame 2 feet 6 ins and the back part 3 feet 2 ins high. The concave is composed of 6 bars of ¾ inch square bar iron and 3 bars of flat iron or wood 2 ins wide. the square bars are placed with upper angles towards the center of the cylinder. the horizontal angles placed

on a circle of 21 1/2 ins dia described from the centre of the Cylinder on the inside of the Concave girts. The flat Bars are placed with upper surface on the same circle and placed alternately between the Square bars. The shaft of the Cylinder 1 1/2 in square bar iron, 35 ins long the shaft has 3 journals each 2 ins long and 1 1/4 ins dia one on each end and one 7 ins from one end and 2 ins from the other end. the long end to receive the Cylinder and the short end receives a pinion with which it is to be pulled. The Cylinder is made with 3 heads or blocks one at each end and one in the middle made of 2 thicknesses of inch Boards 18 ins dia pinned together with the grain of one thickness crossing the grain of the other. A centre is made of Cast iron of suitable size to fit the shaft with flanges on the outside. the centres extend through the heads. the flanges are let into the outside of them, and the heads secured to the flanges with screws. 8 bars of 3/8 square bar iron are placed equi-distant round the surface of the heads, with the angle cut projecting 1/8 of an inch above the surface of the heads and 8 pieces of band iron 2 1/2 ins wide and 1/4 of an inch thick are placed alternately between them they are so shaped that 1 1/2 ins of the widths of them are placed with the flat side on the surface of the heads. and the remaining inch of the width turned to project in a straight line from the centre of the Cylinder and cut in the teeth Square at the point wide and strong at the bottom of the projecting part of the bar. the teeth in one bar follows the space in the other alternately the teeth projecting 1/8 of an inch above the square bars which makes the Cylinder 20 in dia a band of iron over all the bars at each end completes the Cylinder. the centre of the Cylinder is placed on the upper side girts and side piece 16 ins from the back of the frame and is covered with a semicircular case with an aperture in the front part of it through which the meal from the Screw is discharged. The feed spout is about 3 feet long. the lower end of it rests on the upper edge of the concave. The upper end is supported by

staples and hooks, connected with screw bolts through the ends of the back caps so that the apron might be removed at pleasure, The concave apron extends from the front part of the concave to the front of the frame which the grain and straw are discharged. The Cylinder Pinion is about 4 ins dia. impelled by a spur wheel 20 ins dia which is placed on a shaft 3 ins long between the journals. This shaft is placed in the wide part of the lower side Grit and side piece of the same dimensions, about 13 ins from the front of the frame. There is also on this shaft a 5 inch pinion which is propelled by the ratchet wheel which is also 20 ins dia and is placed on a 1 1/2 inch shaft which is 34 ins between the journals. the journals each 2 ins long and 1 1/2 ins dia with about 4 ins on the outside of the journals at each end made tapering (to receive the tumbling shaft) This shaft is hung in the lower side grit on one side and the narrow end of the lower side piece on the other side and placed so as to work into the pinion on the short shaft. The machine is connected to the horse power by a tumbling shaft. which is made of wood or iron as the builder may choose if made of Wood it is about 3 1/2 ins dia. and about 10 feet long 2 pieces of iron half an inch thick are screwed on each side of the shaft at the end with bands, and project 3 1/2 ins beyond the wood with holes in the end to receive pins which are made on the angles of a piece of iron 3 1/2 ins square and 3/8 of an inch thick. another piece of iron 2 ins wide. one inch thick in the middle and thinner at the ends. a square hole is made in the centre to receive the ratchet wheel shaft or bevel shaft with holes in each end 4 ins from the centre to receive the pins on the contrary angles of the iron before described. the ends turned round and closed on the pins which completes the ratchet joint. both ends are made alike.

Improvements Claimed— The claim is our improvements. the peculiarly simple and substantial construction of the frame of the Horse Power and Machine. The Compact and durable form of the master wheel. The proportionate shape of the bevel wheel which gives it

greater strength in proportion the weight to than the usual plan. The square pieces of iron with pins on the corners, in ratchet form which are easier made, more substantial, and works with less friction at a great angle, than those used heretofore. The form of the bar and the bar tooth cylinder, the teeth of which are not liable to fly out with the centrifugal force of the cylinder when in motion. Placing wood or flat bars between the square bars in the concave which leaves greater space for the grain and straw to pass. The regulating the concave to or from the Cylinder with keys to suit the state of the ~~state of the~~ grain. The ratchet wheel shaft passing through the machine so that the tumbling shaft may be attached to either end to suit different situations. Placing half the gearing in the machine which reduces the motion of the tumbling shaft and simplifies the Horse power

Witnesses
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