

UNITED STATES PATENT OFFICE.

DAVID M. LONGLEY AND SAMUEL DAVIS, OF WESTBROOK, MAINE.

IMPROVEMENT IN MACHINES FOR BREAKING AND CLEANING FLAX AND HEMP.

Specification forming part of Letters Patent No. 386, dated September 21, 1837.

To all whom it may concern:

Be it known that we, DAVID M. LONGLEY and SAMUEL DAVIS, of Westbrook, in the county of Cumberland and State of Maine, have invented a new and useful Machine for Breaking and Cleaning Flax and Hemp, called the "Cylindrical Breaker and Cleanser;" and we do hereby declare that the following specification is a full and exact description thereof.

The frame of the machine is fifteen feet long, four feet wide in the clear, and six feet high, of timber eight inches square, more or less. This frame has side plates on the top, and side-girts two feet below the plates, and end girts below the side girts, and cross-plates between the plates, about three feet from each end.

The side frame, on which the beater is placed and works, is framed onto the right side of the main frame at the center, as follows: The plates, eight and a half feet long, are framed into the right plate fifteen inches apart, are parallel, and supported at the outer ends by posts of same height as the posts to the main frame. A girt is framed in between these posts just below the plates. Two side girts are framed into the right side girt of the main frame and the posts aforesaid in a bracing position, having their spread about nine feet. These braces are to steady the side frames.

The main cylinder, six feet in diameter, is hung on the side girts of the main frame in the center. The shaft of this cylinder runs out on the right side of the frame far enough to take on a rag-wheel having as many notches as the main cylinder has slats or brakes. The left end of the gudgeon runs out far enough to take on two pulleys of sufficient width. This cylinder has forty slats or brakes in its circumference. These slats are about half as thick as the spaces between them. This cylinder may be made of wood or iron. This main cylinder is the brake on which the beater operates to break and clean the flax or hemp.

At each end of the frame is hung a cylinder three feet in diameter on the outside of the end posts, the upper side of each cylinder being flush with the top of the plates. The gudgeon-holes are cut into the posts, and clamps are screwed on to keep the gudgeons in their places. A small roller is placed on each side of the main cylinder flush with the plates. A

belt is passed around each end cylinder and its small roller of such breadth as to cover them lengthwise. The belt on the front cylinder and roller forms an apron on which to lay the flax or hemp to feed it into the machine. The belt on the rear cylinder and roller makes the apron for the flax or hemp to come out on. On each of these small rollers a top roller is placed for the purpose of keeping the flax or hemp in place while passing through the machine. A belt goes around the inside pulley on the left end of the shaft of the main cylinder, and around the pulley on the left end of the shaft of the cylinder at the back end of the machine. Another belt goes around the outer pulley on the left end of the shaft of the main cylinder, and the pulley on the left end of the shaft of the cylinder in the front end of the machine. These belts give the proper motions to the two cylinders at the two ends of the machine for feeding in the flax or hemp and passing it out. By this means the three cylinders and the rollers and the belts on them all travel one way.

The beater—about thirteen feet long—lies lengthwise of the side frame and crosswise of the main frame in the center. It hangs on a shaft about three feet from the outer end. The gudgeons of this play in notches cut in the top of the plates, and are held down by clamps. A roller is put in the outer end of the beater for the cams to ply on in lifting the other end of the beater. Toward the other end of the beater, on the under side, three or more blades are bolted on, so as to fall exactly between the breakers in the main cylinder.

At the outer end of the side frame, on the plates, a shaft is laid across, on which are two cams, which are so placed as to operate on the friction-roller in the end of the beater. By the operation of these cams the outer end of the beater is depressed and the other raised, by which the blow is given. On the left end of this shaft is a bevel cog-wheel, which meshes into a bevel cog-wheel on another shaft. On the right end of this shaft is put a crank or wheel, by which the shaft is turned or put in motion. Another shaft on the left side of the side frame is placed at right angles with the other shaft. This shaft has a bevel cog-wheel, which meshes into the other bevel cog-wheel. These cog-wheels may be of equal or unequal

diameters, according to the speed required of the machine. The gudgeons of this shaft are supported in any convenient manner. On the inner end of this shaft is a crank whose length is one-half of the length of one notch on the rag-wheel. On this crank is hung one end of a hand or dog, which operates on the rag-wheel. Therefore, one revolution of crank makes the hand push the rag-wheel forward just the length of one notch; or perhaps it will be necessary to have the crank a little longer than one notch, so that in its back motion it may be sure to come back far enough to get hold of the next notch in the rag-wheel; or it may be done by some other motion. Beneath this hand is another hand or pawl, and stationary, to fall into the notches of the rag-wheel, from time to time, as the wheel is pushed forward by the crank and hand aforesaid, and hold it from falling back when the hand hauls back to get hold of another notch. Perhaps two or more may be necessary.

On the left-side plate on the main frame a block of proper size is placed for the end of the beater to fall on. The use of this block is to keep the beater from falling onto and bruising the cylindrical brake. On the cross-girt in the outer end of the side frame a spring is placed, which turns over in shape of a bow and comes up under the end of the beater. The design of this spring is to give a quick and lively motion to the other end of the beater in making its blow when at work.

The operation of this machine when at work is as follows: When the shaft on the outer end of the side frame is put in motion the cams on this shaft put the beater in motion. The be-

el-wheel on this shaft operates on the bevel-wheel on the other shaft. This shaft, turning, carries the crank around, by which the hand is moved, pushing the rag-wheel forward one notch every revolution. The under hand holds the wheel from falling back. Every set of the hand upon the rag-wheel pushes the cylindrical brake forward just the distance of one slat from the other, and this motion must be made when the beater is rising, so that the cylindrical brake may be standing still when the blow is given. By this means the cylindrical brake is carried forward just one slat every two blows. At the same time the belts which pass round the pulleys on the left end of the shaft of the cylindrical brake and the pulleys of the shafts of the cylinders at the ends of the main frame carry forward those two cylinders just as fast as the cylindrical brake. Thus the hemp or flax has a uniform motion in passing through the machine. The shives, as they are beaten and shaken out in this operation, fall down through the cylindrical brake upon the floor.

What we claim as our invention is—

The combination of the revolving cylindrical braker with the beating-breaker and the aprons, as above specified.

In testimony that the above is a true specification of our said machine we have hereunto set our hands this 23d day of December; in the year of our Lord 1836.

DAVID M. LONGLEY.
SAMUEL DAVIS.

Witnesses:

JONATHAN MORGAN,
NELSON MERRILL.