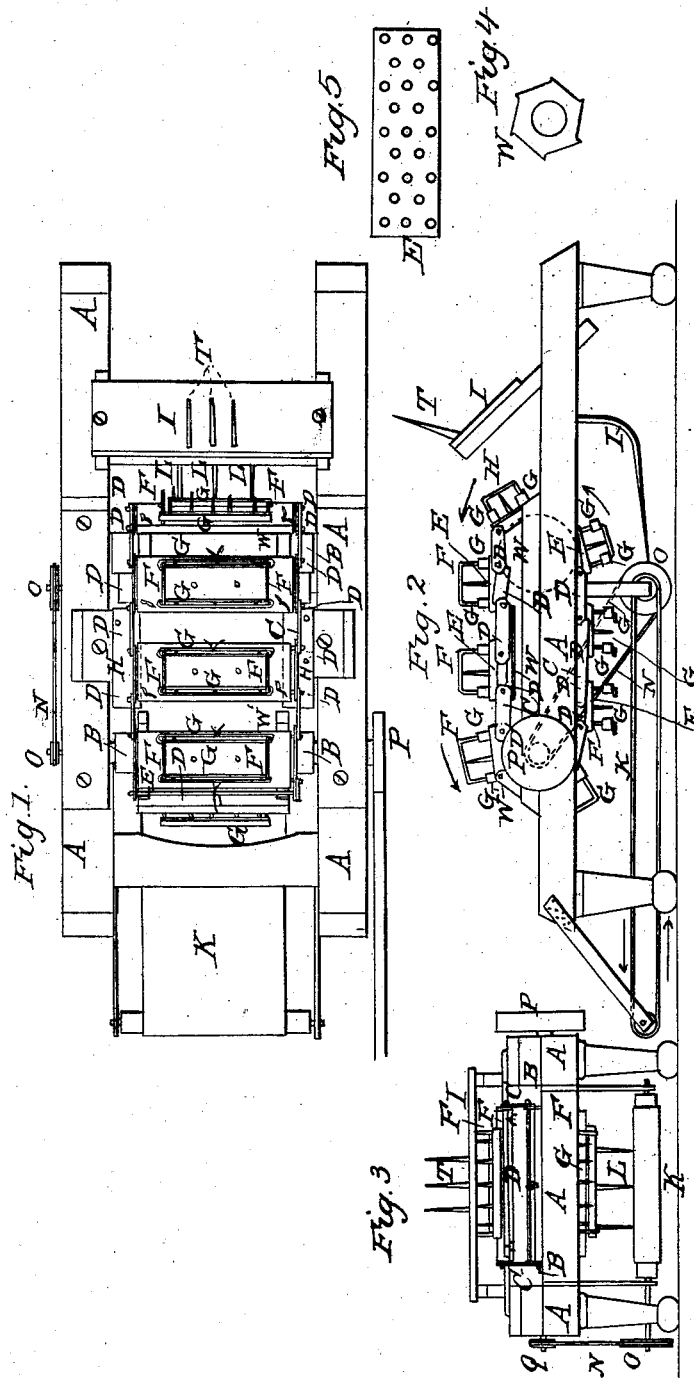


## Hackling Machine.

No. 1,012.

Patented Nov. 20, 1838.



# UNITED STATES PATENT OFFICE.

FOSTER DEMASTERS, OF SHELBYVILLE, KENTUCKY.

## IMPROVEMENT IN MACHINES FOR HACKLING FLAX AND HEMP.

Specification forming part of Letters Patent No. 1,012, dated November 20, 1838.

*To all whom it may concern:*

Be it known that I, FOSTER DEMASTERS, of Shelbyville, in the county of Shelby and State of Kentucky, have invented a new and useful Machine for Hackling Hemp and Flax, called "Demasters' Endless-Chain Hemp and Flax Hackle," which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a top view; Fig. 2, side view; Fig. 3, end view; Fig. 4, end view of the many-sided wheel; Fig. 5, a hackle with five rows of teeth.

The same letters of reference refer to the same parts in the several figures.

The nature of this invention consists in the combination and arrangement of certain parts of mechanism, producing a machine moved by animal, water, steam, or other power, that will perform the operation of hackling or separating the tow from the fine hemp or flax, and laying the fibers in parallel lines, more nearly in the manner accomplished by hand than by any other machine known.

It consists of a frame, A, of suitable size and strength, in which turn two parallel axles, B B, in boxes at each end thereof, passing through two wheels, W W, and around which pass two parallel endless chains, C C, united by parallel transverse rods D, screws, and nuts, to which rods are attached by links parallel slats E of wood, into which are inserted long sharp steel teeth, which are called "hackles." In each slat is also inserted a staple, F, in a line with the teeth, over which is placed a long oblong loose link or slip, G, which, when the slats are uppermost, rest upon them around the base of the teeth, and when the slats revolve to the under side said links or slips fall down toward the points of the teeth, and are prevented from falling off from them by the staples F, and when the slats again revolve to the upper side fall back to their former position, and will be under the hemp as it is brought in contact with the points of the teeth. One of the wheels is many-sided, with notches at the angles for taking hold of the rods of the chains in order to carry them around with the hackles, as represented at W', Figs. 1 and 4. The other wheel may be made smooth. Between the wheels, and in a line with their upper sides, are arranged parallel ways H, to support the chain from sagging. At the front end of the

frame on top is framed an inclined board, I, into which are inserted a row of perpendicular fixed teeth, T. Below the endless chains is placed an endless revolving apron, K, for carrying off the tow. On the axle of the many-sided wheel is a cog-wheel or pulley, P, to which the propelling power is geared. Under the frame are arranged a set of long stationary teeth, L, for taking hold of tangled hemp and preventing its passing round with the hackles.

A very effectual and useful machine may be constructed of the following proportions: the chain to consist of twenty links, each six inches from center to center, being ten feet long, which, when doubled and put round the wheels, may be twelve inches in diameter, will make a level plane of about four and one-half feet, so that four hackles will always be in the hemp at the same time, unless the hemp should be too short. As to the width, this may be a matter of choice. It may, however, be about five or six feet wide, according to the quantity required to be dressed. The flax-hackle should be attached to a chain of six-inch links, as before, fourteen links making seven feet, also seven hackles. It will be a matter of choice as to the quality of hackles used, as hemp and flax require to be dressed finer for some uses than for others. For making cotton bagging, I set my hackle-teeth in five rows one and one-fourth inch from center to center, and make the hackle any width necessary. (See Fig. 5.) For finer work finer hackles may be used, or the hackle would answer were the links made shorter or longer. I would prefer the hackle-teeth nine inches long, but shorter teeth or longer will do. The slips to throw off the tow may be made of wood or hoop-iron, or anything of the kind. The wood is preferred, as it does not wear the teeth. The slips preferred may be one and one-half inch wide, but wider or narrower will answer. As to the necessity of an apron to carry off the tow, it will be according to the use to be made of the tow.

The operation of this machine is as follows: The driving power turns the pulley P, this the many-sided wheel W', and these the endless chain C, with the hackles and slips. The hemp to be hackled is put over the fixed perpendicular teeth T in the inclined board, the loop being over the teeth, and the ends thrown over on the hackles, which, as they move onward in the direction of the arrows, draw out

and separate the tow from the hemp or flax, which is carried around from the upper to the under side, when it is discharged upon the revolving apron K by means of the movable slips G, which, by their gravity, fall from the base of the teeth to their points, and push off or separate the tow therefrom, which falls upon the floor below or upon the revolving endless apron K, which conveys it off at the rear end of the machine. When the ends of the hemp or flax are sufficiently cleaned, (which is easily determined by any person understanding the business of hackling,) the handfuls are taken off the permanent teeth and opened and held in such a manner as to have the middle cleaned. By having the hackles of sufficient width a person may clean the ends—say from one to twenty handfuls of hemp or flax—at the same time. To clean the middles, the hands may be doubled, and two held in each hand at the same time, and all performed very easily and expeditiously. The apron K is turned by means of a band, N, passed around a pulley, O, on the axle of one of its rollers, and a pulley, Q, on the axle of the many-sided wheel. In this manner the hemp is hackled, leaving the fibers in parallel lines, much in the manner of hand-hackling. When the hemp is sufficiently hackled, it is removed, and other handfuls put in over the fixed teeth, and treated in a similar manner.

In the use of endless chains with loose hackles, instead of cylinders with axles turning in fixed boxes, when knots happen to be in the hemp the teeth are not liable to be broken, as the chain and hackles yield and rise from the ways, suffering the hemp to slip from the teeth, while in the use of a cylinder they are liable to be broken. Besides, the use of loose slips to clean the teeth by their gravity is preferable to the cam or heart wheel for that purpose. There are principles in the operation of this hackle which were not deemed necessary to be described, viz: when the hemp is put on the fixed teeth, they being perpendicular, and eight or nine inches high,

the hemp or flax naturally falls lower as it becomes better cleaned, so as not to force the hemp or flax down on the hackle so fast as to waste the lint, or do any other injury. On the same principle, when the hemp or flax is held on by hand to finish it, it is put on the top of the said teeth, and lowered as fast as necessary, so that any person understanding the art of hackling hemp or flax can see by a single glance that the lint will be saved, and at the same time straightened and cleaned in the best possible manner. There is also a principle in the operation of this hackle which seems to be essential to the good performance of any hemp or flax hackle, viz: to operate so as to save the good lint, and at the same time not to injure the hackle. This is accomplished by fixing the hackles on the chains, and operating in a straight line on the ways, with sufficient force to hackle any hemp or flax; but at the same time should any knots or tangled stuff come on the hackle, which is occurring almost every minute, the chains will rise at the joints enough to let the knots slip off without injuring the hackle or hemp or flax, whereas solid teeth will pass through. The slips perform their part well, throwing the tow from the teeth with their own weight in a straight line, so that in making bagging for cotton and bale-rope the tow is taken from the hackle in order for use without other preparation. Other machines introduced in the Southwest have been so very imperfect that manufacturers have been compelled to abandon the use of them, and to hackle all their hemp by hand.

The invention claimed and desired to be secured by Letters Patent consists in—

The combination of the endless chains of hackles with the slips and stationary teeth in the inclined board for hackling flax and hemp, in the manner before described.

FOSTER DEMASTERS.

Witnesses:

WM. P. ELLIOT,  
WM. BISHOP.