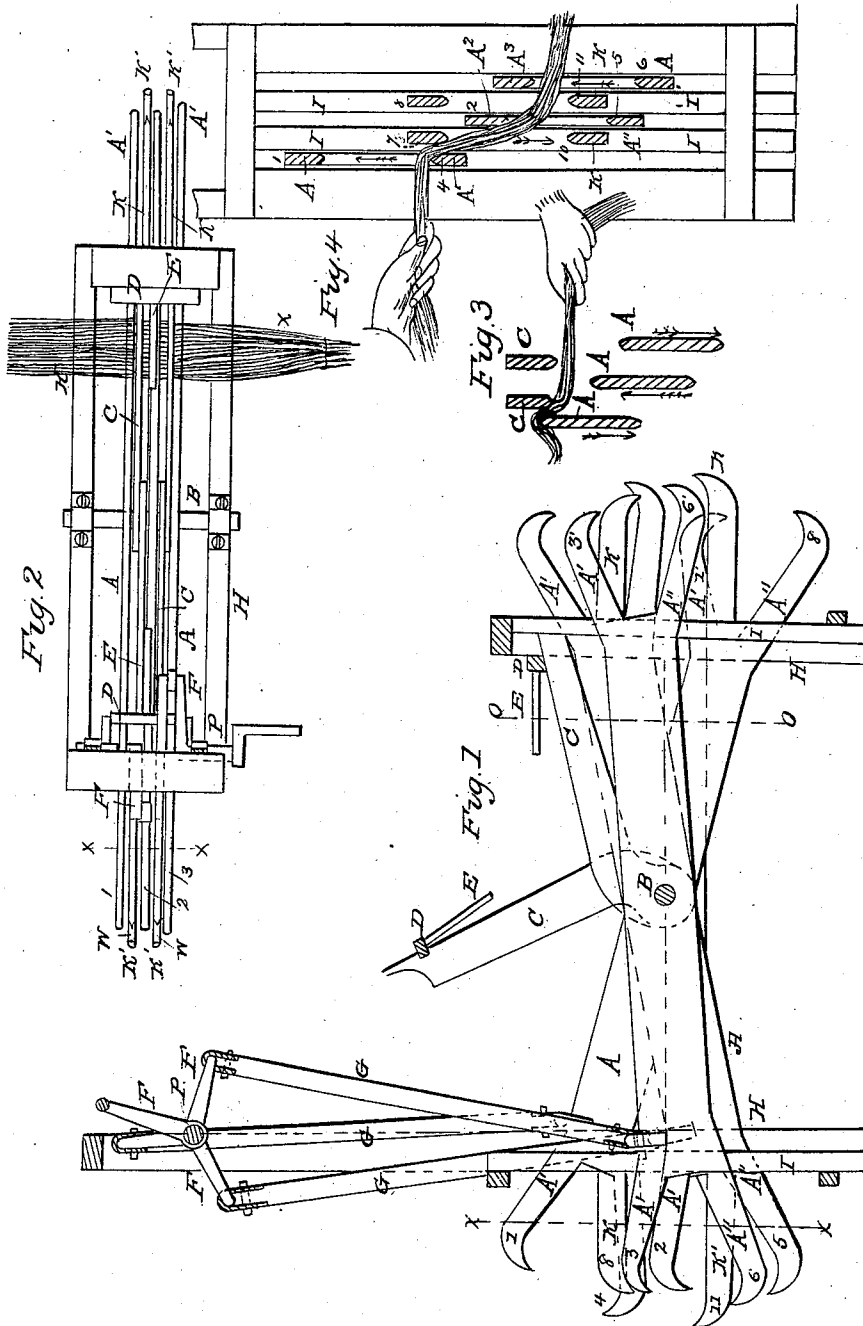


L. W. COLVER.
Flax and Hemp Brake.

No. 5,801.

Patented Sept. 26, 1848.



UNITED STATES PATENT OFFICE.

LEWIS W. COLVER, OF GLASGOW, MISSOURI.

IMPROVEMENT IN MACHINERY FOR BREAKING AND DRESSING HEMP.

Specification forming part of Letters Patent No. 5,801, dated September 26, 1848.

To all whom it may concern:

Be it known that I, LEWIS W. COLVER, of Glasgow, in the county of Howard, State of Missouri, have invented a new and useful Improvement in Machines for Breaking and Cleaning Flax and Hemp, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a side elevation of the machine, showing one set of slats raised to admit the hemp or flax, the side timbers of the frame being removed for the purpose of showing the parts behind them. Fig. 2 is a top view showing a bundle of hemp in the machine under operation. Fig. 3 is a sectional view of the breaker-beams A and slats C on the dotted line *o o* of Figs. 1 and 2, showing a bundle of hemp when in the operation of being broken. Fig. 4 is a vertical section of the cleaner-knives on the line *x x* of Figs. 1 and 2, showing a bundle of broken hemp between the edges of the cleaner-knives under the operation of being cleaned from the broken boon or woody particles.

Similar letters in the several figures refer to corresponding parts.

This machine consists of a revolving shaft, P, Figs. 1 and 2, from which radiate three cranks, F F F, standing in a triangular position, to which are attached three pitmen, G G G, extending down to three vibrating beams, called "breakers," A A A, balanced on an axle, B, passed through their centers lengthwise. When these cranks revolve, the connecting-pitmen G put the beams A in motion, which strike up alternately between slats C, that are also hung on axle B at one end and held down at the other by the hand of the operator, or by spring bolts or catches, or by any convenient means, said slats C being attached to a block, D, with a handle, E, for the operator to lay hold of to raise and lower the said slats.

In breaking the hemp the operator lays the hemp across the beams A, lets down slats C and secures them, then moves the hemp through endwise toward himself, the opposite beam from where the operator stands doing the principal breaking, while the other two also break the hemp and partially clean or remove the shives or woody parts from the lint.

The cleaners.—Each arrangement of cleaners consists of six knives attached to the ends of the three breaker-beams A A A, the upper knives being shorter than the lower ones and being directly over them, the points curved toward each other and wider apart at the commencement of the curves than at their connection with the breaker-beams A, and placed a sufficient distance apart for the hemp to pass between them, and, forming part of the breakers, they rise and fall simultaneously with them. The upper knives, No. 2, strike down between stationary knives Nos. 10 and 11. (See Fig. 4.) The lower knife, No. 5, strikes up between knives 7 and 8. Knives 1 and 4 strike up and down past knives Nos. 7 and 10. Nos. 7 and 8 are the upper stationary knives, the points curved down, and are shorter than Nos. 10 and 11, the lower ones with their points curved up, all of which are attached to the vertical guide-posts I perpendicularly over each other, a sufficient distance apart horizontally for the knives Nos. 1, 2, 3, 4, 5, and 6 to pass up and down by and between them without compressing the hemp.

After the hemp is broken between the beams A and slats C, as aforesaid, it is laid crosswise upon the projecting ends of the lower stationary knives K', (or 10 and 11,) the curved points of the movable knives A' A' catch and bring it in contact with the curves of the stationary knives K K', which take it in between the edges of all the knives and spread it out to a thin sheet, which exposes the shives to the edges of the knives as follows: When knife No. 4 (see Fig. 4,) strikes up, its edge passes the edge of No. 7, taking the hemp up with it, moving it endwise across knives Nos. 7 and 11. No. 2 at the same time partially strikes it obliquely between Nos. 7 and 11. Each movable knife produces a similar effect to No. 4, which is that of scraping and shaking the shives or woody part from the lint, and but one knife of each cleaner striking at the same time, lets the hemp yield to it without injuring the fiber of the lint.

The frame containing and supporting the aforesaid parts consists of two vertical posts a sufficient height to hang the cranks in, two shorter posts, two horizontal side timbers, and eight vertical guide-posts placed a suitable distance apart to admit the breaker-beams to move between them, together with four cross-

ties to support the guide-posts; or the frame may be made in any convenient way to suit the views of the constructor. The slats during the operation of breaking may be held down by spring bolts or catches, or by the operator, as above stated, or in any convenient way.

The breaker-beams and slats for breaking the hemp, and the vibrating and stationary knives for cleaning it at the opposite end of the frame, are made, arranged, and operated in the same manner, as above stated. The three breaker-beams and twelve cleaner-knives being all balanced on one common center, and being all connected to the tri-branched crank-axle by the connecting-rods, vibrate simultaneously in the arc of a circle described from the center of the axle on which the beams are hung, as the tri-branched crank-axle is revolved.

The power to be applied to the crank-axle for revolving it may be manual, horse, steam, or water.

From the foregoing description it will be perceived that in breaking hemp by my method and machine the lint is not compressed or strained over the fixed slats, but, on the contrary, the vibrating swords or breakers act on the hemp in succession, one at a time, breaking the hemp against the fixed slats, and without producing a tendency to work off the lint into tow, and in performing the operation of scraping or cleaning the boon or wood from the lint by the hook-shaped knives of unequal lengths formed on the ends of the vibrating swords or breakers the same description of alternate blows of the long and short knives upon the hemp as they ascend and descend in the arcs of circles, causing the bundle of hemp, which is held by one of its ends, while its opposite end hangs loosely, to be scraped against the edges of the fixed knives of the rack obliquely, and in this manner the boon or wood is scraped and shook from the lint without straining the fibers or injuring the staple.

The advantage of having the six breakers and twelve cleaners moving simultaneously on

a common center acting against the fixed slats and knives enables the attendants to have four bundles of hemp in the machine and under the operation of the breakers and cleaners at the same time, and the several parts of the machine occupying but a small space. Besides, having the breakers or swords balanced on their center of motion, and being attached to the three cranks, also balanced, overcomes the irregularity of the one-crank motion, and gives nine blows at each revolution of the crank-shaft, while the ordinary single-crank machine gives but one, and, having two or more swords striking at the same time, compresses the hemp and breaks the fiber, causing great loss, whereas, in my machine, the hemp is struck but a single blow at a time in quick succession by the same cleaner or breaker, and therefore does not break the fiber or throw off the short lint, and the beaters A, being balanced on their centers and acting alternately, as described, operate on the crank-shaft in the manner of a balance-wheel.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The peculiar construction of the curved or hooked knives on the ends of the alternate vibrating breaker-beams, for the purpose of taking the hemp in between the edges of said cleaner-knives with facility, said knives acting successively on the hemp in the manner herein fully set forth.

2. Balancing the three beams A on axle B, in combination with causing them to operate successively by a three-throw crank, or other equivalent means, whereby much power is saved, injury to the hemp is avoided, and the resistance of the machine is at all points nearly the same, the whole constructed and operating substantially as described.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

LEWIS W. COLVER.

Witnesses:

WM. P. ELLIOT,
A. CHAPMAN.