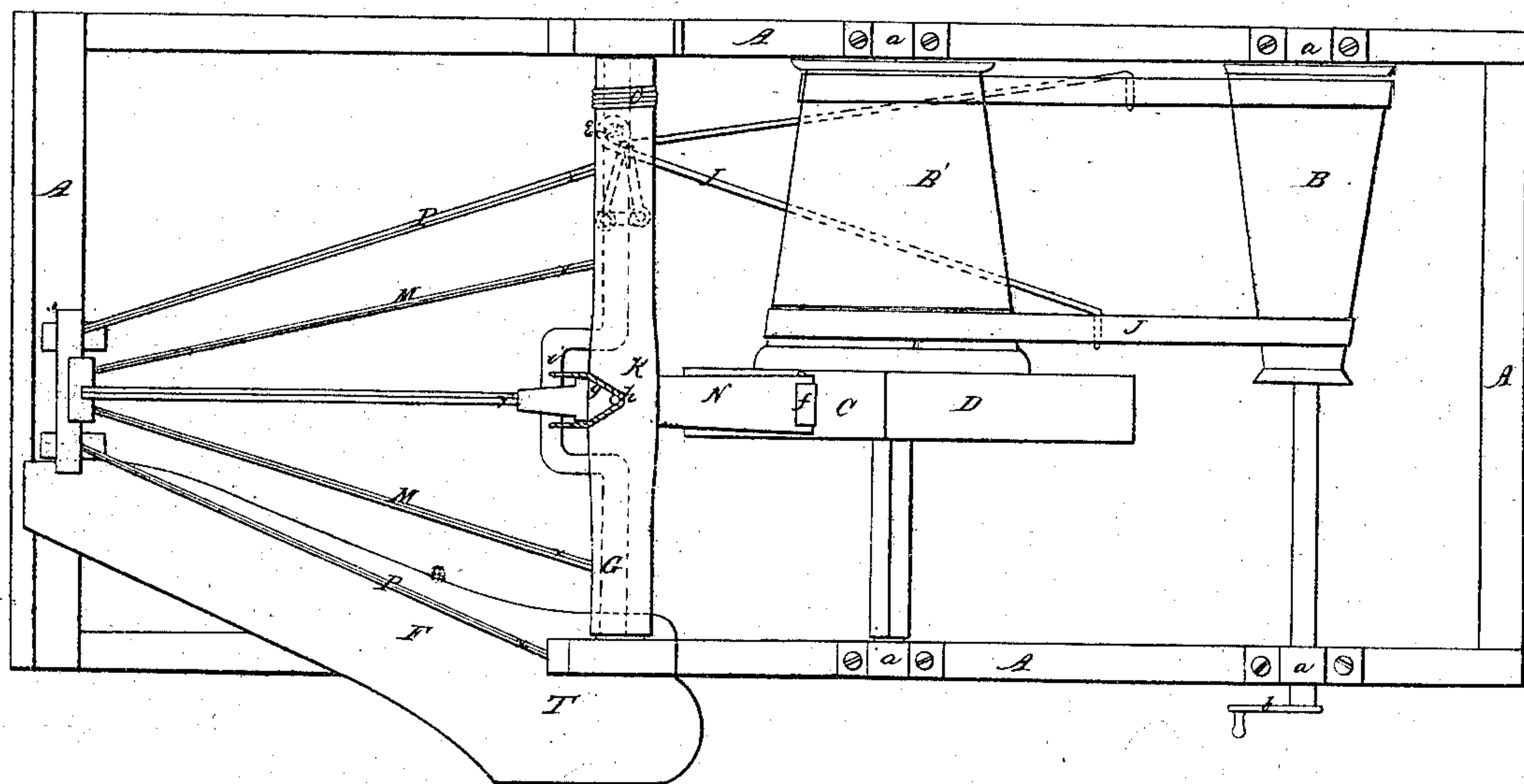
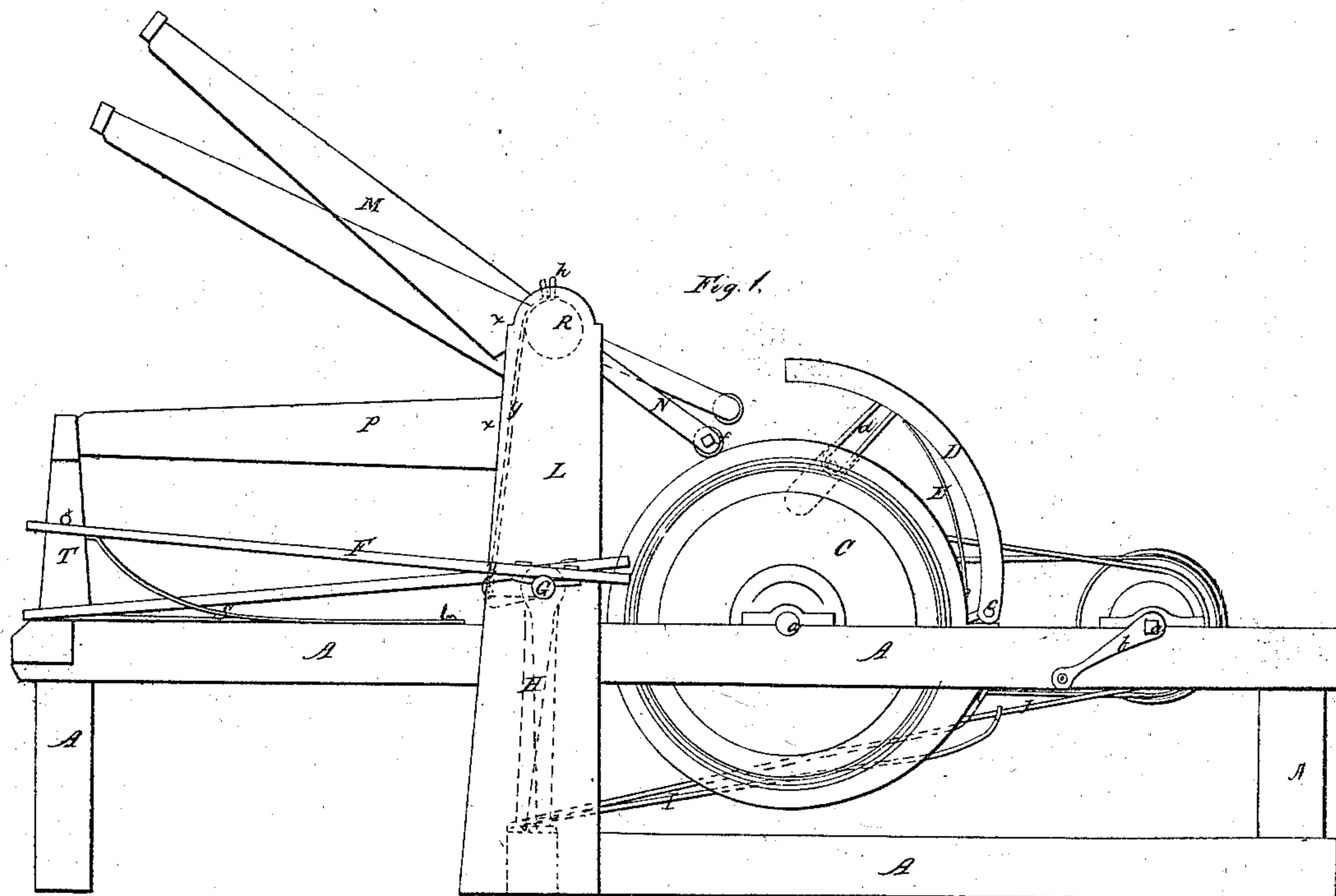


J. BARKLEY.  
HEMP BRAKE.

No. 17,015.

Patented Apr. 7, 1857.





# UNITED STATES PATENT OFFICE.

JAMES BARKLEY, OF ST. LOUIS, MISSOURI.

## IMPROVEMENT IN HEMP-BRAKES.

Specification forming part of Letters Patent No. 17,015, dated April 7, 1857.

*To all whom it may concern:*

Be it known that I, JAMES BARKLEY, of St. Louis, in the county of St. Louis and State of Missouri, have invented certain new and useful Improvements in Hemp-Brakes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in a hinged platform so arranged and constructed with suitable attachments as to graduate the speed and sweep of stroke of the brake at the proper time by the natural traveling motion of the workman or operator upon said platform, thus making the weight of the operator the medium through which the operation of the brake is regulated, leaving the hands entirely free to handle the stock, as will be hereinafter described.

To enable others skilled in the arts to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, which form a part of this specification, Figure 1 is a side elevation showing the change of the position of the hinged platform, and also the shortening of the stroke and a part of the devices for graduating the speed, in red lines. Fig. 2 is a plan view showing the change of the position of the belt which graduates the speed, in red lines, also a part of the devices for adjusting said belt.

Similar characters refer to like parts in the two figures.

A indicates the frame-work. B B' are frustums of cones or conical pulleys, placed in reverse position to each other, as clearly shown in Fig. 2. Said pulleys are provided with axles having suitable bearings in the frame-work, as seen at *a*. The driving-power is applied to crank *b*, or rather to the shaft of pulley B, in any convenient manner. C is a cam-disk secured on shaft of pulley B', to which is attached a yielding cam, D. One end of said cam is pivoted to disk C at *c*, the other end being kept in proper position by means of guide *d*.

E is a spring which imparts the yielding properties to the cam.

F is the hinged platform. The rear of said platform is firmly secured to crank-shank G. (See Fig. 1, also dotted lines, Fig. 2.) Said

crank-shaft turns in suitable bearings in the frame, and constitutes the hinge or pivot on which said platform turns.

Secured to shaft G and projecting downward is a lever, H. (See dotted line, Fig. 1.) The lower extremity of said lever takes into an eye in the end of an elbow-lever, I. (See dotted lines, Fig. 2.) Said lever I turns on a pivot or fulcrum at *e*. The other end of said elbow-lever I is hooked over belt J on pulleys B B', the purpose of which will be described in the operation.

K is a rock-shaft which has its bearings in the top of uprights L, and to which is connected the vibrating swords or breakers M. Passing through said shaft and projecting backward is a bar, N. The lower extremity of said bar is provided with an anti-friction roller, *f*. Said roller and bar are acted upon by cam D, by which means vibratory motion is communicated to swords or breakers M.

O is a spring coiled around rock-shaft K, and attached below in such a manner as to elevate the vibratory swords when the same are relieved from the pressure of cam D.

*g* is a cord or chain attached to a pin, *h*, in the top of the rock-shaft, and also to crank *i* on crank-shaft G. P are the stationary swords, which are secured in proper position in any convenient manner.

S is a spring, one end of which is secured to the frame-work at *l*, and the other operating against the under side of the hinged platform, and serves to elevate said platform to the position seen in black lines, Fig. 1, when relieved of the weight of the operator.

*t* is a pin or stop in upright T, which serves to prevent the hinged platform from rising too high through the action of spring S.

*v* is a loose pulley on shaft of pulley B', by which means the motion of the breaker is suspended when the belt assumes the position seen in black lines, Fig. 2.

The operation of my invention is as follows: Rotary motion is communicated to conical pulley B, which, by means of belt J, communicates rotary motion to conical pulley B', also to cam-disk C and cam D. Cam D, in its revolutions, comes in contact with anti-friction roller *f* in the end of bar N, which by its connection with rock-shaft K, in conjunction with coiled spring O, imparts vibratory motion to swords or breakers M.



It is a well-known fact to all who are familiar with the business of hemp and flax breaking that at the commencement of the operation a slower motion and a longer stroke is desired than at the closing, from the fact that the stroke, when partially broken, requires much less force to make an impression than at the commencement; and, further, as the operation is commenced at the heel of the swords, (see *x*,) a longer stroke is required in order to enable the operator to place the stock in proper position.

It may be seen by examining Fig. 2 that the swords are much farther apart at the heel than at the forward end, so that the hurds of the stock are broken into sections of considerable length at first. As the stock is carried forward, they are gradually broken shorter by the approximating angular position of the swords. For the above reasons a more rapid motion and shorter sweep is desired as the stock is carried forward. This object is attained in the following manner: When the operation is first commenced, the operator stands on the rear end of hinged platform F at the point marked *y*, at which time the platform is in the position seen in black lines, Fig. 1; but as he advances forward his weight causes said platform gradually to assume the position seen in red lines, by which means crank-shaft G revolves forward, which causes crank *i* to fall into the position seen in red lines, and by its connection with pin *h* in rock-shaft *k*, through cord or chain *g*, the vibrating swords M are brought into position seen in red lines, Fig. 1, and then the length of stroke is shortened.

By the yielding spring properties of cam D the breakers are operated equally well, either with a long or short stroke; also, the vibrating swords are allowed in a measure to accommodate their action to the amount of stock under manufacture.

By the depression of hinged platform F the lower extremity of lever H is carried backward, as seen in red dotted lines, Fig. 1, which operates an elbow-lever, I, and causes it to

assume the position seen in red lines, at the same time carrying belt J along with it, as also seen in red lines. This gradual change in the position of the belt increases the speed of the breaker, as will clearly appear from the relative change of the circumference of the pulleys at the points where the belt bears. When the operator retreats to the rear of platform F, it (the platform) assumes the position seen in black lines by the action of spring S, which allows the breakers, by the aid of coiled spring O, to assume the position seen in black lines, Fig. 1. The revolution of shaft G carries elbow-lever I and belt J back to the position seen in black lines, and the brake is ready for another operation. The great advantages claimed in this arrangement or improvement consists in the arrangement of the hinged platform and its connection with suitable devices herein described, whereby the speed of the breaker and sweep of stroke are graduated at the desired time and in the proper manner by the natural change of position of the operator upon the hinged platform, thus giving all the advantage of the hand-brake, and at the same time giving the operator the free use of both hands to handle the stock.

Having thus fully described my invention, I do not claim any single member of my machine as such; neither am I unaware that a mode of shifting the speed and stroke in similar machines by hand-levers has been used, for such is seen in the patent of M. Thompson, of August 5, 1856; but

What I do claim as new, and desire to secure by Letters Patent, is—

The hinged platform, arranged as described, in combination with the mechanism, substantially as herein set forth, and so that the attendant upon the platform may change the speed and stroke by merely changing his position, and thus leave his hands at liberty to manage the hemp.

JAMES BARKLEY.

Witnesses:

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