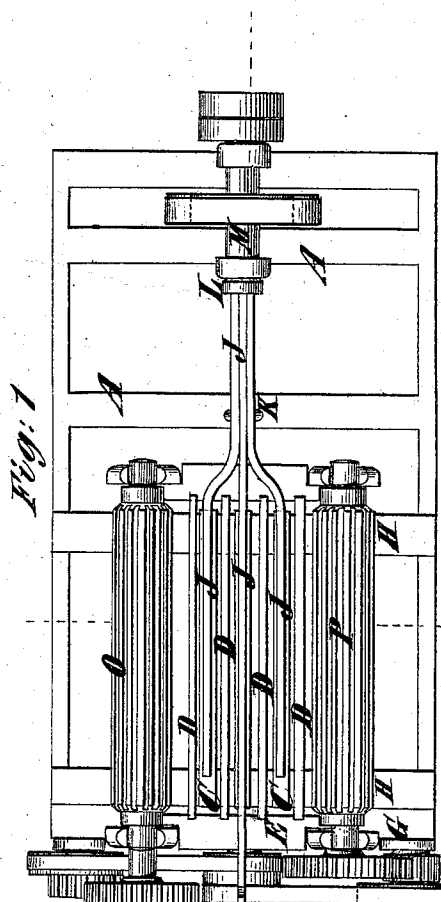
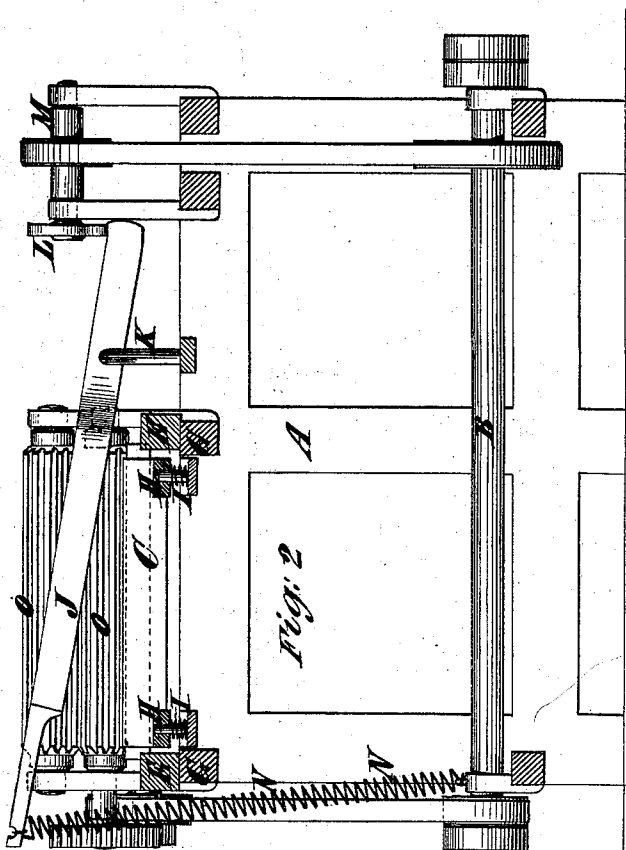
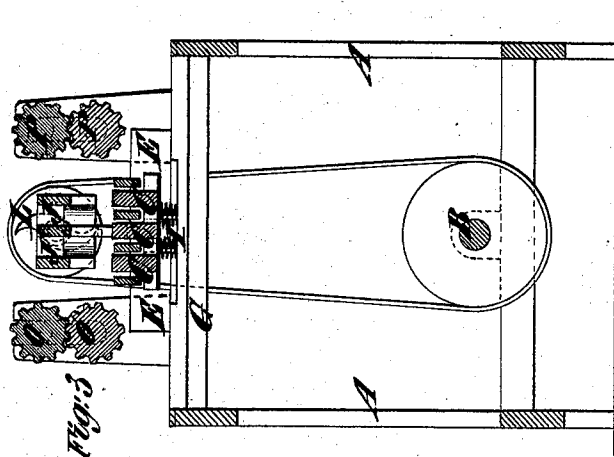


**J. EVANS.**  
**Hemp-Brakes.**

No. 149,733.

Patented April 14, 1874.



Witnesses:  
Michael Ryan  
Jas. H. Hayes

Jacob Evans  
by his Attorneys  
Rumtellen

# UNITED STATES PATENT OFFICE.

JACOB EVANS, OF WILLIAMSBURG, BROOKLYN, NEW YORK.

## IMPROVEMENT IN HEMP-BRAKES.

Specification forming part of Letters Patent No. **149,733**, dated April 14, 1874; application filed December 27, 1873.

*To all whom it may concern:*

Be it known that I, JACOB EVANS, of Williamsburg, Brooklyn, in the county of Kings and State of New York, have invented a Machine for Breaking and Swinging Hemp, Flax, &c., of which the following is a specification:

This machine consists essentially of a system of rising and falling beater-bars operating in conjunction with corresponding series of yielding bed-bars and intervening rigid bars, over which the flax, hemp, or analogous material is fed by feed-rollers, made preferably with sharp teeth or ribs to assist in the swinging and softening of the material, and is, at each stroke of the beater-bars, bent over the rigid bars into cavities formed by the yielding of the bed-bars, and is afterward pushed up by the rising of the bars, and fed forward by the rollers to subject other portions to the same operation.

In the accompanying drawing, Figure 1 is a plan of the machine. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a transverse section thereof.

Similar letters of reference indicate corresponding parts in all the figures.

The frame A of the machine is of rectangular form, and is provided in the lower portion with bearings for the driving-shaft B, to which motion is imparted by a belt from any suitable motor. At one end the yielding bed-bars C C and intervening rigid bars D D are arranged. They are supported on suitable cross-bars, and extend lengthwise of the frame. The rigid bars D D rest in blocks E E that are supported on the stretchers G G of the frame A; but the yielding bed-bars C C are fastened to two cross-bars, H H. They rest on spiral springs I I, which have their bearing on other bars crossing the frame, and surround pins that guide the bars in the up and down yielding and rising motion of the bed-bars. I prefer to make these bars of wood or similar soft material. J J are the beater-bars. They correspond in number and position to the bed-bars, and are all united at one end into a single stem, which is pivoted to a bridge-like fulcrum, K, provided on the frame. The end of the stem extends some distance beyond the fulcrum to a cam, L, by which it is depressed

and released to raise the beater-bars and allow them to fall on the bed-bars. The shaft M, on which the cam is situated, has motion transmitted to it by belt from the driving-shaft B, and by means of the disparity in the size of the pulleys which receive the belt the beater-bars are operated quickly. A spring, N, applied to the middle beater-bar, pulls them down when released by the cam, and gives them a lively and effective action.

I do not restrict myself to this manner of operating the beater-bars, for I think they might, with advantage, be made to rise and fall bodily, instead of being oscillated, as described. The number of bars will be determined in practice to suit the work to be performed, and the bed-bars and rigid bars will correspond.

There are two sets of feed-rollers, O O and P P, made preferably with short teeth or ribs, one pair to feed the material to the beater-bars and the other to deliver it from them. The rollers O O (those that feed it to the bars) will have a pressure exerted on them, by weight, springs, or screws, to cause them to crush and bend the hemp, flax, or other material over the teeth of the rollers, thereby to break the shive previous to subjecting the material to the beating operation. These rollers are driven from the driving-shaft, but move very slowly, so that they feed the material only a very short distance between each stroke of the beater-bars.

For some material it may be desirable to provide another pair of feed-rollers, and to duplicate the series of beater-bars and bed-bars between the second and third pair, so as to double the effectiveness of the machine.

The hemp, flax, or other material treated has the shive broken from it by its passage between the rollers O O; and, when subjected to the beaters, it is forced abruptly over the edges of the rigid bars down into cavities formed by the yielding of the bed-bars. When the beater-bars rise, the bed-bars are raised by their underlying springs, and push up the previously-indented portions of the material, so that it can be fed smoothly forward again over the bars. It is only fed a very short distance, however, before the beater-bars descend

again, and bend it over the rigid bars into the cavities again formed by the depression of the bed-bars. Thus it is softened, and is also swinged at the same time, and issues from the machines in what would be classified in the market as clean or extra-clean hemp, and this without forming any tow or other waste.

What I claim as my invention is—

1. The bed-bars C, supported upon the cross-bars H, resting on springs I, in combination with the beater-bars J and rigid bars D, said rigid bars being interposed between the bed-

bars, all constructed to operate substantially as and for the purpose specified.

2. In combination with the beater-bars J and yielding bed-bars C, the feed-rollers O, having sharp teeth or ribs, and having a pressure exerted on them to remove the shive from the material passing between them, as herein described.

JACOB EVANS.

Witnesses:

HENRY T. BROWN,

MICHAEL RYAN.