A. F. BRUCE.

Hemp and Flax Brake.

No. 3,641.

Patented June 24, 1844.

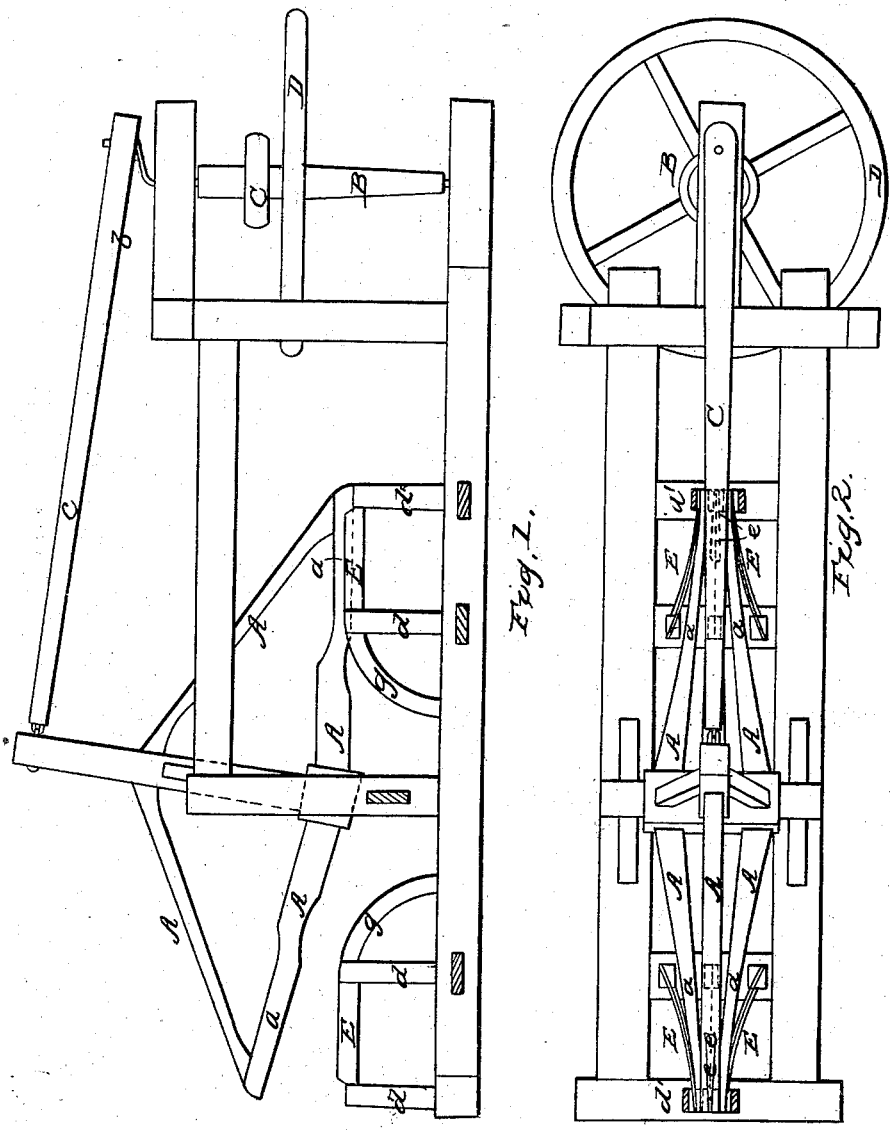

Fig. 1.

Fig. 2.

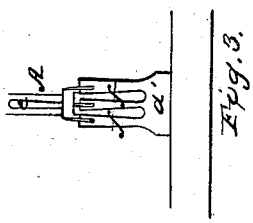

Fig. 3.

UNITED STATES PATENT OFFICE.

AARON F. BRUCE, OF MARSHALL P. O., MISSOURI.

IMPROVEMENT IN HEMP AND FLAX BRAKES.

Specification forming part of Letters Patent No. **3,641**, dated June 24, 1844.

To all whom it may concern:

Be it known that I, AARON F. BRUCE, (Marshall P. O.,) of Salina county, in the State of Missouri, have invented a new and useful Improvement in the Manner of Constructing a Hemp and Flax Brake; and I do hereby declare that the following is a full and exact description thereof.

The principle upon which my brake operates is something like that of the ordinary Dutch brake; but I have so arranged and combined the respective parts thereof as to adapt it to the feeding of the material to be broken at either end of the swords upon which the breaking is effected, and to cause the said swords to adapt themselves to the varying bulk of the article.

In the accompanying drawings, Figure 1 is a side elevation, and Fig. 2 a top view, of my machine.

A A is a vibrating beam, carrying the two moving swords *a a* at each of its ends.

B is a vertical shaft, having a crank, *b*, at its upper end, which vibrates the beam by means of the shackle-bar C. The shaft B may be made to revolve by a band embracing the whirl *c*. D represent a fly-wheel upon this shaft.

E E are the stationary slats or swords, each set consisting of three, which stand upon supports *d' d'*, constituting stands disconnected from the vibrating slats, so that hemp or flax to be broken may be fed in at either end of said stands, a provision of great importance in their proper management. The two outer swords of the stationary stands recede from the middle sword as they approach the middle of the machine, as represented in the drawings, and by means of this device the action of the vibrating swords upon the fibers may be regulated at pleasure, by simply shifting the material toward the narrow or toward the wide end, the action of the blow being diminished as the latter is approached. When the common brake is used by hand, the descent of the moving part will be regulated by the resistance with which it meets; but in a machine such as I have herein described, the moving swords must always descend to the same distane, and as the bulk of the material which is being acted upon will vary, it becomes necessary to allow the swords to yield laterally at their outer ends, where an increase in the bulk of the article would otherwise interfere with its proper action. To obviate this difficulty, I divide each of the outer ends of the vibrating beam A A into two parts by making a kerf or opening, as shown at *e e*, one of the swords which the beam carries being attached to each division of the beam. This opening, which separates the beam into springs, will allow the swords to yield laterally sufficiently far to accommodate them to the bulk of the material. I in like manner make two kerfs or openings in the standards *d'*, between the middle and the two outward stationary swords, converting these standards also into springs. Fig. 3 is a face view of one of these standards, *f f* being the kerfs or openings made between each of the side and middle swords, which openings allow the outer slats sufficient lateral movement for the object in view.

This machine should be driven with such velocity as that each of the moving swords may make about a hundred and fifty strokes in a minute. Its action has been found to be superior to any of the numerous more complex machines that have been invented for the same purpose, the greater number, if not the whole, of which have been abandoned after expensive trials. The Dutch brake will, it is well known, perform its work well, but its action is too slow for operations in the large way. My machine, while it has all the merits of the Dutch brake, is also rapid in its action, while the independent station which I have given to the stands, combined with the receding position and lateral yielding of the outer swords, presents advantages in the feeding and in the management of the article acted upon which have not heretofore been attained. To facilitate the feeding of the hemp, &c., on the stationary swords, I usually terminate them at their inner ends by curved pieces *g g*, Fig. 1.

Having thus fully described the nature of my machine and explained the manner in which the same operates, what I claim therein as new, and desire to secure by Letters Patent, is—

The manner of giving the necessary lateral play to the vibrating and the stationary swords, so as to accommodate themselves to the varying bulk of the material by attaching the swords to the divided beams and divided standards, as described.

Witnesses: AARON F. BRUCE.

THOS. P. JONES,

EDWN. L. BRUNDAGE.