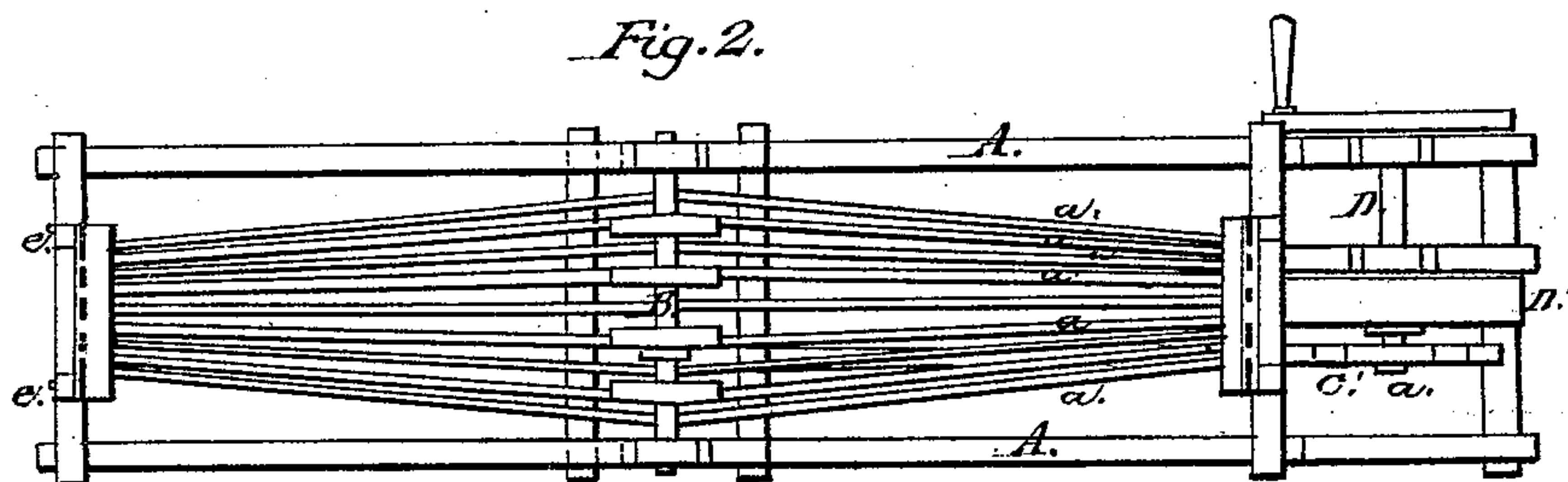
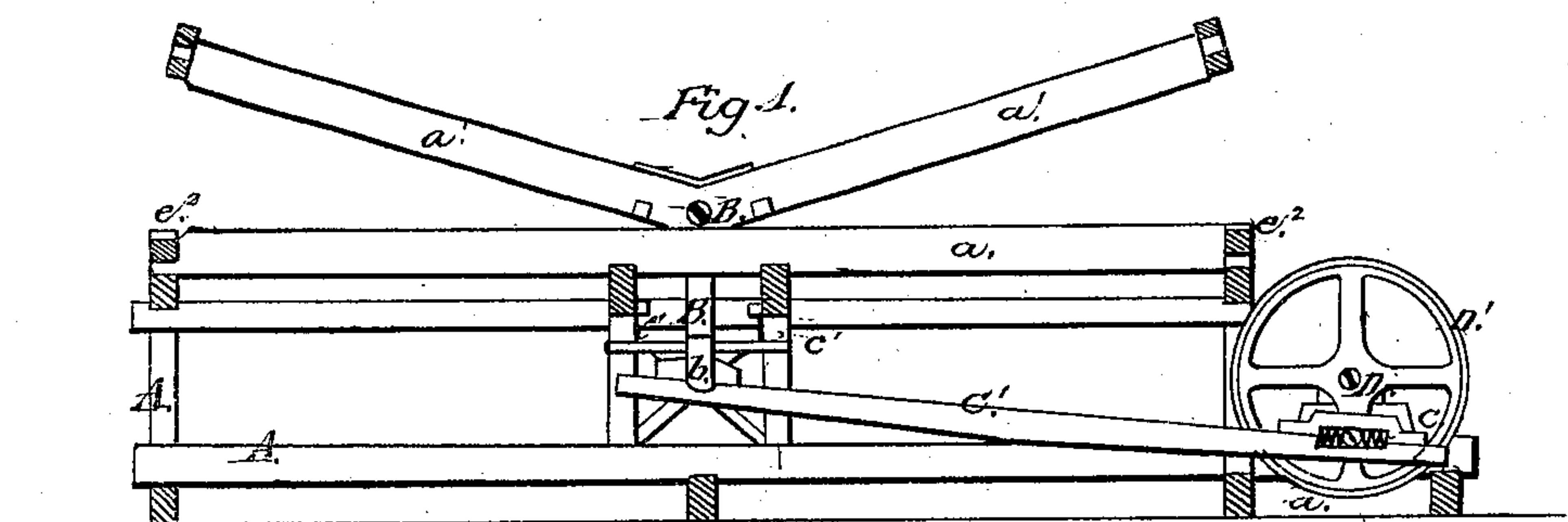


E. M. Crandal,

Hemp Brake.

No. 95059.

Patented Oct. 12. 1869.



Witnesses:
H. Paulis
R. Simon

Inventor:
E. M. Crandal

United States Patent Office.

E. M. CRANDAL, OF ALTON, ILLINOIS.

Letters Patent No. 95,659, dated, October 12, 1869.

IMPROVEMENT IN HEMP-BREAK.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, E. M. CRANDAL, of Alton, in the county of Madison, and State of Illinois, have made certain new and useful Improvements in Hemp-Breaks; and I do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object of this invention is to construct the breaks and their operating-machinery in such a manner as to strike a yielding blow upon the hemp, instead of a rigid, arbitrary blow, as other power-breaks do, thus imitating the kind and quality of breaking done by hand, and, indeed, from the experiments already made with this improved machine, the breaking by it will far exceed in quality the work done by hand.

To enable those skilled in the art to make and use my improved break, I will proceed to describe its construction and operation.

Figure 1, of the drawings, is a sectional elevation of the improved break.

Figure 2 is a plan of the same.

A frame-work, A, is provided for the support of the other parts of the machine, and the breaks *a* are to be affixed to the top part of this frame.

The operating-breaks *a'* are affixed to the rock-shaft B, which finds its bearings in the frame A.

There are two sets of the breaks *a'*, each set being adjusted radially from the shaft B, as shown in fig. 1, and the two, together, enclosing an angle of about one hundred and twenty degrees, more or less, between their top faces.

The breaks *a-a'* are to be of such form and section as will most readily be adapted to the purpose for which they are intended, and they may be constructed either wholly of metal or wholly of wood, or of wood faced with metal.

The ends nearest the shaft B should be placed further apart than the outer ends, as the hemp is to be first placed between the breaks at that end, while it is still in its rough, unbroken condition, and then, as the breaking progresses, the partially-broken hemp is to be worked out toward the outer ends of the breaks, where they are finer, and where the breaking-operation is to be completed.

The rock-shaft B is to receive its motion from an

arm, B', which is coupled, by means of the pitman C, with the driving-shaft D, or with the crank of the fly-wheel D.

In order to obviate the arbitrary motion which would be imparted from a crank to a pitman by the usual wrist-pin and bearing-boxes, there are springs, *c*, placed each side of the bearing-boxes of the wrist-pin *d*, and the same, or a similar arrangement, may be made for the wrist-pin *b*, of the arm B'.

At every stroke of the pitman C and the arm B, the breaks *a'*, at both ends of the machine, will strike the lower or stationary breaks *a*, and thoroughly and sufficiently bruise and break the intervening flax, which is to be fed into the machine by hand.

The introduction of the springs *c* into the pitman by the side of its wrist-bearings, will cause the breaks to strike a yielding blow, thereby enabling the operator to feed into the machine a larger or a smaller quantity of the unbroken flax, as indeed he must do, from the nature of the operation.

This yielding motion will secure the safety of the machine from fracture or overstraining, and at the same time give such a motion to the breaks as will actually improve the quality of the hemp broken.

The springs *c* may be affixed to the frame A in such a position as to arrest the progress of the arm B' just before the end of the stroke, and thereby relieve it from any very violent concussion.

Spring-cushions, *e*, should be affixed to the frame A, in such positions as to receive the shock of the breaks *a'*, for the same purpose, and also to ease the working of the machine, by giving to the breaks *a'*, a rebound after each stroke.

Having described my invention,

What I claim, is—

1. The operating of hemp-breaks, by means of a pitman, or its equivalent device, wherein the motion is made a yielding one, by means of the springs *c*, substantially as shown and described.

2. The combination of the double-acting break *a'*, its rock-shaft B, arm B', and springs *c*, substantially as and for the purposes set forth.

E. M. CRANDAL.

Witnesses:

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