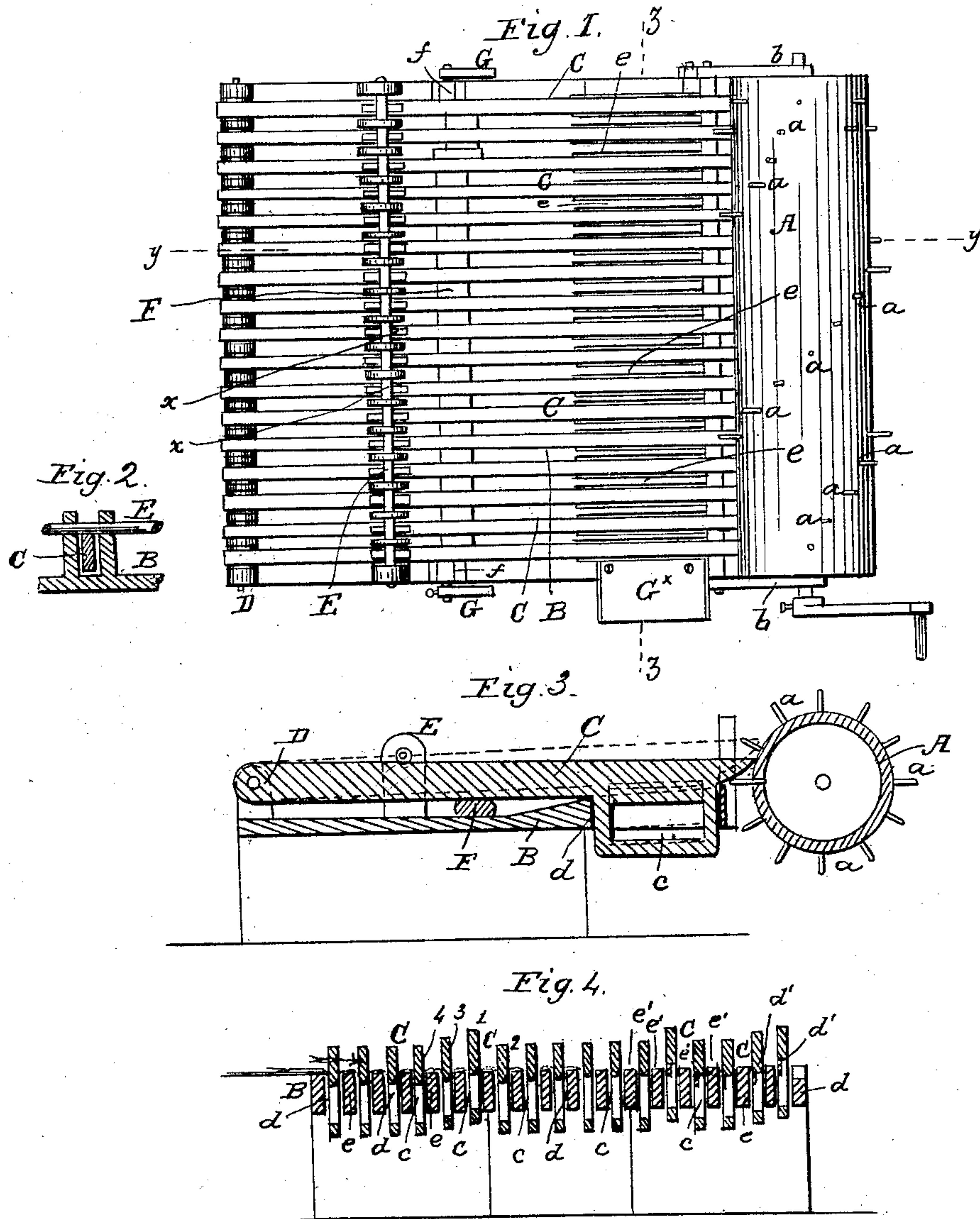


A. W. HALL.
Flax and Hemp Brake.

No. 45,154.

Patented Nov. 22, 1864.



Witnesses:
Henry Morris
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UNITED STATES PATENT OFFICE.

A. W. HALL, OF NEW YORK, N. Y.

IMPROVEMENT IN FLAX AND HEMP BRAKES.

Specification forming part of Letters Patent No. 45,154, dated November 22, 1864.

To all whom it may concern:

Be it known that I, A. W. HALL, of the city, county, and State of New York, have invented a new and Improved Flax and Hemp Brake; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, Sheet No. 1, is a plan or top view of my invention; Fig. 2, a transverse section of a portion of the same, taken in the line *x x*, Fig. 1; Fig. 3, Sheet No. 2, a longitudinal vertical section of the same, taken in the line *y y*, Fig. 1; Fig. 4, a transverse vertical section of the same, taken in line *z z*, Fig. 1.

Similar letters of reference indicate like parts.

This invention relates to a new and improved machine for operating upon flax and hemp for the purpose of separating the fiber from the woody portion thereof.

The invention consists in a novel construction and arrangement of beaters and a bed, as hereinafter fully shown and described, whereby the operations of beating, scutching, and feeding the material along in the machine are performed simultaneously, and the fiber, if desired, cut into pieces of a requisite length to form stock for paper and for other purposes where a short fiber is required.

A represents a cylinder provided with pins *a*, arranged in one or more spiral rows, as shown in Fig. 1. This cylinder has its bearings *b* at one end of a horizontal bed, B, over which a series of beaters, C, are placed, one end of the latter being fitted loosely on a shaft, D, and the opposite ends extending nearly to the cylinder A, so that they may be operated upon by the pins *a*. These beaters are raised by the pins *a* of cylinders A, and they are forced down by an india-rubber spring, E, which extends across them, and has its ends secured to the sides of the bed B. Any other spring arrangement, however, may be employed for this purpose. The beaters C are each formed with a rectangular opening, *c*, at their front parts, and these openings are below the main portions of the beaters, as shown

clearly in Fig. 3, and when the beaters are fully down and rest or bear upon the bed B. Said openings are in oblong slots *d*, made in the bed B, (see Figs. 3 and 4,) the bars *e* between said slots serving to support the flax or hemp while being operated upon by the beaters. On the bed B, underneath the beaters C, there is placed a flat bar, F, which is provided at each end with a journal, *f*, said journals being near one edge of the bar F. One or both of these journals *f* has a lever, G, attached to it, by which the bar F may be turned up edgewise for the purpose of raising the beaters to bring their openings *c* in line with each other when necessary. The beaters C are operated by the pins *a* in a consecutive manner, one beater being raised, and just before it reaches its culminating point, the adjoining beater is raised, the first dropping or being forced down by the spring before the second reaches its culminating point.

The flax or hemp to be operated upon is laid on a table, G^x, which is at one side of the bed B, and is passed into the openings *c* of the first two or three beaters. As the beaters fall they break and scutch the flax or hemp, the latter resting on the bars *e*. As each beater falls the succeeding one is rising, as before stated, and the flax or hemp is drawn or fed along by the descending beater, as will be fully understood by referring to Fig. 4, in which an elevated beater, 1, is shown rising from the flax or hemp, while a beater, 2, just fallen or forced down, has drawn the flax or hemp taut underneath the beater 1, the flax or hemp being held by the beater 3, as the beater 2 is forced down. Before the beater 1 reaches its culminating point, but after the beater 2 has fallen, the beater 3 rises to liberate the flax or hemp for the beater 1 to feed along when it is forced down, the beater 4 then holding the flax or hemp. Thus it will be seen that the flax or hemp is fed along in the direction indicated by the arrow through the openings *c* of the beaters by the operation of the latter only, the beaters working consecutively in pairs through the whole series. If a single spiral row of pins *a* are employed, one pair of beaters are in operation only at once; but if two rows of pins are used,

two pairs will be in operation. One or more spiral rows of pins may be used on the cylinder A, as desired.

On two of the beaters C at the discharge end or side of the machine I attach plates *d'*, having cutting-edges to form knives to cut the flax or hemp, and plates *e'*, having toothed edges like saws, may be attached to three or four of the adjoining beaters to serve to separate the fiber from the woody portion of the flax or hemp, and also to divide the fiber into fine threads. These saw-blades also serve as efficient scutchers.

When the fiber does not require to be cut, the knives *d* are detached from the beaters at the discharge end or side of the machine.

I do not claim, broadly, the employment or use of a series of beaters working in a slotted bed, for that is an old and well known device; but

I claim as new and desire to secure by Letters Patent—

1. The employment or use of a series of beaters provided with openings *c* and operated by pins placed in one or more spiral rows

on a cylinder, A, in connection with the slotted bed B and a suitable spring or springs, all arranged so that the beaters will work consecutively in pairs and perform the operations of beating or breaking, scutching, and feeding, simultaneously or at one operation, as set forth.

2. The bar F when applied to the bed B and underneath the beaters C, substantially as and for the purpose specified.

3. The knives or cutters *d* and saws *e*, when applied to or used in combination with the beaters C, substantially as and for the purpose herein set forth.

4. The openings *c* in the beaters C, made or arranged as shown, with a bottom piece or bar, so as to raise the flax or hemp from between the bars *e*, and admit of its being fed along by the descent or downstroke of the beaters, as set forth.

A. W. HALL.

Witnesses:

JAMES P. HALL,

WM. F. McNAMARA.