B. M. SMITH.

Hemp Brake.

No. 4,219.

Patented Oct. 7, 1845.

Fig. 2.

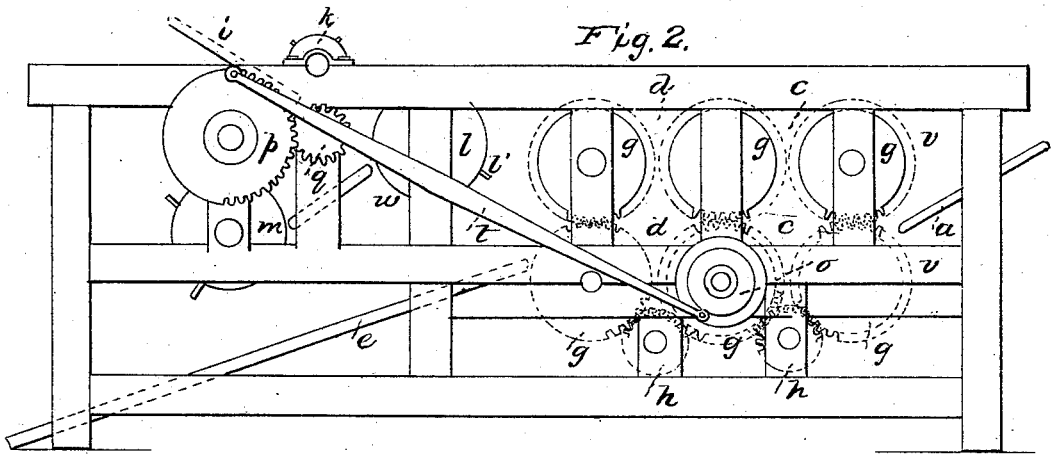
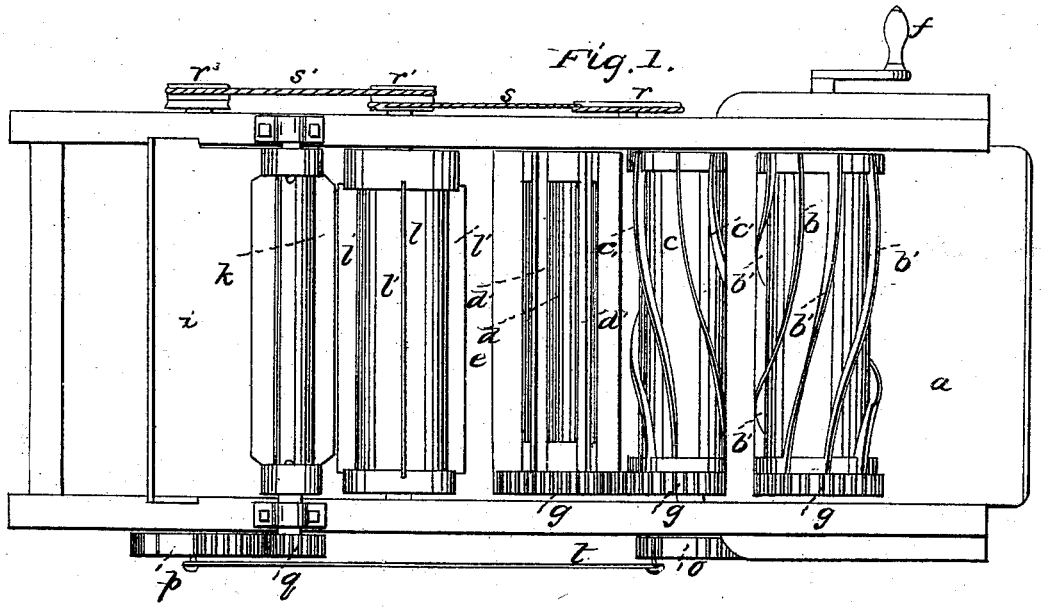


Fig. 1.



UNITED STATES PATENT OFFICE.

BENJAMIN M. SMITH, OF MASSILLON, OHIO.

IMPROVEMENT IN MACHINERY FOR BREAKING AND DRESSING FLAX AND HEMP.

Specification forming part of Letters Patent No. **4,219**, dated October 7, 1845.

To all whom it may concern:

Be it known that I, BENJAMIN M. SMITH, of Massillon, in the county of Hamilton and State of Ohio, have invented new and useful Improvements in Machinery for Breaking and Scutching or Cleaning Flax and Hemp; and I do hereby declare that the following is a full, clear, and exact description of the principle, construction, and operation thereof, reference being had to the accompanying drawings, which make part of the same, in which—

Figure 1 is a top view of the machine, and Fig. 2 a longitudinal elevation.

The same letters are used in all the figures to indicate like parts.

The nature of my invention and what distinguishes it from all other things before known are, first, in the breaking part, making the spiral or oblique slats on the breaking-rollers reversed on the different sets, so that the obliquity on one set shall be the reverse of that on the second set, and so on should more than two sets be employed; and, second, in the scutching or dressing machine, the combining, with the dressing cylinders or beaters, feeding-rollers which have a vibrating motion to feed in and draw back the flax or hemp while under the action of the scutchers or beaters, whereby the woody and other foreign particles are more effectually cleaned out.

The hemp or flax is fed in by an attendant on the inclined feed-board *a*, and passes between the first set of breaking-rollers, *b b*, the peripheries of which are armed with slats *b' b'*, arranged diagonally, or, as it is generally termed, "spirally," and on leaving this set it passes between another set of rollers, *c c*, armed, in the like manner as the preceding, with oblique slats *c' c'*, the inclination of which is the reverse of those on the rollers *b b*, and from this set it passes to a set, *d d*, having the slats *d' d'* parallel with their axis, which deliver the hemp or flax onto an inclined board, *e*, thoroughly broken. The lower roller of the first set, *b b*, is put in motion by a crank-handle, *f*, if worked by hand, or by a band in lieu thereof if worked by power, and each roller is provided with a cog-wheel, *g*, those on each set meshing into each other; and to communicate motion from one set to the other, a pinion, *h*, is employed to form the connection between the wheel on the lower roller of the first set and the corresponding one of the second set, and the connection between the second and third sets is effected in like manner. Instead of slats attached to the peripheries of the breaking-rollers, flutes may be substituted, although I prefer the slats. After the flax or hemp has been delivered from the breaking-machine onto the inclined board *e*, it is taken from thence by an attendant and laid on the inclined feed-board *i* of the scutching or dressing machine and carried in by the fluted feed-rollers *k k*, and by them presented to the action of the scutching or dressing cylinder *l*, armed with beaters *l' l'*, of the usual construction, which directs it onto the inclined board *m*, by which it is conducted to the second scutching or dressing cylinder, *n*, armed with beaters in like manner as the cylinder *l*, the lower edge of the board *m* serving as a rest to hold the fibers while under the action of this cylinder.

The hemp or flax, as stated above, is fed in and drawn out again while under the action of the scutchers, instead of being carried directly through or held permanently, which tends in a great measure to separate more thoroughly the woody and foreign matter from the fiber. This is effected by giving to the fluted feed-rollers *k k* a reciprocating motion on their axis, which may be effected by means of a connected rod, *t*, extending from a crank-pin on a wheel, *o*, on the shaft of one of the breaking-rollers of the breaking-machine to a crank-pin on a segment cog-wheel, *p*, the cogs of which take into and actuate a pinion, *q*, on the shaft of one of the fluted feed-rollers *k*, and as the sweep of the crank-pin on the wheel *p* is greater than that on the wheel *o*, of course the wheel *p* only makes part of a revolution, and is then carried back. This motion, it is obvious, can be communicated to the feed-rollers by other known mechanical means, not necessary to describe, as they are well known to all machinists.

The attendant feeds the hemp into the machine first one end and then the other, the peculiar motion of the feed-rollers enabling him so to do.

Motion is communicated to the scutching-rollers *l* and *n* from the shaft of one of the breaking-rollers by an arrangement of band-wheels *r r' r²* and bands *s s'*.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a series of pairs of cylinders, each pair having spiral-formed slats or bars on them, the slats in each pair running in contrary direction from that immediately preceding, so as to break the hemp in several directions, as herein set forth.

2. In combination with the dressing cylinor cylinders, the vibrating motion of the feeding-rollers, so as to draw the hemp in and out again, as before described.

BENJAMIN M. SMITH.

Witnesses:
E. SINGER,
ALLAN HATCH.