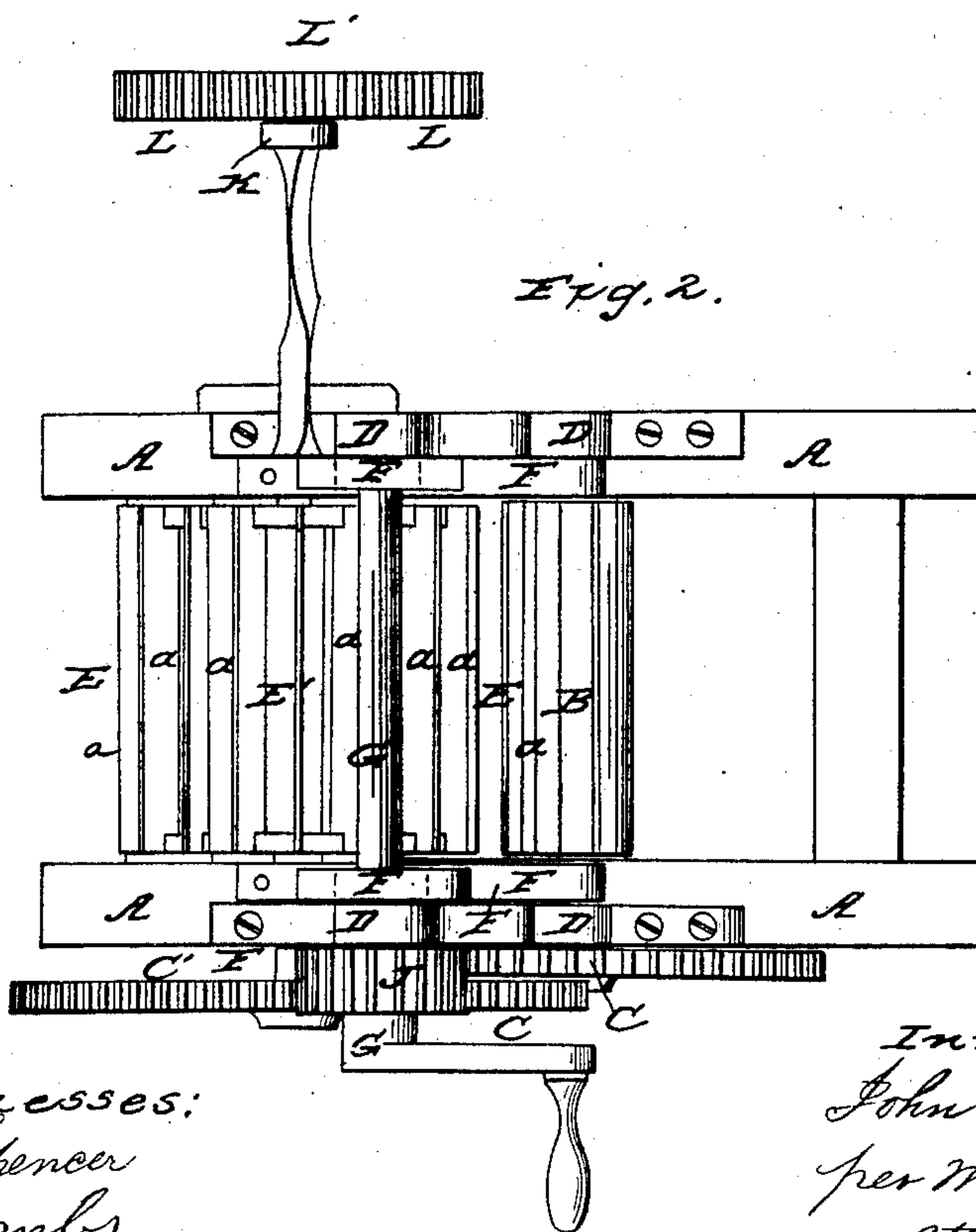
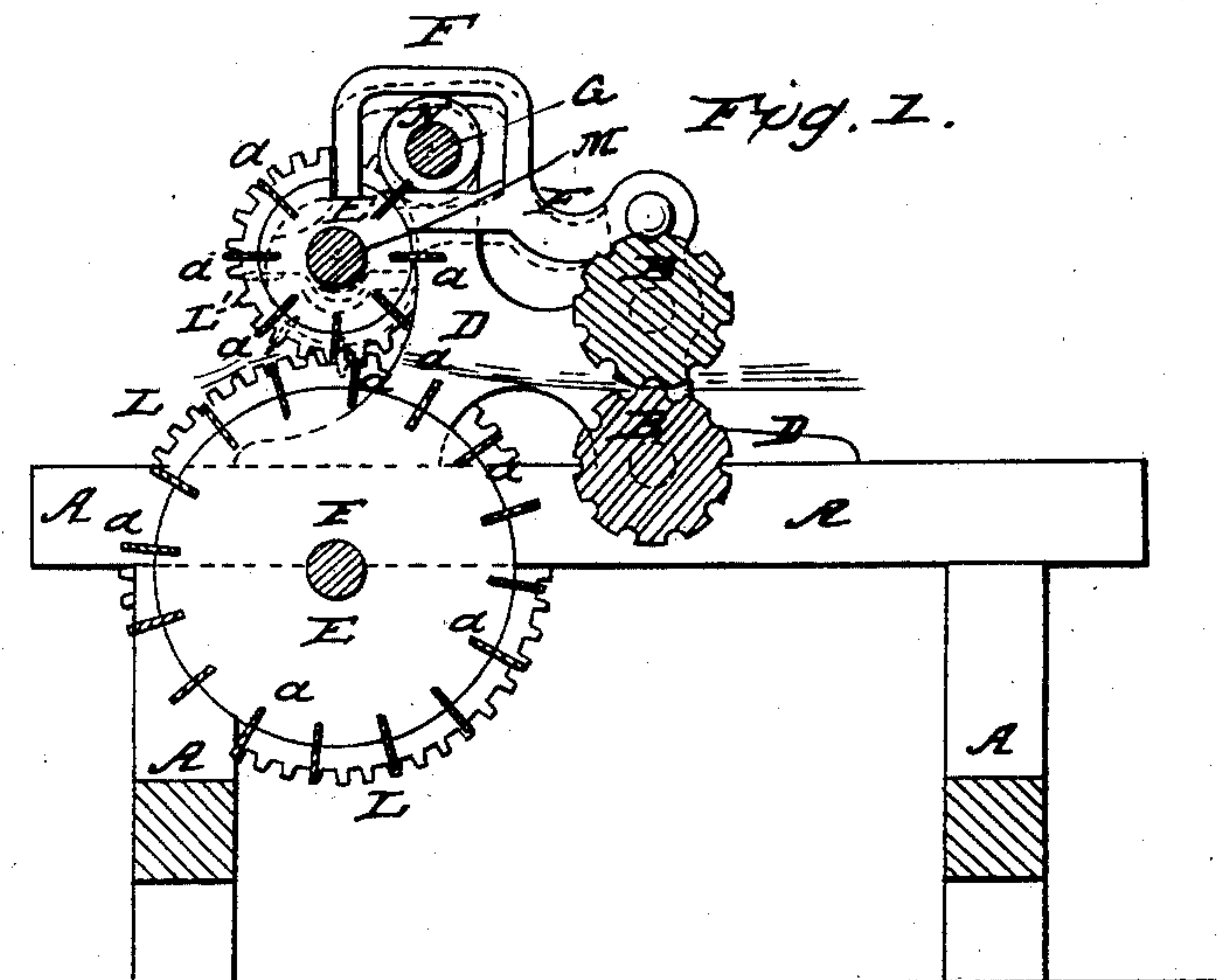


J. MILLS, Jr.

Hemp Brake.

No. 28,497.

Patented May 29, 1860.



Witnesses:
R. S. Spencer
J. W. Coombs

Inventor:
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UNITED STATES PATENT OFFICE

JOHN MILLS, JR., OF QUINCY, ILLINOIS.

IMPROVEMENT IN HEMP-BRAKES.

Specification forming part of Letters Patent No. 28,497, dated May 29, 1860.

To all whom it may concern:

Be it known that I, JOHN MILLS, Jr., of Quincy, in the county of Adams and State of Illinois, have invented a new and Improved Hemp-Brake; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a longitudinal vertical section taken through the machine, showing the several parts for breaking, beating, and cleansing the hemp, with the upper beating and cleansing roller in its two relative positions with the lower roller. Fig. 2 is a plan view of the machine, or that portion of it necessary to illustrate my invention.

Similar letters of reference indicate corresponding parts in both figures.

This invention consists in arranging in front of suitable feed brake-rollers two beating or cleaning beaters, one placed above the other, and the upper one, the speed of which is greater than that of the lower one, having a vibrating and at the same time a rotary motion. The motions of the two cylinders are to be in such relative position to each other that the hemp will be drawn out and kept straight to give the upper cleaning-wheel a more efficient blow, and to prevent the hemp from tangling. All the shives are thus removed and the perfect operation upon the hemp before it leaves the machine is insured, as will be hereinafter described and represented.

To enable those skilled in the art to fully understand my invention, I will proceed to describe its construction and operation.

In the drawings, A represents the framework, upon which the several parts for breaking and cleaning the hemp is supported. These parts consist, first, of two rollers of about the same size, (lettered B B.) The surface of these rollers is fluted or scored out with the scores running in the direction of their lengths, as clearly shown in Fig. 2. The lower roller is turned by a gear-wheel, C, which is keyed to its shaft and receives its motion from the main crank-shaft, while the upper roller is turned, as the hemp-stalks are passing between it, by the friction of contact with the stalks while they are crushed. The fluting on these rollers serves to prevent the stalks from being drawn from between the rollers faster than

they feed. The shaft of these brake-rollers B B have their bearings in brackets D D, that project up from frame A, as shown.

In front of the breaking-rollers are arranged two beating and cleaning beaters, E E', which have their shaft-bearings in the frame A and vibrating arms F F, respectively. The shaft of the lower and largest beater passes out on each side of the frame A, and receives its motion from the crank-shaft G through the medium of gear-wheel C' and double pinion J, into which pinion engages also the gear-wheel C, above referred to. The opposite end of shaft E' of beater E passes out a suitable distance from the side of frame A, and has its bearings in a bracket, K, which latter is also supported by the frame A, and on the extreme end of said shaft is keyed a large spur-wheel, L, the teeth of which engage with a smaller spur-wheel, L', which is keyed to the shaft M of beater E'. This latter shaft is supported at its extreme end also by bracket K, which bracket is fixed rigidly to the frame A. Rotary motion is thus transmitted to beater E' from the main crank or driving-shaft G. This beater E', besides receiving a rotary motion, which is much swifter than its lower beater, E, has imparted to it a vibrating motion, which it receives from arms F F, that are pivoted to the brackets D D over the axes of the breaking-rollers B B, which arms are operated so as to rise and fall at suitable times by two cams or eccentrics, N N, keyed to the main shaft G and turning in the slots of arms F F, as shown by Fig. 1. This vibrating motion given to the beater, and at the same time a rotary motion, involves the necessity of jointing the driving-shaft M of the beater, so that it will be free to vibrate with the arms F F, and at the same time have a positive action. This may be done by thinning down shaft M between the arm F and its outer bearing, so that the thin portions of the shaft will be at right angles to each other, and thus allow a flexing of the shaft at each movement of the arms F F; but the strongest and better plan will be to interpose a universal joint at a suitable point between the spur-wheel L' and arm F.

The beaters E E' are constructed in the following manner: The length is determined, and two heads of the proper diameter suitably secured to the shaft. The swords or slats *a a* are then set across from head to head, and set

into the heads a suitable distance to secure them tightly. The slats are placed at regular distances apart around the heads, and their surfaces are all radial from a common center—viz., the axis of the shaft. The upper beater-slats are at the same distance apart as those of the cylinder; but not so many of them are used on this as on the large one. This beater should not be more than half the diameter of the lower beater, or so that while the one is turning once round the other will make two revolutions.

It is the arrangement for giving two motions to the upper beater that constitutes my invention and improvement, the object of which will be understood by the following description of the operation of the machine. The stalks of hemp are fed from a hopper to the breaking-rollers B B, and between these rollers, where they are crushed or broken to a state fit to be received by the cleaning-beaters E E', the relative motions of which are in a suitable ratio to that of the breaking-rollers, so that the crushed stalks of hemp will be drawn only sufficiently tight, so as to be kept straight and prevent them from choking or

tangling. The stalks are received between the swords or slats α of the two open beaters, and are broken over the slats, as shown by Fig. 1, by a sudden (but not too much so) beating action of the upper beater, which operation removes all the shives and at the same time discharges the dressed hemp freely from the machine.

With this very simple machine the hemp is dressed in a perfect manner without liability of injury to its fibers.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

The rotary cleaning and beating beater E', arranged over beater E, when the same has also imparted to it a vibratory motion by the arrangement substantially as herein described, or by any other suitable machinery, whereby a beating and at the same time a forward motion is given to the hemp, as set forth.

JOHN MILLS, JR.

Witnesses:

NEWTON FLUGG,
J. R. VAN DORN.