

No. 653,663.

Patented July 17, 1900.

T. R. C. CROWELL.

MACHINE FOR CLEANING AND BREAKING FLAX.

(Application filed Aug. 21, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

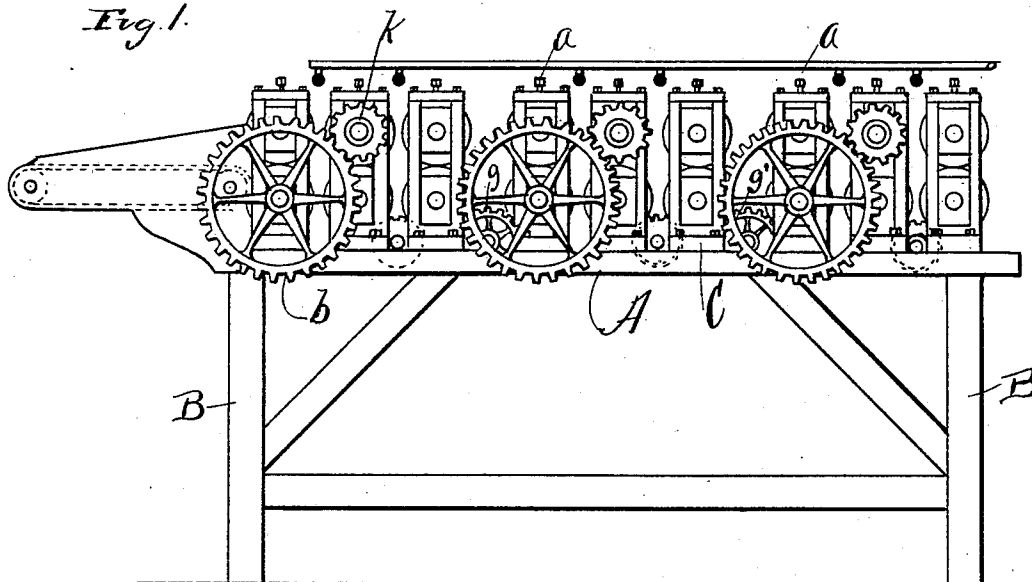
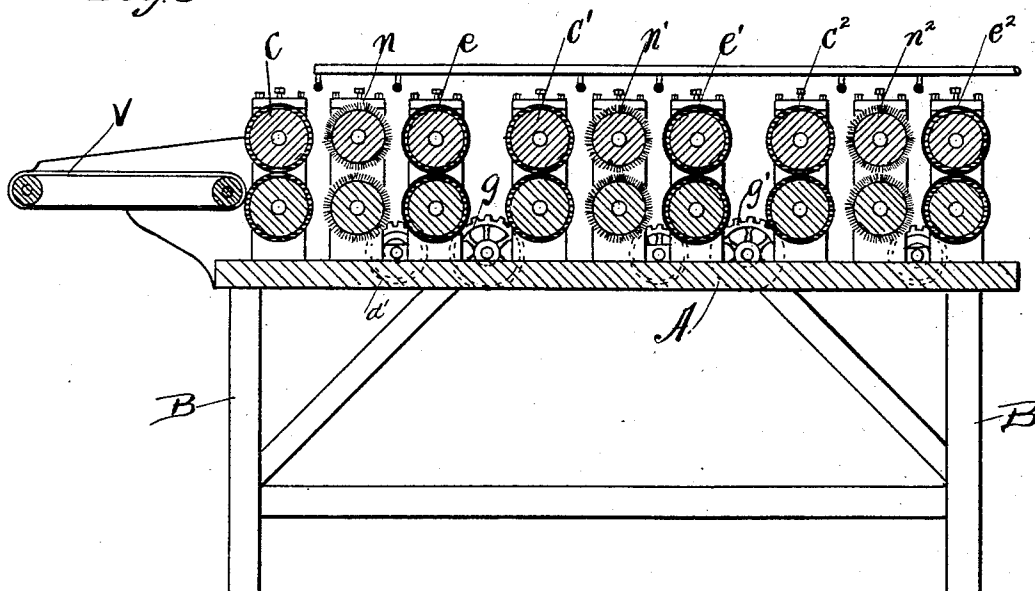


Fig. 3.



Witnesses.

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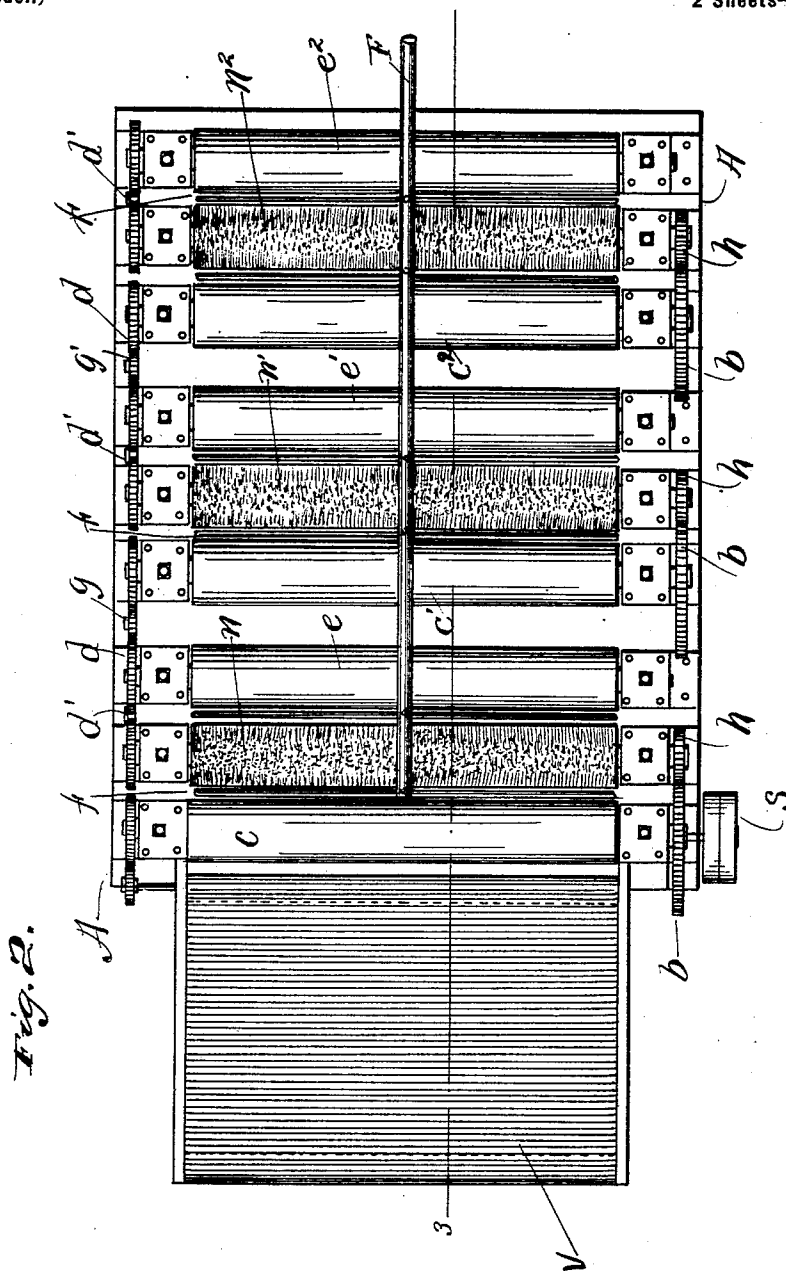
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Witnesses.

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UNITED STATES PATENT OFFICE.

THACHER R. C. CROWELL, OF FARGO, NORTH DAKOTA, ASSIGNOR TO THE NATIONAL FLAX FIBER COMPANY, OF BOSTON, MASSACHUSETTS.

MACHINE FOR CLEANING AND BREAKING FLAX.

SPECIFICATION forming part of Letters Patent No. 653,663, dated July 17, 1900.

Application filed August 21, 1899. Serial No. 727,899. (No model.)

To all whom it may concern:

Be it known that I, THACHER R. C. CROWELL, of Fargo, in the county of Cass and State of North Dakota, have invented certain new and useful Improvements in Machines for Breaking and Cleaning Flax; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to flax cleaning and dressing machinery. It is fully explained and illustrated in this specification and the accompanying drawings.

Figure 1 is an elevation of one side of the machine, showing the gearing for increasing the speed of the successive sets of rolls. Fig. 2 represents a top view of the machine. Fig. 3 shows a vertical section of the machine, taken lengthwise on line 3 3 in Fig. 2.

The object of the invention is to make a machine to break up the outside bark of the flax-stalk and by brushing and rubbing to remove it from the fiber in the most thorough and expeditious manner with the least amount of waste and without injury to the product.

A is the top girth of a side frame, which has the usual supports or legs B B, and two of these side frames are connected together by cross-girths in the usual way. The rolls that form the main feature of the machine are supported at each end on these two side frames. The rolls are held in sets of three pairs in each set by their shafts at each end in boxes in the slotted standards C, bolted on the top of each top girth A of the machine-frame. The top roll of each pair has its box in the standards made adjustable vertically by means of set-screws *a a* in the top bar of the standard to regulate the pressure of the rolls on the flax. The first pair *c c'* of rolls in each set act as feed-rolls for the other two pairs *n* and *e n'* *e' n² e²* in each set and are covered with felt. The middle pair of rolls *n, n'*, and *n²* of each set are brush-rolls having bristles or the like set in their peripheries. The last pair of rolls *e e' e²* of each set are preferably covered with felt and provided with a covering of chamois-skin on the outside. The first pair of rolls in

each set acting as feed-rolls for the other two pairs have a speed of about one-third of that of second and third pairs of the set. The first pair of rolls *c*, being driven at about thirty turns per minute, the next two pairs of the set would have a speed by means of the gears *b h* of about ninety turns per minute, and the first rolls *c' c'* of the second set receiving the material from the last pair of rolls *e* of the first set would run at the same speed—that is, ninety turns per minute; but the next two pairs of rolls *n'* and *e'* would by means of the gears *b' h'* run about three times as fast—that is, at about two hundred and seventy turns per minute. The first pair of rolls *c²* of the third set would in like manner take the same speed of two hundred and seventy turns per minute, and the other two pairs of rolls *n² e²* would run three times as fast, or at seven hundred and ten turns per minute. This proportion in the speed of the rolls may be varied somewhat if preferred. The gears by which the proportional speed for the different pairs of rolls is obtained are the same for each of the three sets, and by putting intermediate gears *g g'* between the last lower roll *e* of the first set of rolls and the first lower roll *c'* of the second set and between the last roll *e'* of the second set and the first roll *c²* of the third set the increasing speed, as set forth above, for the different sets of rolls will be obtained, or, if preferred, pulleys of the proper size may be put on the shafts of the second and third pair of feed-rolls *c² c³*, as the one S shown on the lower roll *c* of the first pair, and all three sets can be driven by belts from a counter-shaft overhead. The upper and lower roll of each pair are geared together by the gears *d d*, and the second and third pairs of each set are geared together by an intermediate gear *d'* to run at the same speed. This arrangement of the gearing may be varied and the same results in speed obtained.

To moisten the flax and soften the outside to facilitate its removal by the rolls, pipes *fff*, connected with a supply of water by the main pipe F, are put across the machine over between the first roll of each set and the second roll and between the second and third roll to allow water to drip through perfora-

tions in their under sides onto the flax. A feed-apron V is placed at one end of the machine, onto which the flax is put to enter the first pair of feed-rolls *c*, power being applied
 5 by means of a belt on the pulley S. The flax will be drawn in by the rolls *c* and pass onto the second and third pair, the increased speed of which will thoroughly rub and brush the flax, and this treatment is repeated by each
 10 successive set. To make the cleaning more thorough, the brush-rolls in each set are made with finer brushes than the brush-rolls of the next preceding set.

Having thus described my improvements,
 15 I claim as my invention and desire to secure by Letters Patent—

1. In a flax breaking and cleaning machine the combination of two or more sets of rolls, each set consisting of a pair of feed-rolls, a
 20 pair of brush-rolls, and a pair of rolls covered with felt and chamois-skin or like material, substantially as described.

2. In a flax breaking and cleaning machine the combination of two or more sets of rolls,
 25 each set consisting of a pair of feed-rolls, a pair of brush-rolls, and a pair of rolls covered with felt and chamois-skin or like material,

with means for moistening the flax between the pairs of rolls, substantially as described.

3. In a machine for breaking and cleaning
 30 flax, the combination of two or more sets of rolls, each set consisting of a pair of feed-rolls, a pair of brush-rolls and a pair of cleaning-rolls, the brush-rolls of each succeeding set being made with finer brushes than the
 35 brush-roll of the preceding set, substantially as described.

4. In a flax breaking and cleaning machine, the combination of two or more sets of rolls, each set consisting of a pair of feed-rolls, a
 40 pair of brush-rolls and a pair of rolls covered with felt, chamois-skin or like material, the rolls of each pair being geared together, an intermediate gear connecting the second and
 45 third pair of each set, and an intermediate gear connecting the last pair of rolls of each set with the first pair of the next set, substantially as described.

In testimony whereof I have hereunto set my hand this 16th day of August, A. D. 1899.
 50

THACHER R. C. CROWELL.

In presence of—

STEWART WORDEN,
 M. E. CLEVELAND.