CRANE & HAMILTON.

Hemp Brake.

No. 6,984. Patented Jan'y 1, 1850.

Fig. 1.

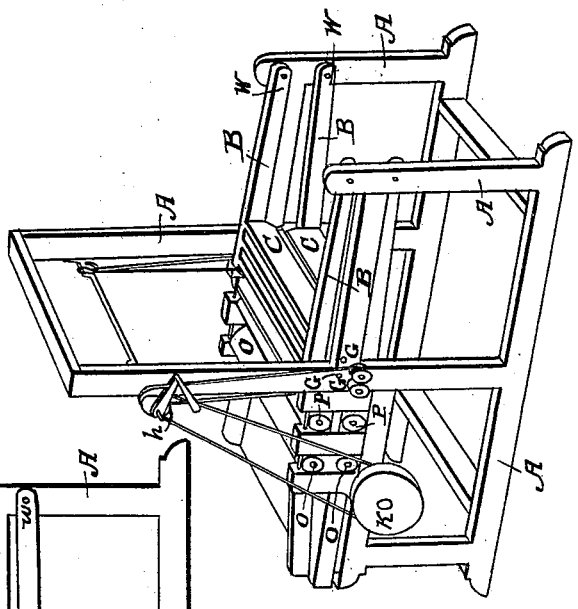


Fig. 2.

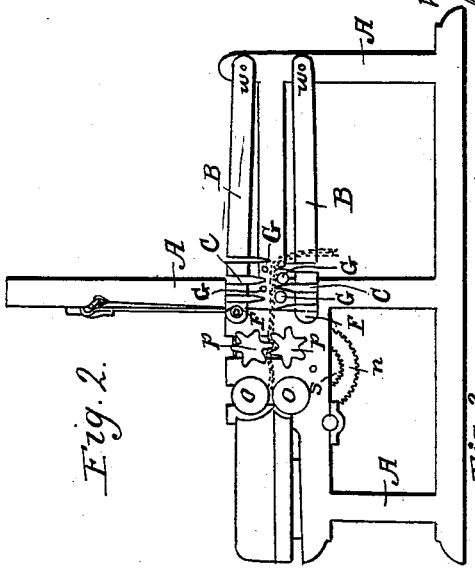
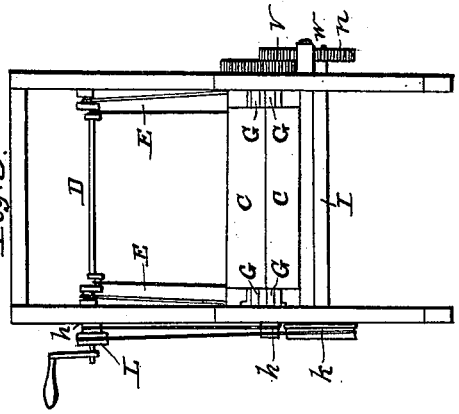


Fig. 3.



UNITED STATES PATENT OFFICE.

JONATHAN CRANE AND F. H. HAMILTON, OF SCHENECTADY, NEW YORK.

IMPROVEMENT IN HEMP-BRAKES.

Specification forming part of Letters Patent No. **6,984**, dated January 1, 1850.

To all whom it may concern:

Be it known that we, JONATHAN CRANE and F. H. HAMILTON, of the city and county of Schenectady, and State of New York, have invented a new and useful Machine for Breaking Flax or Hemp; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings and the letters of reference marked thereon, making a part of this specification, in which—

Figure is a perspective view. Fig. 2 is a transverse section giving a view of the interior of the machine. Fig. 3 gives an end view of the same.

Letters A A A A represent the frame-work of the machine.

Letters B B, Figs. 1 and 3, represent the upper and lower jaws, one end of which works upon a pivot at letters W W, Figs. 1 and 2, and the other ends are suspended by the pitmen.

Letters C C, Figs. 1 and 3, are the swords or beaters, and letters C C, Fig. 2, gives an end view of the swords or beaters, where they are inserted into and at right angles with the jaws by a dovetailed groove.

Letter D, Fig. 3, is a quadruple crank-shaft, each of which cranks is but five-eighths of an inch long, describing a circle of one and a fourth inch.

Letters E E, Fig. 3, are the pitmen or connecting-rods between the cranks and the upper and lower jaws, at letters F F, Fig. 2, by which arrangement the upper and lower swords or beaters are made to open and shut simultaneously, making an opening between the upper and lower swords or beaters, as in Fig. 2, of two and one-half inches, with cranks of only five-eighths of an inch.

Between each pair of swords or beaters we place a roller or slat, G G G G, Fig. 2. Said rollers or slats may be round, flat, square, or any other shape. The upper ones may be made permanent at each end in the frame. The lower ones have journals which run in the frame at each end. One end of said lower rollers or slats pass through the frame far enough to receive a pulley on each, around which pulleys we pass a band, and also around a pulley on a crank-shaft, as represented at letters *h h*, Figs. 1 and 3, by which the lower slats or rollers are made to revolve. When the swords or beaters are open, the flax or hemp lies upon the lower rollers or slats, G G, as is represented by the dotted lines in Fig. 2. The lower rollers or slats are continually revolving independent of the swords or beaters, which throws the flax or hemp from between them, and keeps it moving forward, and prevents it from kinking or stopping between the swords or beaters.

Letter I, Fig. 3, is a shaft, on one end of which is a pulley, K, attached to the crank-shaft by a pulley and band at letter L. On the other end of the shaft is a small pinion, *m*, matching into pinion *n*, Figs. 2 and 3.

Letters O O, Fig. 2, are two smooth feed-rollers.

Letters *p p*, Fig. 2, are two fluted feed and crushing rollers. On one end of each we place a pinion matching into each other.

On the shaft of the wheel *n* is a pinion, *s*, Fig. 2, which matches into the pinion on lower roller *p*, and also into a pinion on the end of the lower roller O, so that the band on the pulleys L and K, Fig. 2, may give all the feed-rollers the requisite motion. The flax or hemp is placed upon the apron *u*, Fig. 2. It then passes through the feed-rollers O O; then through the feed and crushing rollers *p p*. It then passes through the swords or beaters C C, and is kept moving forward straight and smooth by the revolving motion of the lower rollers or slats, G G, Fig. 2.

The advantages we derive from a machine of this construction are as follows: First, by placing the jaws in a parallel position with each other, or nearly so, and suspending them by the pitmen or connecting-rods at one end and by pivots at the other, we give an equal, easy, and perfectly true motion to the swords or beaters, making them strike the flax or hemp equally at all points and at the same time; second, by moving the upper and under jaws and swords simultaneously, and (not having any stationary swords or beaters) they give the flax or hemp a sharp, quick blow, both on the upper and under side at the same time, so that the flax or hemp is broken equally as well on the under as on the upper side, which

would not be the case if either the upper or a lower sword or beater were stationary; third, by using the quadruple crank, and thereby giving a simultaneous movement to the jaws and swords or beaters, the cranks require to be but five-eighths of an inch in length to give a combined motion to both sets of swords or beaters of two and one-half inches, the sweep of each crank being but one and one-fourth inch makes an equal and easy motion, and may be run at a very fast speed without any shake or jar—in short, forming a complete balance of the upper and lower jaws with their swords or beaters, which swords or beaters mesh into each other but three-eighths of an inch, to break the flax or hemp sufficiently, by which arrangement the fiber of the flax or hemp is not broken or injured; fourth, by using the revolving slats or rollers in connecnection with the swords or beaters, the flax or hemp is thrown out from between the swords or beaters when they open, and is left resting on the lower slats or rollers, which keep continually revolving, thereby moving the flax or hemp forward, keeping it straight and smooth, and preventing it from snarling or kinking up in the swords or beaters, as it otherwise would do, and by means of which the flax or hemp may be carried through any required number of swords or beaters.

What we claim as our invention, and desire to secure by Letters Patent, is—

The combination of the revolving rollers with the swords or beaters, arranged and operating substantially in the manner herein described.

JONATHAN CRANE.
F. H. HAMILTON.

Witnesses:
B. V. T. VEDDEK,
THOS. BULLOCK.