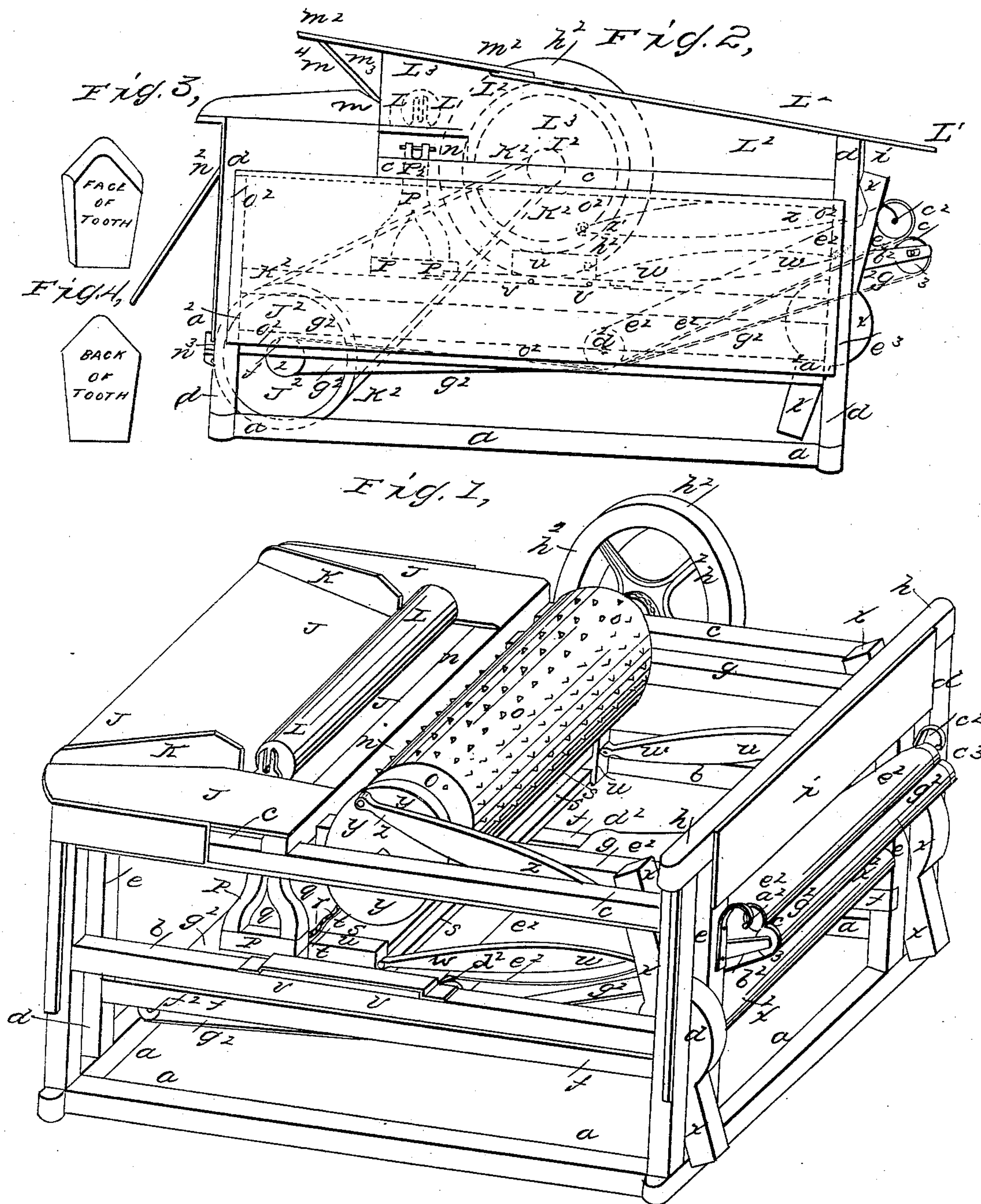


W. C. HUTCHINSON.

Hemp Brake.

No. 21,680.

Patented Oct. 5, 1858.





# UNITED STATES PATENT OFFICE.

WILLIAM C. HUTCHINSON, OF ST. JOSEPH, MISSOURI.

## IMPROVEMENT IN HEMP-BRAKES.

Specification forming part of Letters Patent No. 21,680, dated October 5, 1858.

*To all whom it may concern:*

Be it known that I, WILLIAM C. HUTCHINSON, of St. Joseph, in the county of Buchanan and State of Missouri, have invented and made certain new and useful Improvements in Machines for Breaking Hemp; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the machine. Fig. 2 is a longitudinal vertical sectional view.

The nature of my improvements consists in constructing a hemp-breaking machine wherein the features of invention are specially a peculiarly shaped or formed tooth or breaker, which I term the rounded, oval, or beveled, angular-shaped tooth, as shown in Figs. 3 and 4, together with a pendently-arranged "swingle," or a vibrating sword or beater with a horizontally-arranged reciprocating or a sliding scalloped edge double-jaw "hatchel" or beaters.

In Fig. 1 is a frame-like work, composed of suitable longitudinal and cross base rails, *a a a a*, and central rails *b b*, top rails, *c c*, uprights *d e d e d e*, central rails *f g*, top cross-rail, *h*, and foot-board *i*.

At *J J* is a feeding-table or hemp-platform, with obliquely-set side boards, *k k*.

At *L* is a small cylinder of suitable weight and size, provided with journal ends working in bearings *m*. This cylinder I term a "pressure-feed cylinder," and it rests nearly in close contact with the feeding-table, and its journal ends, working in the slots of the bearing *m*, admit of the cylinder rising upwardly in the feeding of the machine, to accommodate itself to the quantity of feed taken in under it. In front of this cylinder is a square-edge iron bar, *n n n*, and contiguous to this bar is a large cylinder or drum, *o o o*, inserted in the surface, and around the circumference of which are teeth or breakers, arranged in series of rows at suitable distances, each row of teeth varying in position relative to each other, and so as to appear like series of spirals around the circumference. These teeth or breakers have slightly-angular or double-sloping edges formed with oval or rounded or beveled edges on one of the surfaces, as shown in Fig. 3, face

of the tooth; and at Fig. 4, showing the flat back surface of the tooth; but these peculiarly-shaped teeth have no sharp cutting-edge, and the rounded face is presented to the hemp to be broken, so that the fibrous matter is not severed or cut, as would be the case were sharp cutters presented in operation.

On each side of the framing, opposite to each other, are stirrup-like devices *P P P*, suspended from an axle or shaft, *P<sup>2</sup>*, Fig. 2, and arranged beneath the feeding-board *J J J*. To these stirrups is attached a thin slat or strip of wood or metal, *q q*, with its edge rounded and scalloped or ridged, as at *r r*. This I term the pendent swingle, or vibrating sword or beater.

At *s s s s* are two correspondingly-shaped strips or slats, with scalloped or ridged edges *t t*. These strips are arranged two or more inches apart, one above the other, and relatively arranged so that the edge of the swingle *q r q r* may strike between the jaws of the strips *s s s s*. These strips are attached by their ends to sliding block *u u*, provided with guide-pins working in sliding places or ways *v v*, Figs. 1 and 2. These strips I term the reciprocating or sliding double-jaw sword or "hatchels."

At *w w* are connection reciprocating rods, one end of which is connected by a hinge or joint to the sliding blocks *u u*, and the other end attached in a similar manner to a rocking beam or arm, *x x x x*, arranged between the uprights *d e d e*, the said arms *x x* being attached to one common axle, *x<sup>2</sup> x<sup>2</sup>*.

To the end of the cylinder *o o o* is a wheel or disk, *y y y*, (or an equivalent crank-arm,) to which is attached a reciprocating connection-rod, *z z*, the other end of said rod being attached to the rocking beam or arm *x x*.

To the end of the machine, in a suitable position, are small rollers *c<sup>2</sup> c<sup>2</sup> c<sup>3</sup> c<sup>3</sup>*, supported in brackets or bearings *a<sup>2</sup> a<sup>2</sup> b<sup>2</sup>*, and attached to the central rail of the framing. Across the middle of the machine is another roller, *d<sup>2</sup> d<sup>2</sup>*, and around the rollers *c<sup>2</sup> c<sup>2</sup> d<sup>2</sup> d<sup>2</sup>* is adjusted a short endless apron, *e<sup>2</sup> e<sup>2</sup> e<sup>2</sup> e<sup>2</sup>*.

At *f<sup>2</sup>* is another or a fourth roller, arranged across the framing *f f*, and passing around the rollers *c<sup>3</sup> c<sup>3</sup>* and *f<sup>2</sup>* is a longer endless revolving carrier *g<sup>2</sup> g<sup>2</sup> g<sup>2</sup> g<sup>2</sup>*.

At *h<sup>2</sup> h<sup>2</sup> h<sup>2</sup> h<sup>2</sup>* is a driving-wheel, by which power is applied and motion communicated



to the machine through the smaller wheel  $i^2$ , and the larger pulley  $J^2$ , around both of which passes a crossed band or cord,  $k^2 k^2 k^2 k^2$ , Fig. 2.

At  $L^2 L^2 L^2$ , Fig. 2, is a main or principal sloping cap or top, with sides  $L^3 L^3 L^3$ , and at  $m^2 m^2$  is a secondary or smaller detachable cap, with sides  $m^3$  and a sloping call front,  $m^2 m^4$ . These caps or sloping tops are designed to confine and prevent the flying of the dust and particles of trash.

At  $n^2 n^2$  is a hinged flap or front, with buttons  $n^3$  to confine it in place when desired.

At the lines and dots  $o^2 o^2 o^2 o^2 o^2$  is represented a hinged or falling side flap, to admit of access to the inside of the machine.

The operation of my machine is as follows, viz: The hemp-stalks are placed upon the feeding-table  $J J J$ , and the roller  $L L$  receives the stalks beneath its circumference. The stalks pass under and are mashed, and then pass over the edge of the iron bar  $n n n$ , and come in contact with the beveled face of the teeth or breakers of the cylinder  $o o o$ , when the stalks are carried downwardly between the bar  $n n n$  and cylinder  $o$ , and are caught between the jaws  $r t$  of the pendent swingle and sliding hatchel  $s s s s$ , and by the action of these ridged or scalloped edges of the swingle and hatchel the lint and tow are completely separated from the woody or coarser portions of the stalk; and as the hemp reaches the carrier  $g^2 g^2 g^2$  it is carried forward between the surfaces of the carrier and short endless apron  $e^2 e^2 e^2$ , and delivered or deposited where indicated by the arrows, the hemp being cleaned and ready for

being tied up, thus affording a superior fiber with much less tow and waste than has heretofore been afforded by machinery.

My machine can be built of various sizes, and operated by hand, horse, or any other suitable motive power, and at a more expeditious and much cheaper rate than is generally the case in preparing hemp. If desired, the endless revolving carrier  $g^2 g^2 g^2 g^2$  may be extended out in length several feet beyond the end of the machine, so as to admit of carrying or bearing off at a convenient distance the woody and useless portions of the hemp and deposit them in a heap, to be burned or otherwise disposed of.

Having given the nature, construction, and operation of my improvements in hemp-brakes, what I claim as new, and desire to have secured by Letters Patent of the United States, is—

1. The tooth herein described and illustrated in the drawings, as constructed, to be used in the drums of cylinder hemp-brakes, as herein set forth.

2. The combination and arrangement of the pendent scalloped-edge swingle  $P P P q q r r$  with the sliding or reciprocating double-jaw hatchel  $s s s s t t$ , arranged and operated substantially in the manner as herein set forth and described.

WM. C. HUTCHINSON. [L. S.]

Witnesses:

C. B. FRANCE,  
JOSEPH DAVIS.