

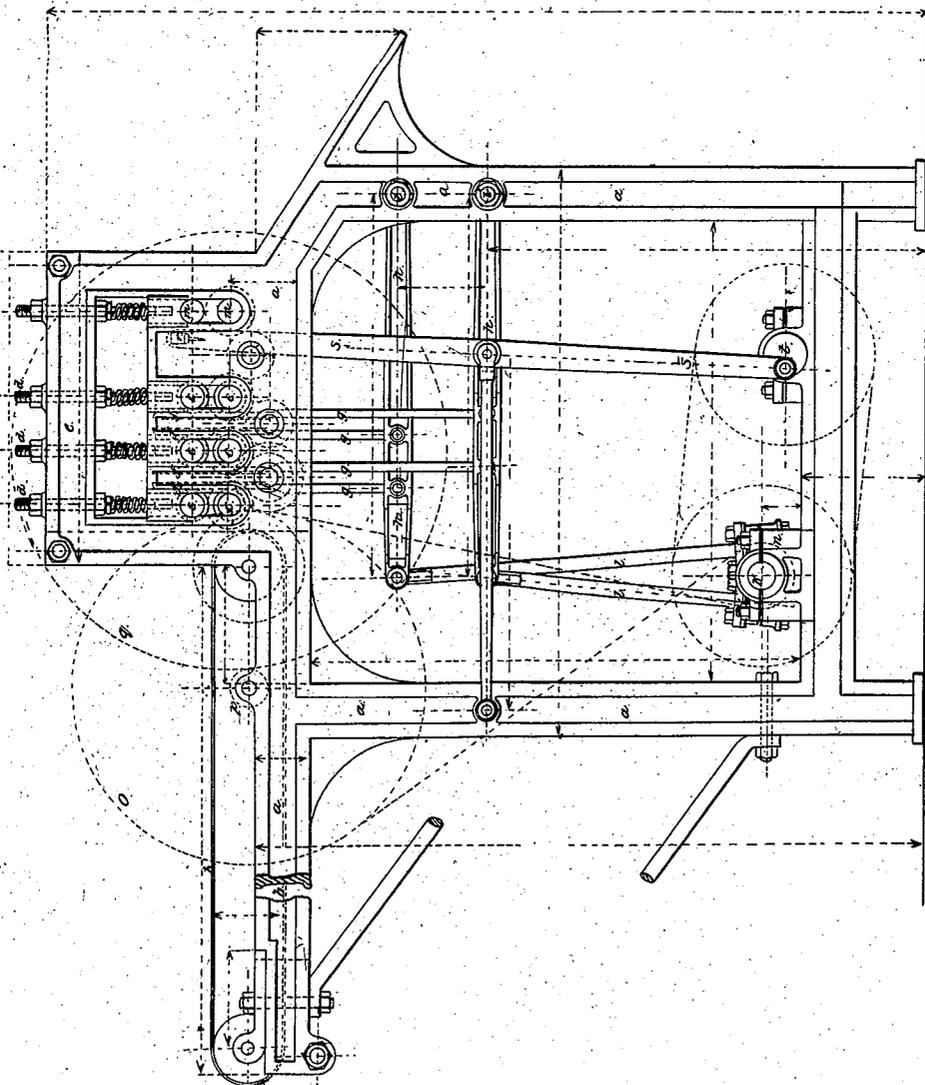
E. Davy.

Vegetable and Fiber Brake.

N<sup>o</sup> 14,394.

Patented Mar. 11, 1856.

Fig. 1.

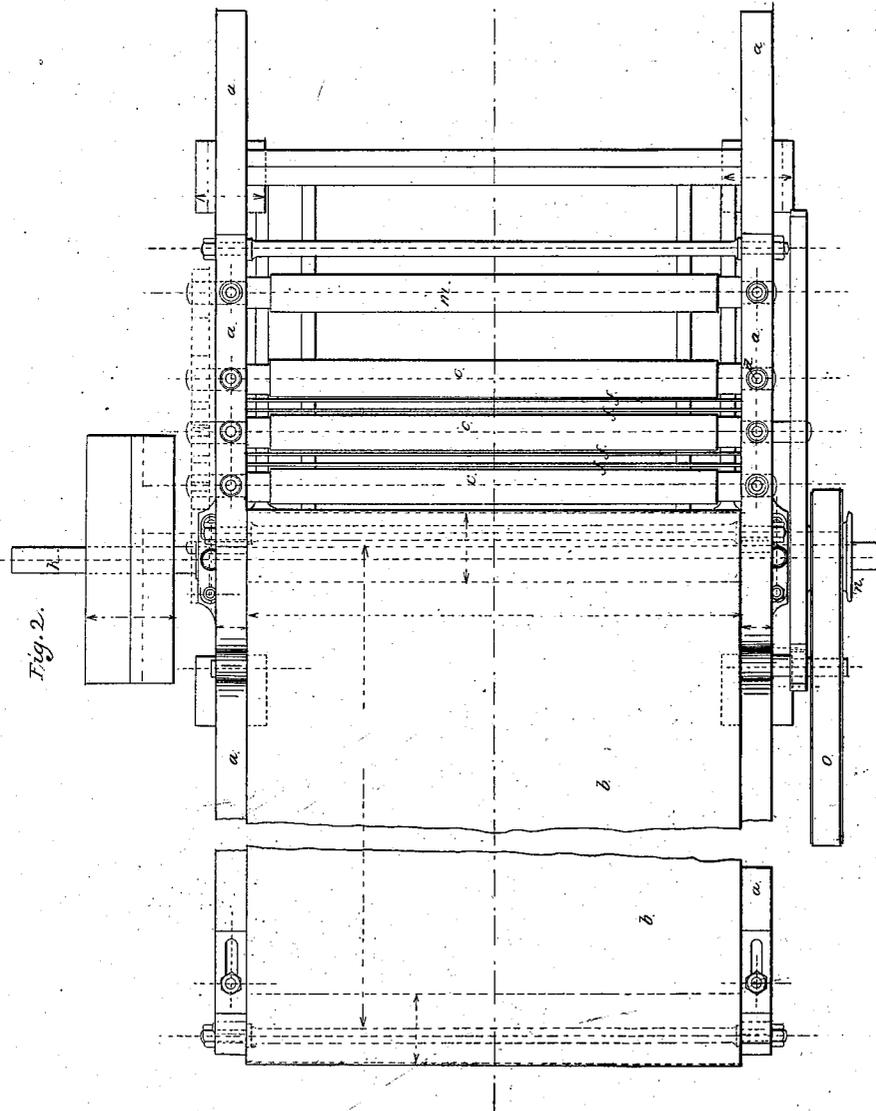


E. Davy.

Vegetable and Fiber Brake.

N<sup>o</sup> 14,394.

Patented Mar. 11, 1856.

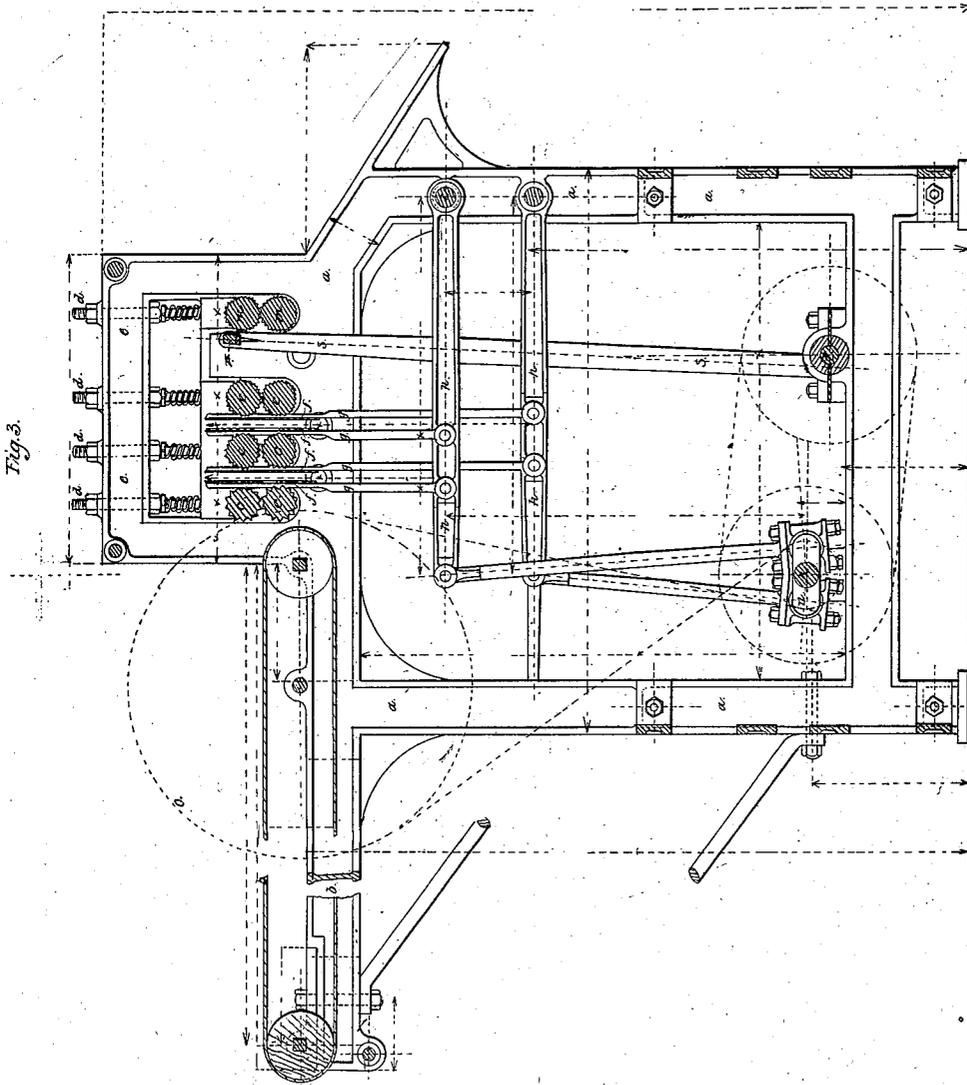


E. Davy.

Vegetable and Fiber Brake.

N<sup>o</sup> 14,394.

Patented Mar. 11, 1856.

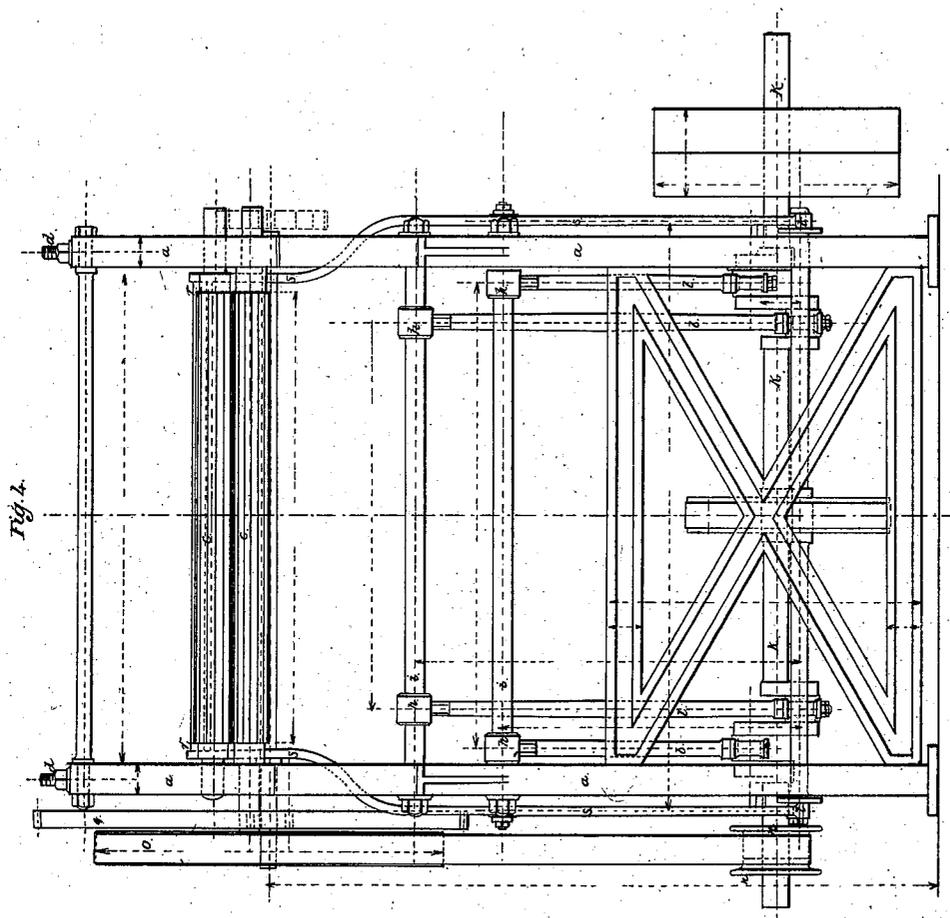


E. Davy.

Vegetable and Fiber Brake

N<sup>o</sup> 14,394.

Patented Mar. 11, 1856.



# UNITED STATES PATENT OFFICE.

EDWARD DAVY, OF CREDITON, ENGLAND.

## IMPROVEMENT IN MACHINERY FOR PREPARING HEMP AND FLAX.

Specification forming part of Letters Patent No. 14,394, dated March 11, 1856.

*To all whom it may concern:*

Be it known that I, EDWARD DAVY, of Crediton, in the county of Devon, England, manufacturer and merchant, a subject of the Queen of Great Britain, have invented or discovered new and useful Improvements in the Preparation of Flax and Hemp; and I, the said EDWARD DAVY, do hereby declare the nature of the said invention and the manner in which the same is to be performed are fully described and ascertained in and by the following statement thereof, reference being had to the drawings hereunto annexed and to the figures and letters marked thereon—that is to say:

In preparing flax and hemp according to my invention, I first subject the straw to a current of warm air to expel the moisture therefrom. I next, when fine yarn is required to be produced, cut the straw into three lengths, in order that the finer and coarser parts of the fiber, instead of being worked up together, may be divided and severally worked into fine and coarse yarns. The several lengths which contain different qualities of fiber I place by themselves, and then proceed to break the flax and free it of the boon or husk by mechanical means without the use of the retting process. For this purpose I subject the flax to the operation of a peculiar construction of machine, which may be thus described:

Figure 1 is a longitudinal elevation; Fig. 2, a plan view of the same; Fig. 3, a longitudinal section, and Fig. 4 an end view.

*a a* is the main framing of the machine.

*b* is a feed-apron for carrying the flax to be operated upon up to the first pair of a series of fluted rollers, *c c c*, which turn in bearings in the framing. The upper rollers *c* are pressed down to their work by means of screws *d*, which pass through cross-heads *e e* and bear against the brasses of the upper rollers. This pressure is, however, rendered elastic by the intervention of a coiled spring between the cross-head and the bearing-nuts of the screws *d*.

*f f f* are slotted plates set between and behind the rollers *c*. These plates *f* are respectively connected by rods *g* to one of the levers *h h*, which have their fulcrum at *i*, and a vertical reciprocating motion is given to the plates by means of a crank-shaft, *k*, which is connected to the levers by the rods *l l*. It will be seen that behind both the first and the sec-

ond pair of rollers *c c* a pair of plates *f* is situated, and that the plates, which form pairs, are connected to different levers, in order that when one plate of the pair rises the other may fall. The object of this arrangement will be presently explained.

The flax-straw, (which will not require to be previously stripped of the seed-bolls,) as it passes from the feed-apron *b*, is delivered to the first pair of fluted rollers *c*, whence it passes through a pair of slotted plates *f*, and is then taken up by a second pair of fluted rollers. These again pass it through another pair of plates *f*, and it is then taken up by a third pair of fluted rollers, and, after passing through another plate *f*, it is delivered out of the machine by a pair of pressing-rollers, *m m*. During this passage of the flax through the machine the flax-stalk is broken or bruised by the rollers and scutched by the reciprocating motion of the plates *f*, which, by being worked up and down very rapidly, will subject the flax to a kind of rippling action as the slots of the adjacent plates pass each other, and thereby disengage the boon or woody part of the plant from the useful fibers. The use of the last plate *f* is to shake out the loose particles of boon from the flax.

In some cases, instead of forming the slot of the plates *f* with smooth edges, I groove the edges, by which means the flax will be exposed to a more searching action, or I may increase or diminish the number of the reciprocating plates and fluted rollers, according to the degree of scutching to which I may desire to submit the fibers. Motion is communicated to the machine through a belt from any first mover passing round the driving-pulley on the shaft *k*. This shaft carries a drum or pulley, *n*, from which passes a belt to a pulley, *o*, carried by a stud projecting from the framing, and on the boss of this pulley is a pinion, *p*, which drives a cog-wheel, *q*, on the axle of one of the fluted rollers *c*. From this roller motion is communicated to the other rollers, and also to the feed-apron by suitable gearing, as indicated by the red circles in Fig. 1.

*r* is a bar of hackle-points, which receives motion by being carried by the rods *s*, actuated by the eccentrics or cranks *t*, the axis of which receives motion by a shaft or band from the axis or shaft *k*. The object of the hackle-bar

is to hackle the material while it is passing the rollers *c c* and *m m*. Its use in connection with the rollers and the reciprocating plate or plates or breakers becomes a matter of much value and importance:

Having now described my invention and explained the manner of carrying the same into effect, I wish it to be understood that I claim—

1. The reciprocating plate or plates *f*, in combination with holding or retaining rollers *e*, for effecting the separation of the fibers of

flax and hemp, substantially as herein described, and combined therewith.

2. The combination of the hackle-bar, (operated as described,) with the rollers and reciprocating breakers or plates.

EDWARD DAVY.

Witnesses:

GEO. PITT,

4 Old Square, London.

H. W. PAYNE,

2 George Yard, Lombard Street, London.