(No Model.) 2 Sheets—Sheet 1.

J. SHINN.

Machinery for Breaking and Scutching Flax, Hemp, &c.

No. 233,949. **Patented Nov. 2, 1880.**

Fig. 1.

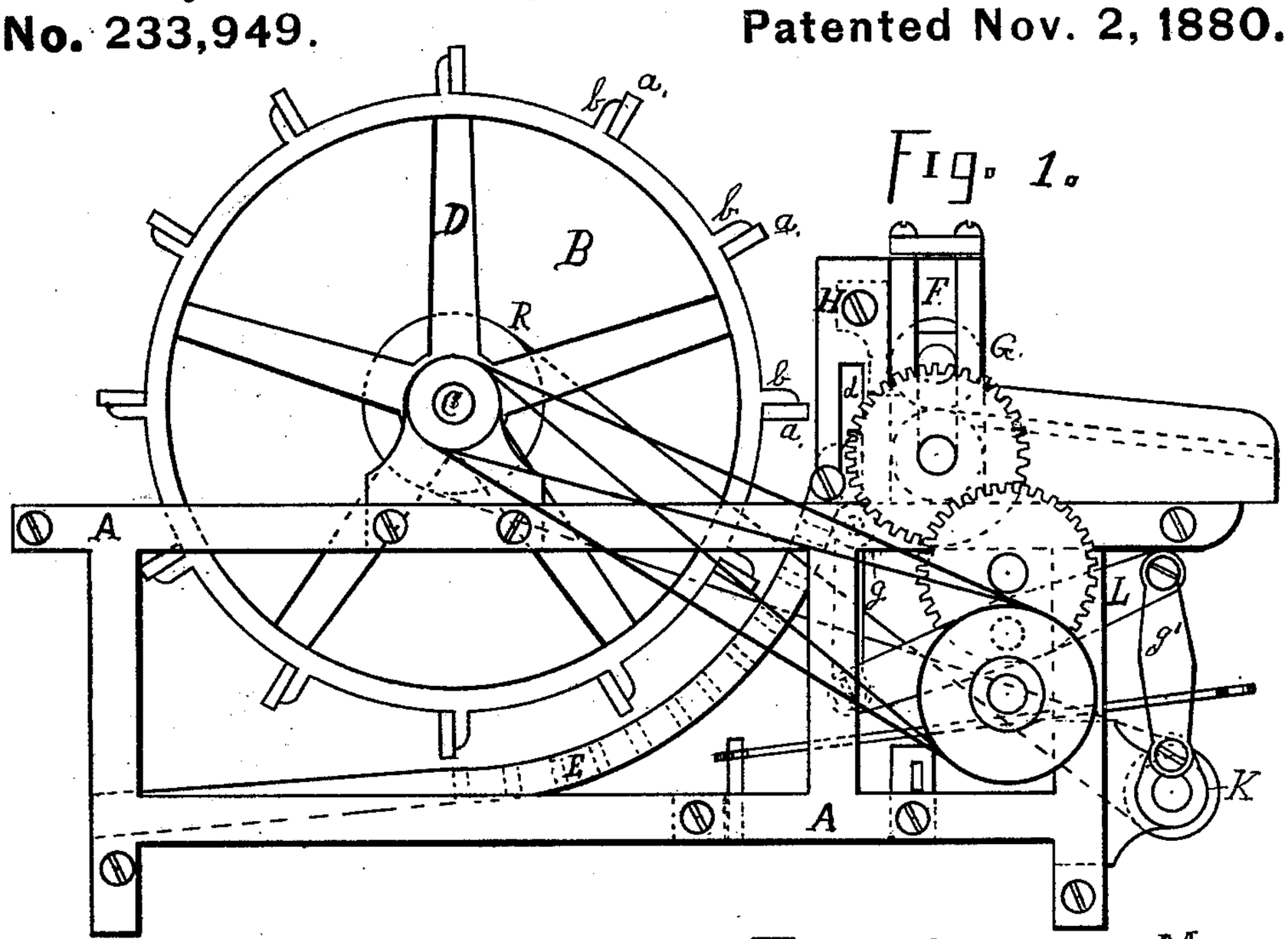
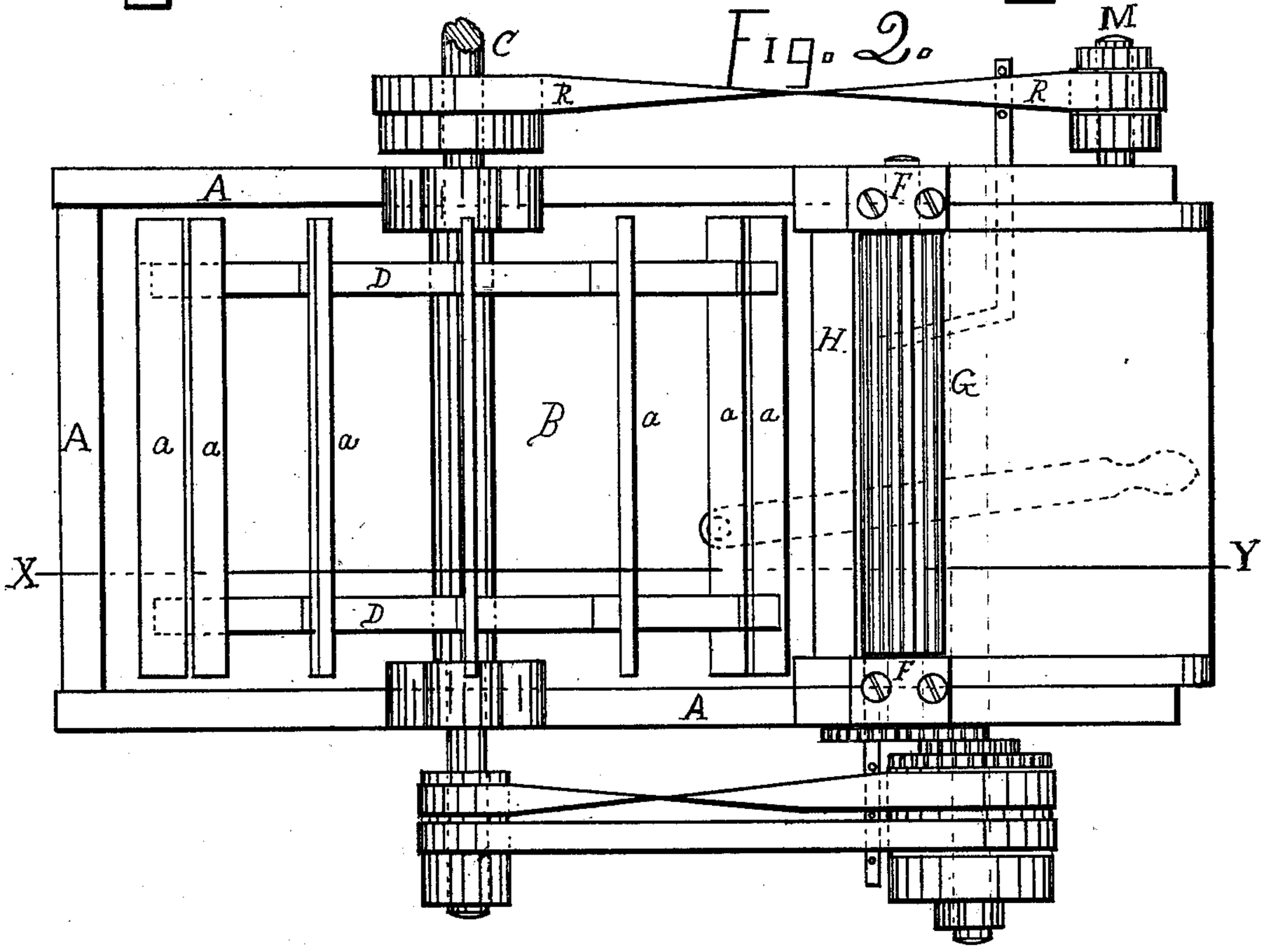


Fig. 2.



Witnesses.
John L. Boin
Abbott. F. Fuller

Inventor.
John Shinn.

(No Model.)

2 Sheets—Sheet 2.

J. SHINN.

Machinery for Breaking and Scutching Flax, Hemp, &c.

No. 233,949. **Patented Nov. 2, 1880.**

Fig. 3.

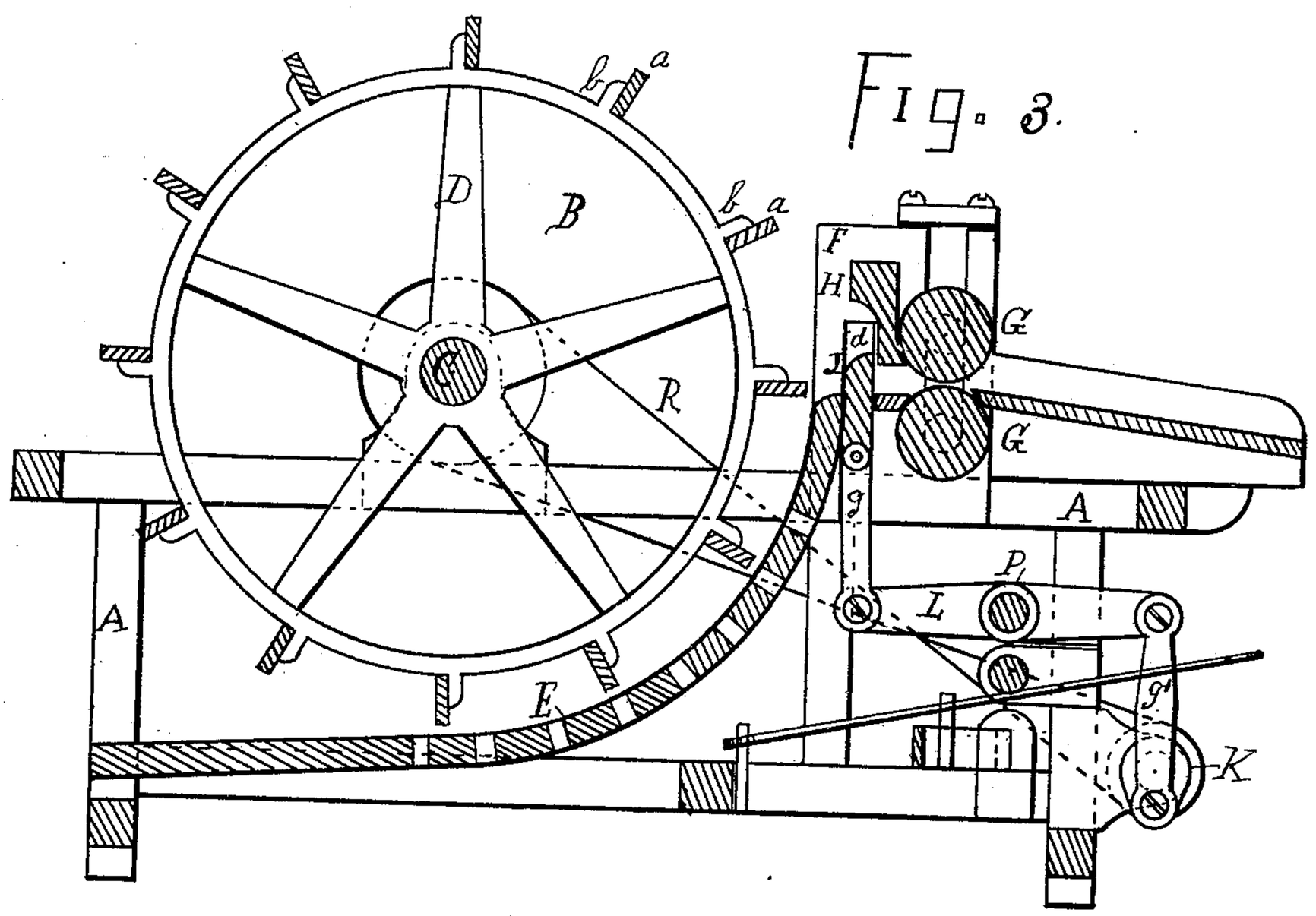


Fig. 4.

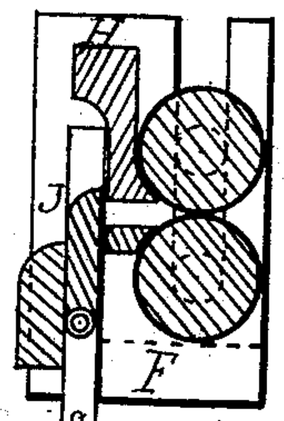


Fig. 5.

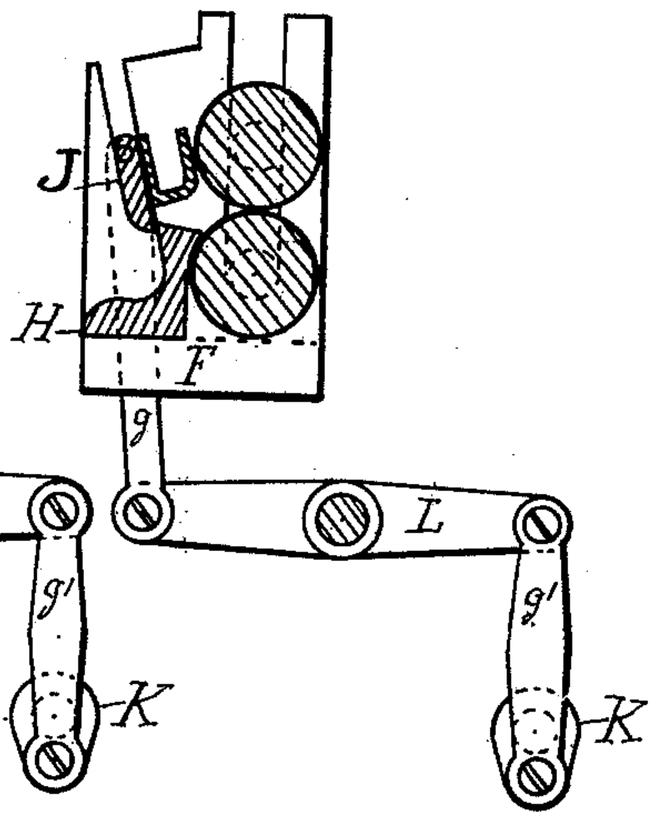
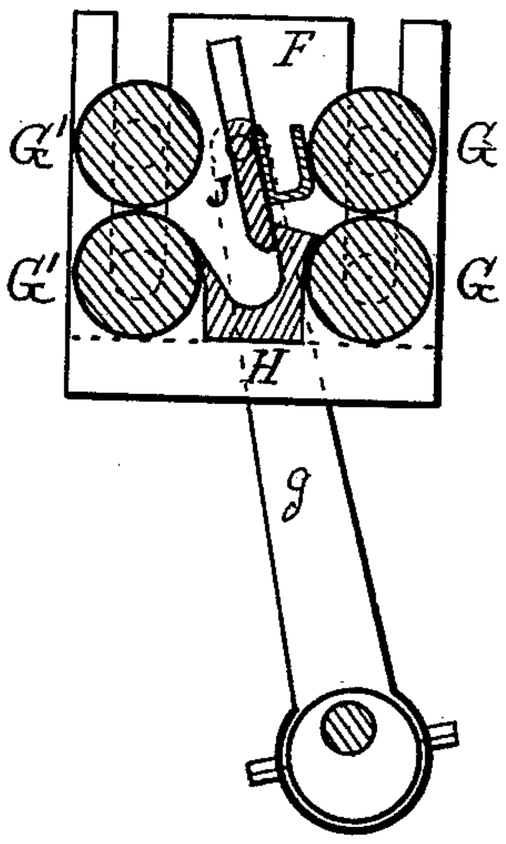


Fig. 6.



WITNESSES.

John S. Coin

Abbott F. Fuller

INVENTOR.

John Shinn

UNITED STATES PATENT OFFICE.

JOHN SHINN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO WILLIAM N. MARCUS AND ABBOTT F. FULLER, OF SAME PLACE.

MACHINERY FOR BREAKING AND SCUTCHING FLAX, HEMP, &c.

SPECIFICATION forming part of Letters Patent No. 233,949, dated November 2, 1880.

Application filed July 9, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOHN SHINN, of the city of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Machinery for Breaking and Scutching Flax, Hemp, and other Similar Plants, of which the following is a specification.

Previous to my invention the breaking of flax, hemp, and other such plants by machinery has been done by one or more pair of fluted metal rollers, which fluted rollers not only break the shive, but also to some extent the fibers, thereby making much tow.

The object of my invention is to liberate the fiber uninjured from the useless associates of its growth, which I accomplish by my improvement with speed, completeness, and with but little loss of fiber.

The invention consists, first, in the arrangement and adaptation of a stationary bed and a reciprocating beater that will make but one fracture of the shives or bone for each blow of the beater, as will be hereinafter described; second, in the combination of a pair of feed-rollers, stationary bed, and a reciprocating beater having the characteristics described in the first clause of invention above; third, in the combination of a pair of feed-rollers, stationary bed, reciprocating beater having the same characteristics described in the first clause of invention above, and a pair of receiving or delivering rollers; fourth, in the combination of a pair of feeding-rollers, a stationary bed, reciprocating beater, and a cylinder having a series of wooden or metal blades.

I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is a top view of the same. Fig. 3 is a vertical longitudinal section taken on the line X Y of Fig. 2. Fig. 4 is a sectional view of the feeding-rollers and breaking device. Figs. 5 and 6 show modifications of the same.

Similar letters refer to similar parts throughout the several views.

A represents the frame of the machine, which may be made of wood or iron. B is the scutching-cylinder mounted on the main shaft C, which cylinder is constructed of two cast rings or spiders, D D. These rings are cast with brackets *b b*. To these brackets are fastened wooden blades *a a*.

E is a slatted grate. This grate is old, in common use, and well known to the trade.

F F are housings, in which are mounted feed-rollers G G. These feed-rollers I propose to make, the bottom one of iron and finely fluted, the top one to be covered with gum similar to rollers for wringing wash-clothes. The pair should be geared and held down by springs or weights, as is common with feed-rollers. In some cases it may be desirable to flute both the top and bottom rollers, and they should be so fluted as to cause the rollers to partially break the shive. The feed-rollers G G are driven by an open and cross belt and a train of spur-gears, as shown in Figs. 1 and 2.

The driving of feed-rollers in flax-machines by open and cross belts to get a reverse motion is not new. (See patent No. 22,399, December 21, 1858.

H is the stationary bed. J is the beater or brake, which should be made of metal. Cast-iron will do, but steel will be better. The bed H is fastened to the housings F F, and the beater J is made to slide in slots *d* in the housings F F, which slots should be made so as to be adjustable by one or more gibs, so that the beater J may be adjusted to the bed H.

The beater J is connected to crank K on shaft M by the connections *g g'* and lever L on shaft P, it being understood that there are two connections, *g*, from the beater J, and two levers, L, on shaft P; but the beater J may be connected direct to the driving-shaft and operated by eccentrics, as is shown in Fig. 6. The beater J should be set a little lower at one end than the other, so as to give the beater a shear position to the bed H. This will enable the machine to be operated with little power.

The shaft M is driven by the belt R, two pulleys being used on shaft M, one being fast and one loose.

The machine is provided with a belt-shifter, (shown by dotted lines in Fig. 2,) which belt-shifter controls all three belts.

The feed-rollers are geared so as to feed

about one-eighth of one inch to each blow of the beater J, which should strike from four hundred to six hundred blows per minute.

The operation of my improvement is as follows: Motion is communicated to the shaft C, which may be by hand or other power. The belt-guide is shifted to the left. This shifts the cross-belt on the fast pulley for driving the feed-rollers, and also shifts the belt R on the fast pulley for driving the break J. This move of the belt will cause the rollers to feed in direction of the cylinder B. The flax or hemp straw is laid on the feed-table, spread out evenly—about four straws deep for flax—and as the rollers force the straws over the bed H the rapid blows of the beater will break the shive into small particles when the flax is fed on and acted upon by the blades of the scutching-cylinder. The loosened shives will be blown or knocked off the fiber and through the grate E. After the straw has been fed into the machine beyond half the length, the belt-shifter is forced to the right. This will shift the open belt on the tight pulley for driving the feed-rollers, and the belt R on the loose pulley, stopping the beater J. The feed-rollers being reversed, they will discharge the cleaned flax back to the operator. The beater J, being out of balance, will mostly stop with the beater down; but should it be up when the feed-rollers reverse, the drawing of the fibers over the top will cause the beater to be depressed out of the way of the free discharge. Then the operator reverses the ends of the flax-straw, shifts the belts, as before described, feeds in the straw until that end is completely broken and scutched. Next, the belts are shifted for discharge, as before described, and the cleaned fiber is returned to the operator, who lays them down, takes another bundle, and feeds it through the machine, as before described.

It is obvious that my improvement may be used simply as a brake, dispensing with the cylinder B and reverse feed, feeding the straw completely through the machine, and scutching by another machine. When I use the improvement as such I construct it with two pair of feed-rollers, as is shown in Fig. 6. The rollers G G feed the straw into the breaker, and the rollers G′ G′ act as retaining-rollers, and will hold the straw after leaving the feed-rollers G G until the beater acts upon the ends of the straw last fed into the machine, thereby thoroughly breaking the straw the full and entire length.

It is also obvious the modifications may be made in the form of connection, (one is shown in Fig. 5,) in which the bed is placed below and the beater above.

A flax or hemp brake constructed with openings or slots for the plants to pass through while being broken, and which brake is constructed of two slotted plates having serrated surfaces, and breaking the shives by rubbing the plants between the serrated surfaces, as is shown and described in the English Patent No. 2,403 of 1855, I do not claim. Neither do I claim a scutching-cylinder having a series of blades or paddles; but, as my invention,

I claim—

1. In a flax and hemp machine, a brake consisting of a fixed bed, H, and a reciprocating beater, J, so constructed and operated that for each blow of the beater there will be but one fracture of the fibrous stalks, substantially as shown and described.

2. The combination of feeding-rollers G G with a brake consisting of a bed, H, and beater J, constructed and operating on the fibrous plants substantially as shown, described, and for the purpose specified.

3. The combination of feeding-rollers G G and a brake consisting of a bed, H, and beater J, constructed and operating on fibrous plants, substantially as shown and described, with the delivering-rollers G′ G′, as described, and for the purpose specified.

4. The combination of feeding-rollers G G, stationary bed H, reciprocating beater, J, and a scutching-cylinder, B, having a series of blades *a a*, substantially as shown, described, and for the purpose specified.

JOHN SHINN.

Witnesses:
ABBOTT F. FULLER,
JOHN S. COIN.