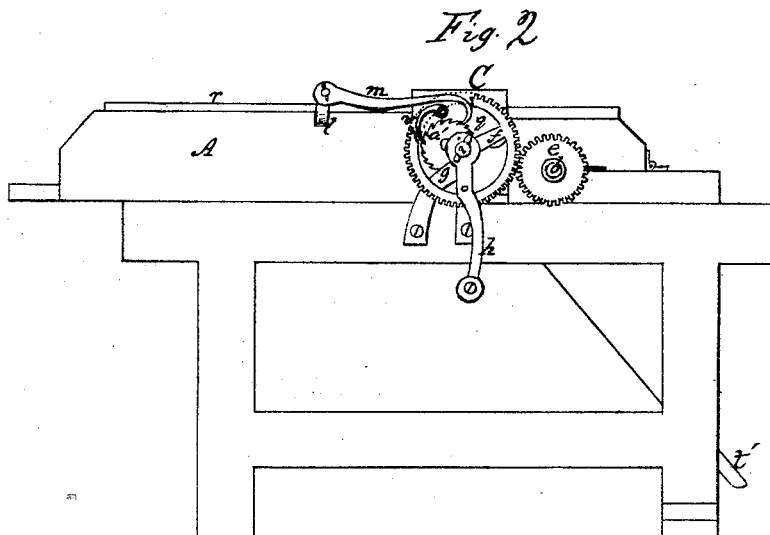
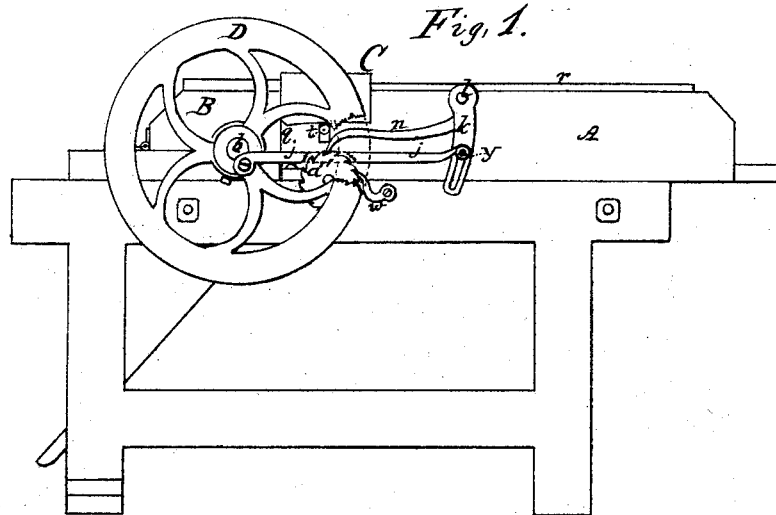


JOSEPH H. BRADLEY.

Improvement in Straw-Cutters.

No. 114,640.

Patented May 9, 1871.



Witnesses,  
*Sydney C. Smith,*  
*W. Morris Smith*

Inventor,  
*Joseph H. Bradley*  
 By his attorney  
*J. C. Robbins*

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Fig. 3

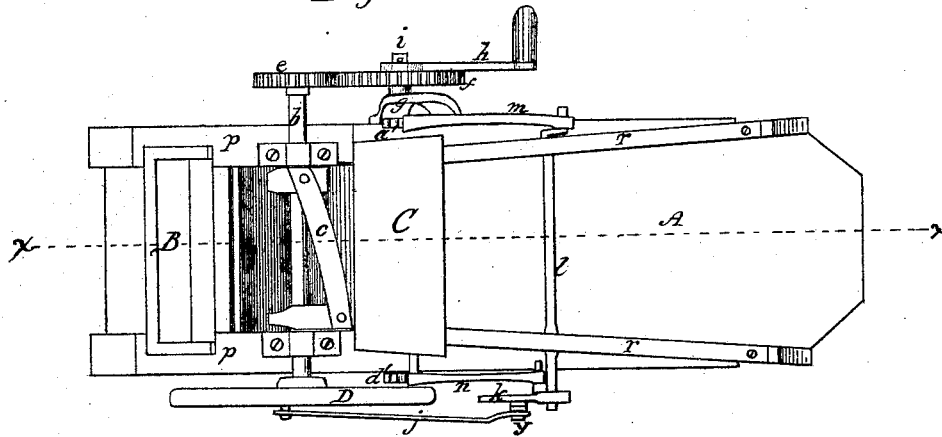
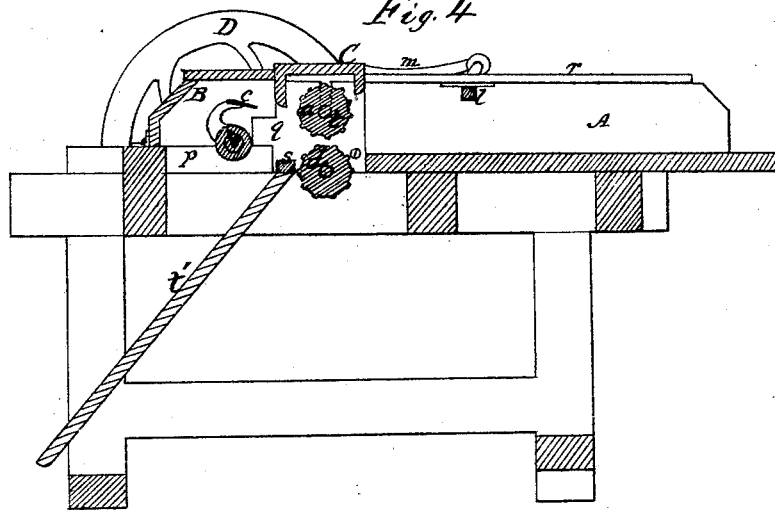


Fig. 4



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# United States Patent Office.

JOSEPH H. BRADLEY, OF HILLSBOROUGH, OHIO.

Letters Patent No. 114,640, dated May 9, 1871.

## IMPROVEMENT IN STRAW-CUTTERS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, JOSEPH H. BRADLEY, of Hillsborough, in the county of Highland and State of Ohio, have invented a new and improved Machine for Cutting Up Hay, Straw, and Fodder; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing which forms a portion of this specification—

Figures 1 and 2 being side elevations of said invention;

Figure 3, a top view; and

Figure 4, a vertical section in the line *x x* of fig. 3.

Similar letters indicate corresponding parts in the drawing.

The supporting-frame of my improved straw, hay, and fodder-cutter may be constructed in any suitable manner.

The arrangement of the respective parts of said machine is such that the amount of forward movement imparted to its feeding-rollers can at any time be so varied as to cause the hay, straw, or fodder passed through the same to be cut to any desired degree of shortness, and also in such a manner that, should any woody substance pass between the feeding-rollers to the rotating cutter, a reverse movement can be readily imparted to said rollers without imparting any movement to the driving-wheel.

At the after end of the feeding-box A the feeding-rollers *a d* are located, as shown in the drawing.

The journals of the lower roller *d* are received into permanent bearings, which are secured to the sides of the frame of the machine.

The journals *t t* of the upper feeding-roller *a* work in vertical slots in the metallic plates *q q*, which project rearward from their connection with the after ends of the sides of the feeding-box A to their connection with the forward ends of the bearing-blocks *p p*, which support the journal-boxes of the cutter-shaft *b*.

The descending ends of the cap C of the upper feeding-roller *a* rest upon the journals *t t* of said roller, as shown in fig. 1, and the said cap C is attached to and pressed downward by the after ends of the spring bars *r r*, whose forward ends are secured to the upper edges of the sides of the feeding-box, as also shown in fig. 1.

It will, therefore, be perceived that the said upper feeding-roller *a* will at all times be pressed down with the requisite degree of force upon the layer of hay or straw which may be passing through the machine, whether the same be a thick or a thin layer.

The cutter-blade *c* is secured to suitable arms or lugs projecting from the main shaft *b*, and the position of said blade is such that it will pass close to the sharp angle of the metallic bar *s*, over which the layer of

hay, straw, or fodder passes as it emerges from the gripe of the feeding-rollers *a d*, and the cut hay, straw, or fodder passes from the machine down the inclined spout *t*.

Motion is imparted to the respective operative parts of my improved hay, straw, and fodder-cutter in the following manner, viz.:

A curved supporter, *g*, which is secured to the right-hand side of the body of the machine, as shown in figs. 2 and 3, has a journal, *i*, projecting therefrom that receives the driving-wheel *f*, which is combined with the operative hand-crank *h*.

The teeth of the said driving-wheel *f* gear into the teeth of the gear-wheel *e* on the end of the cutter-shaft *b*, which shaft carries at its opposite end the fly-wheel D.

A crank-pin projecting from the front side of the fly-wheel D receives the after end of the pitman *j*, whose forward end works upon a pin, *y*, that is secured within a slot in the curved arm *k* on the left-hand end of the rock-shaft *l*, which shaft works in journal-boxes that are secured in the sides of the feeding-box A, as shown in the accompanying drawing.

A crank-pin projecting from the curved arm *k* is jointed to one end of a pushing-pawl, *n*, while the loose end thereof rests upon the teeth of the ratchet-wheel *d'*, which is secured to the left-hand end of the arbor of the lower feeding-roller *d*, as shown in figs. 1 and 3.

The outwardly-projecting right-hand end of the rock-shaft *l* terminates in a short crank, which is jointed to the pulling-pawl *m*, whose loose curved end rests upon and takes hold of the teeth of the ratchet-wheel *a'* on the arbor of the upper feeding-roller *a*, which arrangement of parts enables the oscillations imparted to the rock-shaft *l* through the medium of the pitman *j* to impart simultaneous intermittent movements to the feeding-rollers *a d*, and in such directions as to enable them to co-operate with each other in feeding the hay, straw, or fodder that may be placed in the feeding-box A to the rotating cutter *c*.

The detent *w* holds the ratchet-wheel *d'* in a stationary position during the reverse movements thereupon of its operating-pawl *n*, and the detent *v* performs the same function to the ratchet-wheel *a'* during the reverse movements of its operating-pawl *m*.

When it may be desired to vary the length of the cuttings of hay, straw, or fodder produced by the machine, this can readily be done by changing the position of the crank-pin *y* within the slot in the curved arm *k* on the left-hand end of the rock-shaft *l*, which is jointed to the outer end of the pitman *j*.

If a long cut is desired, the crank-pin *y* is secured at the shortest distance from the axis of the rock-shaft;

and if a short cut is desired the said crank-pin is secured in a position further from the axis of motion of the rock-shaft.

Should the movement of the cutter-blade be arrested by any hard substance being passed in between the feeding-rollers the operative pawl and detent should at once be thrown off of the ratchet-wheel *a*, which will permit a reverse movement to be imparted to the upper feeding-roller by simply taking hold of and drawing back the contents of the feeding-box, which will enable the obstructing substance to be found and removed.

A reverse movement of the driving-wheel *f* will not produce a reverse movement of the feeding-rollers *a d*, but, on the contrary, will produce a forward movement of said rollers.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the cutter-shaft *b* with the feeding-rollers *a d*, through the medium of the fly-wheel *D*, the connecting-pitman *j*, the curved and slotted arm *k*, the rock-shaft *l*, the pushing-pawl *n*, the pulling-pawl *m*, and the ratchet-wheels *a* and *a'*, when arranged and operating with each other, and with the detents *w v*, and the rotating cutter-blade *c*, substantially as and for the purpose herein set forth.

In testimony that the foregoing is a full and clear specification of my improvement in feed-cutters I hereunto subscribe my name this 4th day of January, 1871.

JOSEPH H. BRADLEY.

Witnesses:

GEO. B. GARDNER,  
JNO. CONARD.