

C. D. INGRAHAM.

Straw Cutter.

No. 35,200.

Patented May 6, 1862.

Fig. 1.

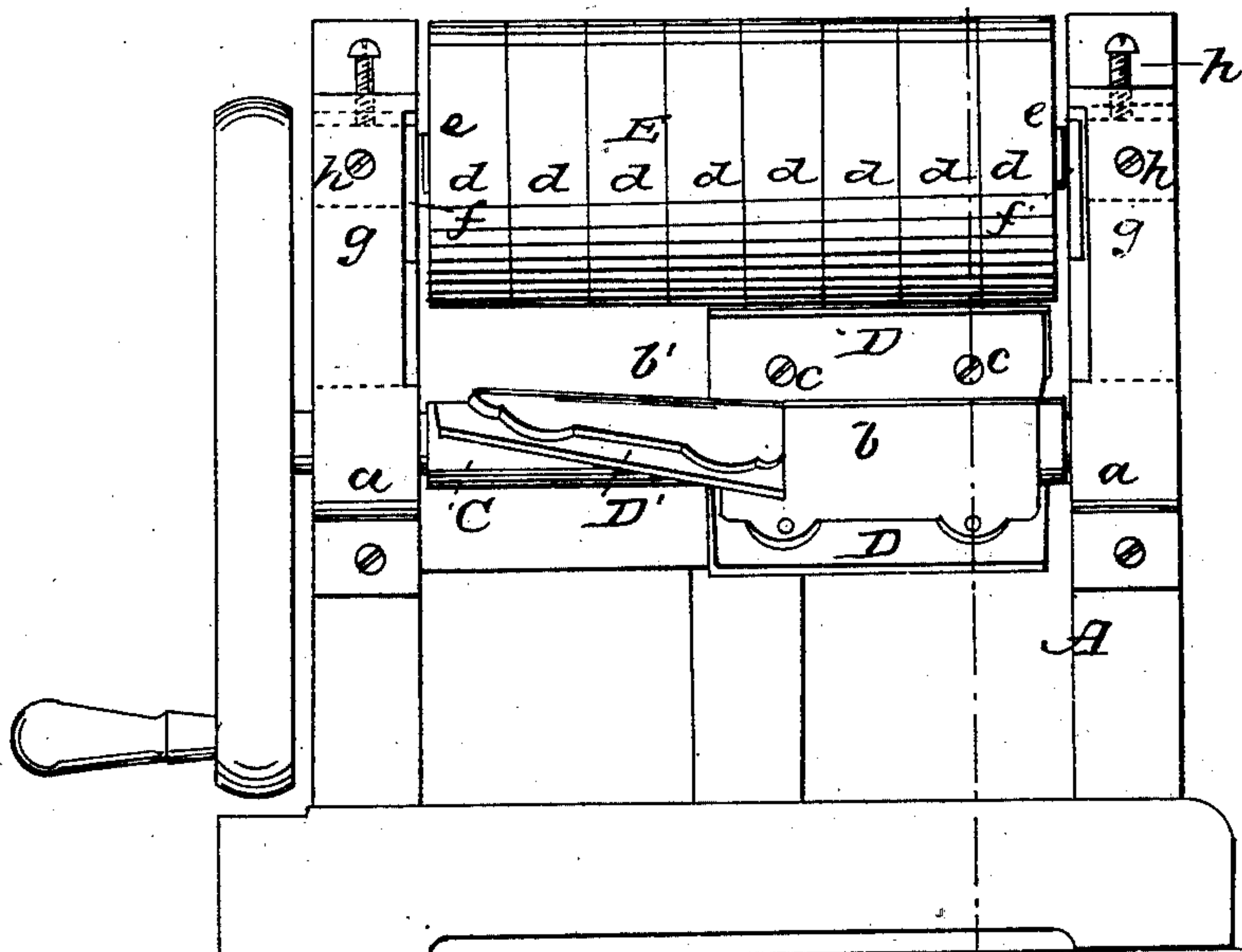
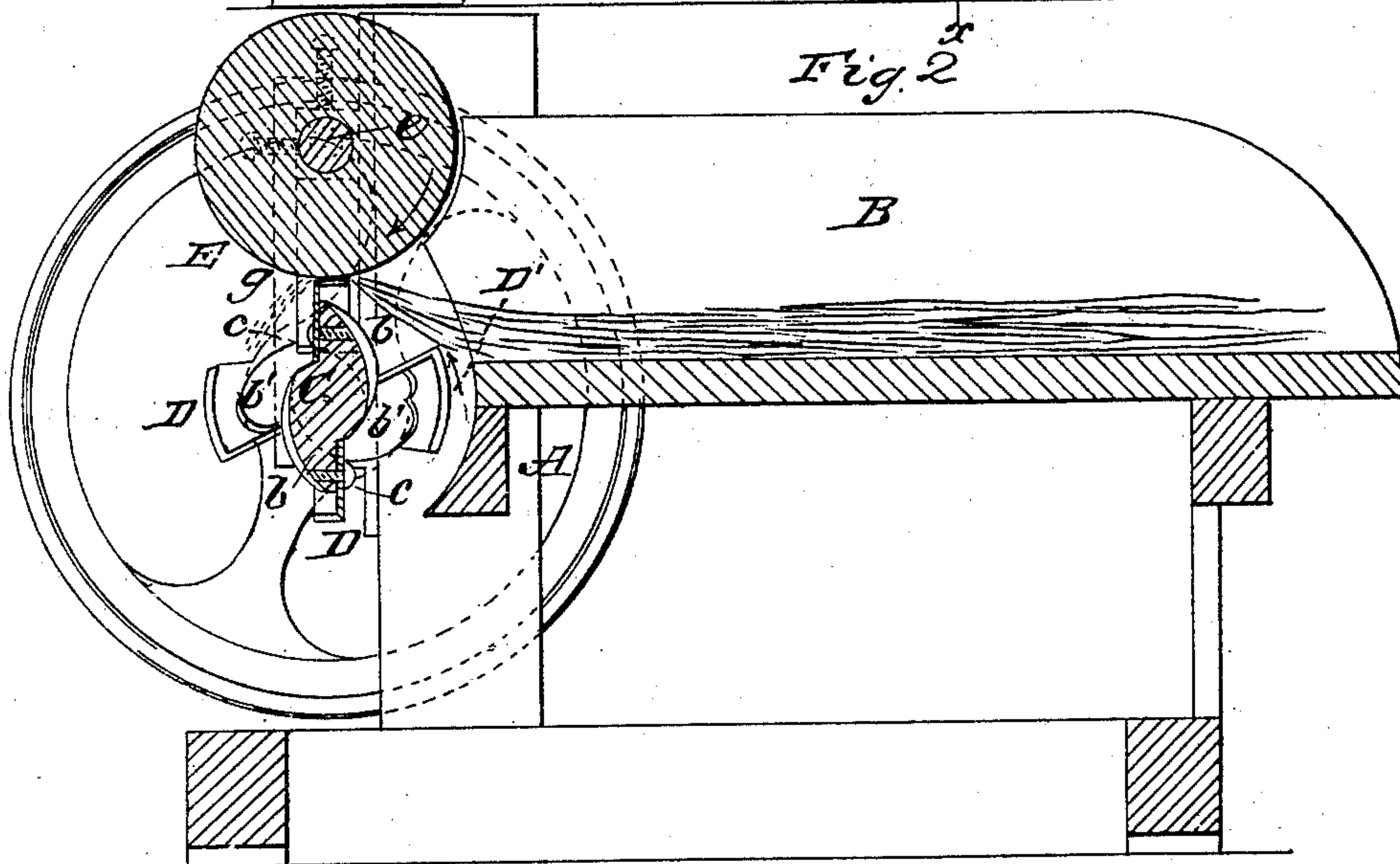


Fig. 2



Witnesses
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UNITED STATES PATENT OFFICE.

C. D. INGRAHAM, OF SOUTH HADLEY FALLS, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND C. A. AND A. BARDWELL.

IMPROVEMENT IN STRAW AND HAY CUTTERS.

Specification forming part of Letters Patent No. 35,200, dated May 6, 1862.

To all whom it may concern:

Be it known that I, C. D. INGRAHAM, of South Hadley Falls, in the county of Hampshire and State of Massachusetts, have invented a new and Improved Straw and Hay Cutter; 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 front view of my invention; Fig. 2, a side sectional view of the same, taken in the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates to an improvement in that class of straw and hay cutters in which a cylinder of knives is employed in connection with a rotating cylinder to form a bearing for the cutting-edges of the knives.

The object of the invention is to obtain a machine of this class which will work or operate with the usual rapidity and cut the hay or straw much longer than those hitherto constructed, and still be self-feeding.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the framing of the machine, on which a feed-box, B, is placed, of the usual form and construction, and C is a shaft or cylinder the journals of which are placed in fixed bearings *a a* at the front part of the framing.

The shaft C is provided with four flanges, *b b' b'*, against which knives *D D'* are placed and secured thereto by screws *c*. These flanges are much shorter than the shaft, not much over half its length, as shown in Fig. 1. The flanges project from the shaft at opposite points, the flanges *b b* being at one part of the shaft, extending from one end to a point a little past its center, and the flanges *b' b'* at the other part extending from its opposite end to a point a little past its center.

The flanges *b b'* are not in line, but in planes which form right angles with each other.

The knives *D* are attached to the flanges *b*, and the knives *D'* are attached to the flanges

b', the knives of course having the same relative position with each other as the flanges.

E is a wooden cylinder which is formed of a series of rings, *d*, placed on a shaft, *e*, side by side, and connected together in close contact by means of glue or any proper cement. These rings *d* are so turned that the end of the grain of the wood will be at the peripheries of the rings, and thereby form a surface which will well resist the cutting action of the knives, far better than if the cylinder was turned with the grain running parallel with its axis. The journals of the cylinder-shaft *e* are fitted in adjustable bearings *f*, which are placed in boxes *g g*, attached to the front of the framing A and secured in proper position by set-screws *h h*.

The cylinder E is adjusted so that the edges of the knives *D D'* will slightly penetrate its surface as they pass underneath it, and the lower edge of said cylinder is a little above the bottom of the feed-box B.

The operation is as follows: The straw or hay to be cut is placed in the feed-box B, and the shaft C is rotated by hand, a crank-wheel being at one end of it, or a crank at one end and a fly-wheel at the opposite end. As the shaft C rotates the knives *D D'* act alternately on the straw or hay and cut it as they come in contact with and pass the lower edge of the cylinder. As one knife, *D*, is cutting, the knife *D'* immediately behind it is feeding the straw or hay to the cylinder. By this arrangement it will be seen that the straw or hay will be cut much longer than usual, the cut being the same as if two knives only were employed on shaft *e*, running its whole length at opposite sides of the shaft and in the same plane; but if this arrangement were employed the knives would not be able to feed and cut the straw and hay continuously to the cylinder E. There would be an interval between the cut and feed, one cutter performing its work—that is to say, effecting its cut—before the other cutter commences to feed. This difficulty is fully obviated by my invention, for by the time one knife completes its cut the one immediately back and out of line with it commences to feed, as clearly shown in Fig. 2. I obtain, therefore, the result of the cutting of the straw and hay into pieces of

considerable length with a continuous alternate cut and feed movement.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A cylinder of knives formed by having the knives arranged in sets or pairs which are shorter than the cylinder and attached thereto in such a manner that the knives of one

set or pair will be out of line with or in different planes from those of the other set or pair, and used in connection with a cylinder, E, or its equivalent, substantially as and for the purpose set forth.

C. D. INGRAHAM.

Witnesses:

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