

(No Model.)

C. A. CLARK.
HAY AND STRAW CUTTER.

No. 360,559.

Patented Apr. 5, 1887.

FIG. 1.

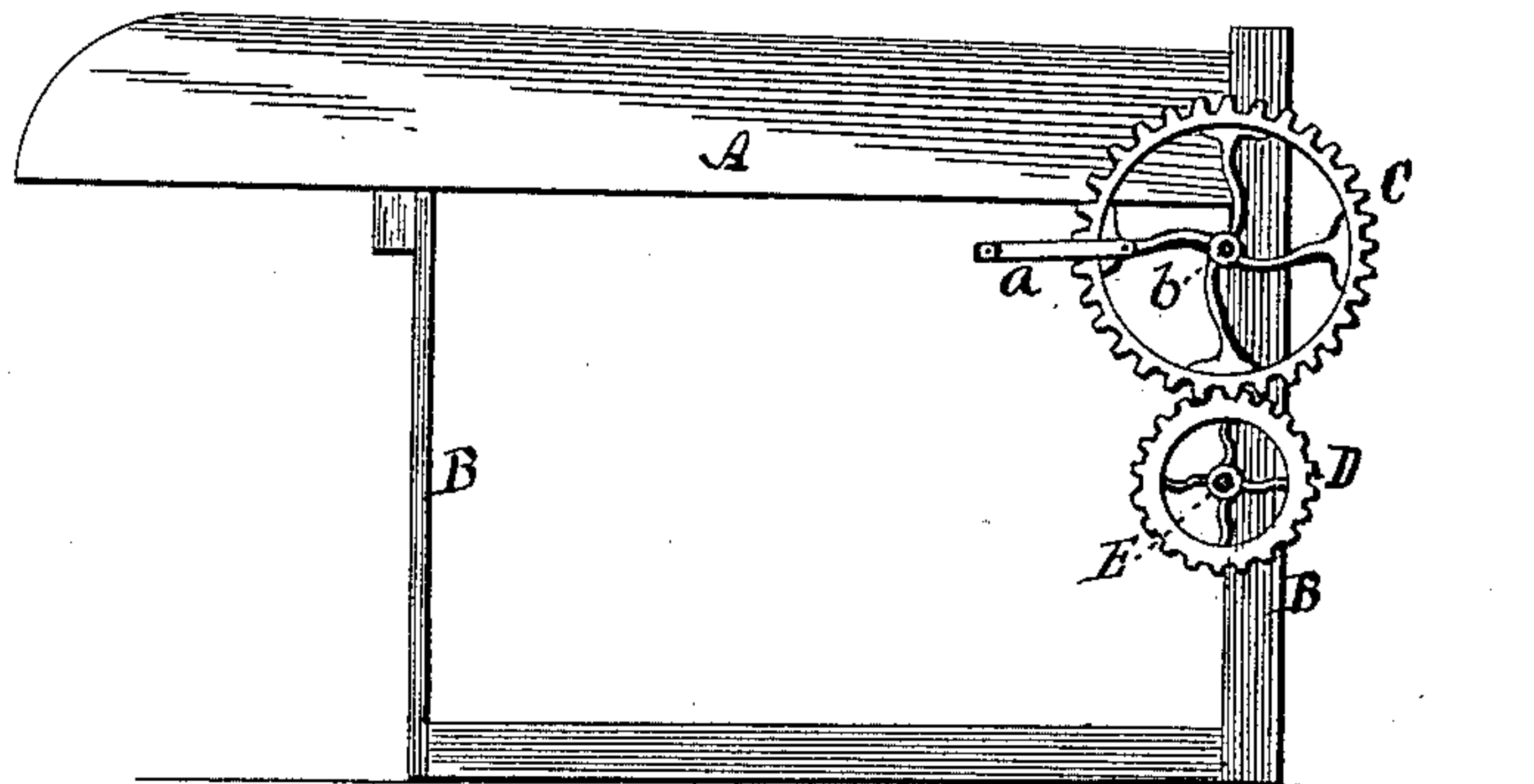


FIG. 2.

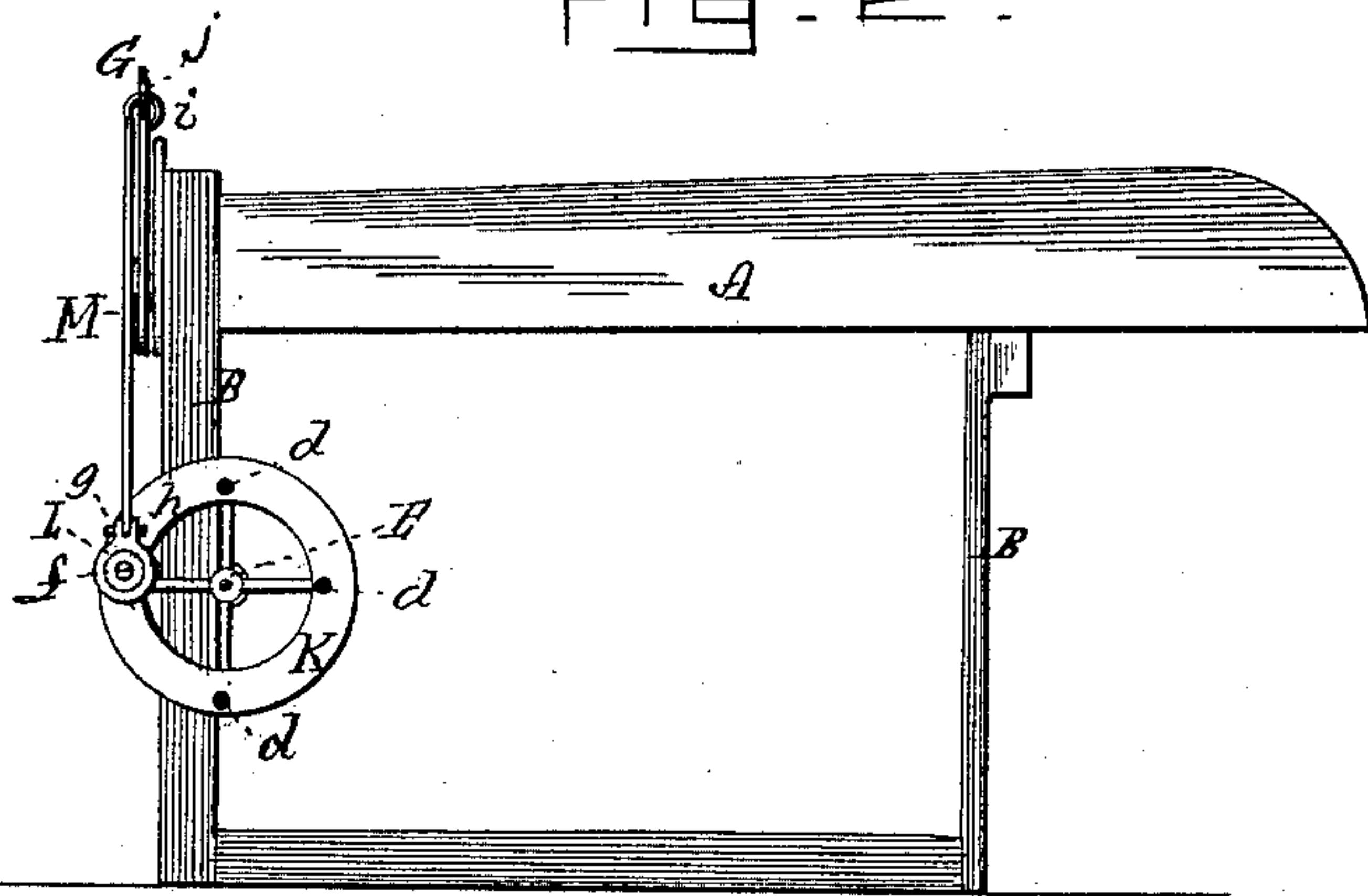


FIG. 3.

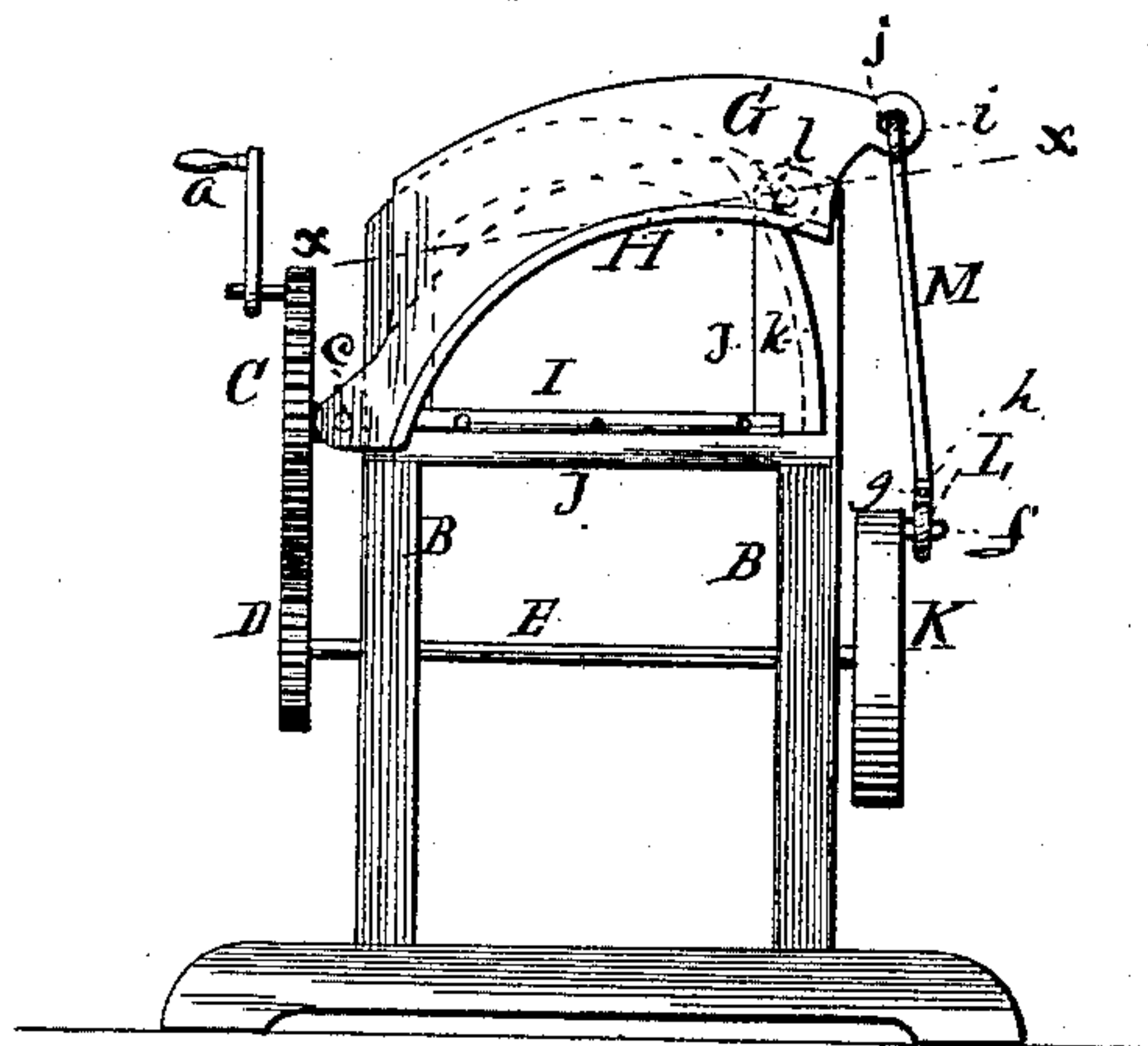
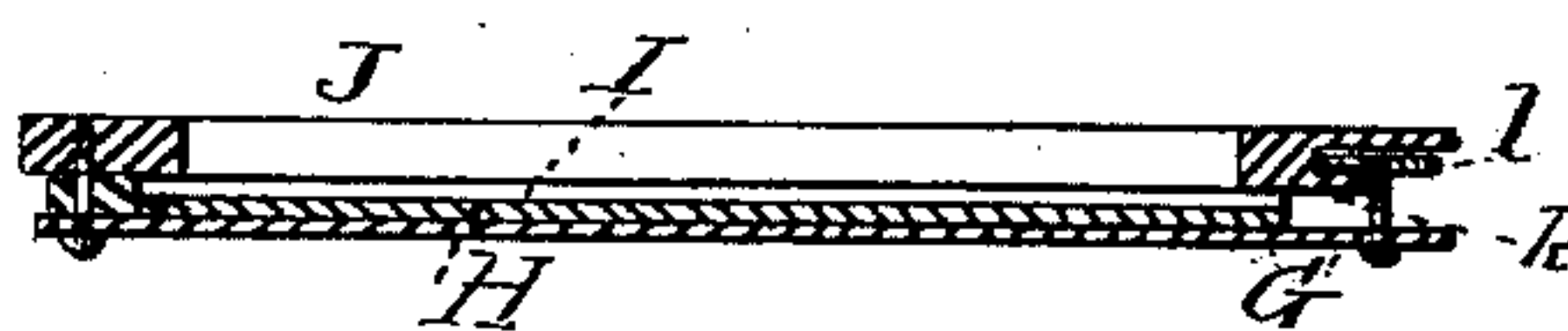


FIG. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES A. CLARK, OF ST. JOHN, NEW BRUNSWICK, CANADA.

HAY AND STRAW CUTTER.

SPECIFICATION forming part of Letters Patent No. 360,559, dated April 5, 1887.

Application filed July 13, 1885. Renewed September 9, 1886. Serial No. 213,176. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. CLARK, of St. John, in the county of St. John and Province of New Brunswick, Canada, have invented
5 Improvements in Hay and Straw Cutters; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification.

10 Figure 1 is a side view of a hay and straw cutter provided with my improvements; Fig. 2, an opposite side view of the same; Fig. 3, an end view of the same; Fig. 4, a section in a plane indicated by the line *x x*, Fig. 3.

15 Like letters designate corresponding parts in all of the figures.

The cutting-box A and frame B may be of ordinary construction. The driving gear-wheel C, having a winch or handle, *a*, is
20 mounted on a pivot or shaft, *b*, at one side of the frame, and gears into a smaller gear-wheel or pinion, D, which is secured to a shaft, E, that extends across the frame to the other side of the same. The gear-wheel C is shown as
25 being of twice the diameter of the pinion D, thus turning the driving-shaft E twice at every turn of the crank; but any other proportionate size of the two gear-wheels may be employed. The driving-shaft E serves to give a vibratory
30 up-and-down movement to the frame or carrier G, to which the movable knife H is secured. This knife-frame is pivoted at *c* to the main frame, so that the knife H may cut down past and close to the stationary knife I, which
35 is secured to a stationary frame or plate, J, attached to the machine-frame.

Now, for moving the free end of the movable knife-frame G by means of the driving-shaft E, I employ the following construction: Upon
40 the said shaft E is a crank and balance wheel, K, in the face of which is a series of holes, *d*, situated at successively different distances from the center of the wheel, into any one of which a crank-pin, *f*, may be inserted for actuating the knife-frame G. A swivel-block,
45 L, turns on the crank-pin *f*, and it has an eye, *g*, into which takes the hook or eye *h* of a connecting-rod, M. The upper end of this connecting-rod has a hook, *i*, which hooks into
50 an eye, *j*, in the free end of the knife-frame G. Thus, while there is a direct and positive driv-

ing-connection between the driving-shaft and knife-frame, the connecting-rod M has a perfectly free movement at both ends, so that the motion is perfectly free whatever may be the
55 position of the crank-pin or of the knife-frame. The adjustment of the crank-pin to different holes *d* *d* is to compensate for the wearing away of the width of the knives as they become narrowed by successive sharpenings
60 thereof. At first the pin is inserted in the hole nearest to the center of the crank-wheel. Then it is shifted to the next farthest hole from the center, and so on to the last or farthest one from the center of the wheel. 65

In order to keep the two knives close together, there is an undercut lip, *k*, on the face of the frame or plate J of the stationary knife I, concentric, or nearly so, with the circle in which the movable knife moves, and behind
70 the lip a tongue or projection, *l*, on the movable frame G moves. This tongue or projection is adjustable by its attaching-screw, or otherwise, so as to draw the movable knife nearer to the other when required. 75

I am aware that in metal-cutting shears the movable knife has been guided by arms and friction-rollers bearing against guideways; and such I disclaim.

I claim as my invention— 80

1. The combination of the reciprocating knife-frame G, pivoted at one end, driving-shaft E, situated in a plane parallel with the knife-frame, crank-wheel K on the said driving-shaft, crank-pin *f*, adjustable upon the
85 crank-wheel, swivel-block L, mounted on the crank-pin, and connecting-rod M, having a movable joint-connection both with the swivel-block and movable end of the knife-frame, substantially as and for the purpose herein 90 specified.

2. The combination of the stationary knife-frame J, provided with the undercut lip *k*, and the movable knife-frame G, provided with the tongue or projection *l*, and screw for adjusting the same, substantially as and for the purpose herein specified. 95

CHARLES A. CLARK.

In presence of—

CHAS. A. MACDONALD,
F. G. KNOWLTON.