

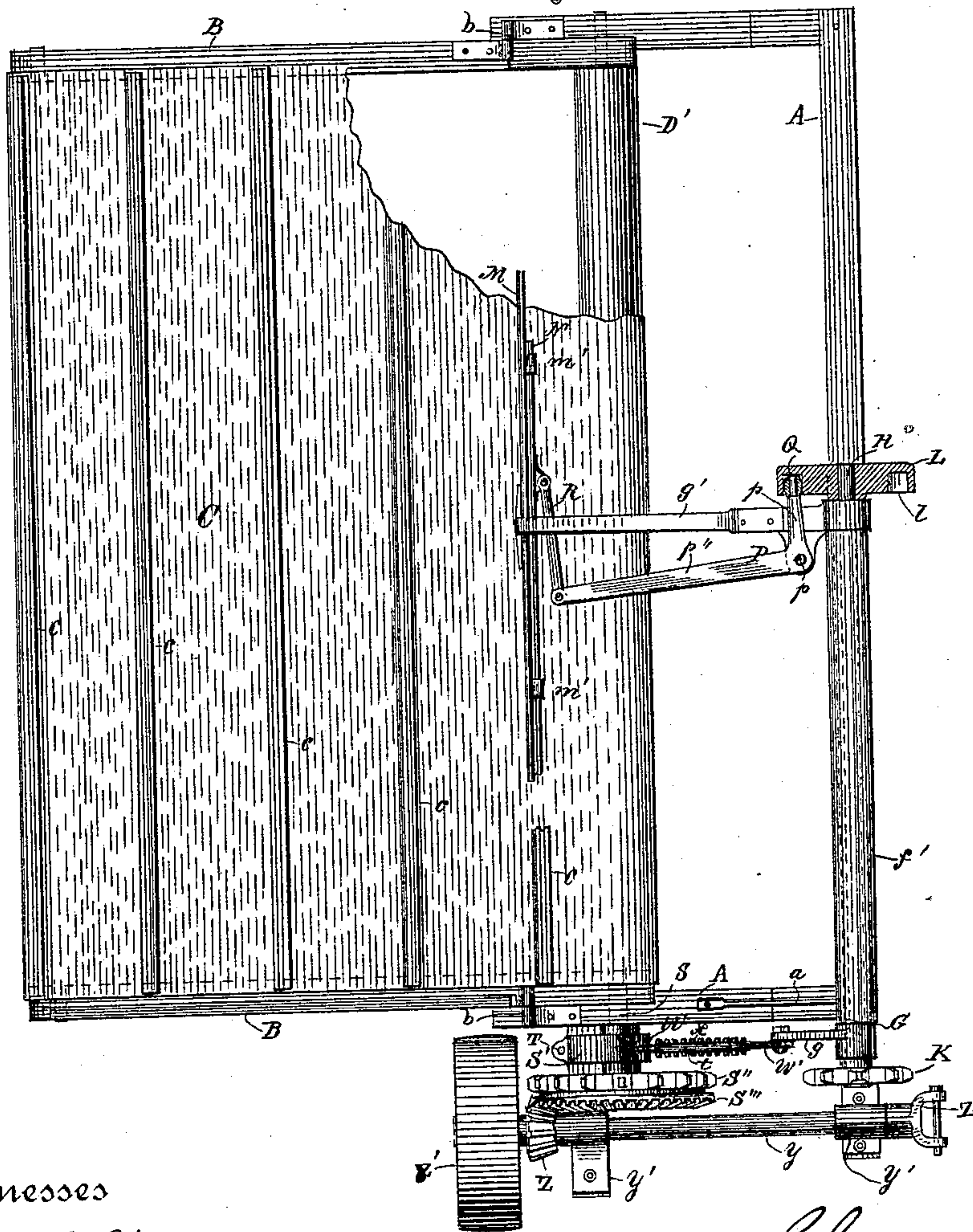
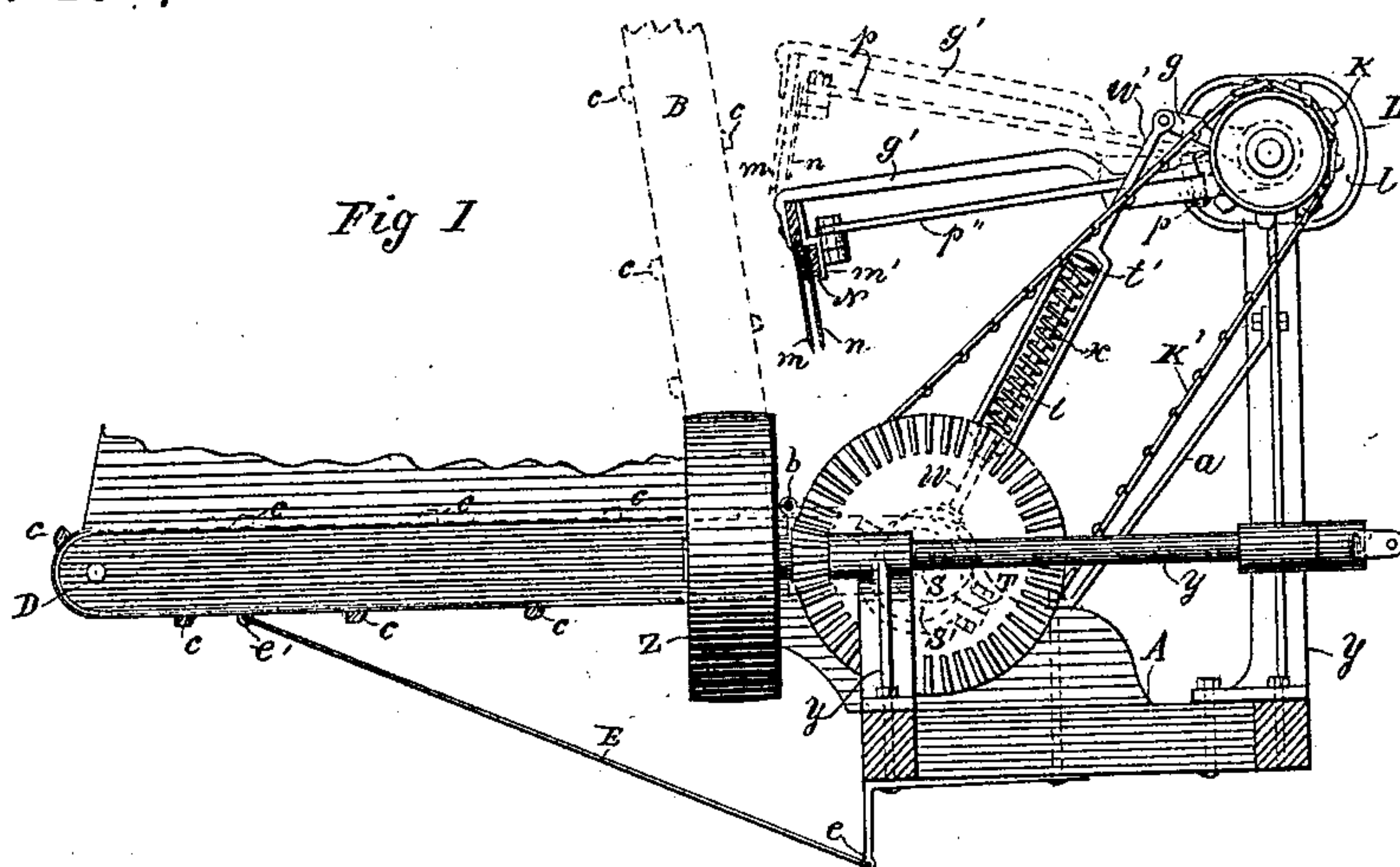
(No Model.)

2 Sheets—Sheet 1.

C. H. HILL.
BAND CUTTER.

No. 404,840.

Patented June 11, 1889.



Witnesses

A. H. Gosschl.
Emma F. Elmore.

Inventor

By his Attorney
Chamney H. Hill
Jas. F. Williamson

(No Model.)

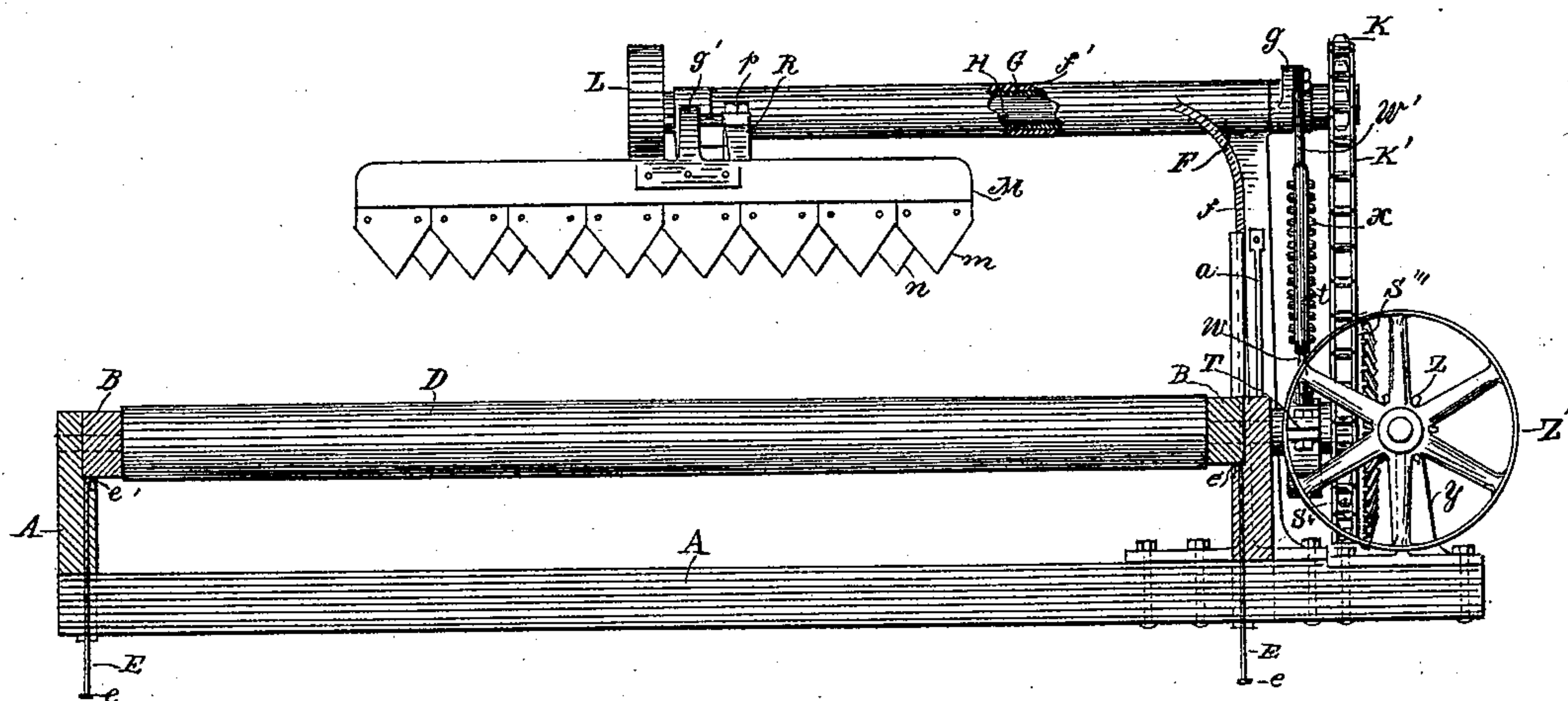
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Fig III



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UNITED STATES PATENT OFFICE.

CHAUNCY H. HILL, OF MINNEAPOLIS, MINNESOTA.

BAND-CUTTER.

SPECIFICATION forming part of Letters Patent No. 404,840, dated June 11, 1889.

Application filed September 14, 1888. Serial No. 285,362. (No model.)

To all whom it may concern:

Be it known that I, CHAUNCY H. HILL, a citizen of the United States, and a resident of the city of Minneapolis, county of Hennepin, State of Minnesota, have invented a certain new and useful Improvement in Band-Cutters for Thrashing-Machines, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to simplify and improve band-cutting mechanism.

To this end my invention consists in the construction hereinafter described, and particularly pointed out in the claims.

Referring to the drawings, wherein like letters represent like parts throughout, Figure I is a side elevation, Fig. II a plan, and Fig. III an end view, of my band-cutter detached from the thrashing-machine.

A represents a supporting-frame adapted to be attached in any suitable manner to the side of the mouth of the thrashing-machine. (Not shown.)

B is a carrier-frame, pivotally connected by hinges *b* to the main frame A.

C is an endless carrier, preferably made of canvas, with cross-slats *c*, mounted upon rollers D D', which are journaled in the opposite ends of the carrier-frame B. The carrier-frame is braced and locked in its proper working position by a suitable brace-rod E. As shown, this is a hooked brace pivoted at one end to an angle-iron *e*, rigidly bolted to the main frame and engaging by its hooked extremity with a perforated lug or eyebolt *e'*, secured to the carrier-frame.

On the inner corner of the main frame is rigidly secured an overhanging shaft-frame F, consisting of a vertical metallic standard *f*, bolted to the end and side bars of the main frame, and a right-angled hollow extension or sleeve *f'*, cast integral with the top thereof, and extending inward parallel with the end bars of the main frame and the carrier-rollers to a point near the center line of the carrier. The overhanging part of this frame—i. e., the sleeve *f'*—is at a proper height above the level of the carrier to afford sufficient clearance for the free passage of the cut bun-

dles. The standard *f* may be braced by a tie-rod *a*.

Within the sleeve *f'* is a hollow shaft G, of greater length than the sleeve *f'*, having on one end a crank *g* and on the other a rigid bracket-arm *g'*, extending to a point directly over the inner end of the carrier C. Inside the hollow shaft G is a longer solid shaft H, having on its outer end a sprocket-wheel K and on its inner end a cam-wheel L. This cam-wheel is provided with a cam-channel *l* on its inner face, approximately elliptical in shape.

To the outer end of the rigid arm *g'*, and at right angles thereto, is attached a cutter-bar M, provided with fixed triangular or sickle shaped knives *m*. On the inner face of the cutter-bar M are keepers *m'*, in which is mounted a reciprocating cutter-bar N, having triangular or sickle shaped knives *n*. On the arm *g'*, preferably near its connection to the hollow shaft G, is pivoted in the horizontal plane, by the pivot-pin *p*, a bell-crank lever P, whose shorter arm *p'* is provided with a roller Q, adapted to work in the cam-channel *l*, and whose longer arm *p''* is connected by the rod R with the cutter-bar N; hence, on turning the shaft H, a reciprocating motion will be imparted to the cutter-bar N and its knives *n*.

A shaft S is journaled in suitable supports on the end of the main frame A, adjacent to the inner corner of the carrier-frame B, and is provided with an eccentric S', a sprocket-wheel S'', and a beveled gear-wheel S'''. A sprocket-chain K' connects the wheels S'' and K.

T is the eccentric-strap. An eccentric-rod made in two telescoping parts W W' connects the eccentric-strap with the crank *g*. The telescoping joint is formed by an open link *t*, formed on the lower end of the upper section W' of the eccentric-rod, which is swiveled on the upper end of the lower section W. The end of the section W within the link *t* is provided with an enlarged head *t'*. Encircling the section W, between the head *t'* and the lower end of the link *t*, is a strong coiled spring X, tending to keep the two parts together. The effect of this construction is to

make the eccentric-rod automatically adjustable lengthwise by the pressure of the grain, rendering it adaptable to different-sized bundles.

5 Y is the main driving-shaft mounted in suitable supports Y', rigidly secured to the main frame. This shaft is arranged parallel to the sides of the main frame adjacent to the bevel gear-wheel S'''. It is provided with a
10 bevel gear-wheel Z, engaging with the gear-wheel S''' and with a main driving-pulley Z', adapted to be coupled by suitable belting to a source of motion. (Not shown.) I have shown a complete band-cutter adapted for attachment
15 to the right-hand side of the thrashing-machine. It will be understood, of course, that a similar one is used on the other side.

I have shown on the inner end of the shaft Y a coupling Z'', by means of which, if so desired,
20 both cutters may be connected and driven from a single belt. In practice, however, I prefer to use an independent belt for each cutter, connecting to independent pulleys on the opposite sides of the thrashing-
25 machine. As both sides are exactly alike in construction, I have deemed it unnecessary to show more than one in the drawings.

The operation is evident from the description. A rocking motion is imparted to the
30 shaft G by the eccentric on the constantly-running shaft S and its connection to the crank g, the effect of which is to move the rigid arm g' and its cutter-bars up and down in the arc of a circle. The arc through which
35 the cutter-bars move will vary in length more or less from the normal throw of the eccentric, according to the size of the bundle, the two parts of the eccentric-rod moving lengthwise away from each other under the
40 pressure of the bundle against the resistance-spring X. The eccentric-rod is of a proper length when the two parts are drawn together to their limit to bring the knives to a point within two or three inches of the carrier at
45 the limit of the forward and downward throw of the shaft G. From the cam L on shaft H and its connections—the bell-crank lever P and link R—a continuous reciprocating motion is imparted to the cutter-bar N and its
50 knives n. The bundles are placed on the carrier parallel with the cutter-bars, and as they pass under the bands are severed by the compound motion of the knives.

The shafts S, H, and G are geared up to run
55 at a relatively high rate of speed. Hence there will be several up and down movements of the cutter-bars during the passage of a single bundle, the effect of which is to render it next to impossible for a bundle to pass
60 without the band being cut, to afford clearance as needed, and to partially separate and spread out the cut bundle.

The compound motion of the knives is an important feature in my mechanism. I there-
65 by secure the effect of a double sickle and a shear-like or drawing cut at the same time.

The carrier is driven directly from the shaft S.

Minor features may be changed without departing from the spirit of my invention. 70

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In band-cutters, the combination, with an endless carrier, of a rock-shaft having a
75 rigid arm overhanging said carrier transverse to the plane of its movement, a cutter on the outer end of said arm, a driving-shaft provided with an eccentric or crank, an extensible connecting-rod from said eccentric to said
80 rock-shaft, and a resistance-spring acting on said rock-shaft in opposition to the pressure of the bundles, substantially as described.

2. In band-cutters, the combination, with an endless carrier, of a rock-shaft provided
85 with a crank and a rigid arm overhanging said carrier transverse to the plane of its movement, a cutter on the outer end of said arm, a driving-shaft provided with an eccentric, a telescopic eccentric-rod connecting said
90 eccentric and the crank of the rock-shaft, and a spring connecting and tending to draw together the telescoping parts of said eccentric-rod, substantially as described.

3. In band-cutters, the combination, with
95 an endless carrier, of a hollow rock-shaft having a cutter-supporting arm overhanging said carrier transverse to the plane of its movement, a constantly-revolving shaft within said rock-shaft provided with a cam, fixed
100 and movable cutters on said supporting-arm, and a connection from said cam to said movable cutters for operating the same, substantially as described.

4. In band-cutters, the combination, with
105 an endless carrier and a driving-shaft having an eccentric, of a hollow rock-shaft having a crank and a rigid cutter-supporting arm overhanging said carrier, an extensible eccentric-rod coupling together said crank and
110 eccentric, a fixed and a movable cutter-bar provided with knives mounted on said supporting-arm, a constantly-revolving shaft located within said rock-shaft and provided with a cam, and a connection from said cam
115 to said movable cutter-bar, substantially as described.

5. In band-cutters, the combination, with an endless carrier and a driving-shaft having an eccentric, of a shaft frame or support
120 overhanging the path of the bundles, a hollow rock-shaft having a crank-arm and a rigid cutter-supporting arm overhanging said carrier transverse to the plane of its movement, fixed and movable cutter-bars having
125 knives mounted on said arm, an automatically-extensible eccentric-rod coupling said eccentric and crank, a revolving cam-shaft within said rock-shaft provided with a cam, a bell-crank lever pivoted to said rock-shaft,
130 having one arm in engagement with said cam and the other connected to said movable cut-

ter-bar, and a connection from said cam-shaft to said driving-shaft, as and for the purpose set forth.

5 6. In band-cutters, the combination, with an endless carrier, of a rock-shaft having a crank and a cutter-supporting arm overhanging said carrier, a fixed and a reciprocating cutter mounted on said arm, a driving-shaft

provided with an eccentric, and an automatically-extensible eccentric-rod coupling said eccentric and the crank of said rock-shaft, substantially as described.

CHAUNCY H. HILL.

In presence of—

JAS. F. WILLIAMSON,

EMMA F. ELMORE.