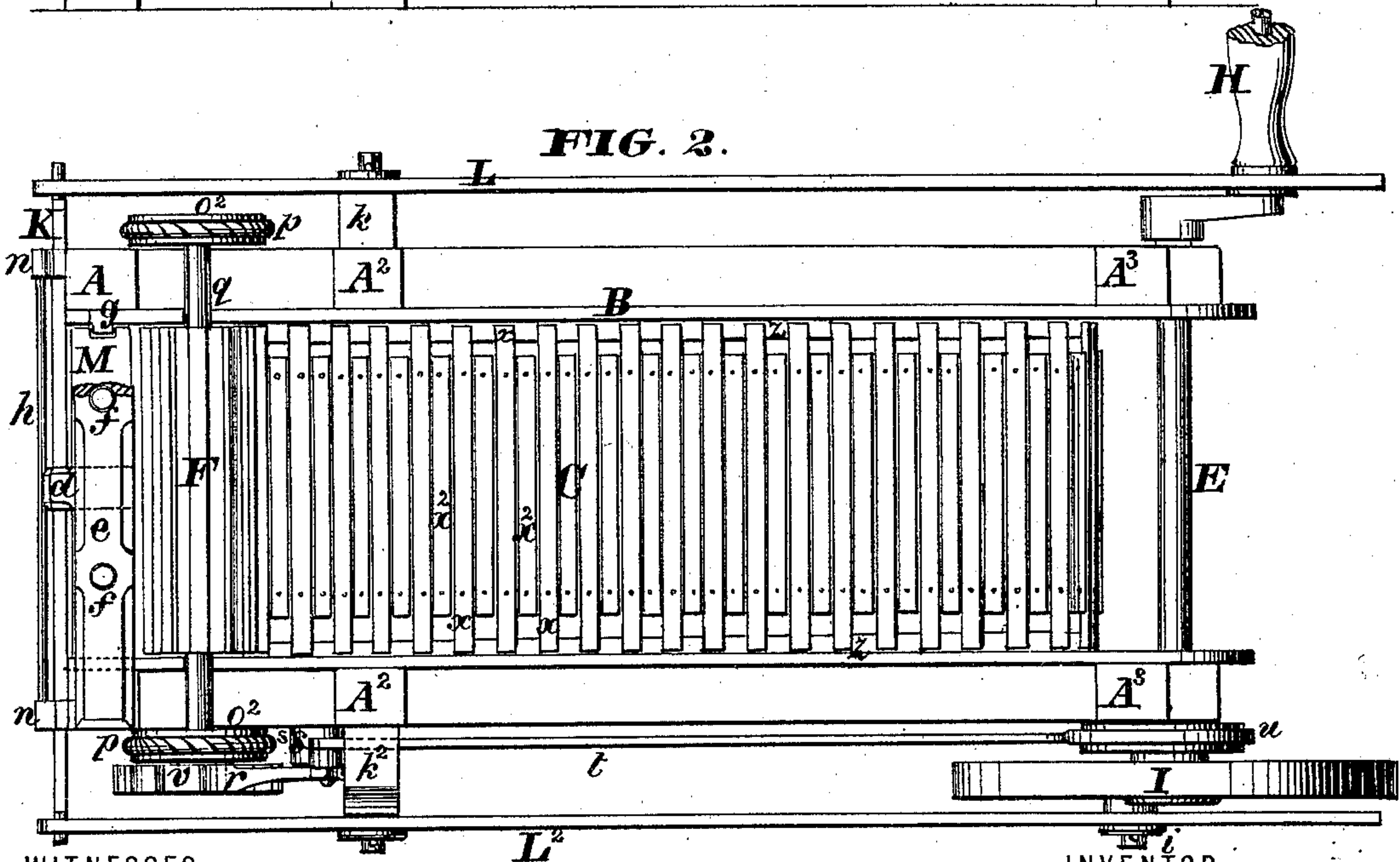
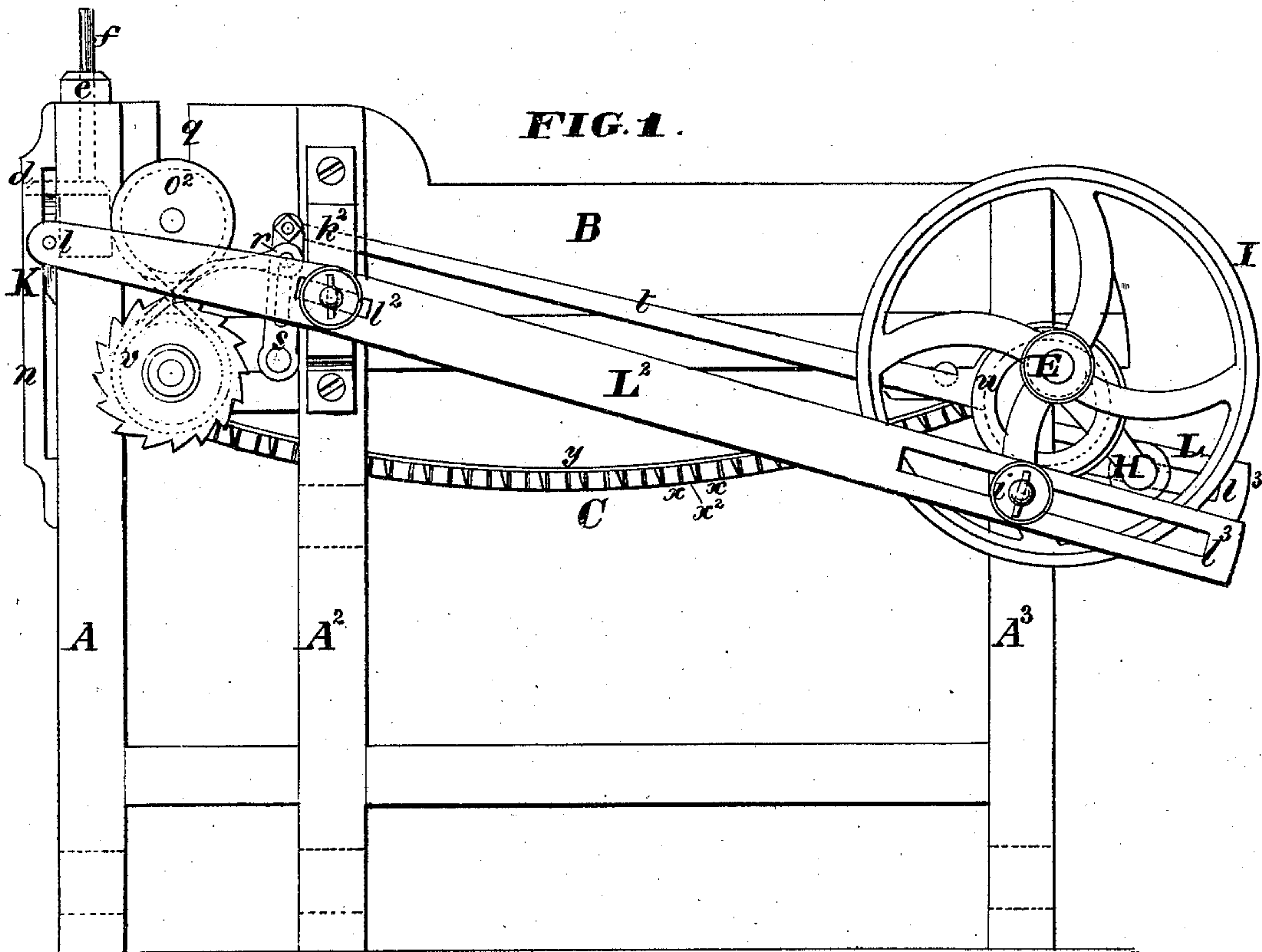


J. P. DAVISON.
Straw-Cutters.

No. 153,812.

Patented Aug. 4, 1874.



WITNESSES

Geo L. Swin
Walter Allen

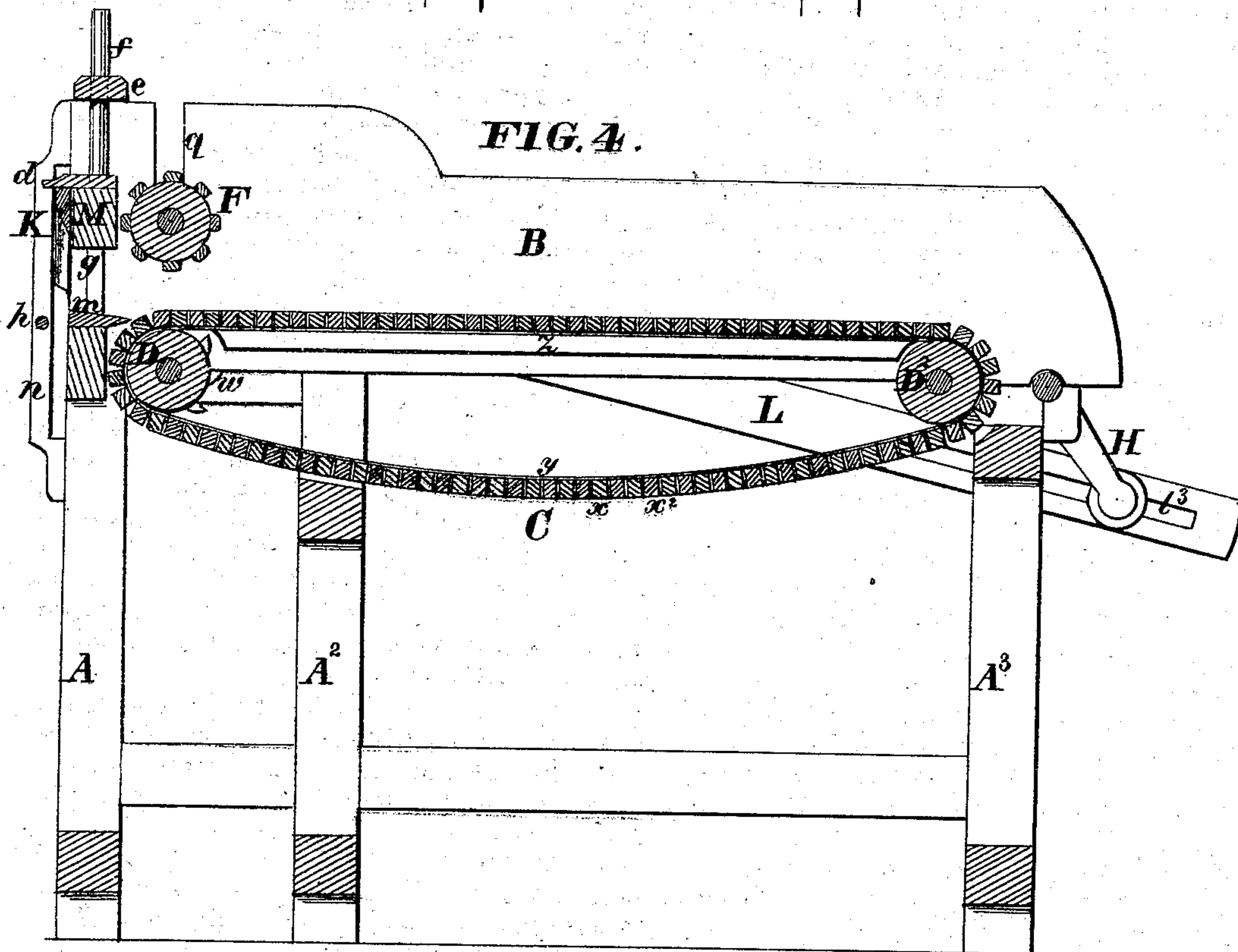
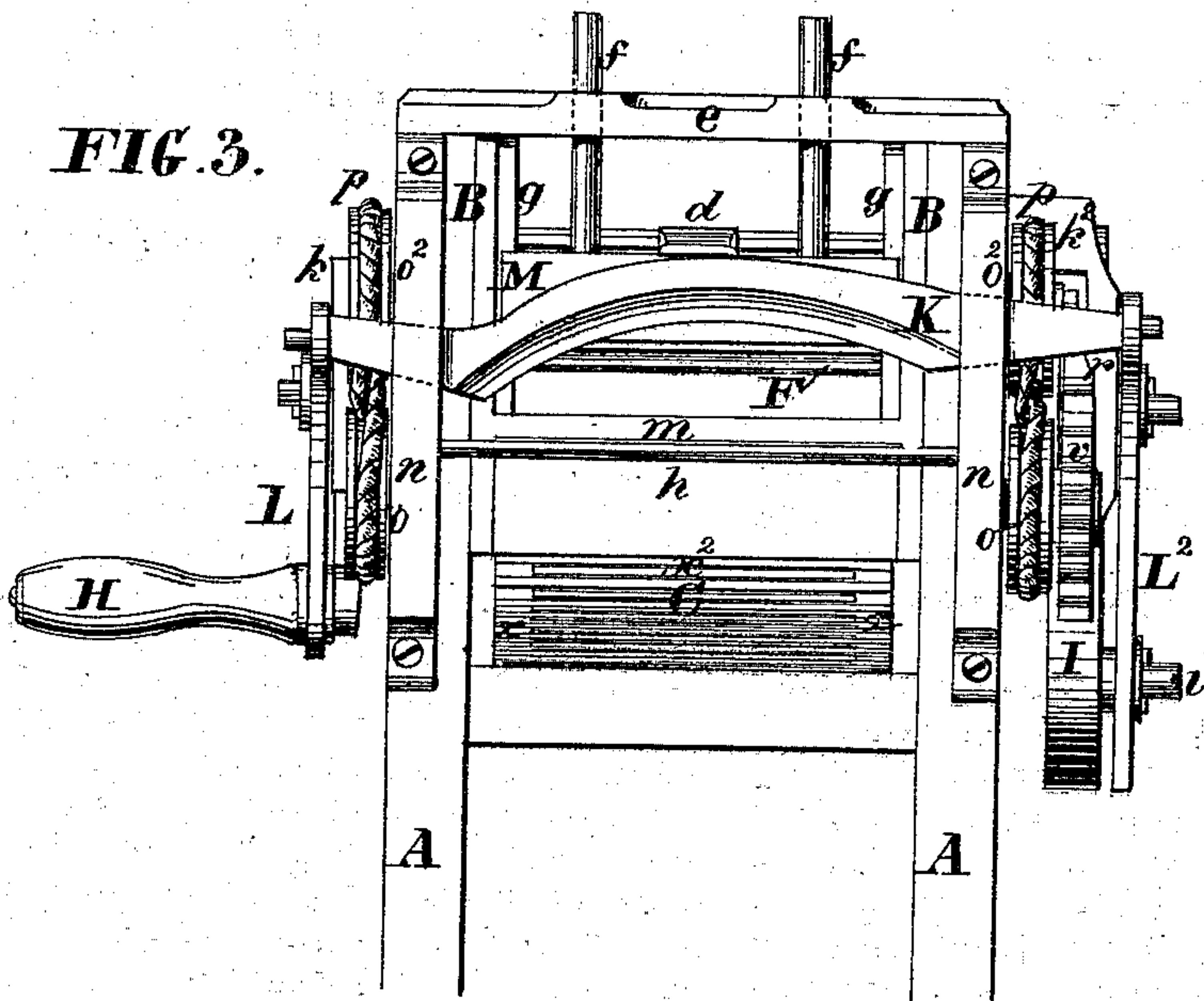
INVENTOR

James P. Davison
By *Brighton* Attorneys

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WITNESSES

Gas L. Quinn
Walter Allen

INVENTOR

James P. Davison
By *Brightman* Attorneys

UNITED STATES PATENT OFFICE.

JAMES P. DAVISON, OF SCHENECTADY, NEW YORK.

IMPROVEMENT IN STRAW-CUTTERS.

Specification forming part of Letters Patent No. **153,812**, dated August 4, 1874; application filed March 17, 1874.

To all whom it may concern:

Be it known that I, JAMES P. DAVISON, of the town and county of Schenectady, in the State of New York, have invented an Improved Feed-Cutter, of which the following is a specification:

This invention relates to machines for cutting straw, hay, or fodder, or for making what is termed "cut-feed." The first part of the invention consists in a combination of devices of peculiar construction to form an endless traveling-floor, rigid transversely, and supported and propelled positively by its edges, so as to preclude any accumulation of dust beneath the floor or apron, and to prevent any slippage between the driving drum and the apron, and to support the straw or fodder in a flat layer of equal depth. The second part of the invention consists essentially in the employment or use of long levers at the sides of the machine as means for transmitting motion with increased force from a horizontal crank-shaft, at the rear end of the trough, to a reciprocating knife, working in straight vertical ways at the front end of the trough, the levers being slotted to embrace the fulcrum-pins and crank-wrists, and the latter formed, by preference, on a fly-wheel and hand-crank at the respective ends of the crank-shaft, and arranged in different planes, so as to produce a peculiar draw-cut, as hereinafter set forth.

The general object of this invention is the production of a convenient, simple, and compact hand-machine, operating with ease and efficiency, and adapted to be readily adjusted and kept in order.

Figure 1 is a side elevation of this improved machine. Fig. 2 is a plan view of the same, partly in section. Fig. 3 is an end elevation. Fig. 4 is a vertical longitudinal section in a central plane.

A simple rectangular frame for this machine is formed by three parallel pairs of wooden standards, A A^2 A^3 , united by longitudinal and transverse timbers, as illustrated. Within the upper part of this frame the trough is formed by side boards B , and an endless apron, C , and the frame is properly proportioned, so that this trough shall be at convenient height and of the required capacity. A pair of horizontal guide-rails, z , are attached to the side

boards of the trough inside to support the edges of the endless apron, and a parallel pair of rollers or drums, D D^2 , are journaled in the respective ends of the frame to carry the apron. The apron is composed of two or more endless belts or bands, y , of leather or other suitable flexible material, and transverse wooden bars x x^2 , fastened to the belts or bands by rivets or their equivalent. The bars x x^2 may be rectangular in cross-section, and are, respectively, long and short, the long bars x resting at each end on the guide-rails, and sandwiched by the short bars x^2 . Owing to this construction, spaces are formed along the edges of the apron, and these serve to receive the teeth of driving-wheels w on the shaft of the front drum D , which is extended at both ends beyond the frame, and a ratchet-wheel, v , is keyed on one extremity thereof. A rotary main driving-shaft, E , is mounted in horizontal bearings on the rear standards A^3 of the frame, at or below the floor of the feeding-trough, and this carries an eccentric, u , which is connected, by a rod, t , and interposed rock-lever s , to a pawl, r , engaging with the ratchet-wheel v , these parts being all arranged on one side of the machine. The connecting-rod t is attached to the upper end of the lever s , and the pivot of the lever is located at its opposite extremity. The pawl r is attached to this lever by a pivotal bolt, occupying a longitudinal slot in the lever, and adapted to be fixed at any point, and, by shifting this pivot, the movement imparted at each stroke to the feeding-apron may be increased or diminished, so that the feed shall be cut longer or shorter, as desired. A ribbed feed-roller, F , is arranged above the front drum D and parallel therewith, the shaft of this roller occupying vertical slots q in the sides of the trough. For holding this roller to its work, and at the same time connecting it to the drum D , so that it shall move in unison with the feeding-apron, crossed elastic bands p , of rubber or equivalent material, are stretched around grooved pulleys o o^2 on the respective ends of the shafts of the drum and roller. Provision is thus made for intermittently feeding the material in a positive manner and for regulating the movement. For severing the feed, a peculiar reciprocating knife, K , is employed. This is

straight in horizontal and cross section, but is curved longitudinally, so as to present a concave edge, and is constructed with extended ends, by which to operate it. The knife works in straight ways, formed by brackets *n*, applied to the face of the front standards *A*, and the throat is provided with a steel frame, *m*, to coact therewith, the floor-plate of this frame being supported on a cross-bar of the main frame. For imparting and steadying the motion of the driving-shaft *E*, and, particularly, for operating the knife, a hand-crank, *H*, and a fly-wheel, *I*, are keyed on the respective extremities of the shaft, and the fly-wheel is provided with a crank-wrist, *i*, slightly behind or before the handle of the hand-crank, as illustrated in Fig. 1. A pair of long levers, *L L*², are fulcrumed on stud-pivots projecting from brackets *k k*², bolted to the outer sides of the second pair of standards *A*², near their upper ends. These levers have simple eyes *l* at their front ends to receive horizontal pivot-wrists on the extended ends of the knife. They have longitudinal slots *l*² to receive their fulcrum-pivots, in order that they may be employed in connection with straight ways for the knife. They have also extended longitudinal slots *l*³ in their rear ends to receive the wrists of the hand-crank *H* and fly-wheel *I*, respectively. By this connection the knife is reciprocated at every rotation of the driving-shaft, and the power is applied to each end of the knife, but the motion is irregular, owing to the described arrangement of the crank-wrists. The knife, consequently, wabbles during its movements, and a peculiar and efficient draw-cut is produced. A horizontal rod, *h*, connecting the

guide-brackets *n*, supports the outer end of the feed, so as to insure its perfect severance. A fall-block or presser, *M*, is arranged within the throat, and guided by vertical ways *g* formed on the sides of the trough, and by rods *f* working in a cross-bar, *e*, which spans the front standards *A*. A projection, *d*, on the presser engages with the top of the knife when the latter is elevated, and the presser is thus lifted and held in elevated position during the feeding operation. When the knife descends the presser falls therewith, and compacts the feed immediately at the knife, so as to facilitate the cutting operation.

Having described this my invention, I claim—

1. The combination, in a feed-cutter, of the feed-apron *C*, composed of endless flexible bands *y* and short and long transverse strips *x x*², the drum *D*, with driving spur-wheels *w* at its ends, and the side boards *B*, having supporting-rails *z*, the whole constructed and operating substantially as herein described, for the purpose specified.

2. The combination of a reciprocating knife, *K*, working in straight ways, a horizontal crank-shaft, *E*, and long transmitting-levers *L L*², attached by pivot-joints to the projecting ends of the knife, and arranged longitudinally at the sides of the trough, and having slots to embrace, respectively, the fulcrum-pins and the crank-wrists, substantially as herein described, for the purpose set forth.

JAS. P. DAVISON.

Witnesses:

E. W. PAIGE,

ALONZO P. STRONG.