

(No Model.)

2 Sheets—Sheet 1.

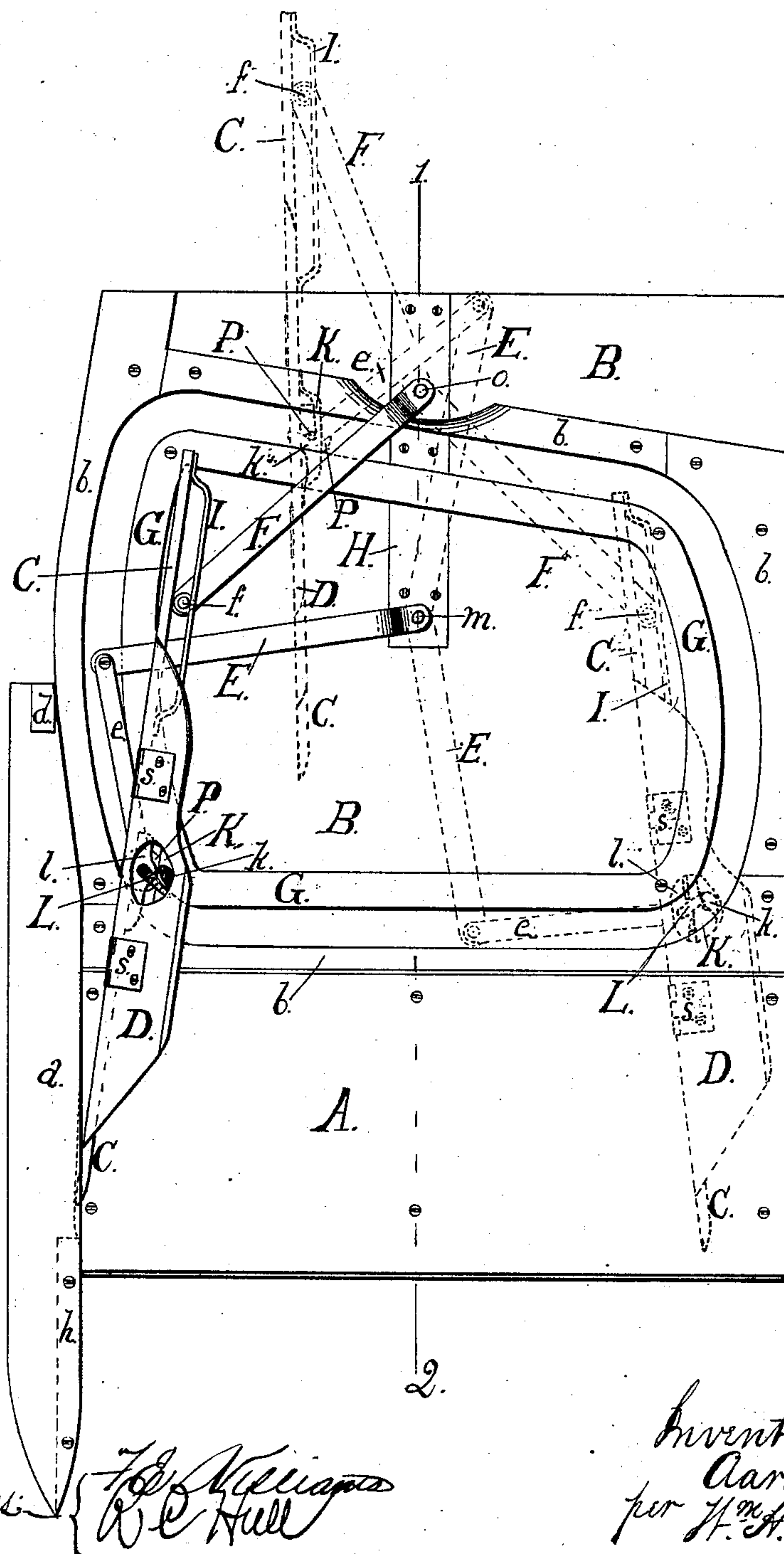
A. MILLER.

GAVEL DELIVERER FOR HARVESTERS.

No. 299,667.

Patented June 3, 1884.

Figure 1.



(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

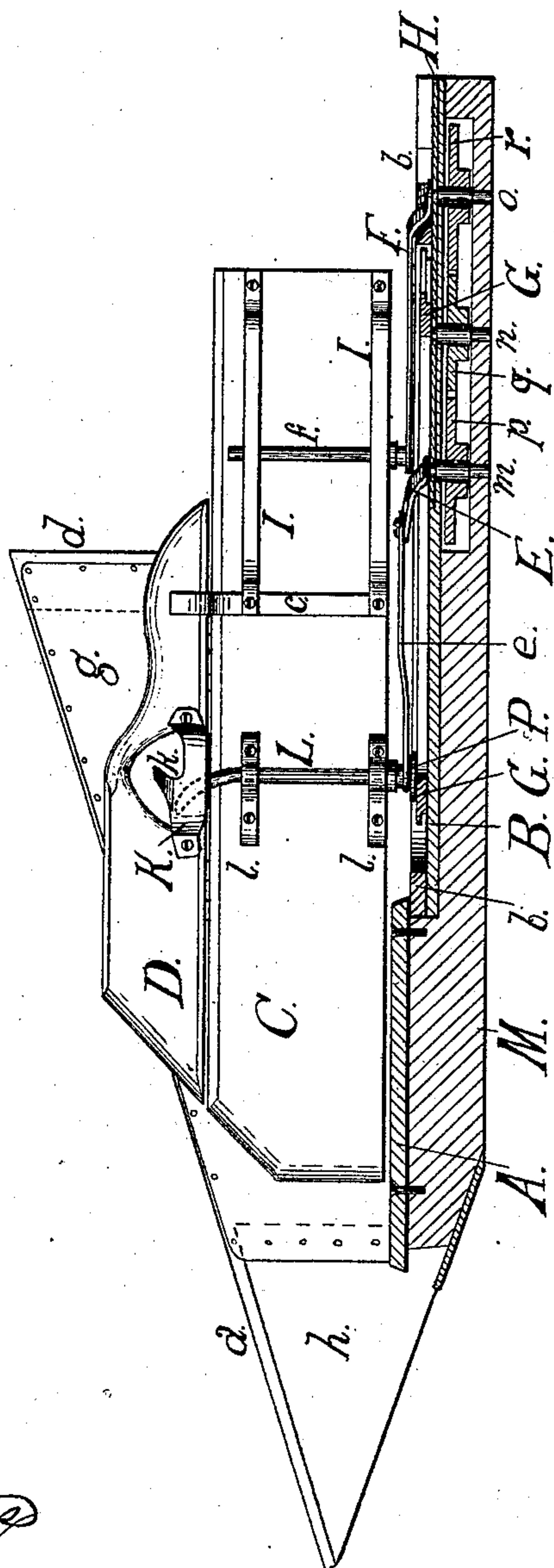
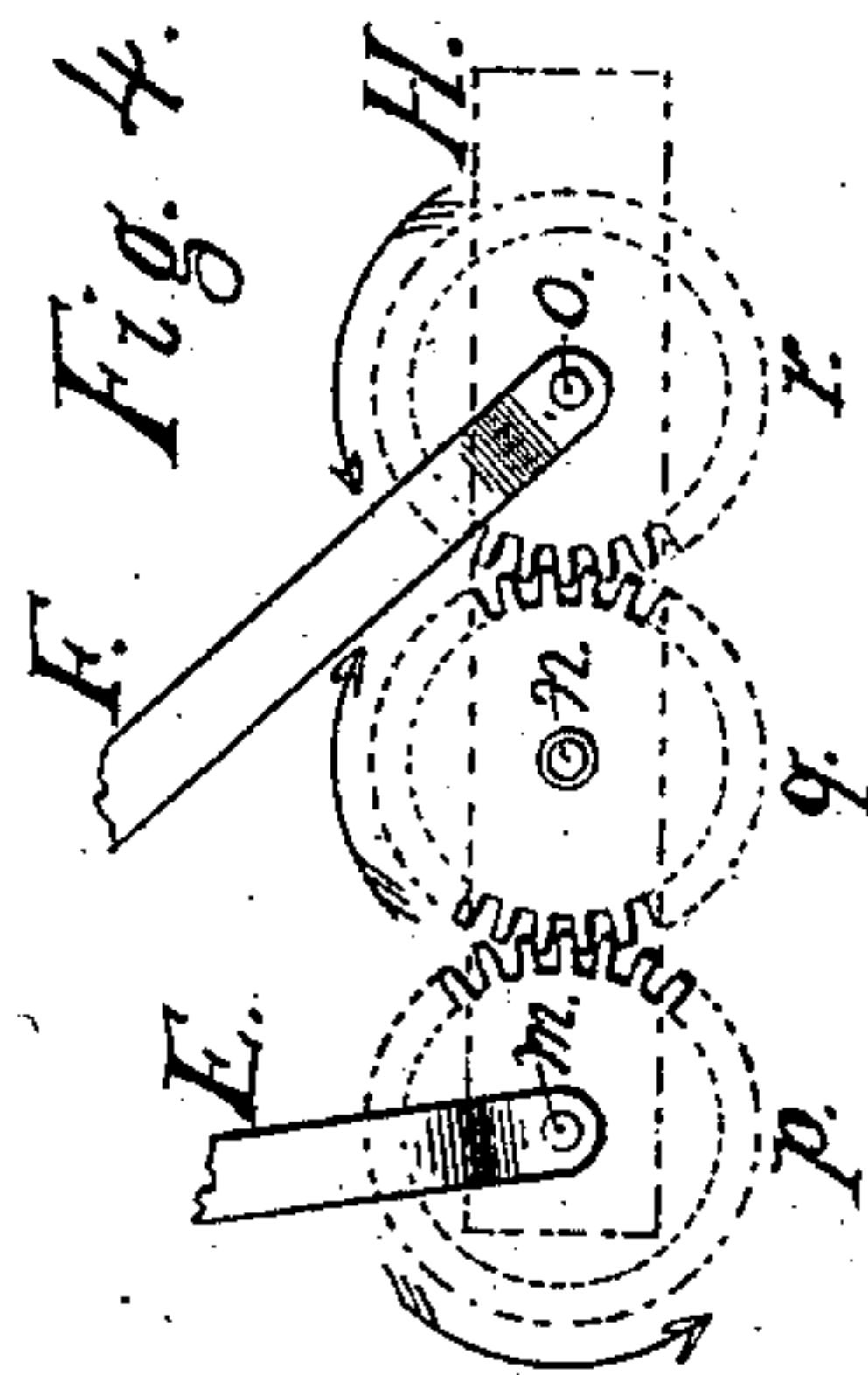
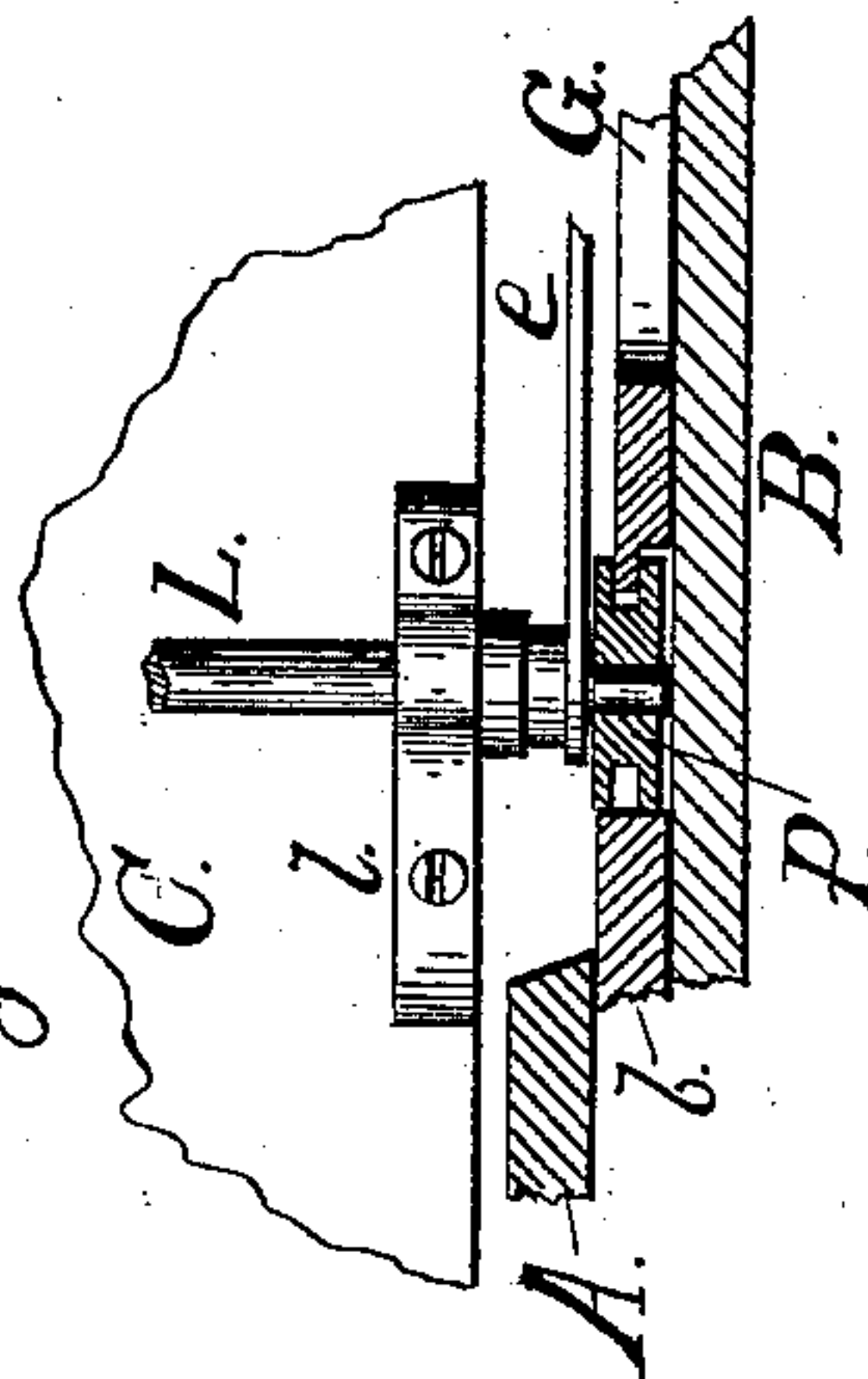


Fig. 3.



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# UNITED STATES PATENT OFFICE.

AARON MILLER, OF BROCKPORT, NEW YORK.

## GAVEL-DELIVERER FOR HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 299,667, dated June 3, 1884.

Application filed October 16, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, AARON MILLER, a citizen of the United States, residing at Brockport, in the county of Monroe and State of New York, have invented a new and useful Gavel-Deliverer for Harvesters, of which the following is a specification.

The object of my invention is the construction of a gavel-deliverer, such that, without any change in its construction or method of operation, it may be used either as an ordinary "self-rake," so called, or to deliver the gavels in suitable form and manner to a binding attachment located on a level, or nearly so, with the platform.

In operating my invention it is preferred to use a platform of peculiar construction, as will be explained.

The accompanying drawings, illustrating my invention, are as follows:

Figure 1 is a top plan view of my platform and gavel deliverer. Fig. 2 is a vertical cross-section of the same on the line 1 2 of Fig. 1. Fig. 3 represents a similar section on an enlarged scale, with the gavel-board C moved to such a position that the grooved guide wheel or roller P shall be cut centrally by this same line 1 2 of Fig. 1. Fig. 4 is a plan view of the gearing actuating the gavel-deliverer, the plate H being indicated in dotted lines, and the gearing actuating the cranks E and F partially in dotted lines.

Similar letters refer to similar parts throughout the several figures.

In Fig. 1 of drawings my gavel-board, with its attachments, is shown in three different positions—viz., at the outer side of the platform in full lines, and at the inner side and in the rear in dotted lines.

Referring to Figs. 1 and 2 of drawings, I employ a double platform, consisting of an upper and forward portion, A, which is the platform proper, and a lower and rear portion, B. To the forward or front edge of the platform A may be attached any suitable form of finger-bar, with cutter-bar working therein. These platforms A and B may rest upon and be secured to at least three or more sill-pieces. It is important, however, that there should be one of these sills located centrally under these platforms, as seen in section in Fig. 2

at M. To the forward end of these sills there is secured the platform A, while the platform B is secured to the rear end of these sills in any suitable manner. (Not shown.) These sill-pieces are so shaped, as indicated, that the platform A shall be somewhat higher than the platform B.

Extending upward from the platforms A and B, and at the outer sides thereof, is the divider *h* and the post or upright *d*, the divider *h* being indicated only in dotted lines in Fig. 1. Secured to the divider *h* and post *d* is the cap-piece *a*, beneath which may be located the grain-wheel, supporting and carrying the outer edge of the platform. To the cap-piece *a*, post *d*, divider *h*, and the outer or right-hand edge of the platforms A and B is tacked the sheet-iron fence or guard *g*, the platform A at its outer or right-hand edge being somewhat curved and extended a short distance under the cap-piece *a*, as shown in dotted lines in Fig. 1.

Gained into and screwed to the platform B, so as to be flush with the top of the same, is the iron plate H, having holes therethrough, which form bearings for the shafts *m*, *n*, and *o*, as shown. Immediately beneath these holes in plate H are located other and somewhat larger holes through the platform B, as shown in Fig. 2. Through these holes pass the shafts *m*, *n*, and *o*, whose lower bearings are located in the center sill, M. This center sill is notched out or cut away, so as to give room for the pinions *p*, *q*, and *r*, located and secured upon the shafts *m*, *n*, and *o*, respectively. Upon the upper end of the shaft *m* is secured the crank E, to the outer or free end of which is secured in a manner so as to articulate freely therewith the connecting-rod *e* by means of a screw-bolt. To the other end of connecting-rod *e* is rigidly secured the shaft L, working in the bearings or boxes *l*, screwed, as shown, to the left-hand face of the gavel-board C. This gavel-board C is supported at a uniform height by means of a shoulder on the shaft L, located just under the lower one of the two bearings *l*, and is prevented from rising or being lifted from any cause by means of a pin (not shown) passing through the shaft L, just above either one of the bearings *l*.

To the lower end of this shaft L, and just



below the connecting-rod *e*, is pivoted the grooved guide wheel or roller *P*. This roller *P*, by means of the peripheral groove therein, works upon the tongued track *G*, secured upon the platform *B*, and is prevented from leaving this track at any time by means of the wood or metallic guide *b*, entirely surrounding the track *G* at a little distance therefrom, and screwed to the platform *B*. This guide *b* may be made and put on the platform *B* in sections, as indicated. It is at all points equally distant from the track *G*, and the space between it and the track is such as to prevent the roller *P* from leaving the track, and yet wide enough to allow the free revolution of the roller at all points in its course around the track, whether it is bearing against the track or against the guide *b*. It will be seen that by the revolution of the pinion *p*, carrying with it the shaft *m* and crank *E*, the gavel-board *C* is caused to traverse a course exactly like the track *G*—that is to say, it will be projected forward at the outer side of the platform, will then sweep across the same to its inner side, and then be withdrawn.

To the shaft *o* is secured the crank *F*, to the free end of which is rigidly secured the pin or shaft *f*, working in the space inclosed between the gavel-board *C* and the guide-strips *I I*, screwed onto the rear end thereof, as indicated. The gavel-board *C* is supported at its rear end upon a shoulder at the lower end of shaft *f*, as shown.

Referring to Fig. 4, to any one of the pinions *p*, *q*, or *r*, which, it should be remarked, are all of the same size and have each the same number of cogs, motion may be communicated in the direction indicated by the arrows, the pinions forming a connected train of gearing, whereby the cranks *E* and *F* are caused to revolve in the same direction and at the same rate of speed. The crank *F*, as shown, is set somewhat in advance of the crank *E*. The conformation of the track *G* with the guide *b* surrounding it, and the relative proportion existing between the track and guide, the cranks *E* and *F*, and the connecting-rod *e*, are such that when the pinions *p*, *q*, and *r* are caused to revolve in the manner described the gavel-board *C* will in traversing the course already described be retained in a position nearly at right angles with the cut of the machine, or with the front edge of the platform *A*, except that just before it enters upon that portion of its course across the platform it will assume the position shown in full lines in Fig. 1, its forward end being thrown farther out than its rear end and pressing against the sheet-iron fence *g*, so as to more effectually gather up all the grain at starting and not leave any against the fence. After it has passed across the platform *A*, the angle of the gavel-board *C* will be reversed and the cranks *E* and *F*, connecting-rod *e*, shafts *L* and *f*, and guide-strips *I* will assume the positions indicated in dotted lines in the same figure at

the inner side of the platform. The object of this change in the angle of the gavel-board *C* is to insure the certain delivery of the gavels from the platform *A* and wholly to the rear of the front edge of said platform. The gavel-board *C*, together with the cranks, connections, and other devices actuating the same, is indicated in other dotted lines to the rear at a position in its return-course nearly midway between the two positions already described.

Referring to Figs. 1 and 2, to the upper edge of the gavel-board *C* the deflector *D* is hinged by means of butts *s*, located on the right-hand side of the board and deflector. The board and deflector have their adjacent edges beveled off from the left-hand side of each, as indicated, so as to allow the deflector to swing freely on the board in the manner indicated in the drawings. By means of a leaf-spring, *c*, clamped, as shown in Fig. 2, between the board *C* and the forward ends of the guide-strips *I*, the deflector *D* is held in a vertical position when not otherwise operated upon. A plate, *K*, provided with a projection, *k*, thereon is secured, as shown, to the left-hand side of the deflector *D*, and opposite a large opening through the center thereof. The upper end of the shaft *L* is curved at such an angle with the connecting-rod *e*, to which it is rigidly secured, that when the gavel-board occupies the position indicated in full lines in Fig. 1 the deflector *D* will be inclined slightly to the left by means of the curved upper end of the shaft *L* bearing against the plate *K*. When the board *C* has been moved to the inner side of the platform—the position indicated in dotted lines to the left—the deflector, as shown, is inclined still farther over to the left by means of the curved upper end of the shaft *L* bearing against the projection *k* on the plate *K*. This projection *k* is curved, and extends to the right from the plate *K*, and partially through the opening in the deflector *D*; and through this same opening the curved upper end of the shaft *L* passes in completing its revolution during the return-course of the board *C*. Owing to the form of the projection *k* on the plate *K*, the greater part of this increase in the inclination of the deflector *D* takes place just as the gavel-board *C* arrives at the position indicated in dotted lines at the inner end of the platform, or just at the time of the formation of a complete gavel, thereby acting as a compressor and reducing the size of the gavel, so as to bring it well within the range or scope of the needle-arm of the binding mechanism. Shortly after the gavel-board is withdrawn from the last-named position the curved upper end of the shaft *L* leaves the projection *k* on the plate *K*, and the deflector *D* is carried back to an upright position by means of the spring *c* bearing against the rear end of the deflector. The object in having the deflector thus carried back to a vertical position just as the gavel-board leaves the position indicated in dotted lines at the inner end of the



platform is that it may avoid any device used for supporting the platform from the main frame of the machine, which device may be applied to the rear of the usual finger-bar connections. Such supporting device, it will of course be understood, in order that it may not obstruct the free delivery of the gavels, must be secured to the inner side of my platform, and some distance to the rear of the platform A, and must also be carried up high enough to pass freely at all times over the bundles or gavels after they are deposited on the ground. After the gavel-board leaves the position indicated in dotted lines at the rear of the machine, and just before arriving at the position indicated in full lines, the curved upper end of the shaft L is brought to bear against the plate K, causing the deflector D to be again inclined slightly over to the left. This inclination is somewhat increased by the forward motion of the board C until such board arrives at the position indicated in full lines, when the board and deflector are ready to repeat the operation described. The deflector D catches along its forward and slanting end so much of the grain falling just in advance of the board C as would by the forward movement of the board be prevented from falling in proper shape into the gavel being formed in advance of board, and by means of the slanting forward end of the deflector D and the motion of the board C and deflector D such grain is caused to fall behind the board C, and in proper shape for the next gavel. By the action of the deflector in the manner described the gavels themselves are also gathered and delivered in much better and more compact form, either to a binder, when used, or off from the inner side of the platform A. Wood, brass, steel, and cast and wrought iron may be used in the construction, each where it is most conducive to strength, durability, lightness, and economy.

The operation is as follows: Motion being communicated, in the manner already described, to any one of the pinions *p*, *q*, or *r*, the gavel-board C and deflector D are caused to traverse the course and operate in the manner already described, thereby gathering the grain upon the platform A into a gavel and delivering it to a binder, which may be attached to the inner edge of the platform A, or pushing the gavel off from the platform A at its inner edge. The gavel-board C, it will be understood, performs this work by raking or sweeping the grain across the platform A from the outer to the inner side, the grain falling on the platform during this operation being properly divided and caused to fall in proper form both in the front and the rear of the gavel-board C as the same advances, by means of the deflector D acting also as a compressor and working in the manner already described. It will readily be seen that a complete gavel is formed during each revolution of the cranks E and F, and that these cranks may be caused to revolve at any desired rate with regard to

the other working parts of any one of the various machines to which my gavel-deliverer may be applied.

I would call attention to the fact that, owing to the location of the shaft *m* relative to the center of the track G, and to the relative proportion of the actuating parts of my gavel-deliverer, but about one-fourth of a revolution of the crank E is required to form a gavel and deliver it from the platform, the other three-fourths of such revolution being taken up in bringing the board C into position to form the next succeeding gavel, thus forming clean gavels even at their butt-ends, and doing it quickly, and allowing little time for the grain to get tangled as it falls upon the platform during the forming of a gavel.

I will mention that the platform A is the platform proper, being the one on which the grain falls as it is cut, while the platform B performs none of the functions of a platform proper, but serves only as a more convenient support for the track G, guide *b*, and plate H. It may be dispensed with entirely, in which case such track, guide, and plate may be supported directly on sill-pieces properly located for that purpose; or in place of such platform B there may be used any other equivalent device for supporting such track, guide, and plate.

It will of course be understood that without departing from the spirit of my invention very many modifications may be made in the form and proportion of my gavel-deliverer and the different parts thereof, so as to adapt it to use with different machines.

What I claim is—

1. In a harvester, the combination, with the platform A, of the gavel-board C, crank E, connecting-rod *e*, shaft L, bearings *l*, crank F, shaft *f*, guide-strips I, means for supporting and revolving said cranks E and F, roller P, track G, guide *b*, and means for supporting said track and guide, each constructed, arranged, and operating substantially as and for the purpose set forth.

2. The combination, with the platform A, gavel-board C, crank E, connecting-rod *e*, shaft L, bearings *l*, crank F, shaft *f*, guide-strips I, means for supporting and revolving the cranks E and F, roller P, track G, guide *b*, and means for supporting said track and guide, of the deflector D, articulated to the board C, spring *c*, and plate K, provided with the projection *k*, all constructed, arranged, and operating substantially as shown and described.

3. In a harvester, the combination of a platform, a gavel-board, a deflector hinged to said gavel-board, and devices to support and actuate both said gavel-board and deflector, said devices located entirely at the rear of the platform, and constructed, arranged, and operating in such a manner as to cause the gavel-board to traverse a course in a plane parallel with the platform and to pass over and across



said platform only in a direction from the outer to the inner edge of the same, substantially as set forth.

4. The combination of a harvester platform, a track, a gavel-board, a deflector hinged to said gavel-board and actuated by the same means, cranks arranged to actuate said gavel-board, and means for confining the movements of the gavel-board to a course described by said track, all of the devices for operating the gavel-board being located in the rear of the platform.

5. In a harvester, the combination, with the gavel-board, of a deflector hinged thereto and means for operating the deflector, whereby it will also act as a compressor, substantially as set forth.

6. In a harvester, the combination of the gavel-board, a combined deflector and compressor articulated thereto, and means for changing the angle of inclination between said gavel-board and compressor at different points in the course traversed by said gavel-board, substantially as and for the purpose set forth.

7. In a harvester, the combination of the gavel-board, a gavel-compressor attached thereto, and means for actuating both board and compressor, substantially as and for the purpose set forth.

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