

(No Model.)

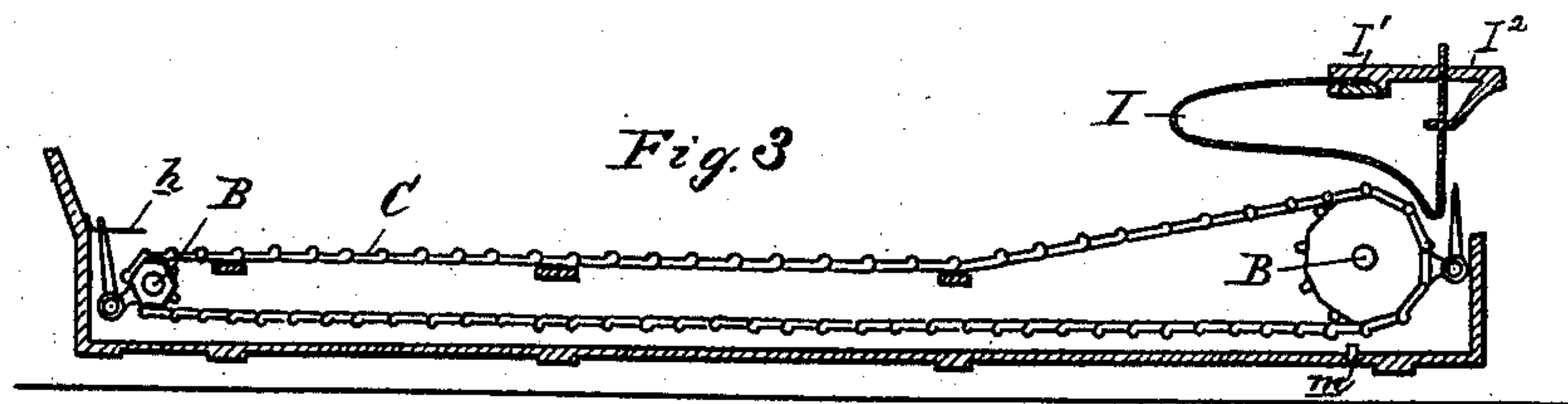
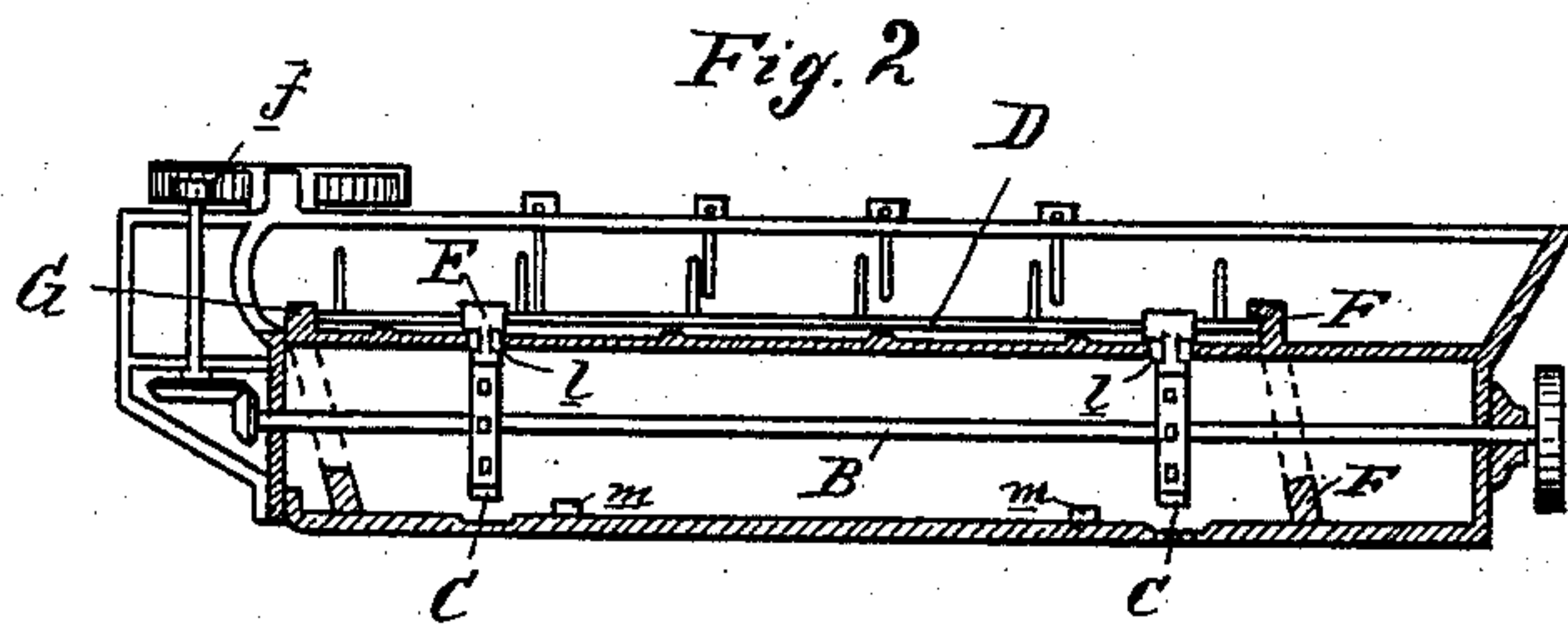
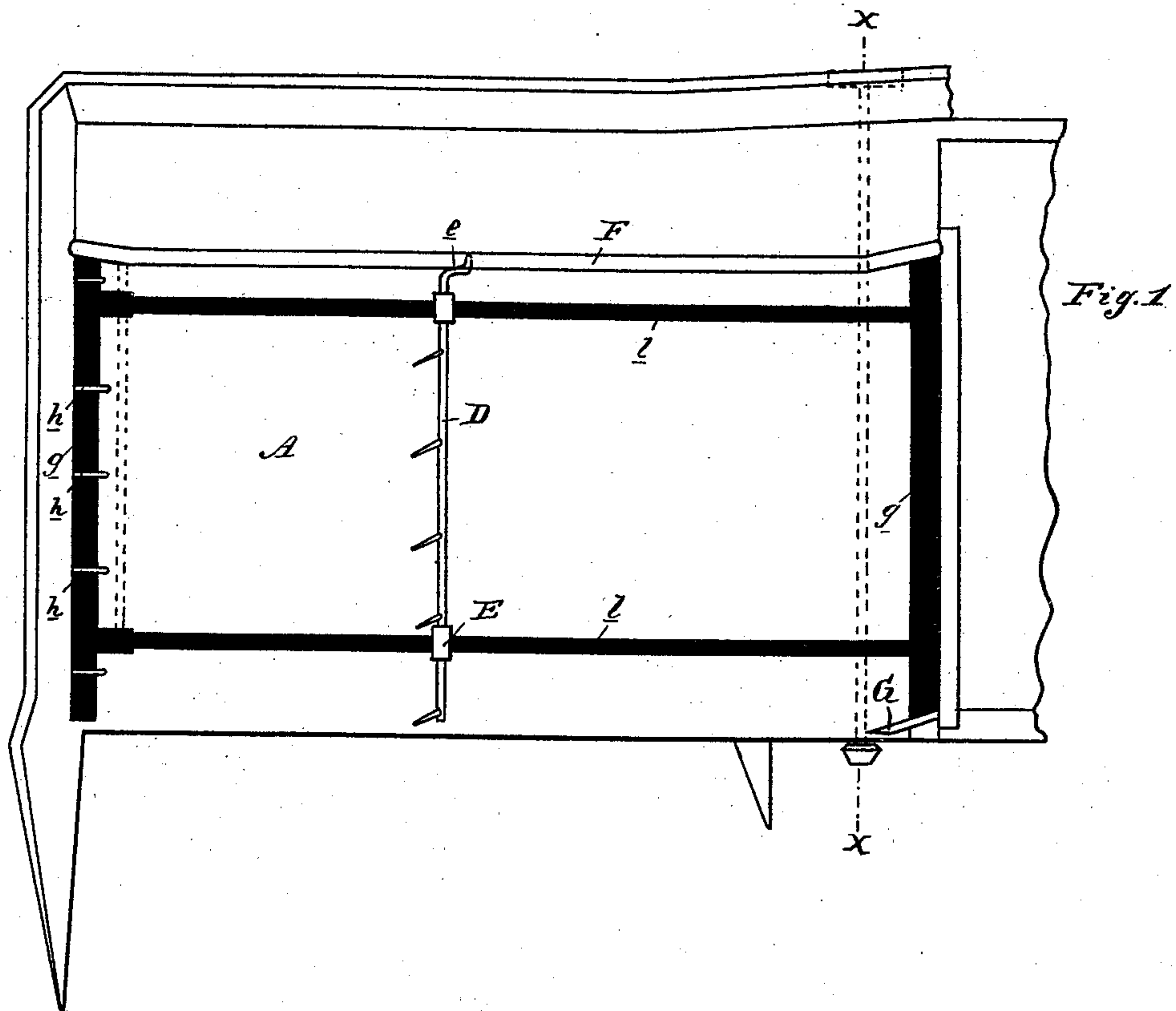
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M. DEW.

SELF RAKING ATTACHMENT FOR HARVESTERS.

No. 373,055.

Patented Nov. 15, 1887.



Attest:
John Schuman.
Charles J. Hunt

Inventor:
Martin Dew.
by his Atty
Thos. S. Sprague

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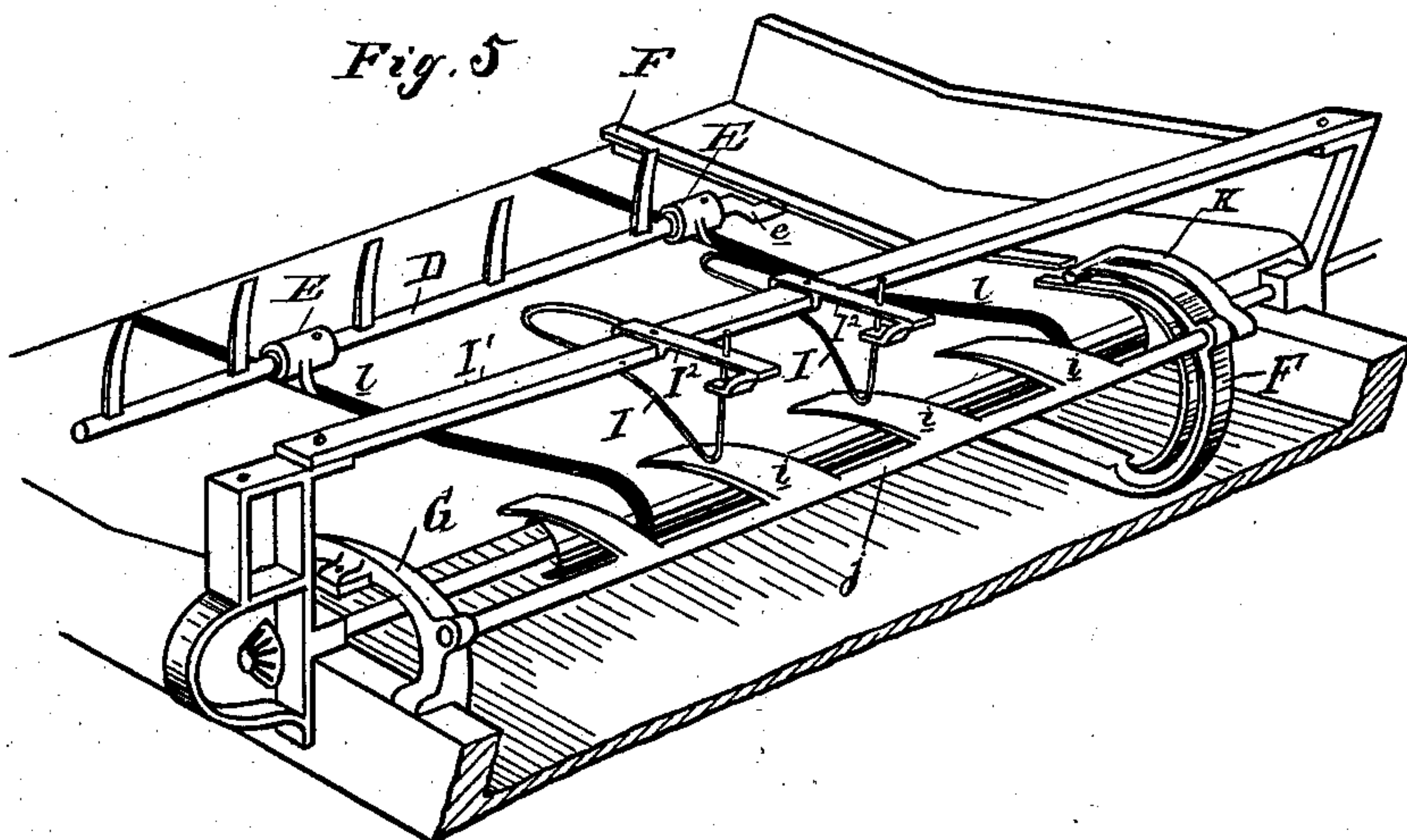
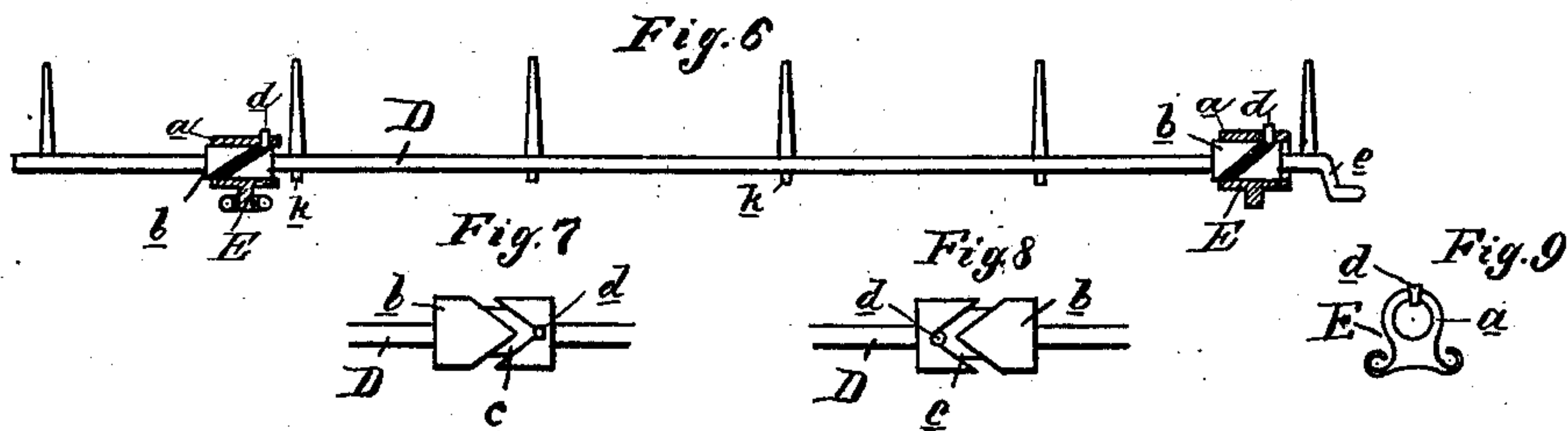
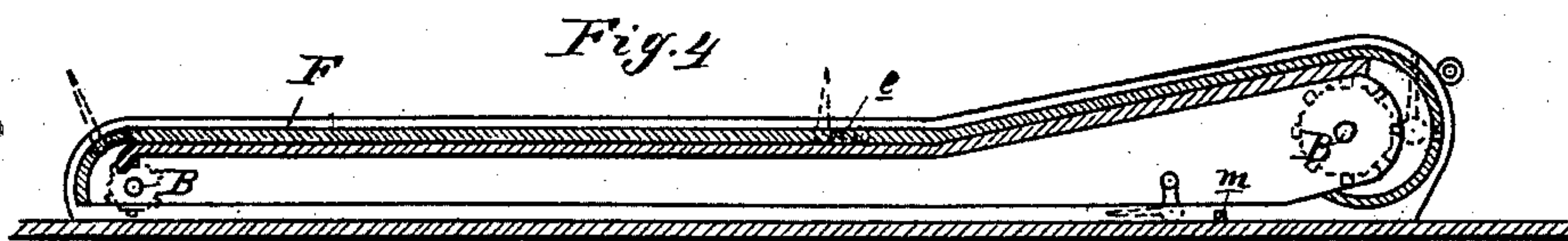
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UNITED STATES PATENT OFFICE.

MARTIN DEW, OF CASS CITY, MICHIGAN.

SELF-RAKING ATTACHMENT FOR HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 373,055, dated November 15, 1887.

Application filed August 20, 1886. Serial No. 211,422. (No model.)

To all whom it may concern:

Be it known that I, MARTIN DEW, of Cass City, in the county of Tuscola and State of Michigan, have invented new and useful Improvements in Self-Raking Attachments for Harvesters; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to new and useful improvements in self-raking attachments for reapers and harvesters, by means of which the cut grain is conveyed from the platform to a receptacle where it is to be bound.

The object of my invention is to so gather the grain from the platform and deliver it into a receptacle at the inner end of the platform as to make a complete separation of the cut straw from that falling on the platform.

My invention consists in the novel construction, arrangement, and combination of different parts of my self-raking device, all as hereinafter described, and specifically set forth in the claims.

In the drawings which accompany this specification, Figure 1 is a plan view of my improved self-raking device as attached to the platform of a harvester. Fig. 2 is a cross-section thereof on line *x x*. Fig. 3 is a longitudinal vertical section. Fig. 4 is an elevation of the guide-rail of the rake-heads. Fig. 5 is a perspective view of the inner end of the harvester-platform and its attachments. Fig. 6 is a detached elevation of the rake-head. Figs. 7, 8, and 9 are elevations of detached parts, indicated by their letters of reference, and also specifically referred to hereinafter.

A is the platform of a harvester, supported on a suitable frame in any suitable manner, and provided with the usual cutting apparatus. (Not shown in the drawings.)

At each end of the platform is located a shaft, B, and on these shafts are secured suitable sprocket-wheels, around which are stretched the endless chains C C, as in the usual construction of chain-carriers.

Two rakes, D, are used, of the kind shown in Fig. 6. These are secured to the chains C, at equal distances apart, by means of links E, of which Fig. 9 is a side elevation. These links are provided with journal-bearings *a*, in which

the rake-heads are journaled by means of cylindrical bearings *b*, formed thereon. The bearings *b* are provided with cam-grooves *c*, into which a pin, *d*, secured in the respective journal-bearings, engages.

Each rake-head is provided with a crank, *e*, which engages on a guide-rail, F, at the rear end of the platform, and thereby controls the position of the rakes in connection with a sectional guide rail or cam, G, secured at the inner front end of the platform, so as to come in contact with the opposite end of the rake-head.

On the drawings in Figs. 1 and 2 it will be observed that the guide-rail F runs parallel with the direction of the chains, except near the inner and outer ends of the platform, where it diverges therefrom, and the guide-rail G runs parallel to that portion of the guide-rail F to which it corresponds. By this arrangement a certain lateral movement is imparted to the rake-head near the inner and outer ends of the platform while it travels around the sprocket-wheels, all in the manner and for the purpose hereinafter described.

The inner end of the platform connects with the binding-table, which is provided with a suitable binding apparatus, which is not shown, as it does not form a necessary part of the present invention. The apparatus for reeling the grain onto the platform is also omitted, as I intend to use any of the ordinary constructions—such as the common reel or a reel-rake, preferably the latter, in which case four beater-arms with teeth carried by the wheel *f* would be arranged to operate in the usual manner.

The openings *g* at the outer and inner ends of the platform, through which the rakes pass up and down, are protected by suitable guards to prevent the straw from falling through, the opening at the outer ends being protected by guards *h* of any suitable construction—in the present instance shown as spring-metal fingers rigidly secured to the divider-board—and at the inner end by guards *i*, which are secured to a rock-shaft, *j*, to which is secured the rock-arm K. The free end of this rock-arm is suitably bent to pass through a slot in the guide-rail F and project into the path of the rakes, all so arranged that in the movement of said rakes the cranks at the ends thereof will strike against the free end of the

rock-arm and lift it up, so as to raise the guards *i* sufficiently high above the platform to permit the rake-heads passing underneath.

Above the inner end of the platform are secured a number of springs, *I*, arranged so that the cut straw in passing underneath said springs is compressed until it has passed beyond, when the springs will be released from their compression and drop to their former position. Each of these springs *I* is preferably of the shape shown in Figs. 3 and 5, with one end fixedly secured to the cross-bar *I'* and its other or vertical portion working loosely through holes in the bracket *I''*, secured to said bar.

I preferably keep the chains entirely concealed below the platform, and provide the latter with suitable slots, *l*, through which the links *E* project to carry the rakes over the top of the platform.

One or more of the rake-teeth have a rear extension, *k*, said extension being designed to come in contact at a certain point of the operation of the rake with a stationary stop or stops, *m*, below the platform, near the inner end thereof.

The parts being arranged and constructed as shown and described, their operation is as follows: While the rake passes over the surface of the platform its teeth are held vertically up, owing to the engagement of the crank at the rear end of the rake-head into a suitable groove in the guide-rail *F*. In this position of the rake the pin *d* on the journal-bearing of the rake engages into an offset in the cam-groove *c* of the rake-bearing, as shown in Fig. 7, thereby holding the parts firmly locked together. The semicircular portion of the guide-rail *F* is also suitably grooved to guide the rear end of the rake-head, and as the latter arrives at the inner end of the platform it also comes in contact with the guide-rail *G*, and as the rake passes down between these two guide-rails it is laterally displaced toward the rear, owing to the angularity of the guide-rails with the chains. This lateral displacement of the rake-head is equal to the lateral length of the cam-groove *c* in the bearing *b*, and it causes the pin *d* to traverse said cam-groove *c* after releasing it from its engagements in the offset therein. The teeth of the rake are thus held in a perpendicular position until the rake has reached the lowest point--that is, having passed around the outer half of the sprocket-wheels. Here the pin *d* will be at the point in the cam-groove shown in Fig. 8, having traversed one-half of the cam-groove; and now, in the further travel of the rake, the projections *k* on the rake-teeth (there being preferably two or more teeth with such projections) strike the stops *m* and thereby impart to the rake-head one-quarter of a revolution, the rake-teeth thereby assuming a horizontal position, which they will maintain until they arrive near the outer end of the platform. In raising upward at this end of the platform, the rear end of the rake-head is again engaged in a groove in the

guide rail *F* and pushed laterally forward by a suitable forward inclination of the guide-rail to cause the pin *d* to traverse the remaining one-quarter of the cam-groove, so that by the time the rake reaches the top of the platform the pin *d* will be in its starting position. Fig. 4 shows in dotted lines the different positions of the rake-teeth. It will be seen that the rakes are thus made operative the whole length of the platform, and as they draw below the platform at the inner end they keep the bundle still compressed; and if the beater or reel-arms are timed with the rakes to throw their complement of grain on the platform when one of the rakes rises to the surface and at the proper intervals of time to permit each rake to sweep the platform the whole width before any more grain is thrown on the platform, a complete separation of the cut straw is obtained and the bundles are ready to be tied.

It will be further observed that as the rake-teeth are turned horizontally below the platform the latter can be reduced in height.

I preferably provide the platform with a slight upward incline at the inner end, for the purpose of withdrawing the rake-teeth more gradually and also to get enough room for the operation of the binding mechanism, which, in connection with the parts herein shown and described, constitutes what is commonly termed a "low-down" binder.

What I claim as my invention is--

1. The combination, with the rake-heads and the chains, of a link provided with journal-bearings *a*, a pin, *d*, in said journal-bearings, and cylindrical bearing *b*, formed on said rake-head and provided with cam-grooves *c*, engaging said pin, substantially as and for the purposes specified.

2. In a self-raking device for reapers and harvesters, the combination, with endless carrier chains, of a rake-head rotatably journaled in bearings secured to the carrier-chains and having rigid rake-teeth, a pin on the bearing and cam-groove in the journal of said rake-head, and a cam, *G*, fixed on the frame at its inner end, for effecting the lateral movement of the rake-head by direct action thereon required to rotate the rake-head by reason of said pin and cam-groove engagement at certain parts of its travel, all substantially as described.

3. In a self-raking device for reapers and harvesters, the combination, with the rake *D*, having the crank *e* formed at its rear end, of the carrier-chains *C*, the links *E*, having journal-bearings *a*, the bearing *b* on the rake-head, having cam-groove *c*, the pin *d*, engaging into said cam-groove, the guide-rails *F*, and cam *G*, fixed on the frame at its inner end, all arranged and operating substantially as described.

4. In a self-raking device for reapers and harvesters, in combination with the endless chain-carrier and means for imparting motion thereto, a rake rotatably secured to said chain-carrier, the link *E*, provided with journal-

bearings, a pin in said bearings, a cam-groove in the rake-head engaging said pin, and the cam G, whereby the rake-head is actuated independently of the carrier-chains to
5 hold the teeth in a vertical position while passing over the platform and around the inner end thereof, substantially as described.

10 5. In a self-raking device for reapers and harvesters, in combination with endless chain-carrier and means for imparting motion thereto, a rake provided with cylindrical bearings rotatably secured to said chain-carrier, the link E, provided with journal-bearings, a pin in said bearings, a cam-groove in the rake-
15 head engaging said pin, and cam-guides for the ends of the rake for actuating the rake-head independently of the carrier-chains, to hold the teeth of the rake in a vertical posi-

tion while passing around the inner and outer end of the platform and over the top of the same and in horizontal position while passing below the same, substantially as described. 20

6. The combination, with the rake and guide-rails, of the rock-shaft *j*, guards *i* thereon, and the rock-arm K on said rock-shaft and projecting in the path of said rake, substantially as and for the purpose specified. 25

7. The combination, with the platform, of the rake, rear extension, *k*, on the teeth of said rake, and stops *m* below the platform, near the inner end thereof, substantially as shown and described, and for the purpose specified. 30

MARTIN DEW.

Witnesses:

L. A. DE WITT,
S. C. ARMSTRONG.