No. 611,774. Patented Oct. 4, 1898.

S. K. DENNIS.

PLATFORM AND ELEVATOR.

(Application filed Nov. 20, 1894.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 3.

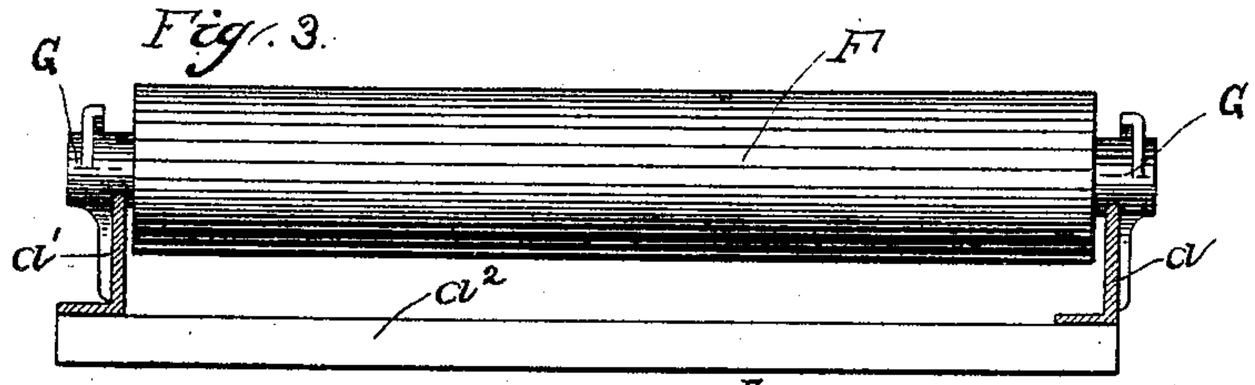

Fig. 1.

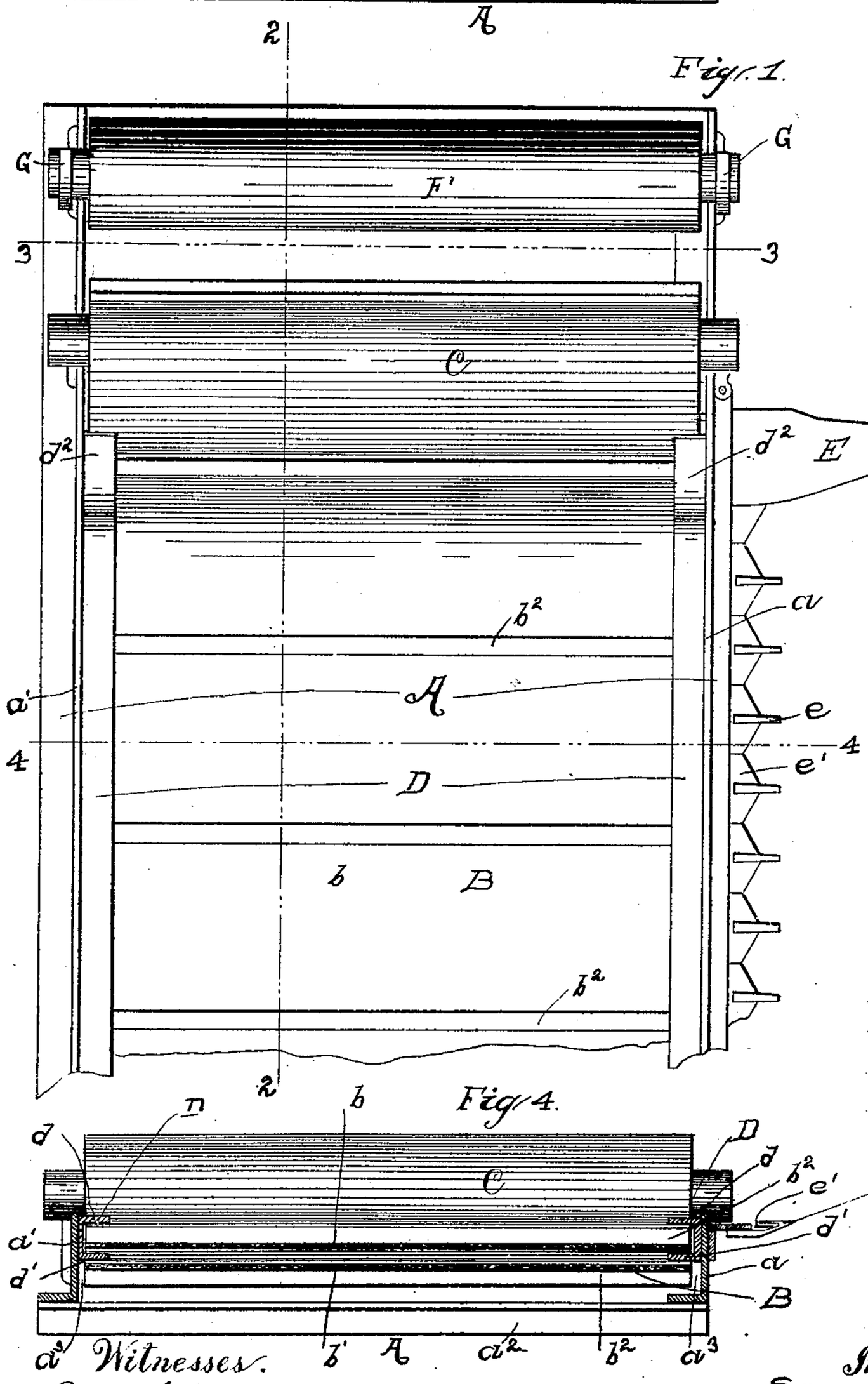

Fig. 2.

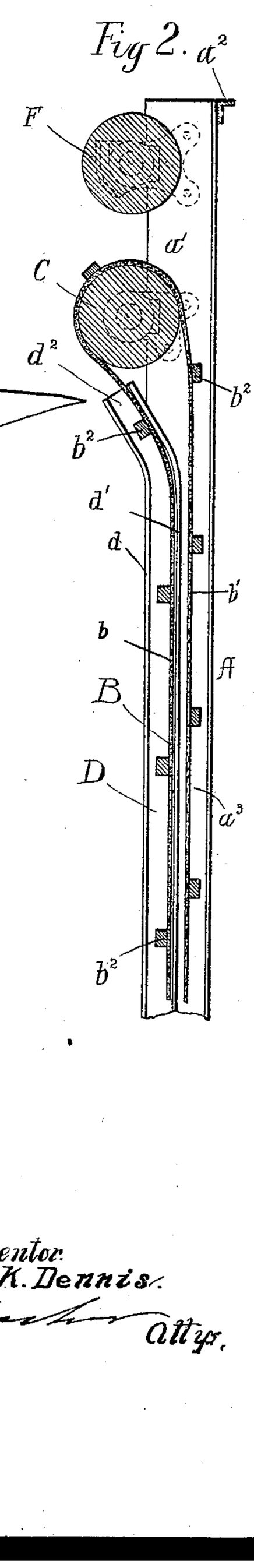

Fig. 4.

Witnesses.
C. F. Blake.
A. A. Murray

Inventor.
Samuel K. Dennis.
By Coburn & Church
Attys.

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Fig. 5

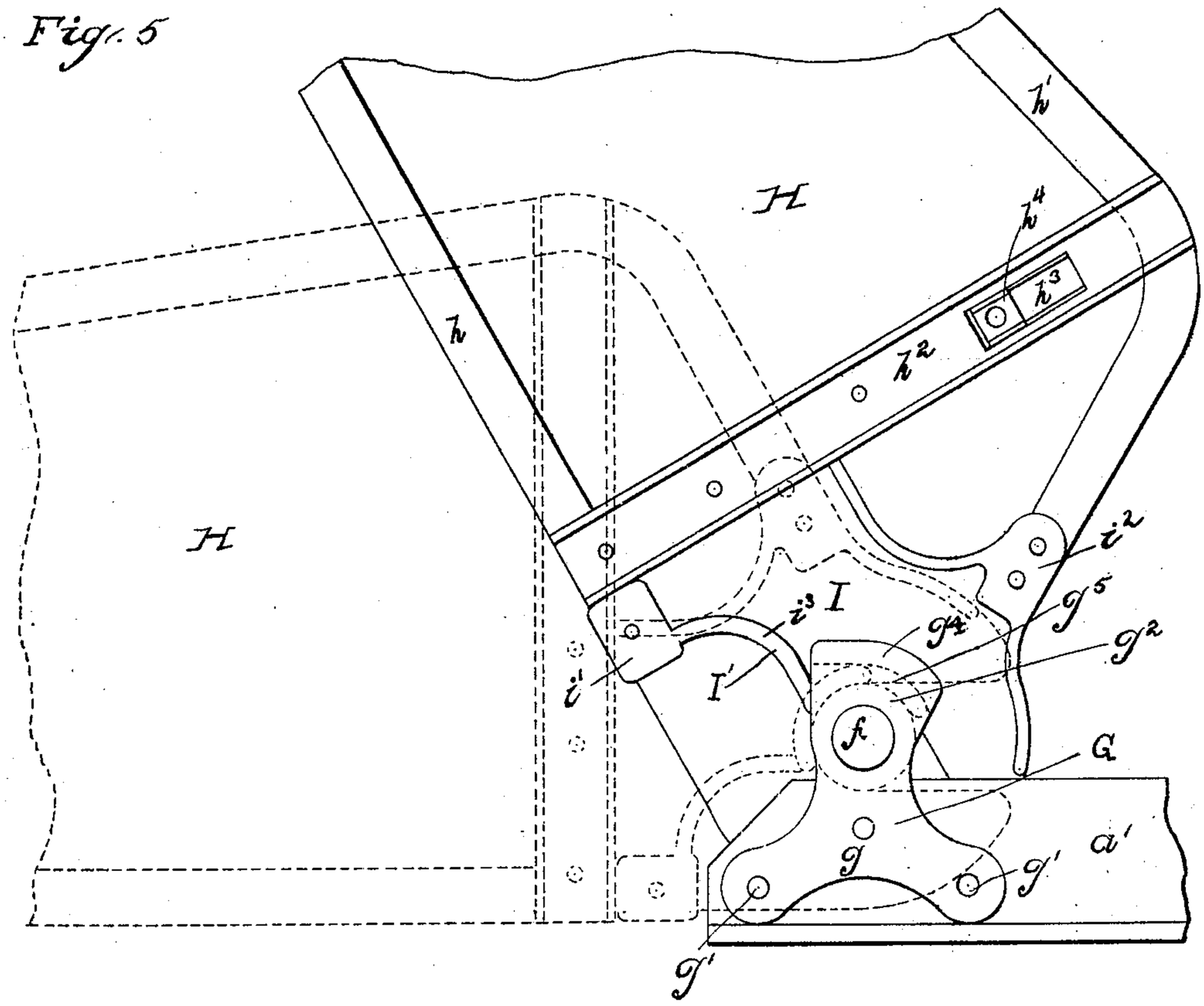


Fig. 6.

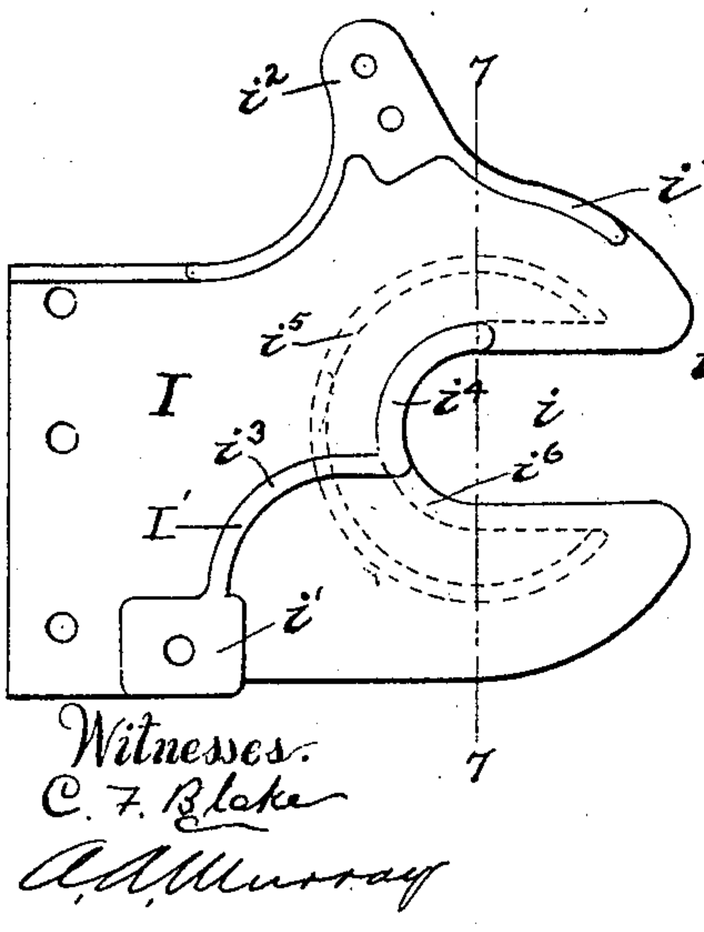


Fig. 7.

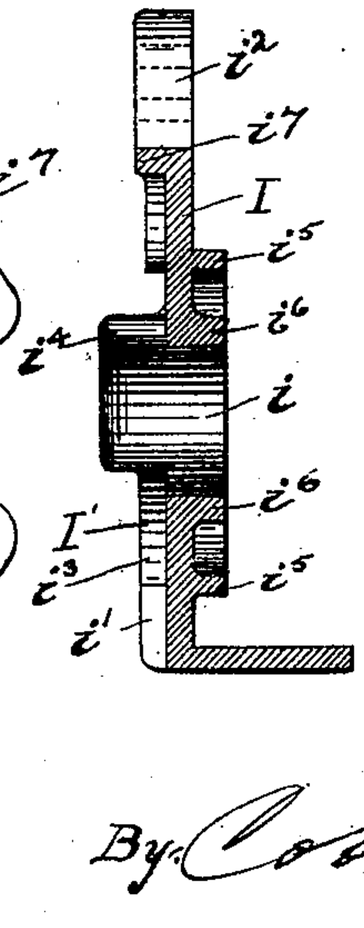


Fig. 8.

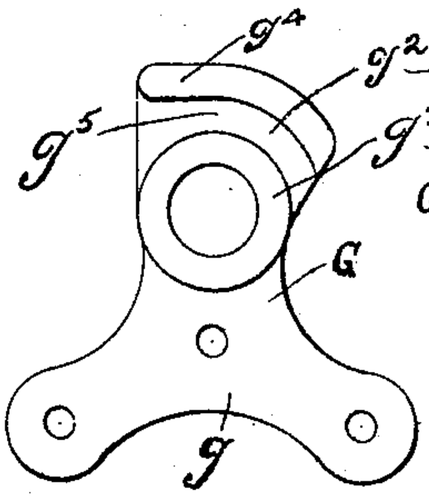
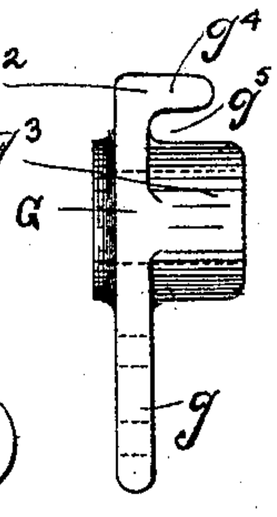


Fig. 9.



Witnesses:
C. F. Blake
A. A. Murray

Inventor.
Samuel K. Dennis.
By: Coburn & Thacher
Atty.

UNITED STATES PATENT OFFICE.

SAMUEL K. DENNIS, OF WEST PULLMAN, ILLINOIS, ASSIGNOR TO THE PLANO MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS.

PLATFORM AND ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 611,774, dated October 4, 1898.

Application filed November 20, 1894. Serial No. 529,379. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL K. DENNIS, a citizen of the United States, residing at West Pullman, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Platforms and Elevators, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a plan view of a portion of the platform at the inner end thereof; Fig. 2, a vertical section of the same, taken on the line 2 2 of Fig. 1; Fig. 3, a cross-section taken on the line 3 3 of Fig. 1; Fig. 4, a similar section taken on the line 4 4 of Fig. 1; Fig. 5, a detail rear elevation showing a portion of the platform and elevator-frame at their point of connection; Fig. 6, a detail side elevation of the elevator member of the connecting devices between the elevator-frame and platform; Fig. 7, a vertical section thereof, taken on the line 7 7 of Fig. 6; Fig. 8, a similar side elevation of the platform member of the said connecting devices, and Fig. 9 an edge elevation of the same.

In the drawings, Figs. 1 to 4, inclusive, are on one scale and Figs. 5 to 9, inclusive, upon another and enlarged scale.

My invention relates to that class of harvesting-machines generally called "headers," though it is not necessarily restricted to this type of machine, but may be applied to all harvesters using an apron-platform and elevators in connection therewith.

The invention consists in a construction of the platform with guideways at the sides within which the edges of the apron and ends of the slats run and are thereby guided and protected, and also in devices for mounting the elevator-frame on the platform and connecting it therewith so that it may be readily attached and detached, as required, but when attached and adjusted to working position is securely fastened thereto. The other parts of the machine have no particular relation to these inventions, and therefore are not shown in the drawings and will not be described. The machine in all such general features may be of any known type and construction.

I will now describe so much of a machine as is necessary to understand the construction and operation of my present invention and will then point out more definitely in claims the improvements which I believe to be new and desire to secure by Letters Patent.

In the drawings, A represents the platform of a harvesting-machine, being constructed, as herein shown, with front sill a and rear sill a', both of angle-iron, and cross sills or bars a^2, to which the former are secured and which are also preferably of angle-iron. Upon this platform-frame an endless apron B is applied in the usual way, being run over rollers at the respective ends of the platform, only one, C, at the inner end of the latter, being shown in the drawings, which in practice is the driving-roller. In the usual mode of running the platform-apron there will be of course two lines or surfaces of canvas—an upper one b and a lower one b'. The canvas is provided with slats b^2, fastened to the outer surface and extending entirely across the web of canvas in the usual way.

In the usual construction there is no provision for holding the canvas steadily in a substantially uniform path except the rollers, which construction makes a separation of the upper and lower portions of the canvas apron equal to the diameter of the rollers, thus leaving a free unoccupied space between the two parts of the apron much deeper than necessary. Furthermore, there is no provision for retaining the edges of the apron in a substantially uniform plane or to prevent these edges and ends of the slats from sometimes interfering with the grain. In order to overcome this defect, in my present improvement a channel or groove is provided on each sill of the platform for the reception of the respective edges of the apron and ends of the slats, if any are used, in both the forward and retreating movement of the apron. As shown in the drawings, these channels are obtained by means of long strips D of channel-iron, which are secured to the inside of the upright web on each sill, near the upper edge thereof, as seen in Fig. 4. The backs of these channel-bars are secured to the sills, so that their respective openings stand opposed to each other and leave a narrow open space nearly the length of the plat-

form between the upper flange d and the lower flange d' of these strips. The strips of channel-iron, secured in place as described, bring the lower flange d' about on a level with the under surface of the rollers, as shown in connection with the driving-roller in Fig. 2 of the drawings. The extremities of the strips are bent up slightly, so as to form a projection or section d^2 at each end bent upward toward the roller, on the inner side of which it terminates, thereby facilitating the entrance and exit of the apron thereto and therefrom at each end of the platform. The space between the lower flange d' and the bottom of the platform of the horizontal webs of the sills is about the same in depth as the channels of the iron strips just described, so that this space a^3 provides a guideway or channel for the apron on its lower plane of travel, or when it is returning from the drive-roller, as seen in Figs. 2 and 4. This result is obtained mainly, however, by the lower flange of the strips or bars of channel-iron, which serve to hold the under section of the apron in place below the upper section, thus preventing any interference between the sections and also protecting the edges of the apron along this return travel from any interference with obstruction from outside. These guideways or channels of course lie entirely between the two rollers of the platform-apron, there being no necessity of extending them around or over the latter. The finger-bar E is secured to the front sill of the platform, as shown in the drawings, in which also the fingers e and cutter e' are shown, though merely for illustration.

The lower roller F of the bottom or under elevator-apron is shown in the drawings as mounted on the inner end of the platform and just a little beyond or outside of the roller C of the platform-apron and about on a level therewith. This is usually the driving-roller of the under elevator where two endless elevator-aprons are used, as is the usual practice. It is desirable to mount the elevator on the platform, and it is also desirable, especially in a large machine like the header, to connect the elevator-frame and platform in such a way that the former may be easily detached and removed from the latter. I have devised means for this purpose which will now be described. This roller F is journaled in brackets G, which are secured to the respective sills of the platform, at the inner ends thereof, and preferably on the outer face of the vertical web of said sills. The brackets are of peculiar construction. They are in form something like an inverted T-head, the cross-bar g being at the bottom of the bracket and secured to the sill by means of screw-bolts or rivets g'. From this base the straight portion g^2 of the T-head rises like a standard above the sills some distance. At a point on this standard just above the upper edge of the sills there is a tubular projection g^3, extending inward slightly over the platform and forming a kind of tubular hub. At the upper end of the standard is a flange g^4, which also extends inward over the hub, corresponding substantially with the hub, but not as wide. This flange is only a short distance above the hub, so that a rather narrow channel or groove g^5 is provided between the two. The end of the flange looking outward toward the stubble is carried out practically straight, while the opposite end is turned down on a curve virtually corresponding with the hub. Obviously this provides a wide mouth or opening for the channel at the first point mentioned, as seen in Figs. 5 and 8, the purpose of which will be seen presently. The roller F is mounted in these brackets by means of journals f at the respective ends, which are adapted to enter the tubular hubs on the brackets.

The elevator-frame H is also provided with a special device by means of which it is mounted on the stubble end of the platform through a connection with the said brackets thereon, which is so constructed with reference to the said platform-brackets just described that the elevator-frame may be readily connected to the platform and as readily disconnected and entirely removed therefrom. Only a portion of the elevator-frame is here shown, this part being a rear side elevation of the lower part of the elevator-frame. (Seen in both full and dotted lines in Fig. 5.) Here there is shown a straight bar h and a curved bar h', the former being the outer and the latter the inner metal bar of the elevator side, as here shown. These bars are connected near their lower ends by a cross-bar of metal h^2, which is secured by any suitable device to the respective side bars. In this cross-bar there is a slot h^3, running lengthwise thereof, in which is set a bearing-block h^4 for the reception of the journal on the driving-roller of the upper elevator-apron, the box being adjustable in this slot.

A kind of bracket I is provided for the lower end of the side of the elevator-frame, being so constructed that it is adapted to engage with the bracket on the platform by a certain manipulation of the elevator-frame to connect and disconnect these two parts of the machine. The body of this bracket is a kind of plate, straight at its upper end, but rounded at its lower end and provided with a deep recess i, circular at its inner limit. Near the upper end of this bracket there is at one edge a lug i', to which the lower end of the elevator-frame bar h is secured, and at the opposite edge there is a lug i^2, to which the lower end of the bar h' is secured, thus fastening the elevator-frame and this bracket firmly together, one each side of said frame, but with the bracket projecting below the frame proper. On the outer face of this bracket there is a narrow flange I', commencing at the lug i' and extending inward and downward on a curve to the bottom of the recess i, where it turns again on a curve cor-

responding to and following around the circular line of the recess until the straight edge is reached and preferably a little past on the opposite side of the recess, as seen in Fig. 6, in which i^3 marks the first section and i^4 the second section of this flange, as described above. On the opposite side of this plate-bracket I there is a narrow flange i^5, commencing near one of the side edges of the recess i and running around in a circle to the opposite edge, terminating at about the same distance from the latter as exists between the corresponding parts on the other side of the recess, as seen in Fig. 6. Inside of this there is a circular flange i^6, but of less diameter and running around the circular edge of the recess from one side to the other. These flanges i^5 and i^6 serve to strengthen the bracket, and the flange i^5 further serves as a guide for the edge of the apron, inasmuch as it is of substantially the same diameter as the apron-roller F. There is also a short flange i^7 running down one edge of the body or plate from the lug i^2 part way to the lower end of the plate, as seen in Fig. 6. It will be understood, as suggested above, that these connecting devices are the same on each side of the elevator, one being the duplicate of the other.

Now the elevator-frame is mounted on and secured to the platform in the following way: The elevator-frame is turned down into a horizontal position and brought to the inner end of the platform, as seen in dotted lines in Fig. 5. The elevator-frame is then pushed forward slightly and the extremities of the flanges I′ will obviously enter the wide mouth of the channels g^5 on the brackets G and will pass inward along these channels a little distance on account of this flaring opening, as seen in dotted lines at the left of Fig. 5. This makes a partial engagement between the elevator-frame and the platform; but of course the elevator is not in proper position and the connection is not permanent. The elevator-frame is then turned upward, the hubs on the brackets G forming the bearings around which the brackets I and the elevator-frame turn, the inner sections i^4 of the flanges I′ following the channels g^5 and turning around the hubs of the brackets G until the elevator-frame is brought into the inclined position desired, when the extremities of these flanges will be about at the opposite end of their channels, as indicated by dotted lines at the right of Fig. 5. The upward swing of the elevator-frame is limited by the flanges i^7, for when the elevator-frame is thrown upward the lower ends of these flanges will finally come in contact with the upper edges of the respective sills of the platform, thereby stopping the further upward swing of the elevator. This fixes the limit of the upward inclination of the elevator; but the latter is held in this position by the usual means, which permits the elevator-frame to be dropped a little whenever desired by the manipulation of the driver. This device is not illustrated in the drawings, as it is well known and in general use upon harvesting-machines of this kind. Obviously the elevator-frame mounted on the platform as described above is securely held thereto, the joint connections described effectually preventing any disconnection while the elevator is in its inclined working position. The connection is just as strong and reliable as a fixed or permanent journaling or pivoted connection; but it is desirable to detach the elevator-frame from the machines of the type mentioned above, as the platform and elevator together take so much front space that it is very inconvenient to transport the machines. Now with the improvement just described the elevator may be readily and quickly detached from the platform, this being accomplished by dropping the frame into the horizontal position shown in dotted lines in Fig. 5, when of course it may be drawn away entirely from the platform simply by reversing the movement described above for the attaching connection. It will be seen that the connection of the elevator-frame of the platform or the disconnection therefrom is effected without the removal of any parts from their ordinary position, which greatly facilitates the operation, making it simpler and quicker to perform.

Having thus described my invention, what I claim to be new, and desire to secure by Letters Patent, is—

1. In a grain-harvesting machine, the platform-sills of angle-iron; bars D of channel-iron secured to the inside of said sills and forming with them a double channel on each side of the platform, the lower two channels receiving and guiding the edges of the lower ply of the platform-apron; the upper two channels, curved upward at each end of the platform, receiving and guiding the upper section of the platform-apron, as shown and described.

2. In a grain-harvesting machine, a platform, in combination with brackets G, secured to the front and rear of the platform and provided with channels or grooves g^5, the elevator-frame, and devices fixed at the lower end of said frame and provided with flanges adapted to enter said channels when the elevator is substantially horizontal and pass along in the same as the elevator is swung upward, substantially as described.

3. In a grain-harvesting machine, a platform, in combination with an elevator-frame, brackets I, secured to the lower end of said frame on the respective sides thereof and provided with a circular flange i^4, and standards or supports on the platform provided with grooves adapted to receive the flanges on said brackets as the elevator-frame is swung upward, substantially as described.

4. In a grain-harvesting machine, a platform, in combination with brackets G, secured to the front and rear thereof and provided with channels or grooves g^5, having flaring

entrances, an elevator-frame, and brackets I, secured to the lower end of said frame on each side thereof and provided with a flange I′, adapted to enter and engage with the grooves or channels in said brackets as the elevator-frame is swung upward, substantially as described.

5. In a grain-harvesting machine, a platform, in combination with an elevator-frame, brackets I, provided with lugs i', i^2, for the attachment of the bars h, h', of the elevator-frame, and a pivotal connecting device between said brackets and the platform, substantially as described.

SAMUEL K. DENNIS.

Witnesses:
ALOYSIA HELMICH,
A. A. MURRAY.