

S. D. LOCKE.
Harvesting-Machines.

No.156,804.

Patented Nov. 10, 1874.

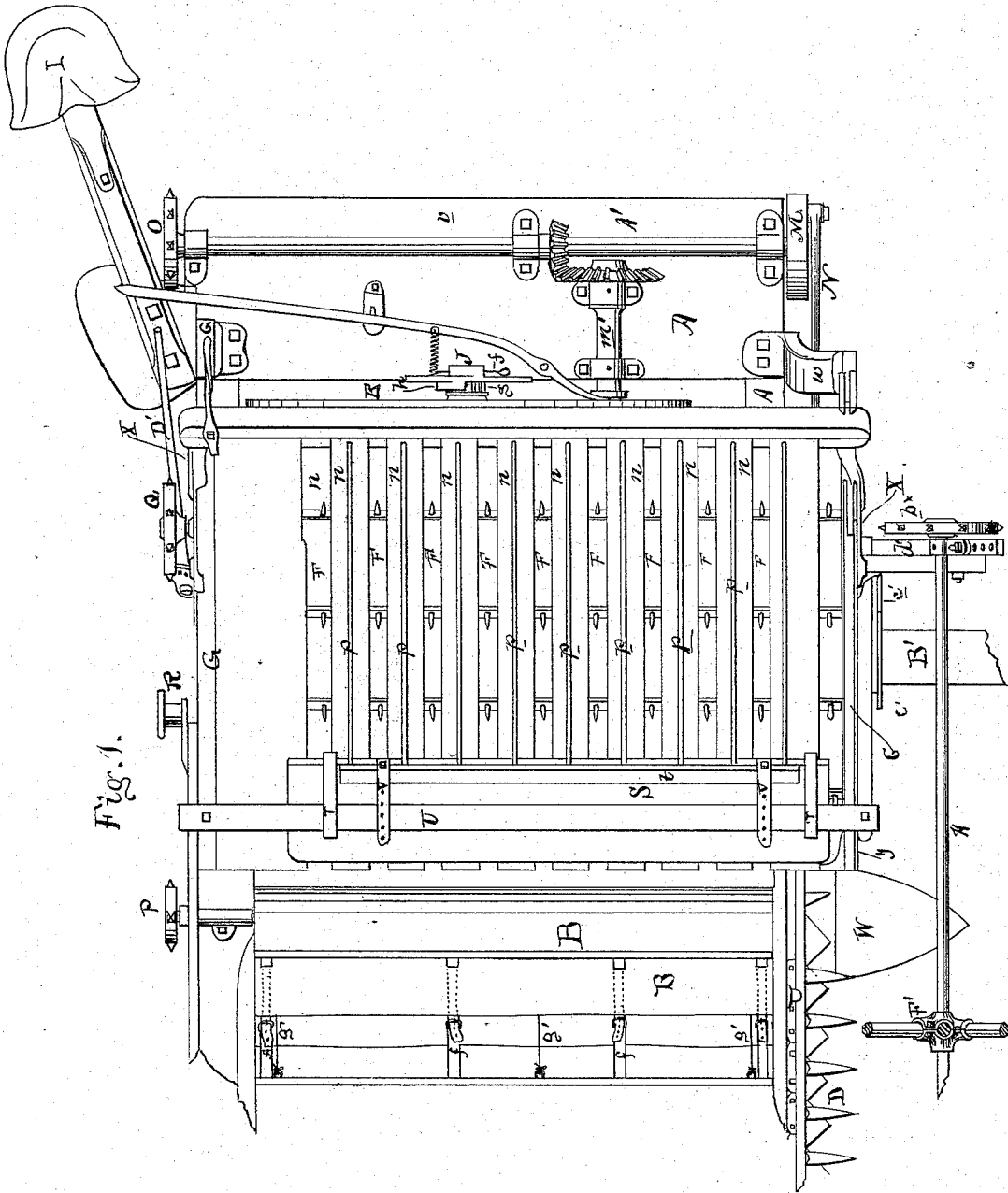


Fig. 1.

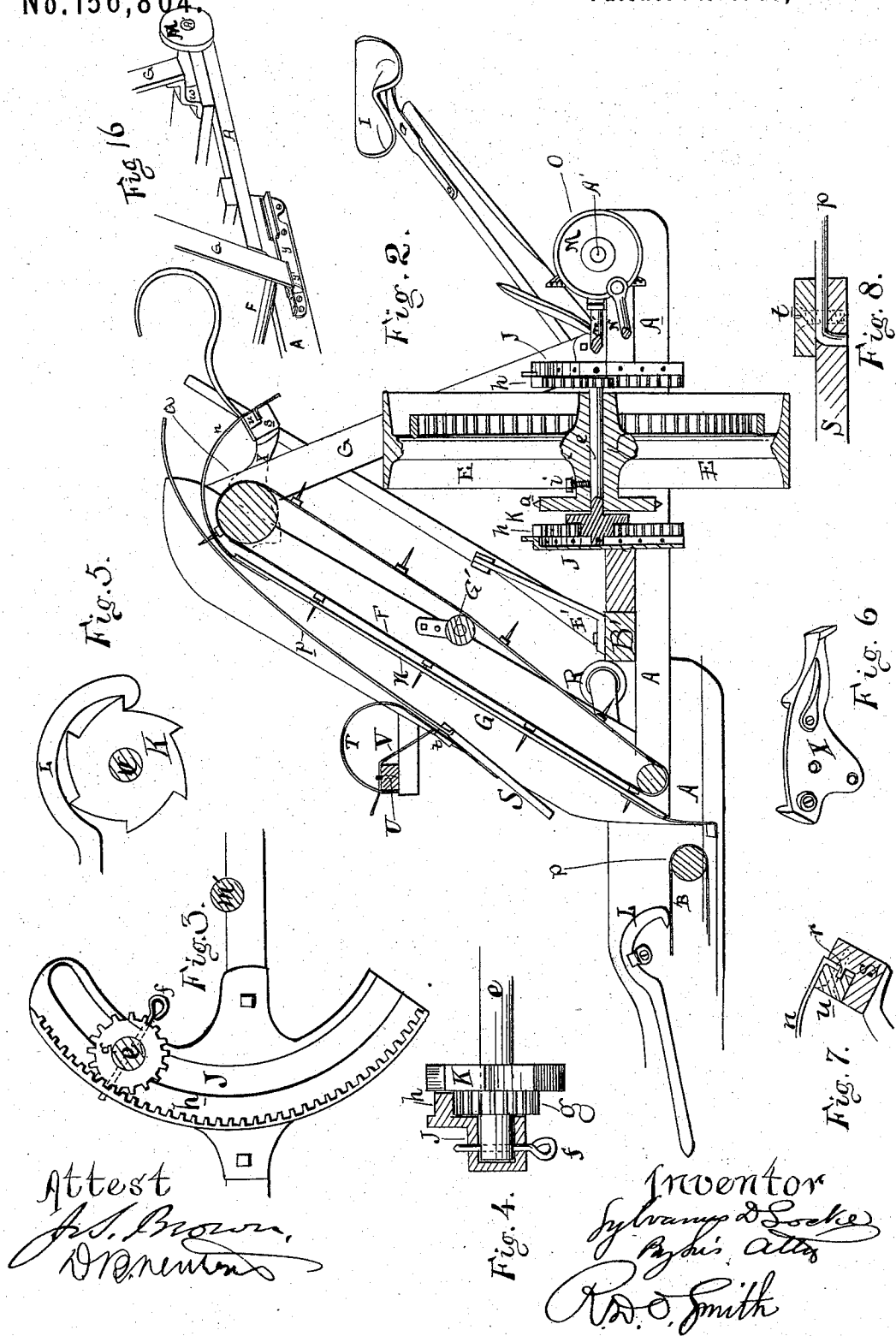
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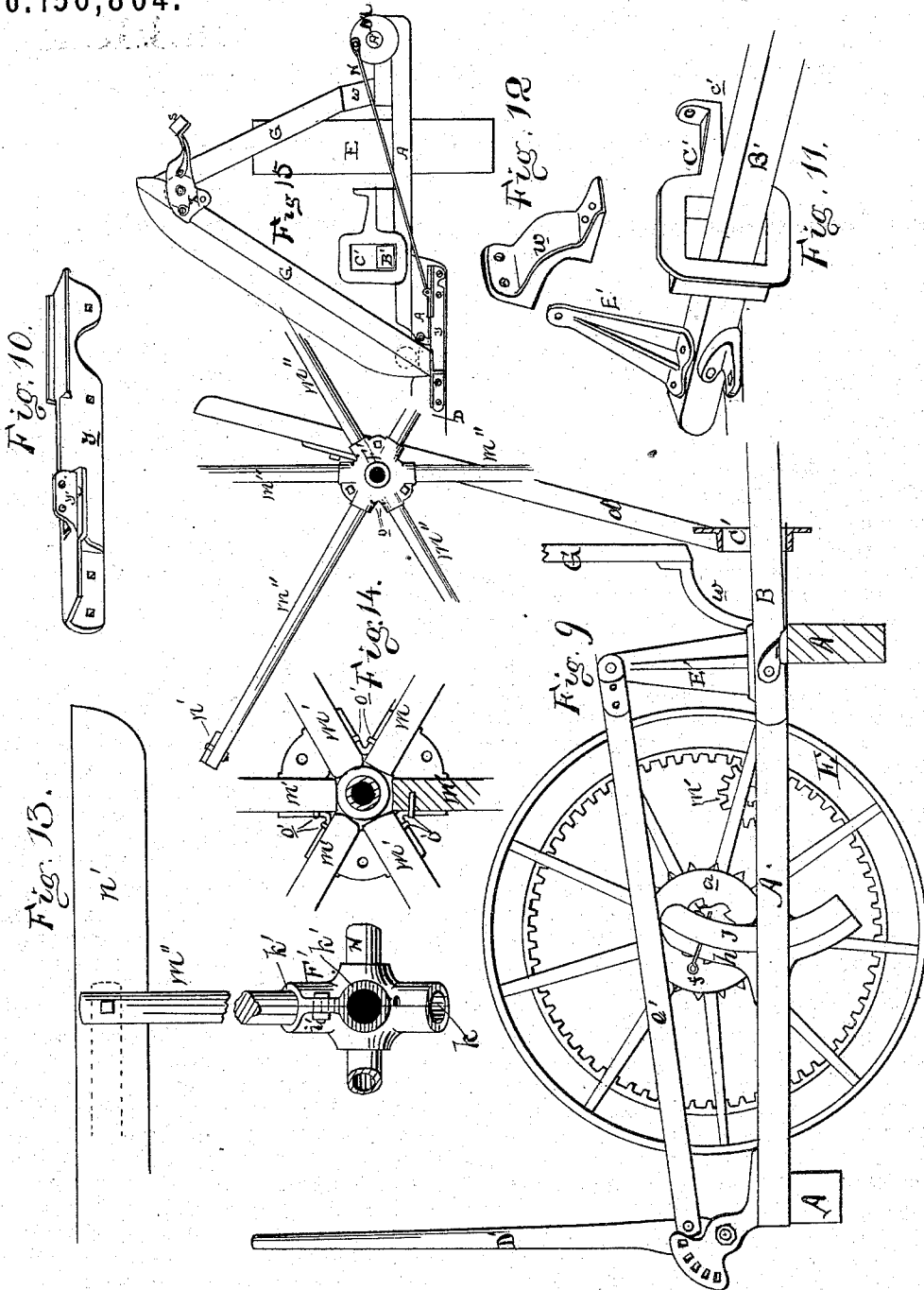
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UNITED STATES PATENT OFFICE.

SYLVANUS D. LOCKE, OF HOOSICK FALLS, NEW YORK.

IMPROVEMENT IN HARVESTING-MACHINES.

Specification forming part of Letters Patent No. **156,804**, dated November 10, 1874; application filed September 4, 1873.

CASE B.

To all whom it may concern:

Be it known that I, SYLVANUS D. LOCKE, of Hoosick Falls, in the county of Rensselaer and State of New York, have invented a new and useful Improvement in Harvesters; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of my machine. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is an inner-side elevation of one of the main wheel sector-plates. Fig. 4 is a cross-section of said sector-plate. Fig. 5 represents the shifting-ratchet on the main axle. Fig. 6 is a perspective view of one of the tie-plates for the elevator-frame. Figs. 7 and 8 are cross-sections, showing the manner of securing the ends of the guard wires and strips. Fig. 9 is an inner-side elevation of the main wheel, frame, and device for controlling the tongue. Fig. 10 is a perspective view of the bracket guide-plate at the inner end of the cutting apparatus. Fig. 11 is a perspective view of the rear end of the tongue and its yoke. Fig. 12 is a perspective of one of the A-frame brackets. Fig. 13 is an elevation of the reel-hub and beater. Fig. 14 is a side view of one of the parts of the reel-hub. Fig. 15 is a front elevation, showing the front of the elevator-frame and its connection to the main frame. Fig. 16 is a perspective, showing the feet of the bars of the front of said frame and their connection to the main frame.

This invention relates to improvements in that class of harvesters wherein the cut grain is received upon endless aprons or belts, and thereby conveyed to the side of the machine and delivered either upon the ground in unbound gavels or into a binder's receptacle; and it consists, first, in the method of supporting the front side of the elevator-frame, so that the same shall be in advance of the points of the cutters and allow free space for the location and movement of the pitman; second, the method of constructing the A or elevator frame; third, in a bracket-plate constructed to form in one piece a guideway for the heel of the cutter-bar and a ledge to support the

foot of the forward bar of the elevator-frame; fourth, in the method of raising or lowering the main axle as respects the frame; fifth, in the method of securing the ends of the guide-slats over which the grain is moved while being elevated.

That others may fully understand my invention, I will more particularly describe it.

A is the main frame of the machine, constructed in form and manner similar to the frames of other machines of the same class. This frame is supported at its inner end by a main carrying-wheel, E, and at its outer end by a grain-wheel. The cutters D and guard-fingers are arranged along the front edge of the main frame, as shown, and are located near the plane of the bottom thereof, so as to enable the grain to be cut very near to its roots. The endless apron B receives the grain as it is severed by the cutters, and conveys it to the side of the machine, where it is delivered to the elevating-apron F, and thereby carried above the main wheel E and delivered into a receptacle convenient for binding, either automatically or by hand. This elevating-apron F is mounted upon two rollers, one on the main frame and front A-frame, and the other supported at the apex of the A-frame G, which is supported upon the main frame above the wheel E. The reel-shaft H, made of tubular metal, (gas-pipe serving a good purpose therefor,) is supported in adjustable bearings upon the reel-posts at the inner and outer ends of said main frame, and said reel is driven by a chain working over sprocket-wheels *a b*, one of which is upon the hub of the main wheel E, and the other upon said reel-shaft. The seat I for the driver is mounted upon the main frame in a position where his weight may most effectually balance the machine. The main wheel E is mounted loosely upon an axle, *e*, which is adjustable up or down in grooved segment-standards J, though other means well known to mechanics may be employed for this purpose.

In order to effect an easy adjustment of the axle, I place upon each end thereof a pinion, *g*, and arrange the same to mesh with a rack, *h*, placed upon the segment-standard J, so that,

if said axle is rotated, said pinions will traverse said racks, and the axle will move up or down, as the case may be, and the relative positions of the main wheel and main frame will be thereby correspondingly changed. The required rotation of the axle *e* is easily effected by means of the ratchet *k*, and a suitable wrench, *L*, the former secured to said axle, and the other carried upon the machine, as shown in Figs. 2 and 5; or the set-screw *i* may be employed to lock the wheel *E* fast to the axle *e*, when the forward or backward motion of the machine itself will cause the required revolution and change of adjustment of the axle *e*.

Machines of this class have heretofore been constructed with the cutters operated by a long lever extending backward, from near the center thereof, through the main frame, said lever being operated by a crank-shaft upon the inner side of the main wheel.

In the machine heretofore patented to me, 30th August, 1870, a crank-shaft is employed, located upon the outer side of the driving-wheel, and operating a pitman in line with the cutters.

In the machine herein described the crank-shaft *A'* is mounted in bearings upon the cross-bar *v*, at the end of the main frame, and is driven by a counter-shaft, *m'*, which is actuated by a cog-rim upon the main wheel *E*. At the forward end of said shaft *A'* there is a crank-wheel, *M*, to drive the pitman *N* and cutters *D*; and on the rear end of said shaft there is a sprocket-wheel, *O*, to actuate a chain, by means of which the sprocket-wheel *P Q*, at the ends of the driving-rollers for aprons *B* and *F*, are both driven. The adjustable guide-roller *R* serves to conduct said chain properly upon the sprocket-wheels, and also to take up the slack thereof, so as to insure its proper working. Said chain is constructed in some well-known way adapted for use upon a sprocket-wheel. It passes from wheel *O* directly to wheel *P*, and thence under roller *R* to wheel *Q*, and downward again to the wheel *O*. The apron *F* is provided with transverse cleats, studded with projecting tines or fingers, to seize the cut grain and forcibly carry it up over the wheel *E*. The grain does not come in contact with said belt *F*, but is caused to slide over guard-slats *n*, between which said fingers protrude; and to prevent its displacement by the wind or other causes, guide-wires *p* are secured to a floating guard-board, *S*, and extend upward therefrom over the top of the *A*-frame, and insure the delivery of the grain. This part of my invention refers to the method of securing the fast ends of the guard-slats *n* and guide-wires *p*. The slats *n* are generally made of wood, and tipped at each end with metal. The ends of said metallic tips *I* place in a rabbet made in the bar *s*, at the top of the *A*-frame *G*, with a steady-pin, *r*, projecting through a suitable orifice in said tip. A wooden strip, *u*, is then placed in said rabbet and fastened there by screws, thereby con-

fining all of said tips in place securely. The lower ends of said guard-strips are secured to the floor of the main frame in a similar way, except that no rabbet is required, the pins being set directly in said floor. The guide-wires *p* have their ends bent at right angles and placed in holes made in the floating guard-board *S*, while grooves extending from said holes to the edge of said board receive a portion of the guard-wire itself, as shown in Fig. 8. A strip, *t*, is then placed along the edge of the board *S*, covering all of said grooves and holes, and with a very few screws securing all of said floating wires at one operation. The floating guard-board *S* is attached by springs *T* to a stationary bar, *U*, by means of which it is not only controlled, but is pressed down upon the grain which the apron *F* is elevating, and its limit of approach to the guide-slats *n* (to adapt it to the quantity of grain passing over said slats) is regulated by adjusting-straps *V*, which extend from said board to the bar *U*. The *A*-frame *G* is constructed with bars of suitable dimensions, joined at their tops, their bottoms asunder and supported upon metallic brackets secured to the main frame. At the front of the machine it is required that the edge of the elevating-apron *F* shall be in advance of the front edge of the horizontal apron *B*, because the butts of the cut grain, as it falls upon the apron *B*, will project over the front edge of the same, and the elevating-apron must project equally, or the butts will be liable to entanglement. I therefore mount the front part of the *A*-frame upon projecting brackets *w y*, (the latter being shown in Figs. 10 and 12,) cast in one piece with a guideway for the heel of the cutter-bar and pitman-joint, and a ledge to support the inner divider, *W*. The guide for the heel of the cutter-bar and pitman-joint has heretofore been made close to the end of the cutter, and as a part of the inner shoe or divider; but the lower roller of the elevator-apron, if advanced so far as the points of the cutters, interferes with the operation of a straight pitman moving in line with said cutter-bar. I therefore elongate the cutter-bar and make the guideway for its heel and the pitman-joint in the bracket-plate *y*, at a distance from the inner cutter sufficient to permit the presence of the said lower roller between said pitman-joint and the inner shoe or divider, whereby the front edge of the elevating-apron may be advanced as far as the points of the cutters without impeding the operation of the straight pitman and cutters reciprocating in the same vertical plane. The *A* or elevator frame is also supported in advance of the cutter-bar upon brackets which leave free space for the location and operation of the pitman. The *A*-frame is secured together at the top by a tie-plate, *X*, shown in perspective in Fig. 6. Said tie-plates serve not only to unite the tops of the *A*-frame, but they also form bearings for the upper roller of the elevating-apron *F*, and, by

their projection beyond the **A**-frame, they support also the bar *s*, to which the upper ends of the guard-slats *n* are secured. The elevation of the cutters is controlled by a flexible tongue, *B'*, jointed to the main frame and adjustable at the will of the driver. The tongue *B'* passes through an elongated yoke, *C'*, secured to the front of the main frame to prevent any lateral movement of said yoke, but to permit it to move up and down freely. Said yoke is made of metal, and it is secured to said frame by a bracket, *c'*, which also serves as a point or place of attachment for the foot of the reel-post *d'*. The tongue is controlled by a lever, *D'*, located so as to be convenient to the hand of the driver, and provided with a locking device, said lever being connected by a rod, *e'*, with the arm *E'*, which is rigidly secured to the rear end of the tongue. The ends of the apron *B* are joined, by means of straps *f'*, in the usual manner, but they do not, alone, bring the edges together in a desirable manner, for the reason that said straps cannot, at both sides, be stitched close to the end of belt, else, after the same had been in use for a time, and had become stretched, it would prevent the tightening of the straps. I therefore attach cords to the free ends of the said apron, and secure the same to staples set in the cleat *h'* nearest the opposite end of the apron; and in that way I am enabled to keep the ends of the apron snug and tight, and effectually to prevent the entrance of the straw and grain to the space between the two parts of the apron. The reel-hub *F'* is made in two parts, one of which is secured rigidly to the shaft *H*. Said parts are counterparts of each other, and are secured together by bolts *i'*. The said parts are constructed to form sockets *k'* for the reception of the ends of the arms *m'* of the reel-beaters *n'*. A steady-pin, *o'*, is inserted in each of said reel-arms, and said pins rest in notches made in the hub *F'* for that purpose, so that said arms are securely retained in place, even though the bolts *i'* may not clamp them very firmly. I construct the reel-beaters *n'* and their arms *m'* with a joint connecting them, so that when the ma-

chine is to be stored or transported, as soon as released from hub *F'*, said arms may be folded by the side of the beaters, and not only thereby reduced to a very small space, but, when not in use, rendered very much less liable to injury. An adjustable tightening-roller may be attached to the **A**-frame, inside of the elevating-apron, to take up the slack of the same.

Having described my invention, what I claim as new is—

1. The bracket *X*, constructed as described, and used to connect the upper end of the frame *G G*, and to support the bar *s*, substantially as described.

2. The bracket *w* and ledge *y'*, when used to support the front side of the elevator frame *G G*, said bracket attached to main frame, and ledge to finger-beam, substantially as and for the purpose described.

3. The bracket *w*, attached to the main frame, for supporting the elevator-frame, constructed as described, so as to allow free space for the location and movement of the pitman.

4. The **A**-frame, composed of bars *G G*, combined with bracket *w* and ledge *y*, constructed as described, and the tie plate bracket *X*, formed to support the journal of the upper apron-roll and the bar *s*, as set forth.

5. In combination with the finger-beam, the cast bracket-plate *y*, constructed to form, in one piece, a guideway for the heel of the cutter-bar and ledge for the attachment of the foot of the forward bar *G* of the elevator or **A**-frame.

6. The main axle *e*, having secured thereto the pinions *g g* and the racks *h h*, secured to the main frame, combined with the set-screw *i*, or its equivalent, to lock the axle to the wheel for the purpose of raising or lowering the frame as the main wheel is turned.

7. The described method of securing the guide-slats *n* with the steady-pins *r* and binding-strips *u*, as set forth.

SYLVANUS D. LOCKE.

Witnesses:

LYN P. WOOD,

EDWD. H. VALENTINE.