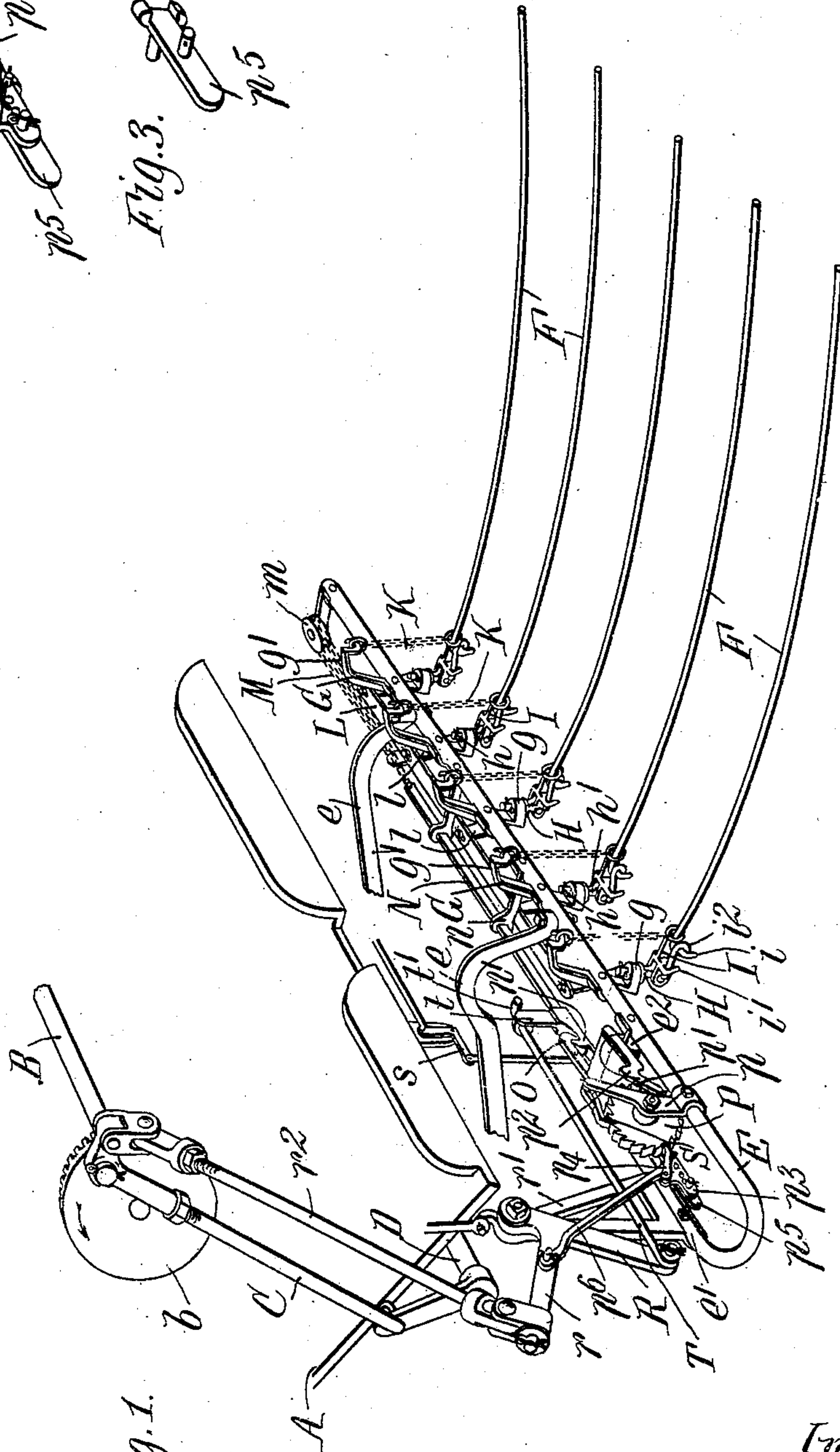
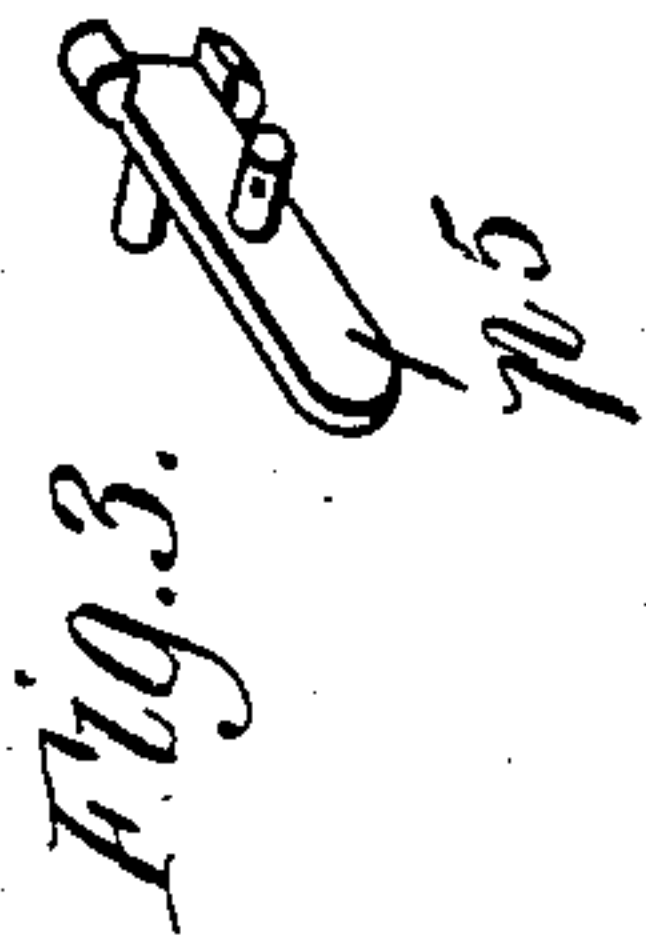
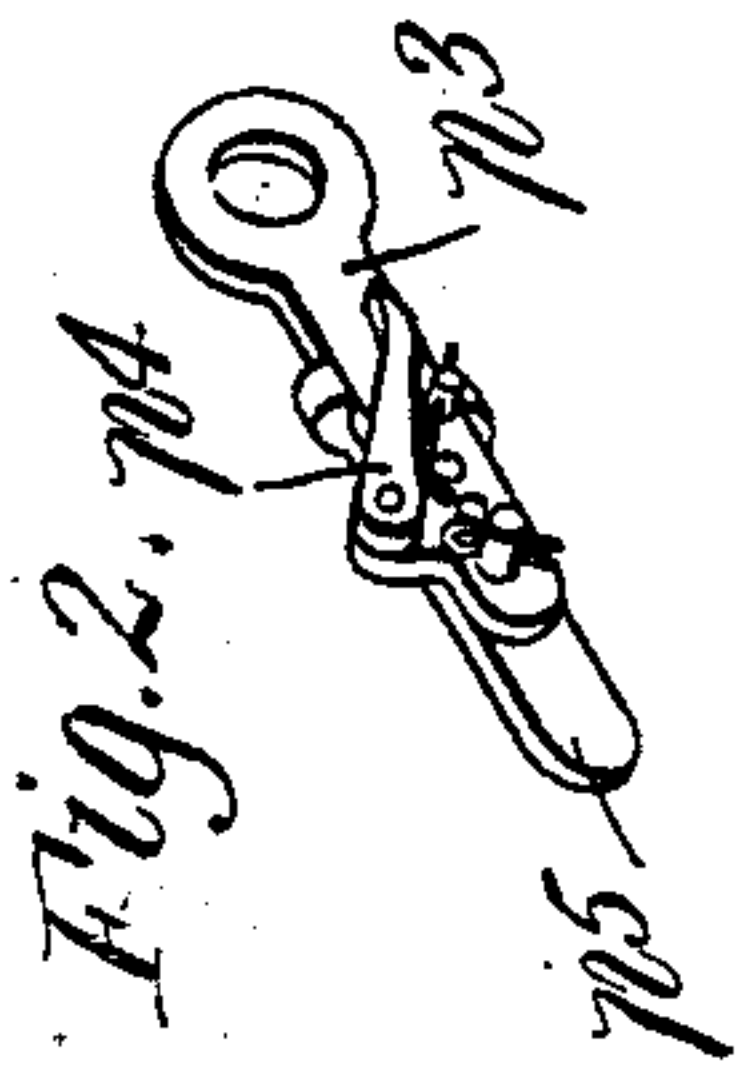


910,746.

J. TROTTER.
BUNDLE CARRIER.
APPLICATION FILED MAR. 11, 1908.

Patented Jan. 26, 1909.
3 SHEETS—SHEET 1.



Witnesses:
E. A. Volk.
A. G. Dimond.

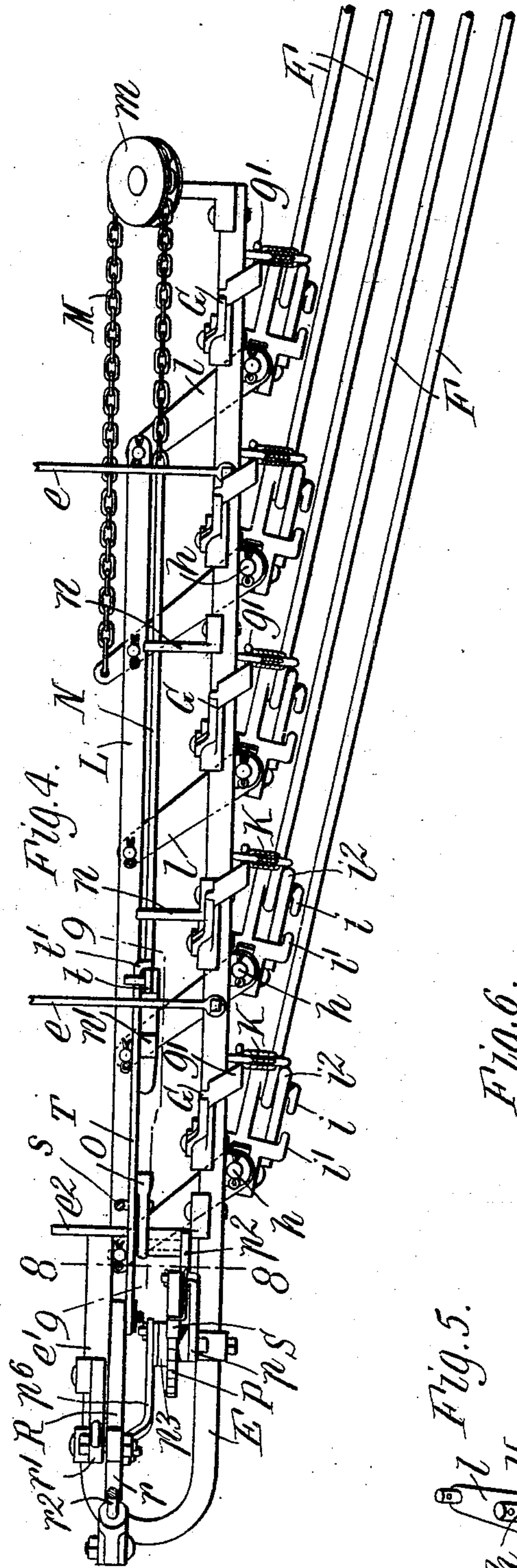
Inventor,
Jose' Trotter,
By Wilhelm, Parker & Ward,
Attorneys.

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APPLICATION FILED MAR. 11, 1908.

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3 SHEETS—SHEET 2.



E. A. Volk.
A. G. Diamond } Witnesses:

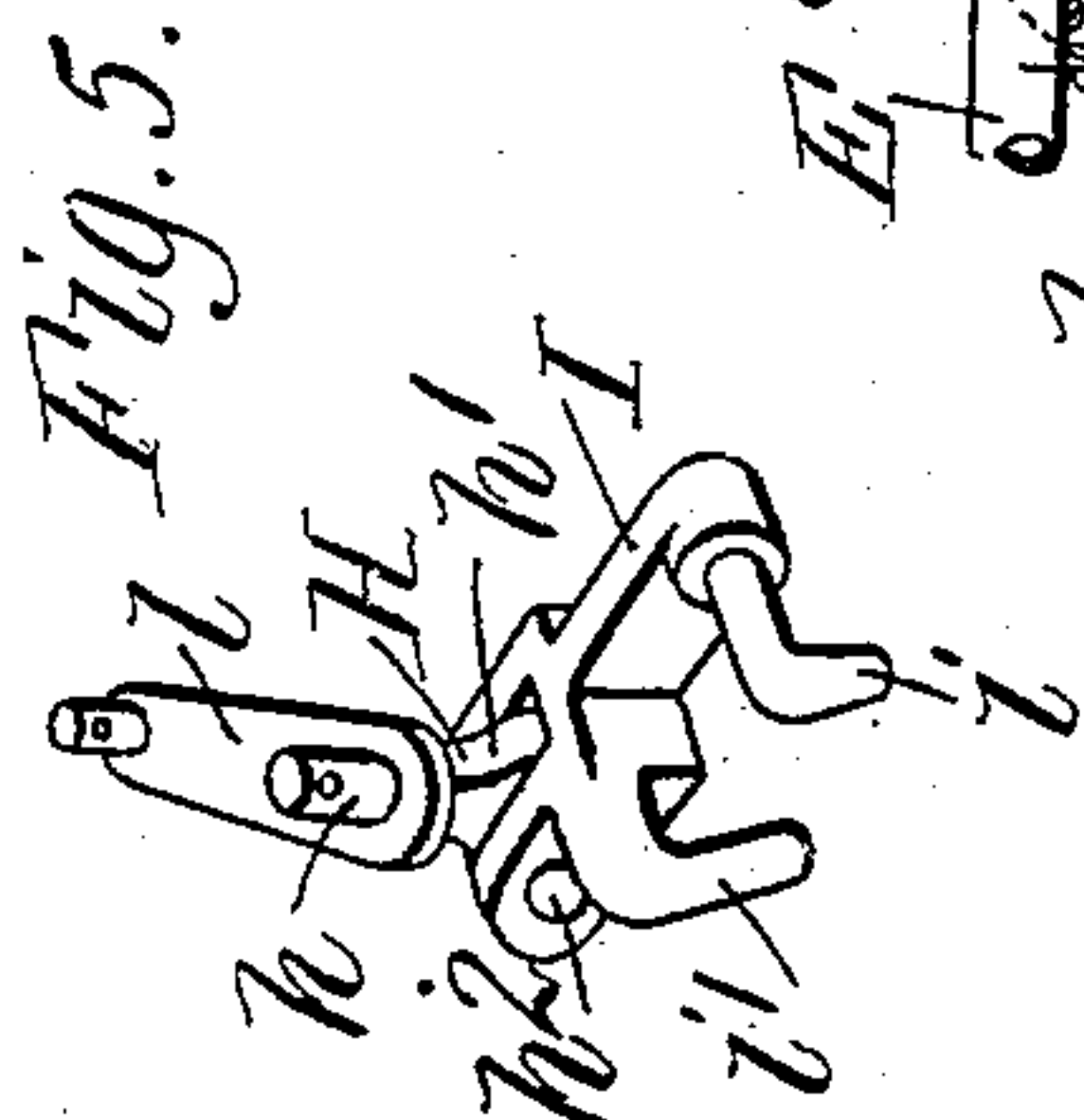


Fig. 6.

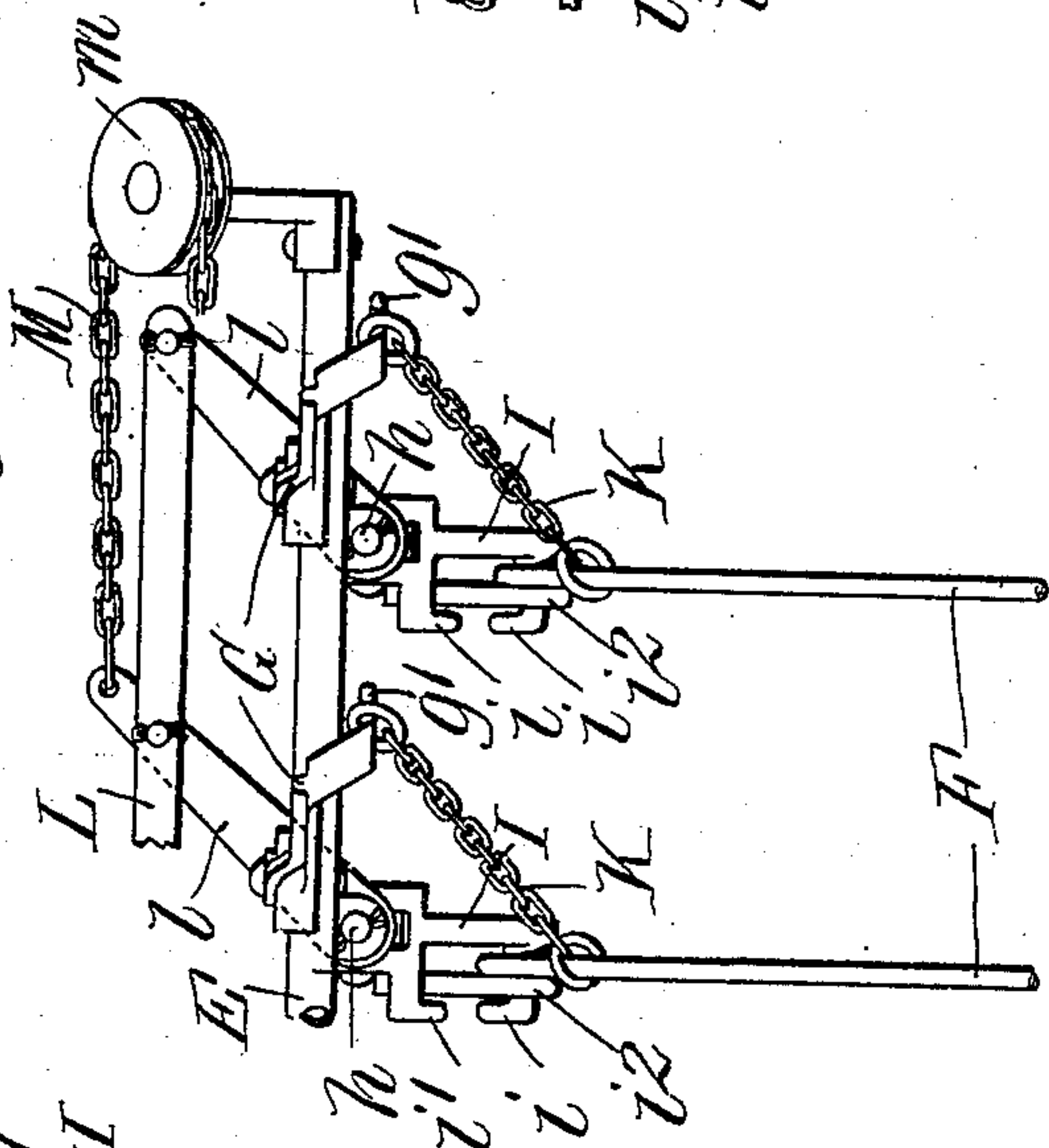
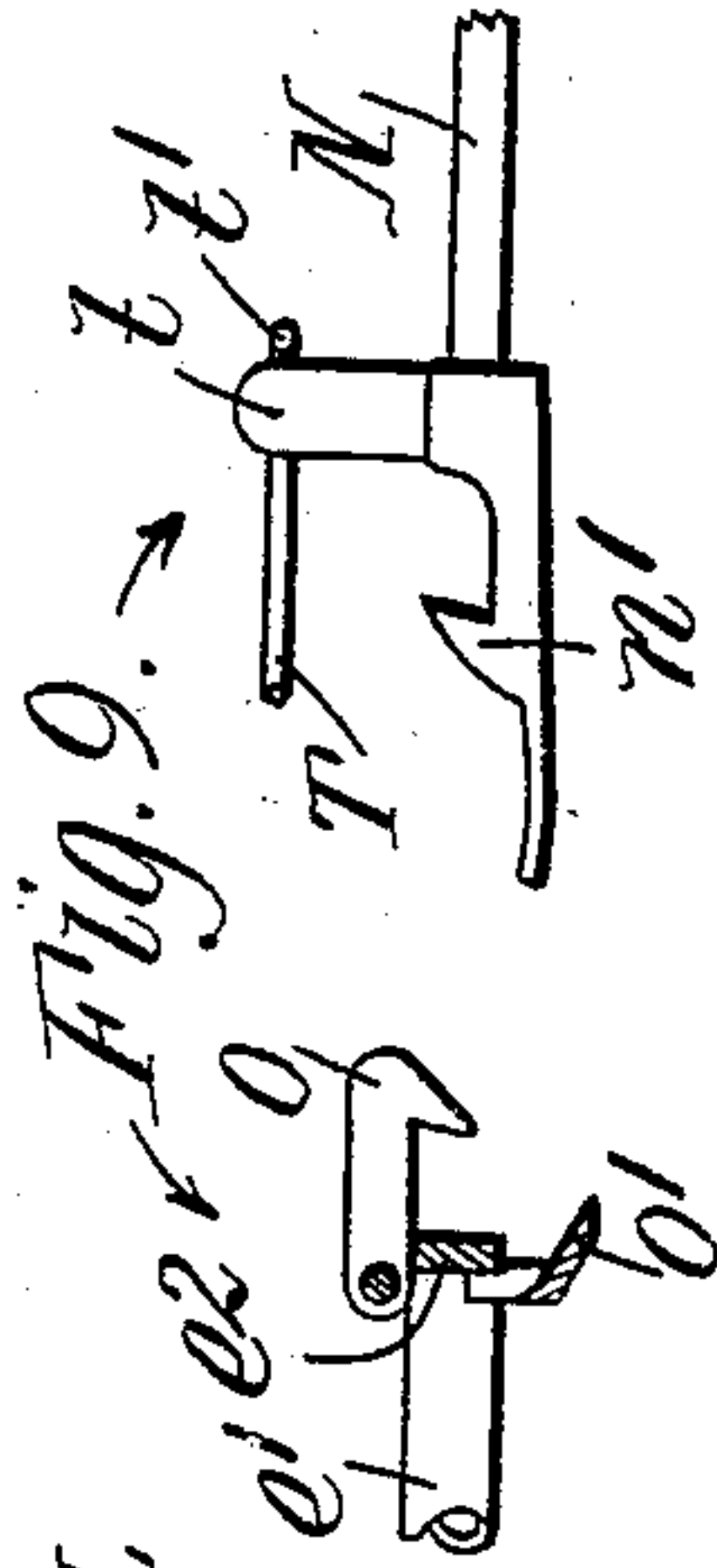
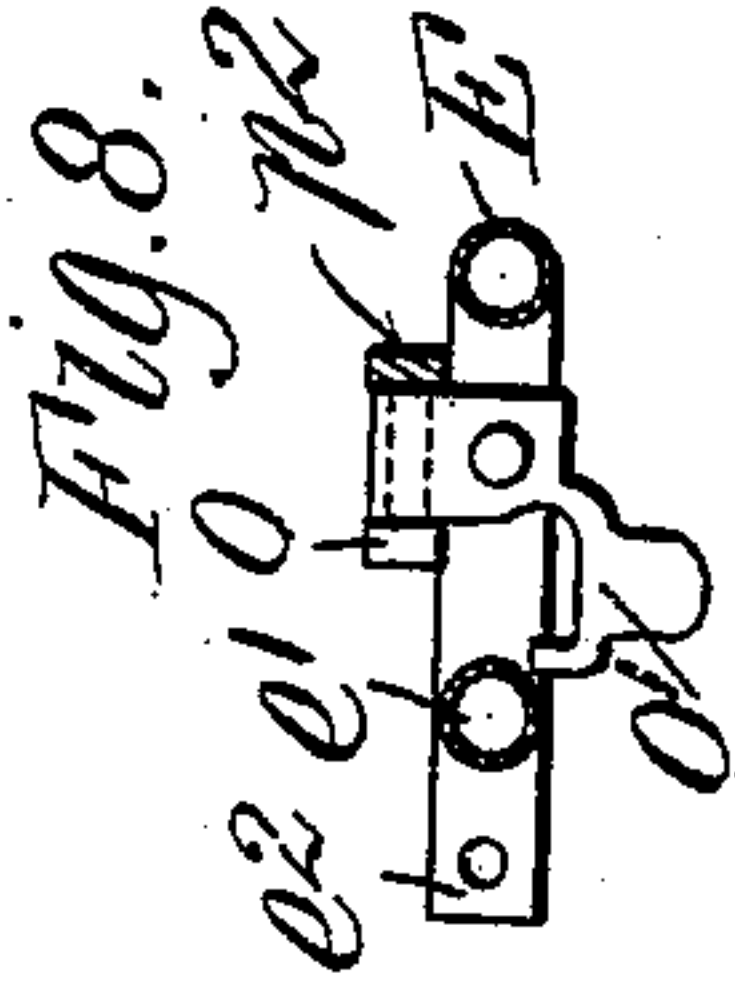
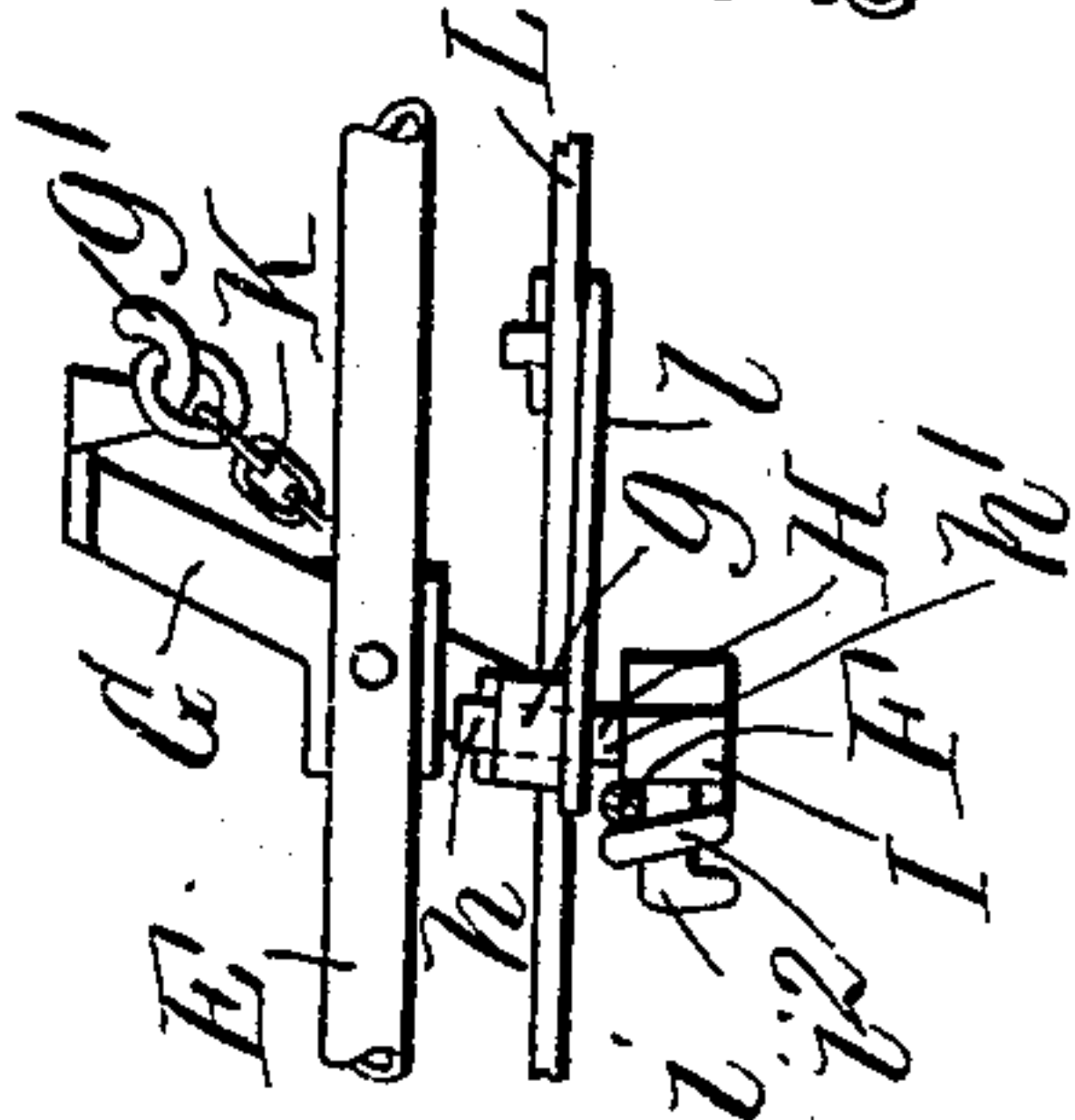


Fig. 7.



Inventor,
J. Trotter,
By William Parker & Ward,
Attorneys.

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3 SHEETS—SHEET 3.

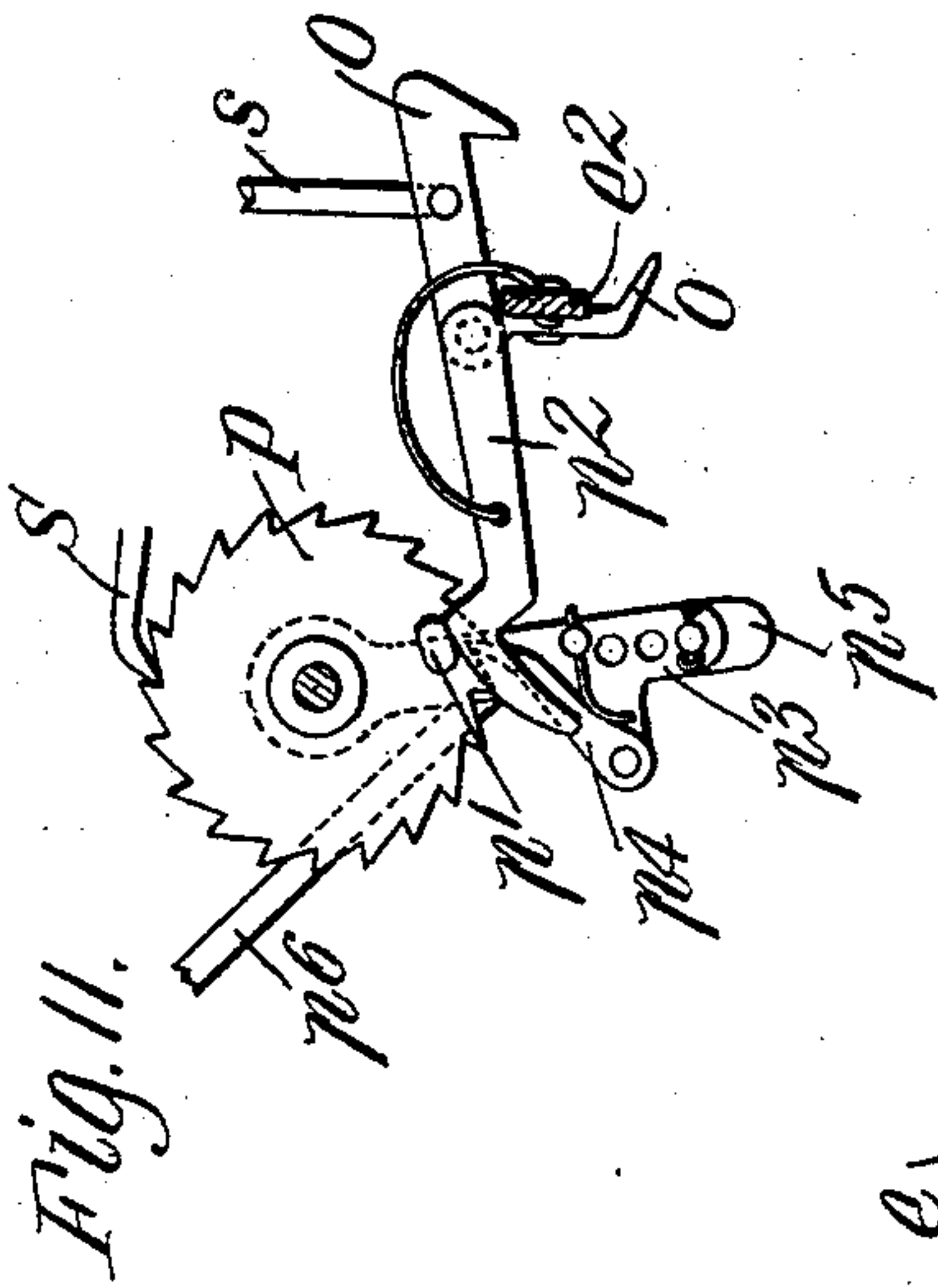
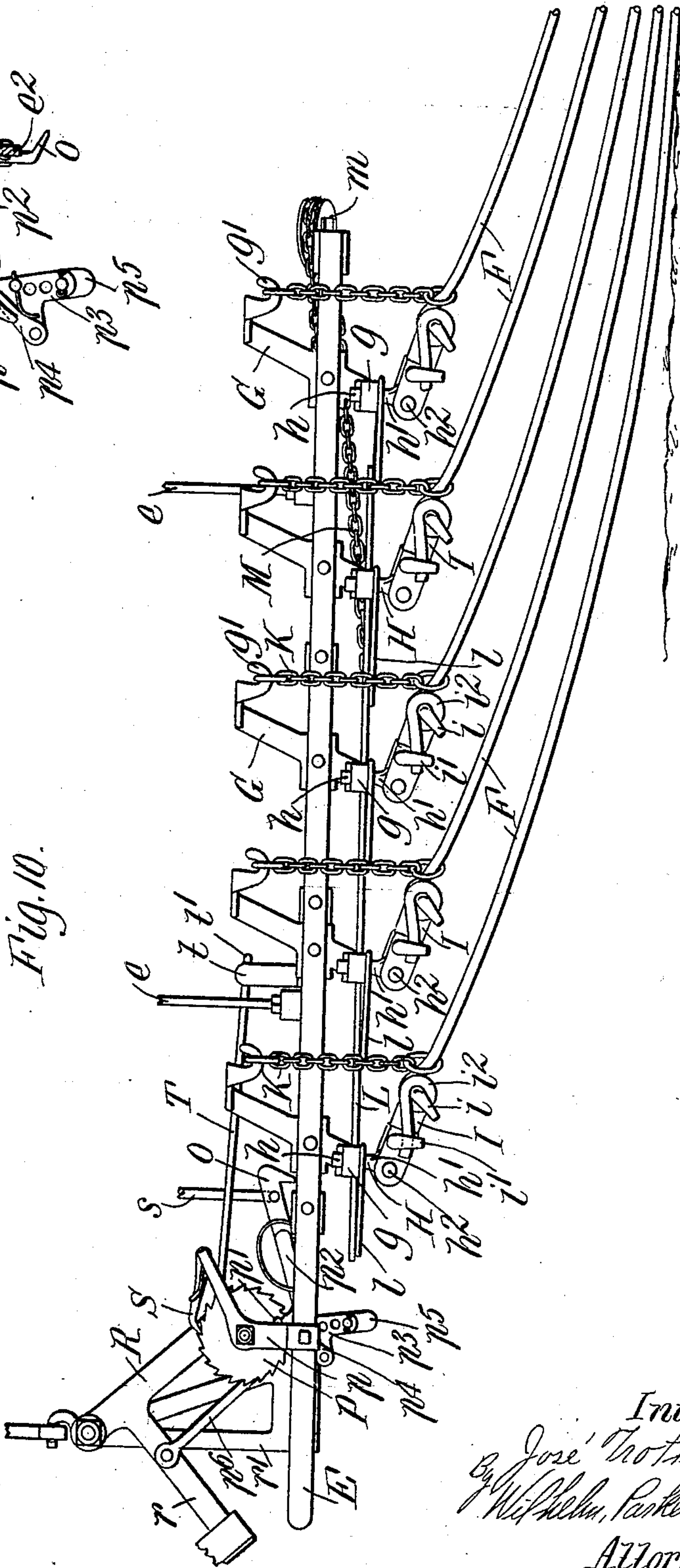


Fig. 10.



Witnesses:
E. A. Vock.
A. G. Diamond.

Inventor.
J. Trotter,
By Wilhelm, Parker & Hard,
Attorneys.

UNITED STATES PATENT OFFICE.

JOSÉ TROTTER, OF SEVILLA, SPAIN.

BUNDLE-CARRIER.

No. 910,746.

Specification of Letters Patent.

Patented Jan. 26, 1909.

Application filed March 11, 1908. Serial No. 420,391.

To all whom it may concern:

Be it known that I, JOSÉ TROTTER, a subject of the King of Great Britain, residing at Sevilla, Spain, have invented a new and useful Improvement in Bundle-Carriers, of which the following is a specification.

This invention relates more particularly to improvements in bundle carriers for self-binding grain harvesters of that type in which the carrier is arranged to receive the bundles of grain as they pass from the binding mechanism and hold the same until a predetermined number of bundles have accumulated thereon, and then to automatically dump these bundles and return to its receiving position.

One object of this invention is to provide a practical and efficient carrier of this character which will be simple in construction and in which the carrier is positively returned from its dumping to its receiving position by means operated by the binding mechanism of the machine to which the carrier is attached.

A further object is to improve the construction of the means of attachment of the fingers of the carrier to the supporting frame thereof, to insure a complete discharge of the bundles from the carrier and to enable the fingers to be readily removed and replaced when necessary.

A further object of the invention is to generally improve the construction and operation of carriers of this type in the particulars hereinafter more fully described and set forth in the claims.

In the accompanying drawings, consisting of three sheets: Figure 1 is a perspective view of a bundle carrier embodying my invention, showing the parts of the grain binder to which the same is attached. Fig. 2 is a perspective view, on an enlarged scale, of the ratchet pawl and its supporting arm. Fig. 3 is a similar view of an extension piece for the pawl-supporting arm. Fig. 4 is a plan view, on an enlarged scale, of the carrier, showing the same in its discharging position. Fig. 5 is a perspective view of the hinge and swivel blocks for one of the fingers of the carrier. Fig. 6 is a fragmentary plan view of a portion of the carrier in its receiving position. Fig. 7 is a fragmentary sectional elevation of the carrier, showing one of

the supporting brackets for the fingers of the carrier. Fig. 8 is a cross section of the same, taken on line 8—8, Fig. 4. Fig. 9 is a fragmentary longitudinal sectional elevation of the locking means for the carrier, taken in line 9—9, Fig. 4. Fig. 10 is a side elevation of the carrier showing the same in its discharging position. Fig. 11 is a side elevation, on an enlarged scale, of the ratchet wheel and its associated parts.

Like letters of reference refer to like parts in the several figures.

A represents the binding deck or table of a self-binding harvester, B the knotter shaft thereof provided with a crank wheel *b*, and C a pitman connecting the crank wheel of the knotter shaft with a crank arm on the needle shaft D. These parts are all of well known construction.

The bundle carrier is supported from the frame of the harvester and is arranged below and slightly beyond the discharge end of the binding deck and substantially parallel therewith.

E represents the frame of the carrier which is suspended from the frame of the harvester by suitable arms *e*, and preferably consists of a metal pipe having its forward end bent inwardly and rearwardly to form a loop, the arm *e'* of which is connected at its end with the main part of the frame by a cross bar *e''*.

F represents the fingers or tines of the carrier which, in the extended or receiving position thereof, project outwardly from the machine in a substantially horizontal direction and are adapted to receive and hold the bundles as they are discharged from the binding deck. In the construction shown, five carrier fingers are employed, although a greater or less number may of course be used, as desired. The fingers are separately attached to the carrier frame by universal joints or connections which enable them to swing rearwardly and downwardly to dump the bundles, the construction being preferably as follows:

Each finger is supported by a bracket G and accordingly there are as many brackets as there are fingers. These brackets are secured to the frame E at suitable distances apart and extend at an inclination above and below the frame, each being provided

at its lower end with a perforated lug or swivel socket *g* and at its upper end with an outwardly and rearwardly extending hook *g'*.

H represents a swivel block, see Fig. 5, which is provided with an upwardly-projecting swivel pin *h* which is secured and adapted to turn horizontally in the swivel socket *g*. The swivel block is also provided with a downwardly-projecting hinge lug *h'* which is secured by a horizontal hinge pin *h²* in a vertical slot in one end of a hinge block I to which the fingers F are detachably secured. By these connections, the fingers F, when free to move, can swing horizontally and also downwardly. The swivel pins *h* for the carrier fingers are preferably inclined somewhat toward the rear of the carrier, as shown in Fig. 7, whereby the weight of the bundles on the fingers tends to cause the fingers to swing rearwardly or in the proper direction to discharge the bundles.

The carrier fingers are preferably detachably secured to the hinge blocks I, so that when bent or broken, they can be removed from the carrier and replaced, for which purpose each hinge block I is provided on one side thereof with laterally extending hooks *i i'*, and the finger is bent to form a loop *i²* near its inner end which fits over and pivots on the hook *i*, while the inner end of the finger beyond the loop engages under and is held from upward movement by the hook *i'*. The finger cannot slip laterally off of the hooks *i i'* and the weight of the finger serves to hold its inner end in constant engagement with the hook *i'*. The finger can be readily removed by raising the outer end of the same to free its inner end from engagement with the hook *i'* and then slipping the loop *i²* off the hook *i*.

The carrier fingers F are held suspended from the brackets G by chains K which are attached at their upper ends to the hooks *g'* on the upper ends of the brackets G, and have rings at their lower ends which are slipped over the fingers and engage and support the same adjacent to the hinge blocks I. As the supporting hook *g'* for each chain is located inwardly and rearwardly from the point of attachment of the chain to the finger F, the chain permits the carrier finger, when released, to move downwardly and rearwardly, in an arc of which the chain-supporting hook is the center, to the discharging position shown in Figs. 4 and 10.

The means just described for detachably securing the fingers and connecting them to the frame, so that they can swing downwardly and rearwardly, are desirable, but other means for these purposes could be used.

To regulate the movement of the fingers and to hold the same normally in their extended receiving position, the following

means are employed: Each of the swivel blocks H is provided with an inwardly-extending arm *l* which is attached at its end to a link L which connects all of the swivel blocks together so that they may be moved in unison. A chain M is secured at one end to an extension of the arm *l* of one of the swivel blocks and passes around a pulley *m* journaled in suitable bearings on the end of the frame E, and is connected at its other end to a rod N which is slidably supported in suitable brackets *n* on the frame of the carrier. This rod is provided at its forward end with a hook *n'* adapted in one position of the rod to engage a spring catch O, Figs. 4, 8 and 9, pivotally secured on the cross-bar *e²* of the carrier frame. An inclined support O' is located on the cross-bar *e²* below this catch and serves to support the forward end of the rod N and hold the same normally in engagement with the catch. When the sliding rod N is in engagement with this catch, through its connection with the link L it holds the swivel block H from turning, and the fingers of the carrier are thus locked in their extended receiving position, as shown in Fig. 1. When the rod is released, the swivel blocks can turn and the fingers are free to swing rearwardly and downwardly to the discharging position shown in Figs. 4 and 10. For automatically releasing this rod for dumping the carrier, the following means are employed:

A ratchet wheel P, journaled in a standard *p* on the frame E of the carrier, is provided with a projecting stud *p'* adapted to engage a trip arm *p²* on the spring catch O to release the rod N. This ratchet wheel is turned intermittently by suitable means connected with the binding mechanism so that the wheel will be turned a predetermined distance for each bundle that is bound and delivered to the carrier. The means shown for this purpose are constructed as follows: A pawl lever *p³* pivoted to oscillate on the shaft of the ratchet wheel, is provided with a spring-pressed pawl *p⁴* for engaging the teeth of the ratchet wheel. An extension piece *p⁵* is adjustably secured to the pawl lever and a rod *p⁶* connects the extension piece *p⁵* with one arm *r* of a bell-crank lever R which is suitably pivoted on a standard *r'* on the loop arm *e'* on the frame E. The lever arm *r* is suitably connected by a link or rod *r²* with the crank wheel *b* of the knotter shaft B, or other suitable member of the binding mechanism whereby the lever R will be reciprocated once for every revolution of the knotter shaft and will communicate this movement in turn by the rod *p⁶* to the pawl lever *p³*. Each downward movement of the pawl lever *p³* causes a definite movement of the ratchet wheel, depending upon the length of movement of the pawl lever. A suitable dog S

pivoted to the standard p above the ratchet wheel engages the teeth of the ratchet wheel to hold the same from turning backwardly. It will thus be seen that with each revolution of the knotter shaft the pawl lever p^3 is reciprocated and the ratchet wheel advanced a certain distance. By adjusting the extension piece p^5 of the pawl lever on the latter toward or from the axis of the ratchet wheel, the connection of the rod p^6 with the pawl lever is correspondingly changed so as to increase or decrease the stroke of the pawl lever and pawl and thus turn the ratchet wheel a shorter or longer distance, as desired. As the knotter shaft makes one revolution for each bundle that passes over the binding deck, the ratchet wheel is moved a certain distance each time a bundle is delivered to the carrier. By regulating the stroke of the pawl and the number of teeth on the ratchet wheel, it is possible to regulate the movement of the ratchet wheel so that it will make one complete revolution for a certain predetermined number of bundles. In the construction shown, the ratchet wheel is provided with twenty teeth and the movement of the pawl is such that this wheel is rotated a distance of four teeth for each revolution of the knotter shaft. The ratchet wheel will thus make one complete revolution for every five bundles delivered to the carrier. Four of these bundles will therefore be received and held by the carrier and the fifth bundle will pass from the binding deck onto the carrier at the same time that the ratchet wheel completes one revolution and trips the catch O to release the fingers of the carrier, and will thus be dumped with the other four bundles. When the catch O is released, the weight of the bundles upon the carrier will cause the same to dump automatically. It some times happens that the operator may desire to dump the carrier for some reason before the entire number of bundles has been deposited thereon. For this purpose a suitable dumping lever s is secured to the catch O and is connected by suitable means (not shown) to an operating lever adjacent to the driver's seat so that the driver may at any time release this catch to dump the carrier.

The carrier is positively returned to its elevated or receiving position after being dumped by the following preferred means: Secured to the sliding rod N adjacent to its hooked end n' is an upright arm t having a sliding bearing therein for a return rod T, provided with a hooked end t' which is adapted to engage the arm t . The other or front end of this return rod is pivotally secured to the lower arm of the bell-crank lever R and the rod is thus reciprocated back and forth with the movements of this lever. When the sliding rod N is in engagement with the catch O, the return rod T

slides idly back and forth in its bearing on the supporting arm t and does not affect the position of the rod N. When, however, the catch O is released to dump the carrier, the movement of the carrier fingers in dumping causes the sliding rod N to move rearwardly to the position shown in Fig. 10. In this position the arm t on this rod N comes into engagement with the hooked end of the return rod T, and as the return rod is moved forwardly by the action of the bell-crank lever R, the sliding rod N is drawn forwardly in like manner until it engages the catch O. This movement of the sliding rod serves to return the fingers of the carrier to their extended receiving position. A positive return of the carrier from its dumping to its receiving position is thus secured which is effected by the same mechanism on the harvester which operates the automatic release therefor, so that the return movement will be at all times regular and certain. When the carrier is being dumped, the fingers swing downwardly and rearwardly until they extend adjacent to the ground and substantially parallel with the direction of movement of the harvester, and their outer ends fold together, as shown in Figs. 4 and 10. This insures an effectual discharge of the bundles from the carrier and enables the fingers of the carrier to be completely withdrawn from engagement with the bundles before their return movement is begun.

By inclining the connecting swivels for the fingers rearwardly, the fingers of the carrier, when released, always tend to swing downwardly and rearwardly, while if the swivels were substantially vertical, the movement of the fingers might be hindered when the frame of the carrier was inclined forwardly, as when the machine was being used on the side of a hill.

I claim as my invention:

1. In a bundle carrier for self-binding harvesting machines, the combination with the bundle mechanism of the machine, of a frame supported from the machine, a set of bundle-carrying fingers separately pivoted on said frame to move from a normal receiving position downwardly and rearwardly to dump the bundles, means for holding said fingers in their normal bundle-receiving position, means for releasing said fingers for dumping the bundles, and means operated by a driven part of the said bundle mechanism of the machine for positively returning said fingers to their bundle-receiving position, substantially as set forth.

2. In a bundle carrier for self-binding harvesting machines, the combination with the bundle mechanism of the machine, of a frame supported from the machine, a set of bundle-carrying fingers separately pivoted on said frame to move from a normal receiv-

ing position downwardly and rearwardly to dump the bundles, connecting means between said fingers whereby they are moved in unison, locking means for holding said fingers in their bundle-receiving position, means for releasing said fingers for dumping the bundles, and means operated by a driven part of the said bundle mechanism of the machine for returning said fingers into the control of said locking means, substantially as set forth.

3. In a bundle carrier for self-binding harvesting machines, the combination with the bundle mechanism of the machine of a frame supported from the machine, a set of bundle-carrying fingers separately pivoted on said frame to swing downwardly and rearwardly thereof, connecting means for said fingers whereby they are moved in unison, locking means for engaging said connecting means to hold said fingers in their extended bundle-receiving position, means for releasing said locking means to allow said fingers to move to their discharging position, and means operated by a driven part of the said bundle mechanism of the machine and engaging said connecting means for said fingers for returning the same into engagement with said locking means, substantially as set forth.

4. In a bundle carrier for self-binding harvesting machines, the combination with the bundle mechanism of the machine of a frame supported from the machine, a set of bundle-carrying fingers separately pivoted on said frame to swing downwardly and rearwardly thereof, a movable link connected with said fingers whereby they are moved in unison, locking means for locking said link to hold said fingers in their extended bundle-receiving position, means operated by the said bundle mechanism of the machine for releasing said locking means to allow said fingers to move to their discharging position, and means operated by said bundle mechanism and connected with said link for returning said link into engagement with said locking means, substantially as set forth.

5. In a bundle carrier for self-binding harvesting machines, the combination with the bundle mechanism of the machine, of a frame supported from the machine, a set of bundle-carrying fingers separately pivoted on said frame to move from a normal receiving position downwardly and rearwardly to dump the bundles, connecting means for said fingers whereby they are moved in unison, locking means for engaging said connecting means to hold said fingers in their bundle-receiving position, a ratchet wheel operated by the said bundle mechanism of the machine and provided with means for releasing said locking means for dumping the bundles, and means operated by the said bundle mechanism for returning said fingers into the control

of said locking means, substantially as set forth.

6. In a bundle carrier for self-binding harvesting machines, the combination with the bundle mechanism of the machine of a frame supported from the machine, a set of bundle-carrying fingers mounted on said frame to move from a normal receiving position to dump the bundles, means for holding said fingers in their normal bundle-receiving position, means for releasing said fingers for dumping the bundles, connections between a driven part of the said bundle mechanism of the machine and said releasing means for actuating the latter, and means operated by said connections for positively returning said fingers to their bundle-receiving position, substantially as set forth.

7. In a bundle carrier for self-binding harvesting machines, the combination of a frame supported from the machine, a set of bundle-carrying fingers mounted on said frame to move from a normal receiving position to dump the bundles, locking means for holding said fingers in their bundle-receiving position, a ratchet wheel provided with means for releasing the lock, a lever and connections operated by the binding mechanism of said machine for actuating said ratchet wheel to release said locking means, and a returning device actuated by said lever, which normally works idly but engages a part connected to said fingers when in their dumping position for returning said fingers to their bundle-receiving position, substantially as set forth.

8. In a bundle carrier for self-binding harvesting machines, the combination of a frame supported from the machine, a plurality of bundle-carrying fingers, universal joints separately connecting said fingers to said frame, flexible means connecting said frame and said fingers for controlling the movement of said fingers, means for holding said fingers normally in their extended bundle-receiving position, means for releasing said fingers for dumping the bundles, and means for returning said fingers to their bundle-receiving position, substantially as set forth.

9. In a bundle carrier for self-binding harvesting machines, the combination of a frame supported from the machine, a plurality of bundle-carrying fingers, universal joints separately connecting said fingers to said frame, means connecting said frame and said fingers for controlling the movement of said fingers, a movable link connected with said fingers whereby they are moved in unison, means for locking said link to hold said fingers in their extended bundle-receiving position, means for releasing said locking means to allow said fingers to move to their discharging position, and means for returning said link to its locked position, substantially as set forth.

10. In a bundle carrier for self-binding har-

vesting machines, the combination of a frame supported from the machine, a plurality of bundle-carrying fingers, universal joints separately connecting said fingers to said frame,
5 supports on said frame above said fingers, means connecting said fingers with said supports for controlling the movement of said fingers, means for holding said fingers normally in their extended bundle-receiving position,
10 sition, means for releasing said fingers for

dumping the bundles, and means for returning said fingers to their bundle-receiving position, substantially as set forth.

Witness my hand, this 18th day of February, 1908.

JOSÉ TROTTER.

Witnesses:

JOSÉ RICCA,
JUAN GUITARD.