

No. 770,980.

PATENTED SEPT. 27, 1904.

F. J. PAVLIK.
HAY STACKER.

APPLICATION FILED MAR. 9, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

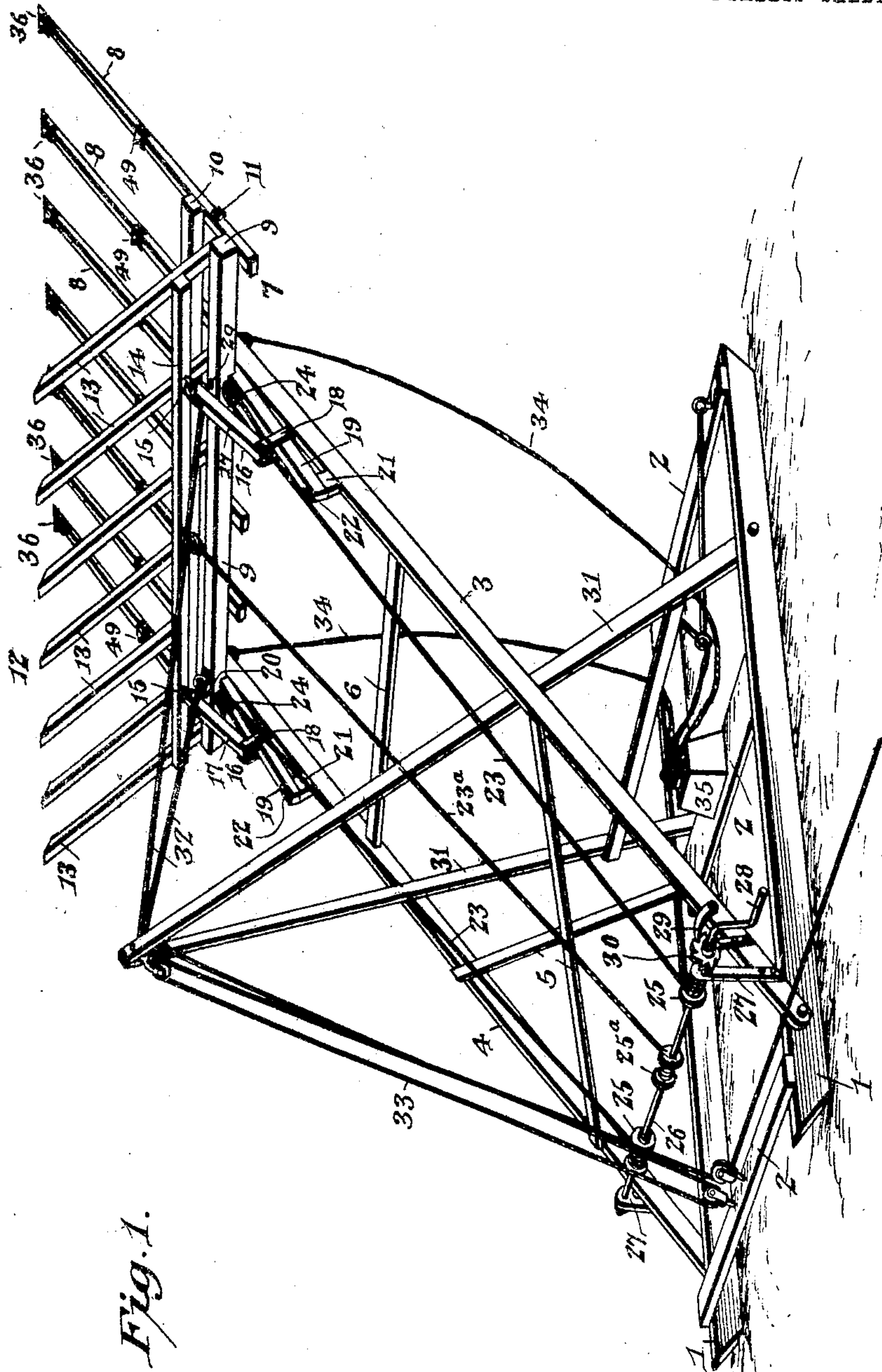


Fig. 1.

Frank J. Pavlik, Inventor

By

E. G. Siggers

Attorney

Witnesses
Jas. E. McEachran
Louis E. Julihn

F. J. PAVLIK.
HAY STACKER.

APPLICATION FILED MAR. 9, 1904.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 3.

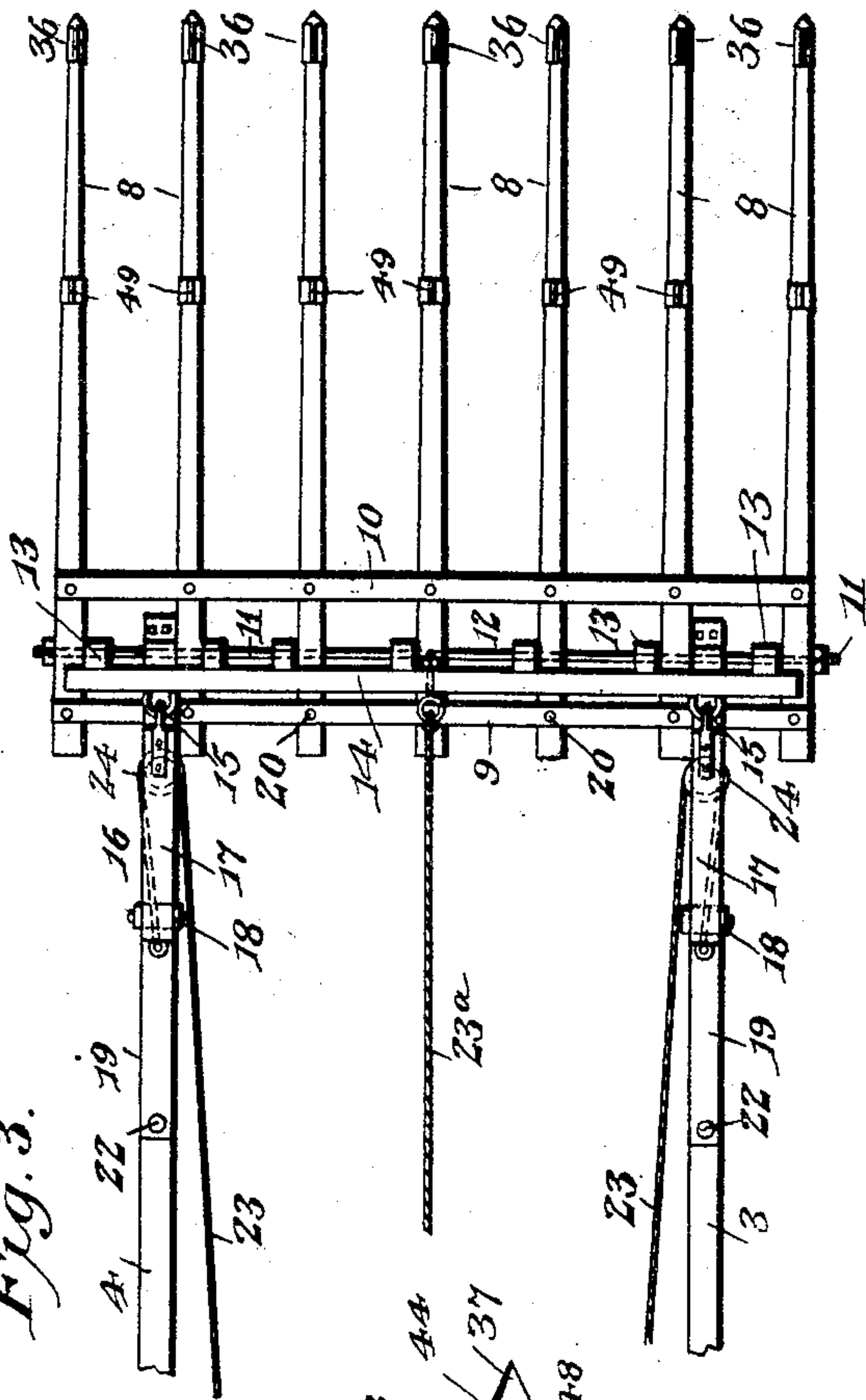


Fig. 4.

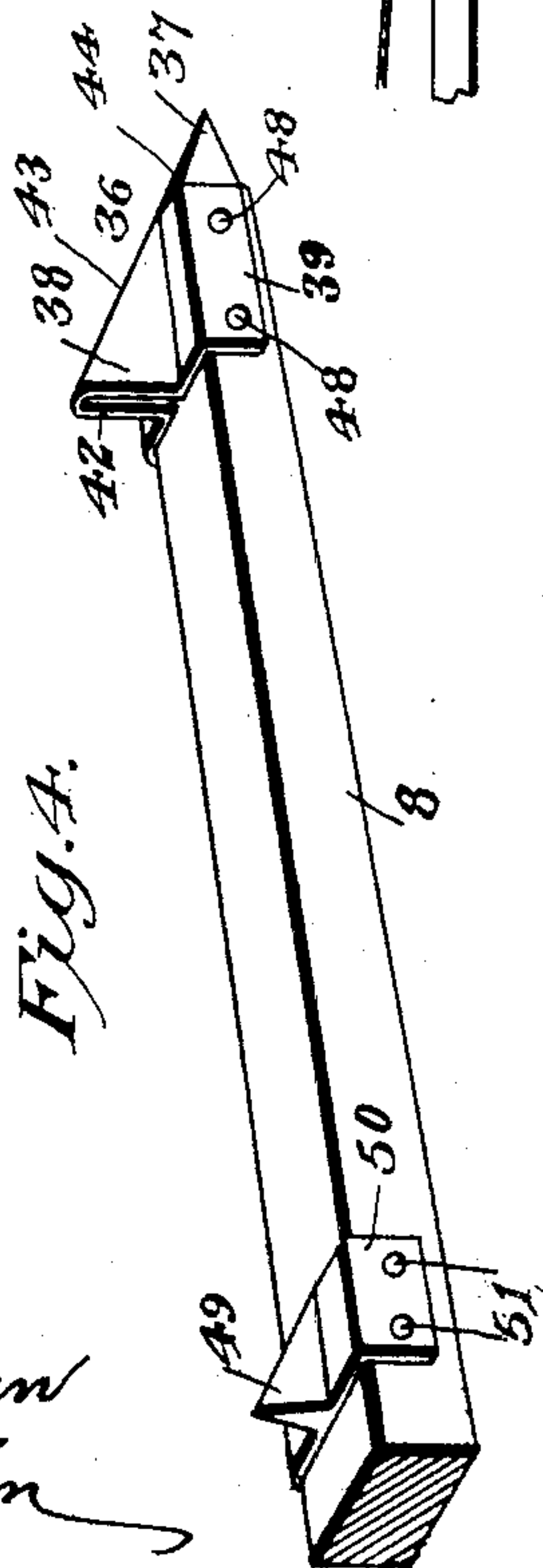


Fig. 6.

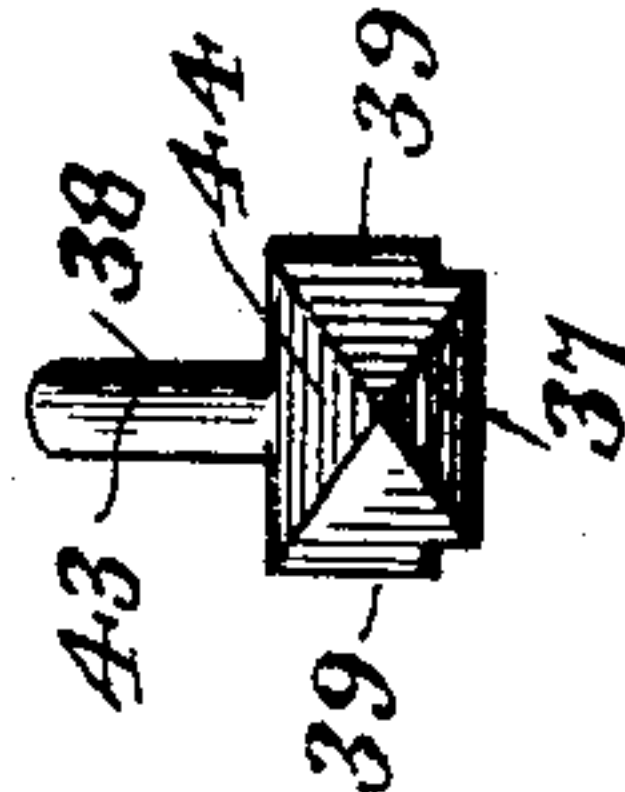


Fig. 5.

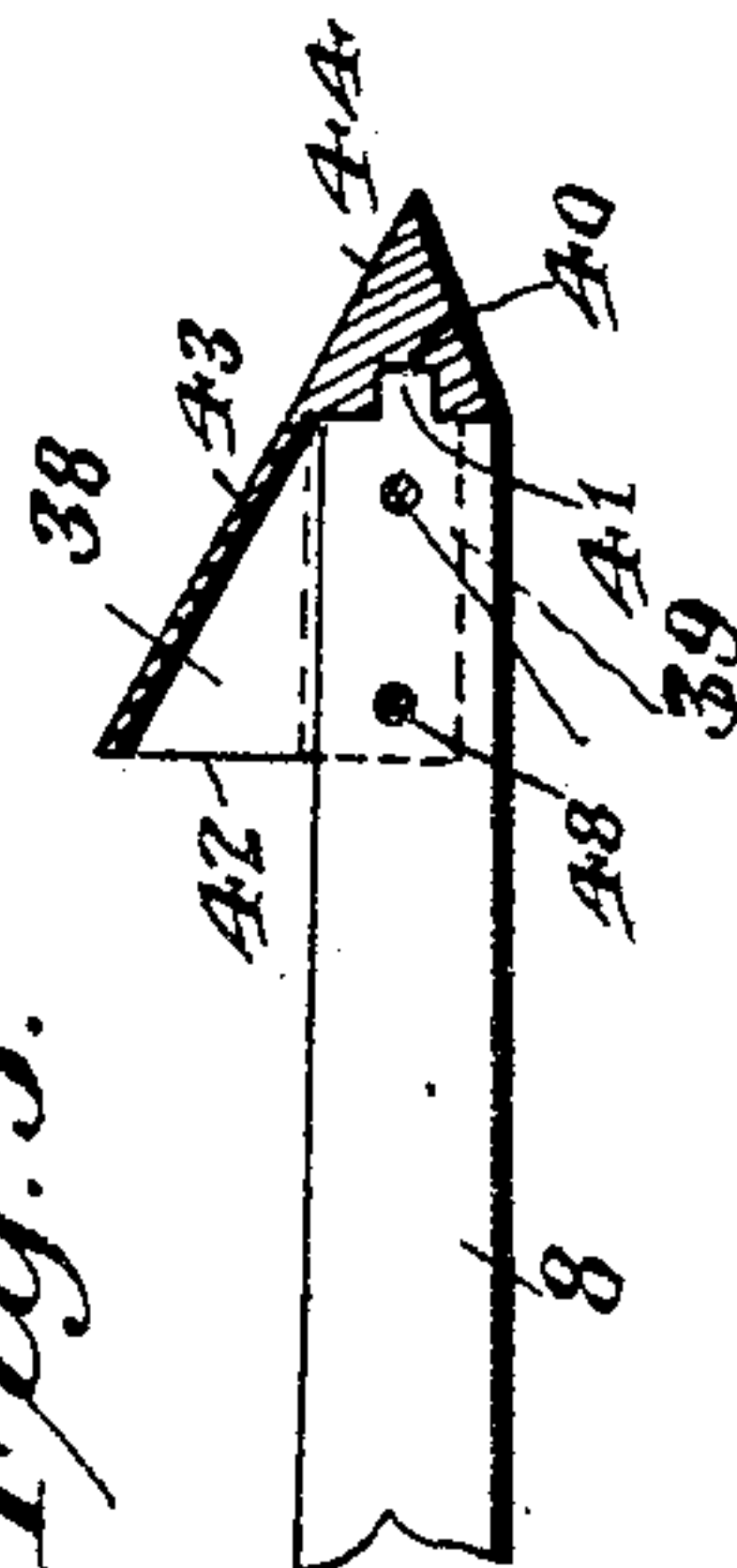
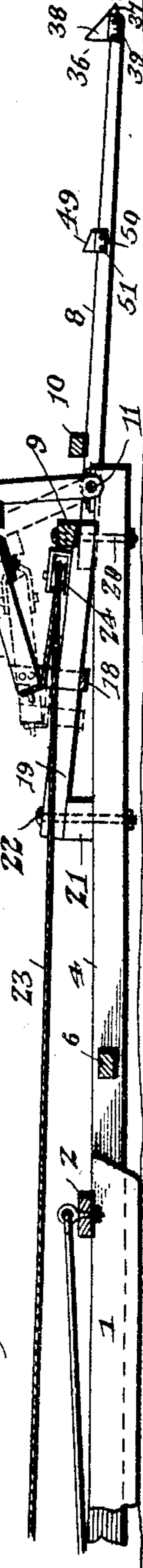


Fig. 2.



Witnesses
Jas. E. McEachran
Louis C. Gulick

Frank J. Pavlik, Inventor

By

E. J. Siggers

Attorney

UNITED STATES PATENT OFFICE.

FRANK J. PAVLIK, OF KNOXVILLE, NEBRASKA.

HAY-STACKER.

SPECIFICATION forming part of Letters Patent No. 770,980, dated September 27, 1904.

Application filed March 9, 1904. Serial No. 197,233. (No model.)

To all whom it may concern:

Be it known that I, FRANK J. PAVLIK, a citizen of the United States, residing at Knoxville, in the county of Knox and State of Nebraska, have invented a new and useful Hay-Stacker, of which the following is a specification.

My present invention relates to a novel hay stacker and loader of that class in which a portable supporting-frame is equipped with a pivoted carrier arranged to be elevated to an upright position by means of an elevating frame or derrick. In this type of machines the carrier is provided at its free end with a fork and with a series of rear carrier-teeth known as a "swinging fork-guard." This guard is ordinarily adjustable by means requiring the displacement and replacement of parts, the manipulation of which consumes both time and labor.

One object of the invention, therefore, is to provide novel means whereby the guard may be quickly and conveniently adjusted in accordance with the conditions of use—as, for instance, the height and location of the stack upon which the hay is to be deposited or of the vehicle to be loaded.

A further defect of those stackers with which I am familiar is the tendency of the fork-load of hay to slip from the fork, this being particularly noticeable when the stacker is being operated on a hillside, where the tendency of the hay is to gravitate away from the fork as the latter is elevated toward the stack. Having in mind the elimination of this last-named defect, a further object of the invention is to provide the fingers or tines of the fork with barbs so constructed that while they oppose no resistance to the loading of the fork they will absolutely prevent the slipping of the hay as the machine is operated.

To the accomplishment of these objects and others subordinate thereto, as will more fully appear, the invention resides in that construction, combination, and arrangement of parts to be hereinafter described, illustrated in the accompanying drawings, and succinctly defined in the appended claims.

In the drawings, Figure 1 is a perspective view of a stacker, showing the carrier in a partly-elevated position. Fig. 2 is a sectional

view of a portion of the stacker, showing one position of the fork-guard in dotted lines. Fig. 3 is a plan view of the front end of the carrier, showing the fork and guard and associated parts. Fig. 4 is a detail perspective view of one of the fork-tines equipped with barbs. Fig. 5 is a detail sectional view illustrating the construction of a combined shoe and barb, and Fig. 6 is an end view of the subject-matter of Fig. 5.

Like numerals of reference are employed to designate corresponding parts in the several views of the drawings.

The supporting-frame of the machine comprises runners 1, spaced apart and connected by cross-bars 2. The swinging carrier comprises side bars 3 and 4, pivoted at their rear ends to the outer sides of the runners 1 adjacent to the rear end of the supporting-frame and connected by transverse bars 5 and 6. At the front end of the carrier is rigidly retained a fork 7, comprising a series of parallel tines 8, having their rear ends connected by a pair of parallel cross-bars 9 and 10, the former being bolted to the side bars 3 and 4 of the carrier. The tines 8 of the fork are further secured by a tie-bar 11, passed through the several tines in a plane between the cross-bars 9 and 10 and serving as a pivotal support for the fork-guard 12, the teeth 13 of which are pierced terminally by the tie-bar 11.

The teeth 13 of the swinging guard 12 are connected at a point somewhat removed from the bar 11 by a cross-bar 14, which insures the swinging movement of the teeth in unison. Connected to the bar 14 by flexible connections 15 of any suitable character are a pair of guard-slides 16, each of which includes an inclined link 17, provided at one end with a strap 18, fitting around an inclined track or guide 19. Each of the guides 19 is disposed above one of the side bars 3 or 4 of the carrier, with its front end secured by a bolt 20, passed through the cross-bar 9 and through the guide 19 and the side bar of the carrier, respectively, as shown in Fig. 2. The rear end of the guide 19 is separated from the carrier-bar by an interposed block 21, the bolt 22 being passed through the guide, the block, and the bar, respectively, as shown.

It will now be observed that swinging movement of the guard 12 and the adjustment thereof may be obtained by moving the slides 16 along the guides 19. To effect this movement of the parts, I connect the front extremities of guard-adjusting cables 23 to the bars 17, said cables being passed around guide-pulleys 24, mounted at the front ends of the guides 19, and thence led back to a pair of drums 25, mounted on a drum-shaft 26, rotatable in bearings 27, bolted or otherwise secured to the side bars 3 and 4 of the carrier. The shaft 26 is operated by means of a crank 28, and reverse movement is prevented by a pawl-and-ratchet mechanism comprising a pawl 29, mounted on the bar 3 and engaging a ratchet 30 on the shaft 26. It will now be seen that by rotating the shaft in one direction the cables may be drawn up to cause the movement of the slides 16 along the guides 19 and the consequent adjustment of the guard or rear fork-teeth 12. In like manner if it is desired to allow the guard to drop back the pawl may be released from the ratchet to permit reverse rotation of the shaft 26 and the consequent unwinding of the cables therefrom until the desired adjustment of the guard has been effected.

In order to prevent the guard from swinging forward from its adjustable position and for the further purpose of providing positive means for swinging the guard backward, I connect the bar 14, preferably at a point midway between its ends, to a third guard-adjusting cable 23^a, the other end of which is wound upon a drum 25^a, mounted on the shaft 26 between the drums 25. The cable 23^a is wound upon the drum 25^a in a direction opposite to the windings of the cables 23 on the drums 25. It therefore follows that as the side cables 23 are wound up to swing the fork-guard forward the cable 23^a will be slackened to permit this movement of the guard. On the contrary, when the cable 23^a is wound on its drum to swing back the guard the cable 23 will be slackened.

While the carrier-elevating mechanism constitutes no part of my present invention and may be substituted by any other form deemed desirable, the illustrated construction includes a swinging elevating frame or derrick 31, having its upper end connected by stay-rods 32 with the cross-bar 9 of the fork. This frame 31 is designed to be swung by an elevating-cable 33, reeved through pulleys in a manner well understood in the art and connected to a suitable source of power, usually a draft-animal. The movement of the carrier is limited by stop-cables 34, attached to a weight 35.

To prevent the hay from slipping from the fork, each of the fork-teeth is provided with a terminal metallic shoe 36, formed in a single casting comprising a solid point 37, a barb 38, and angular bolt-flanges 39. The base of

the point 37 abuts against the end of the tooth 8 and is provided with a socket 40, into which extends a tenon or tongue 41, projecting from the end face of the fork-tooth. (See Fig. 5.) The barb 38, which is preferably hollow, has an abrupt rear end face 42, extending at right angles to the tooth 8, and is of triangular form, its upper or front edge 43 being rounded, as shown. The inclined face 43 of the barb 38 is in alinement with the upper inclined face 44 of the point 37, so that as the hay is pushed onto the fork its movement will not be materially obstructed by the shoes at the ends of the fork-teeth. The shoes are retained in place by bolts 48, passed through transversely and through the flanges 39, embracing the opposite sides of the tooth, as shown in Fig. 4. In addition to the barbs 38 the fork-teeth 8 are provided intermediate of their ends with additional barbs 49, of triangular form, and provided with bolt-flanges 50, secured by bolts 51.

Briefly the operation of my stacker and loader is as follows: The fork having been loaded in the usual manner, the hay is prevented from slipping therefrom by the barbs 38 and 49, and by the manipulation of the crank 28 the fork-guard 12 is adjusted in accordance with the height of the stack. If it is desired to build a stack higher than the stacker can throw, the guard is thrown up toward the fork, so as to retain the load in position to be taken out by a man standing on the stack and reaching down with a pitchfork. As a gain of approximately five feet can be secured by the adjustment of the guard and as a man can reach down approximately four feet for the load, it is obvious that by the use of my apparatus it is possible to build the stack 8 or 10 feet higher than the stacker can throw.

It is thought that from the foregoing the construction, operation, and many advantages of my stacker will be clearly apparent; but while the present embodiment of the invention is thought at this time to be preferable I desire to reserve the right to effect such changes, modifications, and variations of the illustrated structure as may fall fairly within the scope of the protection prayed.

What I claim is—

1. In a hay-stacker, the combination with a carrier, a fork at one end thereof, and a swinging guard associated with the fork, of means mounted on the carrier adjacent to its opposite end for adjusting the guard.

2. In a hay-stacker, the combination with a carrier, a fork at one end thereof, and a swinging guard associated with the fork, of a drum, a cable wound thereon and operatively connected to the swinging guard, and means for rotating the drum.

3. In a hay-stacker, the combination with a carrier, a fork at one end thereof, and a swinging guard associated with the fork, of a slide mounted on the carrier and operatively con-

nected to the guard, and means for operating the slide from the rear end of the carrier.

4. In a hay-stacker, the combination with a carrier, a fork at one end thereof, and a swinging guard associated with the fork, of a slide mounted on the carrier and having operative connection with the guard, a cable connected at one end to the slide, a drum connected to the opposite end of the cable, and means for rotating the drum.

5. In a hay-stacker, the combination with a swinging carrier comprising a pair of side bars, a fork at one end of the carrier, and a swinging guard associated with the fork, of guides mounted on the side bars of the carrier, slides movable along said guides and having operative connection with the guard, and means located at the opposite end of the carrier for moving the slides to effect the adjustment of the guard.

6. In a hay-stacker, the combination with a swinging carrier comprising side bars, a fork at one end thereof, and a swinging guard associated with the fork, of guides carried by the side bars, slides movable along the guides and having flexible connection with the guard, a shaft mounted on the carrier and having an operating-crank, drums mounted on the shaft, cables connected to the drums and slides, respectively, and guide-pulleys for said cables.

7. In a hay-stacker, the combination with a swinging carrier comprising side bars, a fork at one end thereof, and a swinging guard associated with the fork, of guides carried by the side bars, slides movable along the guides and having flexible connection with the guard, a shaft mounted on the carrier and having an operating-crank, drums mounted on the shaft, cables connected to the drums and slides, respectively, guide-pulleys for said cables, and pawl-and-ratchet mechanism preventing reverse rotation of the shaft.

8. A fork for hay-stackers having its teeth provided with terminal shoes, each shoe comprising a solid point, a triangular barb in rear thereof, and bolt-flanges secured to the opposite sides of the fork-tooth.

9. The combination with a fork-tooth having a terminal tongue, of a shoe comprising a solid point abutted against the end of the tooth and having a socket for the reception of the tongue, a triangular barb disposed above the tooth, angular bolt-flanges integral with the barb and point and embracing the opposite sides of the tooth, and bolts passing through the flanges and tooth to retain the shoe in place.

10. A fork-tooth provided on its upper side with a plurality of triangular barbs designed to prevent the hay from slipping therefrom, one of said barbs being in the form of a shoe comprising in addition to said barb a solid point abutted against the end of the tooth, and bolt-flanges integral with the barb and point and embracing the opposite sides of the tooth.

11. In a hay-stacker, the combination with a carrier, a fork at one end thereof, and a movable guard associated with the fork, of means for positively moving the guard in different directions to effect the adjustment thereof with respect to the fork.

12. In a hay-stacker, the combination with a carrier, a fork at one end thereof, and a movable guard associated with the fork, of guard-adjusting cables operatively connected to the guard to move the same in different directions, drums upon which said cables are oppositely wound, and means for rotating the drums.

13. In a hay-stacker, the combination with a carrier, a fork at one end thereof, and a swinging guard associated with the fork, of a drum-shaft mounted on the carrier, drums on the shaft, cables oppositely wound on the drums, means whereby the winding of said cables on the drums will effect the movement of the fork-guard in different directions, and means for preventing rotation of the drum-shaft.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FRANK J. PAVLIK.

Witnesses:

B. STEVENSON,

W. D. RUSSELL.