

No. 731,796.

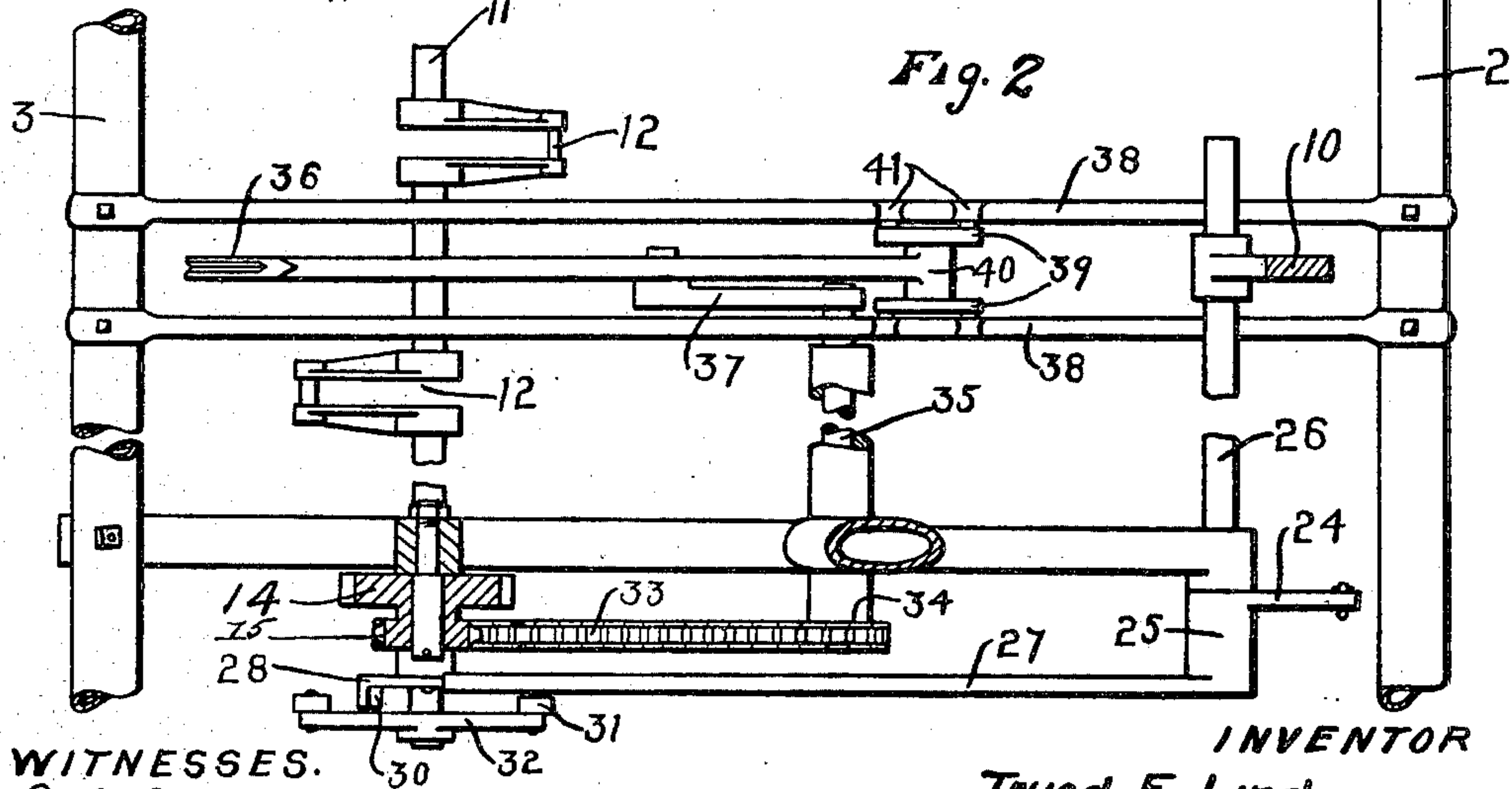
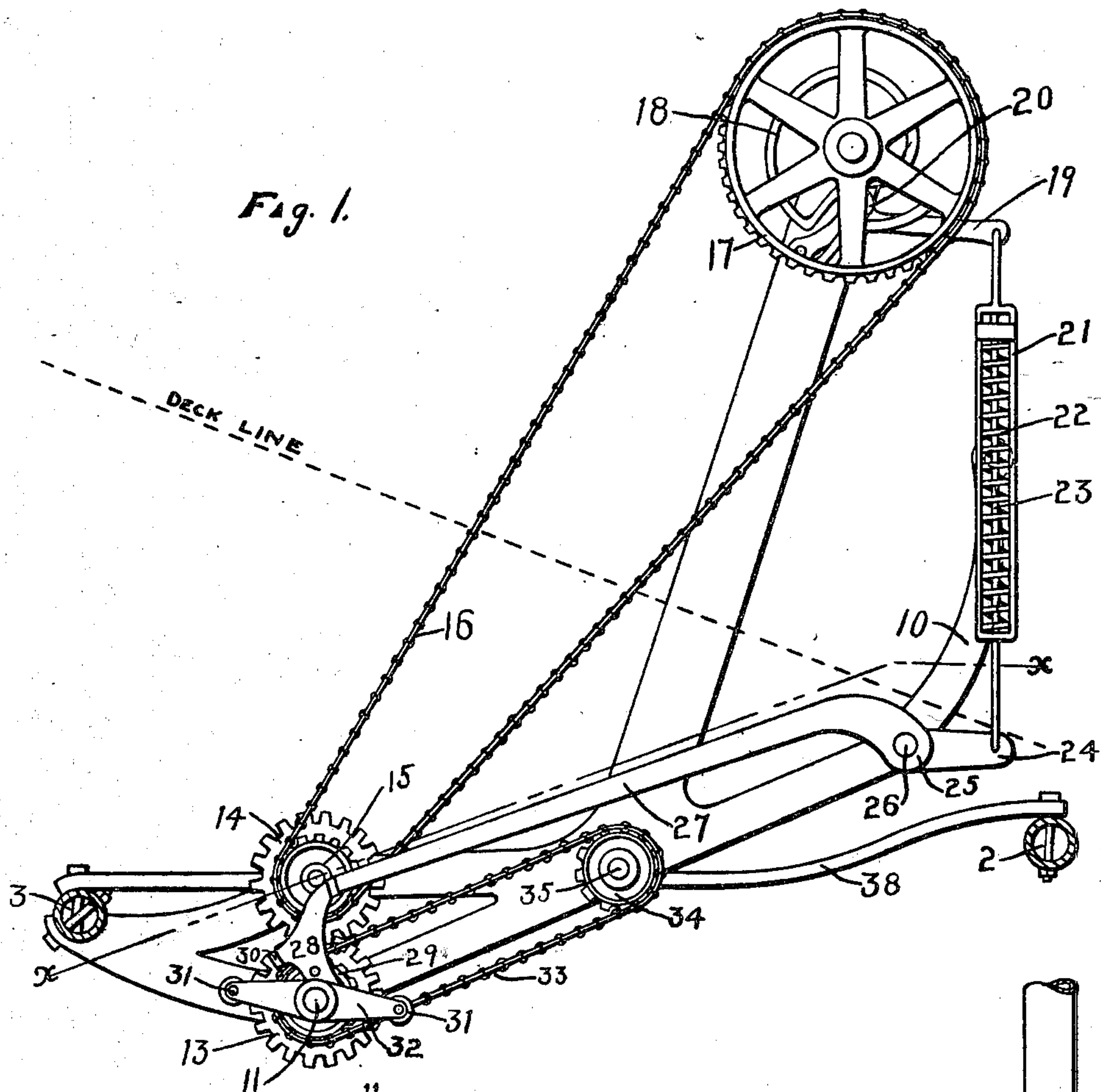
PATENTED JUNE 23, 1903.

T. E. LIND.  
NEEDLE BAR FOR SELF BINDERS.

APPLICATION FILED MAR. 10, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES.

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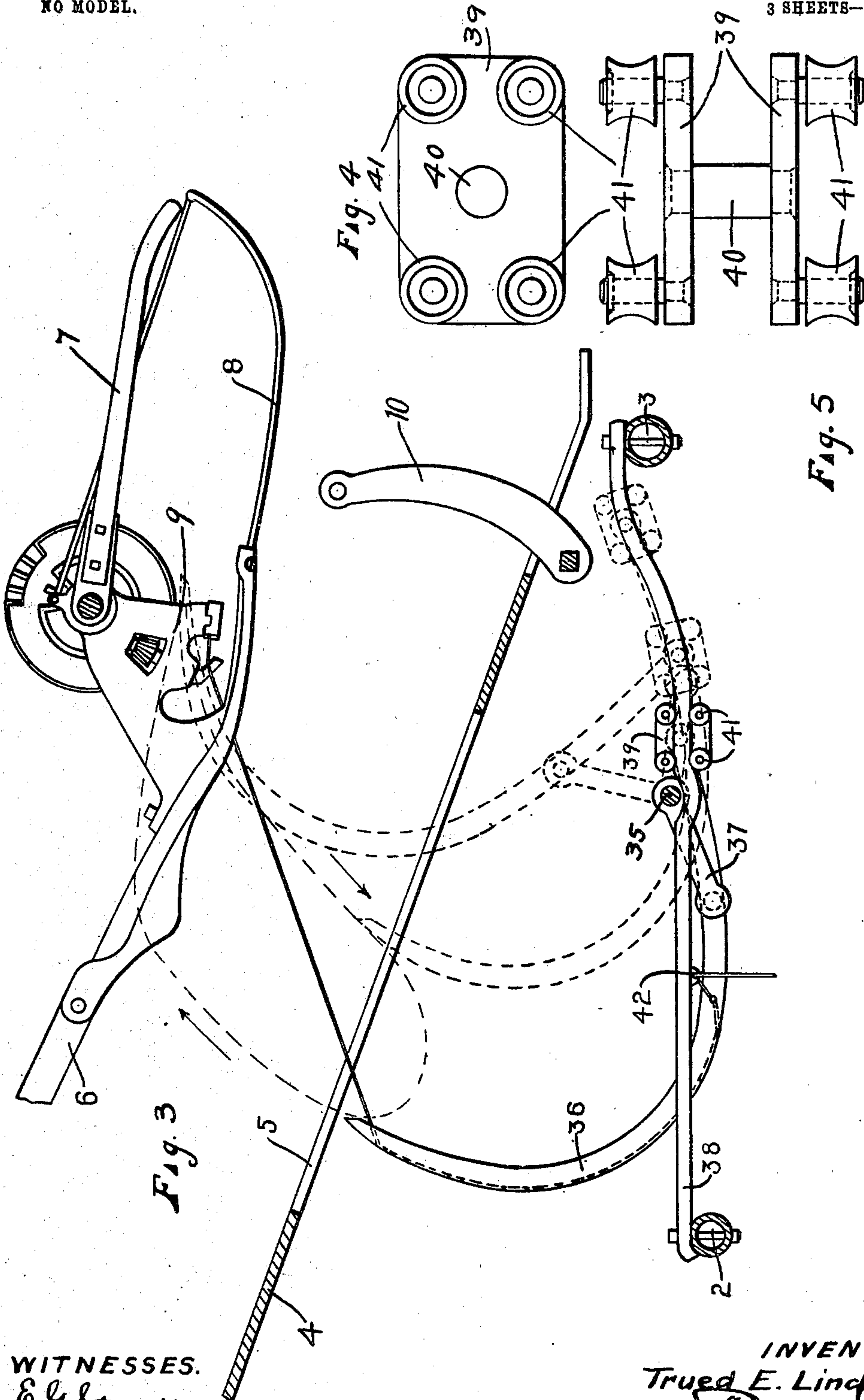
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3 SHEETS—SHEET 2.



WITNESSES.

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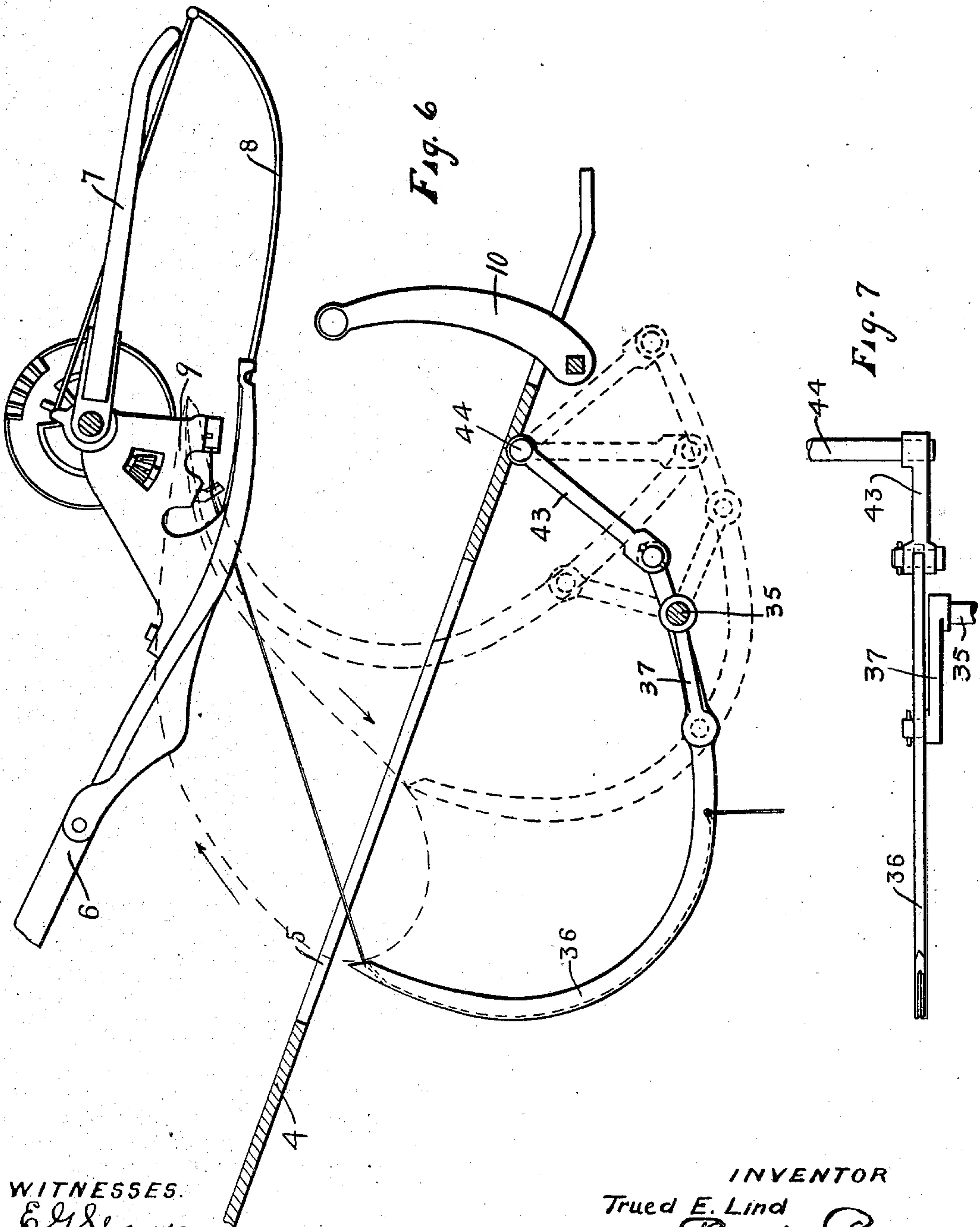
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NO MODEL.

3 SHEETS—SHEET 3.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

TRUED E. LIND, OF MONSON, MINNESOTA.

## NEEDLE-BAR FOR SELF-BINDERS.

SPECIFICATION forming part of Letters Patent No. 731,796, dated June 23, 1903.

Application filed March 10, 1902. Serial No. 97,486. (No model.)

*To all whom it may concern:*

Be it known that I, TRUED E. LIND, a citizen of the United States, residing at Monson, county of Traverse, State of Minnesota, have  
5 invented certain new and useful Improvements in Needle-Bars for Self-Binders, of which the following is a specification.

As ordinarily constructed the needle-bar of a self-binder has a wide swinging movement  
10 on its pivot and on its return stroke, after delivering the cord to the knotter, retards the approach of the grain to the packer-arms and frequently holds it back to such an extent as to cause the wedging of the grain between the  
15 deck and breast-plate, where it cannot be reached by the packer-arms, and necessitating the stopping of the machine until the grain so wedged has been removed. Obviously this clogging of the grain delays the operation of  
20 the machine, and even if the grain does not become clogged it is sufficiently retarded by the returning needle-bar to prevent continuous delivery to the packer-arms and the rapid formation of the bundles.

25 The object, therefore, of my invention is to provide a needle-bar which on its return stroke after a bundle has been bound will not in any way interfere with or retard the approaching grain.

30 The invention consists generally in various constructions and combinations, all as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part  
35 of this specification, Figure 1 is a side elevation of a portion of a grain-binder with my invention applied thereto. Fig. 2 is a plan section of the same on the line *x x*. Fig. 3 is a view showing the position of the means for  
40 supporting the needle-bar, the various positions assumed by the same being indicated by dotted lines. Figs. 4 and 5 are side and plan views, respectively, of the carriage on which the needle-bar is pivoted. Fig. 6 is a view  
45 corresponding to Fig. 3, showing a modified form of needle-bar. Fig. 7 is a plan view of a needle-bar and a portion of its connections.

50 In the drawings, 2 and 3 represent portions of the binder-frame, 4 the grain-deck, having a slot 5, 6 the breast-plate, 7 the bundle-discharge arms, 8 the bundle-guides, 9 the knot-

ter, and 10 the compressor, all of the ordinary construction.

11 is the packer-shaft, provided with cranks 12, whereon the packer-arms are mounted. 55 Upon the packer-shaft is a gear 13, connected through a gear 14, sprocket 15, and chain 16, and with a sprocket 17, provided with a cam 18. An arm 19 is pivoted upon the frame, carrying a roller 20, that is adapted to travel  
60 over said cam, and said arm is connected with a tube 21, wherein a spring 22 is arranged on a rod 23, that is connected at its lower end to an arm 24, provided upon a hub 25. This hub is mounted upon the compressor-shaft 26 and  
65 is provided with a long arm 27, that is adapted to be moved when the compressor has been operated by the pressure of the grain out of the path of a pawl 28, pivoted on a sprocket 29 and provided with a lug 30, which when  
70 said pawl is operated is moved into the path of rollers 31, provided on a cross-head 32, that is secured on the packer-shaft. The sprocket 29 is connected by a chain 33 with a similar sprocket 34 on a short shaft 35, that is pivotally connected with the needle-bar 36 by a  
75 crank 37.

The construction heretofore described, except that relating to the needle-bar and its connections, is employed in self-binders generally, and I make no claim to the same herein. 80

Between the parts of the frame 2 and 3 I provide parallel bars 38, and between said bars I provide plates 39, connected by a pin 40, whereon the needle-bar is pivoted. Upon  
85 the outside face of each plate 39 I provide two rows of hollow-faced wheels 41, that are adapted to bear upon the upper and under side of the rods 38 and holding the plates 39, which form a carriage when connected together, securely in position, while permitting  
90 them to travel freely back and forth upon the bars 38. One end of the cord is connected to the knotter, as shown in Fig. 3, and extends down to the needle and through a loop 42 on one of the bars 38. As soon as a bundle has  
95 been formed and the compressor actuated by the pressure of the grain thereon the needle-bar will be operated and the bundle bound in the usual way. On the return stroke of the bar instead of swinging back against the in-  
100 coming grain and retarding the approach of



the same toward the packer-arms its pivoted end will slide along the bars 38, as indicated by dotted lines in Fig. 3, and the free end of the needle, or that portion that is projected beyond the grain-deck, will be drawn directly back and will be below the floor of the deck by the time the grain for the succeeding bundle is engaged by the packer-arms, and this movement will be repeated with each bundle that is bound.

In Figs. 6 and 7 I have shown a modification of the needle-bar, which consists in pivoting a link 43 to the end of the bar, said link being mounted on a stud 44, that is pivoted on the under side of the grain-deck. The manner of operating this needle-bar is substantially the same as that heretofore described, the various positions assumed by the bar in its return movement being indicated by dotted lines.

The form of packer-arm shown in Fig. 3 is adapted to slide with its support to permit the withdrawal of the bar lengthwise after the bundle is bound, and the movement of the bar in Fig. 6 is similar, except that it is connected by a link with a fixed pivot and has a folding action while being withdrawn out of the path of the incoming grain. I prefer to use the construction shown in Fig. 3, but the other can be adapted to perform the same functions and in some instances may be a more desirable construction to adopt. In both cases the needle-bar will be withdrawn out of the path of the approaching grain, which will not be retarded in its delivery to the packer-arms, and there being no obstruction to the continuous movement of the grain on the deck there will be no occasion or probability of the grain becoming wedged or lodged between the deck and breast-plate to cause the actual stoppage of or a delay in the operation of the machine. This manner of operating the needle-bar is applicable to any style of self-binder and can be readily attached to those that are already in use.

I claim as my invention—

1. In a self-binder, the combination, with a sliding carriage, of a needle-bar pivoted thereon, a knotter, means for moving the point of said bar toward the knotter to bind the bundle and for sliding said carriage to withdraw said point in a substantially direct line from said knotter and nearer said carriage than the path of said point toward the

knotter, substantially as described and for the purpose specified.

2. The combination, with a grain-deck and the knotter arranged above the same, of a swinging needle-bar operating through said deck toward and from the knotter, means for advancing the point of said bar toward the knotter and withdrawing it in a substantially direct line between the path of the point of said bar toward the knotter and the pivot of said bar, and a sliding support for said bar.

3. In a self-binder, the combination, with a grain-deck and a knotter arranged above the same, of a sliding carriage provided beneath said deck, a needle-bar pivotally supported on said carriage, and a crank mechanism having a pivotal connection with said bar near said carriage.

4. In a self-binder, the combination, with the grain-deck and a knotter arranged above the same, of a carriage slidably supported beneath said deck, a needle-bar pivoted on said carriage and operating through said deck toward and from said knotter, and means connected with said bar for swinging its point toward said knotter to bind the bundle and withdrawing or retracting said point in a substantially direct line from said knotter, said direct line being inside the path of said point toward the knotter, whereby interference of the point and bar with the incoming grain of the succeeding bundle is avoided.

5. In a self-binder, the combination, of a knotter, with a needle-bar, a sliding support whereon said needle-bar is pivoted, bars upon which said sliding support is mounted, a shaft and a crank provided thereon and having a pivotal connection with said needle-bar near said sliding support.

6. The combination, of a grain-deck and a knotter, with a needle-bar operating through the floor of said deck toward and from said knotter, bars horizontally arranged beneath said deck, a sliding carriage mounted upon said bars and whereon said needle-bar is pivoted, a shaft, and a crank thereon pivotally connected with said needle-bar near said carriage.

In witness whereof I have hereunto set my hand this 5th day of March, 1902.

TRUED E. LIND.

In presence of—

EDWARD RUSTAD,  
W. W. DAVIS.