

No. 689,595.

Patented Dec. 24, 1901.

A. LINDGREN.
HARROW.

(Application filed July 11, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

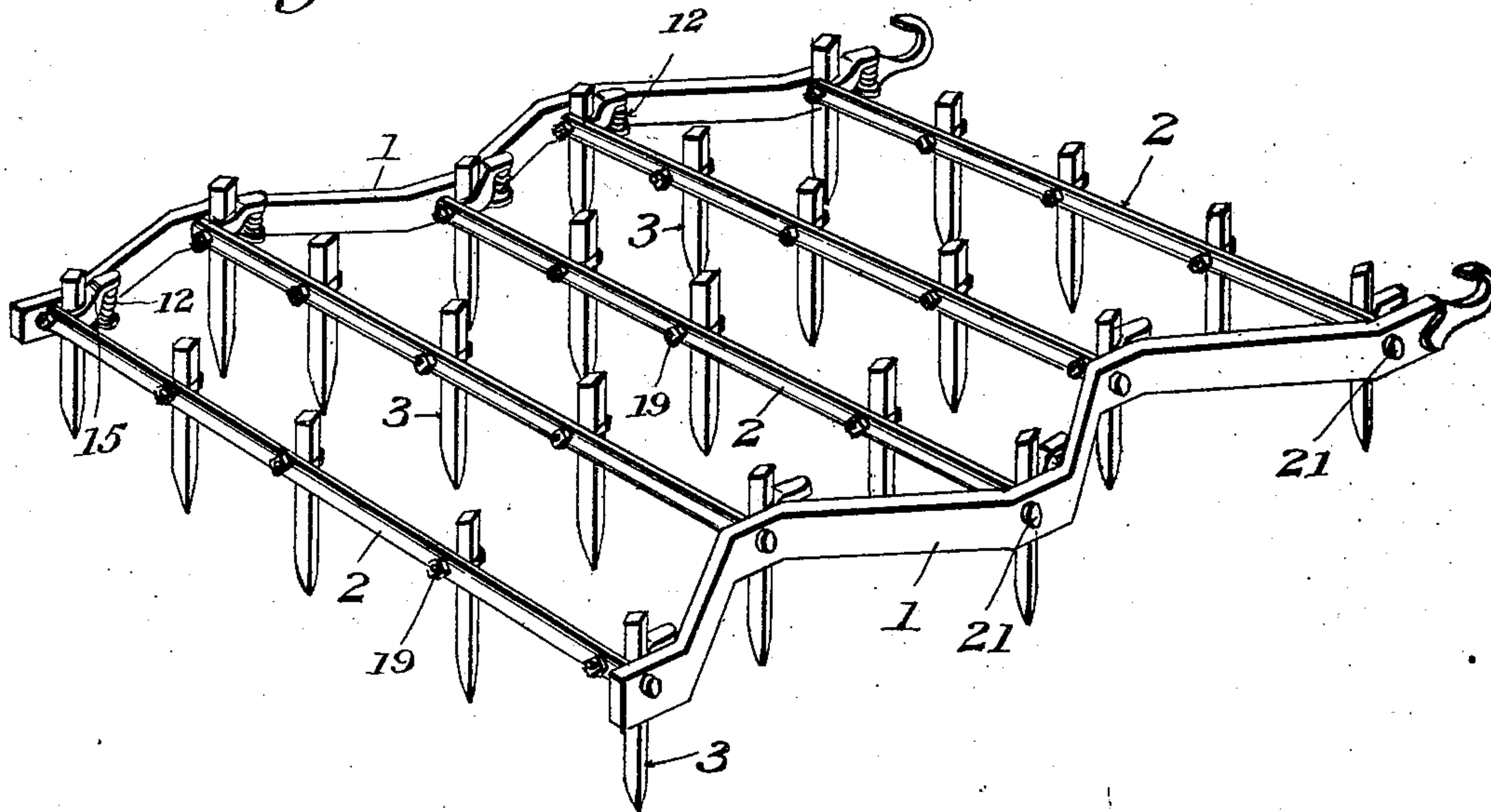
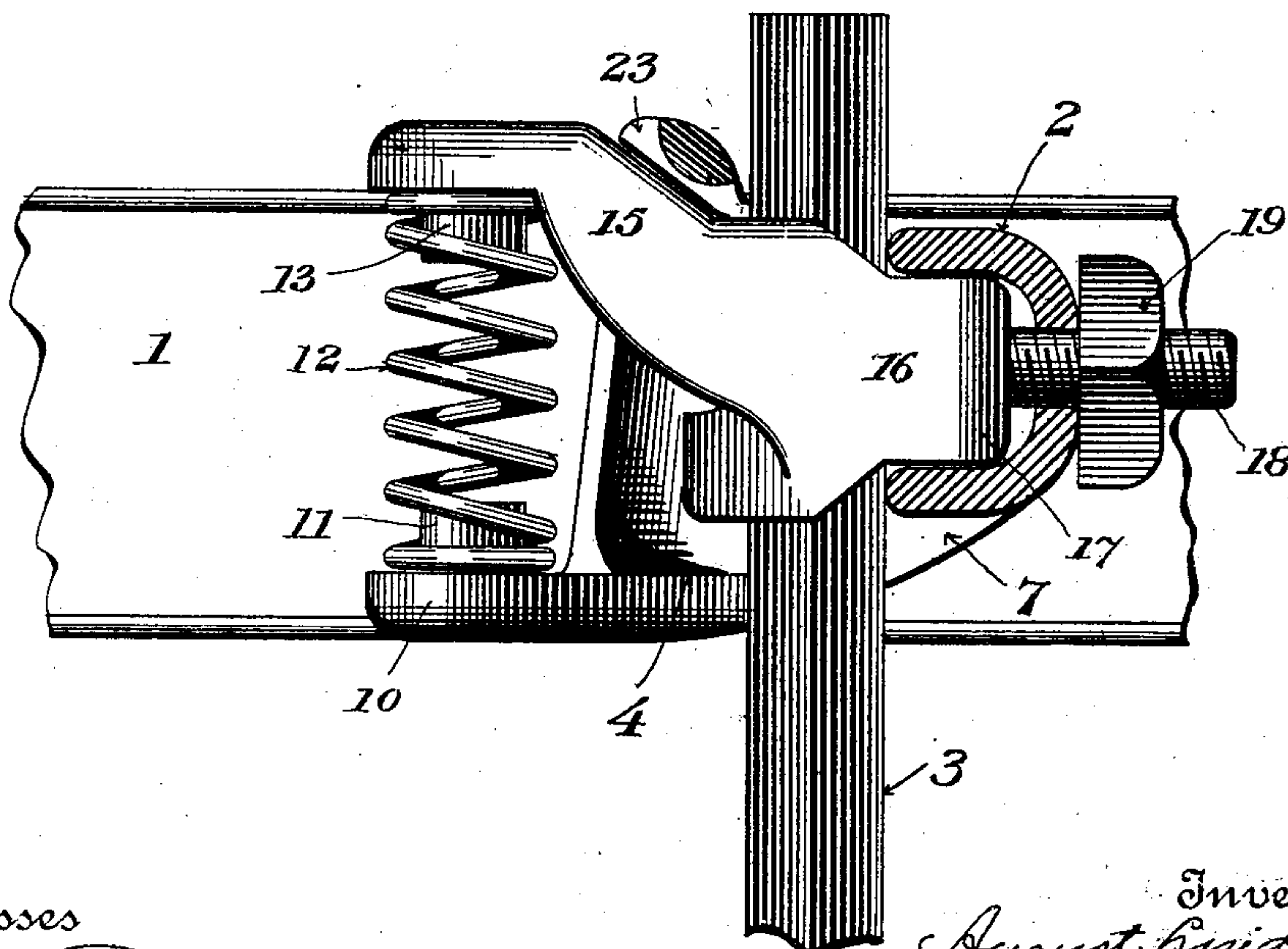


Fig. 2.



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Fig. 3.

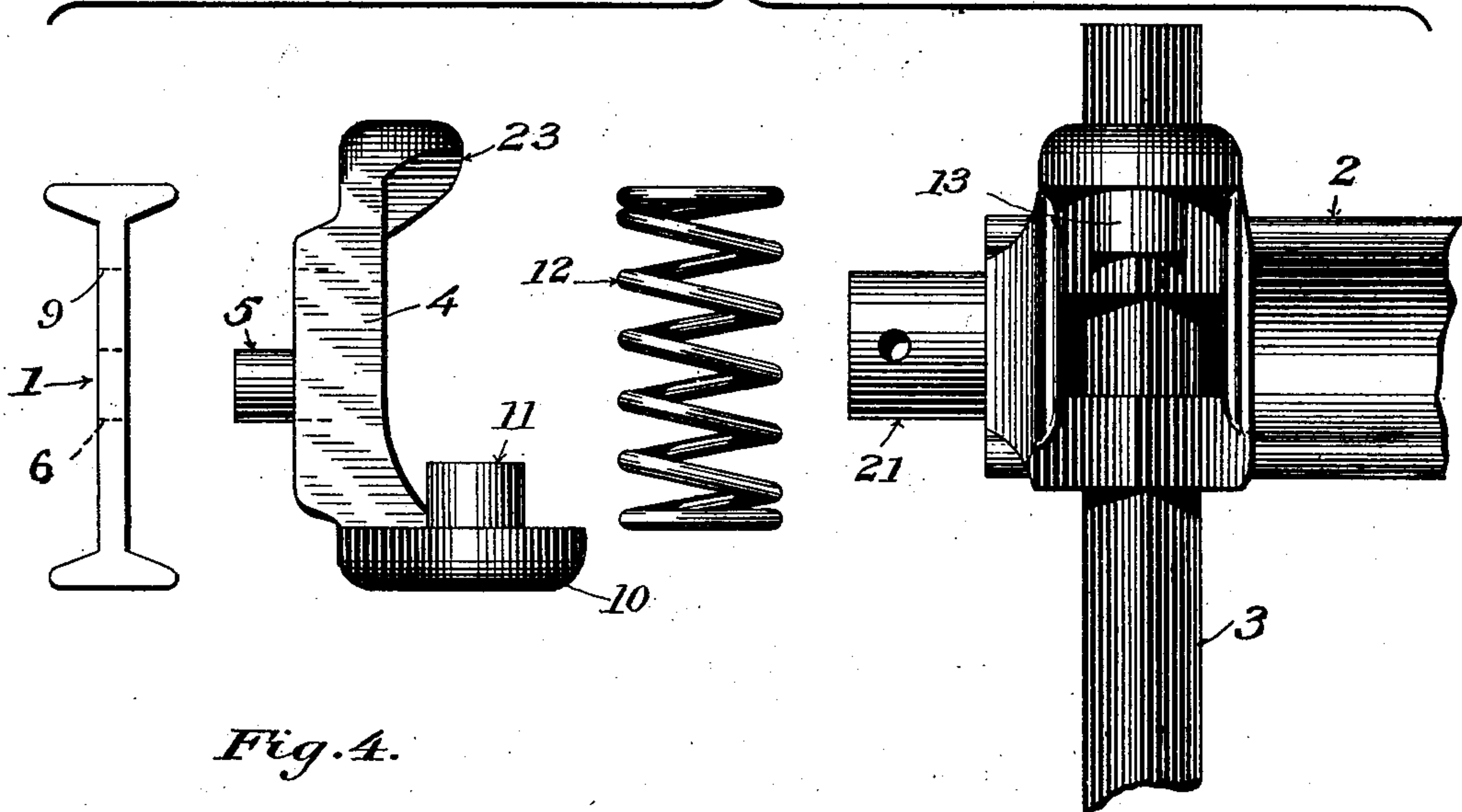


Fig. 4.

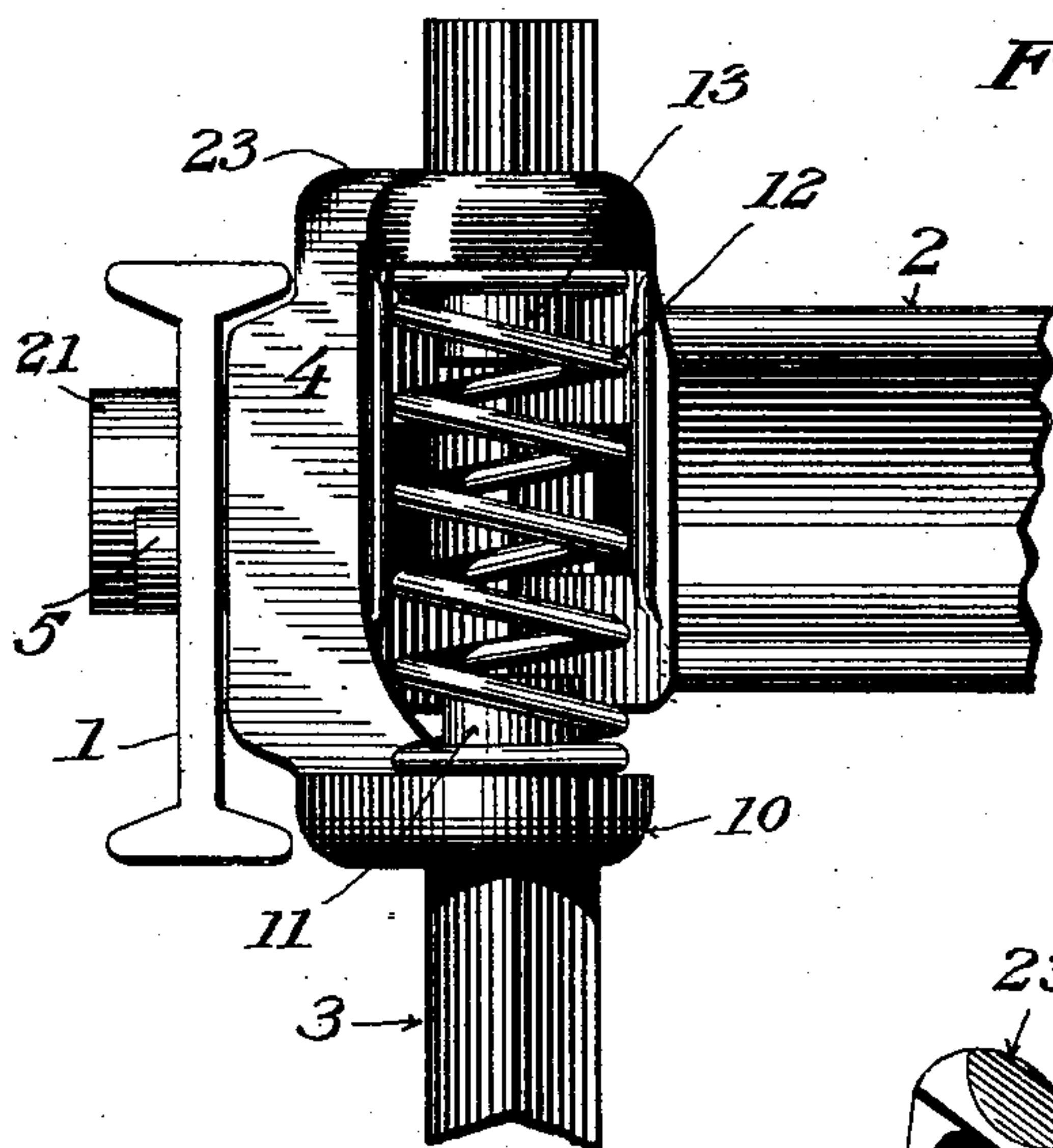


Fig. 5.

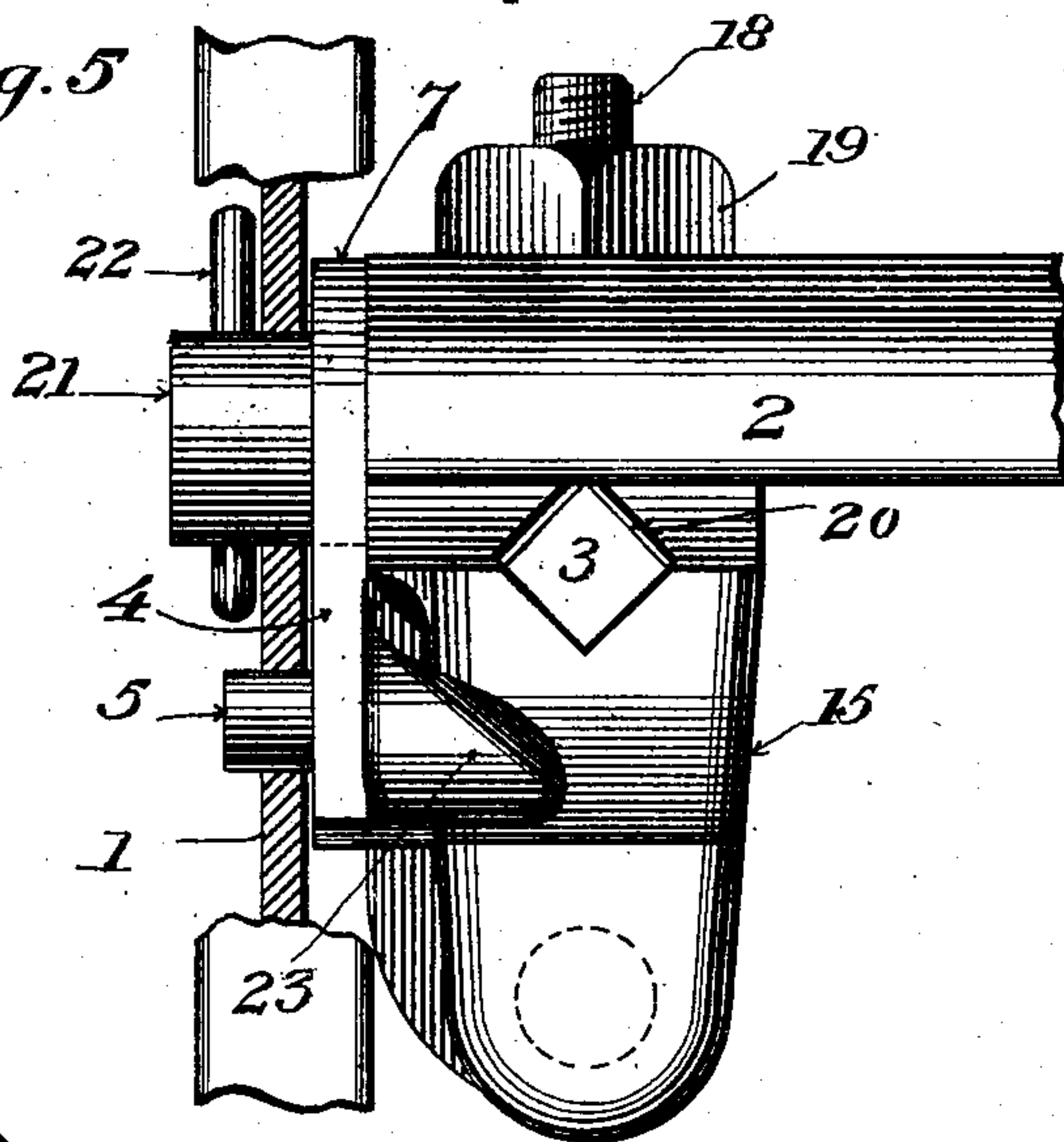
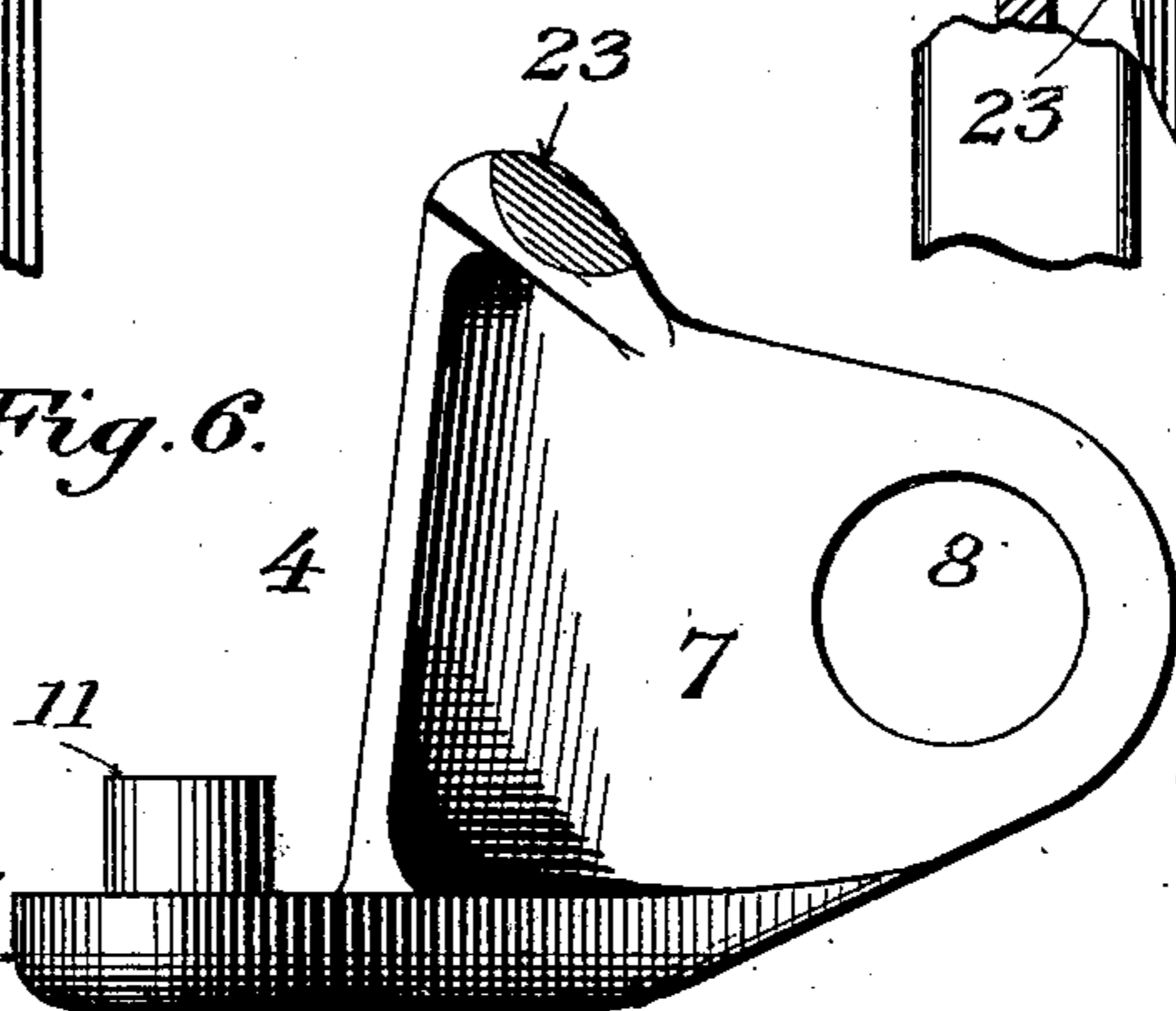


Fig. 6.



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UNITED STATES PATENT OFFICE.

AUGUST LINDGREN, OF MOLINE, ILLINOIS, ASSIGNOR TO THE MOLINE
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HARROW.

SPECIFICATION forming part of Letters Patent No. 689,595, dated December 24, 1901.

Application filed July 11, 1901. Serial No. 67,892. (No model.)

To all whom it may concern:

Be it known that I, AUGUST LINDGREN, of Moline, county of Rock Island, and State of Illinois, have invented a new and useful Improvement in Harrows, of which the following is a specification.

My invention relates to that class of harrows which is provided with individually-yielding rocking tooth-bars.

The aim of the invention is to simplify the construction of such harrows, at the same time rendering them more efficient in operation.


To this end the invention comprises the combination, with the harrow-frame, of a pivoted rocking bar, a casting or its equivalent sustained by the bar, and a spring between the casting and frame for applying yielding pressure to the bar.

The invention further consists in the details of construction hereinafter described.

In the accompanying drawings, Figure 1 is a perspective view of a harrow embodying my invention. Fig. 2 is a side elevation, on an enlarged scale, of my improved device for controlling the rocking bar, the bar being shown in section. Fig. 3 is a view showing the various parts of the device detached and illustrating the order in which they are assembled. Fig. 4 is a face view of the device, the various parts being properly assembled. Fig. 5 is a top plan view of the same. Fig. 6 is a side elevation of the casting, which is attached to the main frame for supporting the spring.

Referring to the drawings, 1 indicates the frame of the machine comprising two parallel frame-bars provided at intervals with individually-yielding spring-controlled rocking bars 2, which are connected with the frame-bars, as hereinafter described, and provided with harrow-teeth 3. Each of the rocking bars 2 is provided at each end with a device for attaching it to the frame-bars of the machine and for placing it under spring tension, and inasmuch as all of these devices are identical in construction and operation I will describe but one in detail. In each of these devices, 4 indicates a casting which is attached to the frame-bar by a lug 5, which extends in a hole 6 in the frame-bar. This casting is provided with a longitudinally-ex-

tending vertical plate 7, fitting snugly against the side of the frame-bar and formed with an opening 8, which registers with a corresponding opening 9 in said bar. The casting is also formed with a horizontal projection 10, provided on its upper face with a vertical lug 11, encircled by the lower end of a spiral spring 12, whose upper end encircles a lug 13, depending from a finger 15 on a casting 16.

The casting 16 is formed with a rearward projection 17, which fits snugly between the upper and lower horizontal edges of the rocking bar 2, which latter is preferably of  form in cross-section, and the casting is provided with an integral rearwardly-extending horizontal lug 18, which is extended through the tooth-bar and is threaded to receive a nut 19. The casting has formed through its center a vertical angular opening 20, in which is seated a harrow-tooth 3, so that the tightening of the nut 19 not only serves to secure the rocking bar 2 firmly to the casting 16, but also draws the edge of the tooth tightly against the horizontal edges of the rocking bar and holds the tooth rigidly in place. The casting 16 is further formed with a laterally-extending journal 21, which passes out through the openings 8 and 9 in the casting 4 and frame-bar 1, respectively, above described, and receives a cotter-pin 22, which serves to hold the same in place and secure the casting firmly to the frame-bar. It will be understood that as the rocking bar 2 is carried solely by the casting 16 the journal 21 constitutes the axis on which the bar rocks.

From the foregoing description it is obvious that the casting 16 performs the fourfold function of sustaining the rocking bar, of maintaining the end teeth on the bars firmly in place, of attaching the rocking bars securely to the main frame, of serving as an axis on which they rock, and of transmitting spring-pressure to the bars through the medium of its finger 15.

The casting 4 is provided with a laterally-projecting lug or finger 23, which overhangs the upper face of the finger 15 and serves as a stop device to prevent the teeth 3 from swinging beyond their proper position in the direction indicated by arrow in Fig. 2.

When in operation, if one of the teeth 3 en-

counters a stone or other obstruction it will in passing over such obstruction swing backward, and this swinging of the tooth will rock the bar 2 and with it the casting 16 on the
 5 axis 21, which motion will cause the arm 15 to compress spring 12 in a downward direction. After the obstruction has been passed the spring will again expand, raising arm 15 until it comes in contact with stop device 23,
 10 and thereby returning the bar and teeth to their normal position.

From the foregoing description it will be seen that I greatly simplify the construction of individually-yielding harrow-bars and at
 15 the same time contribute materially to their efficiency of operation. In attaining these ends I believe myself to be the first to provide a spring sustained by the main frame and acted on directly by a finger carried by the
 20 rocking bar. I also believe myself to be the first to provide a casting which supports the rocking bars which serves as a means for journaling them to the main frame and which acts in conjunction with a spring to apply
 25 pressure to the bars in one direction. I further believe myself the first to provide a clip which acts to hold a tooth and also serves to journal the rocking bar to the frame of the machine. Therefore it is to be understood
 30 that I do not limit or confine myself to the precise construction herein described, as any change therefrom which might suggest itself to the skilled mechanic could not be construed as a departure from the spirit or scope of my
 35 invention.

The term "finger" employed herein is intended to cover any projection on the bar which will serve to engage the spring.

Having thus described my invention, what
 40 I claim is—

1. In a harrow, the combination with the frame, of a pivoted rocking bar, a casting sus-

tained by the bar and journaling it to the main frame and a spring between the casting and frame for applying a yielding pressure to
 45 the bar.

2. In a harrow, the combination with the frame, of a pivoted rocking bar, a casting sustained by the bar and journaling it to the frame, a spring sustained by the frame and
 50 means carried by the casting and acting on the spring to apply a yielding pressure to the bar.

3. In a harrow, the combination with the frame, of a plurality of pivoted rocking bars, a plurality of springs sustained by the frame,
 55 one adjacent to the pivotal axis of each rocking bar and a finger carried by each bar and acting on the adjacent spring to apply a yielding pressure to the bar.

4. In a harrow, the combination with the
 60 frame of a pivoted rocking bar, a casting adapted to clamp a tooth to said bar and a spring between the main frame and said casting for applying a yielding pressure to the bar.

5. In a harrow, the combination with the
 65 frame of a pivoted rocking bar, a casting sustained by the bar and journaling it to the frame, a tooth secured to the bar by said casting and a spring between the casting and frame.
 70

6. In a harrow, the combination with the frame of a pivoted rocking bar, a casting sustained by the bar and journaling it to the frame, a spring between the frame and casting and a stop device to limit the movement of the
 75 bar.

In testimony whereof I hereunto set my hand, this 15th day of May, 1901, in the presence of two attesting witnesses.

AUGUST LINDGREN.

Witnesses:

C. H. LIPPINCOTT,
 L. C. BLANDING.