

No. 628,646.

Patented July 11, 1899.

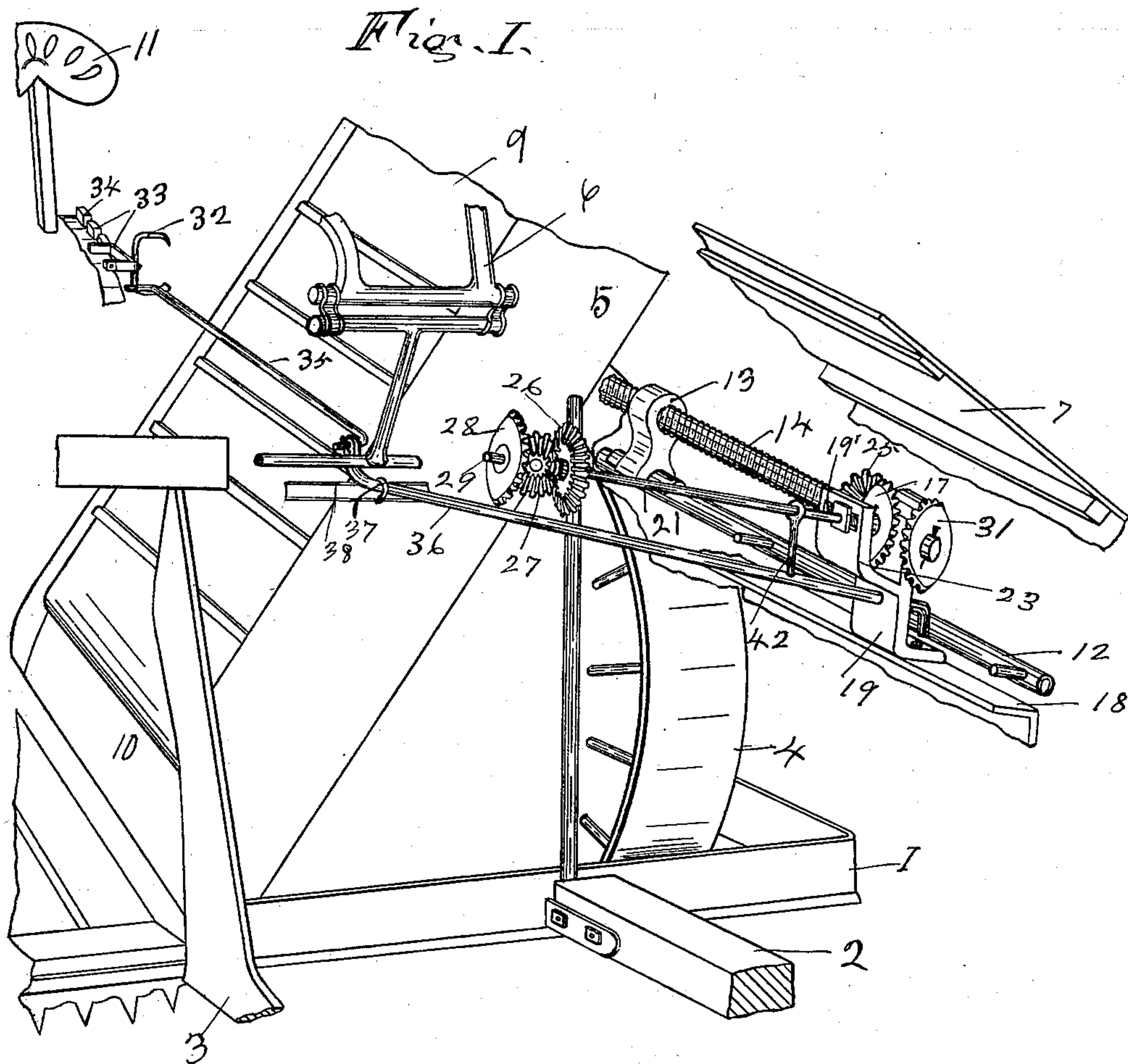
W. B. BROWN.

SHIFTING DEVICE FOR SELF BINDING MACHINES.

(Application filed Jan. 3, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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2 Sheets—Sheet 2.

Fig. 2.

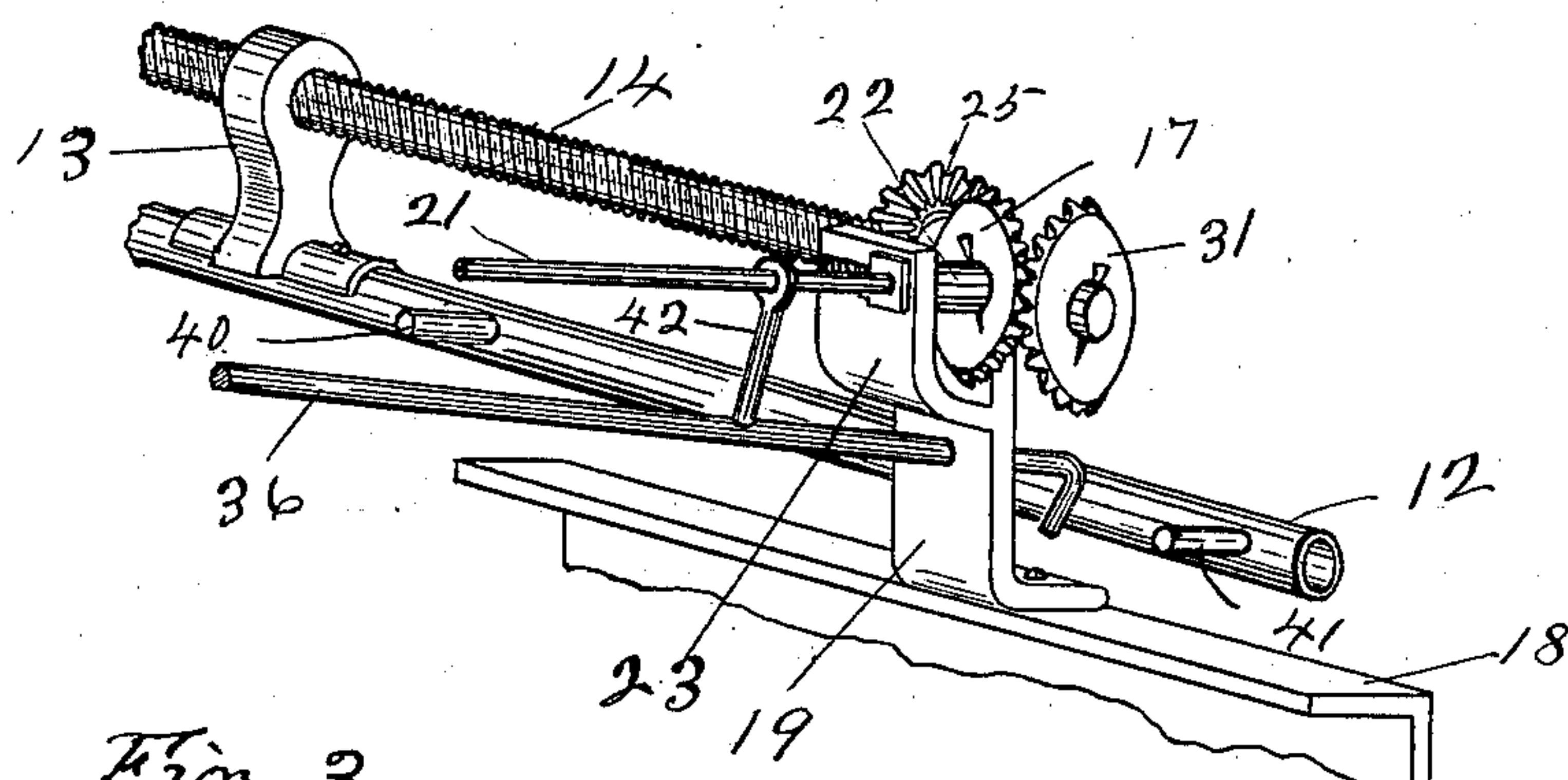


Fig. 3.

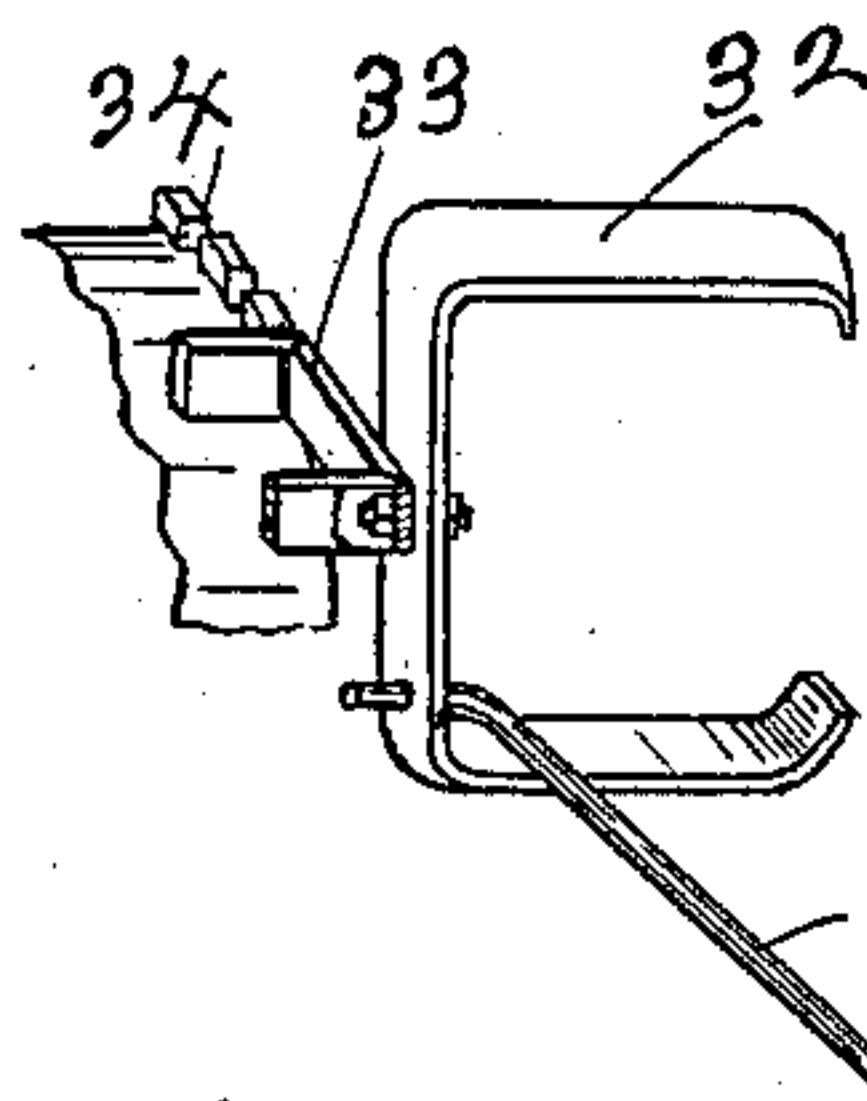
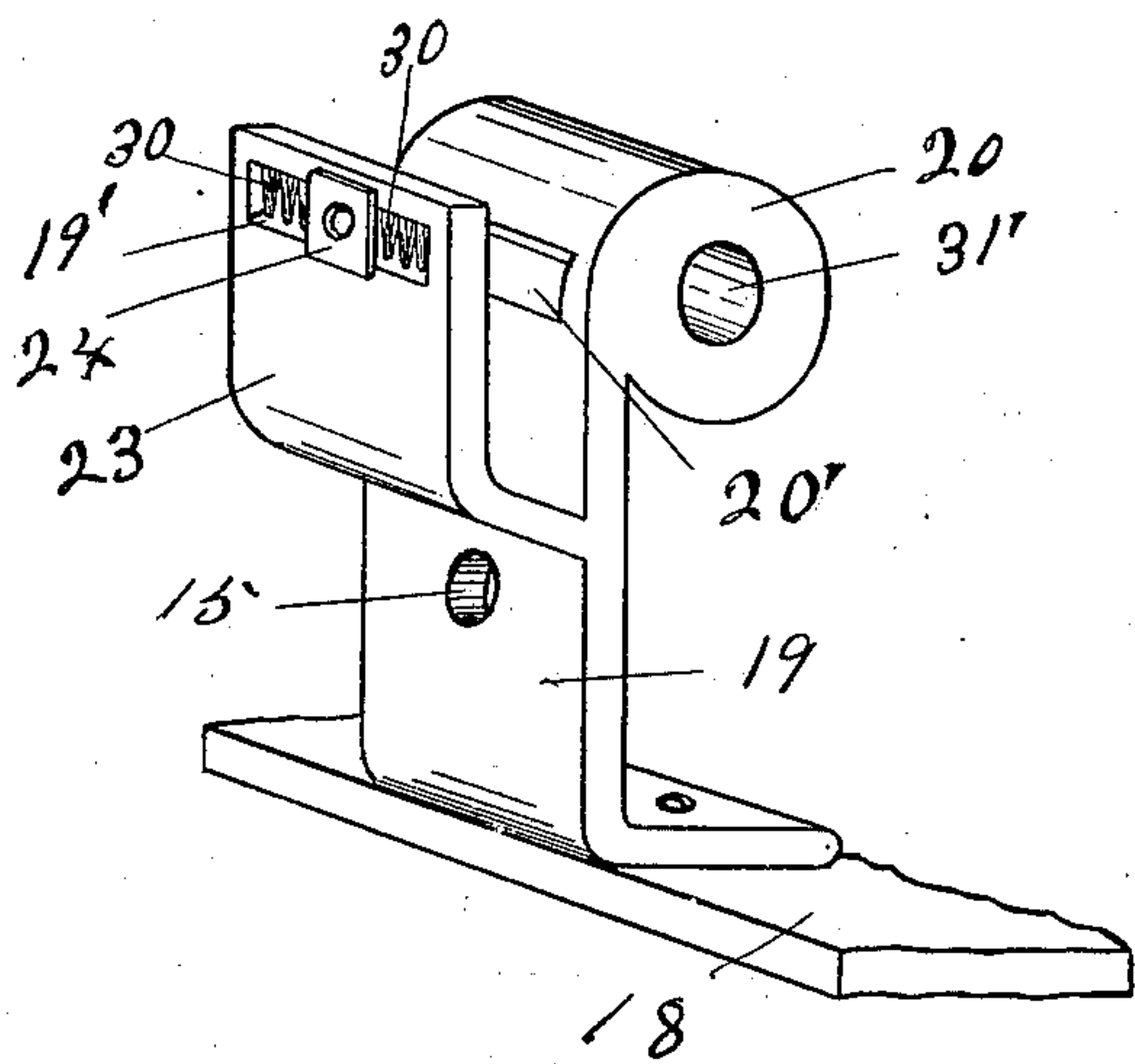


Fig. 4.

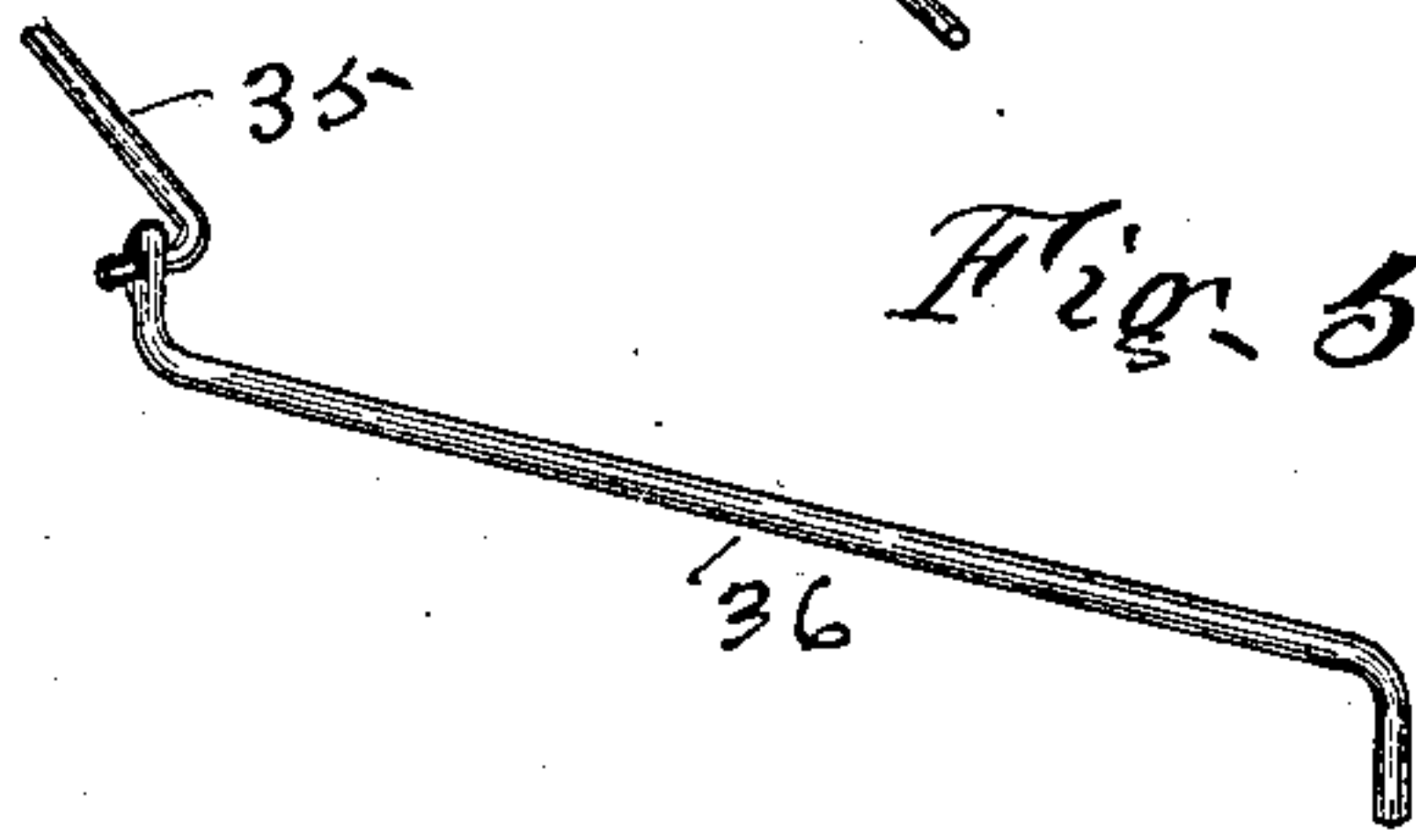


Fig. 5.

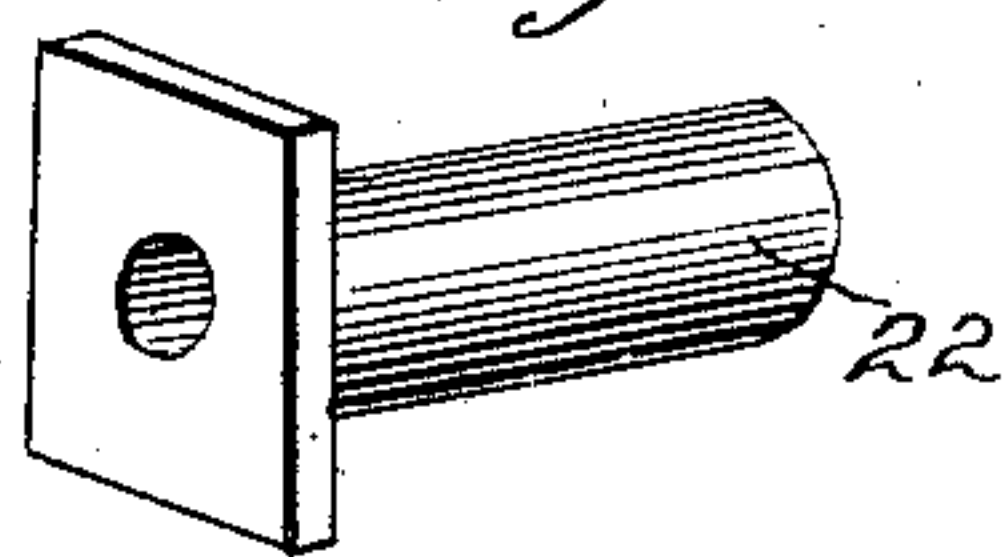


Fig. 6.

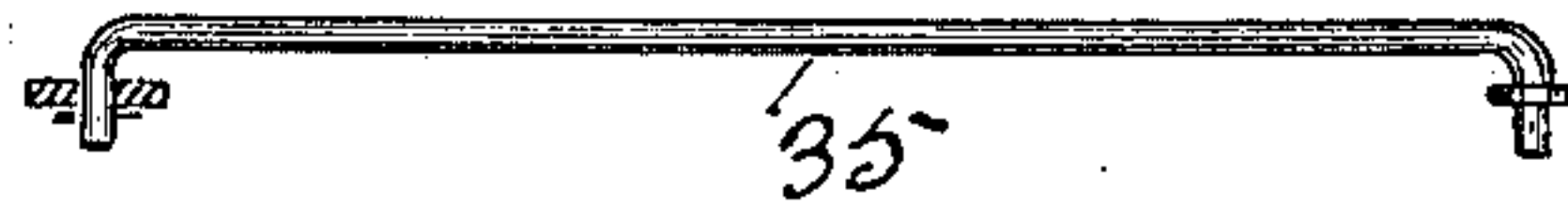


Fig. 7.

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UNITED STATES PATENT OFFICE.

WILLIS B. BROWN, OF AUBURN, INDIANA.

SHIFTING DEVICE FOR SELF-BINDING MACHINES.

SPECIFICATION forming part of Letters Patent No. 628,646, dated July 11, 1899.

Application filed January 3, 1899. Serial No. 700,938. (No model.)

To all whom it may concern:

Be it known that I, WILLIS B. BROWN, a citizen of the United States, residing at Auburn, in the county of De Kalb, in the State of Indiana, have invented certain new and useful Improvements in Shifting Devices for Self-Binding Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in shifting devices for self-binding machines.

The binder of a self-binder or harvesting machine is so arranged as to be laterally adjustable, as is well known, transversely of the machine to compensate for the varying length of the grain-straw in a well-understood manner, that the present method of shifting the said binder is by means of a hand-lever, and that as the operator has several other hand-levers requiring frequent manipulation it is desirable that he be relieved of this additional one.

The object of my present invention is therefore to provide a cheap, simple, and efficient means for readily and conveniently shifting or adjusting the binder in a self-binding harvester by means of foot-power to accommodate the varying lengths of the grain.

My improvement consists of a horizontally-arranged screw-shaft mounted in suitable bearings, one of which is screw-threaded in supporting-standards and one of which is rigidly fixed upon the binder-frame and adapted to move therewith, the said shaft being provided upon one end with a pair of rigid gear-wheels adapted to be actuated separately by a meshing gear-wheel on the power-transmitting shaft; a horizontal power-transmitting shaft provided upon one end with a gear-wheel in mesh with the reel-actuating gear and having upon its other end a spring-pressed bevel-pinion adapted to form an actuating engagement with either of said gear-wheels upon the said screw-shaft separately but not simultaneously, the said pinion being normally held out of engagement with both of said gear-wheels; a pedal-lever pivotally mounted in a fixed position or support within convenient

reach of the operator; a series of levers pivotally connecting the said pedal with the laterally-adjustable spring-pressed end of said power-shaft, and means for limiting the movement of the binder-frame in either direction.

In the accompanying drawings similar reference-numerals indicate like parts throughout the several views.

Figure 1 is a perspective view of my invention in position upon a common form of self-binding harvester, showing only so much of the harvesting-machine as is necessary to indicate the relative arrangement of my improvement thereof. Fig. 2 is a detail perspective of my improved means for shifting the binder-frame. Fig. 3 is an enlarged detail of the fixed standard which provides one bearing for the adjacent end of the said screw-shaft. Fig. 4 is a detail of the pivoted pedal-lever, showing the manner of securing it in position upon the notched sector-plate or lever-stand. Figs. 5 and 6 are details of the remaining levers for transmitting the actuating impulse from the pedal-lever. Fig. 7 is a perspective detail of the loose collar 22 on the power-transmitting shaft 21.

In Fig. 1 I have shown such parts of a common form of a self-binding machine as is necessary to illustrate the relative arrangement of the operative parts of my invention.

The harvester-frame 1, having a tongue 2, the divider 3, the main or bull wheel 4, the grain-elevator 5, provided with the conveyer-belts or traveling aprons 9 and 10, the reel-supporting frame 6, the binder-deck 7, and the operator's seat 11, all of which are shown only in part and are of the usual or other proper construction and arrangement.

Upon any proper portion of the binder-frame, preferably upon a longitudinal extension of the gas-pipe 12, is rigidly fixed by bolts or other proper manner an upright standard 13, provided with a lateral screw-threaded opening in its upper end adapted to receive the horizontal screw-threaded shaft 14 by a screw-threaded connection. Directly below the said gas-pipe 12 and a proper distance therefrom is arranged the inverted angle-iron 18, whose inner end is rigidly secured to any suitable support. To the upper face of this angle-iron is rigidly fixed the upright supporting-standard 19, whose upper end has

a cylindrical lug or head 20 longitudinally apertured, Fig. 3, to form a bearing for one extremity of the said screw-shaft 14. This standard 19 has upon one face thereof a lateral upright lug 23, transversely slotted near its upper end, as shown at 19'. The power-transmitting shaft 21 passes through the said slot 19' and has upon its adjacent end a bevel gear-wheel 17, adapted to form a meshing engagement with the gear-wheels on the said screw-shaft hereinafter described. Adjacent to the inner face of the said pinion upon the said shaft 21 is arranged a loose collar 22, having its rear end loosely arranged in the said slot 19' and provided upon its extremity with an integral or fixed plate 24, which is slightly wider than the said slot in said lug to prevent longitudinal displacement of said pinion by a forward thrust of said shaft.

The extended end of the shaft 21 rests in the transverse slot 20' of the standard 19, Fig. 3, and is afforded a limited lateral adjustment therein. In the said slot 19' upon both sides of the said collar 22 are arranged the coil-springs 30, having their adjacent ends bearing upon opposite sides of the said collar, whereby this end of the shaft 21 has a limited lateral adjustment against the tension of one or the other of said springs to bring the fixed pinion thereon into a meshing engagement with either one of the gear-wheels upon the adjacent end of the screw-shaft, and whereby the said pinion 17 is normally held out of such engagement. Upon the other end of the said shaft 21 is fixed the rigid bevel gear-wheel 26, adapted to form a meshing engagement with and to be actuated by the bevel gear-wheel 27, which also actuates the reel mechanism through the meshing gear-wheel 28 and its power-transmitting shaft 29. In the circular opening 31' in the head 20 of the said standard 19 is revolubly mounted one end of the screw-shaft 14, which is provided upon said end with two bevel gear-wheels 25 and 31 of equal size, having their faces adjacent to each other. These wheels are fixed upon said shaft 14 at the opposite end of the said head 20 and are adapted to be actuated by the said pinion 17 one at a time, as described, depending upon the direction it is desired to shift the binder. The said pinion 17 is thus normally held in close proximity to but out of contact with the said gear-wheels 25 and 31. The means by which the operator brings the said pinion into an actuating engagement with said wheels may be described as follows: A pedal-lever 32, Fig. 4, is pivotally mounted midway its ends upon a proper supporting-bracket 33, which in turn is rigidly fixed to and supported by the hand-lever stand 34. The thrust-lever rod 35, of proper dimensions, has its ends bent to form a hook upon each end thereof. Its rear end is then hooked in a proper opening in said pedal near one extremity thereof and its forward end is hooked in a suitable eye in the adjacent end of the operating-rod 36. The rear end of this rod

36 is loosely mounted in a suitable bracket or bearing 37 upon one of the braces 38 for the elevator 5 or other proper location and has its extremity bent to an inclined relation to the said rod. The other end of the said rod 36 is loosely mounted and supported in a suitable perforation 15 in the said standard 19 and has this extremity bent downward, as shown, and adapted to limit the movement of the binder in either direction by an engagement with the pins 40 and 41, which are rigidly fixed in the adjacent face of the gas-pipe 12. At a suitable point on the rod 36 is rigidly fixed an upright standard 42, suitably apertured to loosely receive the said rod 21, which is adapted for a rocking movement under the impulse of the said rod 35.

My improvement thus constructed is adapted by slight modifications in details to be applied to any self-binding machines.

The operation of my invention thus described is, briefly stated, as follows: The operator seated upon the seat 11, with his usual adjusting hand-levers at his right hand, is free to hold his lines in his left hand and operate my improvement at pleasure with his left foot, as follows: When it is desired to shift the binder in a well-understood manner for the proper binding of long grain, the operator presses forward and downward upon the upper end of the pedal 32, thereby giving the thrust-lever 35 a rearward pull, which thereby oscillates or rocks the lever 36 to the left or rearwardly against the tension of the corresponding spring 30, thus bringing the gear wheel or pinion 17 into an actuating engagement with the gear-wheel 25, thereby shifting the said binder in the desired direction by means of the said screw-shaft. Obviously when the operator removes the said pressure from the pedal 32 the said pinion 17 will automatically resume its normal position out of engagement with the said wheel 25, thereby returning the rocking rod 36 to its normal position. When it is desired to adjust the binder for short grain, the above operation is reversed. The operator pushes forward against the lower end of said pedal, which thrusts the rod 35 forward and rocks or oscillates the rod or lever 36 to the right, thereby shifting the said gear-wheel 17 into an actuating engagement with the bevel gear-wheel 31, whereby the binder will be shifted in the other desired direction. As a precaution against the effects of momentary inattention upon the part of the operator the said fixed pins 40 and 41 will respectively engage the adjacent bent end of the said shaft 36, thereby disengaging the wheel or pinion 17 from the corresponding wheel 25 or 31, as desired, to limit the lateral movement of said binder.

It is obvious that my improvement can be variously modified in its details of construction and arrangement without departing from the spirit and scope of my invention, which consists in providing a binder-shifting attachment adapted to be operated by foot-power.

Having thus described my invention, what I desire to secure by Letters Patent is—

1. A shifting attachment for self-binding machines consisting of a screw-shaft revolv-
 5 bly mounted upon the binder-frame, and provided with a pair of rigid bevel gear-wheels as described; a revoluble pinion or bevel-gear in close proximity to but normally out of mesh with said gears, adapted to form an ac-
 10 tuating engagement therewith singly as described for the purpose of shifting the binder; means for driving the said pinion; and means for bringing the said pinion into an actuating engagement with the said gear-wheels.

15 2. In a binder-shifting attachment a screw-shaft revolvably mounted upon the binder-frame carrying upon one extremity thereof a pair of rigid bevel gear-wheels; an actuating-pin-
 20 ion arranged in close proximity to said wheels and adapted to engage but one of said wheels at a time; means for normally supporting said pinion out of such engagement; a pedal-lever under the control of the opera-
 25 tor; and means for pivotally connecting the said pedal-lever with the said actuating-pin-
 30 ion whereby the said pinion is brought into such an actuating engagement at pleasure.

3. In a binder-shifting device a screw-shaft revolvably mounted upon the binder-frame
 30 and provided upon one end thereof with ac-

tuating-gears; means for laterally shifting said binder consisting of a revoluble shaft having upon its inner end a fixed bevel gear-wheel, and having upon its outer end a rigid pinion in coöperative relation with, but nor-
 35 mally out of contact with the said gears, and adapted for an actuating engagement with but one of said gears at a time; a pivoted pedal-lever; and means for pivotally connect-
 40 ing the said pedal-lever with the forward end of said shaft for the purpose specified.

4. In a binder-shifting attachment a screw-shaft revolvably mounted upon the binder-frame and provided with fixed actuating-
 45 gears; an actuating-gear arranged in coöperative relation with said screw-shaft gears, and adapted to engage but one portion of said gears at a time; means for driving the said gear; a pivoted pedal-lever; means for piv-
 50 otally connecting the said pedal-lever with the means for actuating said gear; and means for limiting the movement of the said binder in either direction.

Signed by me at Auburn, De Kalb county,
 State of Indiana, this 24th day of December, 55
 A. D. 1898.

WILLIS B. BROWN.

Witnesses:

RALPH B. BROWN,
 ALBERT ROBBINS.