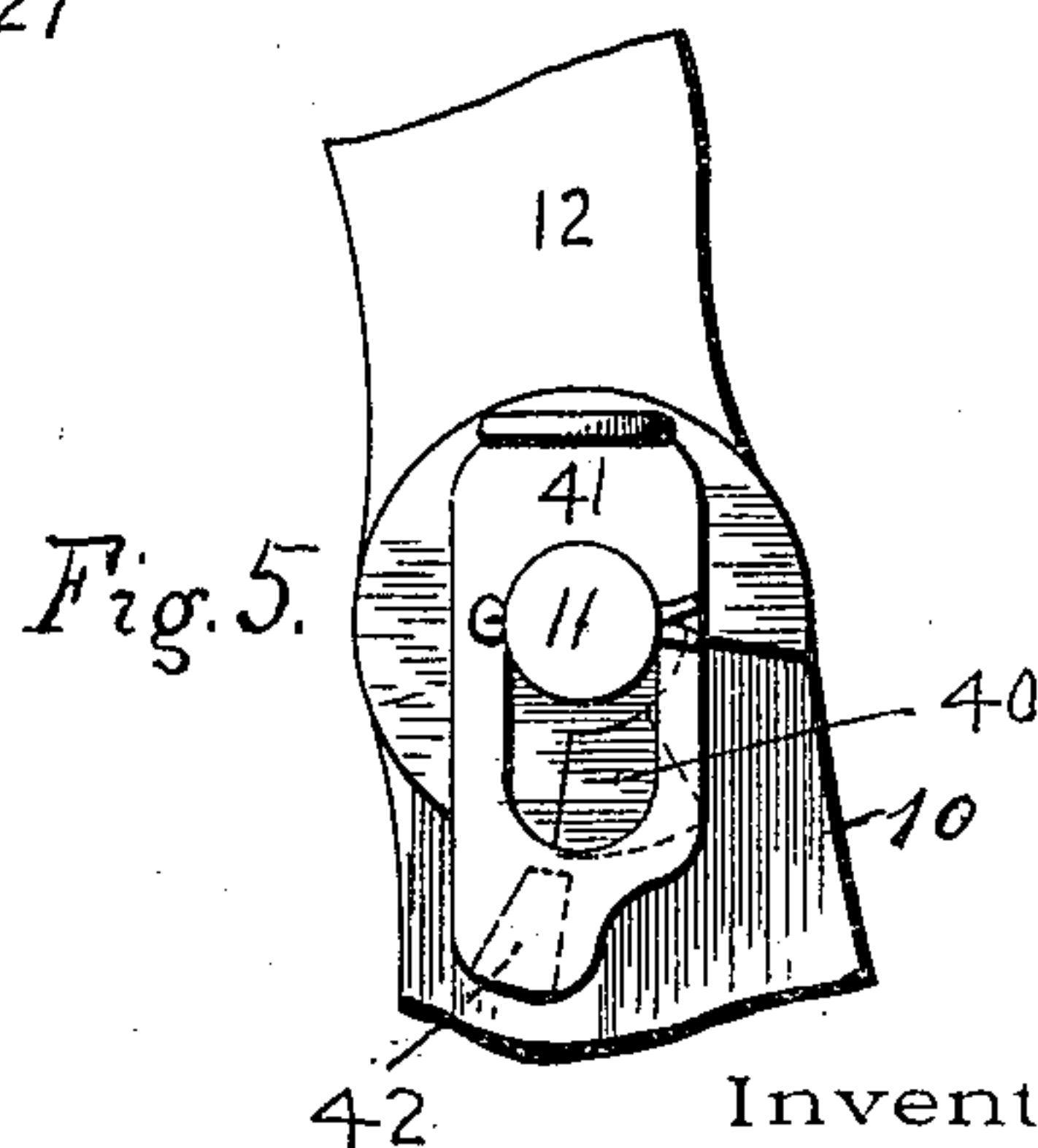
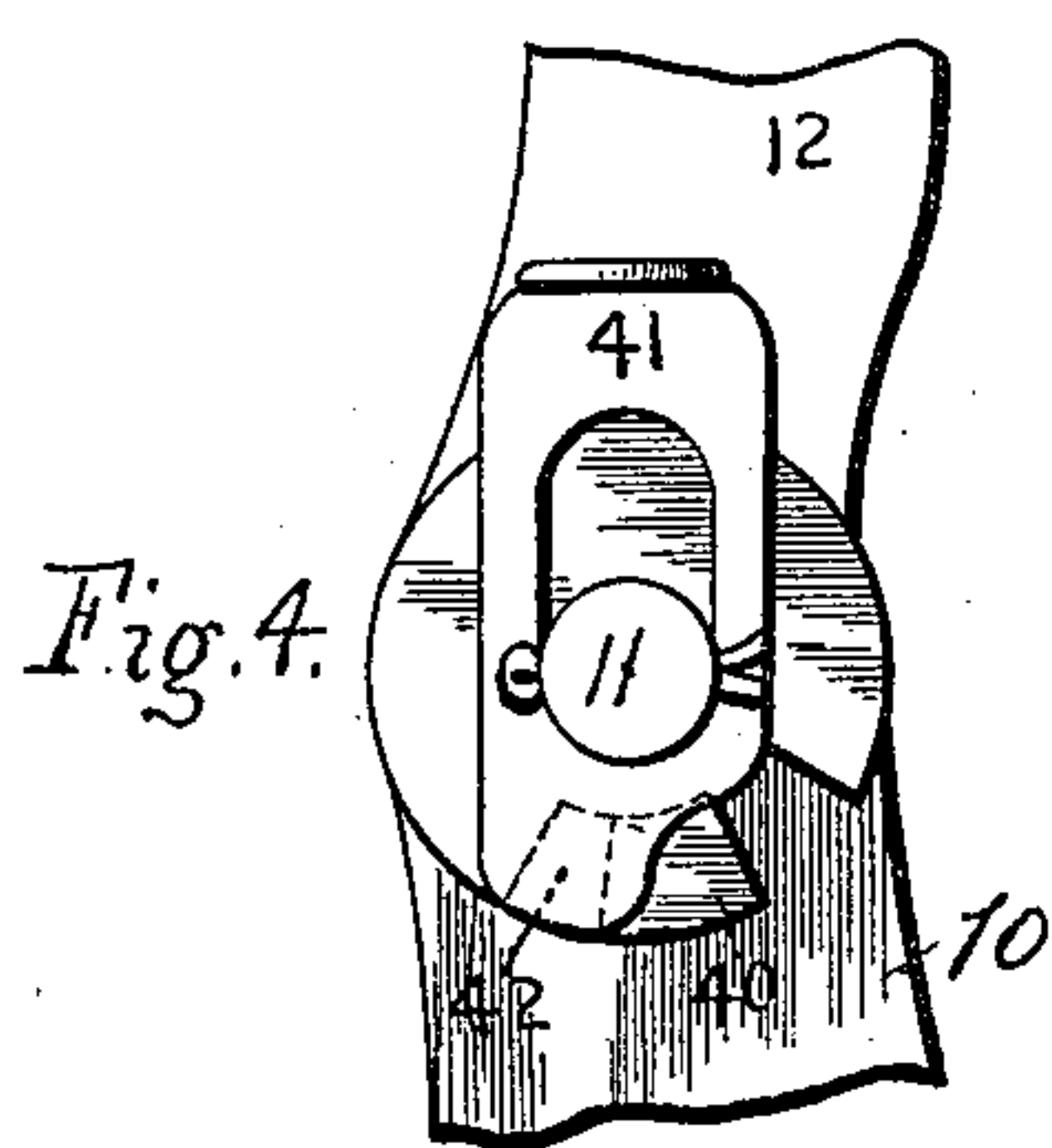
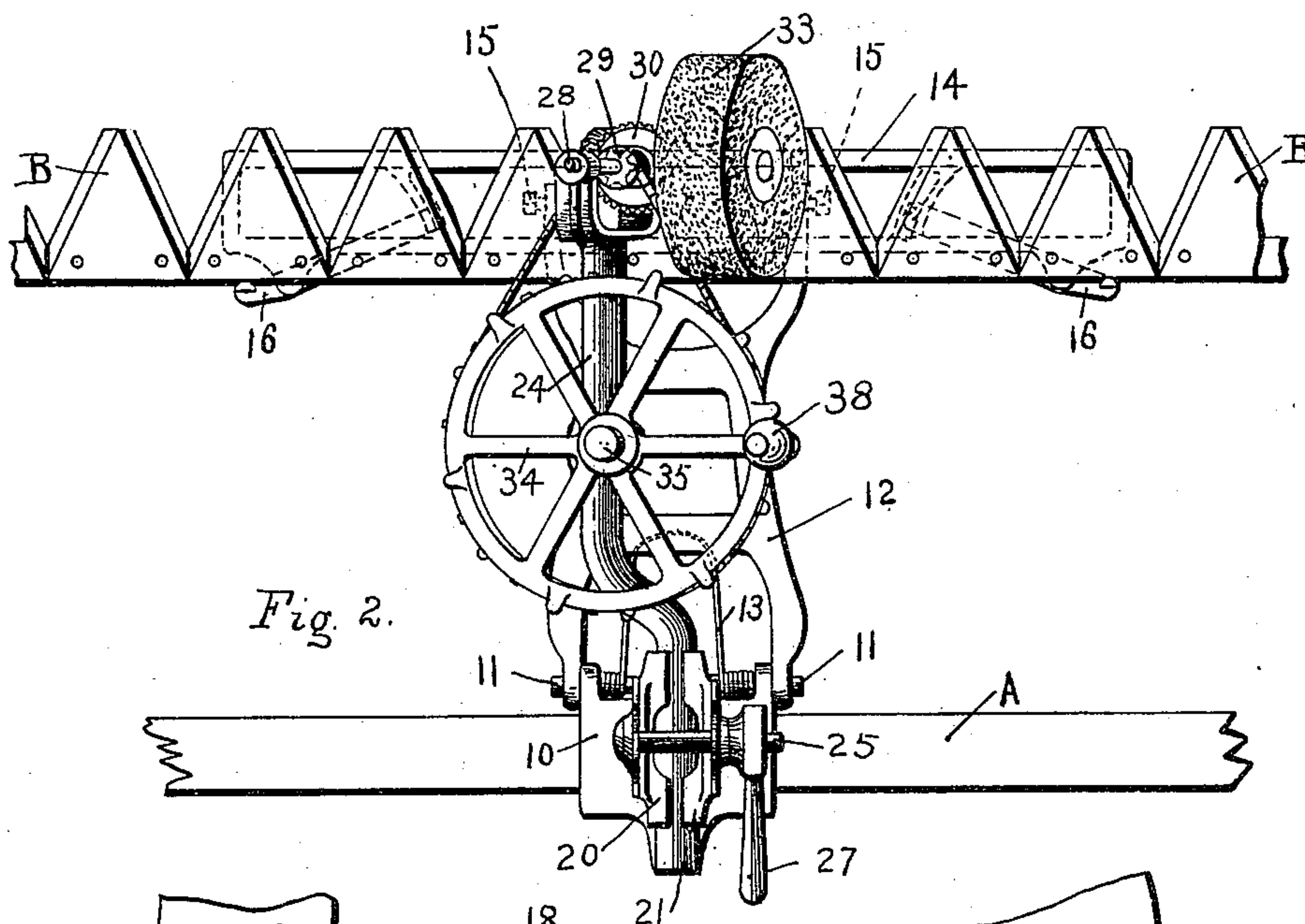
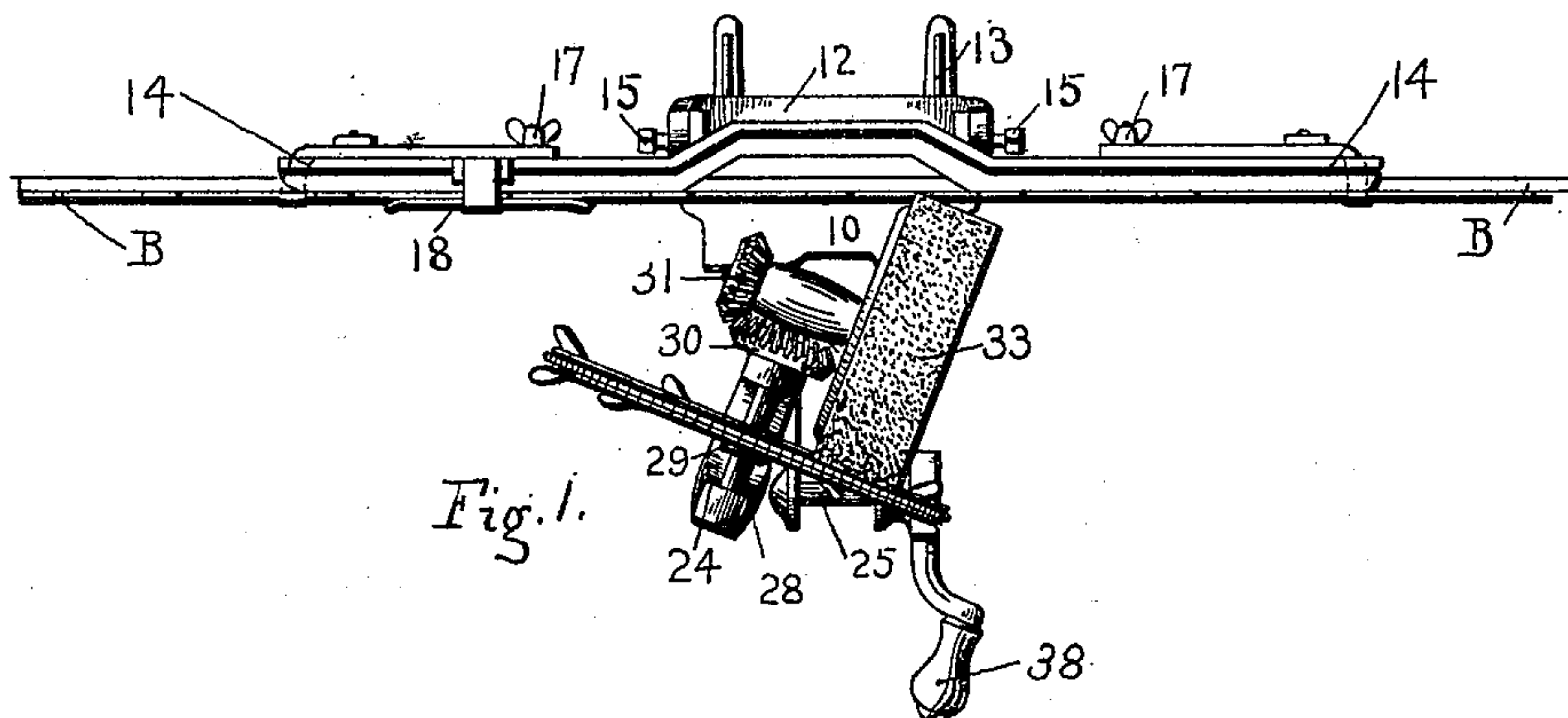


2 Sheets—Sheet 1.

No. 583,443.

Patented June 1, 1897.



Witnesses.

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Fig. 3.

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(No Model.)

2 Sheets—Sheet 2.

H. ALLEN.  
MOWING MACHINE SHARPENER.

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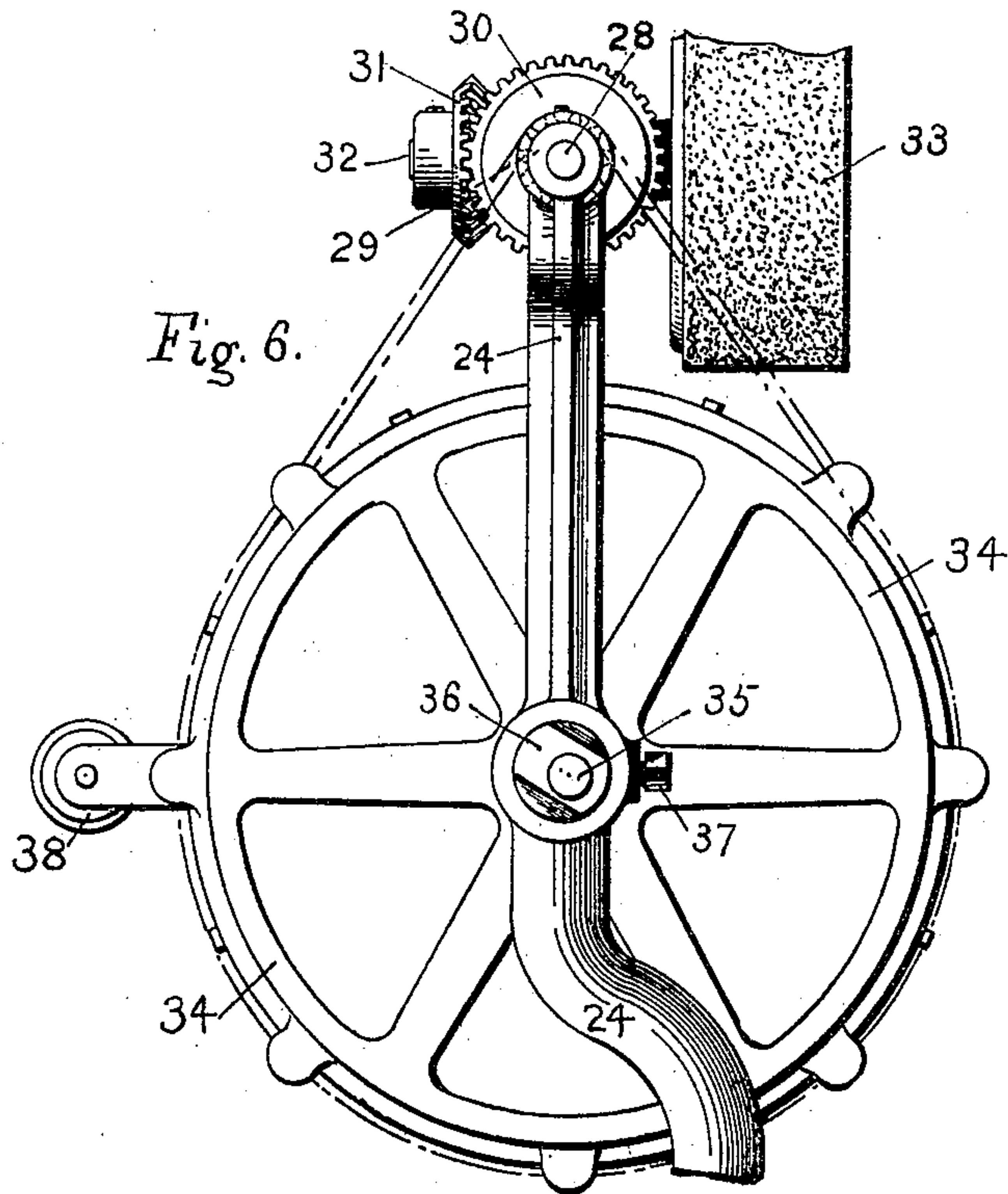


Fig. 6.

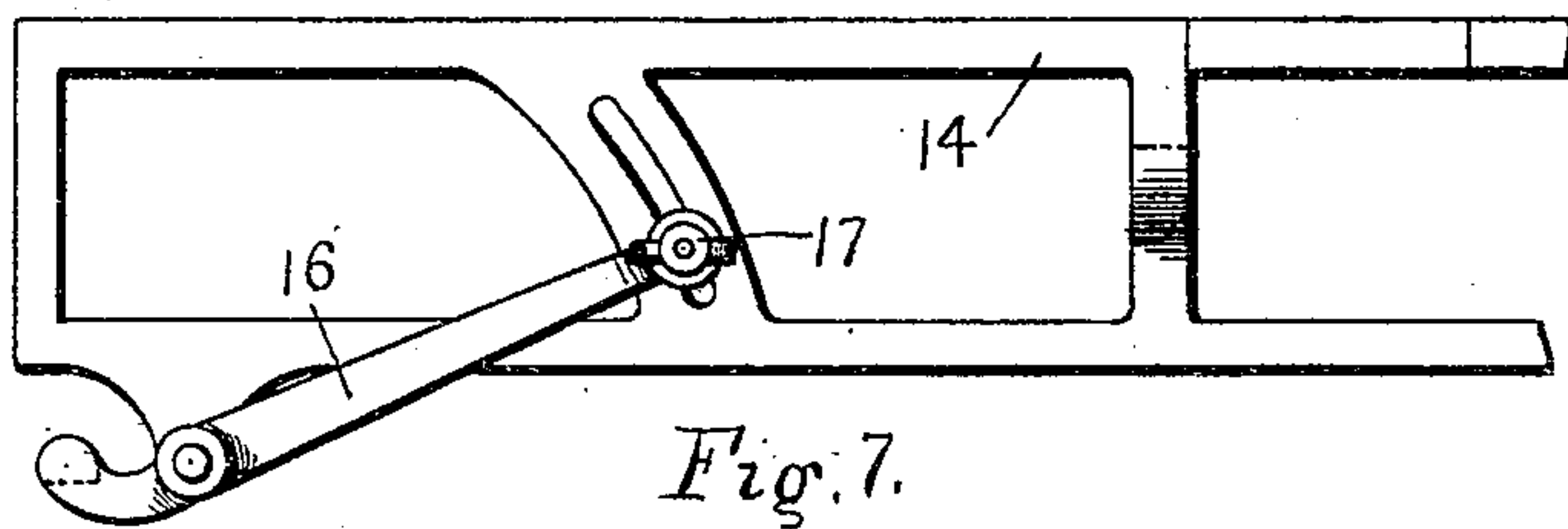


Fig. 7.

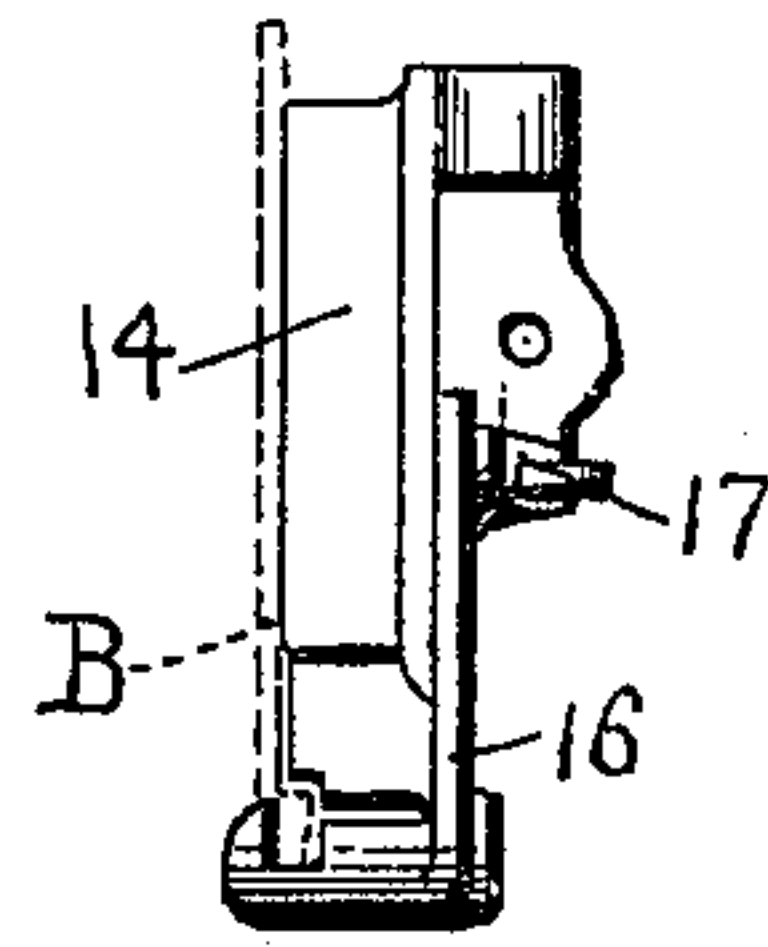


Fig. 8.

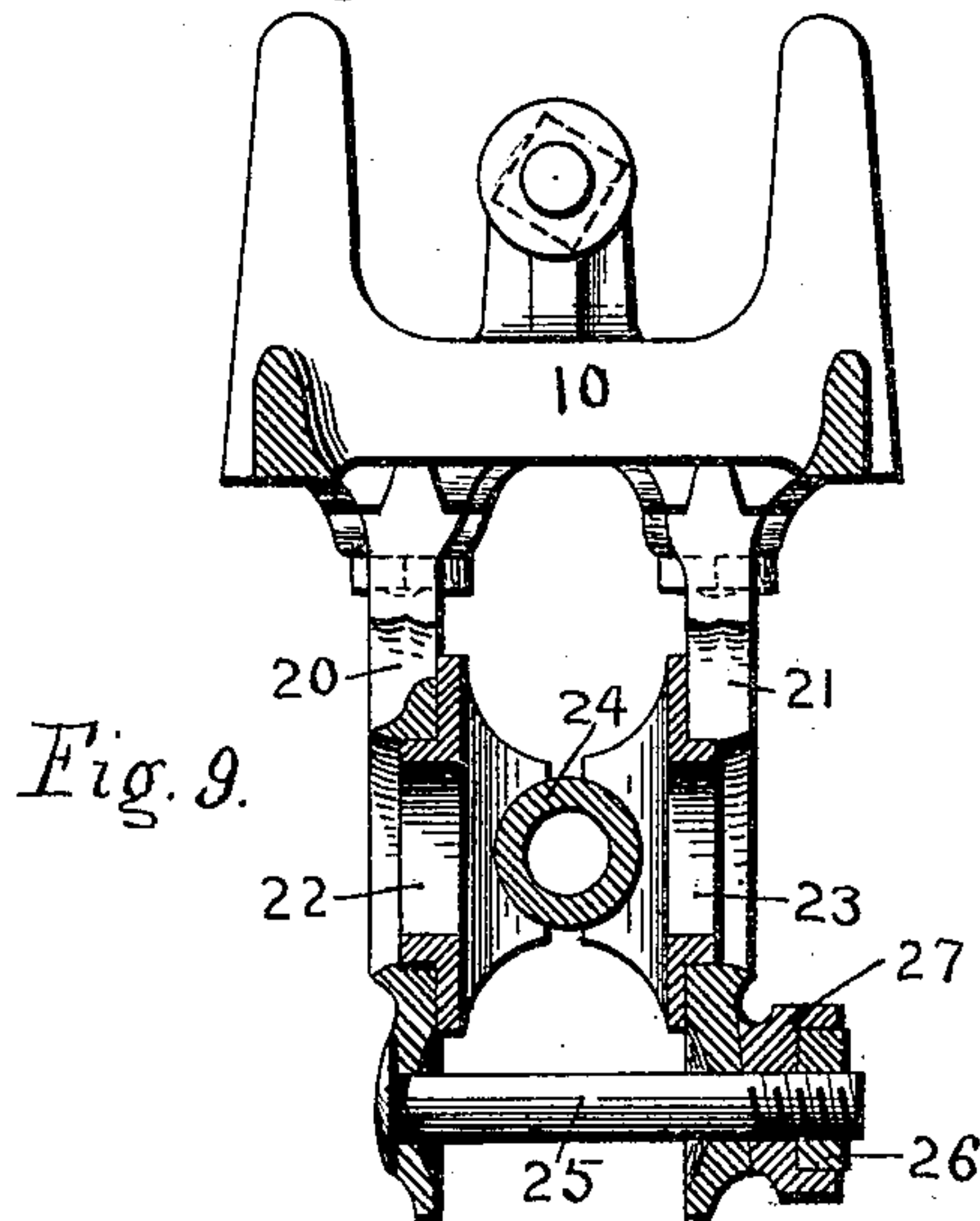


Fig. 9.

Witnesses.

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# UNITED STATES PATENT OFFICE.

HARDING ALLEN, OF BARRE, MASSACHUSETTS.

## MOWING-MACHINE SHARPENER.

SPECIFICATION forming part of Letters Patent No. 583,443, dated June 1, 1897.

Application filed August 20, 1896. Serial No. 603,304. (No model.)

*To all whom it may concern:*

Be it known that I, HARDING ALLEN, a citizen of the United States, residing at Barre, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Mowing-Machine Sharpeners, of which the following is a specification.

The object of my invention is to provide an inexpensive, simple, and efficient machine for grinding or sharpening the knives of mowing-machines.

To these ends my invention consists of the parts and combinations of parts, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying two sheets of drawings, Figure 1 is a plan view of a mowing-machine-knife sharpener constructed according to my invention. Fig. 2 is a side view of the same. Fig. 3 is a detail view illustrating the holder for the mowing-machine knife. Figs. 4 and 5 are detail views illustrating an adjustable stop which I preferably employ. Fig. 6 is a detail view of the spindle and devices carried thereby. Figs. 7 and 8 are detail views of the holder for the mowing-machine knife, and Fig. 9 is a sectional plan view illustrating the means which I preferably employ for clamping the spindle in its adjusted position.

A machine for grinding or sharpening the knives of mowing-machines constructed according to my invention comprises a base-piece, a spindle adjustably mounted in said base-piece, grinding mechanism carried by the spindle, and a spring-pressed holder for the mowing-machine knife, which normally holds the knife in position to engage with the grinding-wheel and which can be turned back to allow the work to be inspected or can be rocked backward or forward, so as to bring any part of the blade or section being sharpened into contact with the face of the grinding-wheel.

In connection with the spring-pressed holder for the mowing-machine knife I preferably provide a stop for holding the knife out of the way while the machine is being adjusted.

The grinding-wheel is preferably driven by means of a driving-chain and sprocket-gearing, the driving sprocket-wheel being pref-

erably mounted so that it can be adjusted to regulate the tension of the driving-chain.

The grinding-wheel and its driving mechanism are preferably mounted on a main spindle which can be adjusted or clamped into various positions.

Referring to the drawings and in detail, 10 designates a base piece or casting which may be bolted or fastened upon any support A, the fastening devices being preferably so arranged that my mowing-machine-knife sharpener may, if desired, be fastened upon the rim of a mowing-machine wheel, so that the devices can be employed in the field where the mowing-machine is used. Pivoted on a shaft 11 in the base-plate 10 is an upwardly-extending spring-pressed bracket 12. Pivotally mounted on center screws 15 in the bracket 12 is a frame or holder 14 for the mowing-machine knife B, which is to be ground.

The frame or holder 14 is provided with pivoted levers 16, which may be clamped in their adjusted position by means of wing-nuts 17 and are provided with ledges or extensions for supporting the knife B.

A spring-guide 18 extends over the front of the frame 14 for holding the knife in place.

For normally holding the bracket 12 in position to bring the knife into engagement with the grinding-wheel I preferably employ a double torsional spring 13, which is coiled upon the pivot-shaft 11, as shown in Fig. 2. The ends of the double torsional spring are supported by the rearwardly-projecting lugs of the base-plate A, and the loop or central part of the spring 13 engages the bracket 12. By employing a double torsional spring of this form I have found in practice that the same will exert a substantially uniform pressure upon the knife-holder whether the same is in its forward or in its retracted position.

By pivoting my holder for the mowing-machine knife in a spring-pressed bracket, as described, I have provided a construction in which the bracket can be turned back to the position illustrated by dotted lines in Fig. 3, and the holder can be tipped or tilted, allowing the work to be easily and quickly inspected.

Extending from the front of the base-plate 10 and bolted thereto, as shown in Fig. 9, are



brackets 20 and 21. Journaled in the brackets 20 and 21 are annular clamping-plates 22 and 23, which form a socket for receiving the spindle 24, which carries the grinding mechanism. Mounted in the outer ends of the brackets 20 and 21 is a clamping-bolt 25. Threaded onto the clamping-bolt 25 is a nut 26, which fits into a corresponding socket formed in the clamping-handle or wrench 27. The clamping-handle 27 is provided with an inner cam-face, which engages with and coöperates with a cam-face formed on the bracket 21. By means of this construction the spindle can be turned or moved longitudinally in its socket formed by the clamping-plates 22 and 23, and the clamping-plates can also swivel or turn in their bearings in the brackets 20 and 21, thus permitting the grinding-wheel to be turned with the spindle to give any desired bevel to the edge of the blade or section being sharpened. When the spindle has been properly adjusted, it may be secured in position by tightening the clamping-handle 27. By providing the clamping-handle 27 with a cam-face I have provided a construction for securing the parts in their adjusted position which will act quickly and efficiently, the tightening action of the cam being added to that of the screw-thread.

When it is desired to adjust the clamping mechanism to secure a different amount of pressure or to take up the wear of the parts, the spindle 24 and the clamping-plates 22 and 23 may be removed from between the brackets 20 and 21. The clamping-handle 27 may then be disengaged from the nut 26, which can be screwed up or turned to provide for the desired adjustment.

Journaled in a fork at the upper end of the spindle 24 is a shaft 28, having a sprocket-wheel 29 and a bevel-gear 30, secured thereon. Meshing with and driven from the bevel-gear 30 is a bevel-gear 31, secured upon the arbor 32, which carries the grinding-wheel 33. The driving-sprocket is preferably mounted so that it can be adjusted to regulate the tension of the driving-chain. As shown, the driving-sprocket 34 is journaled on a stud 35, which is mounted eccentrically in a bushing 36, journaled in the spindle 24. The bushing 36 may be turned to secure the desired tension of the driving-chain and may be fastened in its adjusted position by means of a set-screw 37. An operating-handle 38 is fastened upon or carried by the driving-sprocket 34.

In order to hold the mowing-machine knife out of the way while the parts of the grinding mechanism are being adjusted, I preferably provide a movable stop.

As shown in Figs. 4 and 5, the base-plate 10 is provided with a lug or projection 40, which fits into a cut-away portion in the bracket 12 and forms a stop for limiting the motion of said bracket. Mounted upon the pivot-shaft 11 is a slotted piece 41, having a projection or lug 42, as shown by dotted lines, which is adapted to fit between the lug 40 and

the bracket 12, as shown in Fig. 4, so as to hold said bracket back out of the way. When the piece 41 is pushed down, as illustrated in Fig. 5, its lug 42 will be moved out of the way, so as to allow the bracket 12 to swing forward.

The parts which constitute my machine for grinding the knives of mowing-machines have been so fully described that a further description of the operation of the device is thought not to be necessary.

When one blade of a mowing-machine knife B has been properly sharpened, the spring-pressed holder will be pushed back against the tension of its spring, as illustrated in Fig. 3, and the mowing-machine knife B may then be pushed or fed along to bring its next blade in position to be ground or sharpened.

I am aware that many changes may be made in mowing-machine grinders by those who are skilled in the art without departing from the scope of my invention as expressed in the claims. I do not wish, therefore, to be limited to the form which I have shown and described; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. In a machine of the class described, the combination of a base-piece, brackets extending from said base-piece, plates journaled in said brackets, a spindle journaled in a socket between said plates whereby the spindle may be rotated or turned, or the plates may be turned in the brackets to allow the spindle to be tipped, a grinding mechanism mounted on the spindle, and a clamping device for securing the spindle in its adjusted position, substantially as described.

2. In a machine of the class described, the combination of a base-piece, an adjustable grinding mechanism mounted thereon, a spring-pressed holder for a mowing-machine knife, and means for holding the spring-pressed holder out of the way while the parts are being adjusted, substantially as described.

3. In a machine of the class described, the combination of a base-piece, an adjustable grinding mechanism mounted thereon, a pivot-shaft, a spring-pressed bracket mounted on said pivot-shaft, a fixed stop for limiting the movement of said bracket, a frame or holder for a mowing-machine knife pivotally mounted in said bracket, and a slotted piece mounted on said pivot-shaft, and having a projection for holding the mowing-machine-knife holder out of the way while the parts are being adjusted, substantially as described.

4. The combination of a base-piece, plates journaled in brackets extending from said base-piece, a spindle journaled in a socket between said plates, a clamping-bolt, a nut threaded onto the clamping-bolt, a wrench or clamping-handle having a socket for adjustably receiving said nut, said clamping-handle having a cam-face coöperating with a cam-face on one of the brackets, substantially as and for the purpose set forth.



5. In a machine of the class described, the combination of a spindle, a grinding-arbor mounted in said spindle, a bushing journaled in the spindle, a driving-sprocket eccentric-  
5 ally mounted on said bushing, and means for holding the bushing in its adjusted position, substantially as described.

6. The combination of a base-piece, a spindle adjustably mounted in said base-piece, a  
10 grinding mechanism carried by said spindle, means for clamping said spindle in its adjusted position, a spring-pressed bracket pivoted on said base-piece, and a frame or holder for a mowing-machine knife pivotally mounted  
15 in said bracket, the parts being arranged so that the mowing-machine knife will be brought normally into engagement with the grinding mechanism, and so that the holder can be moved back and tilted for the inspection  
20 of work, substantially as described.

7. In a machine of the class described, the combination of a base-piece, plates journaled in brackets extending from said base-piece, a spindle journaled and longitudinally movable in a socket between said plates, a grinding  
25 mechanism carried by said spindle, a clamping-bolt, a nut threaded onto the clamping-bolt, a wrench or clamping-handle having a socket for adjustably receiving said nut, a spring-pressed bracket mounted on said base-  
30 piece, and a frame or holder for a mowing-machine knife pivotally mounted in said bracket, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing  
35 witnesses.

HARDING ALLEN.

Witnesses:

FRED E. WILLIAMS,  
GEO. C. ALLEN.