

No. 878,030.

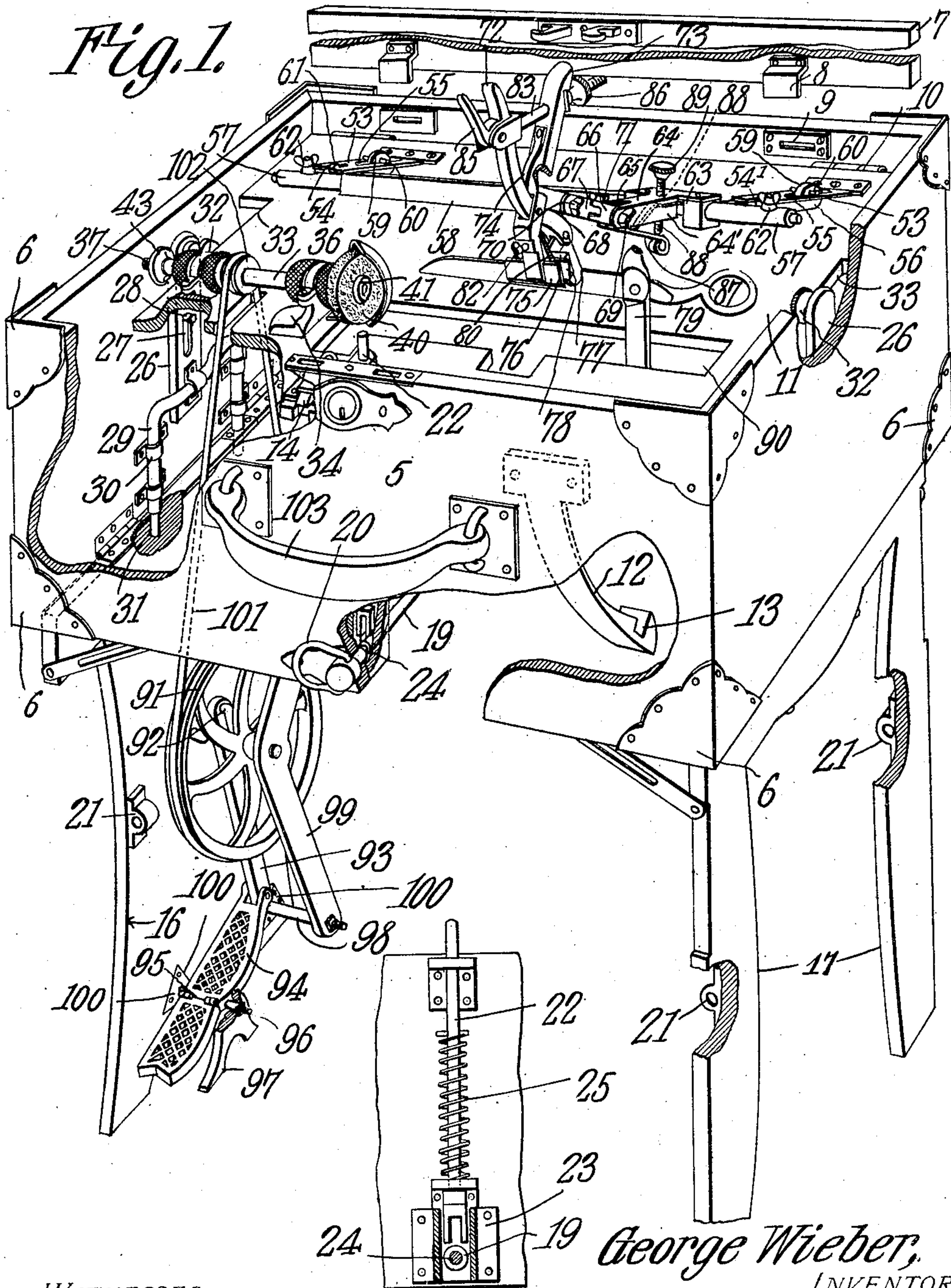
PATENTED FEB. 4, 1908.

G. WIEBER.

SHEAR GRINDING MACHINE.

APPLICATION FILED MAR. 21, 1907.

2 SHEETS—SHEET 1.



WITNESSES:

E. H. Hunt
L. J. Hunter

Fig. 5.

By

C. A. Snow & Co.

ATTORNEYS

George Wieber,
INVENTOR.

No. 878,030.

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2 SHEETS—SHEET 2.

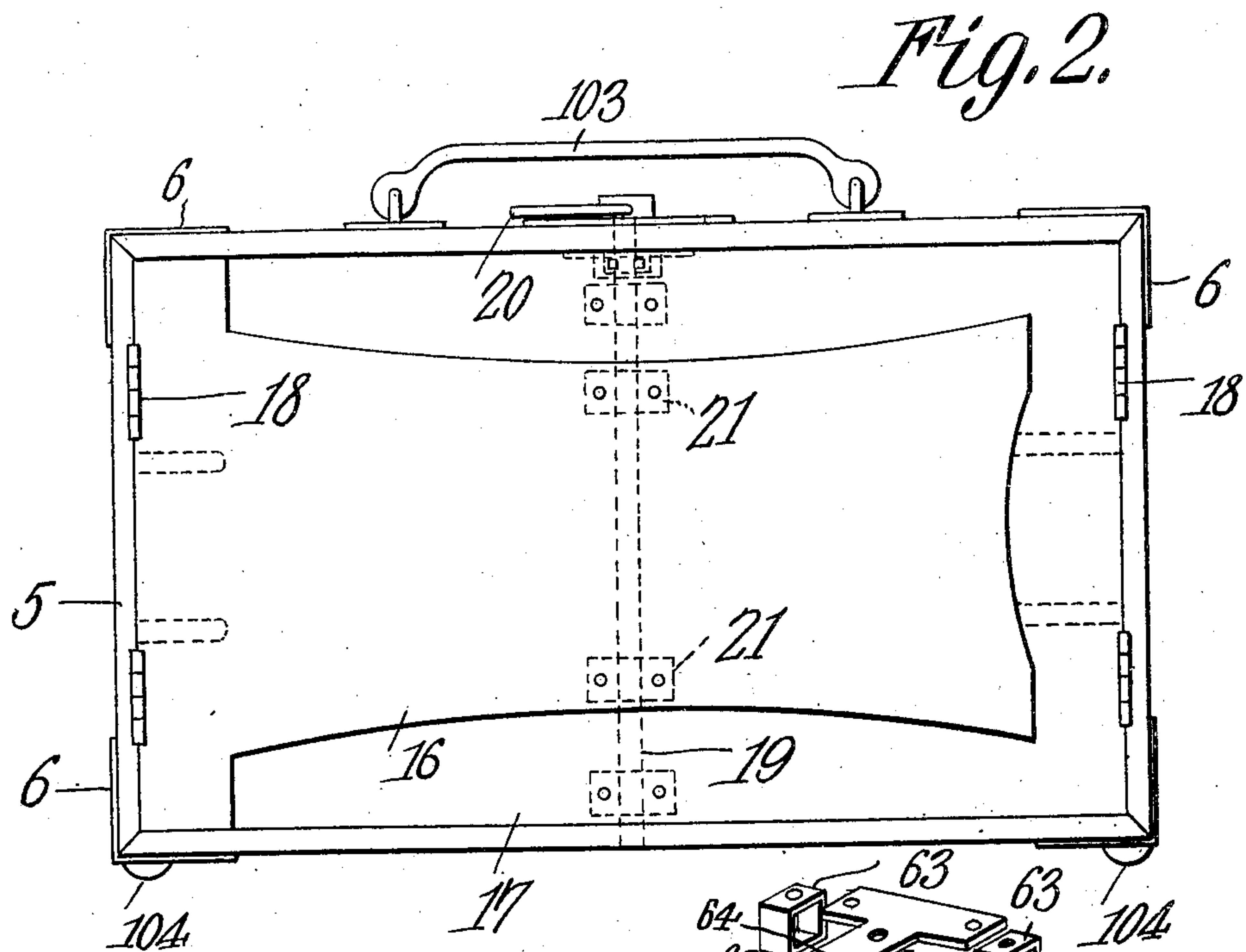


Fig. 4.

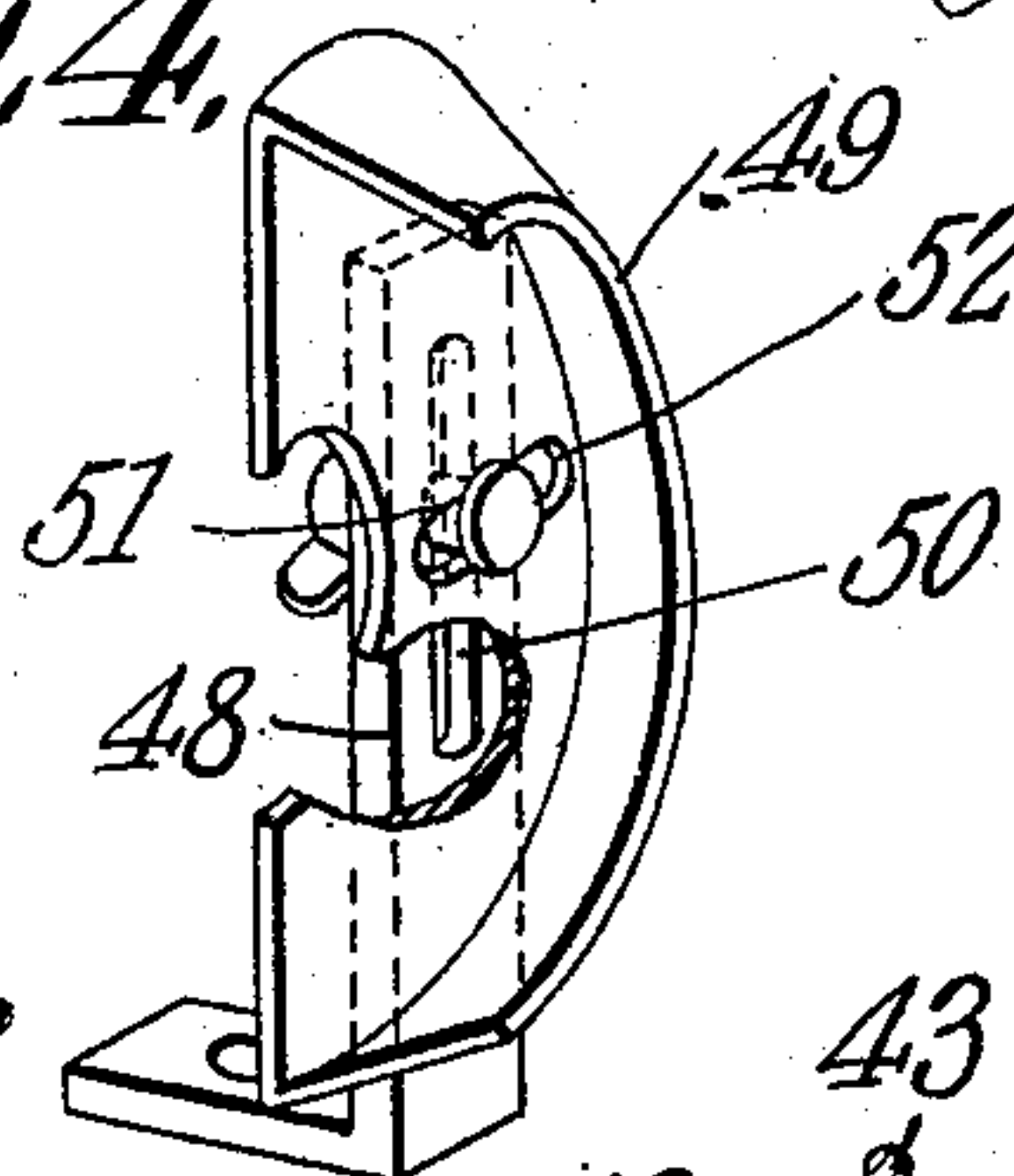


Fig. 8.

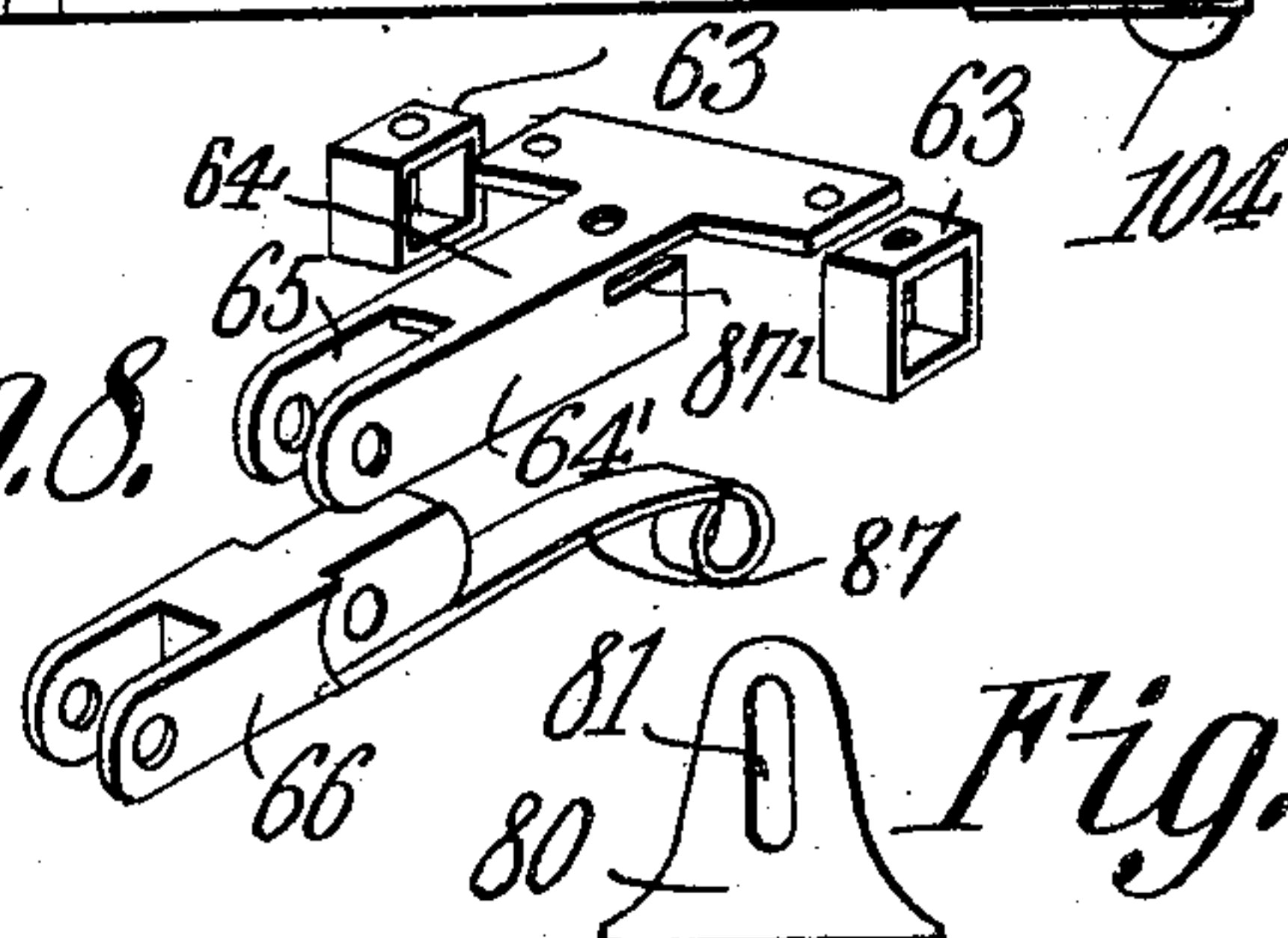


Fig. 7.

Fig. 6.

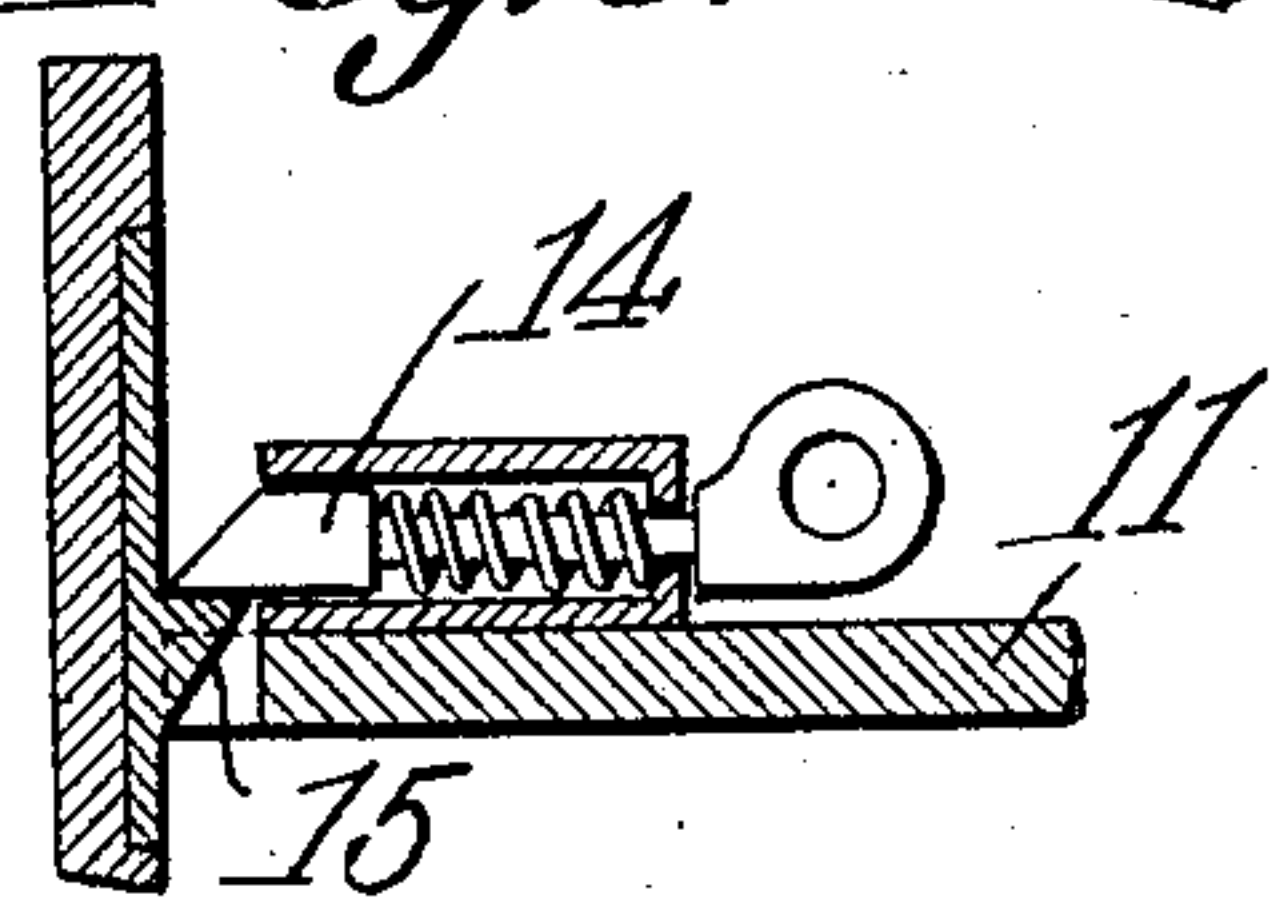
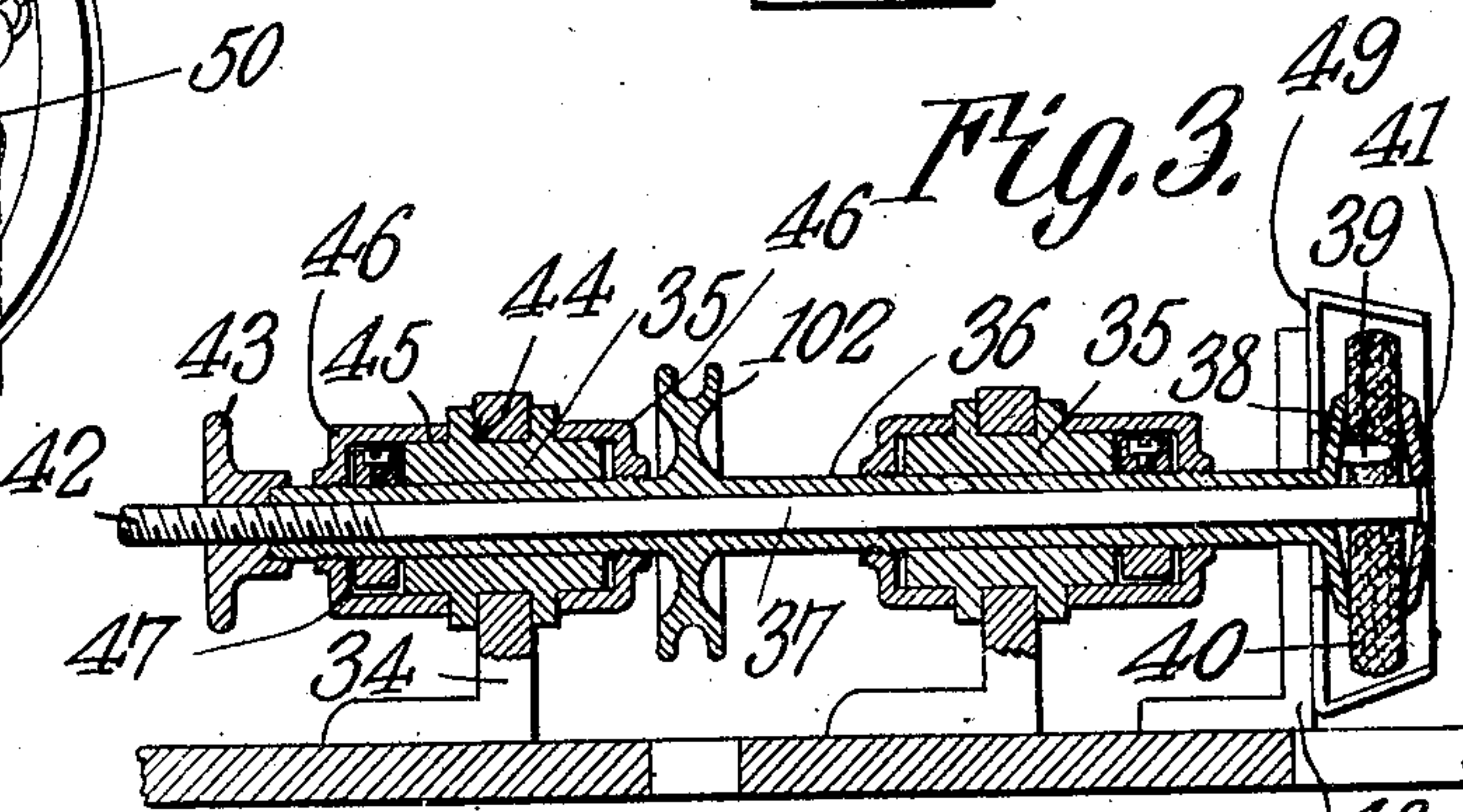


Fig. 3.



WITNESSES:

E. H. Howard
L. N. McKee

George Wieber INVENTOR

By *CA Snow & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE WIEBER, OF PITTSFIELD, MASSACHUSETTS.

SHEAR-GRINDING MACHINE.

No. 878,030.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed March 21, 1907. Serial No. 363,595.

To all whom it may concern:

Be it known that I, GEORGE WIEBER, a citizen of the United States, residing at Pittsfield, in the county of Berkshire and State of Massachusetts, have invented a new and useful Shear-Grinding Machine, of which the following is a specification.

This invention relates to machines for grinding and sharpening shears, scissors, knives and other edged tools and has for its object to provide a portable machine of this character capable of being quickly set up for use and compactly folded for transportation or shipment.

A further object of the invention is to provide a portable case or receptacle having a platform or table pivotally mounted for tilting movement within the same and on which is mounted the grinding and sharpening mechanism, said case being provided with a sectional wall capable of being swung laterally to open position thereby to form a means for supporting the body of the case in elevated position during the grinding operation.

A further object is to provide means for locking the wall sections or supporting legs in closed position, and means for automatically releasing the locking means when the cover of the case is opened.

A further object is to provide means for locking the legs in open position and means carried by one of said legs and operatively connected with the grinding and sharpening mechanism for actuating the latter.

A further object is to provide a novel form of tool-holder for clamping the shears or scissors and holding the same in position during the grinding or sharpening operation.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a perspective view of a grinding or sharpening machine constructed in accordance with my invention showing the same set up for use. Fig. 2 is a side elevation showing the several parts assembled within the case and ready for transportation or shipment. Fig. 3 is a longitudinal sectional view of the operating shaft and its associated parts. Fig. 4 is a detail perspective view of the dust guard

detached. Fig. 5 is a front elevation partly in section of the mechanism for locking the supporting legs in closed position. Fig. 6 is a transverse sectional view partly in section of the catch for locking the tilting platform or table in adjusted position. Fig. 7 is a front elevation of the gage. Fig. 8 is a perspective view of the several parts comprising the sliding scissor holder or support detached.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The grinding and sharpening mechanism forming the subject matter of the present invention is inclosed in a suitable case or housing 5 preferably rectangular in shape, as shown and having its walls reinforced and strengthened by corner brackets or braces 6 the free edges of which extend above the adjacent edges of the walls to form a seat for the reception of the cover 7, the latter being provided with inwardly extending ears or lugs which engage corresponding sockets 9 formed in the adjacent wall of the case or receptacle, as shown.

Pivotally connected with one wall of the case or receptacle 5 as by hinges 10 is a tilting platform or table 11 on which is mounted the grinding and sharpening mechanism hereinafter referred to, said platform being normally supported in lowered position by a spring hook 12 secured to the adjacent walls of the receptacle and its free end extended laterally in the path of movement of said platform and provided with a terminal notch or recess 13 adapted to receive the adjacent longitudinal edge of the platform when the latter is swung downwardly in inoperative position.

The platform 11 is locked in horizontal or operative position by means of a spring catch 14 slidably mounted on the free end of the platform and having one end thereof inclined or beveled for engagement with a keeper 15 preferably counter-sunk in the front wall of the case or receptacle.

One wall of the receptacle is formed of a plurality of nesting sections 16 and 17 each pivotally connected with an adjacent wall of the receptacle as by hinges 18 and adapted to be swung laterally to open or closed position, said sections when in closed position forming one wall of the case or receptacle and when in open position constituting depending legs for supporting the body of the receptacle in elevated position.

The lower sections or legs 16 and 17 are locked in closed position by means of a transverse rod 19 one end of which is provided with a terminal finger piece 20 while its opposite end extends through suitable eyes or loops 21 secured to the interior walls of the leg sections 16 and 17.

Slidably mounted for vertical movement on the front wall of the receptacle is a spring pressed pin 22 having its lower end bifurcated and slidably mounted between suitable guides 23 for engagement with the cut away portion 24 of the locking rod 19 there being a coiled spring 25 operatively connected with the pin 22 for normally holding the bifurcated end of the pin out of engagement with the recessed portion of the locking rod.

The free end of the pin 22 normally projects above the upper edge of the front wall of the receptacle and in the path of movement of the cover or lid 7 so that when the cover is moved to closed position, the latter will engage and depress the pin 22 against the action of the coiled spring 25 and force the bifurcated end of the pin in engagement with the rod 19 thus preventing longitudinal movement of the locking rod 19 and securely holding the wall sections or legs 16 and 17 in closed position.

It will thus be seen that as soon as the cover 7 is released or moved to open position the tension of the spring 25 will move the locking pin 22 to elevated position so as to permit the locking rod 19 to be withdrawn and the legs 16 and 17 swung downwardly to the position shown in Fig. 1 of the drawings.

As a means for locking the legs or wall sections 16 and 17 in vertical or operative position there are provided suitable plates 26 each having an elongated slot 27 formed therein for the reception of a guide pin 28 carried by the adjacent wall of the case or receptacle.

Secured to the lower end of the plates 26 are transverse bars 29 having their opposite ends bent at right angles and slidably mounted in loops or keepers 30 for engagement with correspondingly shaped sockets or recesses 31 formed in the hinged ends of the legs 16 and 17, said plates being provided with terminal finger pieces 32 by means of which the plates may be raised and lowered so as to move the locking bolts to operative and inoperative position.

The opposite transverse edges of the table or platform 11 are preferably cut away, as indicated at 33 so as to permit the table to be raised or lowered without interfering with the adjustment of the plates 26.

Secured to the upper surface of the table or platform are spaced hangers or brackets 34 carrying substantially cylindrical bearings 35 in which is journaled an operating shaft 36, the latter being provided with a

longitudinal bore for the reception of a rod or auxiliary shaft 37.

One end of the shaft 36 is provided with a lateral flange 38 having a pin or lug 39 extending at right angles thereto and adapted to engage the grinding and polishing element 40, the latter being preferably in the form of an emery wheel and locked in engagement with the flange 38 by a similar flange 41 secured to the adjacent end of the rod or shaft 37.

One end of the rod 37 is threaded, as indicated at 42 for engagement with a clamping nut 43 which bears against the adjacent end of the shaft 36 and by means of which the disk 41 may be adjusted in contact with the emery wheel 40 thereby to lock the same in position on the operating shaft 36.

The bearings 35 are provided with circumferential grooves 44 for the reception of the upper sections of the hangers 34 and are also provided with lateral extensions 45 on which are mounted suitable sleeves or cups 46 which serve to prevent the escape of oil from the bearings and thus prevent the same from coming in contact with the emery wheel, there being suitable fixed collars 47 secured to the shaft 36 between the closed ends of the oil cups 46 and the adjacent ends of the bearings 35 to assist in preventing lateral movement of said bearings.

Disposed at the rear of the emery wheel 39 is a standard or support 48 on which is mounted for vertical movement an adjustable guard 49 which covers the rear portion of the emery wheel and serves to prevent any dust from coming in contact with the face of the operator during the grinding or sharpening operation.

The standard 48 is provided with a vertically disposed slot 50 in which is mounted for longitudinal movement a clamping pin or screw 51 which extends through a transverse slot 52 in the adjacent face of the guard, as shown. It will thus be seen that the guard, may be adjusted both longitudinally and laterally of the standard 48 so that said guard may be positioned at any desired distance from the emery wheel.

The shear holder or supporting device consists of spaced supporting brackets 53 each having one end thereof rigidly secured to the pivoted end of the platform 11 and its opposite ends bifurcated, as indicated at 54, there being elongated slots 55 formed in the inclined brackets for the purpose hereinafter referred to.

Secured to the brackets 53 are elongated plates 56 having their free ends provided with tubular members 57 which constitute bearings for a longitudinally disposed shaft 58, the intermediate portion of the shaft 58 being preferably rectangular in cross section, as shown.

The plates 56 are provided with laterally extending ears 59 which extend through the slots 55 and are detachably secured thereto by means of locking pins 60, there being screws or similar fastening devices 61 secured to the plates 56 and projecting within the slots 54 to assist in retaining the plates and brackets in assembled position.

The shaft 58 is locked against rotation in the bearings 57 by means of suitable set screws 62 which extend through said bearings and engage the tubular extensions of the shaft, as shown.

Slidably mounted for longitudinal movement on the squared portion of the shaft 58 are spaced correspondingly shaped collars 63 having a horizontal laterally extending arm 64 secured thereto and provided with a terminal bifurcation 65 in which is pivotally mounted one member 66 of a universal joint or socket, the opposite member 67 of the joint being pivotally connected with a block or projection 68 carried by one of the members of the tool-holder.

The section 66 is locked in adjusted position by a clamping nut or screw 69 while the opposite section 67 is pierced by a similar screw 70, there being a third screw 71 forming a pivotal connection between the sections 66 and 67, as shown.

The tool-holder proper comprises a plurality of pivotally connected members 72 and 73 having their upper ends spaced apart by a flat spring 74.

The short or pivoted ends of the members 72 and 73 are provided with clamping jaws 75 and 76 one of which is pivotally connected at 77 with the adjacent end of the member 72 and is provided with an angular face 78 adapted to receive the angular edge of the scissors or shears, as indicated at 79.

Disposed at the rear of the clamping jaw 75 is a gage 80 having a slot 81 formed therein for the reception of a clamping screw 82 by means of which the gage 80 may be locked in adjusted position. It will thus be seen that by moving the gage 80 vertically of the clamping member 75 the scissors may be adjusted between the clamping jaws so as to regulate the grinding or sharpening of the cutting edges thereof.

The upper or free ends of the members 72 and 73 are pierced by a connecting bolt 83 one end of which is bifurcated for the reception of the member 72 while the opposite end thereof is threaded and provided with an adjusting nut 86.

Pivotally mounted in the perforated end of the connecting bolt 83 is an eccentric or cam lever 85 by means of which the members 72 and 73 may be quickly adjusted to release the scissors, a fine adjustment being effected by rotating the clamping nut 86, as will be readily understood.

The section 66 of the universal joint is pro-

vided with a lateral arm or finger-piece 87 which projects beneath the arm 64 and bears against a spring 83 extending between the depending flanges 64' of said arm and seated in aligned recesses 87' formed in the flanges, as shown.

The spring 88 serves to normally and yieldably hold the clamping jaws of the tool-holder in elevated position and is locked on the arm 64 by a vertically disposed adjusting screw 89 which pierces the spring and bears against the finger piece 87.

The screw 89 serves to limit the upward movement of the finger piece 87 and thereby prevent the point of the shears from being accidentally ground off or the cutting edges of the shears irregularly sharpened.

The platform or table 11 is provided with an elongated slot or opening 90 adapted to receive one leg of the scissors or shears so as to permit the other leg thereof to be supported in horizontal position and fed to the emery wheel, as best shown in Fig. 1 of the drawing.

As a means for operating the emery wheel 40 there is provided a master wheel 91 secured to and mounted for rotation with a crank shaft 92, the latter being provided with a pitman 93 which is pivotally connected to one end of a treadle 94.

The treadle 94 is preferably formed in two sections pivotally united, as indicated at 95 so that said sections may be folded one upon the other when it is desired to assemble the several parts of the machine within the case, as will be more fully explained hereinafter.

The treadle 94 is pivotally mounted for tilting movement on a rod or pin 96 extending laterally from the leg 16 and to one end of which is secured a block or support 97 which rests on the ground and is preferably disposed in alinement with the adjacent end of the leg 16, as shown.

Extending laterally from the inner face of the leg 16 is a pin 98 similar in construction to the pin 96 and to which is detachably secured one end of a bracket or hanger 99 the opposite end of which is secured to the leg above the wheel 91 by a similar pin not shown.

The pins 96 and 98 are threaded in suitable plates or sockets 100 secured to the interior face of the leg 16 so that said pins may be readily removed when it is desired to detach and repair the treadle, drive wheel and its associated parts.

A belt or flexible cord 101 connects the master wheel 91 with a fixed pulley or wheel 102 carried by the shaft 36 so that when the treadle 94 is operated motion will be imparted through the medium of the belt to the emery wheel 39.

In operation one leg of the scissors or shears is clamped between the jaws 75 and 76 with the opposite leg thereto disposed within

the slot or recess 90. The operator then grasps the member 87 with one finger and the screw 89 with another and moves the tool-holder longitudinally of the bar 58 and in contact with the emery wheel 39, the latter being rotated by actuating the treadle in the usual manner.

In order to fold the device for transportation or shipment the plates 56 are detached from the brackets 53 by removing the pins 60 and the shaft 58 carrying the tool-holder placed in position on top of the platform or table 11 after which the catch 14 is released and the table or platform swung downwardly to inoperative position in engagement with the spring 12.

The locking bolts 29 are then moved to released position by exerting an upward pull on the finger pieces 32 and the legs 16 and 17 swung upwardly to closed position and locked in said position by means of the locking rod or bolt 19 in the manner before described.

After the parts have been thus assembled in the case or receptacle the cover 7 is placed in position with the lugs 8 engaging the sockets 9 and with the free edge of the cover bearing against the adjacent end of the pin 22 which forces said pin downwardly and causes the bifurcated end of the pin to engage the rod 19 and prevent accidental withdrawal of the same.

When the parts are thus assembled the entire machine will be inclosed in the case or receptacle 5 so that the same may be conveniently transported from place to place, one wall of the receptacle being provided with a handle 103 by means of which the receptacle may be conveniently transported from place to place.

Suitable yieldable bumpers 104 are preferably secured to one wall of the receptacle so as to prevent injury to the latter when the receptacle is placed on the ground.

While it is preferred to use a foot treadle for operating the machine it is obvious that the grinding and sharpening mechanism may be driven by a motor or from any other suitable source of power without departing from the spirit of the invention.

Having thus described the invention what is claimed is:

1. A grinding machine including a case, a pivoted platform disposed within the case and forming a support for the grinding mechanism, and means for locking the free end of the platform in raised or lowered position.

2. A grinding machine including a case, a tilting platform disposed within the case and forming a support for the grinding mechanism, a tool-holder mounted on the platform, and means for locking the free end of the platform in raised or lowered position.

3. A grinding machine including a case, a platform pivotally mounted for tilting move-

ment within the case and forming a support for the grinding mechanism, a guide rod secured to the platform, a tool-holder slidably mounted for longitudinal movement on the guide rod, and means for locking the free end of the platform in raised or lowered position.

4. A grinding machine including a case having pivoted sections movable laterally to open position and constituting supporting legs, a platform pivotally mounted for tilting movement within the case and forming a support for the grinding mechanism, a tool-holder carried by the platform and movable into and out of engagement with the grinding mechanism, and means for locking the free end of the platform in raised or lowered position.

5. A grinding machine including a case having pivoted sections movable laterally to open position and constituting supporting legs, a platform pivotally mounted for tilting movement within the case, a grinding element carried by the platform, means secured to one of the legs for actuating the grinding element, and means for locking the free end of the platform in raised or lowered position.

6. A grinding machine including a case having one wall thereof formed of pivoted sections movable laterally to open position and constituting supporting legs, a platform disposed within the case, a grinding element mounted for rotation on the platform, means secured to one of the supporting legs and operatively connected with the grinding element for rotating the latter, and a tool-holder carried by the platform.

7. A grinding machine including a case having one wall thereof formed in sections movable laterally to open position and constituting supporting legs, a platform pivotally mounted for tilting movement within the case, a grinding element mounted for rotation on the platform, means secured to one of the supporting legs and operatively connected to the grinding element for rotating the latter, and a longitudinally movable tool-holder carried by the platform.

8. A grinding machine including a case having one wall thereof formed in sections movable laterally to open position and constituting supporting legs, a platform pivotally mounted for tilting movement within the case, a grinding element mounted for rotation on the platform, means carried by one of the supporting legs and operatively connected with the grinding element for rotating the latter, a guide rod secured to the platform a tool-holder slidably mounted on the guide rod, means for locking the platform in raised or lowered position, and means for locking the legs in extended position.

9. A grinding machine including a case, a platform pivotally mounted for tilting movement within the case and provided with a longitudinal slot, said platform constituting

a support for the grinding mechanism, a tool-holder slidably mounted for longitudinal movement on the platform above said slot, and means for locking the platform in raised or lowered position.

10. A grinding machine including a case, a platform pivotally mounted for tilting movement within the case and forming a support for the grinding mechanism, brackets secured to the platform, a guide rod connecting the brackets, a tool holder slidably mounted on the guide rod, and means for locking the platform in raised or lowered position.

11. A grinding machine including a case, a platform pivotally mounted for tilting movement within the case and forming a support for the grinding mechanism, a guide rod secured to the platform, a tool-holder slidably mounted on the guide rod and provided with pivotally united clamping members, a swivel connection between the tool-holder and guide rod, and means for locking the platform in raised or lowered position.

12. A grinding machine including a case, a platform pivotally mounted for tilting movement within the case and forming a support for the grinding mechanism, inclined brackets secured to the platform, a guide rod detachably secured to the brackets, a sleeve slidably mounted on the guide rod, a tool-holder, a swivel connection between the tool-holder and sleeve, and means for locking the free end of the platform in raised or lowered position.

13. A grinding machine including a case, a platform pivotally mounted for tilting movement within the case, brackets secured to the platform, a rod connecting the brackets, a tool-holder slidably mounted on the rod, means for yieldably supporting the tool-holder in elevated position, and means for locking the free end of the platform in raised and lowered position.

14. A grinding machine including a case, a platform pivotally mounted for tilting movement within the case and forming a support for the grinding mechanism, brackets secured to the platform, a guide rod detachably secured to the brackets, a sleeve slidably mounted on the guide rod, pivotally united clamping members constituting a tool-holder, a swivel connection between the tool-holder and sleeve, means for adjusting the clamping members laterally with respect to each other, and means for locking the pivoted platform in raised and lowered position.

15. A grinding machine including a case, a platform pivotally mounted for tilting movement within the case and forming a support

for the grinding mechanism, brackets secured to the platform and having elongated slots formed therein, a guide rod connecting the brackets and provided with laterally extending ears extending through the slots in the brackets and detachably secured thereto, a sleeve mounted for sliding movement on the guide rod, a tool-holder, a swivel connection between the tool-holder and sleeve, means for normally and yieldably supporting the tool-holder in elevated position, and means for locking the platform in raised and lowered position.

16. A grinding machine including a case having one wall thereof formed of pivoted sections movable laterally to open position and constituting supporting legs, means for locking the supporting legs in extended position, a tilting platform disposed within the case, a grinding element mounted for rotation on the platform, a treadle secured to one of the supporting legs and operatively connected with the grinding element for rotating the latter, a tool-holder carried by the platform, and means for locking the platform in raised and lowered position.

17. A grinding machine including a case having one wall thereof formed of nested sections movable laterally to open position and constituting supporting legs, a platform pivotally mounted for tilting movement within the case, a grinding element mounted for rotation on the platform, means carried by one of the supporting legs for rotating the grinding element, a tool-holder carried by the platform, means for locking the legs in extended position, means for locking the legs in closed position, and means for locking the platform in raised and lowered position.

18. A grinding machine including a case having a platform pivotally mounted for tilting movement therein, a grinding element mounted for rotation on the platform, a driving wheel secured to one of the supporting legs and provided with a crank shaft, a treadle pivotally mounted on the supporting leg, a pitman connecting the treadle and crank shaft, a cable forming a flexible connection between the driving wheel and grinding element for rotating the latter, and means for locking the platform in raised and lowered position.

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

GEORGE WIEBER.

Witnesses:

CHARLES M. WILCOX,
MINERVA A. WILCOX.