No. 885,379. PATENTED APR. 21, 1908.

H. B. ROSS.

ADJUSTING MEANS FOR PLANER HEADS.

APPLICATION FILED NOV. 4, 1907.

5 SHEETS—SHEET 1.

Fig. 1.

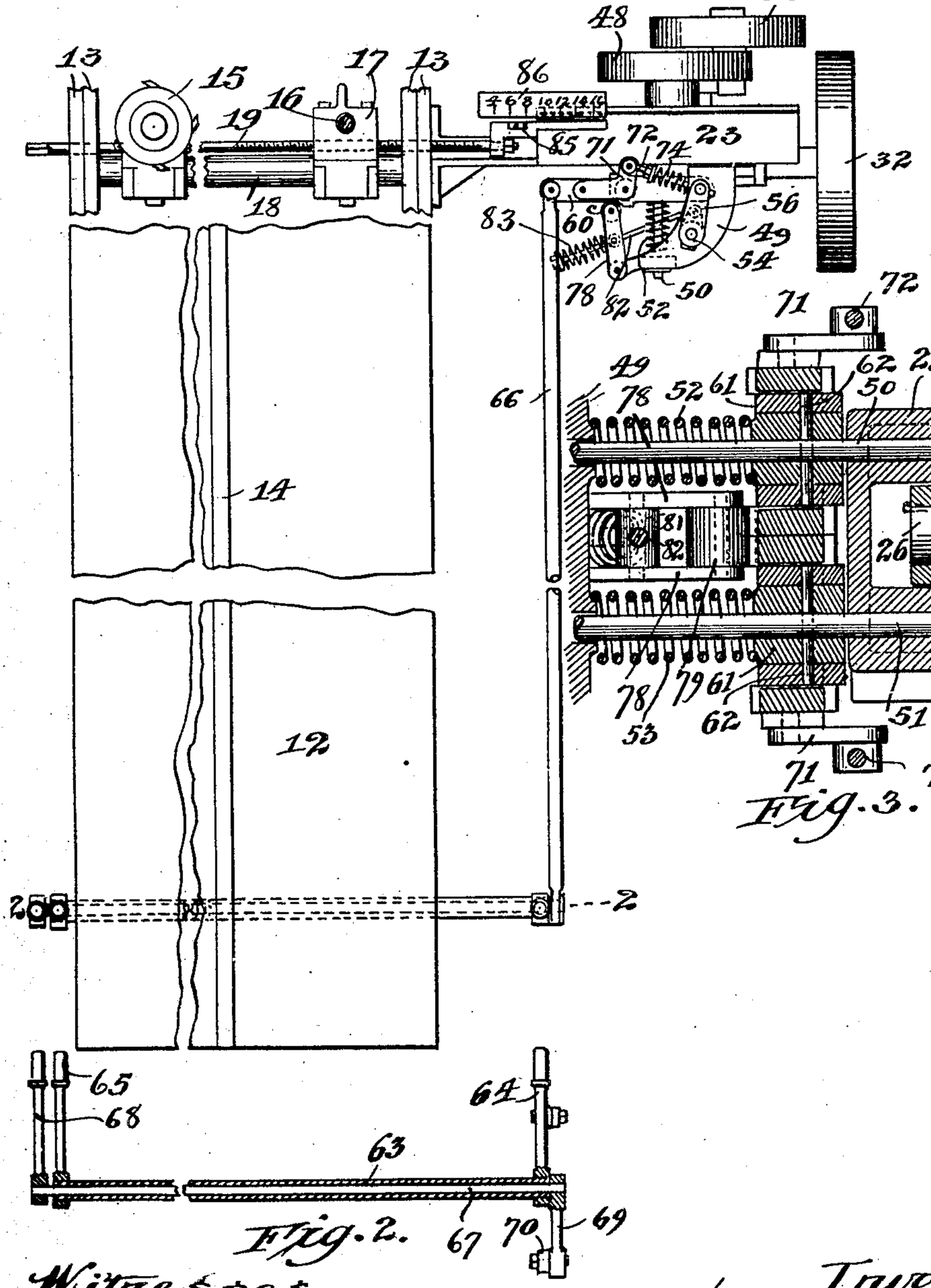

Fig. 2.

Fig. 3.

Witnesses,
F. D. Mann,
S. N. Pond.

Inventor,
Harry B. Ross,
By Offield, Towle & Linthicum
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5 SHEETS—SHEET 2.

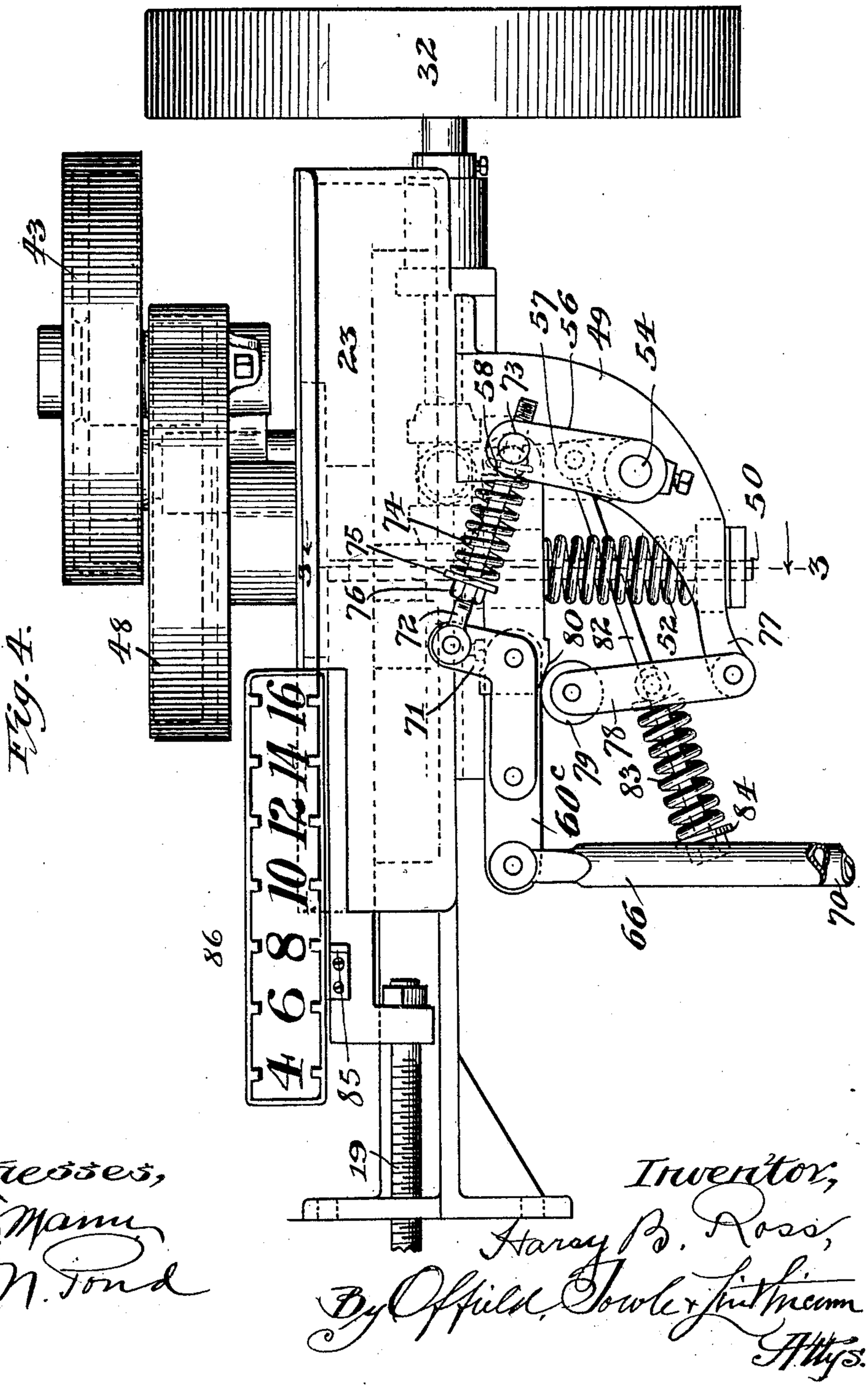

Fig. 4.

Witnesses,
F. S. Mann
S. N. Pond

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5 SHEETS—SHEET 3.

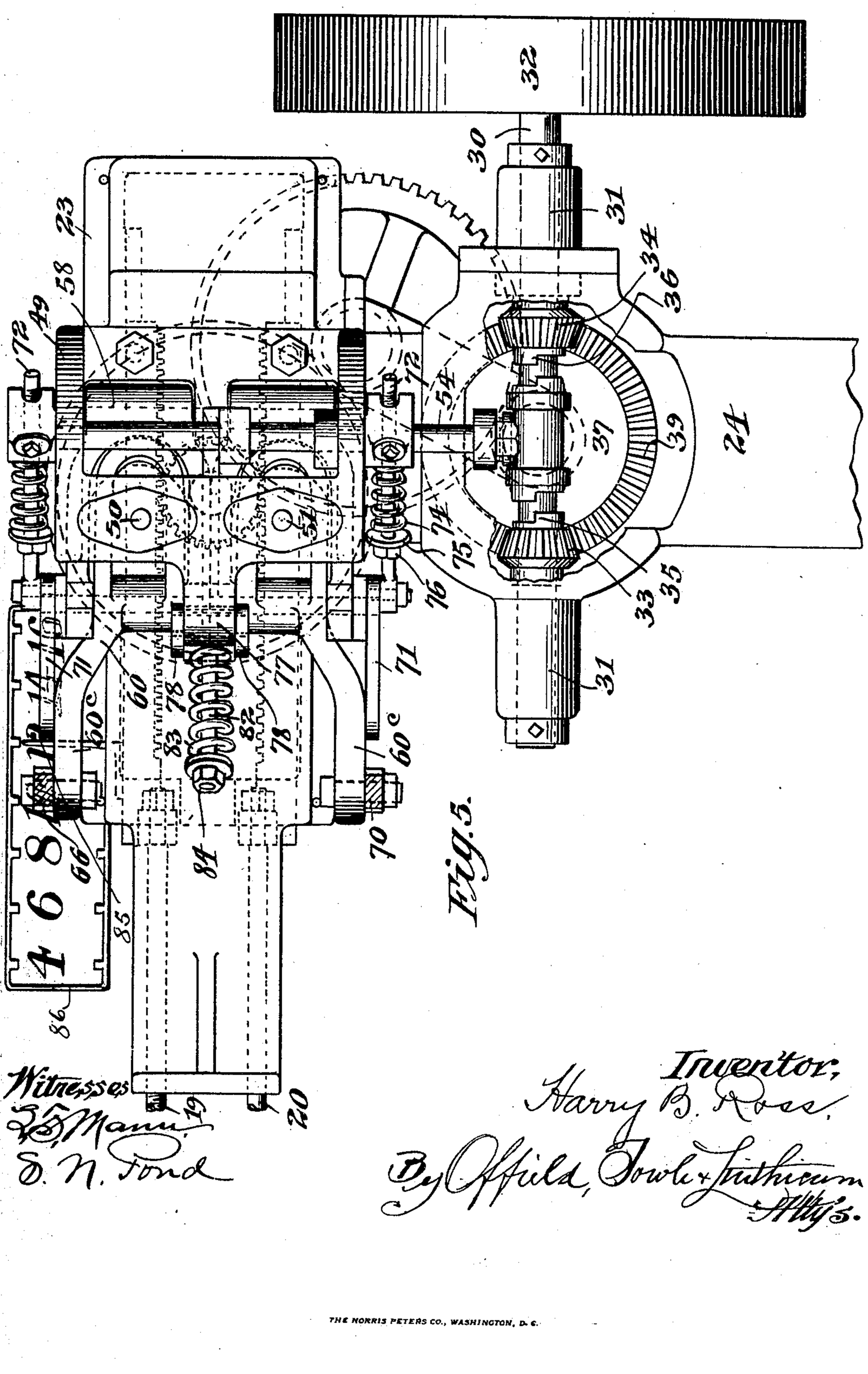

Fig. 5.

Witnesses
E. S. Mann.
S. N. Ford

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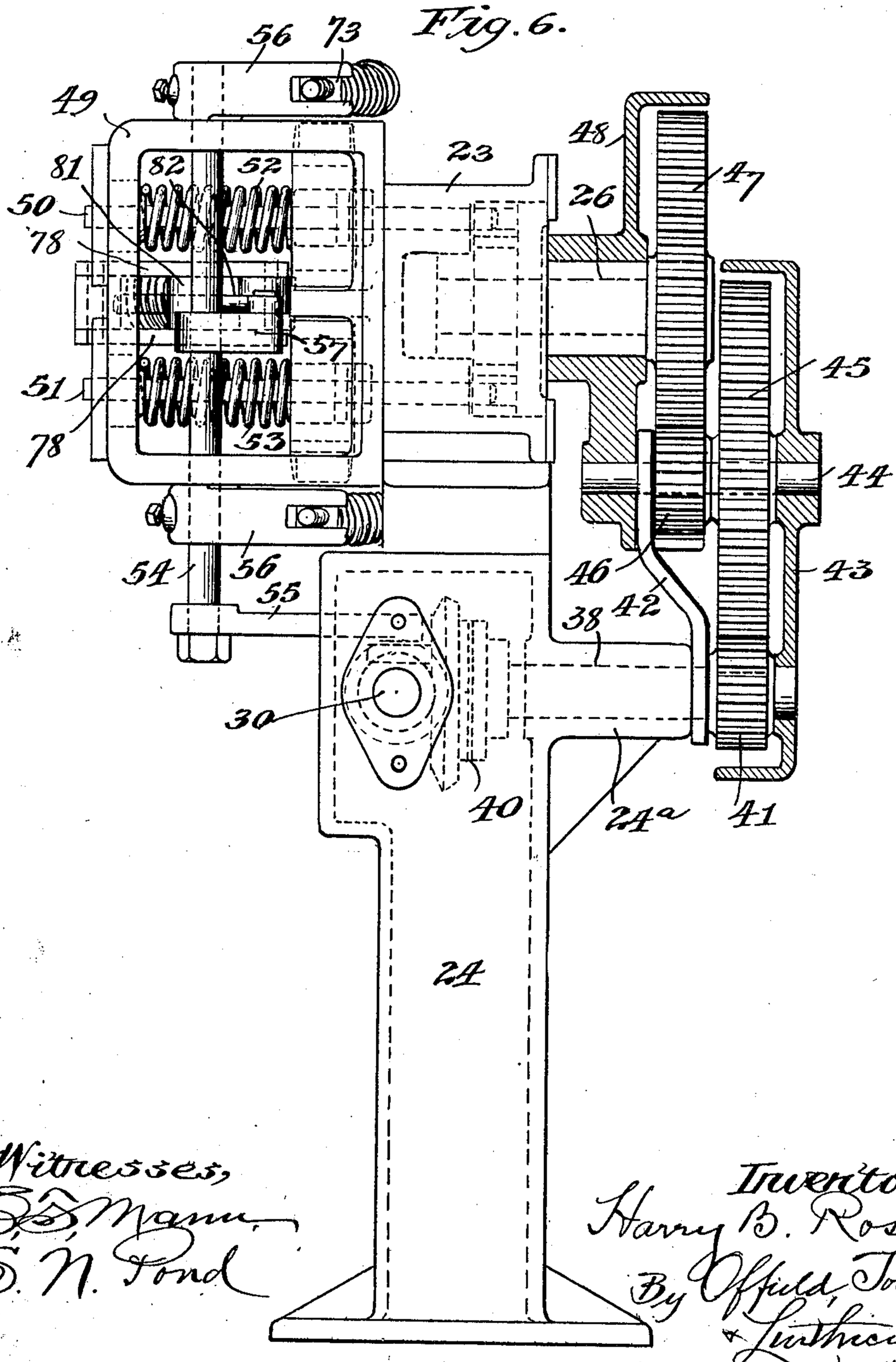
5 SHEETS—SHEET 4.

Fig. 6.



Witnesses,
S. S. Mann
S. N. Pond

Inventor,
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5 SHEETS—SHEET 5.

Fig. 7.

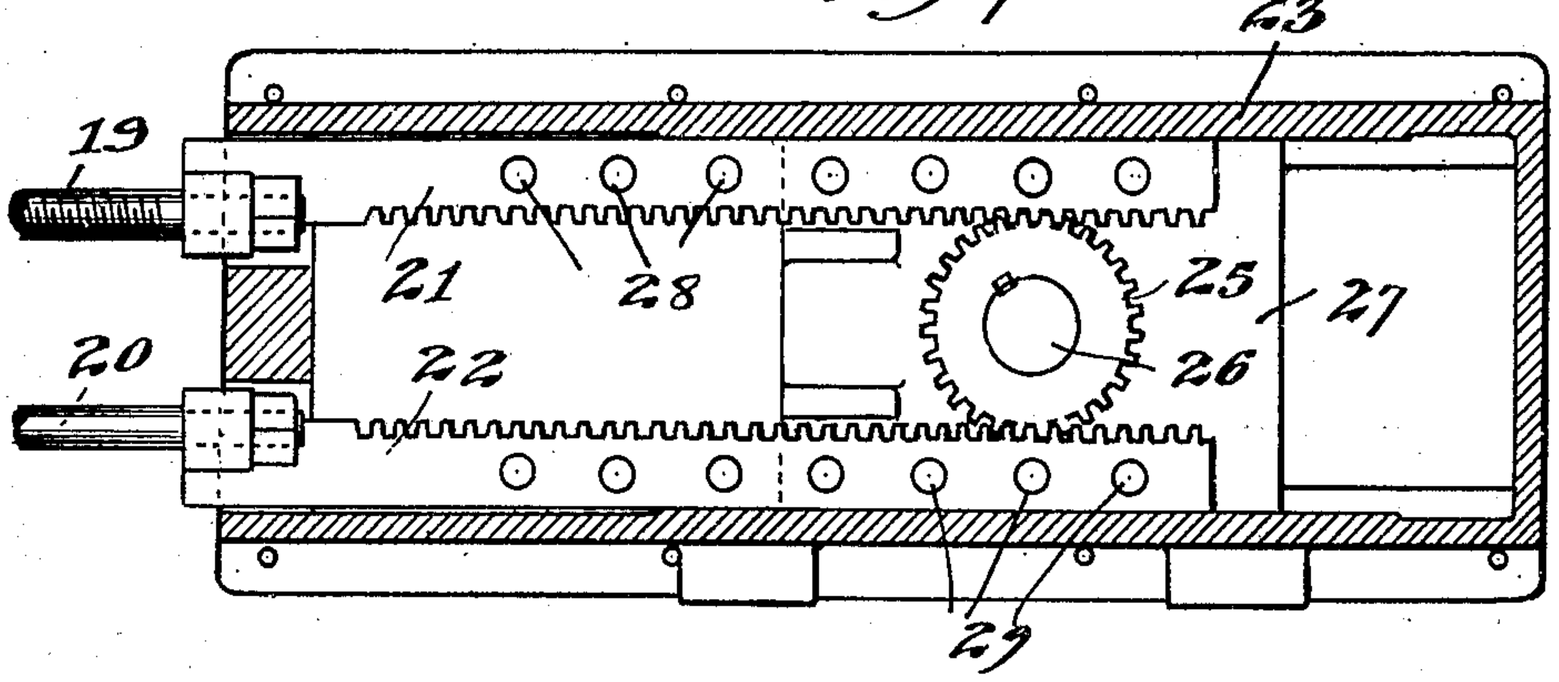


Fig. 8.

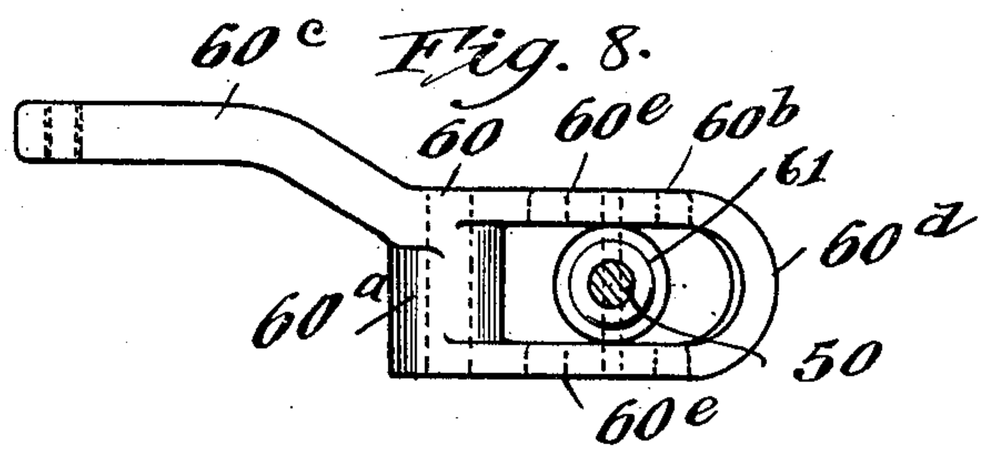


Fig. 9.

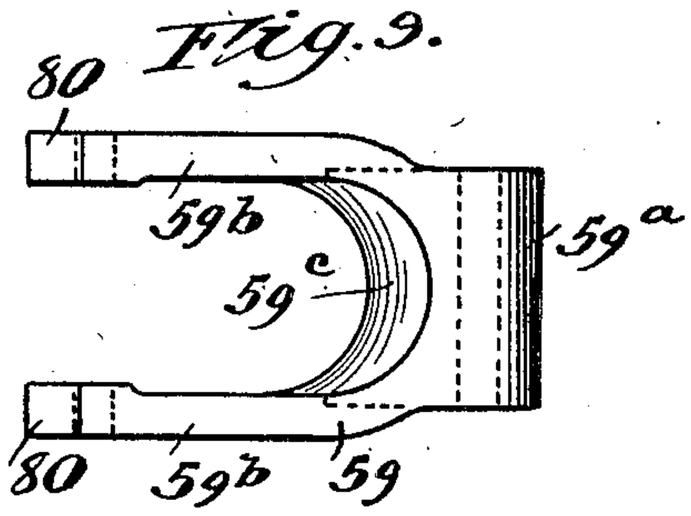
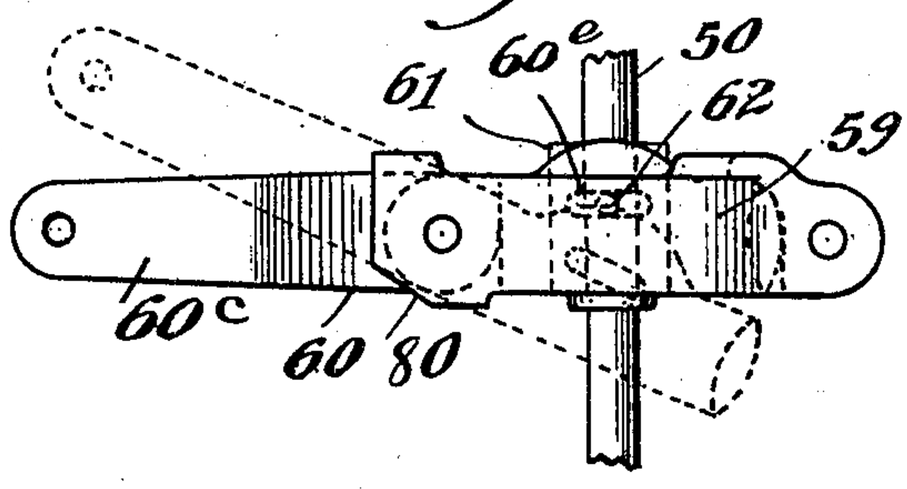


Fig. 10



Witnesses,
F. S. Mann,
S. N. Ford.

Inventor;
Harry B. Ross,
By Offield, Towler & Linthicum
Attys.

UNITED STATES PATENT OFFICE.

HARRY B. ROSS, OF BELOIT, WISCONSIN, ASSIGNOR TO THE BERLIN MACHINE WORKS, OF BELOIT, WISCONSIN, A CORPORATION OF WISCONSIN.

ADJUSTING MEANS FOR PLANER-HEADS.

No. 885,379. Specification of Letters Patent. Patented April 21, 1908.

Application filed November 4, 1907. Serial No. 400,656.

To all whom it may concern:

Be it known that I, HARRY B. ROSS, a citizen of the United States, residing at Beloit, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Adjusting Means for Planer-Heads, of which the following is a specification.

This invention relates to a mechanism for adjusting the position of a cutting tool to conform to various widths of material operated on thereby; and it has been designed more especially as an adjusting means for planer heads of timber sizers, although obviously applicable to other machines employing analogous adjustable cutting tools.

The object of the invention is to provide a simple and reliable mechanism whereby the planer heads or other cutting tools may be accurately adjusted to a predetermined extent so as to cut the material to the exact width desired, and further to provide a mechanism whereby the cutting tool is automatically locked when so adjusted against accidental displacement, and is released only when a new adjustment is to be made. The adjusting mechanism is of that character employing power-driven connections from a moving part of the machine, which connections are manually set in operation when the adjustment is to be effected, and are automatically thrown out of action when the adjustment has been effected.

To this end my invention employs, in connection with a laterally adjustable planer head or other cutting tool, a rack-bar connected to the slidable support of said tool, and carrying or actuating a pointer that cooperates with a fixed scale indicating in inches or other graduated measurements the sizes of material to be turned out, power-driven connections for actuating said rack-bar, means for rendering operative or inoperative said power-driven connections, and a locking means for said rack-bar, together with manually operable means for releasing said locking means and simultaneously rendering operative said driving connections, of such a character that said manually operable means may remain under the control of the operator until the pointer of the scale indicates a travel of the cutting tool to within one point (as determined by the scale) of the predetermined adjustment, and may then be released, whereupon the tool automatically stops at and is locked in the predetermined point of adjustment.

In the preferred embodiment of the invention as herein shown and hereinafter more particularly described, the actuating rack-bar of the planer head is provided with a series of transverse holes formed therethrough at intervals corresponding to the graduations of the scale, and a spring-pressed locking pin is employed to coöperate with said holes, which pin is first withdrawn from locking engagement upon the actuation of the manually operated means which throws into action the driving connections of said rack-bar; while a spring operates to throw said locking pin into engagement with the next hole of the moving rack-bar that registers therewith as soon as the manually operated means is released by the operator, which will be after all the holes of the rack-bar in advance of the hole corresponding to the predetermined adjustment of the parts have passed by the retracted end of the pin. The mechanism of my invention operates to adjust the tool laterally in both directions relatively to a fixed guide along which the material operated upon slides; and in the most complete form of the invention, herein illustrated, wherein it is applied to a machine having a pair of planer heads on opposite sides of said fixed guide, the mechanism is duplicated so as to operate in a similar manner to effect the adjustments of both planer heads.

In the accompanying drawings I have illustrated one practical mechanical embodiment of the principle of my invention, although it will be evident to those skilled in the art that numerous variations and modifications might be made therein without substantially altering the mode of action of the parts or the results secured.

In the said drawings,—Figure 1 is a fragmentary plan view of a portion of a timber sizer equipped with my improved adjusting means for the planer head, numerous irrelevant parts being omitted for the sake of clearness, and one of the planer heads being removed to more clearly illustrate the manner and means of actuating its support. Fig. 2 is a detail vertical section through the manually operated rock-shafts at the receiving end of the machine, more particularly illustrating the arrangement of levers thereon. Fig. 3 is an enlarged vertical section on the line 3—3 of Fig. 4, looking in the direc-

tion indicated by the arrows. Fig. 4 is an enlarged top plan view of the rack-bar locking and releasing mechanism, also showing the expansion gear mechanism through which the driving pinion of the rack-bars of the two planer heads is operated. Fig. 5 is an enlarged side elevational view of the parts shown in Fig. 4 as the same would appear viewed from the bottom of the latter figure, also showing the clutch-controlled driving gear of the adjusting mechanism and the driving connections therefrom to the rack-pinion. Fig. 6 is a side elevation of the parts shown in Fig. 5 as viewed from the right of the latter figure, omitting the driving pulley and showing the expansion gear in edge elevation and in central section through the gear housings. Fig. 7 is a longitudinal vertical section through the rack casing, more especially illustrating the arrangement of racks which directly effect lateral adjustments of the planer heads and their intermediate driving pinion. Figs. 8 and 9 are detail elevations of the two parts or yokes of a compound lever through which the locking pin is retracted upon the movement of the lever in either direction. Fig. 10 is a detail top plan view of the compound lever, showing the separate elements of Figs. 8 and 9 assembled and in operative relation to the locking pin.

The complete timber sizer is a quite complicated machine, and in the accompanying drawings illustrating my present invention and forming a part of this specification I have omitted many of the old and known parts of the machine that have no particular relation to the present invention, retaining only such parts as serve to make the operation and relation of my present invention to the machine entirely clear. In the machine as ordinarily constructed there are two vertically disposed planer heads for trimming or smoothing off the edges of the boards or planks, and each has an automatic adjusting device, which adjusting devices are substantial duplicates.

Referring to the drawings, 12 designates the main bed or table of the timber sizer, which is supported on side-frames or uprights partially indicated by the broken parts 13 in Fig. 1. Extending longitudinally and centrally of and upon the bed 12 is a guide 14 against which one end of the board or plank slides while its other edge is being planed. One of the cutter-heads of the planer is shown at 15 in Fig. 1, the same being mounted on an upright shaft 16 rotatably mounted in suitable bearings on a vertical support 17, which latter is adapted to slide horizontally cross-wise of the machine on a comparatively large stationary shaft or rod 18 supported at its ends in the side-frames 13. Driving pulleys (not shown) on the spindles 16 of the cutter-heads are actuated by belts from a suitable source of power in a manner well understood.

Passing through the supports 17 and having a screw-threaded connection therewith, respectively, are a pair of transverse rods 19 and 20, the upper of which engages the planer head support shown at the right in Fig. 1, while the lower similarly engages the planer head support shown at the left in the same figure. These rods 19 and 20 project beyond the supporting frames 13 on one side of the machine (the left in Fig. 1) and are squared at such projecting ends for the application of a wrench or handle, whereby manual adjustments of the cutter-heads relatively to the rods 19 and 20 may be effected. The rods 19 and 20 are connected at their other ends to a pair of racks 21 and 22, respectively (see Fig. 7), slidably mounted in a casing 23 projecting laterally from the side of the machine and supported by a post or upright 24 (Fig. 6). The racks 21 and 22 are toothed on their inner or adjacent edges, which latter engage an intermediate pinion 25 mounted on a short shaft 26 journaled in a bearing block 27 sliding in ways in the casing 23. The racks 21 and 22 are provided at uniformly spaced intervals, corresponding to the graduations of a scale hereinafter specified, with holes 28 and 29 formed therethrough (Fig. 7) that are adapted to coöperate with locking pins hereinafter specified.

Referring now to the mechanism for rotating the pinion 25 whereby to effect the desired adjustments of the planer heads, 30 designates a horizontal shaft journaled in bearings 31 supported on the post 24, and having on its projecting end a pulley 32 through which it is belted to any suitable source of power. On the shaft 30, between the bearings 31 thereof, are loosely mounted a pair of oppositely facing bevel pinions 33 and 34 (Fig. 5), the inner opposed ends of the hubs whereof are formed as clutch-members 35 and 36, respectively, adapted for coöperation with an intermediate double-clutch sleeve 37 slidably splined on the shaft 30. The relation of these parts is such that when the clutch-sleeve 37 occupies the intermediate or middle position shown in Fig. 5 both the bevel pinions 33 and 34 are idle; but when said clutch sleeve is moved into coöperation with either clutch member 35 or 36, the pinion pertaining thereto is at once thrown into operative driven relation to the shaft 30. Referring to Fig. 6, 38 designates a short shaft journaled in a laterally projecting boss 24^a of the post 24 at right angles to the shaft 30. The shaft 38 has mounted on one end thereof a bevel gear 39 that meshes with both of the bevel pinions 33 and 34. The bevel gear 39 may be fast on the shaft 38 or it may be operatively connected to the latter through the medium of a friction clutch indicated by dotted lines at 40 in Fig. 6; this latter feature not being a

material part of the present invention. The shaft 38 projects some distance beyond the outer end of the bearing boss 24[a], as shown in Fig. 6, and is provided on such projecting end with a spur pinion 41, and on each side of said pinion 41 are pivotally mounted supporting brackets 42 and 43 which may conveniently take the form of gear housings. In the upper end of bracket 42 and the hub of bracket 43 is mounted a pivot-shaft 44, on which is rotatably mounted a spur gear 45 and, alongside of and fast with the same a spur pinion 46. On the projecting end of the shaft 26 is a spur gear 47 that meshes with and is driven by the pinion 46; and surrounding the laterally projecting bearing boss on the block 27 is pivotally mounted the hub of the gear casing 48, in the lower or depending portion of which the inner end of pivot shaft 44 is journaled, all as clearly shown in Fig. 6. From the foregoing it will be apparent that the rack pinion 25 is positively driven in one direction or the other from the shaft 30 through clutch sleeve 37, one or the other of said bevel pinions 33, 34, bevel gear 39 (friction clutch 40, where employed), shaft 38, spur pinion 41, spur gear 45, spur pinion 46, spur gear 47, and shaft 26. By reason of the fact that the train of gears between the shafts 38 and 26 are hinged or pivoted on the shaft 44, so as to constitute an expansion train of gearing, the rack pinion 25 may move bodily back and forth in its housing 23, without disturbing its driven relation to the shaft 38.

From the foregoing it will be seen that if either rack-bar 21 or 22 be locked and the other released, and the pinion shaft 26 be driven through the mechanism last described the pinion 25 will roll on the fixed rack-bar, and will thus actuate the released rack-bar longitudinally in one direction or the other, according to the direction of travel of the pinion, which travel of the free rack-bar would effect the lateral adjustment of its cooperating planer head to an extent corresponding to the extent of movement permitted to the rack-bar. It will also be obvious that if both rack-bars be simultaneously released and the pinion shaft 36 rotated, and if the resistance or load on the two rack-bars be substantially equal, the rotation of the pinion 25 will move the two rack-bars equally in opposite directions, the pinion itself having simply a rotary movement.

I will next describe the mechanism whereby the operator releases either or both rack-bar, accordingly as he desires to effect an adjustment of either or both planer heads. Secured to a vertical side wall of the rack and pinion casing 23 is a somewhat yoke-shaped frame-member or bracket 49 that appears in top plan view in Figs. 1 and 4, in side elevation from points ninety degrees apart in Figs. 5 and 6, and in vertical section in Fig. 3. Slidably mounted in upper and lower apertures formed through the vertical limbs of the yoke 49 and the outer side of the housing 23 are a pair of locking pins 50 and 51 (Fig. 3), that are located in the horizontal planes of the holes 28 and 29 of the rack-bars 21 and 22, respectively, and are adapted to engage said holes and lock said rack-bars normally against movement under the impulse of strong compression springs 52 and 53, respectively, surrounding said pins and operating thereon in the manner and through the means hereinafter more particularly described. In the horizontal limbs of the yoke 49 is journaled an upright shaft 54 (Figs. 5 and 6) fast on the lower end of which is an arm 55, the free end of which overlies and engages a central annular groove in the clutch-sleeve 37, whereby the latter is operated from the turning movements of the shaft 54. On the upper end of shaft 54 is an arm 56 having a forked outer end (Fig. 6), a duplicate of said arm 56 being also secured on the shaft 54 directly beneath the yoke 49. Substantially centrally of the shaft 54 is another short arm 57.

58 designates another upright shaft journaled in and between the horizontal limbs of the yoke 49, the position of this shaft being indicated by dotted lines in Figs. 4 and 5. On this shaft are journaled a pair of compound levers shown in detail in Figs. 8, 9 and 10. The inner or heel member of each lever comprises a yoke-shaped piece 59, the hub 59[a] of which is journaled on the shaft 58, and the arms 59[b] whereof have pivoted in and between their outer ends the hub 60[a] of the other member 60 of the lever, said other member having a loop-shaped arm 60[b] lying between the arms 59[b] of the yoke 59 and an oppositely projecting arm 60[c]. The member 59 between the inner ends of the arms 59[b] is transversely beveled, as indicated at 59[c], which beveled surface is adapted to cooperate with a correspondingly beveled end 60[d] of the member 60[b]; the action being such that when the arm 60[c] is swung in one direction, the member 60 swings freely in and between the arms 59[b] of the other member without changing the position of the latter, while when the arm 60[c] swings in the opposite direction, the engagement of the beveled surfaces 60[d] and 59[c] causes the two members of the lever to swing together as a single lever on the axis of the shaft 58.

Fig. 10 shows in full lines the normal position of the two members of the lever; and in dotted lines the position of the member 60 when swung in the direction indicated. When the arm 60[c] is actuated in the opposite direction, the member 60 becomes rigid with the member 59, and both parts swing as a single lever on the axis of the member 59. These compound levers are duplicated as parts of the locking and releasing means of the rack-

bars, as clearly shown in the side elevational view, Fig. 5. Through the loop-shaped arms 60^b of the lever members 60 pass the locking pins 50 and 51, said locking pins lying in collars 61 in the loops 60^b, and both the pins and collars being secured against sliding movement through said lever loops by cross-pins 62, the upper and lower ends of which cross-pins have the necessary play to accommodate the movement of the parts in slots 60^e (Fig. 10) formed longitudinally of the upper and lower limbs of the loop members 60^b. The locking-pin actuating springs 52 and 53 are confined between the outer vertical limb of the main supporting yoke 49 and the adjacent ends of the collars 61, whereby said springs normally tend to force the compound levers and the locking-pins toward the rack-bars 21 and 22, urging said locking-pins into engagement with such holes of the rack-bars as may register with the ends of said pins. From the foregoing it will be seen that a swing of the arm 60^c in either direction effects the retraction of the locking pin controlled thereby. For instance, if the arm 60^c as shown in Fig. 4 be swung downwardly, both parts or members of the compound lever will swing downwardly on the pivot-shaft 58, compressing the pin-actuating spring 52 and retracting the pin 50 from the rack-bar 21 controlled thereby. On the other hand, if the arm 60^c be swung upwardly or in the opposite direction, the outer member 60 of the compound lever alone will swing on its pivot between the arms of the inner member 59, as shown by the dotted line position in Fig. 10, thus likewise compressing the spring 52 and retracting the pin 50.

The manually operable means for thus actuating the lock-releasing mechanism above described consists, as herein shown, of the following. Referring to Figs. 1 and 2, 63 designates a tubular shaft journaled across the receiving end of the machine, fast on the ends of which are hand levers 64 and 65. The hand lever 64 is pivotally connected to the upper lever arm 60^c by a connecting rod 66. Within the tubular shaft 63 is journaled another shaft 67, the ends of which project beyond the ends of shaft 63. On one end of shaft 67 is a hand lever 68, and depending from the other end of said shaft 67 is an arm 69 that is connected by a rod 70, similar to the rod 66 and underlying the latter, to the lower lever arm 60^c. It will thus be seen that the mechanism for releasing the lock of the upper rack-bar 21 can be operated by either of the levers 64 and 65; while the similar mechanism which releases the lock of the lower rack-bar 22 is operated by the lever 68. The reason for providing two levers 64 and 65 on opposite sides of the machine for operating the upper rack-bar is to enable the operator to manipulate both releasing mechanisms simultaneously preliminary to the simultaneous adjustments of both cutter-heads, if so desired.

The direction in which the rack-bars are caused to travel, and consequently the in or out adjustment of the planer heads relatively to the central guide 14, is determined by the direction in which the levers 64, 65 and 68 are swung, through the following mechanism, which also throws the clutch sleeve 37 into operative engagement with clutch members 35 and 36 of the bevel pinions 33 and 34, and thus throws into operation the driving connections of the racks from the shaft 30. Secured to and rigid with each of the members 60 of the compound lever is a laterally projecting arm 71 (Figs. 4 and 5) to the free end of which is pivoted a rod 72, the end of which latter slidingly engages a hole formed through a block 73 (Fig. 6) pivotally mounted in the forked end of the arm 56. Surrounding the rod 72 is a compression spring 74 that abuts at one end against the block 73 and at its other end against a washer 75 the position of which on the rod is adjustably determined by a nut 76, said rod being threaded for this purpose. Pivoted to a short horizontally projecting arm 77 disposed centrally of the outer vertical limb of the frame member 49 (see Figs. 4 and 5) are a pair of parallel arms 78 (see also Fig. 3) that carry journaled between their free ends a roller 79. This roller normally lies against a pair of cam surfaces 80 formed on the ends of the adjacent inner arms 59^b of the lever members 59, as clearly shown in Figs. 3 and 4. Pivoted between the arms 78 is a bearing block 81, best shown in Fig. 3, through which passes a rod 82, one end of which is pivotally connected to the free end of the short arm 57 of the shaft 54, while the portion of said rod 82 on the other side of the bearing block 81 is encircled by a compression spring 83 confined between said bearing block 81 and a stop 84 on the free end of the rod. The action of the spring 83 thus normally forces the arms inwardly and maintains the roller 79 in contact with the cams 80. The spring 83 is considerably stronger than the spring 74, as will hereinafter appear. Each rack-bar carries a vertical pointer 85 that lies in front of a scale 86 secured to the rack-bar housing 23 or any other stationary part of the machine frame; there being such a pointer and scale for each of the rack-bars on opposite sides of the machine, respectively, the pointer and scale of the rack-bar 21 alone being herein shown.

From the foregoing it will be seen that a forward swing of either hand-lever 64 or 65 (that is, in a direction toward the planer heads) thrusts the rod 66 forwardly, rocks lever member 60 on its pivot between the arms of the other lever member 59 (which latter is not moved in this operation), retracting the locking pin 50 from the rack-bar

21, leaving the latter free to be moved, and at the same time, through arm 71, rod 72, nut 76, washer 75, and spring 74, exerts a yielding thrust on the upper arm 56, thus rocking the shaft 54 and, through the lower arm 55 of said shaft, throwing the clutch sleeve 37 to the right, as viewed in Fig. 5, rendering the bevel pinion 34 fast with the driving shaft 30; and, through the described connections, rotating the rack-driving pinion 25 in one direction, the lower rack-bar remaining locked, whereby the planer head connected to the rod 19 is moved laterally of the machine.

Assuming that the shaft 30 is running in a direction to move the planer head away from the central guide 14, under the above-described movements of the hand levers, and that it is desired to adjust said planer head from a previous position indicated by the numeral 4 on the scale to a position to cut or trim a wider timber or plank, say 12 inches, the operator holds the lever 64 or 65 pressed forwardly, thus holding the locking-pin 50 retracted, until the rack-bar 21 has moved outwardly to a position where the pointer has traveled to and just past the numeral 10 of the scale. The operator then releases the hand lever, and the rack-bar continues its travel until the hole therein corresponding to the 12-inch graduation of the scale comes opposite the end of the locking-pin 50, whereupon said locking pin instantly enters said hole, impelled by its actuating spring 52 which at the same time returns the lever member 60 into alinement with the lever member 59 (the full line position as shown in Fig. 10), and, through the connecting rod 66, returns the hand levers 64 and 65 to normal vertical position. This at once releases the pressure of the spring 74 on the arm 56, and the spring 83, acting through rod 82 and arm 57, instantly restores the clutch sleeve 37 to intermediate or idle position, thus stopping further movement of the rack-bar 21, which latter is locked by the pin 50 in its new position. Assuming now that the reverse adjustment of the planer head is to be made; that is, that it is to be adjusted inwardly from a position corresponding to 12 inches on the scale to the 4-inch position. In that case the operator swings the lever 64 or 65 rearwardly, thus pulling on the connecting rod 66, and swinging the compound lever 59 and 60 as a unit on its pivot 58. This at first retracts the locking pin 50, unlocking the rack-bar 21, and simultaneously therewith the cam 80 operating on the roller 79 swings the arms 78 outwardly, thus through the spring 83, stop 84, rod 82, and arm 57, rocking the shaft 54 in a direction to shift the clutch sleeve 37 to the left (as viewed in Fig. 5), thus making the bevel pinion 33 operative with the shaft 30, and operating the driving connections to the rack-driving pinion 25 in a reverse direction to that previously described; the spring 74 yielding sufficiently to permit such action. Thereupon the rack-bar 21 travels inwardly relatively to the machine bed, and the operator holds the lever 64 or 65 in its rear position until the pointer has traveled backwardly over the scale to and just past the indication 6. He then releases the lever, and the rack-bar continues its travel until the hole in the rack-bar corresponding to the 4-inch graduation of the scale comes into register with the end of the locking-pin 50, whereupon the latter instantly snaps into said hole under the impulse of its spring 52, locking the rack-bar against further inward travel. This re-sets the hand levers 64 and 65 to vertical position, and shifts the clutch sleeve 37 to idle position through the restoration of the compound levers 59 and 60 to normal position and the thrust of spring 74 on the arm 56 involved in said restoration of the compound lever to normal position, the cam 80 retreating before the roller 79 and thus relieving the restraining influence of spring 83.

The planer head on the opposite or left-hand side of the machine is operated in an identical manner through similar manipulation of the hand lever 68 acting through arm 69, connecting rod 70, and the underlying duplicate controlling mechanism of the lower rack 22.

It is possible to simultaneously adjust both planer heads inwardly or outwardly, by simultaneous actuation of the hand levers 68 and 65 in the manner above described, which simultaneously releases both locking pins 50 and 51 and throws in the clutch 37, thus rotating the rack-actuating pinion, which in this case has only a rotary and no bodily movement, and which simultaneously moves the rack-bars 21 and 22 equally in opposite directions, according to the direction of rotation of the pinion 25. In this case, as in the actuation of the lever separately, the operator holds both handles until the two pointers have moved to within one point of the predetermined graduation, whereupon both levers may be released, and both the rack-bars will be arrested and locked at their predetermined limits of travel, and the clutch member will be thrown out, in a manner already described.

From the foregoing it will be apparent that my invention provides a means whereby the operator may adjust or set the planer heads or other tools of a machine of this character at exactly predetermined positions through manually controlled power-actuated adjusting mechanism, by moving and holding the manually operated lever or levers until the indicating pointer shows the adjustment to have been approximately reached; whereupon he may release such manually operated lever and leave it to the machine to automat-

ically effect the final and exact adjustment. This entirely obviates the necessity on the part of the operator of closely watching the pointer of the scale and manually stopping the adjusting mechanism at a point on the scale determined wholly by his eye, thus eliminating likely errors that might arise through defective vision or carelessness os the operator. It will be evident to those skilled in the art that the mechanism af shown and described might be widely varied in respect to details without departing from the principle or spirit of the invention or sacrificing any of the advantages thereof; and hence it is to be understood that the invention is not limited to the precise mechanism disclosed, except to the extent clearly indicated in specific claims.

I claim:

1. In an adjusting mechanism for planer heads and the like, the combination of a rack-bar connected to the tool to be adjusted, and having a series of holes therein, means for actuating said rack-bar in either direction, a clutch-mechanism controlling said actuating means, a stationary scale having graduations corresponding to the holes in said rack-bar, a pointer actuated by said rack-bar adapted to travel over said scale, a locking pin adapted to coöperate with the holes in said rack-bar, manually operable means adapted by a single operation to retract said locking pin and shift said clutch-mechanism from idle to operative position relatively to the actuating means of the rack-bar, and a spring operating after the release of said manually operable means to press said pin into locking engagement with the next hole of the rack-bar encountered thereby, and to simultaneously shift said clutch-mechanism to idle position, and restore said manually operable means to normal idle position, substantially as described.

2. In an adjusting mechanism for planer heads and the like, the combination of an adjustable member, means for actuating said adjustable member in either direction of its adjusting movement, a double clutch controlling said actuating means, a clutch-shifting mechanism, a stationary scale, a pointer actuated by said adjustable member adapted to travel over said scale, a lock adapted to engage said adjustable member and secure the same in any one of the positions indicated by the scale, a manually operable lever, and connections from the latter to said lock and clutch-shifting mechanism operating, when said lever is swung in one direction, to release said lock and actuate said clutch-shifting mechanism in one direction, and when said lever is swung in the opposite direction to release said lock and actuate said clutch-shifting mechanism in the other direction, substantially as described.

3. In an adjusting mechanism for planer-heads and the like, the combination of a pair of rack-bars toothed on their adjacent edges and connected to the tools to be adjusted, a pinion between and engaging said rack-bars, locking devices for said rack-bars, actuating means for said pinion, and means for simultaneously releasing either of said locking devices and setting in operation the actuating means of said pinion, substantially as described.

4. In an adjusting mechanism for planer-heads and the like, the combination of a pair of rack-bars toothed on their adjacent edges and connected to the tools to be adjusted, a pinion between and engaging said rack-bars, locking devices for said rack-bars, means for actuating said pinion in either direction of rotation, and means for simultaneously releasing either or both of said locking devices and setting in operation in either direction the actuating means of said pinion, substantially as described.

5. In an adjusting mechanism for planer-heads and the like, the combination of a pair of adjustable members, clutch-controlled mechanism for actuating either or both of said adjustable members in either direction of adjustment, a lock for each of said adjustable members, a pair of hand-levers, and duplicate actuating connections between said hand-levers and said locks and clutch-controlled mechanism, respectively, operating to release said locks and throw into action said clutch-controlled actuating mechanism, substantially as described.

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