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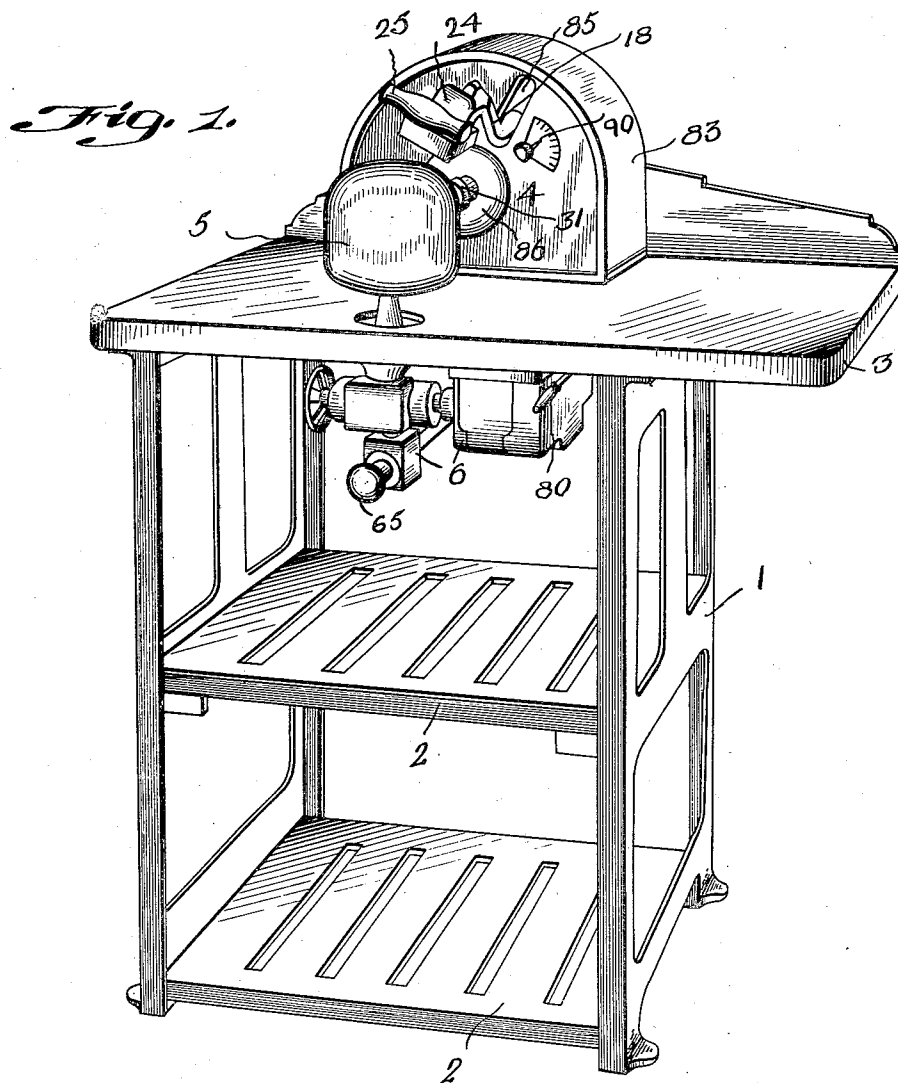
S. C. MARKATOS

1,979,698

HAT IRONING AND FINISHING MACHINE

Filed Feb. 6, 1932

6 Sheets-Sheet 1



INVENTOR.

Spiros C. Markatos

BY

Wm. R. Smith

ATTORNEY.

Nov. 6, 1934.

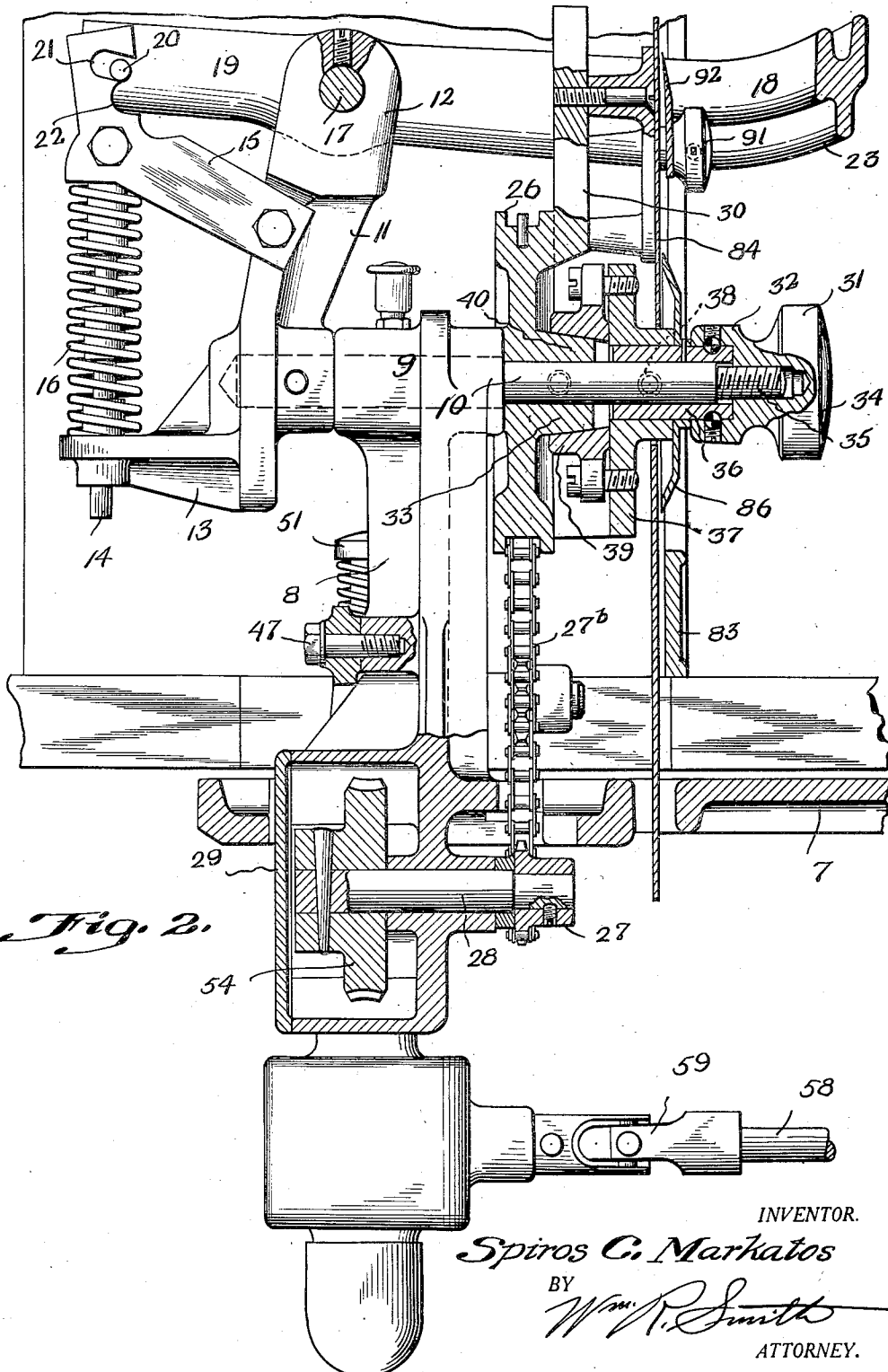
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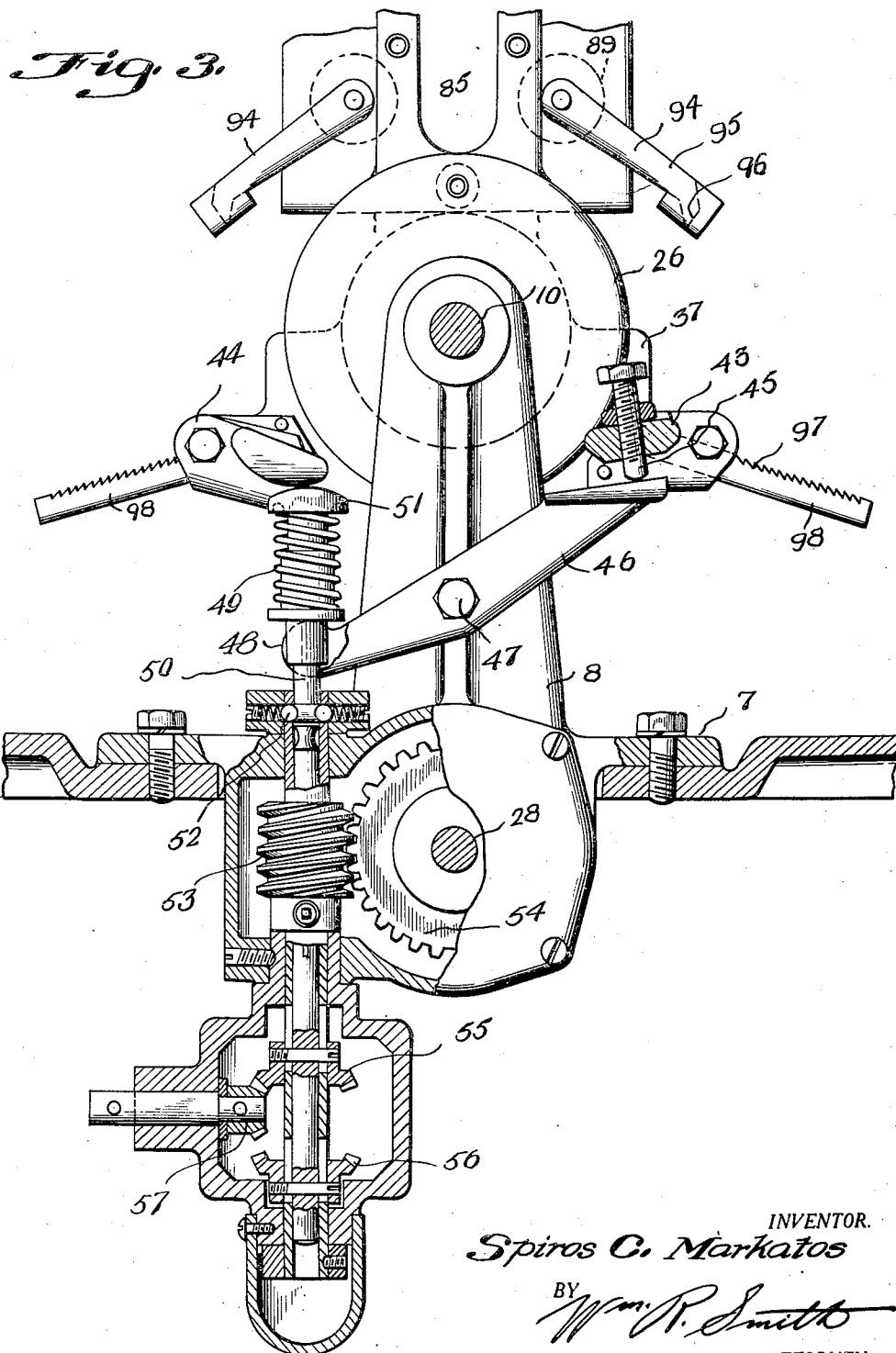
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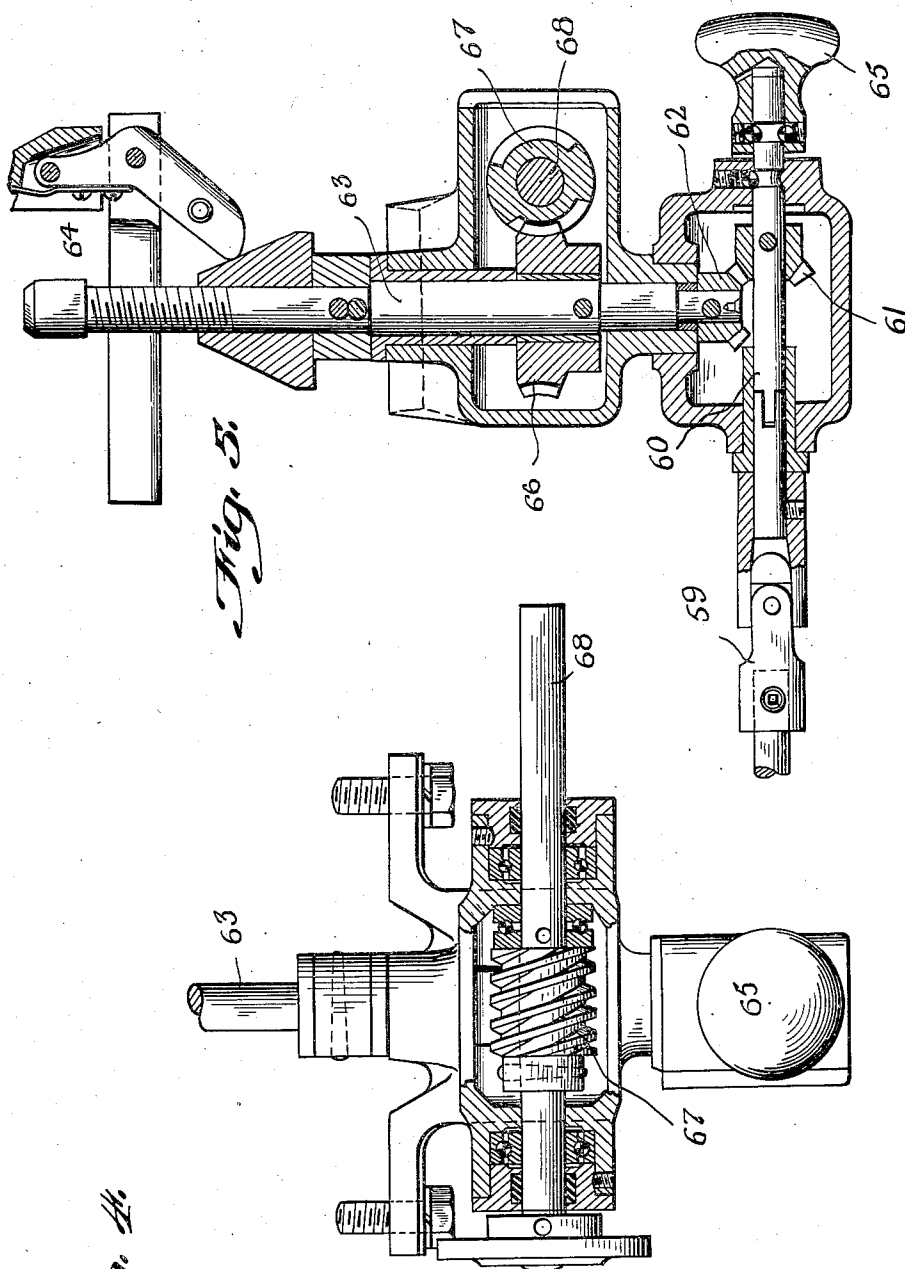
S. C. MARKATOS

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INVENTOR.

Spiros C. Markatos

BY

Wm R Smith

ATTORNEY.

Nov. 6, 1934.

S. C. MARKATOS

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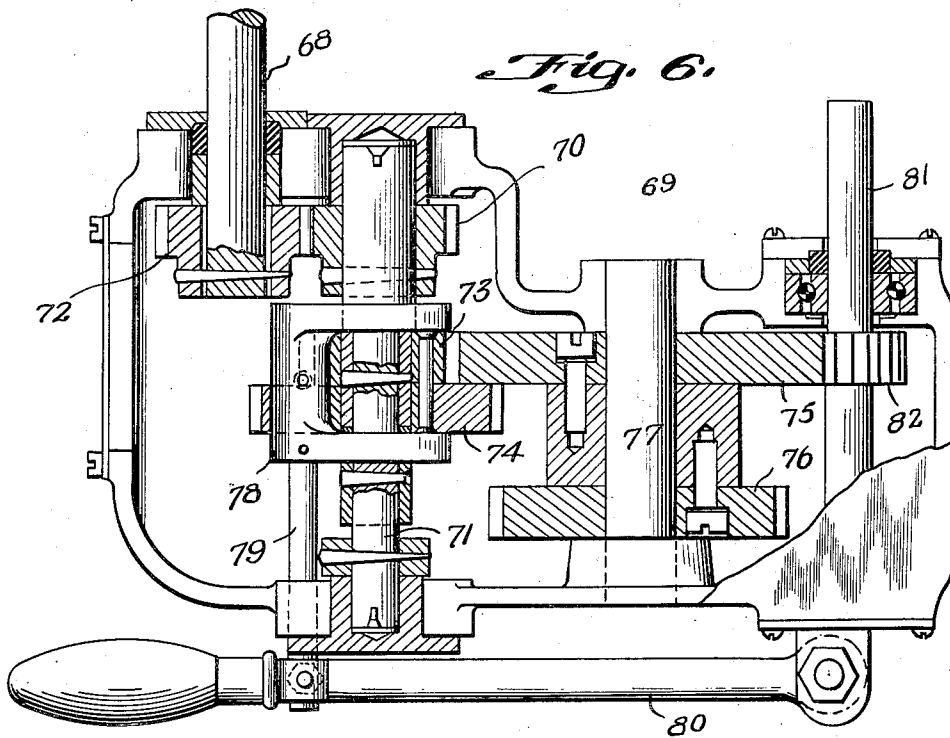
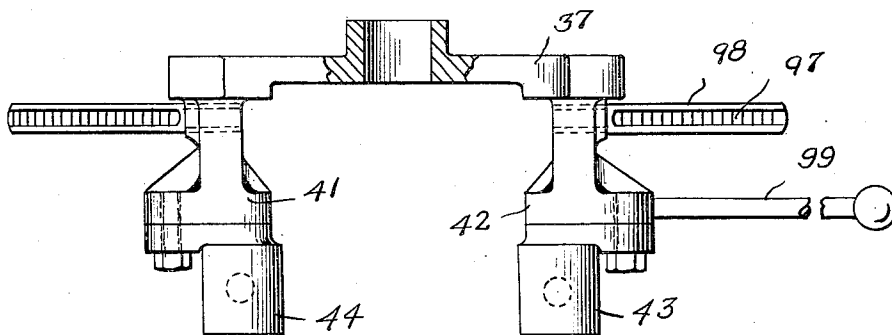


Fig. 7.



INVENTOR.
Spiros C. Markatos

BY *Wm. R. Smith*
ATTORNEY.

Nov. 6, 1934.

S. C. MARKATOS

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Fig. 8.

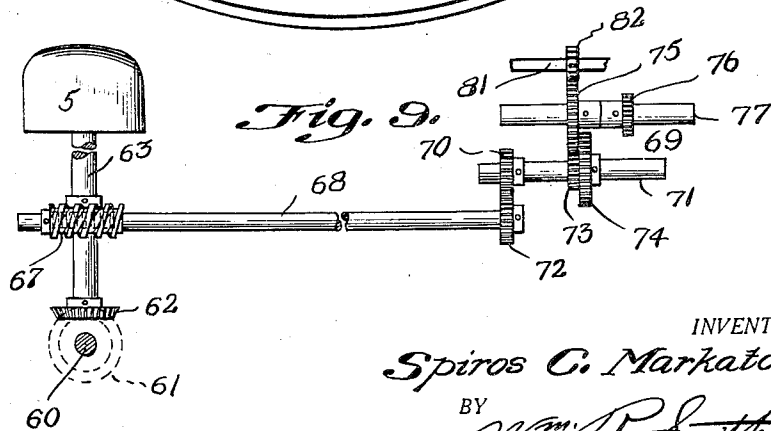
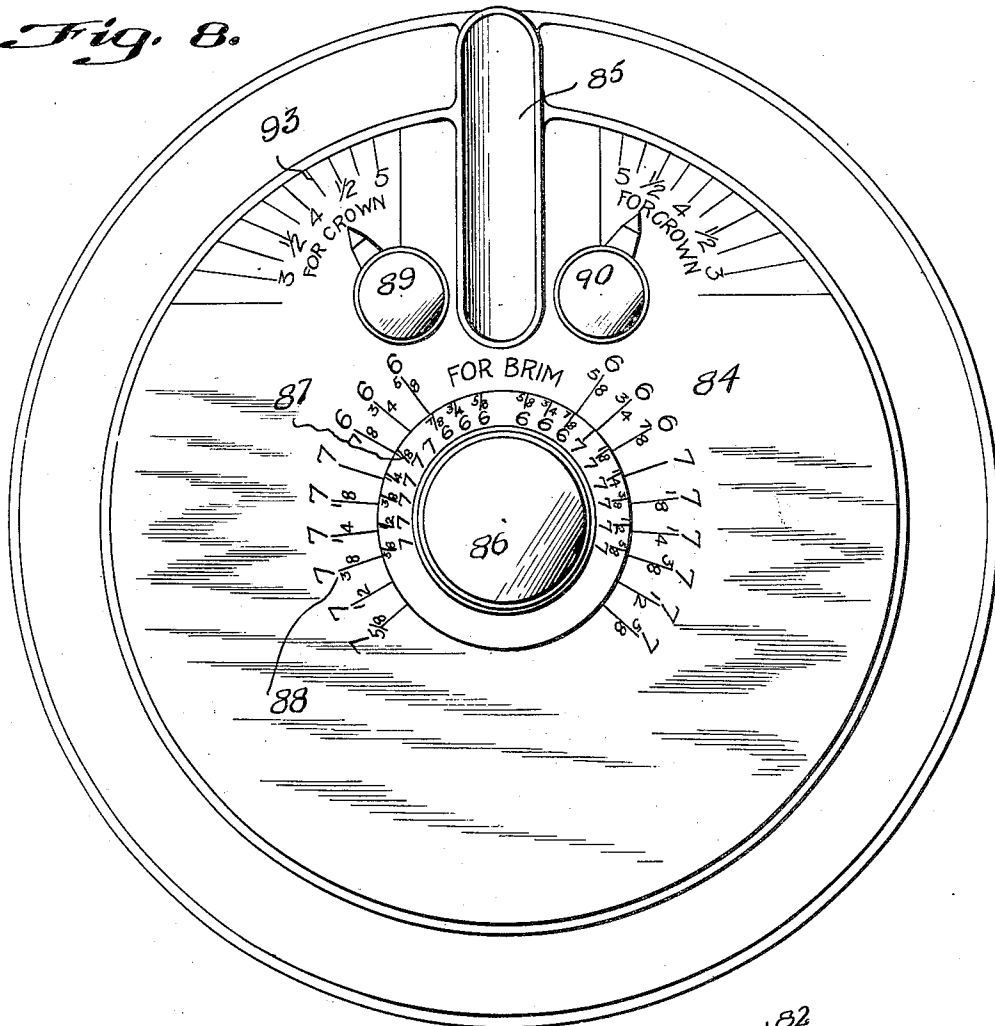


Fig. 9.

INVENTOR.

Spiros C. Markatos

BY

Wm. R. Smith

ATTORNEY.

UNITED STATES PATENT OFFICE

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HAT IRONING AND FINISHING MACHINE

Spiros C. Markatos, New York, N. Y.

Application February 6, 1932, Serial No. 591,266

16 Claims. (Cl. 223—28)

This invention relates to a hat ironing and finishing machine and has for its primary object the design and correlation of mechanisms whereby a hat may be completely finished on a single machine.

An object of the invention is to provide mechanism that will variably control the direction and extent of travel of the ironer so that various size hats with various size brims may be properly finished without removing the ornamental band thereof.

Another object of the invention resides in designing the component parts of the different mechanisms whereby they may cofunction to bring about a more effective and proper engagement between the ironer and the crown and brim of the hat, accomplishing this desired objective with a minimum of expenditure of energy thereby enabling the machine to be economically operated.

Another object of this invention resides in the use of a plurality of selectively operated dial devices whereby the mechanism will be controlled for variably moving the ironer for accommodating full ironing operations on various hat surfaces of various areas.

A feature of the invention resides in the arrangement in a unitary manner of an ironer capable of universal and variable movements in a novel relation with a hat block operating device that is capable of variable speeds thereby enabling the complete finishing of the hat by a single machine.

Besides the above my invention is distinguished in the novel design and construction and correlation of the component parts of the machine whereby the machine as a whole is considerably simplified and the various parts capable of quick adjustments for accommodating variable movements of the ironer.

With these and other objects in view the invention will be better understood from the following detailed description taken in connection with the accompanying drawings, wherein:

Figure 1 is a perspective view of the machine.

Figure 2 is a vertical sectional view through the ironing mechanism.

Figure 3 is a front elevation of the ironing apparatus partly in section.

Figure 4 is a sectional view of part of the drive mechanism.

Figure 5 is a sectional view of the hat block operating mechanism.

Figure 6 is a longitudinal sectional view through the change speed mechanism.

Figure 7 is a top plan view partly in section of the shifter.

Figure 8 is a front elevation of the disc with the dial devices associated therewith.

Figure 9 is a diagrammatic view of the drive mechanism.

Again referring to the drawings in detail the numeral 1 designates a stand provided with shelves 2 for supporting hats and further provided with a top 3 upon which is directly mounted my improved ironer apparatus 4, revolving hat block 5 and operating mechanisms 6.

The ironing apparatus consists of a base 7, upon which is mounted a standard 8, having a bearing 9 in which is mounted a stub shaft 10. This stub shaft 10 has fixed thereto a support 11, designed to provide an arm 12 and a foot 13, the latter forming a support for a slidably mounted rod 14 that is connected to a catch 15, urged upwardly by a coil spring 16 surrounding the rod 14.

Pivotally connected to the arm 12 as indicated at 17, is a lever 18 having a short arm 19 that carries a pin 20 interchangeably associated with notches 21 and 22 in the catch 15. This provides a construction whereby the lever 18 may be yieldably held in an elevated or depressed position in relation to the hat block 5. The long arm 23 of the lever is directly attached to the ironer 24 and further carries a handle 25 for raising and lowering of the lever to selectively arrange the pin 20 in either of the slots 21 and 22.

The stub shaft 10 has keyed thereto a sprocket 26 engaging through a chain 27 a smaller sprocket 27 mounted on a counter shaft 28 mounted in a gear housing 29. This sprocket 26 is provided with a fork 30 straddling the lever 18 so that in the turning of the sprocket 26 the lever 18 and with it the fork 30 will be moved in an arc of a circle.

Loosely mounted on the stub shaft 10 is a control device 31 which includes a dialing device 32 and a clutch 33. The dialing device 32 consists of a knob 34 having screw threaded engagement with the screw 35 on the end of the stub shaft 10. This knob 34 has a rotary connection with a sleeve 36 loosely mounted on a shaft 10 but keyed to a shifter 37 as indicated at 38. This shifter 37 has fixed thereto one member 39 of the clutch 33, the other member 40 of which being formed solid with the sprocket 26. From this construction it will be appreciated

that when the knob 34 is adjusted on the screw 35 it will move the clutch members into and out of engagement with each other for connecting the sprocket to the dialing device or allow the sprocket 26 to move independent of the dialing device. The shifter 37 has a pair of extensions 41 and 42 to which are adjustably connected tappets 43 and 44. The tappet 43 is provided with an adjusting screw 45 having an adjustable relation with a shifter lever 46 pivotally connected to the standard 8 by the bolt 47. This lever 46 is provided with a curved extremity 48 directly engaging the reversing mechanism 49 which, broadly stated, also includes the shifter 37 and shifter lever 46.

The mechanism 49 includes a shiftable shaft 50 having a head 51, engaged by the tappet 44 and associated with a retainer 52 for holding the shaft when shifted into either of its two positions.

Slidably related with the shaft 50 but connected thereto to turn therewith is a worm 53 meshing with a worm wheel 54 secured to the shaft 28. Also connected to the shaft 50 to be slid therewith are companion mitre gears 55 and 56 adapted to be selectively moved into engagement with a drive gear 57 connected to a drive shaft 58. This drive shaft 58 includes universal joints 59. The drive shaft 59 is a two part construction one part of which being slidable and carrying a bevel gear 61 for engagement and disengagement with a bevel gear 62 mounted on the hat block shaft 63 that has directly connected thereto the hat block support 64 upon which the hat block 5 is mounted. A knob 65 mounted on the part 60 is arranged for giving sliding movements to the part 60 for connecting and disconnecting the bevel gears 61 and 62.

Also connected to the shaft 63 is a worm wheel 66 meshing with a worm 67 on the worm shaft 68. The worm shaft 68 in turn is connected to a transmission mechanism 69.

This transmission mechanism 69 as clearly shown in Figure 6 consists of a drive gear 70 mounted on a counter shaft 71 and engaging a driving gear 72 on the worm shaft 68. Also mounted on the shaft 71 is a small gear 73 and a large gear 74 adapted to be selectively moved into engagement with a large gear 75 and a small gear 76 on the shaft 77 by adjustment of the shifting block 78 that is connected by a rod 79 to the pivoted control lever 80. The power shaft 81 is connected to the gear 75 by the gear 82.

Loosely supported by the casing 83 of the ironing apparatus is a disc 84 encircling the shaft 10 and further provided with a slot 85 through which passes the lever 18. Thus, it will be appreciated that in the turning of the lever 18 the dial will be carried therewith about the shaft 10 as a centre.

The dialing device 32 also includes the dial plate 86 carrying graduation marks 87 coacting with the graduation marks 88 on the disc 84. The dialing device 32 is used for the purpose of adjusting the apparatus when the ironer is operating on the brim of a hat and for the purpose of adjusting the mechanism for proper operation on the crown of the hat, I provide the following devices.

Companion dialing devices 89 and 90 are mounted on the disc 84 in a definite relation with the lever 18 and each of these dialing devices consist of a knob 91 and pointer 92 coacting with the graduation marks 93 on the disc. Each dialing device also includes an actuator 94 in the

form of a dog 95, the bill 96 of which is adapted to selectively engage with the teeth 97 of a rack bar 98 that is connected to the shifter 37. The engagement of the bill 96 with the rack bar enables the manipulation of the shifter 37 independent of the establishment of a clutch connection between the dialing device 32 and the sprocket 26.

If I find it desirable in practice I may provide a handle 99 connected to the shifter for the manual adjustment thereof as shown only in Figure 7.

Operation

In the operation of the apparatus the power shaft 81 is set into operation which through the transmission gearing turns the hat block 5 and the reversible mechanism through connection of gears 61 and 62. In other words, the ironing apparatus may be rendered inoperative by disengaging gears 61 and 62 without interference with the operation of the hat block and further the hat block may be rotated at different speeds due to the shifting of the transmission mechanism 69. Thus, it will be appreciated that in a single machine I am capable of operating by a single power shaft, the ironing apparatus and operate the hat block mechanism at two different speeds so that the ironer may properly function on the hat during an ironing operation and the hat rotated at an increased speed in the finishing thereof.

In the manipulation of the ironing apparatus the dialing device 32 is adjusted to align a predetermined mark on the dial plate 86 with a predetermined mark of the graduations 87 which corresponds to the size of the brim of the hat. When this has been accomplished the knob 34 is adjusted on the screw 35 for clamping the clutch member 40 to the clutch member 39 to establish a direct drive connection between the shifter 37 and the sprocket 26. When this has been accomplished and the drive mechanism is set into operation the shifter 37 will be moved with sprocket 26 so that the tappets 43 and 44 may alternately engage and operate the reversing mechanism 49. It will be appreciated that due to the fact that the shifter is fixed to the dial plate 86, adjustment of the dial plate will vary the relative relations of the tappets 43 and 44 with the lever 46 and head 51 and thereby vary the distance of travel of the lever 18 and with the lever the ironer 24. As the tappets 43 and 44 are fixed to the shifter 37 and the shifter is mounted for swinging movements about the shaft 10, it will be appreciated that the tappet 43 may be moved towards and away from the end of the lever 46 and the tappet 44 moved towards and away from the head 51 accordingly. This shifting of the position of the tappets relative to the lever 46 and head 51 variably controls the time of operation of the reversing mechanism thereby controlling the extent of movement of the ironer in a particular direction for accommodating rims of different sizes. Thus, it will be appreciated that my invention may be accurately and quickly adjusted for different size brims.

For operation on the right side of a crown, I manipulate the dial 90 and for operation of the ironer on the left side of a crown I manipulate the dial 89. In the manipulation of either of the dials 89 or 90 over the graduation marks 93 I am able to vary the travel of the ironer according to the area of that part of the crown above the hat band thereby enabling the ironer to iron the crown of the hat without removal of the hat band which is a very important improvement in the

industry. In the adjustment of each of the dials 89 and 90 the dog 95 associated therewith will be adjusted in its angular relation with its associated rack bar with the result that the time interval of engagement of the bill 96 with the teeth 97 will be varied for varying the time interval of shifting of the reversing mechanism. As the rack bars 98 are fixed to the shifters 37 which through the tappets 43 and 44 operate the shifting mechanism, it will be appreciated that when the bills 96 engage the teeth 97, the shifter 37 will be operated. In the oscillating of the disc 84 back and forth the bills 96 alternately engage the rack bars 98. Now by swinging the dogs 95 about their pivots by manipulation of the dialing devices 89 and 90, it will be appreciated that the time of engagement of the bills 96 with the bars 98 will be changed thereby controlling the time of operation of the shifting mechanism and thereby controlling the extent of travel of the ironer on the crown of a hat.

Of course, it is to be understood that at any time the reversing of the mechanism may be changed by manually manipulating the handle 99.

It is, of course, to be understood that the component parts of the various mechanisms and their relations may be changed in many ways without departing from the spirit of my invention and therefore I do not desire to be limited in any manner whatsoever, except as set forth in the following claims:

What I claim is:

1. A hat ironing apparatus comprising an ironer, a support for said ironer capable of giving oscillatory movements thereto, drive mechanism for said support, reversing mechanism for the drive mechanism and manually controlled devices operatively associated with said reversing mechanism for variably controlling the distance of travel of the ironer over the brim of a hat, and companion devices operatively associated with said reversing mechanism for variably controlling the movement of the ironer over the crown of a hat and operating independent of said first device.

2. A hat ironing apparatus comprising an ironer, a lever connected thereto and supported for swinging movements to oscillate said ironer, drive mechanism having operative connection with said lever, reversing mechanism for said drive mechanism, companion actuators having a fixed relation with said lever and capable of selectively operating said reversing mechanism, tappets mounted for selectively operating said reversing mechanism and manually adjusted dial devices for operatively connecting said tappets to said drive mechanism.

3. A hat ironing apparatus comprising a stub shaft, a base supporting said stub shaft, a lever connected with said stub shaft to turn therewith, an ironer secured to said lever, drive mechanism for said stub shaft, reversing mechanism for said drive mechanism, a disc mounted to turn about said shaft and connected to said lever, and companion manually adjusted devices carried by said disc for selectively operating said reversing mechanism according to the position of said lever.

4. A hat ironing apparatus comprising a stub shaft, a base supporting said stub shaft, a lever connected with said stub shaft to turn therewith, an ironer secured to said lever, drive mechanism for said stub shaft, reversing mechanism for said drive mechanism, a disc mounted to turn about said shaft and connected to said lever, and com-

panion manually adjusted devices carried by said disc for selectively operating said reversing mechanism according to the position of said lever and a third device manually operated and associated with said stub shaft for operating said reversing mechanism independently of said companion devices.

5. A hat ironing apparatus comprising a stub shaft, a base supporting said stub shaft, a lever connected with said stub shaft to turn therewith, an ironer secured to said lever, drive mechanism for said stub shaft, reversing mechanism for said drive mechanism, a disc mounted to turn about said shaft and connected to said lever, and companion manually adjusted devices carried by said disc for selectively operating said reversing mechanism according to the position of said lever and a third device manually operated and associated with said stub shaft for operating said reversing mechanism independently of said companion devices, said device adapted to be manually connected to and disconnected from said drive mechanism.

6. A hat ironing apparatus comprising a base, a stub shaft mounted on the base, a lever connected to the stub shaft to turn therewith, an ironer secured to the lever, a disc mounted to turn about said shaft and operatively associated with said lever, drive mechanism for said shaft, reversing mechanism for said drive mechanism and means carried by said disc and manually adjusted for varying the time interval of engagement thereof with said reversing mechanism for operating the reversing mechanism.

7. A hat ironing apparatus comprising a base, a stub shaft mounted on the base, a lever connected to the stub shaft to turn therewith, an ironer secured to the lever, a disc mounted to turn about said shaft and operatively associated with said lever, drive mechanism for said shaft, reversing mechanism for said drive mechanism and means carried by said disc and manually adjusted for varying the time interval of engagement thereof with said reversing mechanism for operating the reversing mechanism and a manually adjusted device for engagement and disengagement with the drive mechanism for reversing mechanism independently of said disc.

8. A hat ironing apparatus comprising a base, a stub shaft mounted on the base, a lever connected to the stub shaft to turn therewith, an ironer secured to the lever, a disc mounted to turn about said shaft and operatively associated with said lever, drive mechanism for said shaft, reversing mechanism for said drive mechanism and means carried by said disc and manually adjusted for varying the time interval of engagement thereof with said reversing mechanism for operating the reversing mechanism and a manually adjusted device for engagement and disengagement with the drive mechanism for reversing mechanism independently of said disc, said device including tappets for alternately engaging said reversing mechanism and a clutch element for engagement and disengagement with the drive mechanism.

9. A hat ironing apparatus comprising a base, a stub shaft supported by said base, a support fixed to said stub shaft to turn therewith, a lever pivotally connected to the said support, an ironer secured to one end of said lever, drive mechanism connected to said shaft, reversing mechanism for the drive mechanism, a shifter loosely mounted on said stub shaft, a clutch element for operatively connecting said shifter to said drive mech-

anism, a device for moving said element into operative engagement with the drive mechanism, said shifter adapted to operate said reversing mechanism.

- 5 10. A hat ironing apparatus comprising a base, a stub shaft supported by said base, a support fixed to said stub shaft to turn therewith, a lever pivotally connected to said support, an ironer secured to one end of said lever, drive mechanism
10 connected to said shaft, reversing mechanism for the drive mechanism, a shifter loosely mounted on said stub shaft, a clutch element for operatively connecting said shifter to said drive mechanism, a device for moving said element
15 into operative engagement with the drive mechanism, said shifter adapted to operate said reversing mechanism and manually adjusted devices associated with said lever for operating said shifter when said clutch element is disconnected
20 from said drive mechanism.

11. A hat ironing apparatus comprising a base, a stub shaft supported by said base, a support secured to said shaft to turn therewith, a lever pivotally connected to said support, an ironer connected to one end of the lever, drive mechanism for said stub shaft, reversing mechanism for said drive mechanism, a shifter for the reversing mechanism loosely mounted on said stub shaft, a clutch element connected to said shifter,
25 a knob for movement of said clutch element into and out of operative connection with the drive mechanism, an indicator associated with said knob including a dial plate rotatably mounted on said stub shaft and a pair of companion devices supported in fixed relation to said lever
30 and adapted to selectively operate said shifter when the latter is disconnected from the drive mechanism.

12. A hat ironing apparatus comprising a base, a support secured to said shaft to turn therewith
40 a lever pivotally connected to said support, an ironer connected to one end of the lever, drive mechanism for said stub shaft, reversing mechanism for said drive mechanism, a shifter for the reversing mechanism loosely mounted on said
45 stub shaft, a clutch element connected to said shifter, a knob for movement of said clutch element into and out of operative connection with

the drive mechanism, an indicator associated with said knob including a dial plate rotatably mounted on said stub shaft and a pair of companion devices supported in fixed relation to said lever and adapted to selectively operate said shifter when the latter is disconnected from the drive mechanism, said device including manually operated knobs and indicators associated therewith.

13. In combination, with an ironer operating mechanism, drive mechanism and reversing mechanism therefore, a plurality of manually adjusted dial devices adapted to be selectively engaged with said reversing mechanism for the operation thereof, certain of said dial devices having a permanent drive connection with said drive mechanism and others having a selective drive connection with said drive mechanism.

14. An apparatus of the character described, a drive shaft, drive mechanism therefor, reversing mechanism for the drive mechanism, a shifter loosely mounted on said drive shaft, a clutch device for connecting and disconnecting said shifter from the drive mechanism, said shifter adapted to variably and periodically operate said reversing mechanism in the operation of said drive mechanism.

15. An apparatus of the character described, a drive shaft, drive mechanism therefor, reversing mechanism for the drive mechanism, a shifter loosely mounted on said drive shaft, a clutch device for connecting and disconnecting said shifter from the drive mechanism, said shifter adapted to variably and periodically operate said reversing mechanism in the operation of said drive mechanism and selectively operated devices for operating said shifter when disconnected from said drive mechanism.

16. A hat ironing apparatus comprising in combination an ironer, drive mechanism therefor, a manually operated device for controlling the extent and direction of travel of said mechanism when the ironer is operating on the crown of a hat and companion independent dial devices controlling the extent of travel and direction of travel of said mechanism when the ironer is functioning on the brim of a hat.

SPIROS C. MARKATOS.

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