

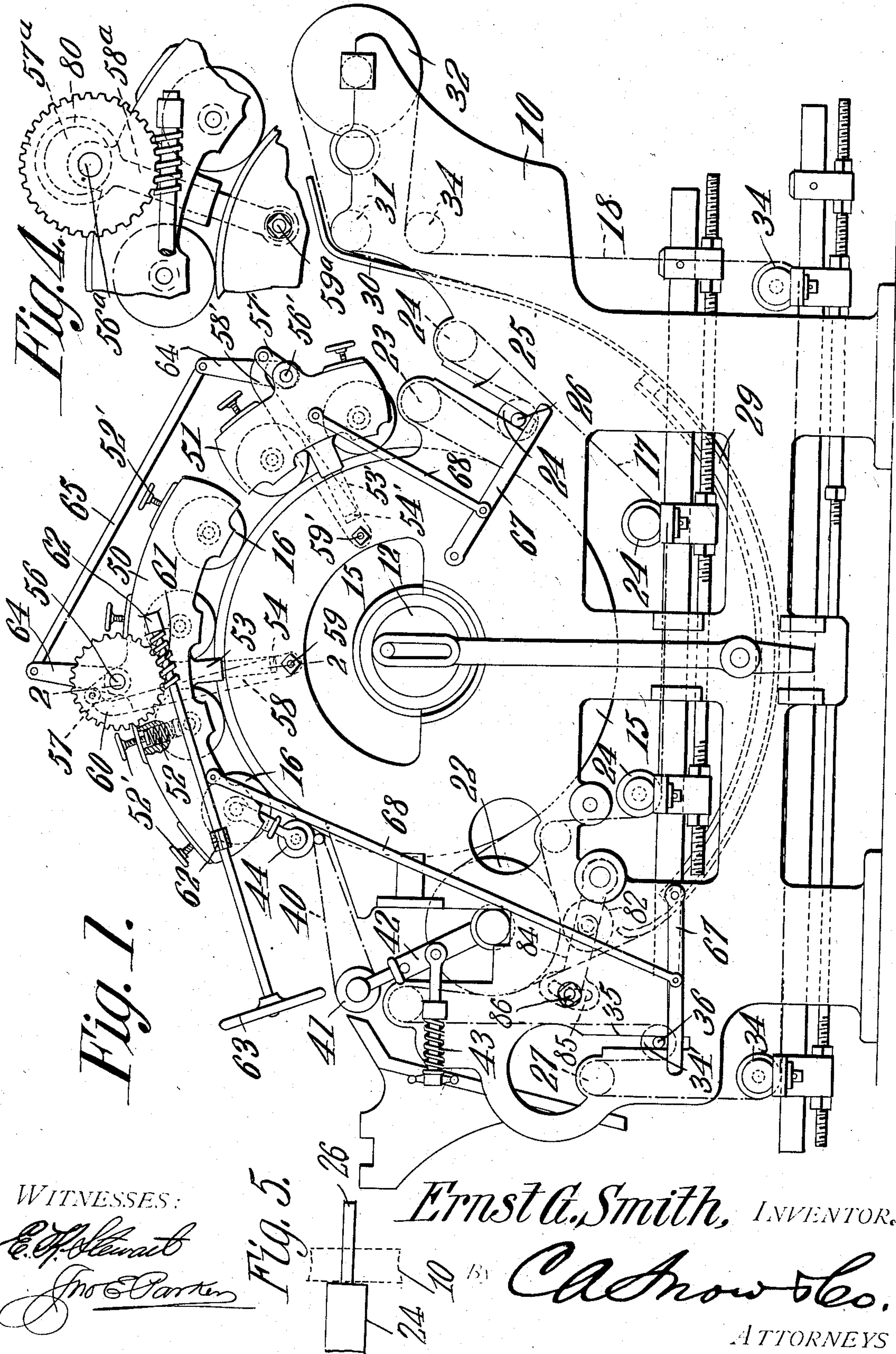
No. 859,987.

PATENTED JULY 16, 1907.

E. G. SMITH.
MANGLE.

APPLICATION FILED NOV. 26, 1906.

3 SHEETS—SHEET 1.



WITNESSES:

C. H. Stewart
J. H. Parker

Fig. 5.

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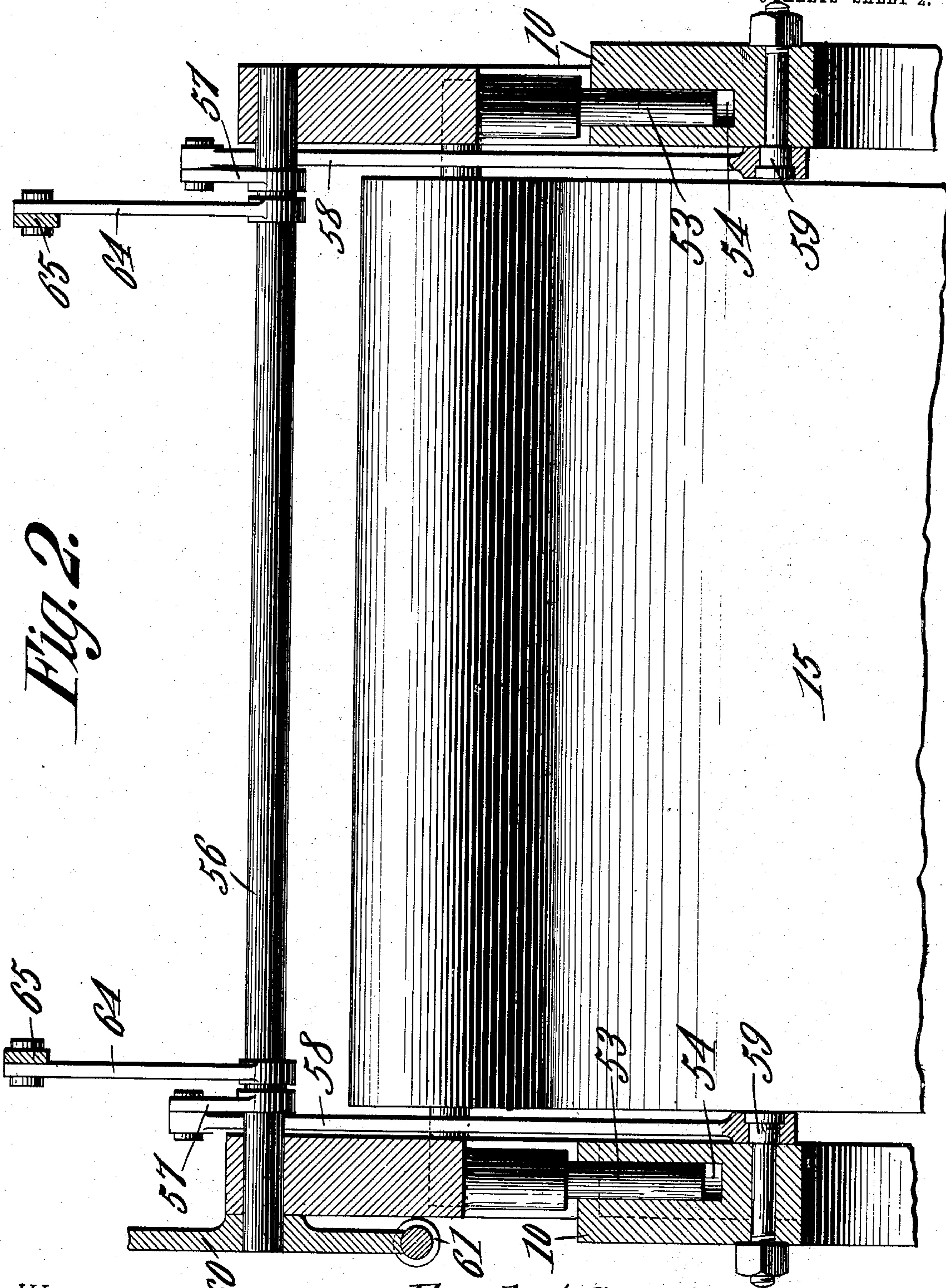


Fig. 2.

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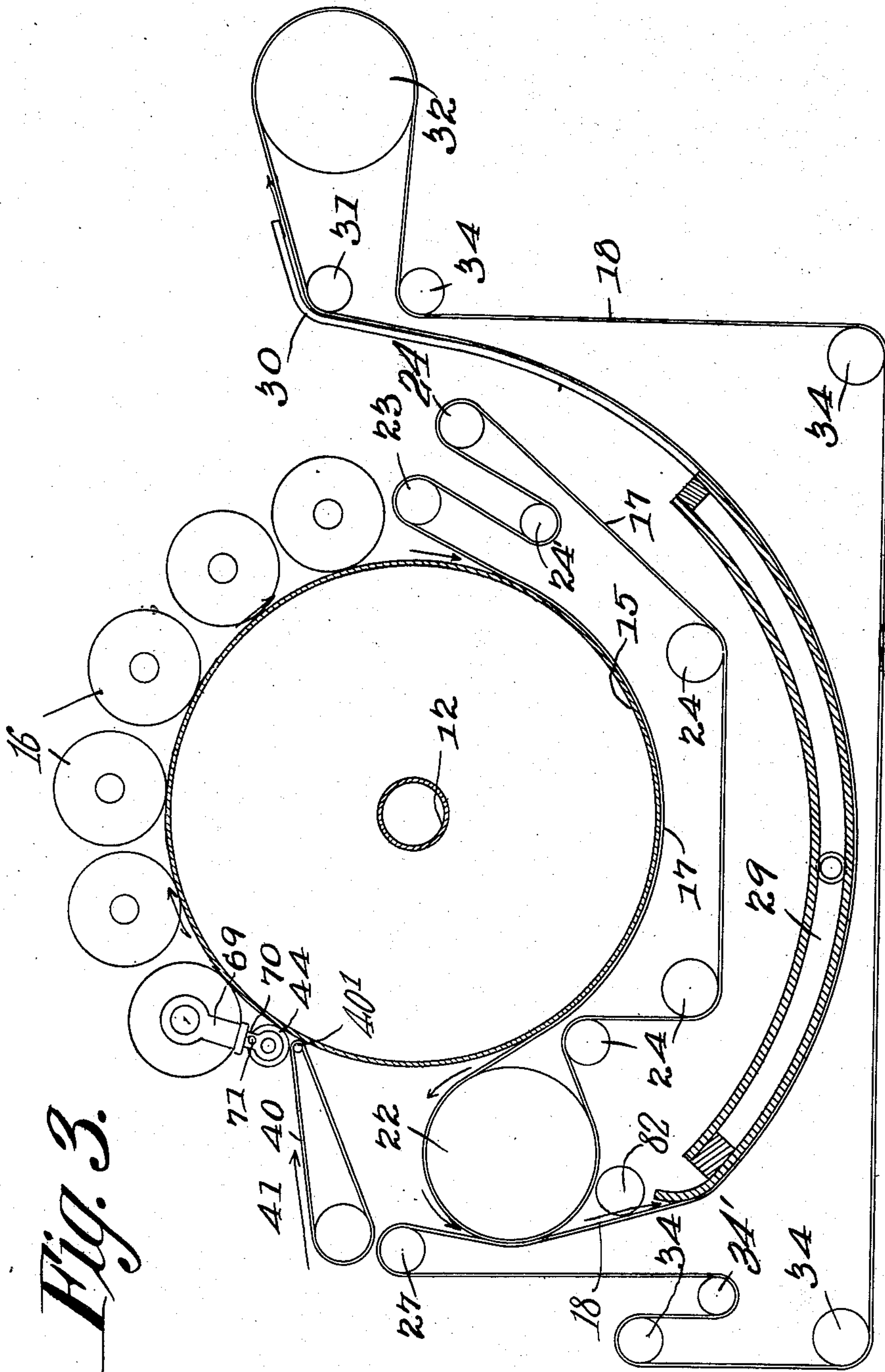
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3 SHEETS—SHEET 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ERNST G. SMITH, OF COLUMBIA, PENNSYLVANIA.

MANGLE.

No. 859,987.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed November 26, 1906. Serial No. 345,128.

To all whom it may concern:

Be it known that I, ERNST G. SMITH, a citizen of the United States, residing at Columbia, in the county of Lancaster and State of Pennsylvania, have invented a new and useful Mangle, of which the following is a specification.

This invention relates to mangles, and has for one of its objects to provide means whereby the pressure rollers may be moved out of contact with the main drum or cylinder when the machine is not in use in order to avoid injury to the yieldable layers of felt or other material with which said rolls are usually covered.

A further object of the invention is to provide a mechanism of simple construction by which all of the pressure rollers may be simultaneously moved toward and from operative position.

A still further object of the invention is to provide a mangle in which provision is made for slackening the main apron, so as to avoid injurious strain on the same when not in use, and to permit its movement out of engagement with the steam jacket.

A still further object of the invention is to provide a mangle in which the pressure rolls and the main apron may be simultaneously moved to inoperative position when the machine is not in use.

Further objects of the invention are to improve and simplify the construction of the machine in general, and to render its operation more effective than machines of this general type as now constructed.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a side elevation of a mangle constructed in accordance with the invention. Fig. 2 is a transverse sectional view of a portion of the machine on the line 2—2 of Fig. 1, the view being on an enlarged scale. Fig. 3 is a view in the nature of a diagram illustrating the arrangement of the main drum or cylinder, the pressure rollers, and the main aprons. Fig. 4 is a detail view illustrating a slight modification of the pressure roller raising means. Fig. 5 is a detail view showing the extension of the shaft of one of the idlers employed for keeping the apron taut.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The working parts of the machine are supported on a suitable frame, including oppositely disposed cheek plates 10 which are provided with bearings for the sup-

port of the main drum shaft, and the several apron guiding rollers.

The main shaft 12 is hollow to permit the introduction of steam into the drum 15, and this drum coöperates with a number of felt covered pressure rollers 16 and two aprons 17 and 18 in pressing the clothes. The upper and innermost apron 17 is guided into contact with the lower portion of the drum by means of a pair of rollers 22 and 23, and the apron after passing over the roller 22 is led over idlers 24—24', to the roller 23, suitable means being employed for adjusting one or more of the idlers for the purpose of keeping the apron taut. The idler 24' is carried by a shaft, the ends of which extends out through slots 25 formed in the cheek plates, and are arranged to form handles 26. The weight of this idler is imposed on the apron and serves to hold the latter taut, the ends of the shaft being held from engagement with the lower end of the slots. Should the apron become twisted or awry, the roller may be lifted by grasping the handles 26, and when the apron is thus slackened, it may be readily straightened. Provision is also made, as will hereinafter appear, for raising this roller when the machine is not in use, so that the apron 17 will not be held tightly in engagement with the drum. The second apron 18 is guided over a roller 27 at the front or feeding end of the machine, and passes into engagement with the apron 17 at the periphery of the roller 22. The apron 18 thence passes under a steam jacket 29 that preferably is arranged on a line concentric with the periphery of the drum 15, the end of the steam jacket being extended upward in the form of guiding fingers 30 in order to carry the goods over the roller 31 and the apron to the delivery side. The apron thence passes over a large roller 32 and is led back over idlers 34—34', some of which are adjustably mounted in order to keep the apron taut.

The roller 34' is provided with a shaft, the ends of which project through slots 35 formed in the cheek plates and form handles 36 which may be grasped for the purpose of raising the roller. The weight of this roller is normally imposed on the belt, the handle members being at all times maintained above the bottom of the slots, but if the apron becomes twisted or awry, this roller may be readily raised and the belt slackened and straightened. Provision is also made, as will hereinafter appear, for raising this roller and slackening the apron when the machine is not in use, so that the apron may not be held tightly against the steam jacket.

At the feeding side of the machine the clothes are placed on a feeding apron 40, the inner end of which passes over a small roller 40', while the outer end of said apron passes over a roller 41 that is adjustably mounted in a pair of swinging brackets 42, there being one of such brackets at each side of the machine. These brackets are held outward by an adjustable compression spring 43 in order to keep the feed apron taut,

and at the delivery end of this apron is a roller 44 by which the clothes are guided into contact with the main drum.

The clothes are fed on to the apron 40, and pass under the roller 44 into engagement with the periphery of the main drum 15, the clothes thence passing under the successive pressure rollers 16, and down between the periphery of the drum and the inner belt 17. After traversing the lower part of the drum, the clothes are carried by the apron over the roller 22 and between the aprons 17 and 18, and are thence carried by the apron 18 to a position below the steam jacket 29 where they frictionally engage with the outer surface of the steam jacket, and thence are carried up over the roller 31, and deflected by the fingers 30 to the delivery point.

In machines of this general type, much difficulty has been experienced in preserving the rollers in good working order. The pressure rollers are covered with felt or other yieldable material and if allowed to remain in contact with the heated drum 15 while the machine is stopped, the felt covering will be seriously injured. The aprons are also injured if allowed to remain in contact with the heated drum and steam jacket while the machine is not running.

In carrying out the present invention, the shafts of the pressure rollers are journaled in two sets of arcuate frames 50 and 51. The shafts are carried by boxes which are held down by suitable springs 52, the stress of which may be adjusted by hand screws 52'. Each of the frames 50 is provided with a depending bar 53 that is slidably mounted in a socket 54 formed in the cheek plate and disposed in a line radiating from the axis of rotation of the shaft 12, and these bars form guides for directing the movement of the frame 50 toward and from the periphery of the main drum.

Journaled in the upper portion of frames 50 is a transversely disposed rock shaft 56 having two rocker arms 57 that are connected by links 58 to pins or bolts 59 carried by the cheek plates, and if this rock shaft is turned in the proper direction, the links will act as supports to permit the outward movement of the frames. For this purpose, one end of the shaft carries a worm wheel 60 with which engages a worm 61, mounted in suitable bearings 62, and having at one end a handle wheel 63, by which it may be operated. By turning the worm wheel in one direction, the frames 50 may be moved outward, thus raising all of the pressure rollers from engagement with the periphery of the drum, and by movement in the opposite direction the pressure rollers may be restored to operative position. In the present case the pressure rollers are carried by two frames 50 and 51, and the frame 51 is provided with pins 53' fitting in radial sockets 54' in the cheek plates. The frames 51 carry a shaft 56', on which are rocker arms 57', and the rocker arms are connected by links 58' to the studs 59' on the cheek plates. The two rock shafts are, also, provided with rocker arms 64 which are connected together by links 65, so that the movement of the rock shaft 56 is transferred to the rock shaft 56', and both frames are simultaneously moved outward from the drum.

To provide for the slackening of the belts, a pair of levers 67 is arranged under the handle members 26—36

of the rollers 24', 34', and these levers are connected by links 68 to the frames which carry the pressure rollers, the arrangement being such that as the pressure roller carrying frames move outward, the belt tightening rollers will be elevated in order to permit the belts to slacken and to move away from the heated surfaces of the drum and steam jacket.

As a modification of the operating means, the frames may be provided with shafts 56^a carrying eccentrics 57^a that are connected by straps 80 to bars 58^a, the lower ends of which are pivoted on studs 59^a. The shaft in this case is provided with a worm wheel and is engaged by a worm in a manner similar to that already described, so that by turning the shaft and the eccentrics within the straps 80, the frames may be raised and lowered.

In order to direct the clothes from the belt 17 to the belt 18 at the point where the belts or aprons separate under the drum 22, a deflecting roller 82 is employed, the roller being rotated in the same direction as the drum 22 and serving to turn back any article which may cling back to the lower surface of the belt 17, so that all of the clothes will be properly directed on to the belt 18. This roller is carried by a pair of pivotally mounted arms 84 which may be adjusted in order to move the roller close to the belt 17, the arms being provided with slots 85 for the reception of locking bolts 86.

I claim:—

1. The combination in a mangle, of a main drum, a pair of stationary side frames, a pair of arcuate frames, following generally the contour of the drum, guiding pins or bars carried by the arcuate frames and fitting in recesses formed in the main frame, said pins being arranged radially with respect to the drum, a shaft journaled in said arcuate frames, a pair of rocker arms secured to said shaft, links extending between the rocker arms and fixed studs on the main frame, means for turning said shaft to effect raising and lowering of the arcuate frames through the rocker arm and link connections, and pressure rollers journaled in said arcuate frames.

2. The combination with a mangle including a stationary frame and a main drum, of a series of pressure rollers, a pair of sets of movable frames in which said rollers are journaled, adjustable springs carried by the movable frames and bearing against the pressure rollers, a shaft carried by each set of frames, rocker arms projecting from the shafts, a link connecting said rocker arms, additional rocker arms extending from both shafts, links connecting the additional rocker arms to the main frame, and means for turning one of said shafts and thereby simultaneously effecting adjustment of both sets of movable frames toward or from the main frame.

3. The combination in a mangle, of a main frame having slots, a drum, a plurality of pressure rollers, movable frames carrying the same, means for moving such frames to prevent contact between the pressure rollers and the drum, a pair of aprons, one of which engages the drum, a steam jacket engaging the other apron, loose rollers for holding the aprons taut, said rollers having end journals projecting through the slots, levers arranged under said journals, and links connecting said levers to the movable frames, whereby on raising the movable frames, the rollers will also be elevated and the apron slackened.

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

ERNST G. SMITH.

Witnesses:

JNO. W. GREENAWALT,
FRANCIS E. MEYER.