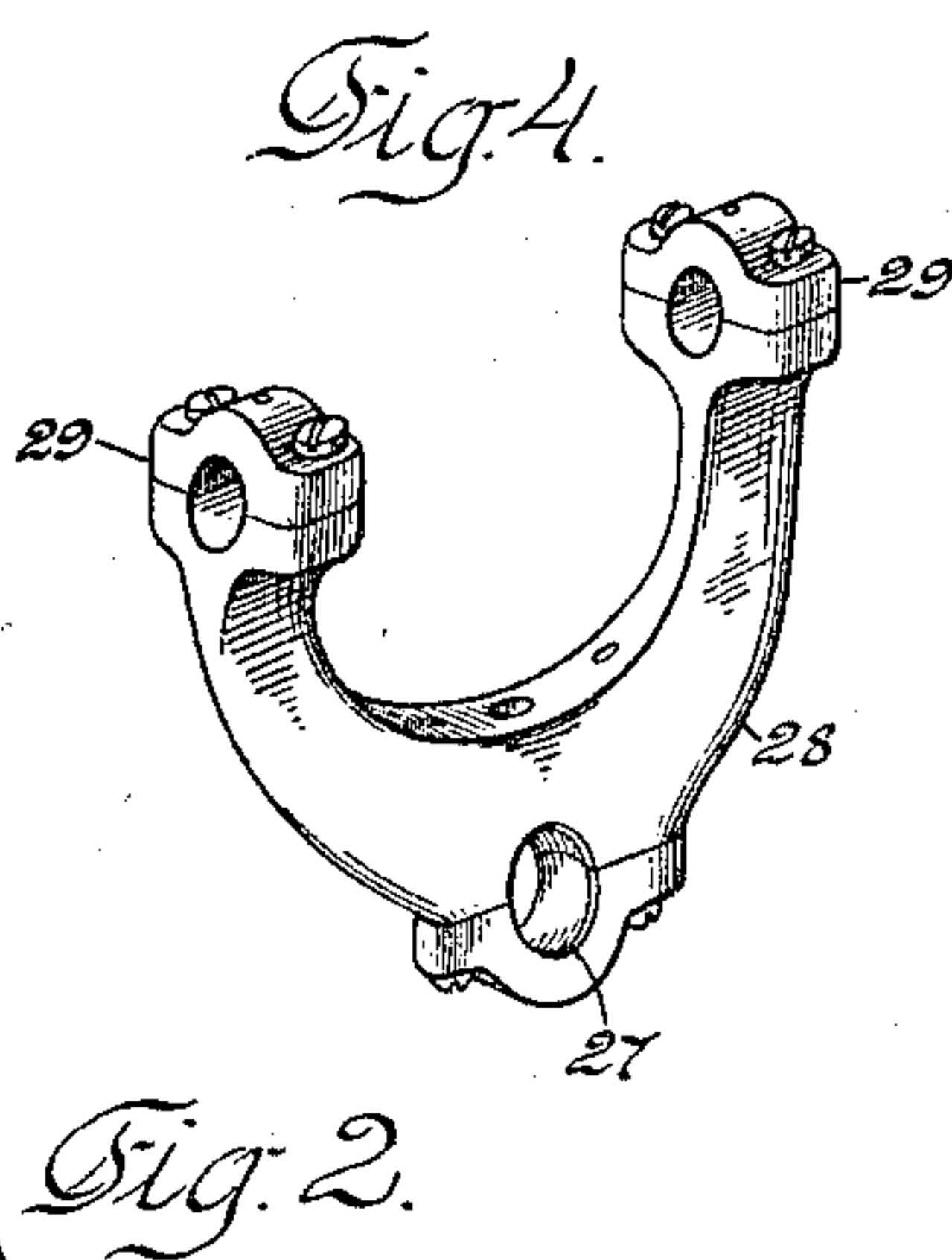
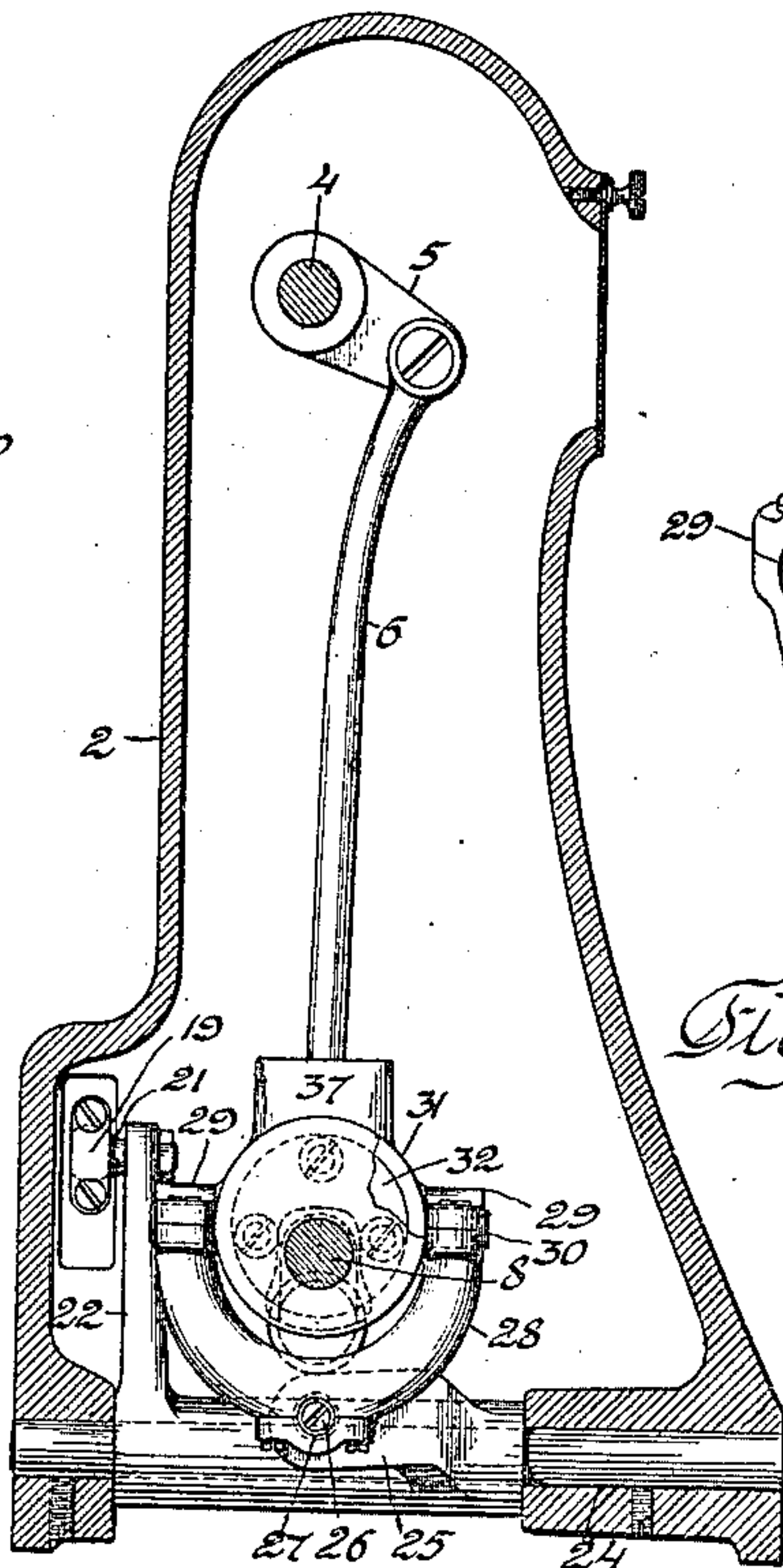
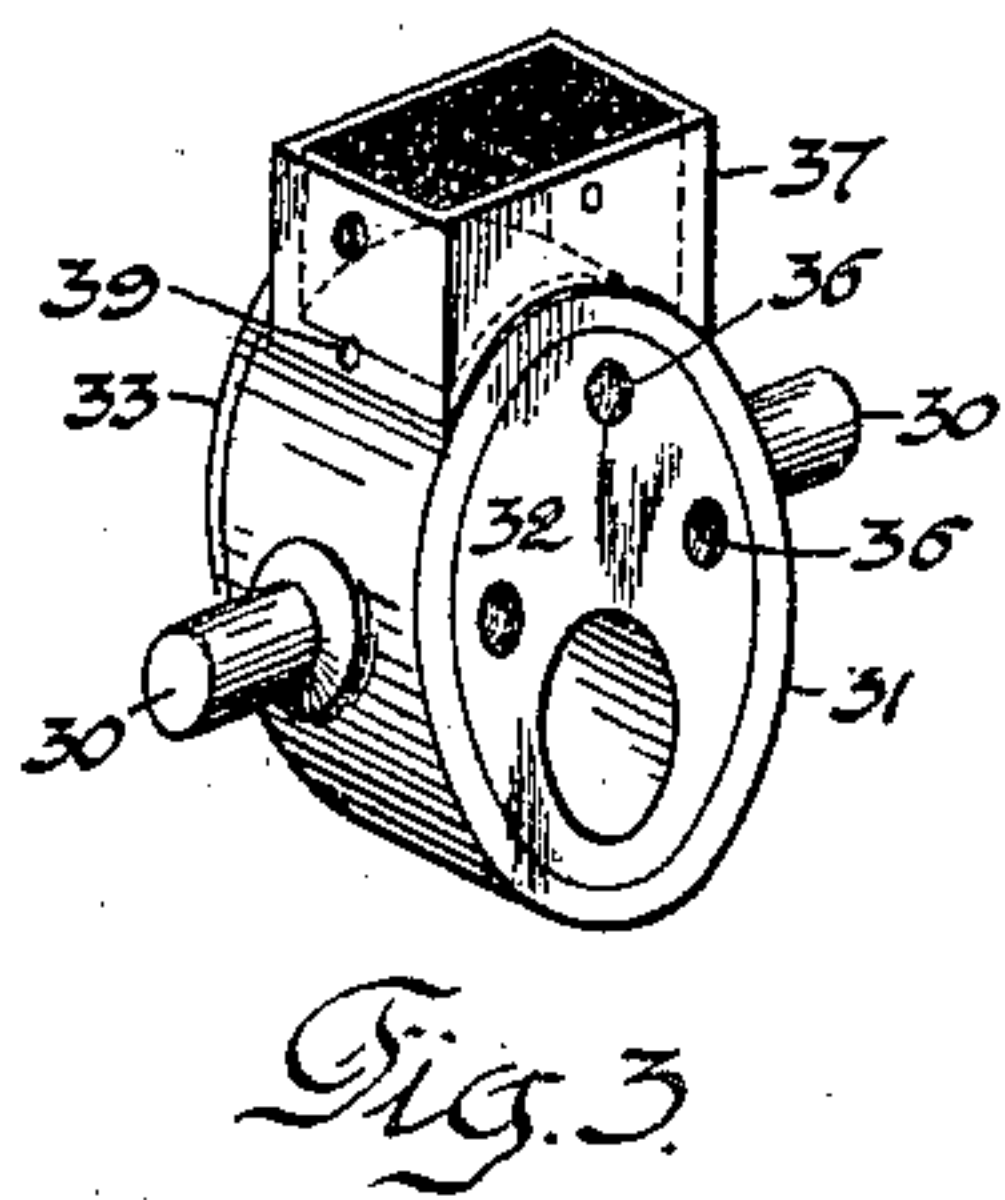
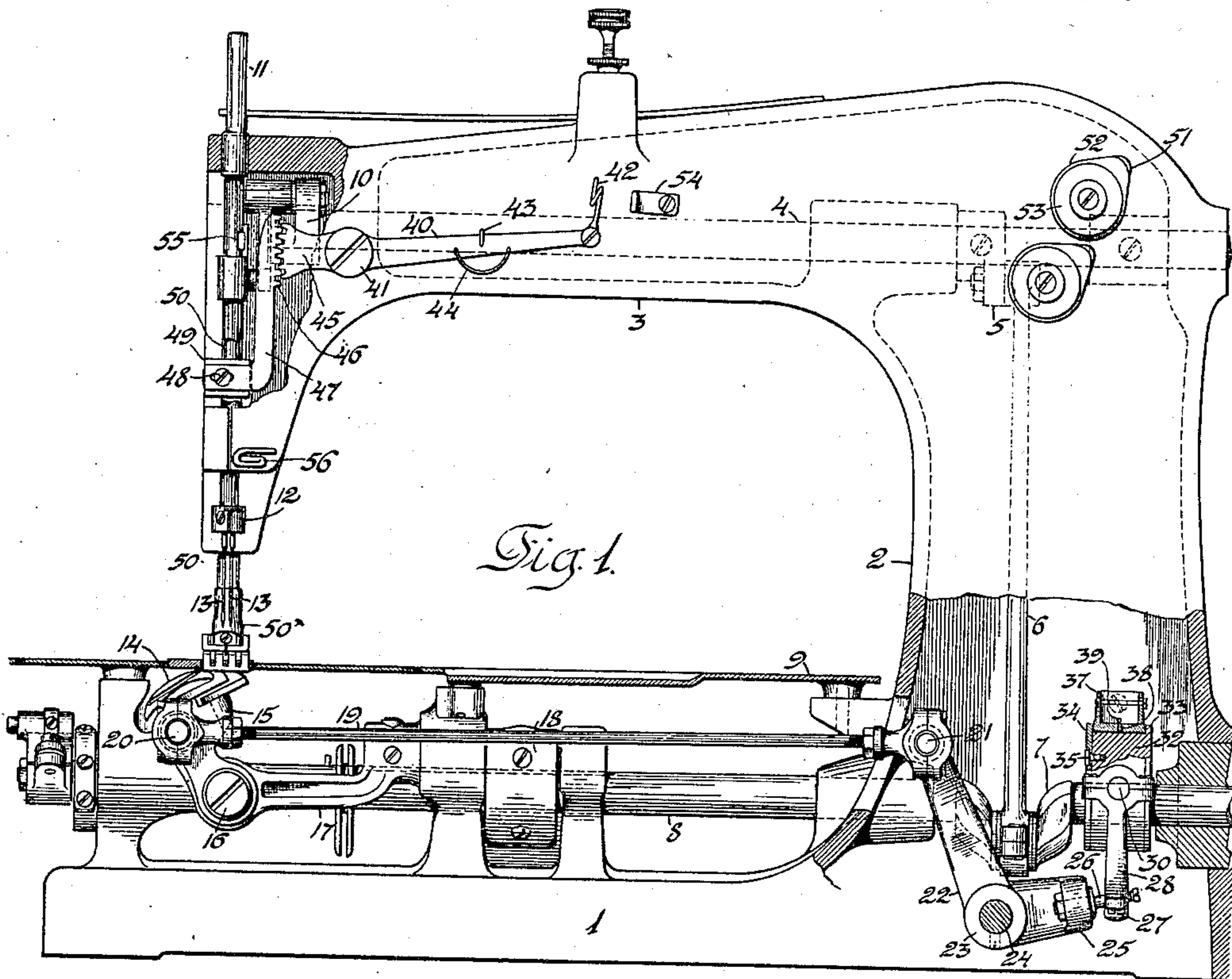


A. H. DE VOE.
SEWING MACHINE.
APPLICATION FILED OCT. 20, 1908.

966,431.

Patented Aug. 9, 1910.



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SEWING-MACHINE.

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To all whom it may concern:

Be it known that I, ALBERT H. DE VOE, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has for its object to provide a simple and effective looper actuating mechanism in chain-stitch sewing machines, and it consists in the features of construction and arrangement of parts of such mechanism herein shown and described in the claims.

In the accompanying drawings, Figure 1 is a front side elevation, partly in section, of a sewing machine embodying the present improvements, and Fig. 2 is a transverse sectional elevation taken through the columnar portion of the bracket-arm. Fig. 3 is a perspective view of the looper-actuating eccentric and the strap embracing the same, and Fig. 4 a similar view of the yoke or plural-armed pitman communicating oscillatory movements from the eccentric to a rocking member of the looper mechanism.

As shown in the drawings, the machine frame comprises the base 1 from which rises the hollow upright member 2 of the bracket-arm in whose lateral overhanging member 3 is journaled the needle-actuating rock-shaft 4 provided upon its rearward portion with the lateral crank-arm 5 connected by means of the pitman 6 with a crank 7 formed in the longitudinally extending main-shaft 8 journaled in suitable bearings rising from the bed 1 beneath the work-plate 9. The rock-shaft 4 has upon its forward end the crank 10 operatively connected in a wellknown manner with the reciprocating needle-bar 11 having fixed upon its lower end the twin-needle clamp 12 carrying the needles 13. The loopers 14, cooperating with the needles 13 in the production of the double chain-stitch seam, are fixed upon the usual rocking carrier 15 mounted upon the transverse fulcrum 16 of the swinging frame 17 which is adapted to swing transversely upon fulcrum-pins disposed parallel with the main-shaft, one of which is provided with a lateral arm formed with a hub 18 receiving vibratory movements from an ec-

centric upon the main-shaft in a well-known manner.

The to-and-fro loop-seizing and shedding movements are imparted to the loopers 14 by means of a ball pitman 19 embracing at its forward end a ball-stud 20 upon the carrier 15 and at its rearward end a ball-stud 21 upon the upwardly extending arm 22 of a rocker whose hub 23 is mounted upon the transverse fulcrum-pin 24 and whose lateral arm 25 carries a ball-stud 26 embraced by a strap 27 provided at the lower end of a yoke or plural-armed pitman 28 having at the upper ends of its spaced arms straps 29 each embracing one of two alined pivotal pins or trunnions 30 upon a band or strap 31 embracing the actuating eccentric 32 fixed upon the main-shaft adjacent the needle-actuating crank 7. As herein represented, the eccentric 32 is formed at one end with an integral radial flange 33, and is provided at the opposite end with a disk 34 secured thereto by means of screws 35 entering the threaded apertures 36 therein, this disk being of slightly larger diameter than that of the eccentric to afford a confining flange thereon between which and the flange 33 the strap or ring 31 is confined from endwise movement. The strap 31 is provided upon its upper side with an open-topped box or receptacle 37 for holding a mass of felt or other suitable material saturated with oil adapted to be led through holes 38 in the bottom and 39 in the sides near the bottom through which oil is fed respectively to the surface of the eccentric and over the exterior of the strap 31 to the oppositely extending pins 30 for lubricating the same.

To provide a thread-controller for regulating the amount of needle-thread to correspond with variations in the thickness of the material being stitched, a lever 40 is mounted upon a fulcrum-stud 41 upon the side of the bracket-arm and provided at its rearward end with a guide-eye 42 and intermediate the latter and the fulcrum with a thread hook 43 and depending guard 44, while a forwardly extending arm 45 of the lever is provided at its extremity with a toothed segment meshing with a rack 46 upon an upwardly extending arm 47 having a slotted shank adjustably secured by means of a fastening screw 48 upon a seat afforded by a bracket-piece 49 fixed upon the

presser-bar 50 carrying the presser-foot 50*. In threading the machine, the needle threads are led through a guide-eye in a lateral projection 51 of the fixed disk 52, thence between the tension disks 53 through the fixed apertured guide-finger 54 and movable guide-eye 42, beneath one branch of the guard 44 over the hook 43, under the second branch of the guard 44 to the apertured guide-finger 55 carried by the needle-bar, from which they are led downwardly to the respective needles, through the fixed guide-eye 56.

By reference to the drawings it will be observed that the needle-actuating crank 7 and the looper-actuating eccentric 32 are oppositely disposed upon the main-shaft 8 so as to be in balanced relation, whereby the reciprocatory movements imparted to the needle mechanism are balanced by the corresponding movements communicated to the looper mechanism.

Although for facility in construction and assemblage of the parts a crank is formed in the main-shaft for actuating the needles and an adjacent eccentric is applied to the main-shaft for giving the loopers their oscillatory movements, it is obviously immaterial to the present improvement in its broader aspect whether cranks or eccentrics be employed for producing these movements, their function being identical and their differences being merely formal, and in the appended claims, while these terms are both used for convenience, it is to be understood they are full equivalents as regards the present invention.

The aligned pivotal pins or trunnions are shown in the drawings arranged upon an axis passing through the center of the eccentric 32, but while this is deemed preferable for obvious reasons, it is evident that their arrangement above or below the center of the eccentric would not materially affect the operation of the looper mechanism.

Having thus set forth the nature of the invention what I claim herein is:—

1. In a sewing machine, the combination with the work-plate, the main-shaft journaled beneath the same, a needle, and means connected with the main-shaft for reciprocating said needle, of a looper, a rocking carrier upon which the same is mounted, a plural-armed rocker mounted upon a fulcrum disposed beneath and transversely of the main-shaft and substantially parallel with the work-plate, an actuating eccentric upon the main-shaft, a connection between the rocker and the looper and a direct connection between the rocker and said actuating eccentric.

2. In a sewing machine, the combination with a needle and means for reciprocating the same, of a looper, a rocking carrier upon which the same is mounted, a plural-armed

rocker, a connection from one arm of said rocker to the looper-carrier, an actuating eccentric, a strap embracing said eccentric, and a pitman connection pivotally attached at its opposite extremities respectively to said strap and a second arm of said rocker.

3. In a sewing machine, the combination with a needle and means for reciprocating the same, of a looper, a rocking carrier upon which the same is mounted, a plural-armed rocker, a connection from one arm of said rocker to the looper-carrier, an actuating eccentric, a strap embracing said eccentric and provided with transversely extending trunnions, and a bifurcated pitman or yoke embracing said strap and having its spaced members apertured to receive said trunnions and the opposite end pivotally connected with a second arm of said rocker.

4. In a sewing machine, the combination with the frame comprising a base and an overhanging bracket-arm, a main-shaft provided with a needle-actuating crank mounted in said base, a reciprocating needle, and an operative connection intermediate said needle and the actuating crank in the main-shaft, of a looper, a rocking carrier upon which the same is mounted, a plural-armed rocker fulcrumed in the base transversely of the main-shaft, a connection from one arm of said rocker to the looper-carrier, an actuating eccentric mounted upon the main-shaft adjacent the needle-actuating crank, a strap embracing said eccentric, and a connecting member having a pivotal connection with said strap and a universal connection with the second arm of said rocker.

5. In a sewing machine, the combination with the frame comprising a base and an overhanging bracket-arm, a main-shaft provided with a needle-actuating crank mounted in said base, a reciprocating needle, and an operative connection intermediate said needle and the actuating crank in the main-shaft, of a looper, a rocking carrier upon which the same is mounted, a plural-armed rocker fulcrumed in the base transversely of the main-shaft, a connection from one arm of said rocker to the looper-carrier, an actuating eccentric mounted upon the main-shaft adjacent the needle-actuating crank and provided upon the opposite edges with projecting flanges, one of which is removable, a peripherally closed ring fitted upon said eccentric intermediate said flanges and provided with transversely extending trunnions, and a bifurcated pitman or yoke embracing said members apertured to receive said trunnions and having the opposite end connected with the second arm of said rocker by a universal joint.

6. In a sewing machine, the combination with the frame comprising a base and an overhanging bracket-arm with hollow upright and lateral members, a main-shaft pro-

vided with a needle-actuating crank housed within the lower portion of said upright member of the bracket-arm, a rock-shaft journaled within and longitudinally of the lateral member of the bracket-arm and provided with a lateral crank-arm, a pitman connection intermediate the crank-arm of said rock-shaft and the actuating crank of the main-shaft and housed within the upright member of said bracket-arm, a needle, a needle-bar carrying the same and an operative connection intermediate said rock-shaft and the needle-bar, of a looper, a rocking carrier upon which the same is mounted, an eccentric upon the main-shaft also housed within the lower portion of the upright member of the bracket-arm adjacent said actuating crank, and an operative connection intermediate said eccentric and the looper-carrier whereby operative or loop-seizing and shedding movements are imparted to the looper.

7. In a sewing machine, the combination with the frame comprising a base and an overhanging bracket-arm, a main-shaft provided with a needle-actuating crank, a rock-shaft journaled within and longitudinally of the bracket-arm and provided with a lateral crank-arm, a pitman connection intermediate the crank-arm of said rock-shaft and the actuating crank of the main-shaft, a needle, a needle-bar carrying the same, and an operative connection intermediate said rock-shaft and the needle-bar, of a looper, a rocking carrier upon which the same is mounted, a plural-armed rocker, a connection from one arm of said rocker to the looper-carrier, an eccentric upon the main-shaft adjacent the needle-actuating crank, a strap embracing said eccentric, and a connecting member having a pivotal connection with said strap and a universal connection with the second arm of said rocker.

8. In a sewing machine, the combination with the frame comprising a base and an overhanging bracket-arm, a work-plate mounted upon and spaced above said base, a main-shaft provided with a needle-actuating crank, a rock-shaft journaled within and longitudinally of the bracket-arm and provided with a lateral crank-arm, a pitman connection intermediate the crank-arm of said rock-shaft and the actuating crank of the main-shaft, a needle, a needle-bar carrying the same, and an operative connection intermediate said rock-shaft and the needle-bar, of a looper, a rocking carrier upon which the same is mounted, a plural-armed rocker mounted in the base beneath the work-plate upon a fulcrum-pin disposed transversely of the main-shaft, a connection from one arm of said rocker to the looper-carrier,

an eccentric upon the main-shaft adjacent the needle-actuating crank, a strap embracing said eccentric, and a connecting member having a pivotal connection with said strap and a universal connection with the second arm of said rocker.

9. In a sewing machine, the combination with a base and an overhanging bracket-arm, a work-plate mounted upon and spaced above said base-plate, and a longitudinal main-shaft journaled in said base beneath the work-plate and provided with balanced oppositely extending needle-actuating crank and looper-actuating eccentric, of a rock-shaft journaled within and longitudinally of the bracket-arm and provided with a lateral crank-arm, a pitman connection intermediate said lateral crank-arm and the actuating crank of the main-shaft, a needle, a needle-bar carrying the same, an operative connection intermediate said rock-shaft and needle-bar, a looper, a rocking carrier upon which the same is mounted, a bellcrank-lever mounted upon a fixed fulcrum arranged transversely of the main-shaft and parallel with the work-plate, a connection between one arm of said bellcrank-lever and the looper-carrier and a connection between the other arm of the bellcrank-lever and said actuating eccentric of the main-shaft.

10. In a sewing machine, the combination with a base and an overhanging bracket-arm, a work-plate mounted upon and spaced above said base-plate, and a longitudinal main-shaft journaled in said base beneath the work-plate and provided with a needle-actuating crank and a looper-actuating eccentric, a reciprocating needle, and an operative connection intermediate said needle and the crank in the main-shaft, of a looper, a rocking carrier upon which the same is mounted, a plural-armed rocker fulcrumed in the base transversely of the main-shaft, a connection from one arm of said rocker to the looper-carrier, a strap embracing the looper-actuating eccentric and provided with aligned oppositely extending trunnions, and a bifurcated pitman or yoke embracing said eccentric and its surrounding strap and having its spaced members apertured to receive said trunnions and connected at the end opposite said spaced members with a second arm of said rocker.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ALBERT H. DE VOE.

Witnesses:

H. A. KORNEMANN,
JOSEPH F. JAQUITH.