

June 7, 1955

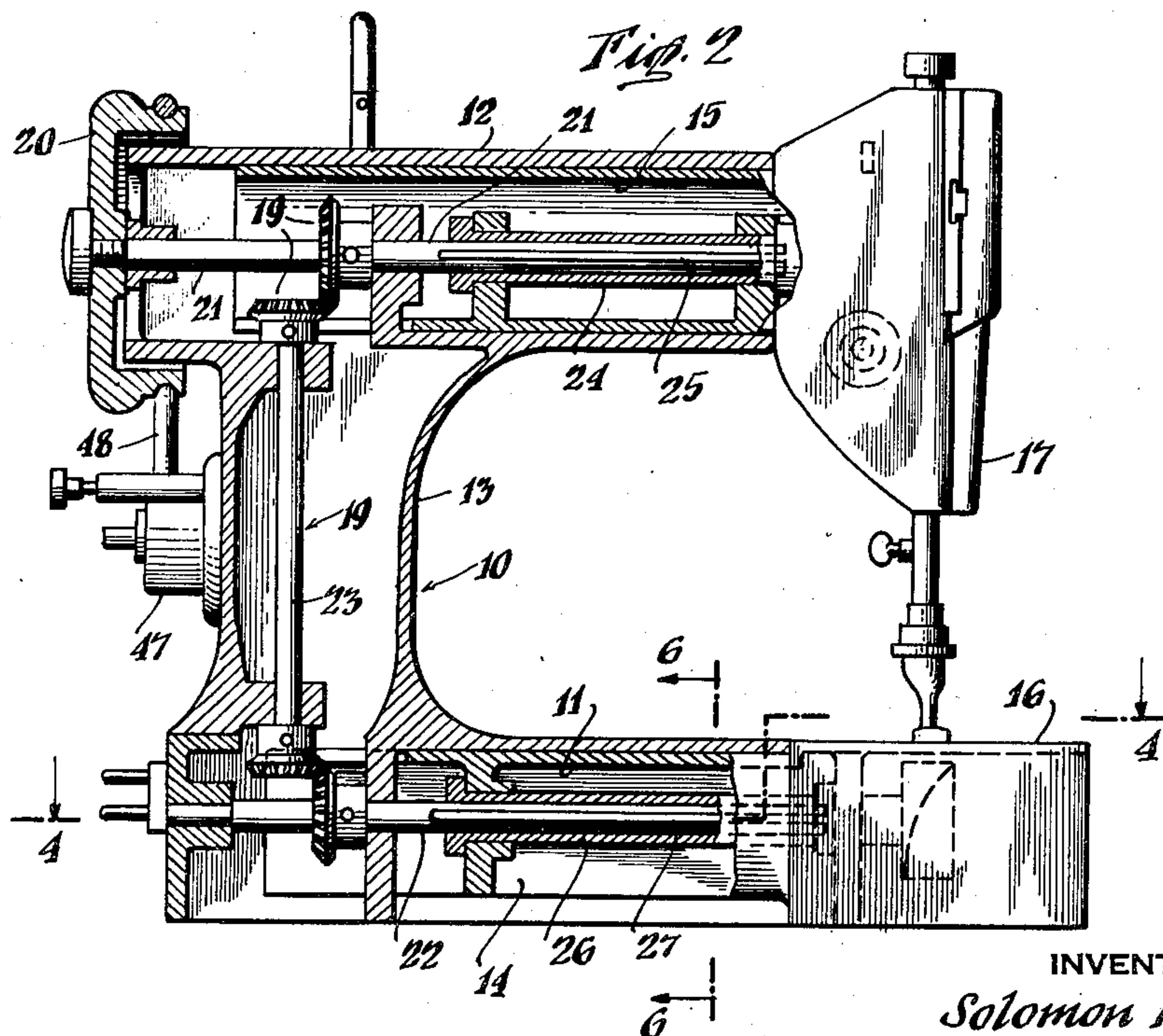
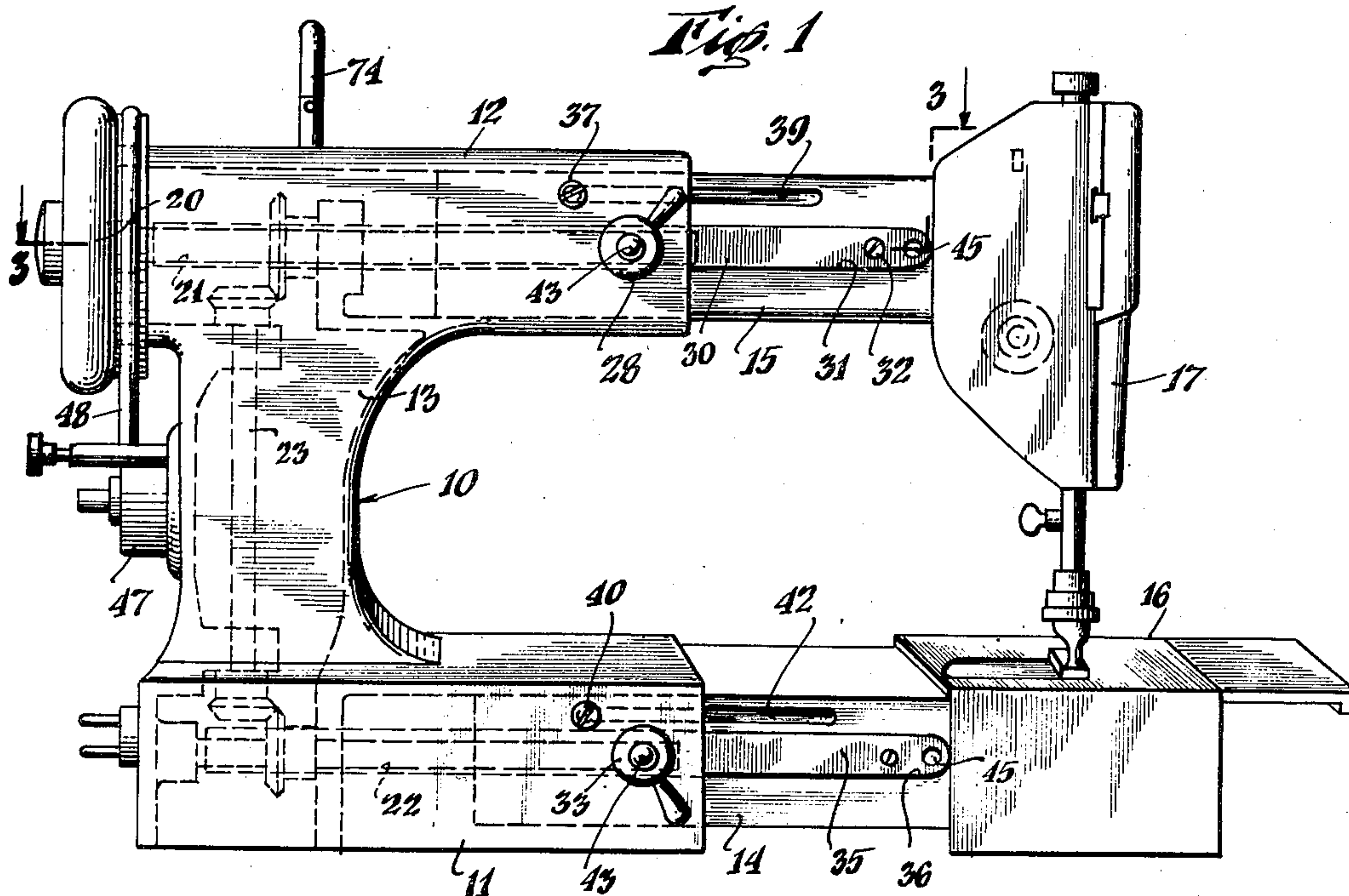
S. ADLER

2,709,978

SEWING MACHINE

Filed Oct. 2, 1950

2 Sheets-Sheet 1



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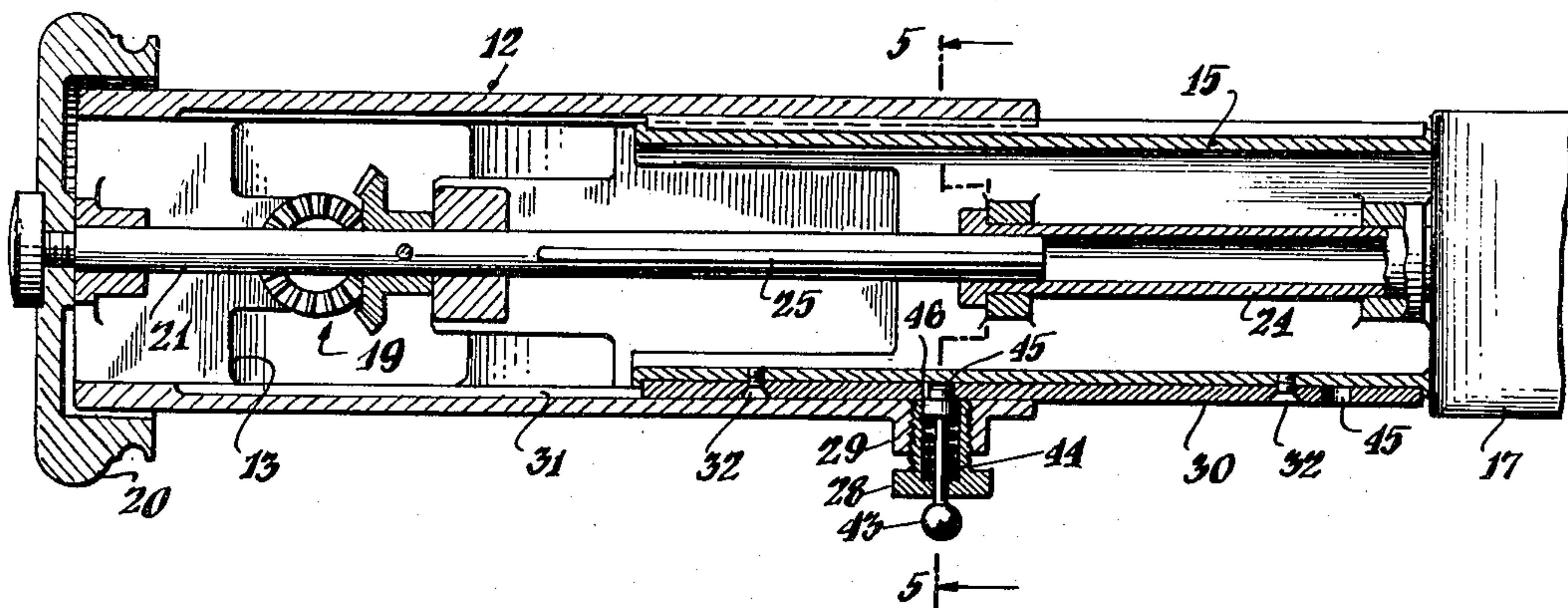
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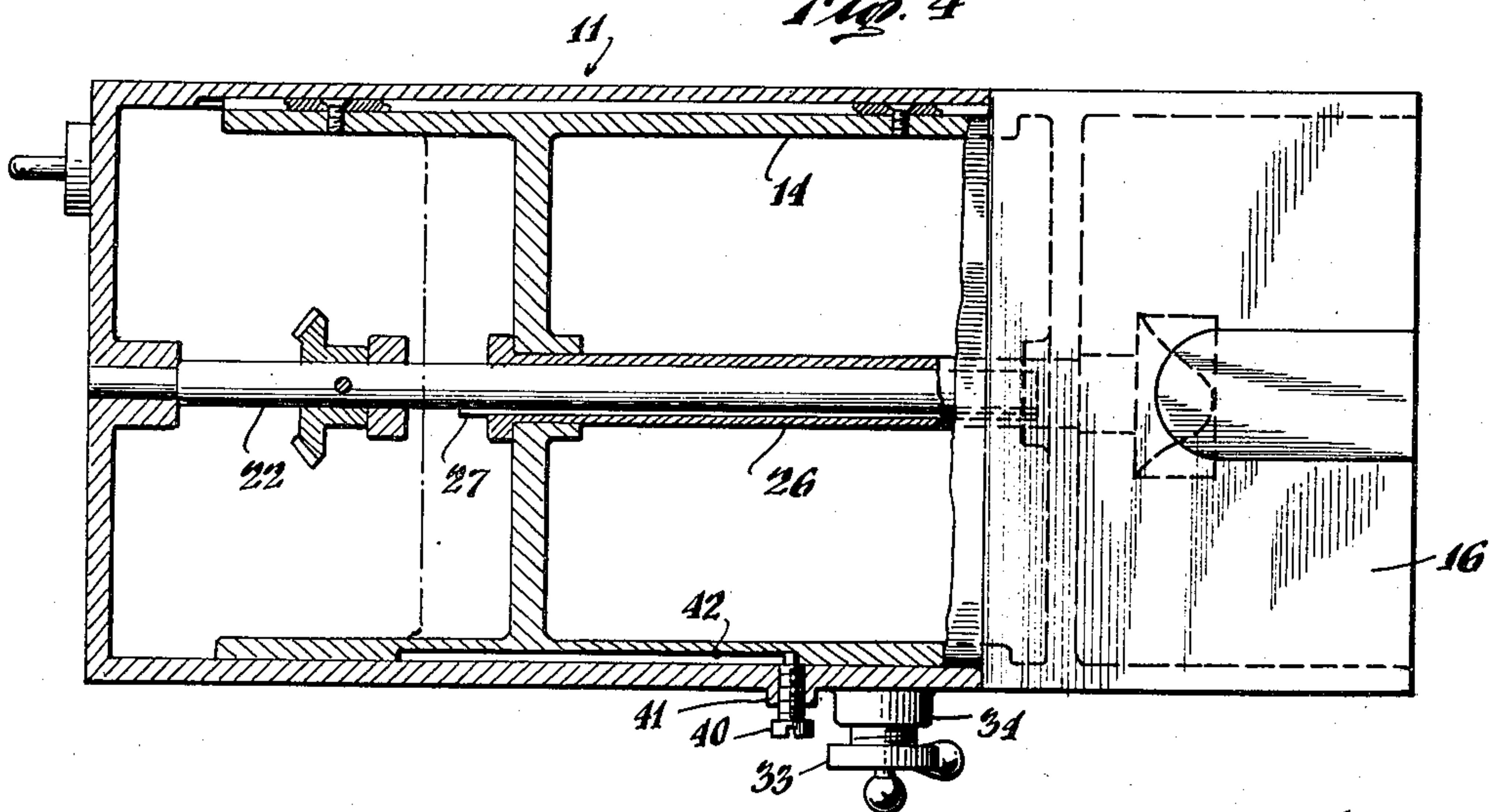
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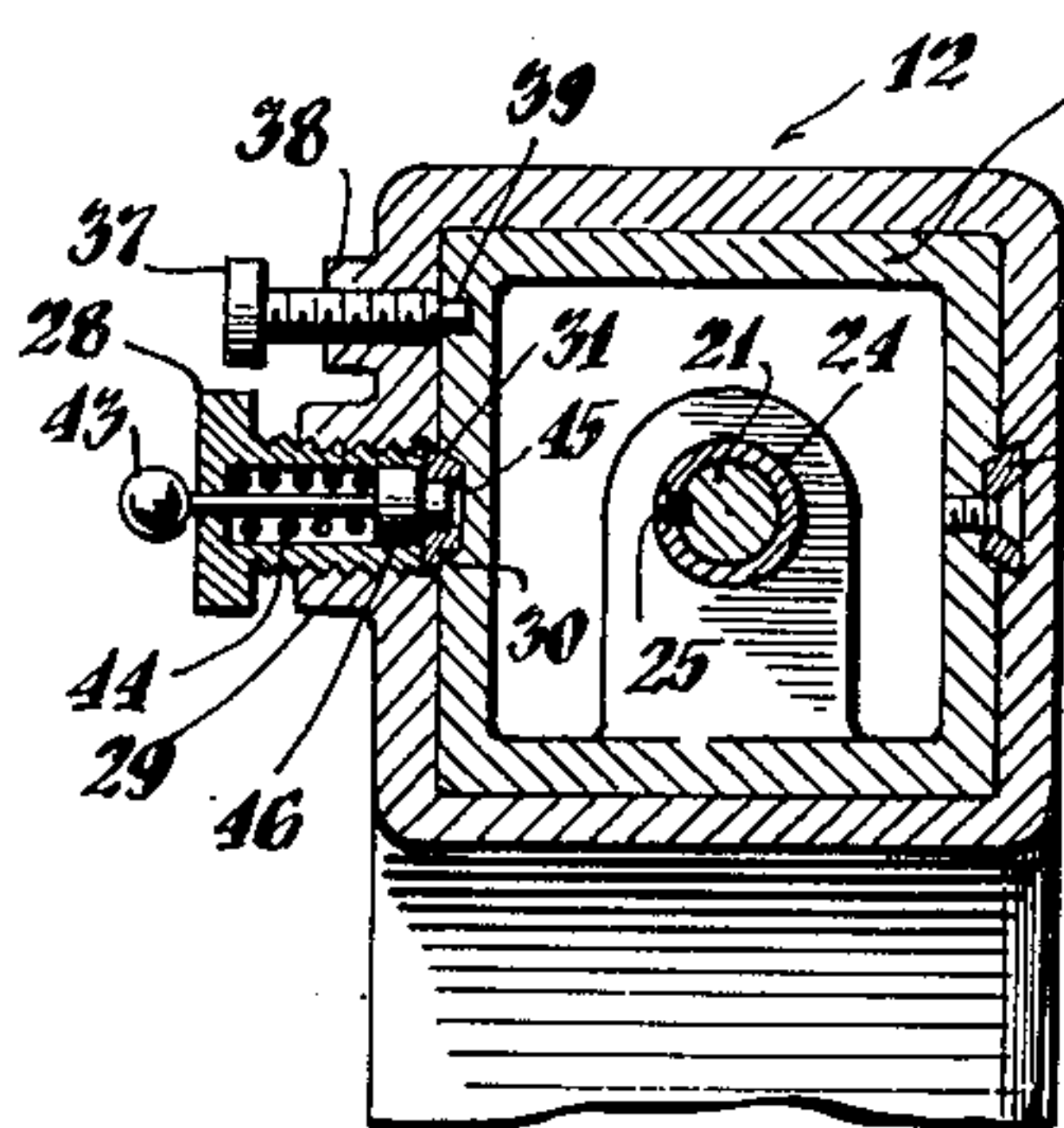
*Fig. 3*



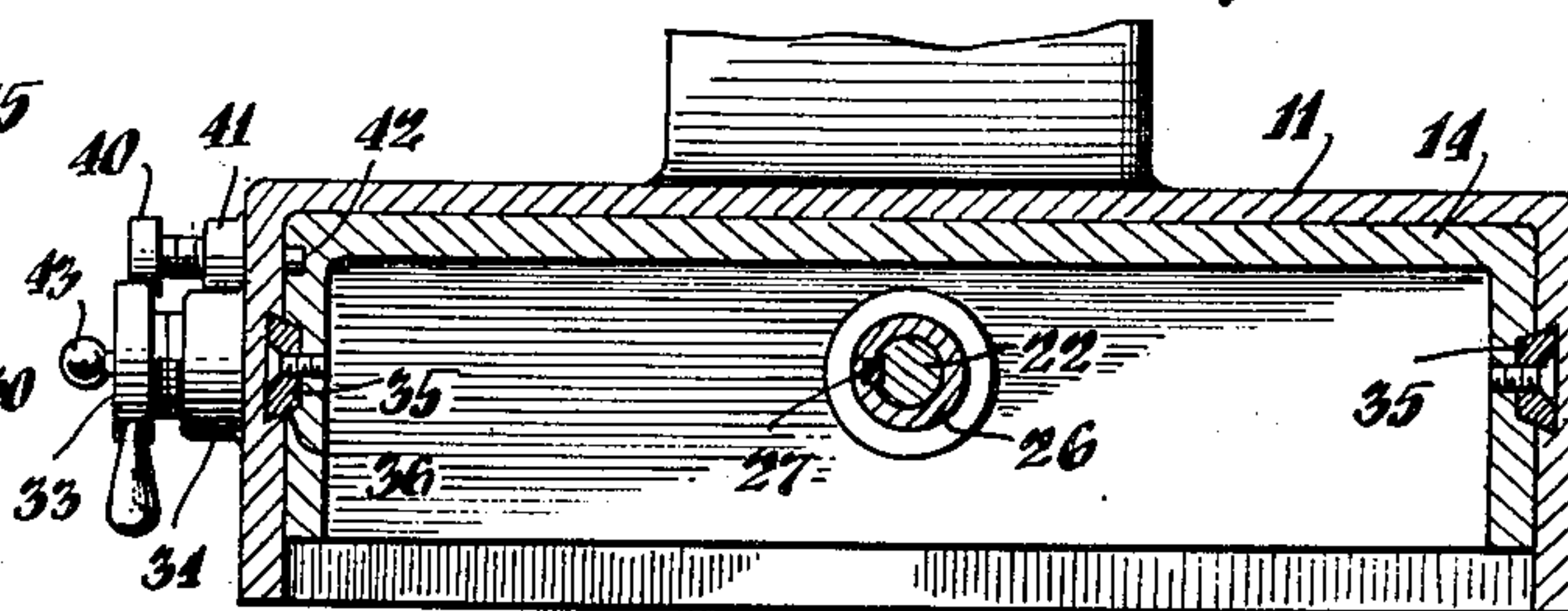
*Fig. 4*



*Fig. 5*



*Fig. 6*



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## SEWING MACHINE

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Application October 2, 1950, Serial No. 188,006

1 Claim. (Cl. 112—258)

This invention relates to a sewing machine and more particularly to a small sewing machine which can be extended to a large sewing machine.

It is an object of this invention to provide a portable type sewing machine which may operate in a retracted or small position and will also operate when elongated to an extended position.

It is a further object of this invention to provide a sewing machine which is retractable and extensible with a minimum of adjustment and at the same time is of a sturdy structure and dependable operation.

These and other objects of this invention will become more apparent upon consideration of the following description taken together with the accompanying drawings in which:

Fig. 1 is a side elevation of a sewing machine according to this invention;

Fig. 2 is a broken away side elevation of the sewing machine of this invention in retracted position;

Fig. 3 is a horizontal section of the sewing machine of Fig. 1 taken on line 3—3 in the direction of the arrows;

Fig. 4 is a horizontal section of the sewing machine of Fig. 2 taken on line 4—4 in the direction of the arrows;

Fig. 5 is a vertical section of the arm of the sewing machine of Fig. 3 taken on line 5—5 in the direction of the arrows;

Fig. 6 is a vertical section of the bed of the sewing machine of Fig. 2 taken on line 6—6 in the direction of the arrows.

Referring to Fig. 1 a sewing machine 10 is shown which has a base 11, an arm 12 and a vertical member 13. The bed 11 has an extensible section 14 and the arm 12 has an extensible arm section 15. At the end of the base section 14 is a shuttle housing 16 and at the end of the arm section 15 is a head 17. A needle bar not shown is operated by a mechanism 19 of suitable shaft 21. The stitch making mechanism in the shuttle housing 16 and the head 17 cooperate in a conventional manner to provide sewing of material inserted therebetween.

The bed section 14 and arm section 15 may be telescoped within the hollow stationary bed 11 and arm 12. As shown in Fig. 2 the sections 14 and 15 are formed so as to fit around the driving mechanism. The arm 12 contains a shaft 21 driven from the wheel 20. The bed 11 contains a shaft 22 driven through a vertical shaft 23 and suitable gearing from the pulley 20 and the shaft 21. Sliding over the shaft 21 a hollow shaft 24 is connected into the mechanism of the head 17 and is in turn driven by the shaft 21 through a spline 25. Similarly a hollow shaft 26 telescopes over the shaft 22 and drives the sewing mechanism in the shuttle housing 16. The shaft 22 is provided with a spline 27 which provides the driving connection with the hollow shaft 26. Thus a driving connection is provided between the shafts 21 and 24 and the shafts 22 and 26 in any

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position of extension or retraction of the head 17 and the shuttle housing 16. Consequently the sewing machine may be operated in any position between the extreme positions shown in Figs. 1 and 2. For the purpose of this description the machine will be described in its operation in the outermost and innermost positions. A sewing machine by the nature of its operation develops considerable vibration of the parts. This inherent vibration requires a structural strength and rigidity between the various component parts of the sewing machine. In the case of the device of this invention this structural rigidity is provided between the stationary and extensible parts of the arm and base by a novel locking mechanism. A lock screw 28 is threaded into a boss 29 on the arm 12 as shown in Fig. 3. This lock screw bears against a gib 30 which is suitably fastened in a groove 31 shown in Fig. 1 by suitable screws 32. By turning the lock screw 28 into the boss 29 the lock screw 28 is brought to bear against the gib 30 and to jam the extensible arm section 15 in a tight fit with the stationary arm 12. Similarly a lock screw 33 is provided in a boss 34 on the bed 11 as shown in Fig. 4. This lock screw 33 bears against a gib 35 in a groove 36 as shown in Fig. 1. By screwing the lock screw 33 into the boss 34 the extensible bed section 14 is jammed in the stationary bed 11 and held rigid with relation thereto. The arm 12 is provided with a lock pin 37 which being threaded through a boss 38 as shown in Fig. 5 protrudes into a slot 39 provided in the extensible section 15. Similarly a lock pin 40 is provided in a boss 41 on the bed 11 as shown in Fig. 6. The lock pin 40 threaded through the boss 41 protrudes into a groove 42 in the section 14 as shown in Fig. 1.

The lock screws 28 and 33 are provided with latch pins 43 which extending axially therethrough under pressure of springs 44 protrude to holes 45 in the gibs 30 and 35, respectively. As shown in Fig. 3 in connection with the lock screw 28 and the gib 30, the latch pin 43 has a shoulder 46 which abuts against the gib at the hole 45. This is also shown in Fig. 5. The gibs 30 and 35 are provided with a pair of locking holes 45. The latch pins 43 being forced into these holes by the springs 44 prevent axial movement of the extensible bed and arm sections 14 and 15. One set of holes is provided adjacent one end of the gibs 30 and 35 to latch the sections 15 and 14 respectively in the out or extended position while another set of holes 45 are provided near the other end of the gibs 30 and 35 to latch the sections 15 and 14 in the inner or retracted position respectively.

In operation the machine is set upon a table or other supporting surface and connected to a suitable source of electrical power to drive motor 47 and belt 48. The belt 48 turning the pulley wheel 20 operates the mechanism 19 and through the shafts 21, 22, 23 and 24 and 26 and their spline connections 25 and 27 cause the machine 10 to operate. As described above the machine may operate in any of the numbers of positions between extreme extension and extreme retraction of the sections 14 and 15. For practical purposes however it will only be desired to operate the machine either in the extreme extended position or the extreme retracted position. In the retracted position the latch pins 43 are inserted in the holes 45 adjacent the shuttle housing 16 and the head 17. In the extended position the latch pins are inserted in the holes 45 more removed from the shuttle housing 16 and the head 17. In either position the bed and arm sections 14 and 15 are held tightly in place under the screwed in pressure of the lock screws 28 and 33.

To move the head and table from one position to the other the lock screws 28 and 33 are released by unscrewing them in the bosses 29 and 34. The latch pins 43



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are retracted from the holes 45 and the sections 14 and 15 may be slid with relation to the stationary base 11 and the arm 12. When the sections 14 and 15 have reached the new position of operation the latch pins 43 drop in the new set of holes 45 and the lock screws 28 and 33 are tightened against their respective gibs 30 and 35 to jam the sections 15 and 14 respectively. The limit of motion between the extensible and stationary sections is determined by the lock pins 37 and 40 in the grooves 39 and 42 respectively. The grooves 39 and 42 are positioned in the sections 15 and 14 respectively so that their respective lock pins 37 and 40 will abut against one end and when the latch pins 43 are aligned with one set of holes 45 will abut against the other end of the grooves 39 and 42 respectively when the latch pins 43 are in the other set of holes 45. Thus with the lock pins 37 and 40 in place the sections 15 and 14 cannot be extended or retracted upon the predetermined positions of the holes 45. This simplifies the operation of extending or retracting the sections 14 and 15 and assures alignment of the sewing parts in either position.

This invention by providing a portable machine with an extensible head and base allows a small dimensioned sewing machine to accomplish work possible only on a larger head. In sewing bulky materials it is often imperative that the space between the needle bar and the upright portion which supports the arm be great enough to accommodate a large amount of the bulky material. A small machine has only a short distance between the head and the supporting upright. This often will make the machine useless in an otherwise simple sewing operation. On the other hand a portable machine is most advantageous if in its carrying position it is compact. Such compactness results in two advantages. First, it concentrates the weight of the machine and makes it easier to handle when carried in a case. The conventional portable machine carrying case has a centrally positioned handle. The closer the weight of the machine is concentrated around this central handle the easier the carrying case will be to handle. Also, a compact machine being smaller will allow storage in a smaller space. Storage of sewing machines is often a factor and storage of portable machines is almost always a factor to be considered in the desirability. By applicant's invention both of these desirable results are obtained in a single machine. Moreover by means of applicant's locking mechanism the change from one position to the other can be attained simply, quickly and without requiring skill or practice by the operator. The locking mechanism of applicant's invention also pro-

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vides a simple method of holding the machine in its respective position securely and accurately to insure proper operation and stability during operation.

This invention is a continuation in part of my application Serial No. 693,914 on a Sewing Machine, filed August 30, 1946, now Patent No. 2,561,643, dated July 24, 1951. Various modifications of the invention disclosed herein may be made without departure from the spirit of the invention. Therefore, it is not intended to limit the scope of this invention other than by the appended claim.

I claim:

In a sewing machine having a horizontally extensible base, a shuttle containing housing on said base, a horizontally extensible arm, a head supported at the end of said arm associable with said shuttle housing and drive shafts for said head and shuttle, the combination of a second horizontally extending arm receiving and supporting said first extensible arm, a groove in said first arm, a gib in said groove, a boss in said second arm, a hollow lock screw threaded in said boss abutting against said gib, recesses in said gib, a lock pin reciprocating in said hollow lock screw, a spring in said hollow lock screw biasing a lock pin in a protruding position whereby the hollow lock screw is abutable on the gib and the reciprocating lock pin is protrudable into the recesses to hold said first extensible arm in fixed relation to said second receiving arm; a second base receiving and supporting said extensible first base, a groove in said first base, a second gib in said groove, a second hollow lock screw on said second base abutting against said gib, recesses in said second gib, a second reciprocating pin in said second hollow lock screw, a spring in said second hollow lock screw biasing said second reciprocating pin in a protruded position whereby said second hollow lock screw and said reciprocating pin lock said extensible base in fixed relation with second base.

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