

1,017,262.

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HAND SEWING MACHINE.
APPLICATION FILED DEC. 5, 1910.

Patented Feb. 13, 1912.

2 SHEETS—SHEET 1.

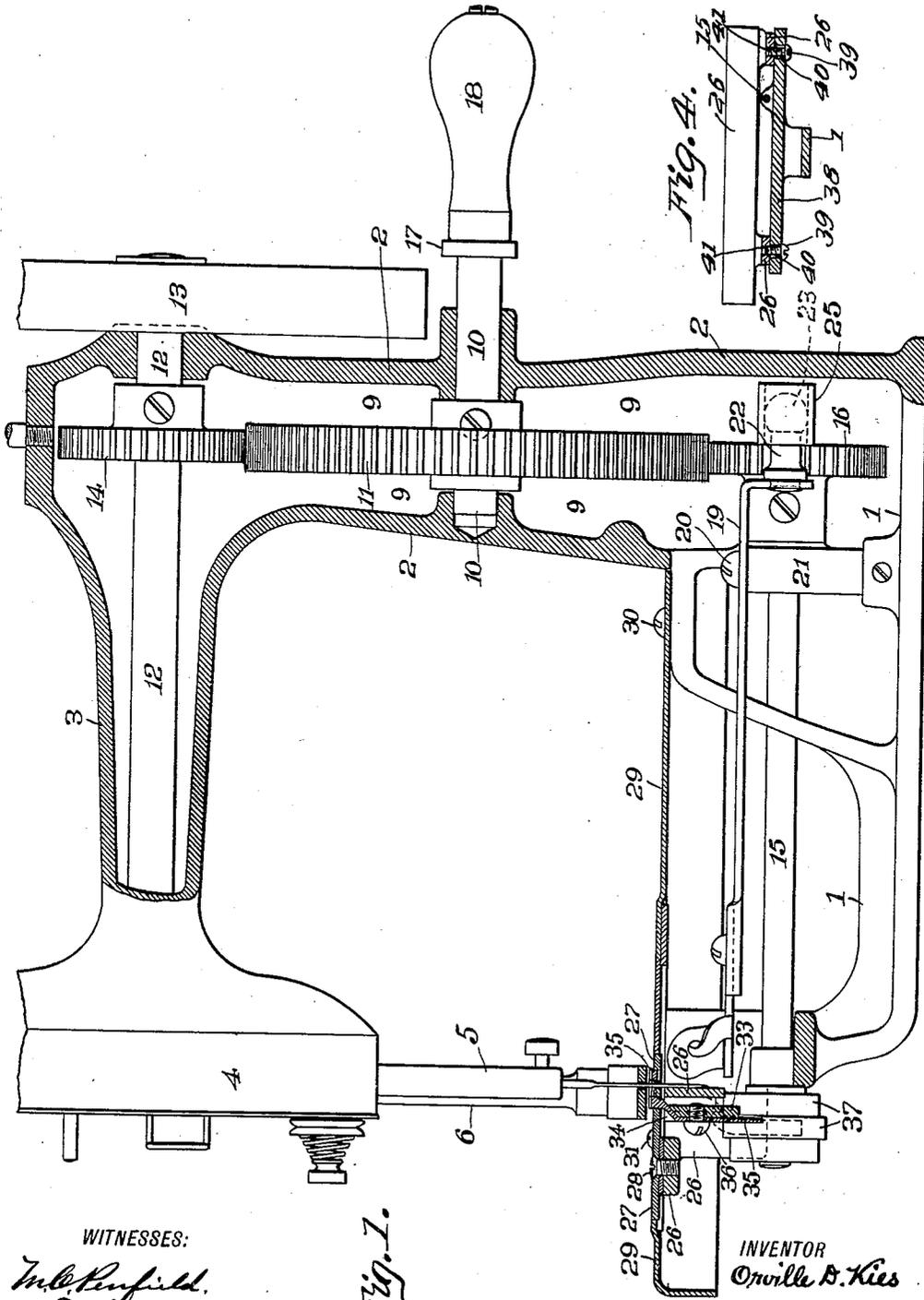


Fig. 1.

Fig. 4.

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HAND SEWING-MACHINE.

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Specification of Letters Patent.

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Application filed December 5, 1910. Serial No. 595,665.

To all whom it may concern:

Be it known that I, ORVILLE D. KIES, a citizen of the United States, residing in the city of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Hand Sewing-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in sewing machines, but more particularly relates to hand sewing machines which are portable devices operated by any suitable crank and adapted to be temporarily clamped to an ordinary table.

The object of this invention is to greatly improve the construction of machines of this description, and to render the same exceedingly simple, and with these ends in view my invention consists in certain details of construction and combination of parts hereinafter fully described and then particularly pointed out in the claims which conclude this description.

In the accompanying drawing Figure 1 is a side elevation partly in section of my improved machine. Fig. 2 a horizontal section taken through the upright casting which rises from the bed, and with the needle bar, presser bar, and cover plate omitted, and Fig. 3 is a rear elevation with the casing and bed in section. Fig. 4 is a section taken on the line 4-4 of Fig. 2.

Similar numerals of reference denote like parts in the several figures of the drawing.

1 is the bed or main casting having rising therefrom at the rear an upright 2 from which latter an overhanging arm 3 leads forwardly and terminates in a head 4 which contains the needle bar 5 and presser bar 6 in the usual manner.

My present improvement has nothing whatever to do with the needle bar and presser bar or any of the parts connected therewith in order to bring about the proper movements thereof, with the exception of the particular manner in which the needle bar shaft is assembled and actuated, nor does my invention have any reference whatever to the feed dog and the manner of adjusting or operating the same, with the exception of the particular way in which the feed dog shaft is assembled and actuated, and therefore the present description will be con-

lined to the elements which are directly associated with my improvement.

The upright 2 is hollow and is closed by means of a cheek cover 7 which latter is secured to the upright by means of a screw 8, and the shape of this cover is such that when it is in position it will form with the upright a circular shaped casing inclosing a circular recess 9. Within this recess 9 is journaled a shaft 10, the ends of said shaft having bearings in opposite side walls of said recess, and carried by said shaft is the main or master gear 11.

12 is the shaft which actuates the needle bar and it is journaled at one end within the upright 2 at the upper portion thereof, the other extremity of this shaft being operatively connected with the needle bar in any suitable manner. The extremity of this shaft 12 projects beyond its journal outside the wall of the upright 2 and has secured thereto the usual balance wheel 13 while carried by this shaft inside the upright and immediately above the gear 11 is a comparatively small spur gear 14 which meshes directly with the gear 11.

15 is the shaft which imparts the proper motions to the feed dog, its outer extremity being operatively connected with said dog in any ordinary manner, while the other end of said shaft is journaled within the base casting and carries a small spur gear 16 which meshes with the gear 11 immediately below the latter and in direct line with the gear 14, so that it will be clearly understood that the shafts 12 and 15 will be actuated directly from the master gear 11 through the medium of small gears carried by said shafts and meshing with the master gear in a vertical plane at diametrically opposite points.

The shaft 10 extends beyond the rear face of the upright 2 and has secured thereto a crank 17 which is provided with a handle 18, the length of this shaft 10 being such that the crank extends in a vertical plane outside the vertical plane of the balance wheel 13, so that in the operation of the machine there can be no interference whatever with the hand of the operator while manipulating the crank.

19 is the shuttle carrier lever which is pivoted at 20 on top of a post 21 rising from the bed so that said carrier will be free to reciprocate in a horizontal plane. Secured to the rear extremity of the lever 19 and projecting rearwardly therefrom is a pin 22

which terminates in a ball 23, and pivoted to the rear face of the gear 16 is a pitman 24 which terminates in a socket 25 within which latter the ball 23 is engaged, so that it will
 5 be clearly understood that as the shaft 15 is revolved reciprocatory movements will be imparted directly to the shuttle carrier lever 19.

26 is the shuttle race which is adjustably
 10 secured in any suitable manner (not shown) directly on the forward end of the base casting, and 27 is the needle plate which is fastened by means of screw 28 directly upon said race.

29 is the cover plate which is secured at
 15 its rear end directly to the base casting by means of a screw 30, while at its forward extremity said plate is secured directly to the shuttle race by means of screws 31 (only
 20 one shown) driven through threaded perforations 32 in said race, so that it will be clear that the cover plate will partake of whatever small shuttle race adjustments it becomes necessary to make, said plate of
 25 course swinging freely around the screw 30 as a pivotal point. Of course these shuttle race adjustments are not extensive and therefore the normal position and function of the cover plate are not materially disturbed
 30 thereby.

33 is the feed dog slide which is disposed
 within a cross slot 34 in the shuttle race and is capable of having free movements therein in the usual manner. 35 is the feed dog
 35 secured to said slide by means of a screw 36, and 37 is the usual double cam for operating the slide 33. But, as I said above, my invention has nothing
 40 whatever to do with any of the parts that are immediately associated with the feed dog, and I will therefore enter into no detailed description of the operation of the same, the brief reference which I have
 45 made to these parts being simply to further a clear understanding of my invention proper.

From the above description it will be clear that the comparatively large master gear and the comparatively small spur
 50 gears are all incased so that they cannot become fouled by particles of threads, dirt or other foreign matter; also that the driving is effected by means of a crank attached directly to the central shaft, and that the
 55 small gears which actuate the shafts that

control the sewing instrumentalities mesh with the large gear in a vertical plane at points diametrically opposite, so that very little effort is required to drive the machine; furthermore, that the shuttle carrier lever
 60 is reciprocated by a direct crank connection with a gear that is immediately in mesh with the main or master gear, thus eliminating rattling and wear of parts and causing the machine to run smoothly and with
 65 a minimum exertion of power, and these advantages are more or less due to the fact that the main or master gear is perfectly balanced in that it is journaled on both sides and is not overhung. 70

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a hand sewing machine, a hollow upright, a driving shaft journaled in opposite
 75 walls of said upright and having its outer end projecting beyond the outer wall of the upright, a master spur gear on the interior of the upright carried by said shaft, a needle shaft having one end journaled
 80 in the outer wall of the upright and having said end thereof extending beyond the outer wall of the upright, a balance wheel arranged on said outer end of the needle shaft, a feed dog shaft at the base of the up-
 85 right, small spur gears carried by said needle and feed dog shafts and meshing with said master gear, and a crank lever secured directly to the outer end of the driving shaft beyond the balance wheel. 90

2. In a hand sewing machine, a hollow head, a driving shaft journaled in opposite
 95 walls of said head and having its outer end projecting beyond the outer wall of the head, a master spur gear on the interior of the head carried by said shaft, a needle shaft in the head, a small spur gear on the needle shaft in mesh with said master gear,
 100 a feed dog shaft in the head, a small spur gear carried by the feed dog shaft, and meshing with said master gear, and a crank lever secured directly to the outer end of the driving shaft.

In testimony whereof I affix my signature in presence of two witnesses.

ORVILLE D. KIES.

Witnesses:

WALTER HEARN,
 EDWARD W. GILBERT.