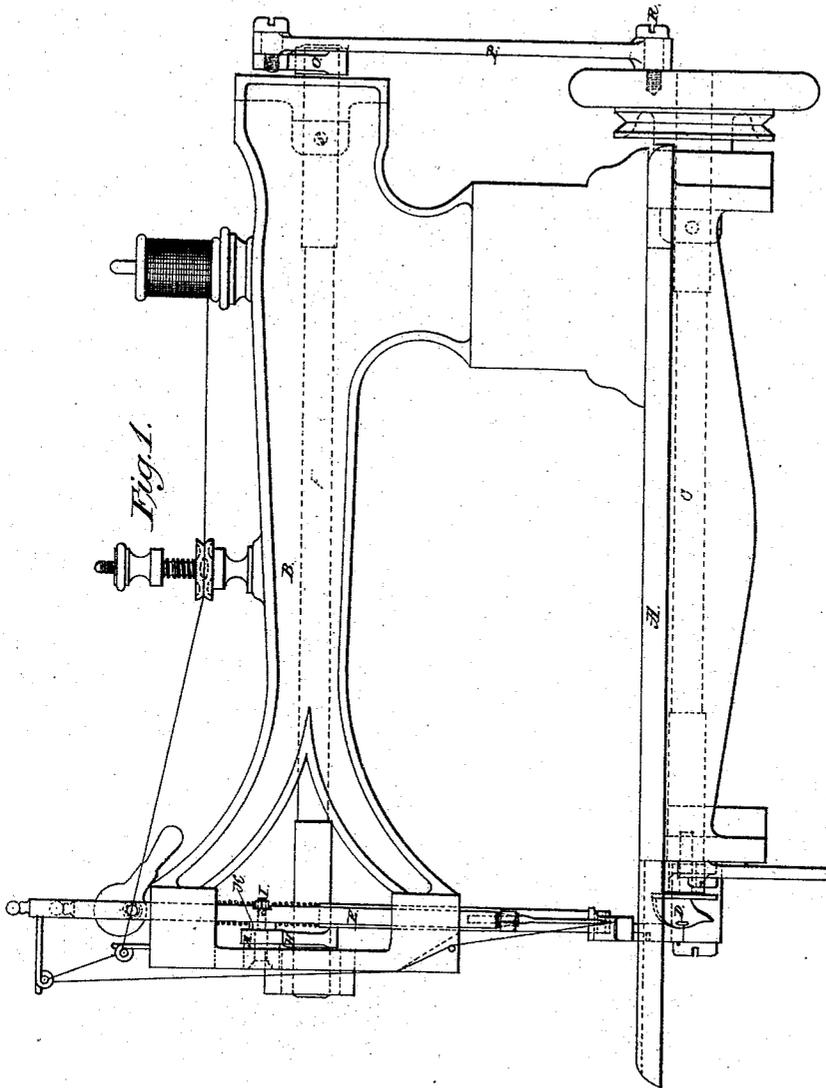


**C. GROUBMAN.
Sewing-Machines.**

No. 156,728.

Patented Nov. 10, 1874.



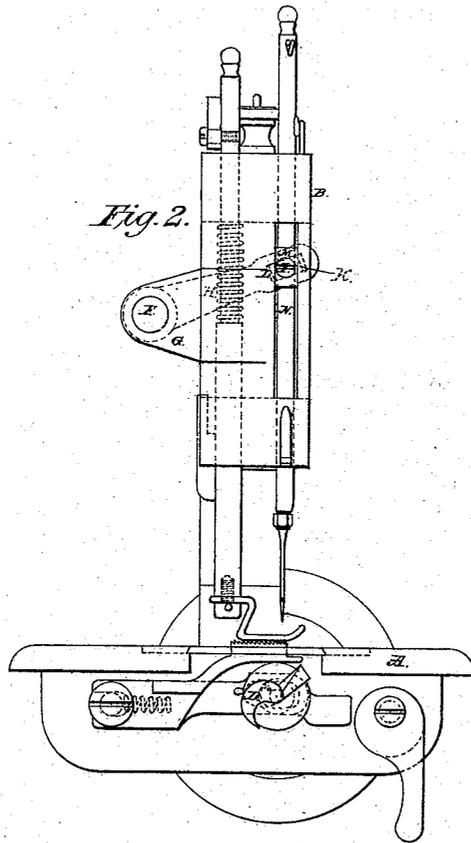
Attest:
John H. Kemond
Chas. A. Pettit

Inventor:
Chaim Groubman
By *Wm. T. C.*
Attorneys

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Inventor:
Chaim Groubman
By *[Signature]*
Kum & B
Attorneys

UNITED STATES PATENT OFFICE.

CHAIM GROUBMAN, OF ODESSA, RUSSIA.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **156,728**, dated November 10, 1874; application filed July 25, 1874.

To all whom it may concern:

Be it known that I, CHAIM GROUBMAN, of Odessa, in the Empire of Russia, temporarily of London, England, have invented a new and useful Improvement in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a front elevation of the machine, and Fig. 2 is an end elevation of the same.

The invention is an improvement in the class of sewing-machines whose needle-bars are connected with an actuating rock-shaft by means of a wrist-pin and vibrating arm, the latter having a slot in its free end in which the pin works.

The object of the invention is to distribute the wear or friction incident to such connection of the needle-bar and rock-shaft arm over a larger surface, and to furnish a guide for the needle-bar in its reciprocating movement. I mount or pivot two rectangular blocks on the pin of the needle-bar, one of which slides vertically in a groove or slot of the head of the machine, and the other in the slot of the arm of the rock-shaft.

A is the bed-plate of the machine, and B the head or fixed arm of the frame. C is the main driving-shaft, mounted beneath the bed-plate A, carrying at one extremity the rotating looper D, and adapted to receive motion at the other end by a band from a treadle or other motor device, (not shown.) E is the needle-bar working in guides in the head of the arm B. All these parts are constructed and operated in the usual manner. F is a

rock-shaft mounted in bearings G G fixed at the back of the arm B. To one extremity of this shaft is fixed a crank-arm, H, connected with the needle-bar E by a screw-stud, I, fixed in the latter, passing through a slide-block, K, working in a slot, L, in the end of the arm H, and through a second slide-block, M, working up and down in a vertical slot or guide, N, in the head of the arm B. The block M serves to move the block K to and fro in the fork of crank-arm H as the latter is vibrated. The block K has a second motion imparted to it simultaneously with said to-and-fro motion, to wit, an oscillation on the screw-stud I. At the other end of the rock-shaft F is fixed a crank-arm, O, coupled, by a connecting-rod, P, to a crank-pin, R, fixed on a disk keyed on the rotary driving-shaft C, from which the rock-shaft F thus receives motion. The radius of the arm O being greater than that of the crank-pin R, the rotary motion of the latter imparts a rocking motion to the shaft F, which imparts up-and-down motion to the needle-bar through the arm H.

Having thus described my invention, what I claim as new, is—

In a sewing-machine, in combination with the needle-bar, the vertically-slotted head and forked arm H of rock-shaft F, the slide-blocks K and M, and screw-stud I, all constructed and arranged to operate as shown and described.

The above specification of my invention signed by me this 20th day of April, 1874.

CHAIM GROUBMAN.

Witnesses:

W. G. E. SWIMWELL,
HY. SWALES.