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Patented Dec. 25, 1900.

J. F. MCKENNEY.

SHUTTLE ACTUATING MECHANISM FOR SEWING MACHINES.

(Application filed May 31, 1900.)

(No Model.)

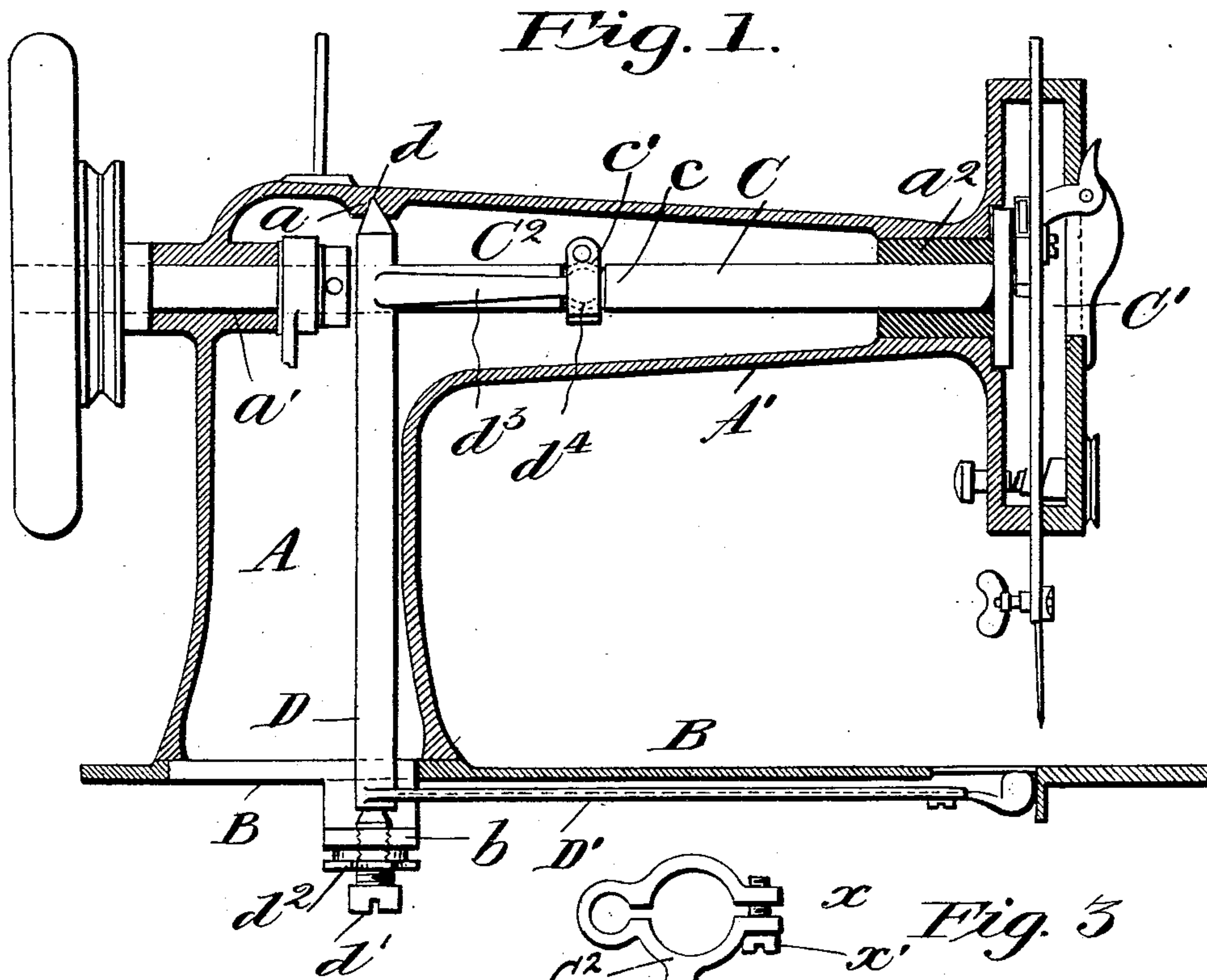
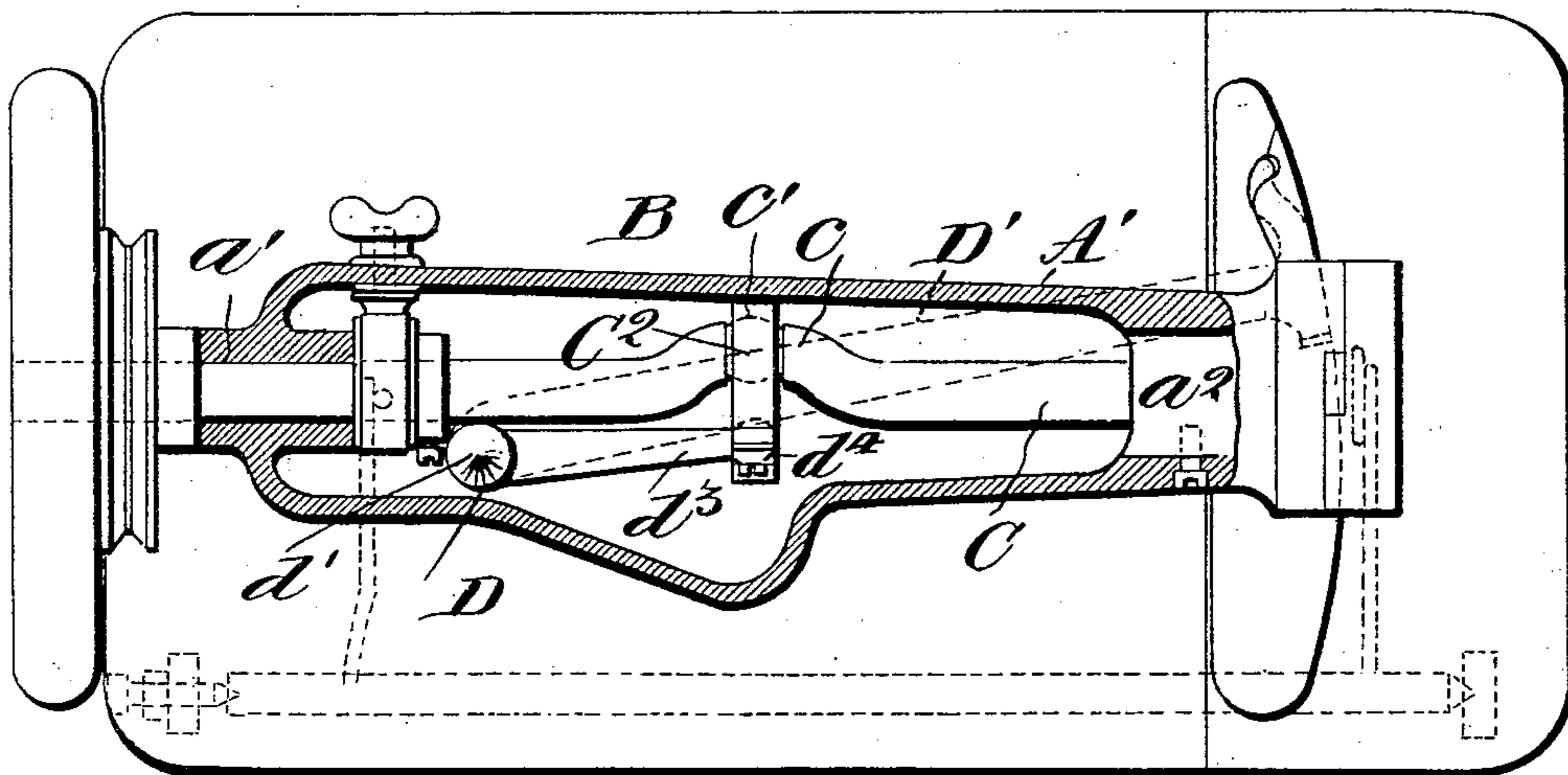
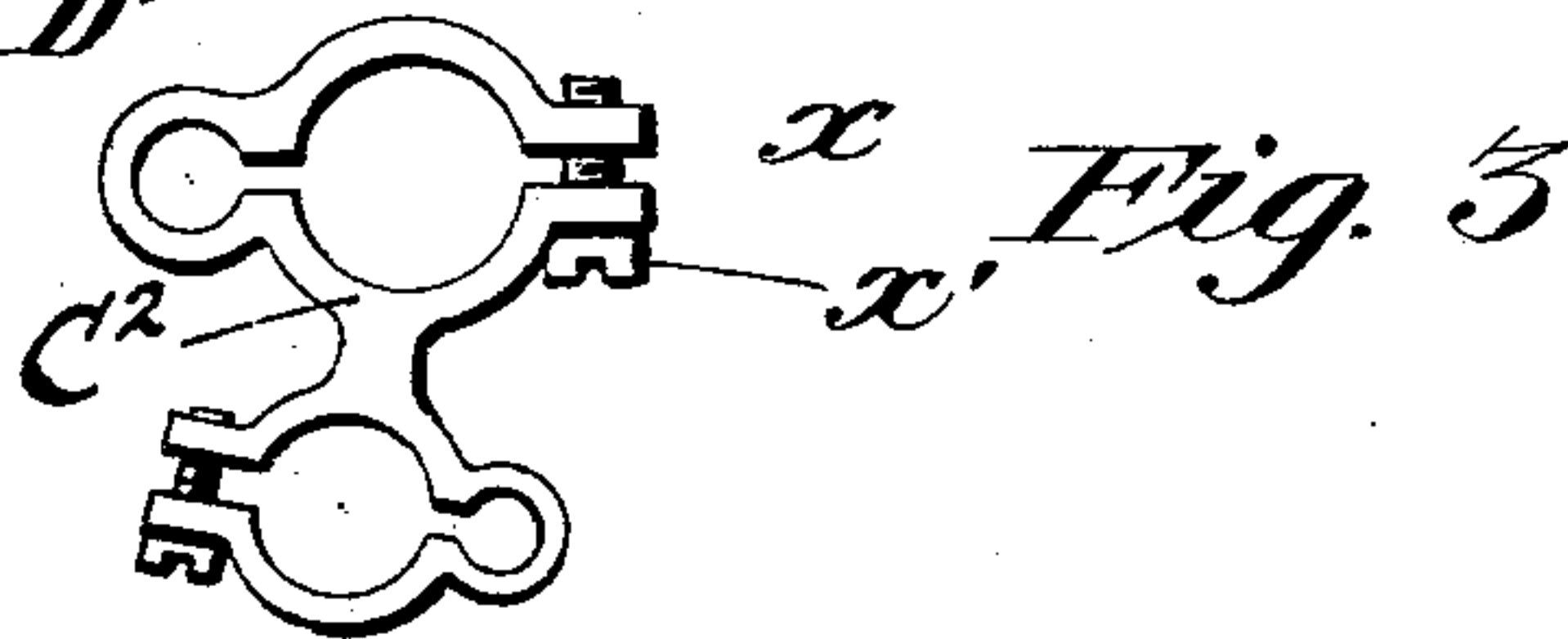


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

J FREEMAN MCKENNEY, OF BALTIMORE, MARYLAND.

SHUTTLE-ACTUATING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 664,773, dated December 25, 1900.

Original application filed September 2, 1896, Serial No. 604,613. Divided and this application filed May 31, 1900. Serial No. 18,626. (No model.)

To all whom it may concern:

Be it known that I, J FREEMAN MCKENNEY, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby 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 present invention relates to sewing-machines; and it consists in certain new constructions and combinations of parts whereby an improved shuttle-actuating mechanism is produced which is cheap, effective, and durable.

The subject-matter is taken from application, Serial No. 604,613, filed September 2, 1896, and forms a division thereof, said division having been required by the Patent Office.

In the drawings, Figure 1 is a view of the vertical longitudinal section of a sewing-machine embodying my invention. Fig. 2 is a top plan view, the overhanging arm being shown in section. Fig. 3 is a detail view of the link connecting the crank on the driving-shaft with the shuttle-operating devices.

In the drawings, A indicates the hollow standard of the machine, rising vertically from the bed-plate B, and A' is the overhanging arm.

C is the driving-shaft, which extends horizontally through the overhanging arm A'. This shaft is journaled in suitable bearings at a' in the rear wall of the hollow standard and at a^2 in the forward end of the overhanging arm and is operatively connected with the needle-bar C' in any usual or preferred manner for imparting vertical reciprocating motion thereto. Adjacent to its central portion the shaft C is provided with a crank c , having a short throw, and said crank is provided with the ball c' .

A vertical rock-shaft D is mounted in the standard A in the following manner: The upper end of said shaft is provided with a center d , which engages a socket-bearing a in the upper part of the standard, and its lower end is provided, preferably, with a tapering socket-bearing which is engaged by a

screw d' , having a cone-shaped end or center and extending through a step b , secured to or formed integrally with the bed-plate B. The screw is also provided with a jam-nut d^2 , and the bearings for the rock-shaft can thus accurately be adjusted in setting up the machine or to take up wear.

Near its upper end the rock-shaft D is provided with a short arm d^3 , extending into the hollow overhanging arm, and this arm is at its outer end provided with a ball d^4 . This arm is connected with the crank c by a link C². (Shown in detail in Fig. 3.) This link is provided at each end with a circular recess, the walls of which are grooved in a well-known way to receive the ball c' on the crank and the ball d^4 on the arm d^3 , and each of the circular parts of the link surrounding said recesses is provided with the slit or cut x , formed by sawing or otherwise, and on the side opposite thereto is provided with the adjusting-screw x' to enable the link to be placed in engagement with said balls and to be tightened up on them in assembling the parts of the machine and to take up wear.

The vertical rock-shaft D is provided adjacent to its lower end beneath the bed-plate B with a shuttle-operating arm D', formed integrally therewith or secured thereto in any desired or preferred manner. I prefer to form this arm of sheet-steel for lightness, and this may be corrugated to give it the desired strength or rigidity. The outer end of the shuttle-arm is provided with a shuttle-carrier of any suitable or preferred form moving in a suitable shuttle-race.

The link C², connecting the crank c and the arm d^3 , is quite short, as will be seen, and consequently the distance between the axis of rotation of the shaft C and the axis of movement of the link (the arm d^3) will be comparatively slight when the parts are in the position shown in Fig. 2. As the crank moves around on that side of its axis of rotation therefore the arm d^3 will be given somewhat of a dwell, or, in other words, there will be a short period during which it is given little or no motion. The effect of this on the shuttle is to slow up quickly and hold it substantially still for a longer period than usual at the end of a stroke of the shuttle-arm.

By means of this variable motion the needle or upper thread is permitted to leave the heel of the shuttle and be drawn quite up into the throat-plate or needle-plate ready to tighten
5 before the shuttle-thread is tightened, and thereby the final tightening of both threads is accomplished simultaneously. This forms what is known as the "Howe pull" and makes a tighter and neater stitch than can be made
10 when first one and then the other of the threads is drawn taut.

It is to be noted that all the parts subjected to wear are so constructed that lost motion caused by wearing of the parts can be easily
15 taken up, which adds to the durability of the parts.

What I claim, and desire to secure by Letters Patent, is—

In a sewing-machine the combination with the horizontal driving-shaft, provided with a
20 crank, of a vertical rock-shaft out of the plane of the crank, said rock-shaft having an arm in the horizontal plane of said horizontal driving-shaft, a link connecting said arm and
25 said crank and joined to each by universal joint connections, and a shuttle-operating arm operatively connected with said rock-shaft, whereby the shuttle is given a dwell
30 at one end of its movement, substantially as described.

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

J FREEMAN MCKENNEY.

Witnesses:

JOHN F. KRAMPE,
CHAS. A. BUHRMAN.