(Model.)

2 Sheets—Sheet 1.

S. L. SAUNDERS.

Chair.

No. 241,728. Patented May 17, 1881.

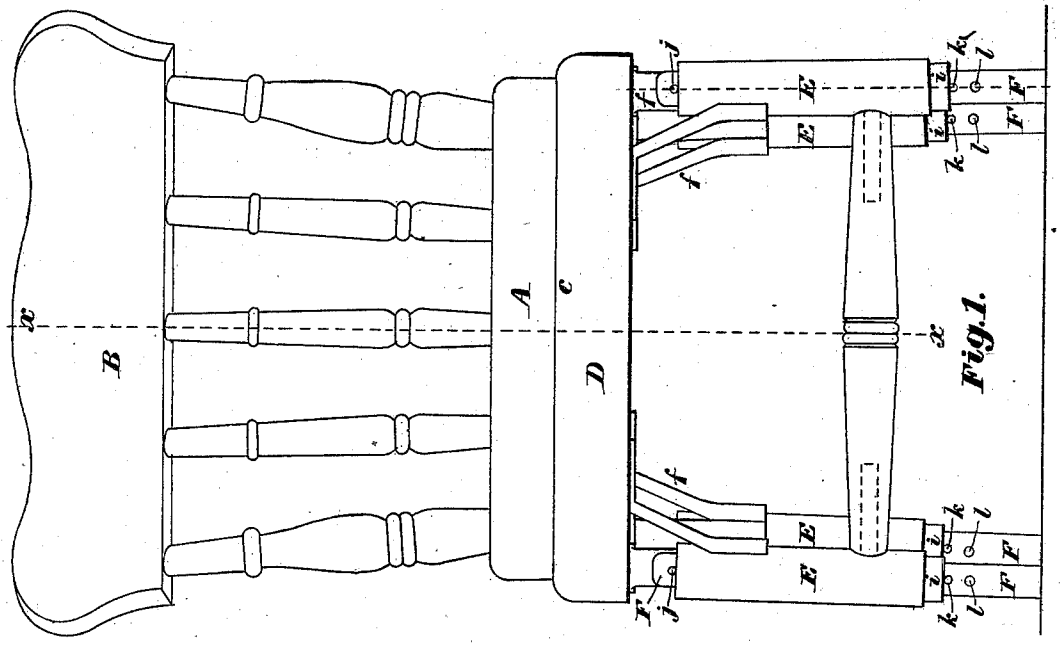


Fig. 1.

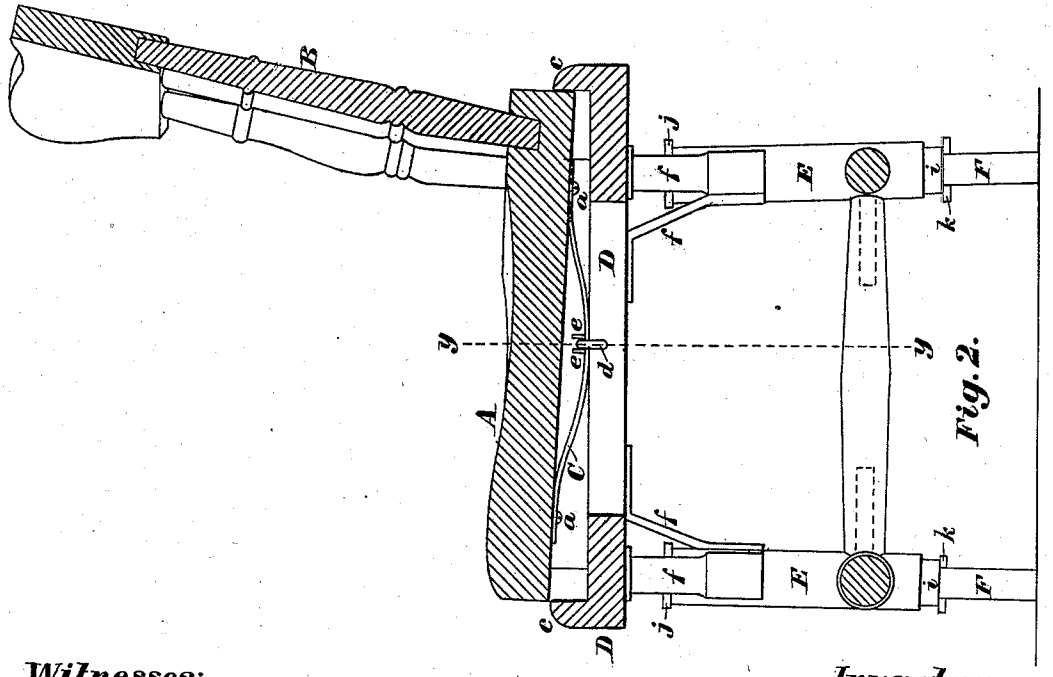


Fig. 2.

Witnesses:

E. E. Chandler.

W. E. Lombard.

Inventor:

Samuel L. Saunders

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(Model.) 2 Sheets—Sheet 2.

S. L. SAUNDERS.

Chair.

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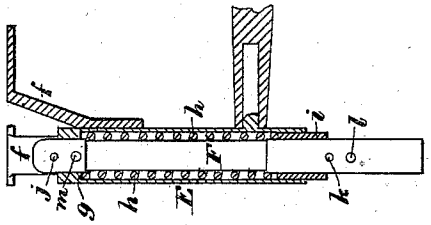


Fig. 5.

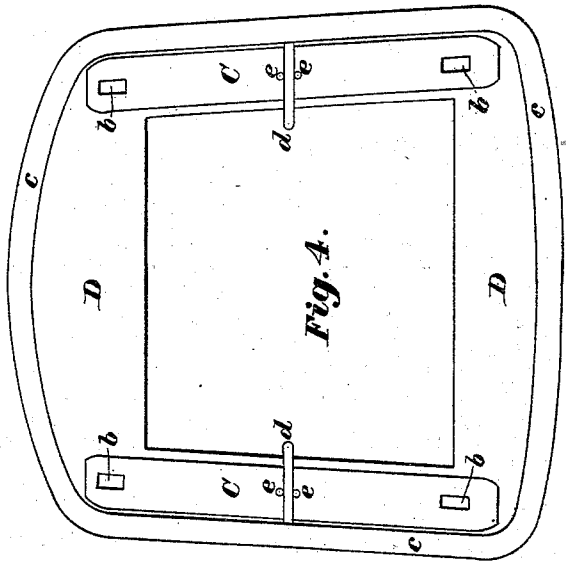


Fig. 4.

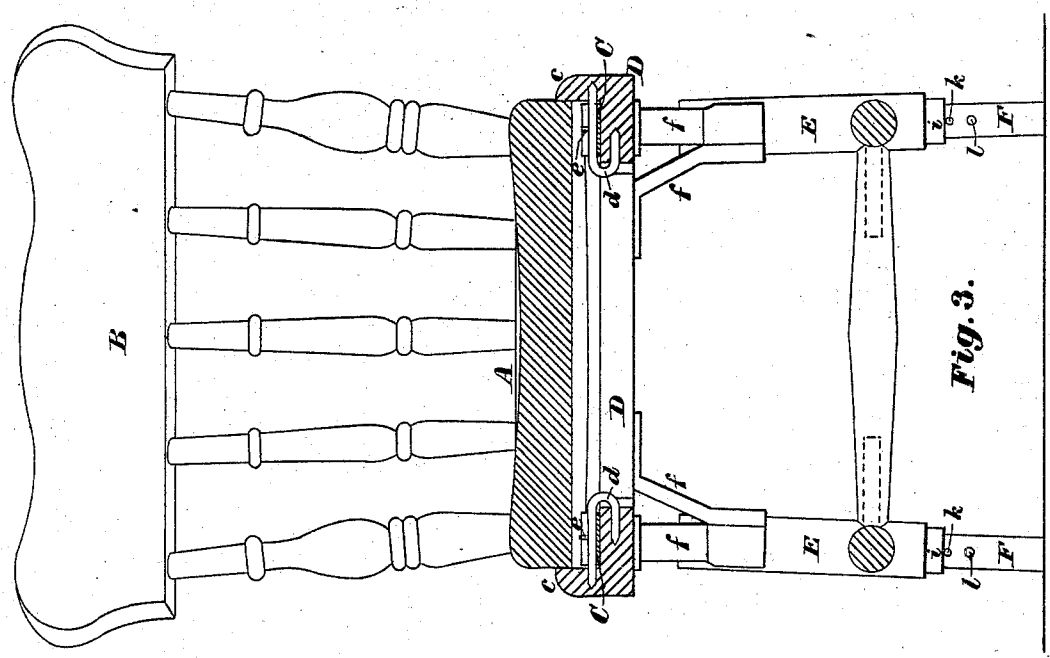


Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

SAMUELL L. SAUNDERS, OF LYNN, MASSACHUSETTS.

CHAIR.

SPECIFICATION forming part of Letters Patent No. 241,728, dated May 17, 1881.

Application filed May 17, 1880. (Model.)

To all whom it may concern:

Be it known that I, SAMUELL L. SAUNDERS, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Chairs, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to the construction of chairs for the use of sewing-machine operators and other sitting operatives, and is designed to render the chairs more readily adapted to the requirements of different operators and to the different positions of the operators while at work; and it consists, first, in mounting the chair-seat, having an ordinary back attached thereto, upon a base or stool-like frame made separate from the seat and back, with elliptic springs interposed between said seat and frame, with their ends bearing against and secured to the under side of the seat and their middle bearing upon and connected to said frame in such a manner that while said springs yield to the weight upon the seat to permit a slight up-and-down motion, they also serve as rockers to said seat, by virtue of which the chair-seat may be slightly tilted forward or backward to accommodate the desired position of the operator.

It further consists in a chair provided with a rocking and yielding seat mounted upon a frame having legs made in two parts, with springs interposed between them in such a manner that either leg may yield independently of the others, or all may yield alike or differently.

It further consists in a chair mounted upon yielding or spring legs adapted to be adjusted to different lengths to vary the height of the chair without changing the tension of the springs, as will be hereinafter described.

It further consists in a chair provided with a series of three or more legs, each composed of a metal tube secured to the chair seat or frame by brackets or arms, a rod or cylinder which passes through said tube, and a spring inclosed in said tube and surrounding said rod or cylinder between shoulders in such a manner that the tension of said spring shall tend to lengthen said leg, and a stop to limit said extension of the leg.

It further consists in a chair-leg composed of a tube or hollow cylinder provided with brackets or arms for securing it to the chair seat or frame, and an inwardly-projecting shoulder, a rod or cylinder passing through said tube and provided with an adjustable collar or shoulder, a spring inclosed in said tube and surrounding said rod between its adjustable collar or shoulder and the inwardly-projecting shoulder of said tube, and an adjustable stop to limit the endwise movement of said inner rod or cylinder by the tension of the spring.

Figure 1 of the drawings is a front elevation of a chair embodying my invention. Fig. 2 is a vertical sectional elevation, the cutting-plane being on line *x x* on Fig. 1. Fig. 3 is a vertical sectional elevation, the cutting-plane being on line *y y* on Fig. 2. Fig. 4 is a plan of the seat-supporting frame and springs with seat and back removed, and Fig. 5 is a vertical sectional elevation of one of the legs of the seat-supporting frame.

A is the chair-seat, and B the back, of ordinary construction. The seat A, instead of having legs set in its under side in the usual way, has secured thereto two elliptic or leaf springs, C C, by means of screws *a a*, which pass through slots *b b* formed in each end of said springs, said slots serving to permit a slight endwise movement or elongation of said spring when it is depressed by the weight of a person sitting upon the seat.

D is a skeleton frame, provided with a raised rib, *c*, around its outer edge, which surrounds and partially incloses the edge of the seat A, while the body of the frame extends under the seat to form a support for said seat through the medium of the springs C C, which, being curved, as shown in Fig. 2, bear at or near the middle of their lengths upon the frame D, to which they are loosely secured by means of unequal armed staples *d d*, the two pins or lugs *e e* projecting upward from the upper side of said springs, one upon each side of the staple *d*, preventing endwise movement of said springs on the frame D, while said springs are free to rock upon the frame D to accommodate the seat to the varying positions of the operator.

The legs which support the frame D each consist of a hollow cylinder, E, attached to the under side of said frame by means of brackets *f f* extending obliquely upward there-

from to a point above the upper end of said cylinder which does not reach the under side of the frame, and the movable rod or cylinder F, which extends through the hollow cylinder E at both ends, as shown. The cylinder or tube E has an interior diameter somewhat larger than the diameter of the rod F, except at its extreme upper end, where its interior diameter is reduced to fit the diameter of said rod, so as to form a bearing therefor, and also to form a shoulder, *g*, against which the upper end of the spiral spring *h*, which surrounds the rod F, between it and the tube or cylinder E, bears, the opposite end of said spring bearing against the adjustable collar or sleeve *i* surrounding said rod F, and filling the space between it and the lower end of the cylinder E. The spring *h* tends to force the rod F downward and project it farther out of the lower end of the cylinder E; but this tendency is counteracted at a given point by the stop-pin *j* coming in contact with the upper end of the cylinder E. The collar or sleeve *i* is prevented from moving downward upon the rod F beyond a given point by the stop-pin *k*, as shown; but when the weight of the operator is placed upon the seat A the springs *h* will yield and allow the cylinders E to move downward upon the rods F till the tension of the combined springs shall be sufficient to sustain the load.

If the chair is too high, the legs may be readily made shorter by moving the stop-pin *k* into the hole *l* and the stop-pin *j* into the hole *m*, whereby the length of the part of the rod F which projects below the lower end of the cylinder E is reduced in an obvious manner.

By this construction a very desirable end is attained—viz., the adaptability of the chair to the varying positions of the operator while at work, the adjustability of the height of the chair to the job in hand or to the size of the operator, and an almost entire disappearance of the unpleasant jar and tremble experienced by the operator sitting in an ordinary chair in a building where large quantities of machinery are in operation.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of the seat A, the spring-rockers C C, the skeleton-frame D, provided with legs, each made in two parts and provided with a spring, all so constructed and arranged that the seat may be tilted to the front or rear and yield vertically upon the supporting-frame, and each of the legs shall have an independent yielding movement, substantially as described.

2. The combination of the chair-seat A, the spring-rockers C C, and a frame supported by legs, each made in two parts adjustable relative to each other, and having a spring interposed between them, substantially as and for the purposes described.

3. A chair provided with legs, each composed of a tube attached to the chair-frame by brackets, a central rod or cylinder extending through said tube at both ends, and a spring surrounding said central rod and within said tube, between a shoulder projecting inward from said tube and a shoulder on said rod, substantially as described.

4. A chair-leg composed of the hollow cylinder E, provided with the brackets *f f*, and the inwardly-projecting shoulder or collar *g*, the central rod, F, adjustable sleeve *i*, and the spring *h*, all arranged and adapted to operate substantially as and for the purposes described.

5. The combination, in a chair-leg, of the hollow cylinder E, provided with the inwardly-projecting shoulder *g*, the central rod, F, provided with two or more transverse holes, *l*, and two or more transverse holes, *m*, the movable sleeve *i*, spring *h*, and the stop-pins *j* and *k*, all constructed, arranged, and adapted to operate substantially as and for the purposes described.

Executed at Boston, Massachusetts, this 27th day of April, A. D. 1880.

SAMUELL L. SAUNDERS.

Witnesses:

E. A. HEMMENWAY,

WALTER E. LOMBARD.