

D. LEIB.
Sewing-Machine Treadle.

No. 225,150.

Patented Mar. 2, 1880.

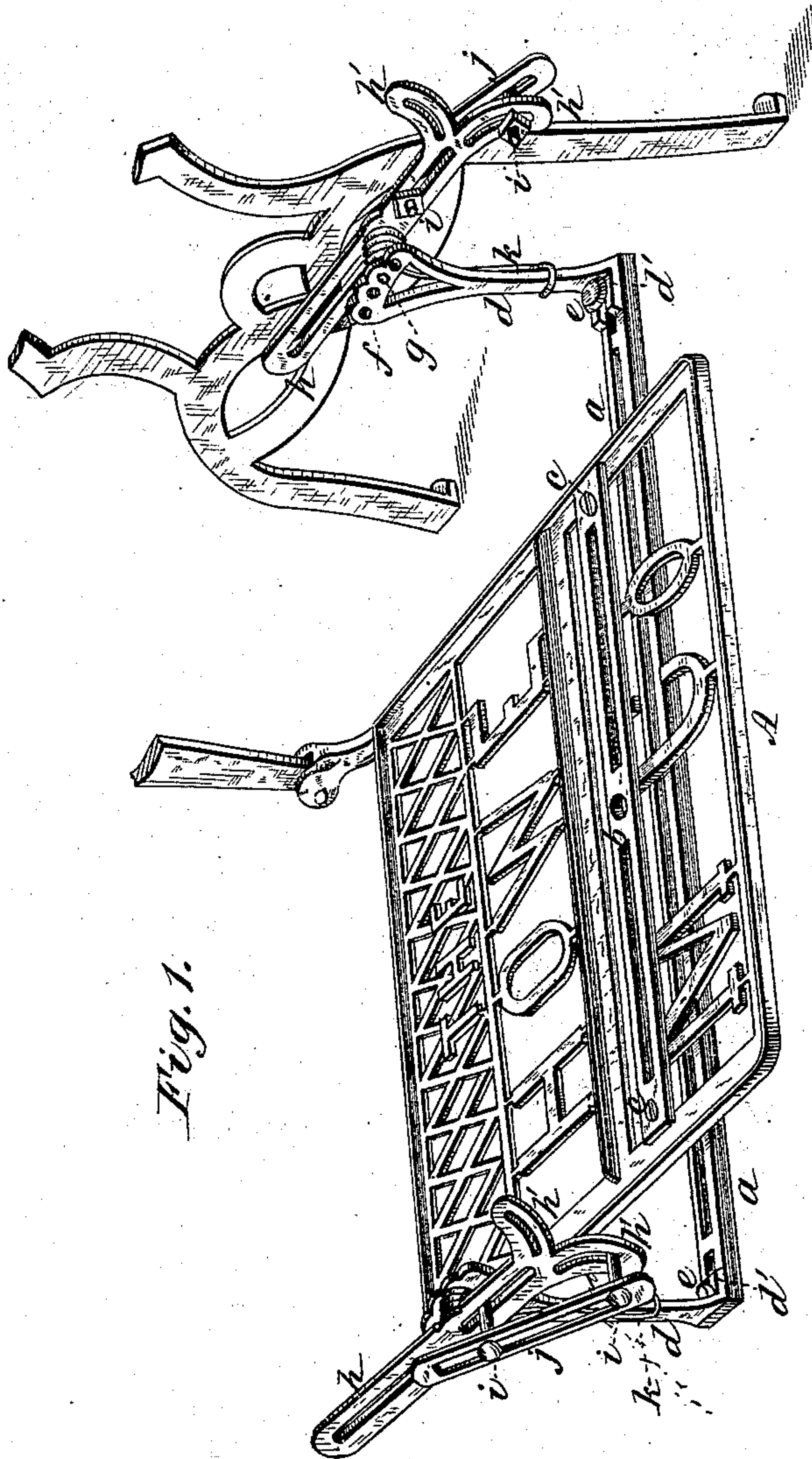


Fig. 1.

Attest.
W. H. Knight,
Floyd Norris

Inventor.
David Leib
by Johnson & Johnson
Attys.

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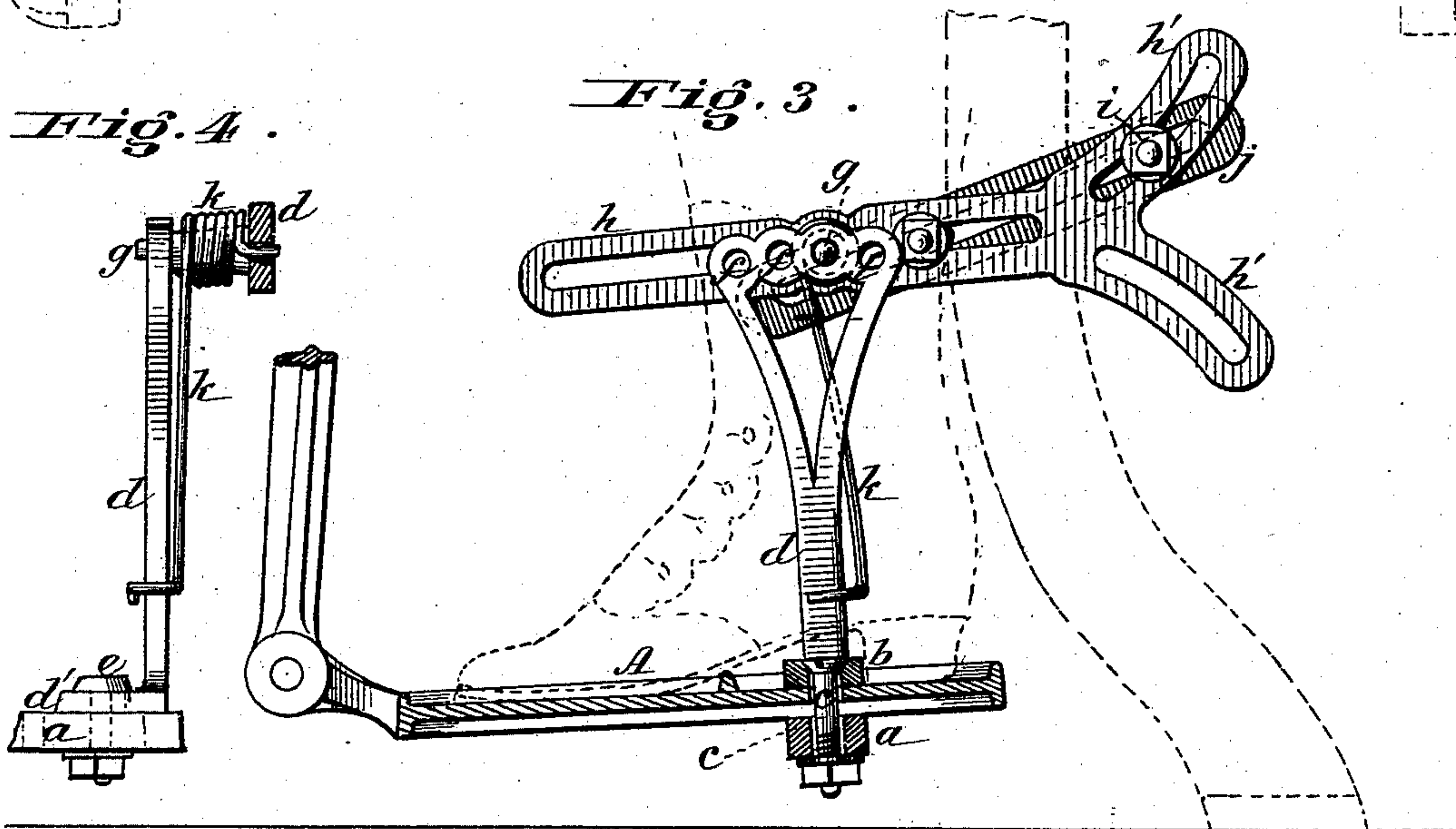
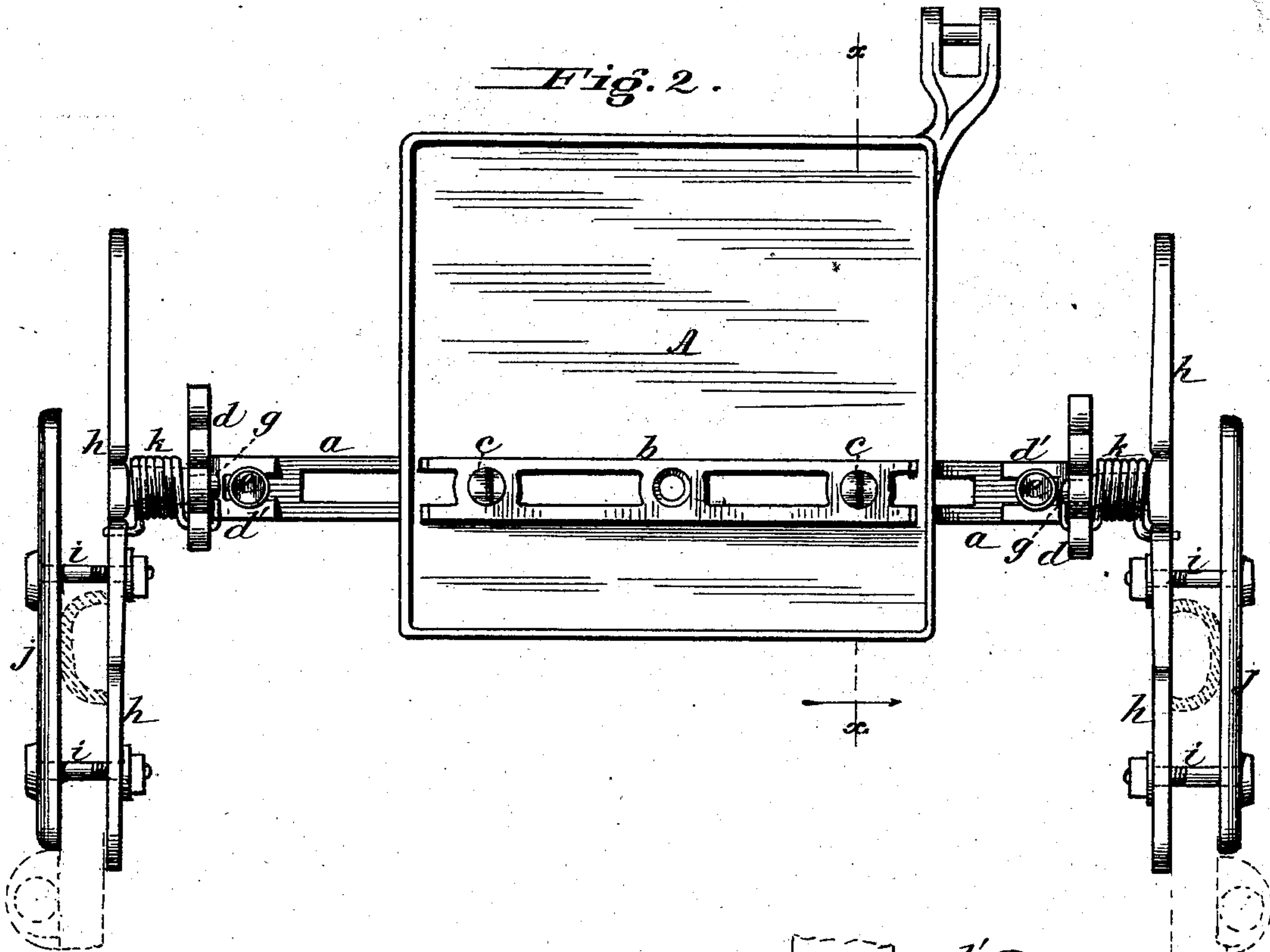
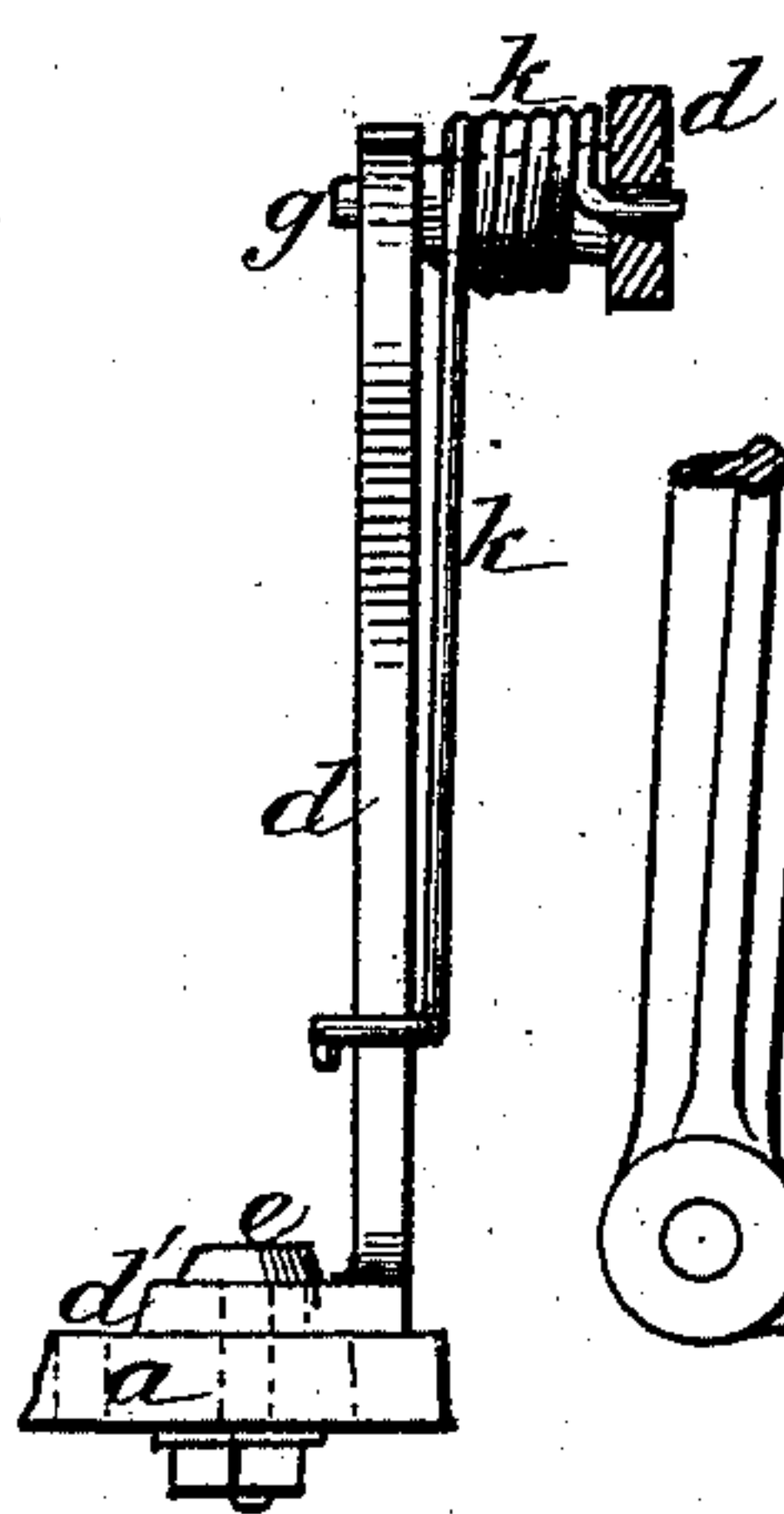


Fig. 4.



Attest:
H. D. Perrine
Floyd Norris

Inventor.
David Leib
By. Johnson & Johnson
Atty's

UNITED STATES PATENT OFFICE.

DAVID LEIB, OF COLUMBUS, OHIO, ASSIGNOR OF ONE-HALF OF HIS RIGHT
TO GEORGE NEWTON DEWEY, OF SAME PLACE.

SEWING-MACHINE TREADLE.

SPECIFICATION forming part of Letters Patent No. 225,150, dated March 2, 1880.

Application filed December 18, 1879.

To all whom it may concern:

Be it known that I, DAVID LEIB, of Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful
5 Improvements in Treadles for Sewing-Machines, of which the following is a specification.

My invention relates to sewing-machine treadles which are hung so as to have a swinging
10 ing action, and in which the hanging-pivots are coincident with the ankle-joint, and the foot and the treadle move in the arc of a circle of which the ankle-joint is the center, whereby the motion is obtained by the action of the
15 feet, and relieve the limbs and body of strain. In such construction it is important that the treadle be made adjustable, so as to give it more or less heel leverage and motion, by having the front of the treadle stand at a greater
20 or less height in relation to the throw of the crank or action of the pitman-rod. This desirable object is effected by changing the angle of the treadle by means which allow its swinging arms to be shifted upon their pivots of
25 suspension, and thereby adapt the action of the treadle to the easy action of the operator, said swinging arms being provided with a series of holes at their upper ends, into which the pivot-bearings may be changed, as may
30 be desired.

The pivot-bearings for the treadle are formed upon plates which are adjustably secured to the end frames of the machine, and upon these
35 pivot-bearings are secured springs, in a manner that their free ends will thereby serve as an auxiliary force to the heel-leverage and render the heel movement more easy and natural, leaving the principal part of the work of the foot to the toe-leverage of the treadle.

40 My improvement is applicable to the treadles of any of the machines in use.

Referring to the accompanying drawings, Figure 1 represents a view, in perspective, of a treadle for sewing-machines embracing my
45 improvement; Fig. 2, a top view; Fig. 3, an end elevation of the same; and Fig. 4, one of the treadle-arms, showing the spring-connection therewith.

My improved treadle hanging and swinging
50 device consists of a slotted bar, *a*, secured to

the under side of the treadle *A* by means of a plate, *b*, on the upper side of said treadle, and screw-bolts *c c*, passing through said top plate, the treadle, and the lower slotted bar, so as to clamp and secure these parts together
55 by nuts screwed upon the lower ends of the bolts.

To the ends of the lower slotted bar, *a*, which extends beyond the ends of the treadle, are secured the swinging arms *d* of the treadle, 60 said arms being formed with right-angled lower slotted ends, *d'*, through which screw-bolts *e* are passed into the slot of the bottom bar, and secured by nuts. The upper ends of these arms are made wide enough to have 65 formed therein a series of holes, *f*, by means of which the treadle is hung upon pivot-bearings *g g*, cast upon brackets *h h*, which extend each way from said pivot-bearings, and are slotted, one or both ends having slotted curved 70 branches *h' h'*, so that they may be secured to the inner sides of the end frames of the machine by means of screw-bolts *i i*, which pass through a slotted plate, *j*, on the outer sides of said frames, and secured by nuts. 75

The side brackets can be adjusted and secured in the required positions to the end frames by reason of the bolts being adapted, by the slots of said brackets, to pass through the open-work of said frames, so as to bring 80 the bracket-pivots in the proper positions to receive the treadle-swinging arms.

I have shown my improved swinging device as applied to the single treadle of a Howe machine; but it may be applied to other forms of 85 treadles and to separate treadles.

The bottom slotted bar, *a*, allows the treadle or treadles to be properly adjusted thereon, and the slotted base ends *d'* of the swinging arms *d* allow of their adjustment to suit the 90 width between the end frames. The pivot-bearings *g* are in line with the ankle-joint, so as to bring the action upon the foot and relieve the limbs and body of strain.

The capacity for changing the pivot-bear- 95 ings of the treadle without changing the positions of the brackets gives important advantages in allowing the front or heel part of the treadle to stand higher or lower with respect to the crank-movement or pitman-connection, 100

for the purpose of giving more or less heel-leverage to the operator, and thereby render the heel action more easy and regular.

To increase the heel-leverage or angle of the treadle the pivot-bearings *g* are placed in the front holes of the swinging arms, and to diminish such leverage or angle of the treadle said pivot-bearings are placed in the rear holes of said arms, while the intermediate holes serve to give a medium adjustment to the angle of the treadle and to the heel-leverage. This adjustment can be made by loosening the connection of the arms with the base slotted bar and shifting the swinging arms into the desired holes, and again securing the arms.

As an auxiliary aid to the heel-leverage, I connect springs *k* to the pivot-bearings in a manner to cause their free ends, which extend downward, to bear against the front sides of the swinging arms, so as to exert their force in the direction of the rearward swing of the treadle, and thus to aid the heel-leverage and transfer the main action upon the toe-leverage, making the action of the treadle more regular and easy to the operator. As shown, these springs are coiled upon the pivot-bearings between the brackets and the swinging arms, with their lower ends bent over said arms near their connection with the bottom slotted bar; but they may be arranged and connected in any way that will produce the result stated.

The swinging appliance, thus constructed in parts, can be readily applied to any machine in use without any special construction of treadle or pitman-connection, which, so far as I know, is an advantage not possessed by any other swinging-treadle attachment.

In applying my swinging treadle to machines in use, it is only necessary to remove the rod on which the treadle turns.

It will be understood that treadles suspended by a yoke have a compound movement—that is, a swinging movement back and forth in consonance with the rocking action—and the treadle being in line with the ankle-joint confines the work to the feet alone, and thereby avoids extending the strain to the knees and hips; and in connection with such action my improvements give very decided advantages in the particulars stated.

I claim—

1. In a swinging treadle for sewing-machines, the combination, with the treadle, of the separate slotted carrying-bar *a* and the separate heel-plate *b*, arranged across the top of the treadle and clamped thereon and to the slotted bar by screws *c c*, passing through the treadle and the slot of said bar *a*, and secured by nuts, substantially as and for the purpose herein set forth.

2. In a hanging and swinging treadle device for sewing-machines, the slotted bar *a* and the suspension-arms *d*, having slotted lower angular terminations, *d'*, and adjustably secured to said bar by the bolts *e*, in the manner and for the purpose herein set forth.

3. In a hanging and swinging treadle device for sewing-machines, the suspension-arms *d*, having a series of holes, *f*, in their upper ends, in combination with the pivot-bearings *g g* and a clamping device by which said pivoted arm-bearings are secured to the side frames of the machine, substantially in the manner described, whereby to effect the adjustment of the angle of the treadle, for the purpose stated.

4. The combination, with a treadle for sewing-machines having both a swinging and a rocking movement to operate the driving-shaft, and in which the axis of said treadle is in line with the ankle-joints of the operator's feet, of springs *k k*, having fixed connections at their upper ends and their free ends extending downward and exerting a force in the direction of the swing of the treadle upon its suspension-arms *d d*, substantially as and for the purpose herein set forth.

5. A hanging and swinging treadle device consisting of the slotted treadle-bar *a*, the suspension swinging arms *d d'*, having a series of holes, *f*, at their upper ends, the pivot-bearings *g*, the slotted and clamping bracket-plates *h j*, and reacting springs *k*, all constructed and adapted for use substantially as and for the purpose herein set forth.

In testimony whereof I have hereunto set my hand.

DAVID LEIB.

Witnesses:

C. C. SHEPHERD,
W. B. PAGE.