

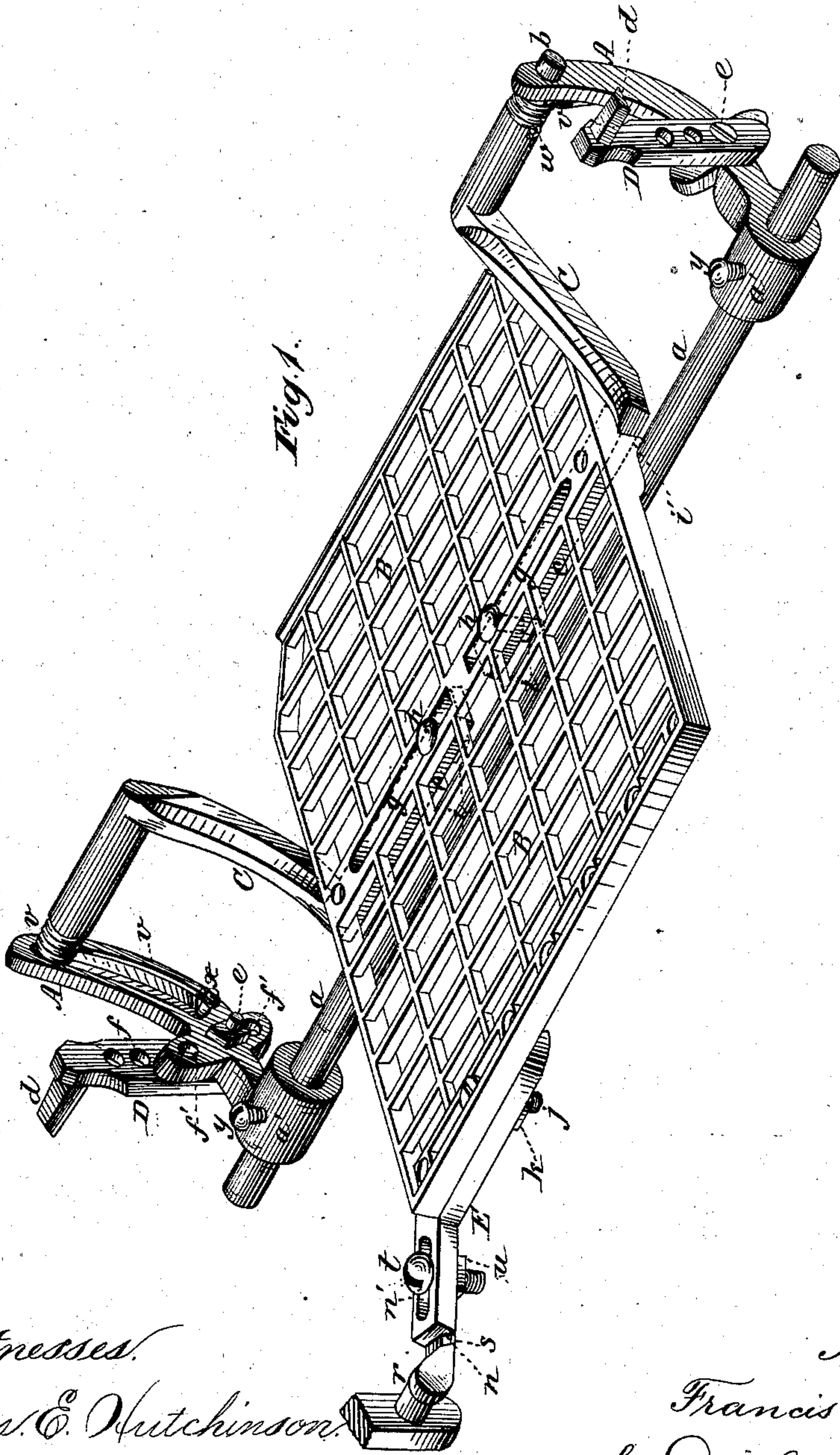
(No Model.)

2 Sheets—Sheet 1.

F. M. WEAVER.
Treadle.

No. 243,020.

Patented June 14, 1881.



Witnesses:
Jas. E. Hutchinson.
Edmond Brodhaag.

Inventor:
Francis M. Weaver
by Johnson & Johnson
Attys

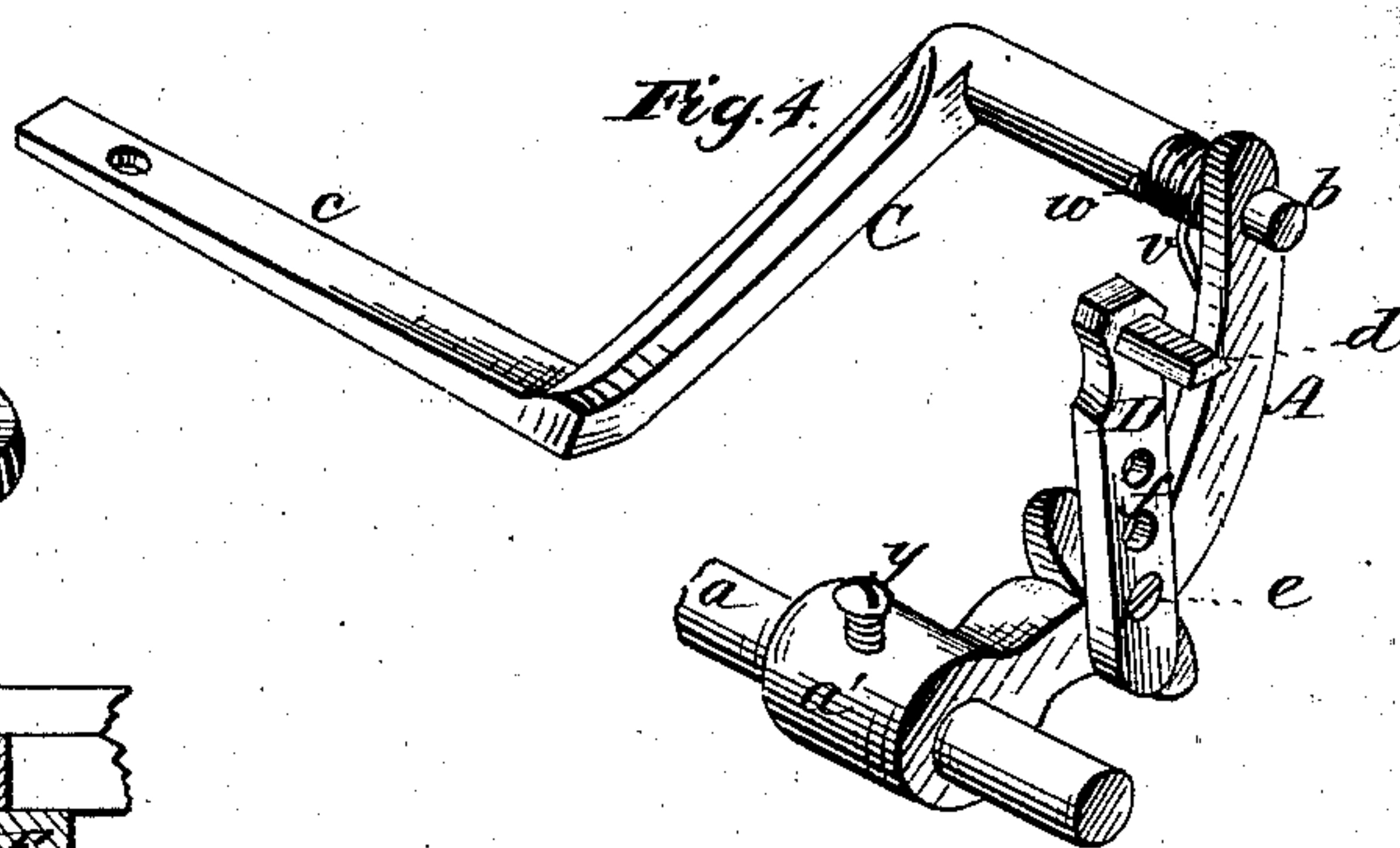
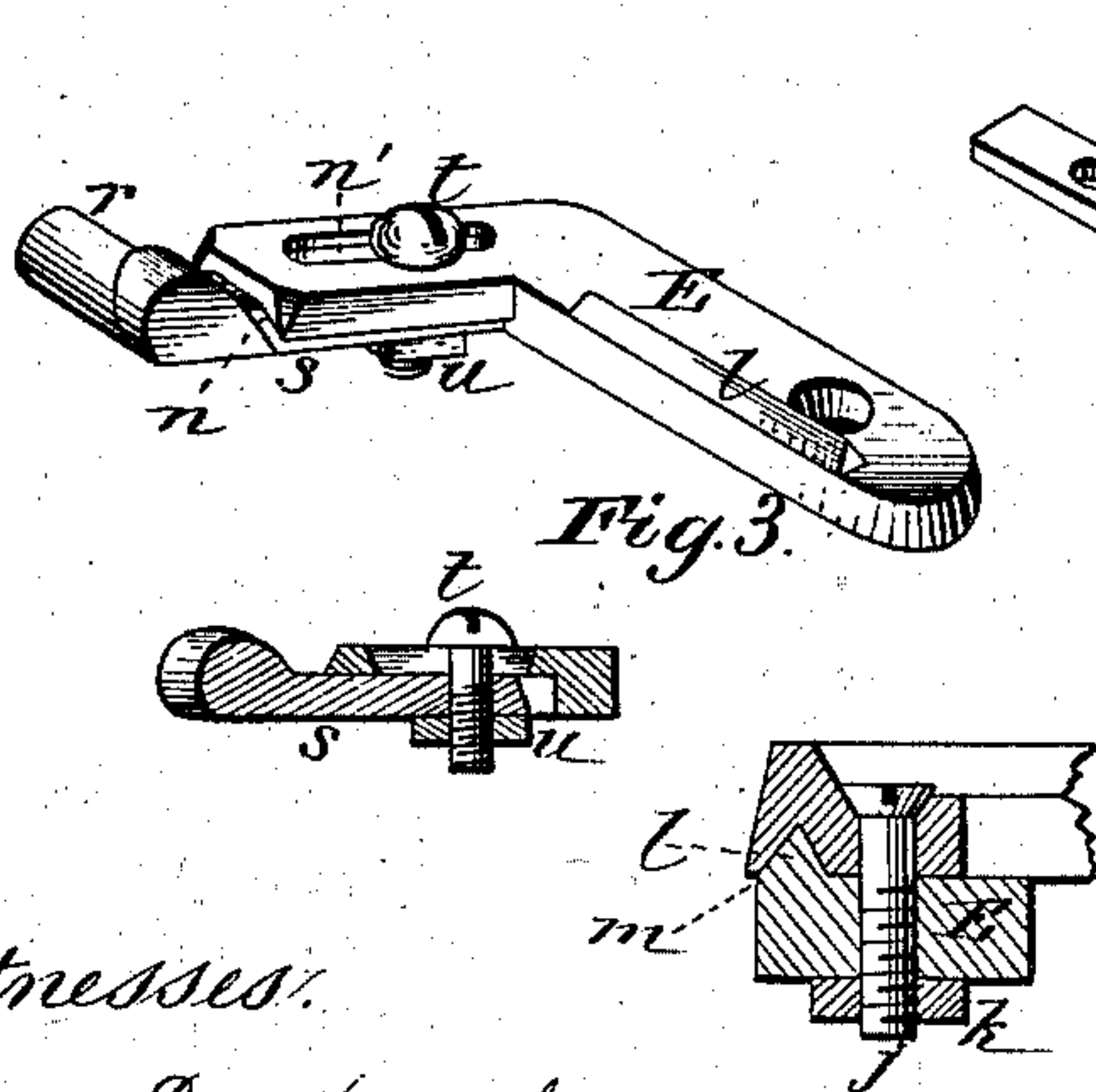
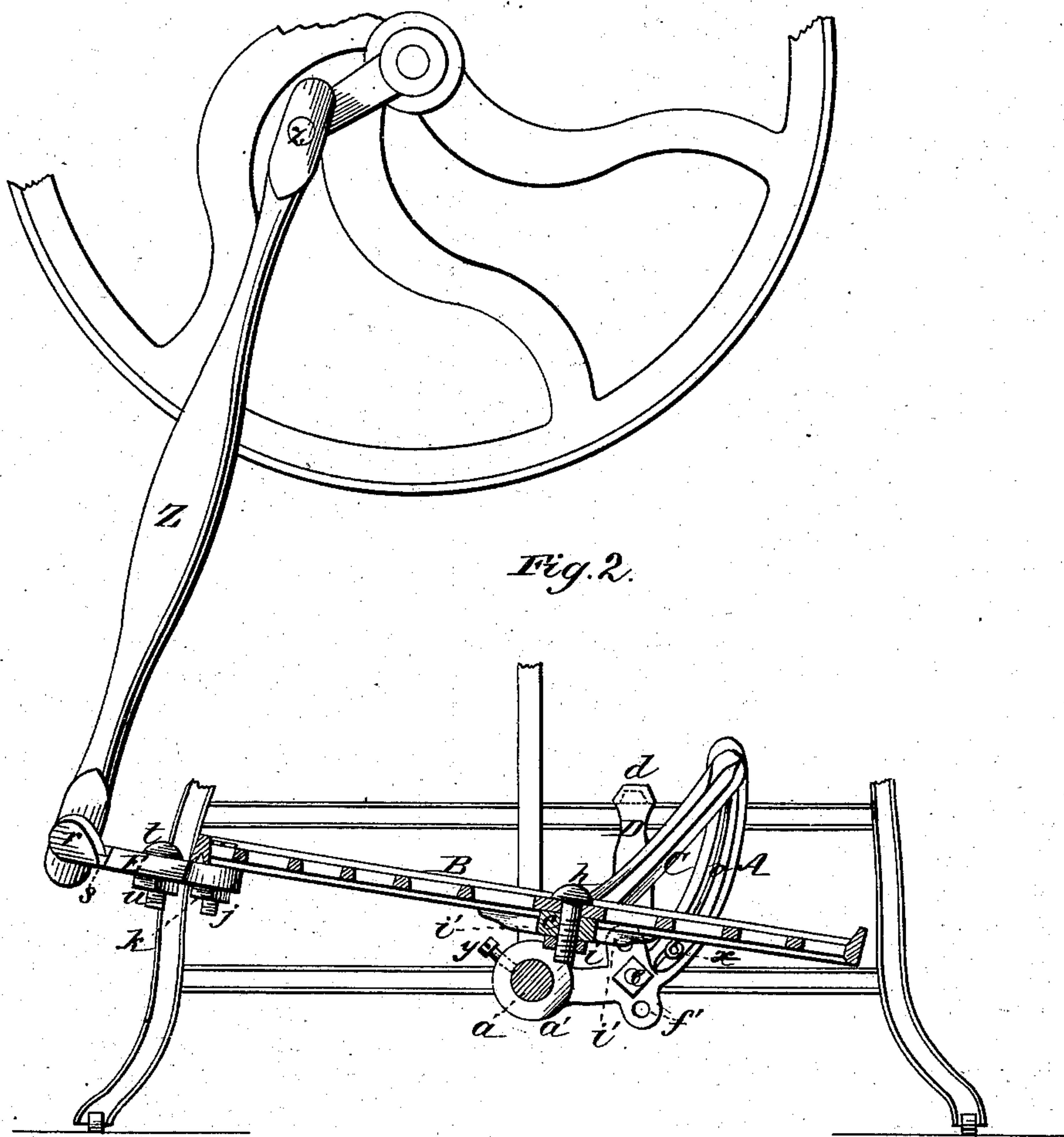
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UNITED STATES PATENT OFFICE.

FRANCIS M. WEAVER, OF SPRINGFIELD, OHIO, ASSIGNOR OF ONE-HALF
TO WILLIAM AUGUSTUS HANCE, OF SAME PLACE.

TREADLE.

SPECIFICATION forming part of Letters Patent No. 243,020, dated June 14, 1881.

Application filed April 25, 1881. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS MARION WEAVER, a citizen of the United States, residing at Springfield, in the county of Clarke and State of Ohio, have invented new and useful Improvements in Treadles, of which the following is a specification.

I have made certain improvements in the treadle adapted to have a swinging action upon supporting-arms having bearings in the line with the ankle-joints, so that the treadle and the foot or feet resting thereon will swing from a center in line with the bearings, to relieve the limbs and body of strain in operating the treadle of a sewing-machine or other machine operated by foot-power.

By my improvements the bearings for the treadle swinging-crank arms are carried by the ordinary treadle rod of a sewing-machine frame; and these bearing-arms are supported from the end frames by hangers arranged between the treadle-bearings proper and the frame-rod which carries the bearing-arms, whereby a swinging treadle is adapted for direct attachment to the ordinary treadle-rod of the frame. This is important because such a rod is necessary to brace and strengthen the end frames of the machine, and the advantages of a swinging treadle are fully obtained when such a treadle is adapted for use with the lower frame bracing-rod. The swinging-treadle attachment, as I have devised it, can be applied to the treadle-rod and to the pitman-rod of machines now made and in use by removing the foot-rests from said rod and detaching them from the pitman-rod, and thus supply the machine with a treadle which relieves the operator of the injurious strain upon the muscles of the thighs, hips, and lower portion of the back, incident in the use of the ordinary foot-rests rocking upon the frame-rod.

Referring to the accompanying drawings, Figure 1 represents a view, in perspective, of a swinging treadle embracing my improvements; Fig. 2, a vertical cross-section of the same, showing the crank-pin connection of the balance-wheel held out of dead-center when the machine is not in use; Fig. 3, the pitman-treadle connections and sectional views thereof;

and Fig. 4, one of the crank-arms, the bearing-arm therefor, and the hanger for supporting said bearing-arm detached from the frame-rod and the treadle.

My improved swinging treadle has two points of support—viz., by bearing-arms upon the rod *a*, which connects and braces the lower portion of the end frames of a sewing-machine, and by hangers upon the end frames. Upon the rod *a* and on the inner sides of the end frames of the machine are secured arms *A A*, which curve forward and upward, and are provided at their upper ends with holes which receive the cylindrical ends *b b* of separate crank-arms, which carry the treadle or foot-rest *B*, so that the latter is supported by bearings mounted upon the frame-rod.

The crank-arms *C C* extend downward and rearward from their connection with the bearing-arms, and are formed with horizontal extensions *c c* to which the foot-rest is secured. The bearings for the crank-arms are at points sufficiently high above the frame-rod to allow the treadle to swing over said rod, while the crank-arms extend downward in positions to cause their foot-rest-supporting parts *c c* to swing over and free of said rod. The treadle is thus supported directly upon and above the frame-rod *a* by the bearing-arms *A A* extending therefrom, and having a rigid connection therewith.

The bearing-arms *A A*, having the described relation to the crank-arms *C C*, would be liable to be broken and to turn at their sleeve bearings *a'* upon the frame-rod, and thus destroy the proper relation of the parts upon which the treadle swings, and to prevent such accident and derangement of these parts I provide for supporting the bearing-arms by hangers *D D*, arranged to connect said bearing-arms with the end frames of the machine. These hangers have fixed connections at their upper ends with the end frames, and depending therefrom are adjustably connected to the bearing-arms at points near their connection with the frame-rod, whereby the said bearing-arms are supported against the weight and action of the treadles, and the bearings of the swinging crank-arms are kept coincident. The fixed

connections of these hangers with the end frames are made by hook or bent ends *d d*, hooking over the bars or into openings in the end frames, while the connection of said hangers
 5 with the curved bearing-arms is made by means of screw-bolts *e e*, passing through holes *f* in said hangers and holes *f'* in said arms, whereby the said bearing-arms may be adjusted up or down to raise or lower the bearings for the
 10 crank-arms to adjust the pitman-connection *Z* to suit the throw of the crank-pin *z* of the balance-wheel. The arrangement of the holes *f f'* allows the hangers to be secured to the end frames and the bearing-arms to be adjusted to
 15 suit any machines operated by treadle and pitman connections.

The crank-arms are made separate to allow the treadle or foot-rest to be adjusted laterally to suit different widths of machines and its
 20 connection with the pitman-rod. For this purpose the treadle is provided with slots *g g*, through which bolts *h h* pass into and through the inner ends of the crank-arm extensions *c c*, and are clamped by nuts *i i*, while shouldered
 25 recesses or guides *i' i'*, formed on the under side of the foot-rest, serve to brace its connection with the crank-arm extensions and prevent the treadle from twisting upon the clamping-screws. In adjusting the foot-rest it is
 30 only necessary to slide it upon the crank-arm extensions and clamp the screw-bolts when the pitman-connection is in its proper adjustment for the pitman.

The pitman-connection consists of a bent
 35 arm, *E*, secured to the under side of the rear edge of the foot-rest by a screw-bolt, *j*, and nut *k*, and to hold said bent arm from turning upon its clamping-bolt it is formed with a rib or bead, *l*, on its upper surface and fitted into a
 40 groove, *m*, on the under side of the foot-rest, thus making its connection secure with a single bolt. The bent part of the arm *E* extends out from the corner of the foot-rest and is formed with a groove, *n*, on its under side and
 45 a slot, *n'*, to allow of the attachment of a wrist-pin, *r*, the shank *s* of which fits into the groove *n* and is clamped by a screw-bolt, *t*, and nut *u*, by which the wrist-pin can be adjusted toward or from the foot-rest to suit the position of the
 50 pitman. The groove *n* of the bent arm holds the wrist-pin shank from turning upon its clamping-bolt.

The adjustments of the foot-rest which I have described—to wit, as to its height by the hangers, as to its lateral position upon the crank-arms, and as to its pitman-connection—adapts
 55 it for attachment to operate sewing-machines without change in any of its parts.

In connection with the lateral adjustment of
 60 the foot-rest upon the separate crank-arms to suit frames of different widths, the bent arm may also be adjusted laterally to suit the pitman-connection, while the adjustment of the wrist-pin itself is to set it nearer to or farther
 65 from the foot-rest.

For aiding the continuous motion of the

treadle a spring, *v*, is coiled upon each crank-arm, having one end secured over a pin, *w*, thereon, and its other end extending down is secured over a pin, *x*, on the bearing-arm, so
 70 as to constantly exert their force to elevate the rear part of the foot-rest, and to cause the balance-wheel crank-pin to stop out of "dead-center" when the machine is stopped, and thus not only allow the machine to be easily started,
 75 but to start always in a forward direction.

In applying the treadle to a machine already in use it is only necessary to remove the foot-rests and the lower frame-rod, and after securing the bearing-arms thereon by their sleeves
 80 *a'* and clamping-screws *y*, replace the said rod and firmly secure it to the end frames, after which the crank-arms, the treadle-plate, and hangers can be applied, the pitman connection made and the proper adjustments easily effected
 85 to suit the throw of the balance-wheel crank-pin.

I claim—

1. The combination, in a hanging swinging treadle, of the crank-arms *C*, with the bearing-arms *A*, and the supporting-hangers *D* therefor, the said parts having the relation to each other and to the treadle-plate or foot-rest *B* substantially as described, for the purpose specified.
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2. In a sewing-machine treadle, the combination, with the lower frame-bracing rod *a*, of the treadle-supporting parts consisting of the bearing-arms *A*, mounted upon and extending forward of and above said frame-rod, the hangers *D*, supporting said bearing-arms upon the end frames, and the separate crank-arms *C*, adapted to carry said treadle-plate free of said frame-rod, substantially as described, for the purpose specified.
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3. The treadle-plate of a hanging swinging treadle for sewing-machines, having the slots *g g* and the side shouldered recesses or guides, *i' i'*, in combination with separate cranked arms *C C*, carrying the treadle-plate *B*, and secured thereto by the screw-bolts *h h* and the said shouldered guides, substantially as described, for the purpose specified.
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4. The combination, with a sewing-machine treadle and the pitman-rod, of the pitman connection consisting of the bent arm *E* and the adjustable wrist-pin section *r s*, substantially as described, for the purpose specified.
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5. As a means for connecting the treadle with the pitman-rod of a sewing-machine, the bent arm *E*, having a rib or bead, *l*, fitting into a corresponding groove, *m*, in the treadle-plate and secured thereto by a screw-bolt, the bent part of said arm being formed with a slot, *n'*, and an under groove, and an adjustable wrist-pin attachment, *r s*, clamped within said groove, substantially as described, for the purpose specified.
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6. As a means for adjusting the relation of the treadle-connection with the pitman-rod of the balance-wheel, the hangers *D D*, provided with perforations *f*, in combination with the
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bearing-arms A A, and the bolts *e*, the said hangers having a fixed relation with the end frames, and the said bearing-arms being adjusted vertically, and in such adjustment turning with the frame-rod *a*, upon which they are secured, substantially as described.

7. In combination, a laterally-adjustable treadle, means for effecting its vertical adjustment in relation to the throw of the crank-pin of the balance-wheel, and means for effecting the adjustment of the treadle wrist-pin connection with the pitman-rod, substantially as described, for the purpose specified.

8. A hanging swinging treadle for sewing-machines consisting of the treadle-plate B, having slots *g g* and shouldered guides *i' i'*, the separate crank-arms C C *c c*, secured in

said treadle-plate guides, the bearing-arms A A, fixed upon and projecting from the lower frame-rod, *a*, the hangers D D, having a fixed relation with the end frames, and an adjustable connection with said bearing-arms, an adjustable wrist-pin connection, *r s*, for the pitman-rod, and the springs *v*, all constructed and adapted for use substantially as described, for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

F. M. WEAVER.

Witnesses:

WM. JONES,

F. E. VAN SICKLE.