

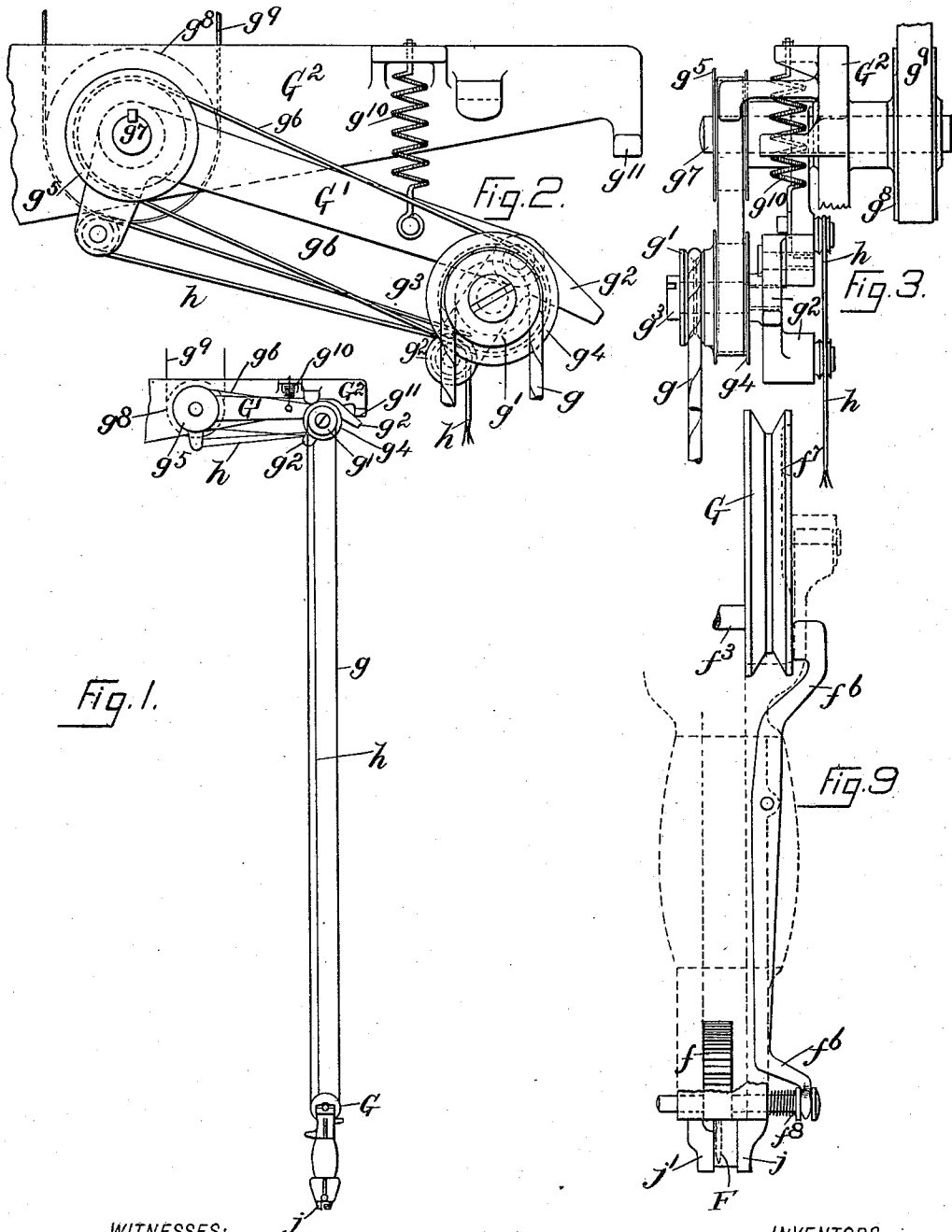
(No Model.)

2 Sheets—Sheet 1.

N. & G. GODDU.
SEWING MACHINE.

No. 572,538.

Patented Dec. 8, 1896.



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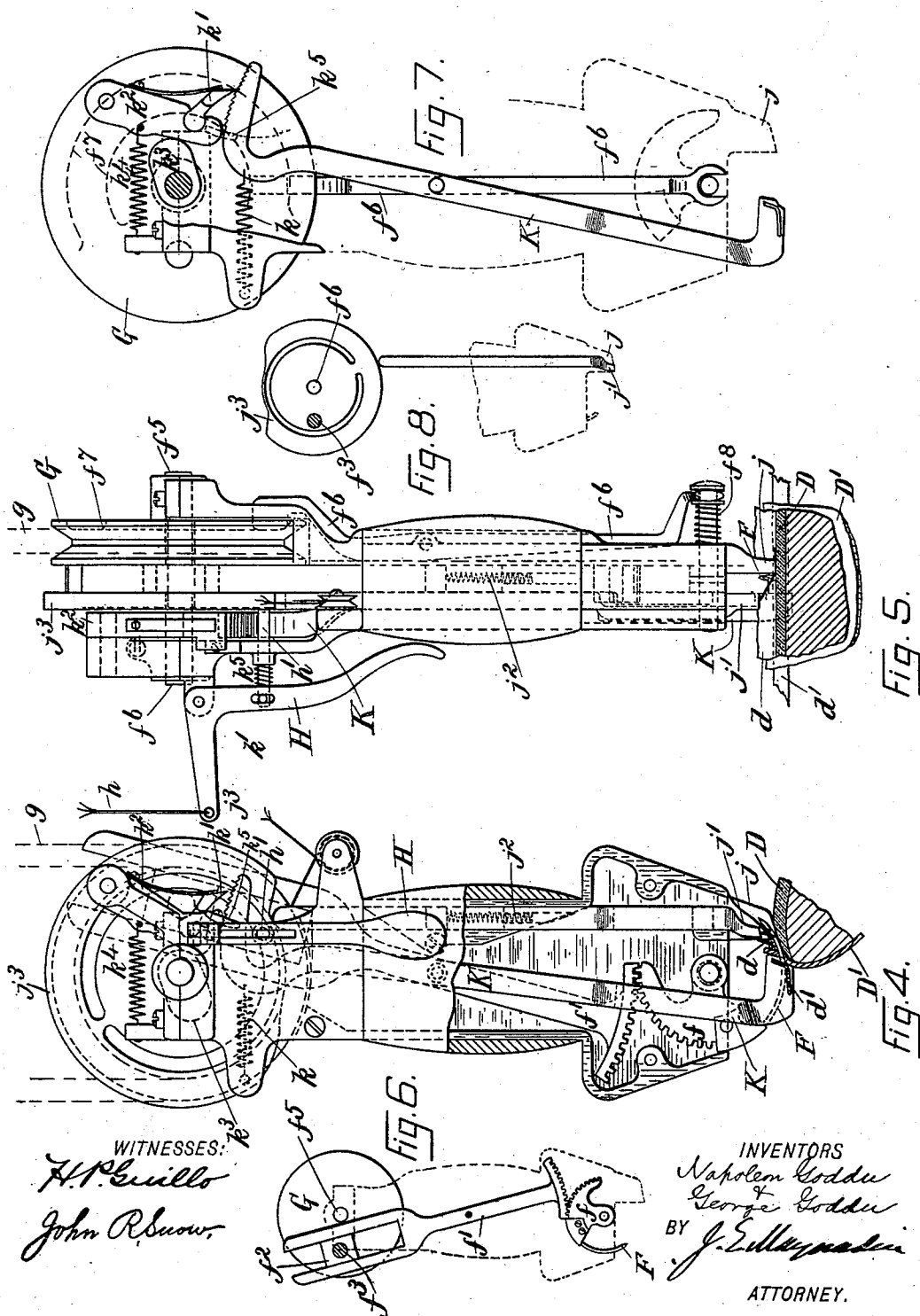
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UNITED STATES PATENT OFFICE.

NAPOLEON GODDU AND GEORGE GODDU, OF WINCHESTER, MASSACHUSETTS.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 572,538, dated December 8, 1896.

Application filed July 27, 1895. Serial No. 557,325. (No model.)

To all whom it may concern:

Be it known that we, NAPOLEON GODDU and GEORGE GODDU, of Winchester, in the county of Middlesex and State of Massachusetts, have invented an Improved Sewing-Machine, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation, on a small scale, of our improved sewing-machine and its suspending and driving mechanism. Fig. 2 is a side elevation, and Fig. 3 an edge view, of the suspending and driving mechanism. Figs. 4, 5, 6, 7, 8, and 9 illustrate the preferred construction of our improved sewing-machine.

The main object of our invention is to adapt a sewing-machine for motion with relation to the work, instead of moving the work, as heretofore, with relation to the machine, in order to form a seam. There is a large class of work in which the parts to be sewed together require to be temporarily secured in relative position, as by basting or with tacks or pegs or by clamps, and in some classes of work this movement of the machine with relation to the work is a matter of great importance, as, for example, in the manufacture of turned shoes and welted shoes the upper may be sewed to the inner sole, or the upper and welt may be sewed to the inner sole, or the outer sole may be sewed to the welt while the shoe is held on a jack or other support. The first essential for this mode of sewing is that the sewing-machine shall be suspended and driven by flexible means, as by its driving-belt; and this is the main feature of our invention, as thereby the sewing-machine may not only have a bodily motion to give the desired length of stitch, but may also be tipped and turned as the seam requires when the parts to be sewed together are sinuous, as, for example, a lip on the inner sole and the edge of the upper in turned shoes and in welted shoes, or the edge of the welt and the edge of the outer sole in welted shoes.

In the drawings the belt g on pulley G is the driving-belt, for pulley G is fast to the main shaft f^5 of the sewing-machine, and belt g connects pulley G with pulley g' , which latter pulley is properly driven, as by belt g^6 and its pulleys g^4 and g^5 , pulley g^4 being fast to pulley g' , and g^5 being fast to shaft

g^7 of pulley g^8 , which is driven by belt g^9 , as indicated in Figs. 1, 2, and 3. The spring g^{10} holds arm G' up to bracket G^3 , so that the end of lever g^2 comes in contact with its stop g^{11} on bracket G^3 , Figs. 2 and 3, and belt g^6 is thereby slackened as stud g^3 moves nearer shaft g^7 when lever g^2 is swung on its fulcrum at the end of arm G' ; but when the sewing-machine is grasped by the operator and pulled down for operation, as indicated in Figs. 2 and 3, belt g is drawn tight and acts through lever g^2 to tighten belt g^6 . It will now be clear that the sewing-machine is suspended by its flexible driving means and can therefore be moved freely, so far as the length of the driving-belt or its equivalent, a flexible shaft, will permit, and also that as the upper pulley g' of the driving-belt can be moved against the force of spring g^{10} the sewing-machine can be moved toward and from the work, and, moreover, the sewing-machine can be properly tipped and turned to conform to the sinuosities of the seam.

The arm G' , lever g^2 , spring g^{10} , and stop g^{11} constitute an automatic belt-slackening mechanism which operates to stop the sewing-machine automatically when left to itself; but it is also important that the machine should be stopped and started at the pleasure of the operator, and this is accomplished by the finger-lever H , cord h , and lever g^2 , for a pull upon cord h swings the lower end of lever g^2 inward and thus slackens belt g^6 . This will be clear from Figs. 1, 2, 3, 4, and 5. The stop h' enters the groove in the face of cam j^3 when the finger-lever H is depressed and stops the sewing-machine with the needle back or out of the work. (See Figs. 4, 5, and 8.)

The sewing-machine terminates in the guide-foot j and the looper j' , Figs. 4, 5, and 9, which in one position supplements the guide-foot j and holds the thread close to the work, so that the needle passes over it, for both j and j' rest upon the work and, in the example shown, in the channel of the inner sole D , while the needle F penetrates the work, in this example the upper D' , channel-lip d , and welt d' , and while the needle is in the work the looper-foot j' is lifted by its spring j^2 , drawing the thread into the hook of the needle, which is then withdrawn, and looper-foot j' is then depressed by its cam j^3 .

The cam j^3 is on shaft f^6 in line with shaft f^5 , and the wrist-pin f^3 extends through cam j^3 and compels cam j^3 and shaft f^6 to rotate with pulley G and shaft f^5 . (See Figs. 4, 5, 5 and 8.)

When the needle-feed is used, the needle penetrates the work close to looper-foot j' and the feed mechanism operates and moves the compound guide-foot along the channel, bringing foot j close to the needle, looper-foot j' rising and drawing the thread across the needle, so that when the needle is withdrawn it draws a loop of thread through the work and the preceding loop. (See Figs. 5, 7, and 15 9.) The needle-carrier f is oscillated by segmental lever f' , forked at its upper end to receive the box f^2 of wrist-pin f^3 , which is fast to pulley G on main shaft f^5 , as will be clear from Fig. 6, which shows these parts, other 20 parts obscuring them being removed or merely indicated. The needle-carrier f is moved endwise to feed by the motion of lever f^6 , due to cam f^7 on pulley G and spring f^8 , and these motions of lever f^6 move shaft 25 f^8 of needle-carrier f endwise. (See Figs. 5, 7, and 9.)

The work is clamped between the side of foot j and the work-clamp at the lower end of lever K, which is thrown forward to clamp 30 the work by the spring k and moved away from the work by the pawl k' , carried by the swinging arm k^2 . This arm is thrown forward by the wiper k^3 in order to make pawl k' engage with the ratchet on the upper end of 35 lever K and thus move lever K in a direction to move the work-clamp away from the work. As arm k^2 is moved back by its spring k^4 the pawl k' strikes the knock-off k^5 and is thereby freed from its ratchet in order to leave 40 lever K under the influence of its spring k and cause it to clamp the work. The looper-foot, work-clamp, and their adjuncts are shown in Figs. 7 and 8 with other parts removed or indicated.

45 One chief novelty of our sewing-machine is that it may be tipped, tilted, and moved bodily in all directions, for example, may not only be moved bodily to follow all the sinu-

osities of a last, including outline, as well as curves from toe to heel, but also held at any 50 angle to the surface of the sole, and while we have shown the best mode of embodying our invention it will be clear that its principle is above explained.

The operation will be clear without further 55 description.

What we claim as our invention is—

1. In combination a sewing-machine; its driving-belt on which the sewing-machine is suspended; means for actuating the driving- 60 belt; and means for moving the driving-belt bodily in a vertical plane to lift and lower the sewing-machine while it is driven by the driving-belt; all organized substantially as 65 described to permit the sewing-machine while in operation to be tipped and tilted and also moved up, down and sidewise to sew from the shank on one side of a shoe-sole, and about the fore part and toe to the shank on 70 the other side.

2. In combination a sewing-machine; its driving-belt in which the sewing-machine is suspended; means for actuating the driving- 75 belt; means for moving the driving-belt bodily in a vertical plane to lift and lower the sewing-machine while it is driven by the driving-belt; and a finger-lever for starting and stopping the sewing-machine, all organized 80 substantially as and for the purpose specified.

3. In a sewing-machine, guide-foot j adapted to be guided by a lip on the work; looper-foot j' parallel with guide-foot j , supplementing it as a guide-foot, and provided with a 85 threadway through it to enable it to act as a looper; and mechanism to hold looper-foot j' in one position to supplement guide-foot j and hold the thread close to the work so that the needle passes over it, and to retract it 90 when it is required to act as a looper, all substantially as described.

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