



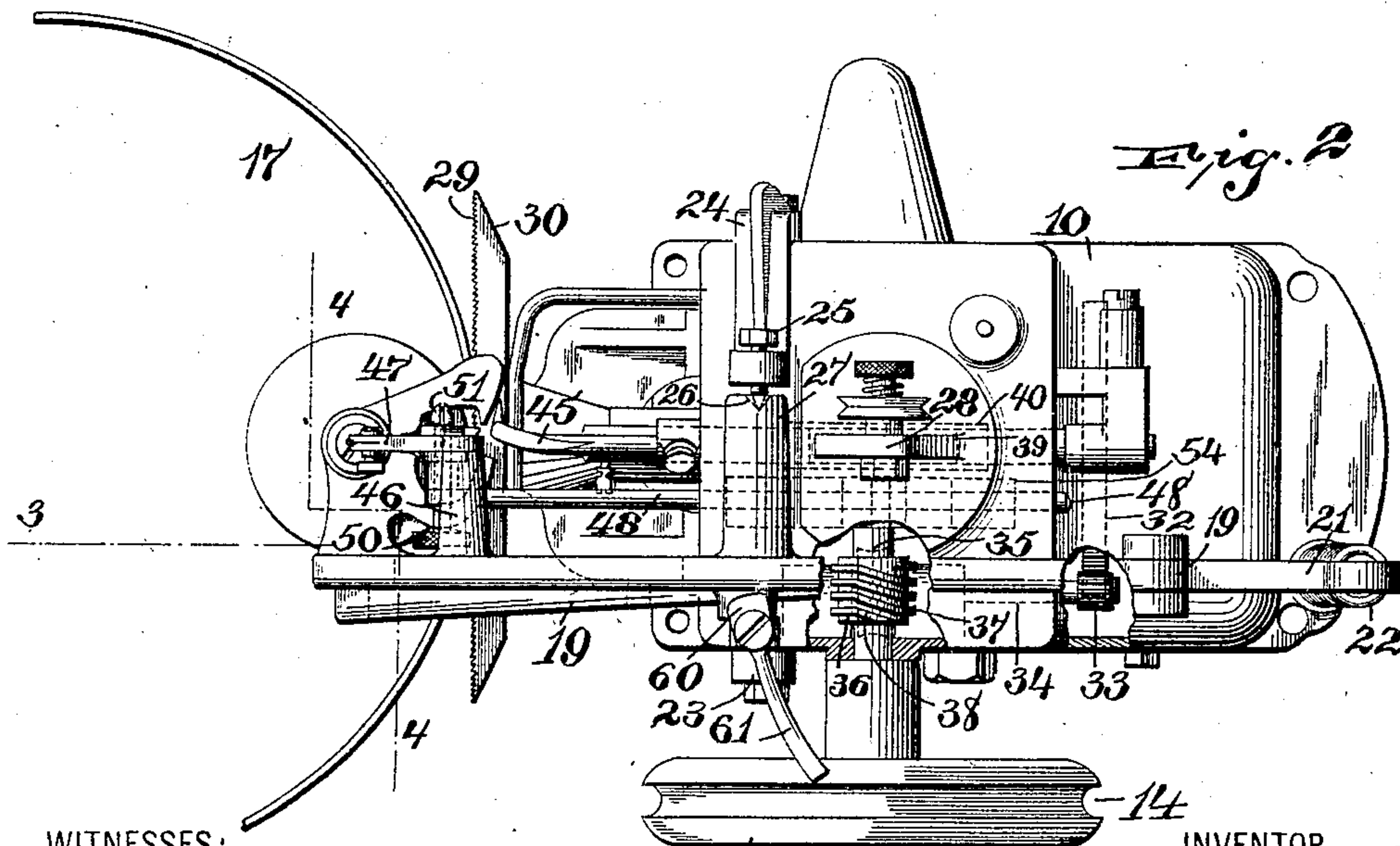
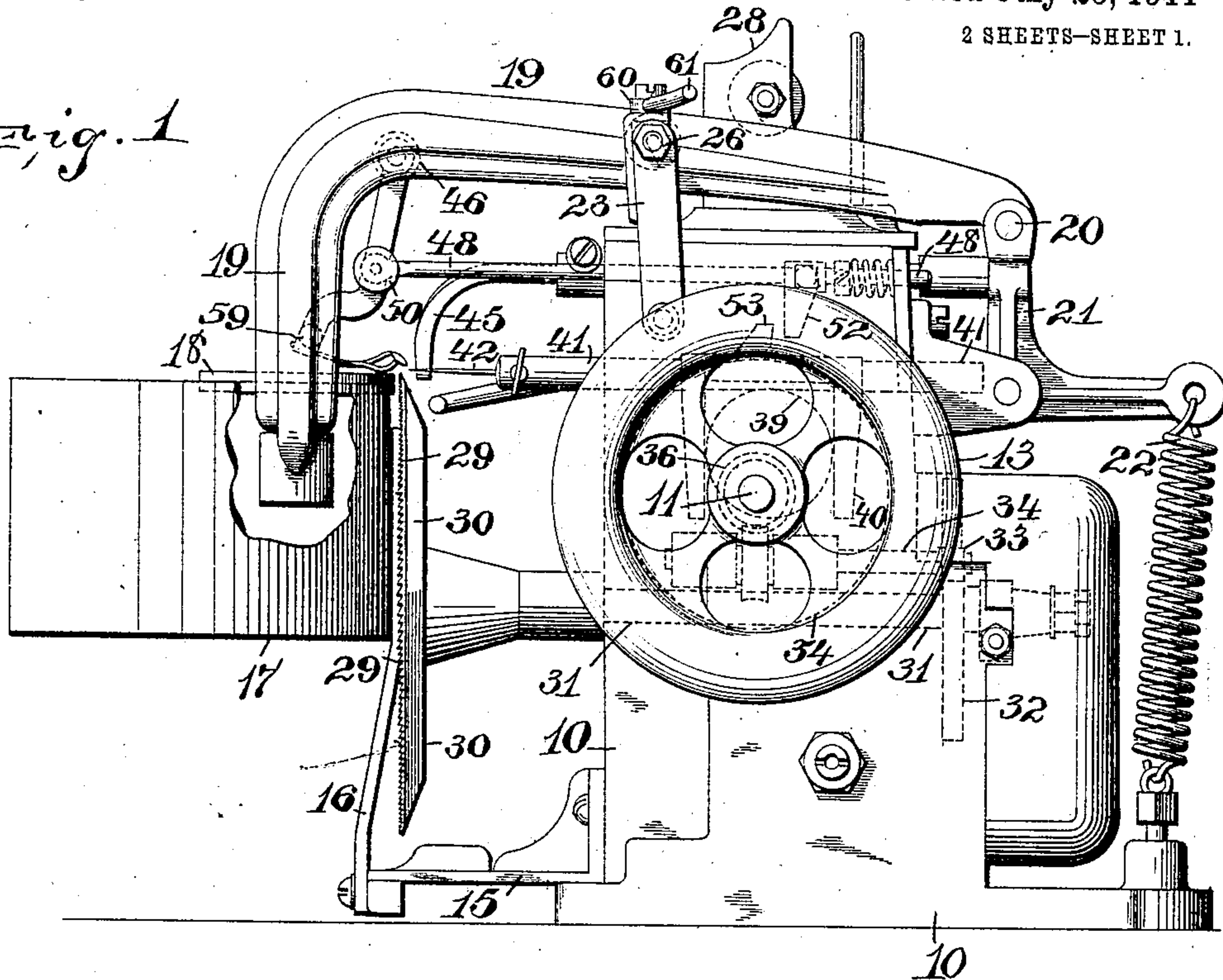
W. P. GAMMONS, JR.  
SEWING MACHINE.  
APPLICATION FILED FEB. 26, 1910.

999,024.

Patented July 25, 1911

2 SHEETS—SHEET 1.

Fig. 1



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WELCOME P. GAMMONS, JR., OF NEW YORK, N. Y.

SEWING-MACHINE.

999,024.

Specification of Letters Patent.

Patented July 25, 1911.

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*To all whom it may concern:*

Be it known that I, WELCOME P. GAMMONS, Jr., a citizen of the United States, residing at New York, in the county of New York and State of New York, 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, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to an improved sewing machine, and is particularly designed for machines employed in sewing the leather bands or sweat bands in hats, and is designed to provide means for perforating the band and the material of the hat before the entrance of the needle, and perforating it with a tool or awl that enters the material from the side of the body portion of the hat and the sweat band opposite to the one from which the needle enters. When a needle alone is used and it enters the body portion of the hat and the sweat band, when it emerges through the leather, it forces the leather out slightly before it perforates it, and when a series of these stitches are made there are very slight raised portions around each perforation, which, while they are slight, form a series of little knobs or perforations and the surface of the sweat band is not absolutely smooth.

By my machine the awl enters the leather from the same side that the needle emerges from, and before the needle is used, and punches a hole in the leather so that when the needle comes through the hole it does not have to push the leather out before it perforates it, and when the sewing is completed the surface of the leather is smooth and flat.

The device is used on machines that embody an arm carrying a presser-foot which holds the hat body and the leather up against a feeding wheel, and comprises a detachable connection between the awl and the operating device therefor so that the parts can be detached to permit the arm to be swung up so that the hat can be removed from the machine.

Another object of the invention is to provide the feeding means aforesaid with an

actuating mechanism that is of smooth operation and positive.

The invention is illustrated in the accompanying drawings in which—

Figure 1 is a side view of a machine, the shield being partly broken away. Fig. 2 is a top view of the machine. Fig. 3 is a section on line 3, in Fig. 2. Fig. 4 is a section on line 4, 4, in Fig. 2 showing the operating mechanism for the awl, and Fig. 5 is a detail view showing the means for operating the feeding wheel.

The machine comprises a frame or casing 10 in which is mounted a driving shaft 11 driven by a pulley 13 which is provided with the usual form of groove 14 in which a belt is placed by which the machine is operated. The machine is provided, on its front, with a bracket 15 on which is mounted a support 16 which has a shield 17 thereon, which shield is preferably semi-circular and made of sheet material against which the hat body and the leather is pressed by means of the presser-foot 18 which is mounted on the end of a right-angled arm 19 which is pivoted at its back end, as at 20, to a bell crank 21, the other end of which is connected with a spring 22 which is fastened to the machine, and this spring thus acts to pull the arm back, the arm swinging in the links 23 and 24, each of which has a screw 25 therein, the screw receiving a slot 26, in each side of the arm, so that the arm can be lifted from the screws or pins 25 when the presser-foot is withdrawn and raised, the lug 27 of the arm 19 being adapted to rest on the stop 28 as will be evident, this portion of the machine, as far as described, being of the usual construction of hat sewing machines. The presser-foot 18, when in position, forces the material of the hat, along with the sweat band as shown in Fig. 3, against a serrated edge 29 of a feeding wheel 30 which is mounted on a shaft 31 on the end of which is a gear wheel 32 which meshes with a small pinion 33 on a shaft 34, which shaft is provided with a worm gear 35 which is driven by a worm 36 which is of a special construction and which I mount on the driving shaft 11 and illustrate it in detail in Figs. 2 and 5.

The screw or thread 37 of the worm is formed straight, that is, without any pitch, and for the largest portion of their circumference the threads have an aligned pitch for a short distance, as at 38, so that they act,



when rotating with the straight portion of the thread in engagement with the worm gear 35, as a lock to hold the parts and the feed wheel 30 steady and feeding the feed wheel the required distance. When the angular portion 38 of the threads engages the worm gear 35, the worm gear and consequently the gears 33 and 32 and the feed wheel 30 are all advanced the required distance so as to feed the hat and the sweat band for the next stitch. The driving shaft 11 has a cam 39 thereon which operates in a yoke 40 to reciprocate the needle bar 41 which has secured in its front end the needle 42 which operates in the usual manner of sewing machines and is reciprocated through the portion 43 (see Fig. 3) which forms the bend where the hat body and the brim meet, and also through the leather 44 which forms the sweat band of the hat. Between these reciprocations the feeding of the hat takes place, the needle being assisted in making the stitch by a looper 45, shown in Figs. 1 and 2, which is operated by any of the well known mechanisms for the purpose, and is not illustrated in detail in this case.

Projecting from the arm 19 is a lug 46 on the end of which is pivoted a lever 47 which is swung by means of a rod 48 which reciprocates in the casing and is pivotally connected with the lever 47 and detachably secured thereto preferably by means of a pin 49 having a handle 50 thereon and being provided with a split head 51 which, when subjected to a pull or jerk, will be released and permit the separation of the rod 48 and the lever 47. The rod 48 is reciprocated by having the finger 52, which is secured to the rod 48, forced back by a nose 53 on the disk 54. This pushes the rod 48 back in one direction and causes the lever 47 to swing so that the awl 55, which is held in the end of the lever 47, is forced into the sweat band 44 and through the portion 43 of the hat so that the hole is made through the sweat band first and then through the hat so that the slight ridge which is formed around the perforation made in the sweat band, is formed on the side of the sweat band toward the hat body and is not apparent when the stitching by the needle has been completed. Ordinarily when the needle is the first element to be forced through the sweat band, after it has penetrated the hat body, the material around the hole made in the sweat band forms a little ridge, and does not make a very good appearance around the inner edge of the sweat band, when the sweat band is sewed in by the old method. When the nose 53 passes beyond the finger 52, the spring 56 operating against the collar 57 quickly forces the lever 47 back to withdraw the awl from the hat and the sweat band. The awl is held in the end of the lever 47 by any well known means, but I prefer to hold

it, as shown in Figs. 3 and 4, where the end of the lever 47 is split to form the spring arms 58 which are drawn together by the screw 59 so as to clasp the awl 55 between them and hold it securely in place.

The sequence of movements in the machine are as follows: The curved portion 38 of the thread 37 engages the worm gear 35 and through the connecting mechanism operated to move the feed wheel 30, it advances the hat the distance of one stitch, then the nose 53 engages the finger 52 and through the medium of the rod 48, swings the lever 47 and the awl 55 so that the awl 55 is forced through the sweat band to perforate it, and is preferably also swung far enough to perforate the material of the hat body. As soon as the awl is perforated far enough, the finger 52 is released from the nose 53 and the spring 56 snaps the lever 47 back into place and then the eccentric or cam 39 operates the needle bar to sew a stitch through the perforation made by the awl 55. As soon as the needle is withdrawn on its backward movement, the feeding again takes place and the above operation is repeated. The arm 19 is normally held down on the links 23 and 24 by means of a latch 60 having a handle 61, shown in Figs. 1 and 2.

Having thus described my invention, what I claim is:—

1. A sewing machine comprising a needle bar having a needle thereon, means for operating the needle bar, an arm projecting from the front of the machine and carrying a presser-foot to engage the material to be sewed, a lever arranged to swing on one end on the arm, an awl secured on the projecting end of the lever and adapted to enter the material to be sewed on the side opposite to that entered by the needle, a rod secured to the lever between its pivot and the awl, and means for reciprocating the rod to cause the awl to enter the material to be sewed, the awl when withdrawn being adapted to be moved aside from the path of the needle by the swing of the lever.

2. A sewing machine comprising a needle bar having a needle thereon, means for reciprocating the needle bar, an arm projecting forwardly and downwardly on the machine and having a presser-foot on its end for engaging the material to be sewed, a lever pivotally attached on one end of the arm and arranged to swing thereon, an awl carried by the lever, means for detachably securing the awl in the end of the lever, a rod, means for detachably securing the rod to the lever between the awl and the pivot of the lever, and means for reciprocating the rod to cause the awl to enter the material to be sewed from the side opposite to the side entered by the needle, the awl when withdrawn being adapted to be moved aside



from the path of the needle by the swing of the lever.

3. A sewing machine comprising a needle bar having a needle thereon, means for operating the needle bar, an arm, a presser-foot on the arm, a lever swinging from one end on the arm, means for securing an awl in the end of the lever, a rod, a pin for pivotally and detachably securing the arm to the lever, means for operating the rod in one direction to cause the awl to enter the material to be sewed from the side opposite to that entered by the needle, and a spring to cause the return of the rod and the withdrawal of the awl when the rod operating means is disengaged.

4. A sewing machine comprising a needle bar having a needle thereon, means for operating the needle bar, an arm adapted to swing, a presser-foot on the arm, a lever pivotally secured at one end to the arm, an awl, means for detachably securing the awl to the end of the lever, a rod, a pin having an enlarged split head for detachably and pivotally securing the rod and the lever together, a finger on the rod, means for engaging the finger to operate it in one direction for causing the awl to enter the material from the side opposite to that entered by the needle, and a spring on the rod to operate the rod to cause the withdrawal of the awl when the finger is disengaged.

5. A sewing machine comprising a casing, a drive shaft in the casing, a needle bar, a needle on the needle bar, means on the drive shaft for operating the needle bar, a rod arranged to reciprocate in the casing, a finger on the rod, a disk on the drive shaft, a nose on the disk to engage the finger to operate the rod in one direction, a spring arranged to operate the rod in the other direction when the finger is disengaged, an awl adapted to enter the material from the side opposite to the side entered by the needle, and an operative connection between the awl and the rod.

6. A sewing machine comprising a casing, a drive shaft in the casing, a needle bar, a needle on the needle bar, means on the drive shaft for operating the needle bar, a rod arranged to reciprocate in the casing, a finger on the rod, a disk on the drive shaft, a nose on the disk to engage the finger to operate the rod in one direction, a spring arranged to operate the rod in the other direction when the finger is disengaged, an awl adapted to enter the material from the side opposite to the side entered by the needle, a lever secured on one end, means for detachably securing the awl to the lever, and means for detachably securing the rod to the lever.

7. A sewing machine comprising a casing, a drive shaft in the casing, a needle bar arranged to reciprocate in the casing, a needle on the needle bar, means for operating the needle bar from the drive shaft, an arm, a presser-foot on the arm, a lever suspended from the arm, an awl secured in the end of the lever and adapted to enter the material from the side opposite to that entered by the needle, a rod adapted to reciprocate in the casing, means for connecting the rod with the lever, means for reciprocating the rod from the drive shaft in one direction, a spring for operating the rod when the reciprocating means is disengaged, a feed wheel adapted to engage the material being sewed, a worm on the drive shaft having threads without a pitch except for a small portion of their circumference, a worm gear adapted to be operated by the pitched part of the thread of the worm and to be locked by the straight portion of the thread of the worm, and an operative connection between the worm gear and the feed wheel.

In testimony, that I claim the foregoing, I have hereunto set my hand this 24th day of February 1910.

WELCOME P. GAMMONS, JR.

Witnesses:

E. A. PELL,  
WM. H. CAMFIELD.