To all whom it may concern:

Be it known that I, Ernest D. Simons, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented a certain new and useful Improvement in Gang Setting-Machines, of which the following is a full, clear, and exact description.

This invention relates to that class of machines which simultaneously set two or more fasteners on a garment or other article.

The primary object of the invention is to provide a machine by which all of the fasteners of a glove, both the male and the female members thereof, may be set simultaneously, so that it is necessary to present each glove to the machine but once in order to apply all of the fasteners, whether there be a single fastener or any greater number of such fasteners.

While the invention is herein explained as for attaching the stated primary object thereof, it is to be understood that the principle of the invention is susceptible of variation in construction and adaptability to any number and various kinds of fasteners.

The invention consists of a pair of die members adapted to support accurately in assembling alignment the constituent parts of the fasteners and to bring them together and set them upon the proper sides of the wrist opening in the glove, while the glove is held in position by the operator under sufficient tension to insure the glove against wrinkling or puckering; and while a glove, leather or textile, is herein referred to as the article to be supplied with fasteners, it is to be understood, as already indicated, that the invention is not limited thereto but is applicable for supplying other articles with appropriate fasteners, as I will proceed now to explain and finally claim.

In the accompanying drawings illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a front elevation of a double machine adapted to set all of the fasteners on right and left hand gloves, and Fig. 2 is a side elevation thereof. Fig. 3 is a bottom plan view, Fig. 4 is a side elevation and Fig. 5 is a front elevation of the plunger or upper die member. Fig. 6 is a side elevation of the horn or bed or lower die member, and Fig. 7 is a front elevation thereof.

Fig. 8 is a perspective view of the tension hook on the lower die member. Fig. 9 is a top plan view of the horn and its dies, with a glove shown in dotted lines as applied thereto in position to receive two pairs of fasteners. Fig. 10 is a top plan view of the horn with its superstructures removed. Fig. 11 is a top plan view of the lower die combined tension plate and set edge. Fig. 12 is a perspective view of the front gage. Fig. 13 shows the parts of the female or socket member, and Fig. 14 shows the parts of the male or stud member.

Figs. 4 and 6 are arranged to show the upper and lower die members as they stand in the machine, as may be seen by comparison with Fig. 2, and Figs. 5 and 7 are similarly arranged, as may be seen by comparison with Fig. 1.

As will appear from the following explanation, the upper die member is separable as a whole from the plunger, and the lower die member likewise is separable as a whole from the frame, so that these two die members may be replaced by others, and for other purposes.

When the machine is designed for use in setting fasteners on gloves, it will be found economical and convenient to arrange side by side on a common table or bench the heads or machines 2 and 3. The table or bench 1 may be supported on suitable A or other frames, 4, in which is mounted the shaft 5 having the treads 6 and 7 which are connected respectively with the plungers of machines 2 and 3 by rock-levers 8, connecting rods 9, bell-crank levers 10 mounted in the heads of the machines and links 11.

Since the parts of the two machines are the same, excepting that their dies are arranged to set the sockets and studs on the proper sides of the wrist-openings of right and left hand gloves, a description of one will suffice for both.

The plunger 12 is angular, preferably square, in cross-section, and operates in a
corresponding guideway in the frame 13 of the machine, so that the dies which are attached thereto will not turn or get out of alinement. These dies are detachably mounted in a die-block 14, the upper surface of which is provided with an angular transverse recess 15 into which the end of the plunger 12 is countersunk, said plunger terminating in a round projection which passes through a vertical hole in the die-block, as indicated in Fig. 4, and is engaged by a nut 16, or other suitable fastener, by which the die-block is rigidly fixed to the plunger. This die-block carries as many dies as there are fasteners to be secured to the glove, in this instance two fasteners, each composed of a male and a female member. The dies 17, of which there are two, are designed to receive and support the female or socket members 18, shown in Fig. 13, while the dies 19 are designed to receive and support the male or stud members 20, Fig. 13. These several dies are provided with shanks 21 and 22, respectively, which are fitted in holes in the die-block 14 and detachably held therein by means of pins 23, 24, engaging them under stress of springs 25, 26 which are held under tension on the blocks by screws 27, 28. As will be observed, these dies may be easily removed from the die-block when necessary, and may be as readily replaced. These dies also may be of any suitable description to engage and support the fastening members, and to present them to the lower dies for being secured on a glove as then relieved from them. Further, the block may be supplied with any number of dies, and while I prefer to equip the block with a sufficient number of dies to simultaneously set the parts of all of the fasteners, still, if desired, or advisable, any less number of dies may be used in any given instance or for any particular work.

As herein shown, the socket die 17 has a central stationary and unyielding portion 29, and this is inclosed by yielding portions 30 held together by a spring girdle 31, and adapted to separate upon the return movement of the die block after the socket or female member has been set, and resume their position for engaging the next socket. The die 19 may comprise a solid member 32 having one or more pivoted fingers 33 adapted to engage the head of the male or stud member and held in such engagement by a spring girdle 34, so that when the said male or stud member is set and the die-block is returning, the resistance will be sufficient to cause the spring girdle to yield and allow the pivoted finger to detach itself from the male or stud member and resume its position for engaging the next stud.

The horn or horn-like bed 35 is provided with the sockets 36 and 37 to receive respectively the socket dies 38, and stud dies 39, these dies 38 and 39 being adapted to receive respectively the washers 40 and 41 of the sockets and studs and to clutch the tubular extensions of these sockets and studs on the washers with the material of the glove or other garment between the fastener parts, 70 as usual. These dies 38 and 39 stand slightly above the level of the horn, and above them is mounted a tension plate and set edge 42, provided with holes 43 and 44 to receive respectively the socket dies and the stud dies and surround them, and this plate is yieldingly supported on the horn by means of springs 45 set in sockets 46 in the horn and screws 47 arranged in holes 48 in the horn and adapted to move longitudinally in said holes as the plate yields under superposed pressure. Mounted on top of the plate is a gage bar 49 running along the longitudinal center of the plate and having mounted on its rear end a transverse guide 50, these parts serving to properly position the glove and aiding in maintaining it in proper position when slipped upon the horn and while being acted upon.

Also mounted on the horn is the tension hook 51, having a slide 52 which is fitted in an appropriate groove 53 in the bed, the hook extending up thence through a slot 54 in the bed and a slot 55 in the plate 42. The hook through its slide 52 is detachably held in the groove 53 by a cap 56. This slide 52 is acted upon by a spring 57 entered by a pin 58 on the slide, said spring tending to force the slide and its supported hook 51 toward the rear of the machine. A hold-down device 59 may be mounted on the vertical part of the hook 51 just above the plate 42, and this device is here shown as a circular hubbed disk.

Attached to the bed is a front gage 60 having an adjusting slot 61 engaged by a screw 62 to vary its proximity to the plate. If desired, the horn may be hollowed out on opposite sides of the gage 60, as shown in Figs. 1, 2, 6 and 7, so as to leave more room for the operator's hands in using the machine.

As shown in Figs. 1 and 2, trays 63, 64 and 65 may be used to receive the articles to be set.

The gloves or other articles to be supplied with fasteners preferably have holes punched in them to receive such fasteners. One glove at a time is drawn over the horn with the placket engaging the hold-down device 59, and the fingers underneath the guide 50, and its wrist pulled up toward the gage 60, so that the tension of the spring 57 acting upon the hold-down device on the tension device will draw the glove smooth and flat while being held at its wrist portion by the operator. The dies having been supplied with the fastener parts, the upper die is brought down upon the glove by actuation of the treadle and the male and female mem-

1,255,825
bers are projected through their respective holes in the glove and into the washers beneath and clenched.

With the construction described, and following the mode of operation set forth, it is unnecessary to have any guides for aligning the upper dies with the lower dies other than the angular plunger in its angular sideway, and it is also unnecessary to have any pressure plates between which the glove or other article is secured while being acted upon.

Of course, it will be understood that in applying the glove to the horn, the back of the glove will be drawn beneath the horn and only the flies of the wrist-opening will be exposed above the horn to the action of the upper and lower die members. The guide 30 overlies the flies of the glove and serves to hold them in position as the glove is having its fasteners set and moves down under pressure of the upper dies. The device 59 may also move up and down on the hook with the glove, as the tension plate moves. It will be observed that by the described arrangement of dies, the article on which the fasteners are being set is always in full and unobstructed view of the operator.

What I claim is:

1. In a gauge setting machine, a frame having a guide-way angular in cross-section, a die-block provided with a plurality of dies and a transverse recess angular in cross-section, and a plunger angular in cross-section and arranged in said guide-way and fitted in the recess in the die-block to hold the block against turning, thereby serving to rigidly align the dies with their companion dies.

2. A die-block provided with a plurality of dies for use in simultaneously setting male and female members of fasteners, and having a recess angular in cross-section, and a plunger of complementary cross-section fitted in said recess.

3. In a machine for simultaneously setting the male and female members of a plurality of fasteners, an upper die member having dies for such male and female members arranged in parallel series, and a lower die member having similarly arranged dies for washers to be engaged by said male and female members in the act of setting, a yielding tension plate surrounding the last named dies, a tension hook for engaging the glove, and a horn on which the lower die portions are mounted and around which the glove is drawn.

4. In a machine for simultaneously setting the male and female members of a plurality of glove fasteners, an upper die member having dies for such male and female members arranged in parallel series, and a lower die member having similarly arranged dies for washers to be engaged by said male and female members in the act of setting, a yielding tension plate surrounding the last named dies, a tension hook for engaging the glove, and a horn on which the lower die portions are mounted and around which the glove is drawn.

5. In a machine for simultaneously setting the male and female members of a plurality of glove fasteners, an upper die member having dies for such male and female members arranged in parallel series, and a lower die member having similarly arranged dies for washers to be engaged by said male and female members in the act of setting, a tension hook for engaging the glove, and a horn on which the lower die portions are mounted and around which the glove is drawn.

6. In a machine for simultaneously setting the male and female members of a plurality of glove fasteners, an upper die member having dies for such male and female members arranged in parallel series, and a lower die member having similarly arranged dies for washers to be engaged by said male and female members in the act of setting, a yielding tension plate surrounding the last named dies, a tension hook for engaging the glove, and a horn on which the lower die portions are mounted and around which the glove is drawn.

7. In a machine for simultaneously setting the male and female members of a plurality of glove fasteners, an upper die member having dies arranged in parallel series for operation upon such male and female members, and a lower die member having similarly arranged dies for washers to be engaged by said male and female members in the act of setting, a yielding tension plate surrounding the last named dies and serving as a set edge for the dies, a longitudinal gage on said plate about which the edges of the glove opening are located, and a tension hook for engaging the glove.

8. In a machine for simultaneously setting the male and female members of a plurality of glove fasteners, an upper die member having dies for such male and female members arranged in parallel series, and a lower die member having similarly arranged dies for washers to be engaged by said male and female members in the act of setting, a yielding tension plate surrounding the last named dies and serving as a set edge for the dies, a longitudinal gage on said plate about which the edges of the glove opening are located, and a tension hook for engaging the glove.

9. In a machine for simultaneously setting the male and female members of a plurality of glove fasteners, an upper die member having dies for such male and female members arranged in parallel series, and a lower die member having similarly arranged dies for washers to be engaged by said male and female members in the act of setting, a yielding tension plate surrounding the last named dies and serving as a set edge for the dies, a longitudinal gage on said plate about which the edges of the glove opening are located, and a tension hook for engaging the glove.
located, a transverse guide on said gage, a front end gage, and a tension hook for engaging the article.

10. In a machine for simultaneously setting the male and female members of a plurality of fasteners, an upper die member having dies for such male and female members arranged in parallel series, and a lower die member having similarly arranged dies for coating with the upper dies in setting said male and female members, a yielding tension plate surrounding the last named dies, a tension hook for engaging the article receiving the fasteners, and an article holding-down device on said hook.

11. In a machine for simultaneously setting the male and female members of a plurality of glove fasteners, an upper die member having dies for such male and female members arranged in parallel series, and a lower die member having similarly arranged dies for washers to be engaged by said male and female members in the act of setting, a yielding tension plate surrounding the last named dies, a tension hook for engaging the glove, and a circular hold-down device on said hook adapted to be engaged by the placket of the glove to aid the operator in properly positioning the glove on the machine as the operator draws the glove toward himself and thereby puts it under tension.

12. In a machine for simultaneously setting the male and female members of a plurality of fasteners, a lower die member having a horn adapted to be applied to and removed from the machine, die sockets in said horn, dies therein, a combined tension plate and set edge yieldingly mounted upon the horn, a longitudinal gage and a transverse guide on said plate, a spring tension hook mounted in the horn and overhanging the plate, and a front gage on the horn.

13. In a machine for simultaneously setting both the male and the female members of a plurality of fasteners, a reciprocating upper die member mounted upon a non-turning plunger and having dies for such male and female members, and a stationary lower die member having complementary dies for coating with the upper dies in setting the fasteners, and means for accurately positioning the article to be supplied with the fasteners and for retaining it in such position in the hands of the operator while the fastener members are being set.

14. In a machine for simultaneously setting both the male and the female members of a plurality of fasteners, a reciprocating upper die member mounted upon a non-turning plunger and having dies for such male and female members, and a stationary lower die member having complementary dies for coating with the upper dies in setting the fasteners, a horn on which said complementary dies are mounted, a combined tension plate and set edge yieldingly connected to the horn, means on the plate to aid in properly positioning the article to be supplied with fasteners, and a spring tension device on the horn for engaging said article while it is held upon the plate by the operator.

In testimony whereof I have hereunto set my hand this 19th day of March A. D. 1917.

ERNEST D. SIMONS.

Witnesses:

PERCY WARNER,

E. A. HYDE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D.C."