# United States Patent [19]

**Walker**

[11] **3,787,898**

[45] **Jan. 29, 1974**


[54] **WRITING FACILITATING GLOVE**


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[52] **U.S. Cl.** ..... **2/163**

[51] **Int. Cl.** ..... **A41d 19/00**

[58] **Field of Search** ..... 2/158–163, 167, 2/168, 20, 21, 16, 161 A; 294/25



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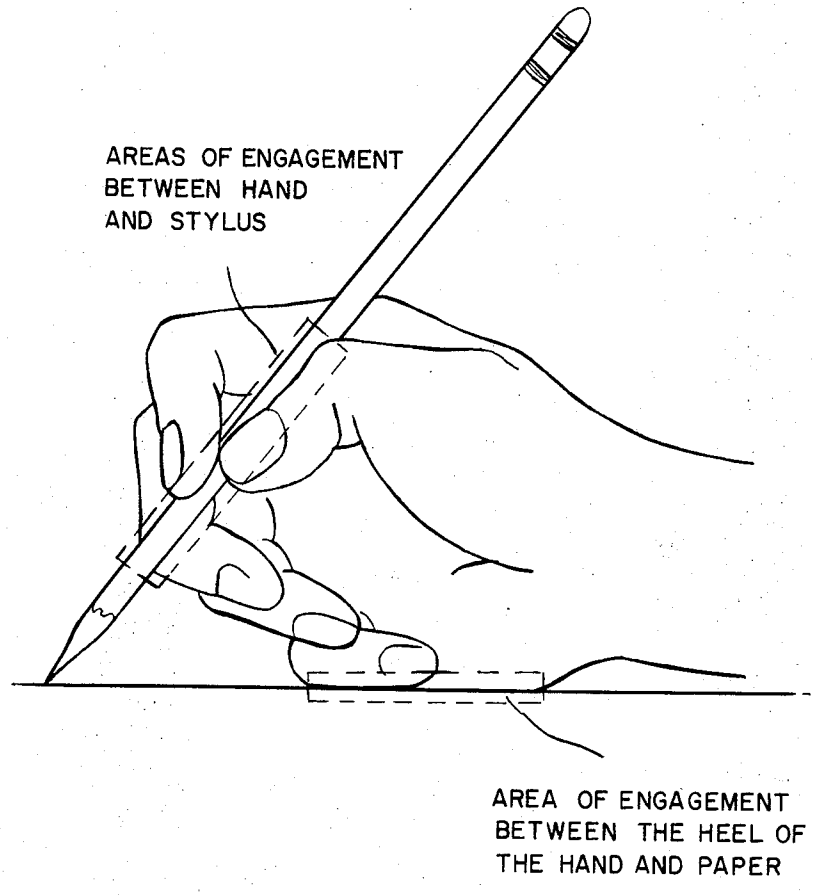
*Primary Examiner*—Geo. V. Larkin
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[57] **ABSTRACT**

A writing glove to facilitate the movement of a hand of a writer in the operation of writing with a pen on a writing surface includes an elongated smooth surface area on the glove, which smooth surface area has a low coefficient of friction and constitutes the area of contact between the glove and the writing surface, and selectively shaped and located adhesive areas on portions of the glove,which adhesive areas have a high coefficient of friction and constitute the gripping areas that are substantially employed by a writer in holding a pen during the writing movement of the hand.


**6 Claims, 9 Drawing Figures**



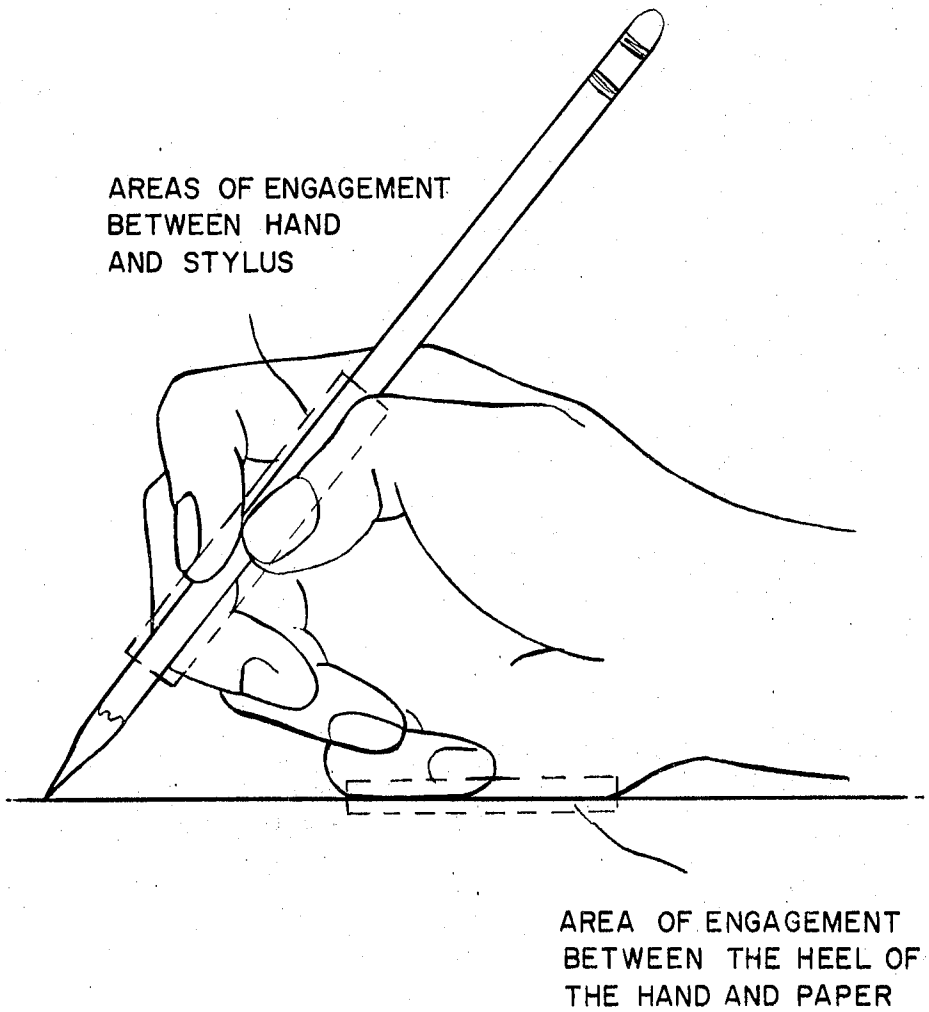

AREAS OF ENGAGEMENT
BETWEEN HAND
AND STYLUS
AREA OF ENGAGEMENT
BETWEEN THE HEEL OF
THE HAND AND PAPER

FIG. 1

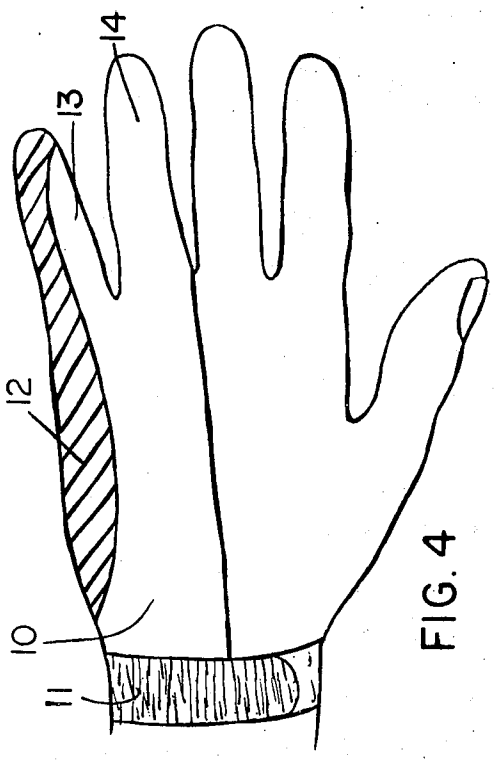



FIG. 4

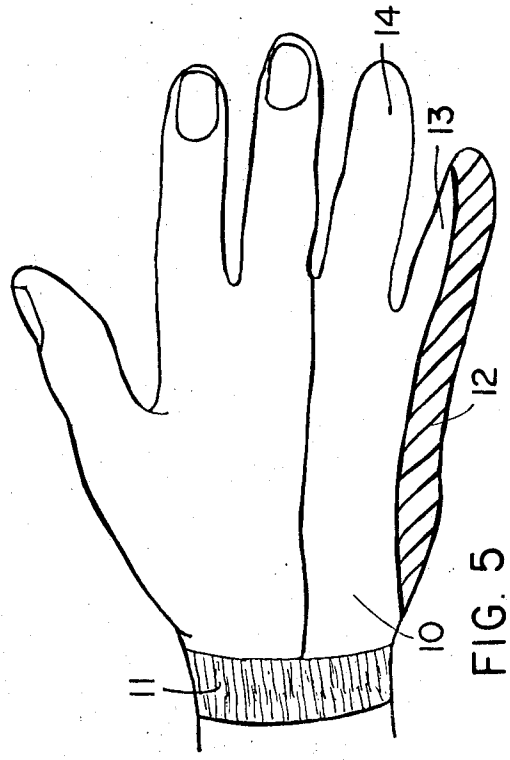



FIG. 5

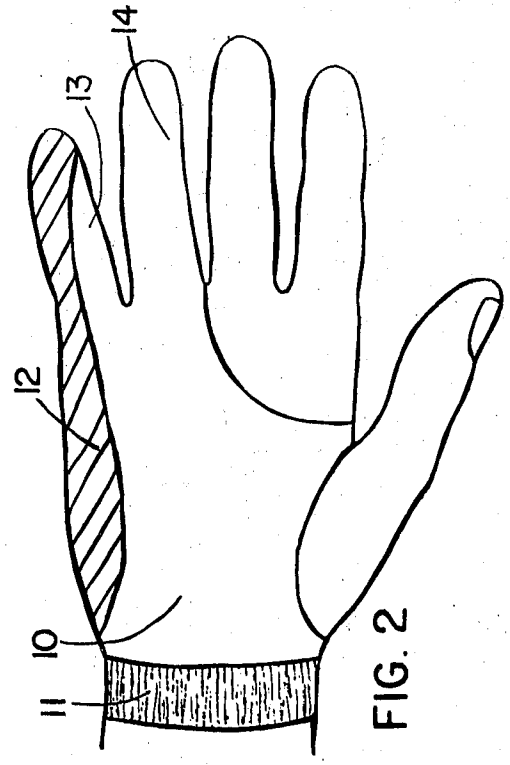



FIG. 2

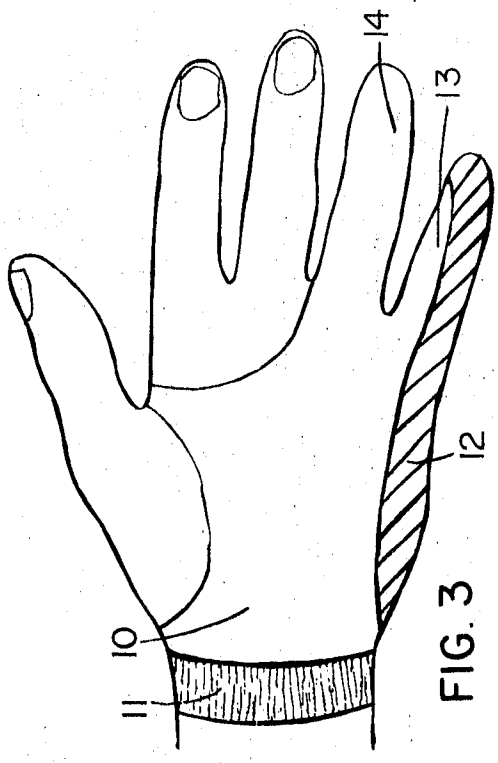



FIG. 3

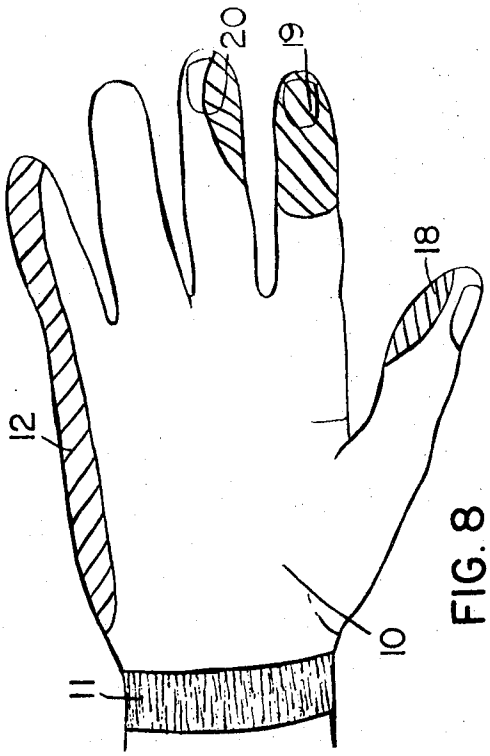



FIG. 8

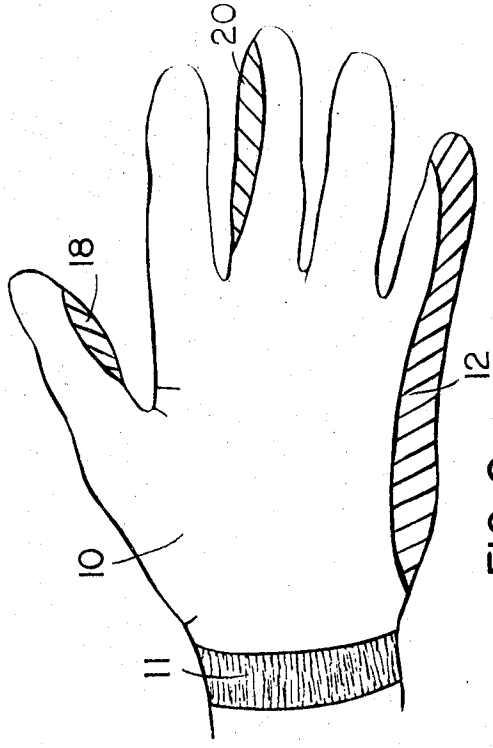



FIG. 9

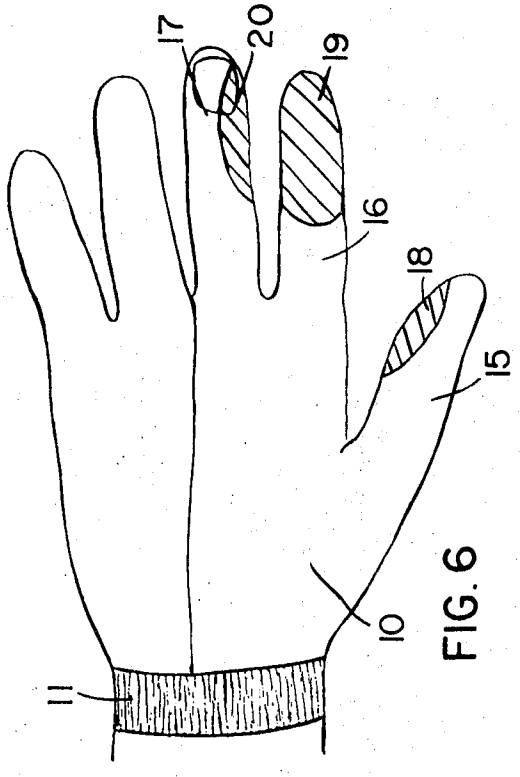



FIG. 6

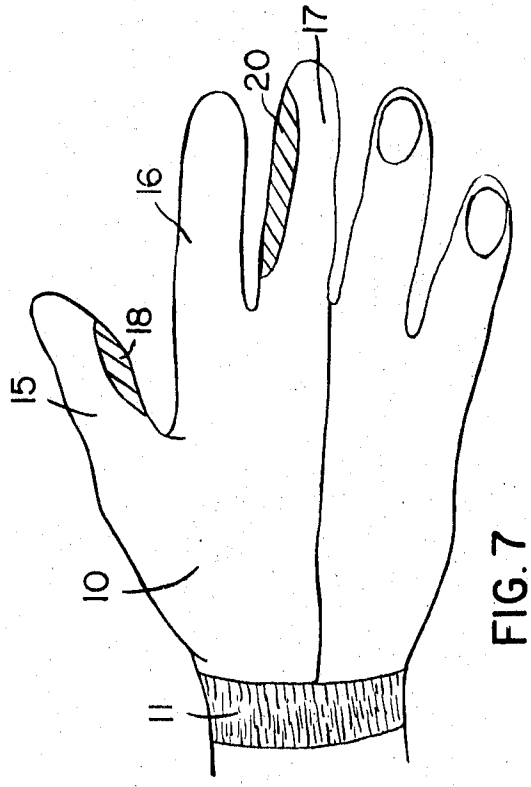



FIG. 7

# WRITING FACILITATING GLOVE

## FIELD OF THE INVENTION

A writing glove having slipping means to facilitate its easy gliding over the writing surface, and non-slip means to firmly engage the pen with the writing fingers.

## DESCRIPTION OF THE PRIOR ART

The present invention is an improvement over U.S. Pat. No. 1,247,183 to Usterud, which discloses a writing glove that includes a body portion which surrounds the back and palm of the hand, finger portion which extends forward so as to surround the index finger to a point beyond the first joint and additional finger portions that progressively leave the other finger substantially uncovered.

## SUMMARY OF THE INVENTION

The present invention relates to a writer or writing glove which will enable the writing operator of a pen and the like writing instrument to improve his speed and legibility of handwriting, as well as to reduce fatigue, cramps and discomfort associated with handwriting.

Although variations in the structure of hands and arms will not allow a hard-and-fast rule as to the manner that a writer will hold a pen, a conventional pen hold is described and illustrated herein.

The pen is positioned between the third phalanx of the thumb, the fore-finger and the second phalanx of the middle-finger and held in place by the third phalanx or tip of the thumb at the side of the pen. The tip of the fore-finger and the top of the middle-finger are bent at angles to the pen shaft and support the pen at its side. The third finger is pressed against the second finger, and the little finger against the third. The third and fourth fingers are curled toward the wrist. The four fingers are held tightly together, which causes a condition of restriction. The thumb and the first two fingers which are giving direction to the pen are not free to move away from the rest of the fingers, giving support and balance to the hand, and at the same time supplying the force for direction of the pen.

In a writing effort to produce a small area of writing within the reach of the fingers and without moving the hand itself sideways, in a first set of movements the muscles controlling the fingers relax and contact as the fingers direct the pen in upward and downward strokes, in lifting and lowering the pen and shifting sideways. The combination of movements is an important part of the writing motion. The second set of writing motions is caused by advancing the hand sideways to reach the successive areas on the paper. These exertions of force upon the hand create pressure at the surface of pen point on paper, and at the surface of the hand on paper. The pressure at the point of pen point on paper provides the friction necessary to give the impression of writing. The pressure at the point of hand on paper, however, is undesirable, because the area of contact (hand on paper) along with the motions of writing, causes a drag and friction when the hand moves to the second set of motions. This friction greatly impedes the second set of motions and affects the handwriting adversely. Because of this friction the writer tries to decrease the amount of shifting his hand sideways and strains his fingers in the first set of motions to reach a



greater area sideways. The constant alternating rhythm produced by these writing motions creates a strain on the muscles controlling the movements of the fingers as they contract and relax. The fingers stretch, bend, grip and regrip the pen in an effort to compensate and to push against the drag of hand on paper, and thereby increase the amount of friction. Hence the strain from writing as mentioned above has far reaching effects. When the muscles of the hand and of the forearm begin to react to this strain, the result is fatigue and cramps, which in turn causes reduced writing speeds, illegibility, poor writing habits, and a general dislike for handwriting.

It is readily appreciated that in addition to the function of the glove in increasing the effectiveness of writing, the glove thus also serves to aid in the training of inexperienced writers, such as children just learning to write, persons with crippled hands, and persons with poor muscular coordination, by causing their fingers and thumb to flex in the proper manner. Further, it supplements any inadequacy or deficiency in muscular strength of writers and enables them to obtain a more effective writing movement.

It is therefore the primary object of the present invention to provide a writer's aid which will contribute towards easier movement of the hand, greater writing speed and improved legibility of handwriting.

Another object of the invention is to provide a glove which, when worn for writing will greatly relieve the adverse conditions of writing by lessening the build up of friction, and avoid the over-extension of the first set of hand motions.

Another object of the present invention is to provide a glove which will substantially eliminate or reduce the above-described adverse sideway friction that occurs while performing the writing movement.

Another object of the present invention is directed to a glove which is useful in teaching the writer of the importance of proper hand actions in holding a writing pen, and for promoting such actions during the movements of the hand while writing.

Another object of the present invention is to provide a writing glove having smooth portions on a portion of the hand body and little finger to speed the action of the writer's hand.

Another object of the present invention is to provide a writing glove having a portion of the thumb and portions of the forefinger and middle finger thereof coated with an adhesive material, thereby to provide a more positive gripping surface.

Another object of the present invention is to provide a writing glove having both the above described smooth portions and adhesive material portions.

Another object of the present invention is to provide a writing glove which includes means to hold the glove securely to the writer's hand and yet allow unrestricted muscular action of the wrist.

A still further object of the present invention is to provide a writer's aid in accordance with the foregoing objects, which shall be of relatively simple and light weight construction, inexpensive, easy to apply or remove from the writer's hand, and which will interfere as little as possible with the normal functions of the hand.

Thus the ingenuity of the present invention is enhanced by the combination of the various means described and illustrated with the glove pattern, and fiber

construction. This innovation of a rather simple product gives a new and provocative approach to the system of handwriting.

Other objects and advantages of the present invention will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawings wherein various embodiments of the invention are shown.

## BRIEF DESCRIPTION OF THE DRAWINGS

The construction of various exemplary forms of the present invention are described in the accompanying drawings in which

FIG. **1** is a perspective view of a pen in the hand of a writer in position for writing on a sheet of paper wherein in dotted lines there are illustrated the pertinent areas of engagement between the hand portions and the pen and between the hand portions and the paper;

FIG. **2** is a plan view of a glove of the first embodiment of the present invention, palm up, illustrating shaded the smooth portion thereof, which is substantially in contact with the paper during writing, while simultaneously providing additional coverage of the hand for a firm engagement of the hand with the writing glove;

FIG. **3** is a view similar to that of FIG. **2**, illustrating the first embodiment glove with the palm down;

FIG. **4** is a view similar to that of FIG. **2**, illustrating the second embodiment of the present invention, which reduces to a minimum the area of the glove fabric which is necessary to keep the glove firmly on the hand, while simultaneously avoiding bulkiness thereof and permitting air circulation around the hand;

FIG. **5** is a view similar to that of FIG. **3**, illustrating the second embodiment glove with the palm down;

FIG. **6** is a view similar to that of FIGS. **2** and **4**, illustrating a third embodiment of the present invention, showing shaded the portions of frictional or adhesive material in the areas of contact which exist between the pen and the fingers for a non-slippery hold of the pen;

FIG. **7** is a view similar to that of FIGS. **3** and **5**, illustrating the third embodiment glove with palm down;

FIG. **8** is a view similar to that of FIGS. **2**,**4** and **6**, illustrating a fourth embodiment of the present invention which is a combined glove form wherein there are provided both the smooth portions and the frictional or adhesive material portions; and

FIG. **9** is a view similar to that of FIGS. **3**, **5** and **7**, illustrating the fourth embodiment glove with the palm down.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the embodiments illustrated in the drawings, wherein like reference characters designate like or corresponding parts throughout the several views, there is shown in FIG. **1** one of the conventional methods that a writer employs in holding a pen within his thumb, the forefinger and the middle finger and also in dotted lines the pertinent areas of engagement between the hand portions and the pen. Further, in dotted lines there are illustrated the pertinent areas of engagement between a sheet of paper on which the pen is writing and the supporting portion of the hand together with the little finger of the writer.

Referring generally to FIGS.**2** through **9**, there are illustrated four embodiments of the present invention, each of which comprises at least a flexible body portion, indicated generally at **10** and a continuous elastic wrist band **11** attached to the body portion **10** to form a unitary piece of material. The four embodiments disclose various arrangements of covered and uncovered fingers and thumb, associated with the body portion **10.**

The continuous elastic wrist band which as shown in the drwaing has a releasable-type fastener means , which allows the writing glove to remain in a firm and tight position upon the wrist of the writer to prevent displacement of the wristband in a direction toward the writer's thumb and fingers. It will readily be understood that while the writing glove described above is preferably made of a single, unitary piece of flexible material, it could also be formed of multiple pieces secured together, and the wristband **11**, while herein shown and described as being a continuous encirling wristband, could be a buckle-type or snap-type band.

Referring specifically to FIGS. **2** and **3**, the writing glove of the first embodiment of the present invention comprises a body portion **10**, a continuous elastic wrist band **11** and an elongated smooth portion, generally indicated at **12** and illustrated as the shaded portions in both FIGS. **2** and **3**. The smooth portion **12** includes a portion of the body portion **10** and a portion of the little finger **13**. The smooth portion **12** is a slippery surface with a low coefficient of friction and is an area of the glove that is substantially in contact with a sheet of paper during the writing movement of the hand. It assists in a smoothly gliding slipping writing movement of the hand. Further, the smooth portion **12** simultaneously provides additional coverage of the hand thereby making a surface for firmer engagement of the hand with the writing glove.

The first embodiment glove includes in addition to the little finger portion **13**, a ring finger portion. In this form of the invention, the other two fingers and the thumb are left uncovered. Thus, the writing glove having a smooth portion **12** is formed of the body portion **10**, that engages around an uncovered thumb and that is attached to a wrist band **11**, and finger portions **13**, **14**.

Referring specifically to FIGS. **4** and **5**, the writing glove of the second embodiment comprises a body portion **10**, a continuous elastic wrist band **11** and an elongated smooth portion **12**, illustrated as the shaded portions in both FIGS. **4** and **5**. Like the first embodiment glove, the smooth portion **12** constitutes a portion of the body portion **10** and a portion of the little finger **13**.

The second embodiment glove is similar to the glove of the first embodiment except that there is less body portion **10**. The body portion that extends around the thumb in the first embodiment glove has been omitted in the glove of the second embodiment to economize on the glove material. Also, the second embodiment glove includes a little finger portion and a ring finger portion **14**. The surfaces of the hand in contact with the stylus remain uncovered to provide non-slip means for the stylus.

Referring specifically to FIGS. **6** and **7**, the writing glove of the third embodiment comprises a body portion **10**, a continuous elastic wrist band **11**, a thumb portion **15**, a forefinger portion **16** and a middle finger portion **17**. The thumb **15** and fingers **16**, **17** include selectively shaped and located areas of a high coeffici-

ent of friction by employing an adhesive material or other materials which will provide a gripping and non-slipping means between the glove and the pen.

Illustrated as shaded portions substantially shown in FIGS. **6** and **7**, the thumb **15** has a non-slip portion **18**; the forefinger **16** an adhesive portion **19**, and the middle finger **17** an adhesive portion **20**. The shapes and locations of the adhesive portions **18, 19**, and **20** are the areas of contact between the glove and the pen.

The glove of the third embodiment has a body portion similar to that of the second embodiment. However, in the third embodiment, in contrast to the first and second embodiments, the glove covers the thumb **15**, forefinger **16**, and middle finger **17**, and uncovered, little and ring-finger portions.

Referring specifically to FIGS. **8** and **9**, the writing glove of the fourth embodiment is a combined form of the previously described embodiments and comprises a body portion **10**, a continuous wrist band **11**, a smooth portion **12**, and selectively shaped and located areas of non-slip material **18,19** and **20**. Thus, as illustrated in FIGS. **8** and **9**, the glove includes four finger portions and a thumb portion.

The glove shown in FIGS. **2** through **5** has at least a hand coverage over the areas of engagement of hand with the paper as indicated on FIG. **1**, which areas are made from or coated by non-frictional material.

In addition the glove in FIGS. **2** through **7** has at least the minimum material necessary to maintain the glove on the writing hand firmly, smoothly, without causing obstruction to writing or constrictions of the hand.

The glove shown in FIGS. **2** through **5** have a full finger lengths for both the little and ring fingers. The material covers the palm and back portion of the hand, connecting the first joint of the thumb between the first finger, and fitting snugly at the wrist, with the aid of a wrist-band, such as an elasticized 'picot' type closure shown especially on FIGS. **2** and **3**, or with the aid of a strap constructed of a self-adhering fabric, such as 'velcro,' requiring no other means of securing the strap, e.g. buckles, pins, etc. This type of closing at the wrist is in an effort to eliminate to the greatest degree possible all materials or structures that could cause bulkiness or protrusions, restrict response to air, or that would make the use of the glove awkward, or the hand excessively warm. The fabric used for constructing the glove is made of materials , having a low coefficient of friction, with the additional properties of elasticity, stretch,evaporation, resiliency, wear resistance, moisture absorption, abrasion resistance, antistaticity, air circulation, and high strength.

Among the fabrics suitable for the purpose with the above properties preferably are:

Natural fabrics:

Cotton — sheerness, ability to absorb body moisture, anti-static and stretch properties may be imparted thereto.

Natural or Synthetic Silk and textiles:

resilient, elastic, absorbent, in various weights.

Paper:

a high strength paper yarn knitted into a variety of knits.

Plastic fibers, such as:

Papertex — a light weight nylon web coated with chemically bonded acrylic resin.

Both paper and plastic gloves are cheap in construction any may be discarded after every use.

Wool:

— elastic, resilient, moisture absorbent , wear resistant.

Natural or synthetic leather:

Synthetic: — acetate — various cross section fibers which combine well with other desirable materials, for example, nylon.

Arnel — wrinkle-resistance and/or anti-static finish can be built into fiber.

Acrylic — resilient and elastic.

Nylon — very strong, resilient and elastic, abrasion resistant, which blends well with other fibers for additional properties desired.

Olefin — high strength, abrasion resistant, resilient.

Polyester — outstanding in characteristic of the ability to resist wrinkling, with elastic memory permitting it to spring back into shape, high abrasion resistance and high strength.

Rayon — large range of fabric weights, from sheer to stiff, can be given many finishes or additives. Can be made into fine filaments with abrasion resistance.

Saran — resilient, water repellent,resistant to stain and with abrasion resistance.

Vinyon — very high strength, elastic.

Teflon — which blends well with other fibers giving it antislip properties, comes in a variety of weights - sheer to stiff and has the lowest known frictional properties

Some examples of knitted fabrics

Jersey knit — this can be achieved by using various fibers, cotton, rayon, acetate,etc.without losing any of the properties of the fibers.

Tissue tricot — nylon, fine 20 denier, can be combined with other fibers, including paper.

Most of the fibers and fabrics mentioned herein can be made into a knitted fabric when combined with other fibers, and are available in a variety of weights, sheer to stiff. They are all of a low coefficient of friction fibers of varying degrees.

The gloves of the invention also may be extruded or formed from plastic, thermoplastic or thermosetting materials, or may be glued or stitched in any conventional manner, as long as seams are avoided at the writing surface engaging areas.

However, the proposed construction of the glove by the knitting process will produce a finished product completed and shaped to fit any hand in one single operation, thus eliminating to the greatest degree possible all seaming and stitching.

The knitting process allows the blending of various fibers using the chief characteristics of each to assure the elasticity, elongation, resiliency, sheerness and other properties that are necessary requirements for the present glove.

Thus, while whole knitted gloves, f.i. are conventional prior art, this invention provides a knitted selected section of a glove, for its specific purposes.

The glove structure described in combination with the properties of the fabrics listed above, will give the necessary low co-efficient of friction in engagement of hand on paper. The glove structure and fabric in conjunction with each other provide a snug tight fit, conforming constriction or interference to writing to the individual hand without binding or tension. This glove structure in conjunction with the fabric properties outlined gives the maximum freedom of up and down mo-

tion to the fingers directing the movement of the pen on paper and to the sideway motion of the hand during writing and at the same time provides the area at the hand in contact with paper with a low coefficient of friction surface.

The glove of the present invention that is so designed and utilizing the fabric properties indicated, is of great value to those who write for long periods of time, or to those who desire to improve their handwriting. It is ideal for use in teaching young children the rudiments of handwriting, and for the crippled of hand who find writing extremely difficult. A fabric of a stiffer frictionless material may be used in such exceptional cases,when greater firmness and support is required. Varieties of surface finishes of low coefficient of friction fabrics can be combined in a way as to increase the stiffness to the third and fourth finger to aid in their support and to use a sheerer and lighter weight material for the palm and back portions of the glove and to relieve the writer from cramps and muscular tensions.

Another desirable feature of the glove structure, in combination with the fabrics mentioned, is that it may remain on the hand while performing other tasks. Stenographers, f.i. may turn from taking shorthand to answer the telephone, go through files, etc. A student or researcher can intermittently thumb through books or other materials and return to writing. Because of the design of the glove in combination with its structure and materials, the glove does not hinder other work to be performed at the time of writing. Due to the resilient memory characteristic of the fabric, the glove will return to its original shape immediately upon the easy removal from the hand. Because of the limited coverage of the hand, the glove may be constructed so as to be used either on the right or left hand without adjustments. The limited coverage of the glove when combined with a high resiliency material,permits the use thereof as a "one size glove" fitting many sizes and shapes of hands whether writing or not.

The glove may be worn also for any other work requiring directing fingers, in contact with surfaces, such as when using small hand tools.

The glove structures shown in the drawings are alternative designs which while differing slightly in structure, offer equivalent characteristic combinations of fabrics and shapes.

In a knitted glove of the present invention the strands or knitted loops on the heel of the hand preferably are to run in the direction of the sideway movement of the hand to offer the least frictional resistance thereto as shown by arrow at **12** on FIG. **4.**

The antislip properties of that area of the glove which is to be in contact with the pen or stylus may be produced for instance in accordance with U.S. Patent No. 1,985,203.

The antislip area of the glove between areas **18** to **20,** when made for instance with rubber or other resilient material serves a double purpose in that it functions simultaneously as a soft padding against the stylus, which normally would press against the skin and dent it. For claim purposes of this application "stall" denotes a finger covering of a glove

It is to be understood that even though the embodiments of the present invention have been described with respect to a right handed glove, it is obvious that the invention may be applied to either a right or a left handed glove.

It is apparent that a person skilled in the art could make modifications, improvements and the like to the present invention and all such modifications, improvements and the like are deemed to be within the scope of the invention as set forth in the appended claims.

What is claimed is:

**1.** A writing glove to facilitate the movement of the hand of a writer while writing with a pen, pencil or other type stylus on a writing surface comprising:
- a body portion having coverings for a palm, a back covering and the heel of the hand;
- finger stalls attached to said body portion;
- slippery surfaces on the outside coverings for said heel and for said finger stalls in contact with the writing surface during the writing movements of the hand to assist in a smoothly-gliding writing movement of the hand;
- securing means attached to said body portion to secure said body portion tightly and firmly to the hand of the writer.

**2.** A writing glove as claimed in claim **1,** further including non-slip areas on the outside coverings of the forefinger, middle finger and thumb stalls of the glove to form selectively shaped and located gripping areas of the glove.

**3.** A writing glove as claimed in claim **1,** including a continuous wrist band connected to encircle the wrist of the writer to prevent displacement of the glove.

**4.** A writing glove as claimed in claim **1,** wherein said body portion and said finger stalls have openings therein exposing the gripping areas of the thumb, the forefinger and the middle finger.

**5.** A writing glove as claimed in claim **1,** wherein said slippery surfaces include a smooth knitted fabric in which the strands run in the direction of the sidewise writing movements of the hand.

**6.** A writing glove to facilitate the gliding movements of a hand while writing with a stylus, comprising:
- a body portion having a palm and heel portions;
- finger stalls connected to said body portion;
- the bottom portion of the stall of the little finger and the palm portion having a slippery surface in contact with the writing surface during movement of the hand;
- selectively shaped portions of the glove between the forefinger, the thumb and middle finger stalls which are in contact with the stylus during writing, having frictional, padded non-slip areas; and
- glove securing means on said body portion to secure said glove to the hand of the writer.

* * * * *