

H. ZIMMERMAN.

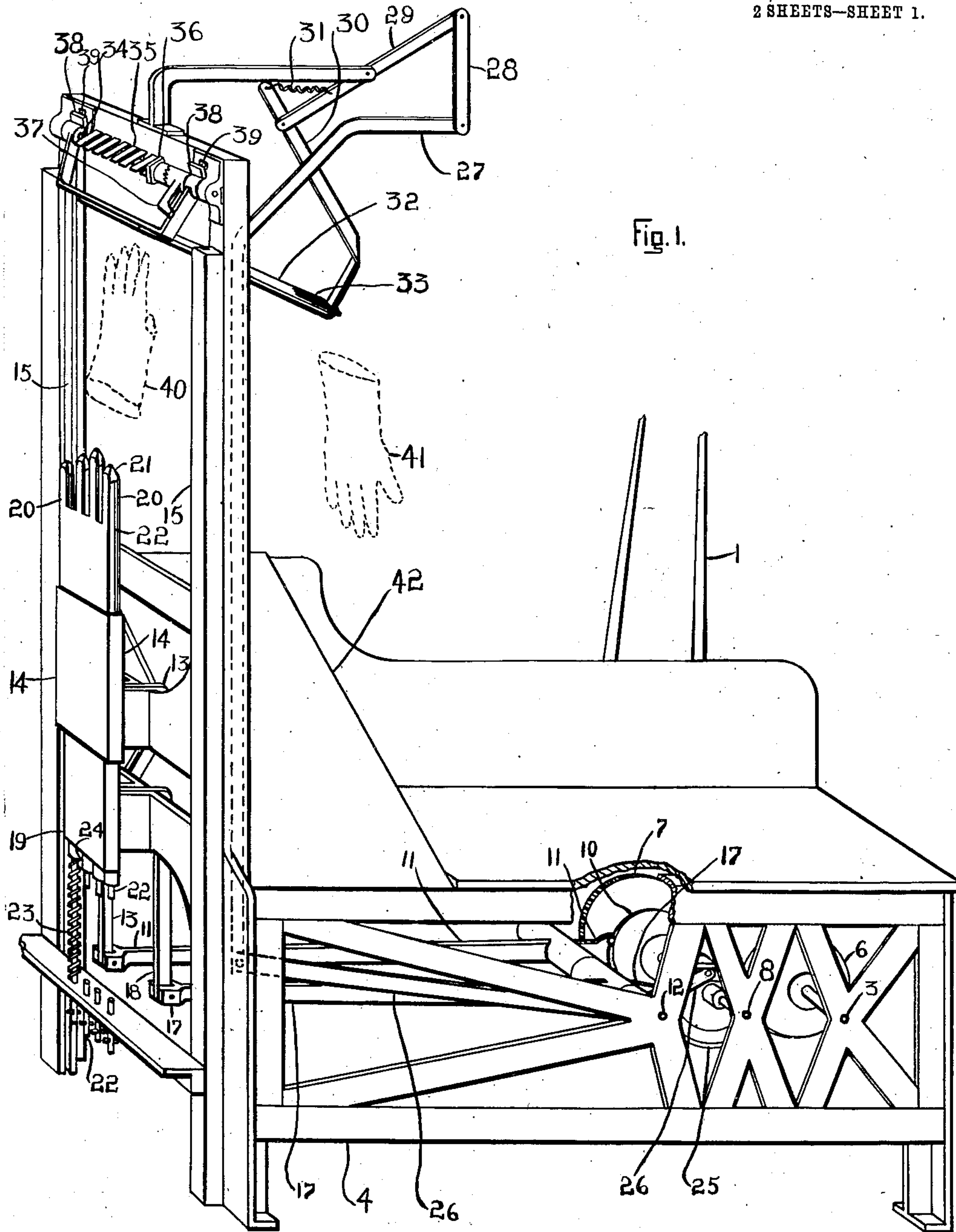
ARTICLE TURNER.

APPLICATION FILED SEPT. 8, 1906.

917,833.

Patented Apr. 13, 1909.

2 SHEETS—SHEET 1.



WITNESSES  
Hazel Kirk  
M. E. Kirk

INVENTOR  
Harry Zimmerman  
By Geo. Kirk  
ATTORNEY

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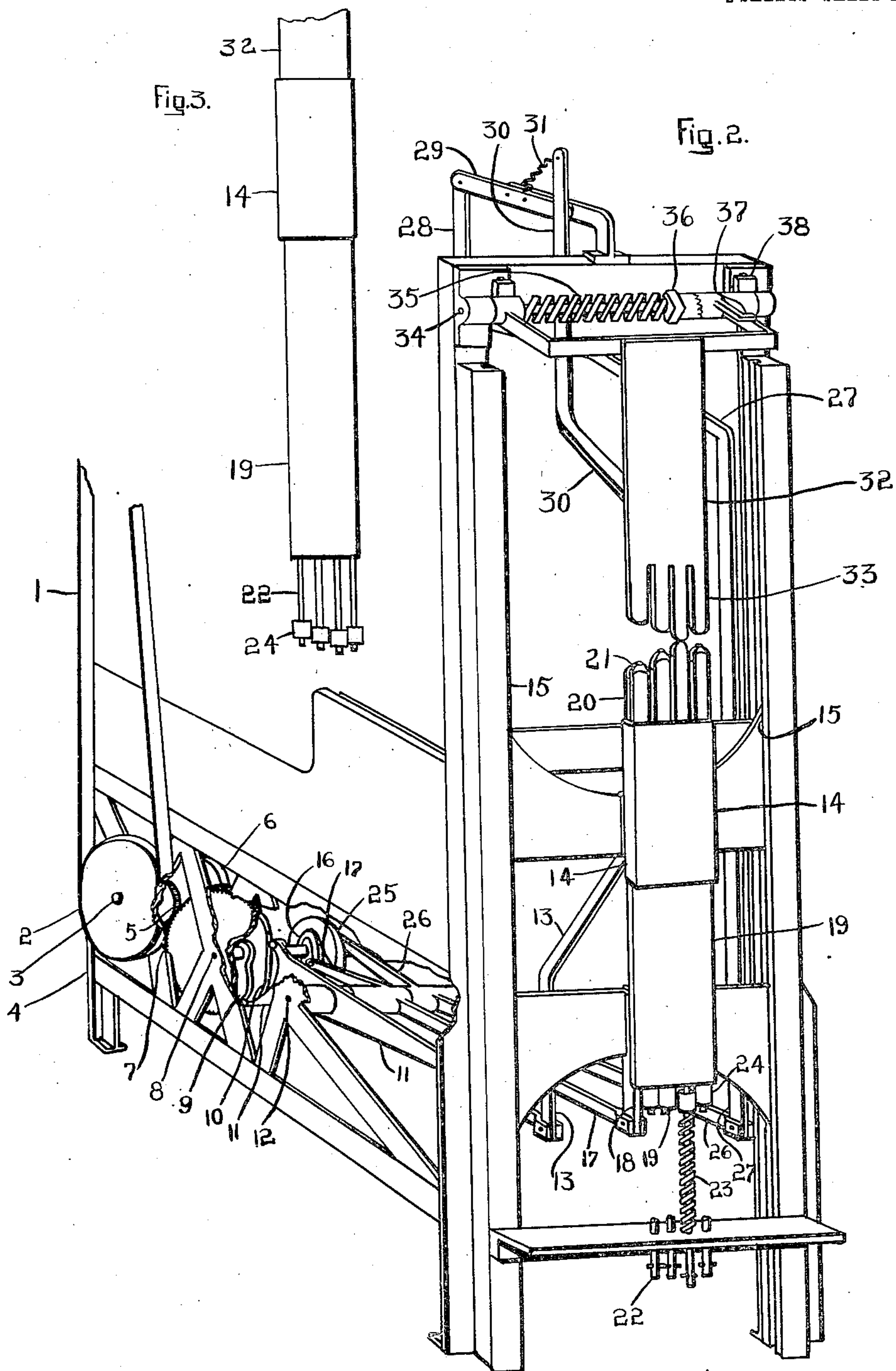
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# UNITED STATES PATENT OFFICE.

HARRY ZIMMERMAN, OF FREMONT, OHIO.

## ARTICLE-TURNER.

No. 917,833.

Specification of Letters Patent.

Patented April 13, 1909.

Application filed September 8, 1906. Serial No. 333,741.

*To all whom it may concern:*

Be it known that I, HARRY ZIMMERMAN, a citizen of the United States, residing at Fremont, in the county of Sandusky and State of Ohio, have invented a new and useful Article-Turner, of which the following is a specification.

This invention relates to an automatic machine, and more particularly to mechanism whereby an article may be held at one portion and other portions of the article moved past the held portion, as in reversing or turning the article, after which operation the article is discharged.

This invention has utility when adapted to turning articles, as mitten and glove thumbs, mittens and gloves, as in the course of manufacture of these articles a turning of them inside out is necessary.

Referring to the drawings: Figure 1 is a perspective view of an embodiment of the invention in a glove turning machine, showing the machine in position to receive an unturned article as a turned article is being discharged, parts being broken away. Fig. 2 is a perspective view of a glove turning machine at a later stage than in Fig. 1, elements having come together to hold the article and the turning operation just started, parts being broken away. Fig. 3 is a detail view showing the position of the parts after the article has been turned off from the unturned article receiving element onto the turned article receiving element. The next stage of movement would be the discharge of the article turned as shown in Fig. 1.

The flexible driving means or belt 1 serves to continuously drive the pulley 2 fixed to the shaft 3 mounted in the frame 4. Also mounted upon and fixed to the shaft 3 is the pinion 5 and fly-wheel 6. The pinion 5 meshes with the gear 7 fixed to the shaft 8 mounted in the frame 4.

Fixed on the shaft 8 are the cams 9 and 10, engaging the respective peripheries of which are rollers on two arms of the rock lever 11 which lever is mounted on the shaft 12 as a fulcrum. The end of the lever 11 remote from the cams 9 and 10 is connected to the link 13, which link, as the lever is positively rocked by the cams, serves to reciprocate the member 14 which has lateral extensions slidable in the guides 15 mounted on the framework 4.

A third cam 16 is mounted on the shaft 8. This cam has a groove in its side in which

travels a roller carried by the rock lever 17, which lever is mounted on the shaft 12 as a fulcrum. The end of the lever 17 remote from the cam 16 is connected to link 18, whereby when the shaft 8 is rotated the link 18 is reciprocated and moves the member 19 up and down in the guides 15. The member 19 at one end has parallel extensions or fingers 20 which are designed to yield laterally. Between each opposed pair of extensions 20 at the outer extremity is a tip 21 having a seat thereon as shown in Figs. 1 and 2. These tips 21 are mounted on rods 22 extending through the member 19. Fixed to the rods 22 below the member 19 are enlargements 24, against which springs 23 surrounding the rods act and normally keep the tips 21 in the position shown in Fig. 1. The tips 21 will accordingly remain in the relation to the extensions 20 as the member 19 rises until the tips meet with resistance, when they will stop while member 19 may continue moving.

A fourth cam 25 is mounted on shaft 8. This cam, like cam 16, has an endless groove in its lateral face. Engaging in the groove of cam 25 is an arm of the rock lever 26 mounted on the shaft 12 as a fulcrum. The end of the lever 26 remote from the cam 25 is connected to the link 27 which extends to the upper part of the machine where it is connected to link 28 which controls the movements of lever 29 pivoted to the framework. To the opposite end of lever 29 to the link 28 is the article discharge controlling bar 30 which by the spring 31 is held against the turned article receiving element 32 having the extensions or fingers 33 movable into opposition to the tips 21.

The element 32 is pivotally mounted on the shaft 34. On this shaft is the torsion spring 35 the action of which may be regulated through adjustment 36. The spring 35 acts through arm 37 to move the element 32 on shaft 34 into the position shown in Fig. 1. Bar 30 and spring 31 tend to counteract the action of spring 35 by pressure against element 32, and as link 27 moves downward, the linkage 28 29, acting through bar 30, swings element 32 into position over member 19. This limit of movement is accurately determined by the arms 38 moving against the adjustable stops 39.

Operation: The machine as herein disclosed is adapted to turning gloves which have the fingers sewed and the thumb turned



and sewed in, so there remains the four fingers to be turned. The article 40 is drawn over the unturned article receiving member 19 when the machine is in the position shown in Fig. 1. In regular running, shaft 8 is driven continuously and through the cams thereon positively rocks the levers 11, 17 and 26. On further movement of the shaft 8 from the position shown in Fig. 1, the element 32 is moved into line with the tips 21 and telescoping members 14 and 19 move a little, member 19 moving sufficiently to bring the extensions or fingers 33 into contact with the concaved seats on the tips 21 which serve as a holding means for the closed end of the article. The rigid element 32 against the extensions of which the tips 21 abut to hold a portion of the article, determines a fixed point or portion of the article in regard to which the remoter portions of the article are moved progressively. The beginning of the abutting of extensions 33 and tips 21 is shown in Fig. 2. As member 19 rises, the fingers 20 telescope the extensions 33 causing the fingers of the glove to be turned. During this operation clogging of the material in the fingers is effectually prevented by independently movable elements, comprising rods 22 having tips 21 which engage and hold the closed ends of the fingers in position against the finger portions of longitudinally immovable pivoted element 32. As this progressive movement in turning the fingers is taking place, the hand and gauntlet or wrist portion of the glove are likewise being moved progressively by the telescoping member 14. The fingers move to completely telescope each other as appears from enlargements in the position shown in Fig. 3. In this figure it will be noted that the member 14 will move the hand and wrist portions of the glove past the fingers and the glove be completely turned. Further rotation of the shaft 8 brings the article turning mechanism from the position shown in Fig. 3 to that shown in Fig. 1 where the turned article 41 is automatically discharged on to the inclined board 42 where it may roll into a basket, as the operator is placing an unturned article on the machine for a repetition of the cycle of operations, which with a skilful operator may recur very rapidly with a minimum of fatigue.

The idea of the inversion herein disclosed is not to be limited by the drawings and description to any greater extent than the ordinary meaning of the terms of the claims demand. In other words, the elements set forth in the claims are to be interpreted broadly, giving me the advantage of equivalents in the protection of my idea.

What is claimed and it is desired to secure by Letters Patent is:

1. In an article turner, the combination

of turned and unturned article receiving elements, one of which comprises laterally yieldable portions telescoping the other element.

2. The combination of abutting article holding elements and a telescoping article turning member movable over the elements.

3. The combination of an article receiving element, an element for holding the article relatively to the article receiving element and a telescoping article turning member movable over the article receiving element.

4. The combination of a longitudinally immovable article receiving element, an abutting element cooperating with the article receiving element to hold an article and a movable article turning member to telescope the article receiving element.

5. The combination of a pivoted article receiving element, an abutting element cooperating with the article receiving element to hold an article and a reciprocable article turning member movable relatively to the abutting element.

6. The combination of a pivoted article receiving element and a relatively reciprocable article turning member movable to telescope the element.

7. The combination of a pivoted article receiving element, a second element abutting the pivoted element and cooperating therewith to hold an article and a reciprocable article turning member to telescope one of the elements.

8. The combination of a pivoted article receiving element and a plurality of telescoping article turning members successively movable for turning the article from the members onto the element.

9. In an article turner for articles having a closed end; the combination of an article receiving element, element abutting means to fixedly engage the closed end of the article and a reciprocable member to turn the article.

10. An article turner comprising in combination an unturned article receiving member, a turned article receiving element, actuating mechanism for turning the article from the member onto the element, and pivoted means to discharge the article from the element.

11. In a glove turner, means for preventing the clogging of the glove finger material, comprising opposing members, one of which includes independently movable elements, each element for engaging the end of a different finger of the glove.

In testimony whereof I affix my signature in the presence of two witnesses.

HARRY ZIMMERMAN.

Witnesses:

PAUL E. SCHAAF,  
FRANK C. KISER.