M. JONES.

MACHINE FOR MAKING CLOTHES PEGS AND OTHER ROUND WOODEN ARTICLES.

APPLICATION FILED APR. 5, 1920.

**1,355,340.** **Patented Oct. 12, 1920.**

2 SHEETS—SHEET 1.

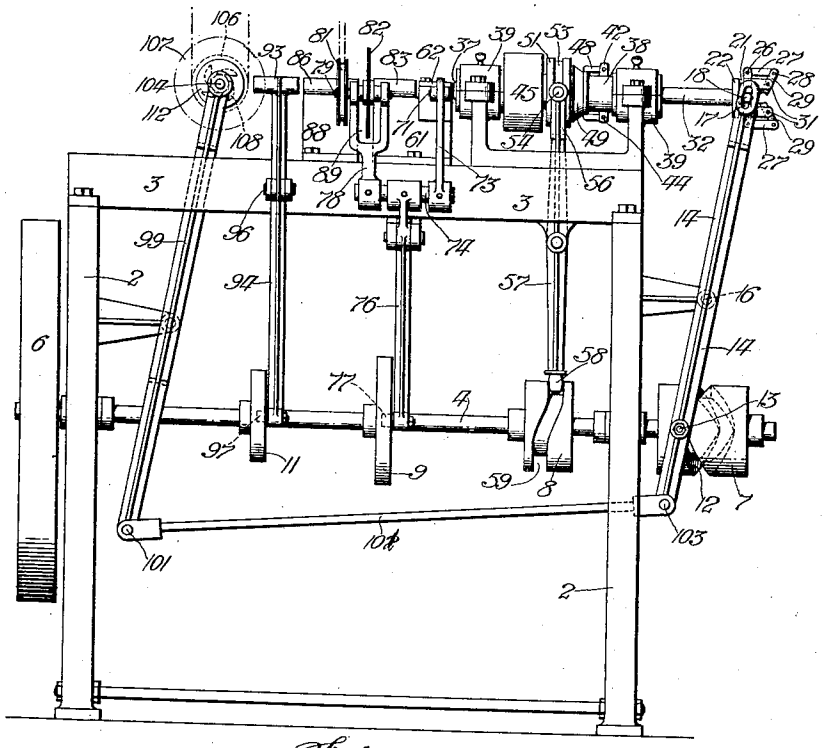


Fig. 1.

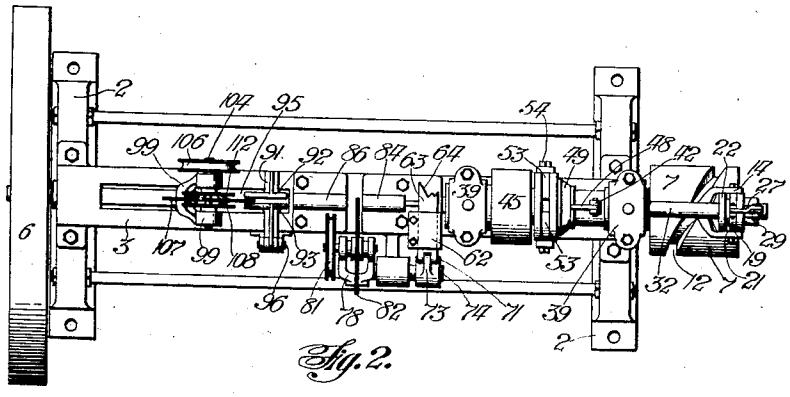


Fig. 2.

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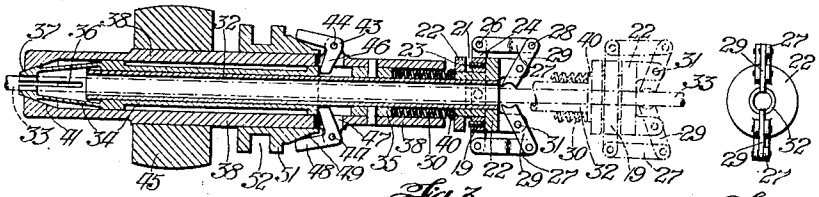


Fig. 3.



Fig. 4.

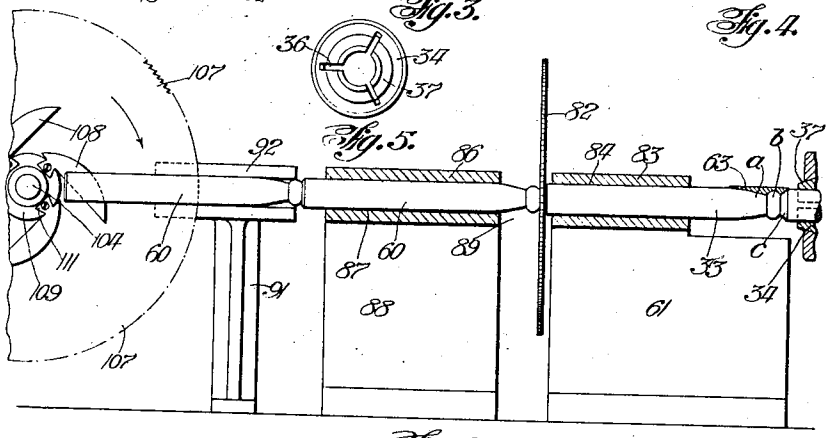


Fig. 6.

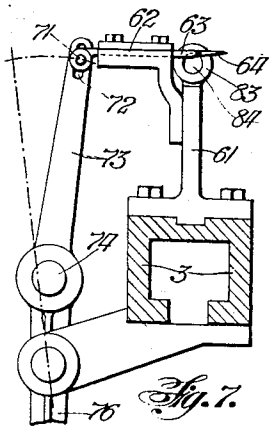


Fig. 7.

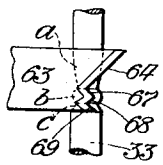


Fig. 8.

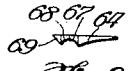


Fig. 9.

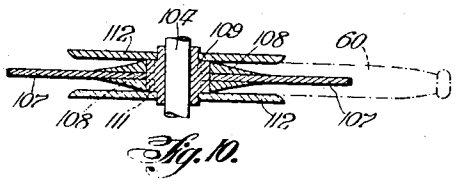


Fig. 10.

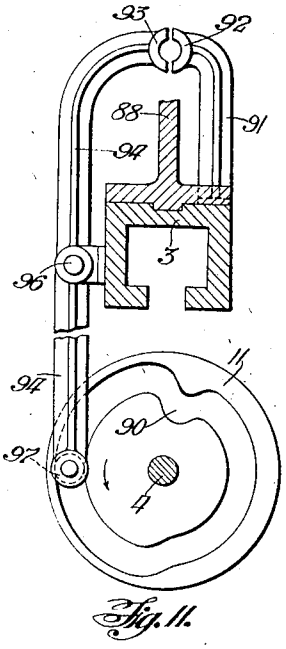


Fig. 11.

Inventor:

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Attorney.

# UNITED STATES PATENT OFFICE.

MICHAEL JONES, OF MELBOURNE, VICTORIA, AUSTRALIA.

## MACHINE FOR MAKING CLOTHES-PEGS AND OTHER ROUND WOODEN ARTICLES.

1,355,340. Specification of Letters Patent. Patented Oct. 12, 1920.

Application filed April 5, 1920. Serial No. 371,378.

*To all whom it may concern:*

Be it known that I, MICHAEL JONES, a subject of the King of Great Britain and Ireland, residing in the city of St. Kilda, a suburb of the city of Melbourne, in the county of Bourke, State of Victoria, Commonwealth of Australia, and whose post-office address is No. 3 Dalgety street, in the said city of St. Kilda, have invented a certain new and useful Improved Machine for Making Clothes-Pegs and other Round Wooden Articles, of which the following is a specification.

This invention relates to a machine for automatically and in a succession of continuous steps forming clothes pegs, wooden handles and various other such round articles from a round wooden rod or blank. The following description refers primarily to a machine for making clothes pegs but it will be evident that with slight modifications the machine may be adapted to the manufacture of other articles of the kind indicated.

According to the invention a blank of sufficient length to form a number of pegs is fed into the machine through a hollow sliding tube near the outer end of which it is gripped by gripping levers and carried longitudinally with the tube into position to be engaged by a sliding cutting tool or plane which forms the head and neck of the peg while the blank is rotated at high speed by a rotary gripping device engaging and holding the blank while the head and neck of the peg are being shaped. During this operation, the partly formed peg is accommodated by a tubular guide by which it is steadied as it is presented to the sliding cutter. The blank with the partly formed peg thereon is then again gripped by the gripping levers and fed forwardly with the sliding tube for a distance equal to the length of a peg. The blank is then engaged immediately behind the head of the partly formed peg by a parting saw which severs the peg from the blank, the peg being still supported by the tubular guide. As the blank is again advanced by the gripping levers, it pushes the peg forwardly into position to be engaged by a third gripping device or clamp which holds the peg stationary while a gulleting saw advances and gullets the peg and cutters disposed on each side of the gulleting saw form the flared mouth at the outer end of the gullet. The pegs are thus formed continuously from the blank which is intermittently fed through the machine.

But in order that this invention may be better understood reference will now be made to the accompanying sheets of drawings which are to be taken as part of this specification and read herewith.

Figure 1 is a side elevation of the invention, parts being omitted for convenience of illustration.

Fig. 2 is a plan of Fig. 1.

Fig. 3 is an enlarged longitudinal section showing the blank feeding and rotating devices. In broken lines the feeding mechanism is shown gripping the blank at the beginning of the feeding stroke while in full lines it has released the blank and is about to commence its return stroke.

Fig. 4 is an end view of the feeding mechanism.

Fig. 5 is an enlarged view looking at the split end of the rotary gripping sleeve.

Fig. 6 is an enlarged diagrammatic view illustrating the successive stages in the manufacture of the article.

Fig. 7 is a transverse section taken through the bed of the machine to show the sliding cutter or shaping tool and its appurtenances.

Fig. 8 is a plan of the front portion of the sliding cutter showing the peculiar conformation of its edge. A shaped portion of the blank is shown beneath the cutter to illustrate the relationship of the stepped or serrated edge of the latter to the contour of the peg.

Fig. 9 is a front end view of the cutter or shaping tool showing the underneath contour of the cutting edge.

Fig. 10 is a sectional detail view of the gulleting saw and side cutters carried thereby, a peg being shown in gulleting position in dotted lines.

Fig. 11 is a transverse section taken through the bed of the machine and illustrating the third gripping device or clamp which holds the peg while it is being gulleted.

The invention described more fully includes a framework 2 which supports at its top a bed 3. Mounted in bearings on the framework and beneath the bed is a longitudinal cam shaft 4 carrying at one end a driving pulley 6. Mounted on said cam shaft are first, second, third and fourth cams indicated by the numerals 7, 8, 9, and 11 respectively.

Engaging a groove 12 around the periphery of the first cam is a pin 13 carried by the lower end of a first intermediately pivoted lever 14 which is mounted on a pivot 16 carried by the framework or extensions therefrom. The upper end of the first lever is forked and in the arms of the fork are slots 17 to accommodate pins 18 outstanding from a sliding collar 19 which moves longitudinally for a limited distance within a peripheral groove 21 upon a second collar 22. The sliding collar is provided with adjusting screws 23 by which its longitudinal movement within the peripheral groove may be regulated and the movement of the gripping levers hereinafter mentioned controlled.

Outstanding from the sliding collar 19 are lugs 24 to which are pivoted at 26 the inner ends of links 27. The outer ends of these links are pivoted at 28 to the outer ends of gripping levers 29 which are intermediately pivoted at 31 to the collar 22.

The collar 22 is secured to the outer end of a longitudinally sliding inner tube 32 through which the blank 33 is fed. This tube is normally pressed outward by compression springs 30 the inner ends of which press against a collar 35 fixed to an outer rotating sleeve 38, while their outer ends press against a collar 40 freely mounted on the tube 32.

Surrounding the sliding inner tube is a rotary gripping sleeve 34 the inner end of which is split as at 36 and provided with an external coned face 37 which is adapted to be forced against an internal coned face hereinafter described, so that the split portion of the rotary gripping sleeve will close upon the blank and rotate same at the proper time.

The gripping sleeve 34 is surrounded by the above-mentioned outer rotating sleeve 38 which is mounted in ball bearings 39 upstanding from the bed of the machine. This outer rotating sleeve carries a suitable driving pulley 45 or the like by which it is rotated, and is provided at its inner end with an internal coned face 41 adapted to be engaged by the external coned face 37 of the gripping sleeve above mentioned. Outstanding from the outer sleeve are lugs 42 to which bell crank levers 43 are intermediately pivoted at 44. The inner arms 46 of these levers pass through openings 47 in the outer sleeve and are adapted to engage the outer end of the gripping-sleeve 34. The outer arms 48 of said bell crank levers are adapted to engage the coned end 49 of a sliding and rotating collar 51 which is adapted to rotate with the outer sleeve and is also capable of longitudinal movement thereon.

Surrounding the sliding and rotating collar is a peripheral groove 52 which is engaged by pins 54 projecting from the forked upper end 56 of a second intermediately pivoted lever 57 the lower end of which carries a roller 58 engaging a groove 59 on the face of the second cam 8.

Carried by an erection 61 which upstands from the bed of the machine is a slideway 62 to accommodate a laterally sliding cutter or shaping tool 63. The underneath or shaping surface of this tool conforms in end elevation to the shape of the head and neck of the peg 60 as seen in Fig. 9 or to any other shape which it is desired to impart to the article under treatment.

The front or cutting edge of the shaping tool (Fig. 8) is stepped or serrated in accordance with the shape to be imparted to the peg, the edge being provided with a major inclined portion 64 which extends rearwardly from one side of the tool and shapes the shoulder (*a*) of the peg. Adjoining this inclined portion are forwardly converging portions 67 and 68 which respectively shape the two sides of the rounded head (*b*). A minor inclined portion 69 extends forwardly from the base of the converging portion 68 to the other side of the tool and forms the tapered portion (*c*) where the peg is severed from the blank. By thus forming the front edge of the shaping tool it will be evident that as the tool is moved forwardly against the rotating blank the major inclined portion 64 of its edge proceeds to shear off the wood from the shoulder (*a*) the cut taking place inwardly from the periphery toward the middle of the blank. Before the shoulder (*a*) has been cut inwardly to its narrowest point, however, the converging portions 67 and 68 and the minor inclined portion 69 commence to cut inwardly on the head (*b*) and tapered portion (*c*) respectively. It will be thus seen that throughout the shaping operation the cut proceeds inwardly from the periphery toward the center of the blank instead of outwardly from the narrowest portion of the neck (*a*) to the crown of the head (*b*) and from the head outwardly along the tapered portion (*c*) as would be the case if the inclined edge 64 were continued straight across the cutter. This method of cutting inwardly throughout obviates any tendency of the cutting edge getting under the grain of the wood in the formation of the head of the peg and thereby stripping or tearing off the crown of the latter. The effect obtained resembles closely a hand operation of cutting into the wood with a knife.

Carried by the outer end of the laterally sliding cutter is a cross pin 71 which passes through a slot 72 in the upper end of a first rocking arm 73 the lower end of which is secured to a longitudinal shaft or pin 74. This shaft is secured to the upper end of a third intermediately pivoted lever 76 the

lower end of which is provided with a roller 77 engaging the third cam 9 before mentioned.

Secured to the longitudinal shaft or pin 74 is also the lower end of a second rocking arm 78 the upper end of which is preferably forked and carries a parting saw spindle 79 on which is mounted a suitable driving pulley 81. The spindle also carries a parting saw 82 which is adapted to move transversely across the path of the blank and remove the partly formed peg therefrom.

Carried by the erection 51 adjacent the sliding cutter is a tubular guide 83 through which is a longitudinal peg passageway 84. A second tubular guide 86 having a longitudinal peg passageway 87 coinciding with the passage 84, is carried by an erection 88, an opening indicated at 89 being formed between the two guide sections to pass the laterally moving parting saw.

Upstanding from the bed 3 adjacent and in advance of the guide 86 is an erection 91 carrying the fixed jaw 92 of a clamp having also a movable jaw 93. This movable jaw is carried by the upper end of a fourth intermediately pivoted lever 94 which is pivoted to the machine frame at 96 and carries at its lower end a roller 97 engaging a groove in the fourth cam 11.

Pivoted to the framework or extensions therefrom is a fifth intermediately pivoted lever 99, the lower end of which accommodates a pin 101, by which it is connected to one end of a connecting rod 102 the other end of said connecting rod being pivoted at 103 to the lower end of the first intermediately pivoted lever 14.

The upper end of said fifth intermediately pivoted lever carries a spindle 104 upon which is mounted a driving pulley 106 and a gulleting saw 107 which is adapted to approach the end of the severed peg 60 and form the gullet therein while the peg is held by the clamp before mentioned. Located on each side of the gulleting saw and rotating therewith are a series of cutters 108 which, while the peg is being gulleted, engage the sides of the gullet and form the flared mouth at its outer end as seen in Fig. 10. The cutters may be attached to the boss 109 of the gulleting saw by dovetailed projections 111 carried by the cutters and accommodated by corresponding recesses in the said boss. As seen in Fig. 6 the edges of the cutters are adapted to engage the peg at an angle so that the cut is performed gradually from the outer end or point of the cutter toward its inner end and the wood is consequently sliced rather than torn off.

Carried by the boss of the parting saw at each side of the cutters 108 are side cheeks or disks 112 which as seen in Fig. 10 engage the sides of the peg when the latter is being gulleted thereby keeping the two sides of the gullet up to the cutters and obviating any tendency to split the peg. These side cheeks are not essential and may be dispensed with if desired.

In operation and while the machine is stopped the blank is passed through the sliding inner tube 32 until the inner end of the blank lies flush with the right hand side of the shaping tool 63 in Figs. 1, 2 and 6. The sliding tube 32 is now in the outward position illustrated in Figs. 1 and 2 and as seen in dotted lines in Fig. 3, the gripping levers 29 being opened outwardly from the blank as seen in full lines of Fig. 3. As the machine is started and the cam shaft 4 rotates the movement of the pin 13 in the groove 12 of the cam 7 causes the lower end of the lever 14 to swing to the right and its upper end consequently to the left in Fig. 1. This causes the sliding collar 19 (Fig. 3) to move to the left in the peripheral groove 21 of the collar 22 until the heads of the adjusting screws 23 abut against the left hand side of the groove. This slight movement of the collar 19 causes the inner ends of the gripping levers 29 to contract and grip the blank. By manipulation of the screws 23 the sliding movement of the collar 19 within the groove 21 may be regulated and the grip on the blank adjusted as desired. Immediately the heads of the screws 23 engage the left hand side of the groove 21 the continued inward movement of the upper end of the lever 14 causes the sliding tube 32 to move inwardly or to the left in Fig. 1 carrying with it the gripping levers and the blank which is thus fed forwardly a distance approximately equal to the length of a peg. The cam 7 now commences to move the lever 14 in a reverse direction thus opening out the gripping levers and releasing the blank. The collar 19 engages the right hand side of the groove 21 and the sleeve 32 is carried outwardly along the blank. As the blank is released by the gripping levers it is gripped by the split end of the rotary gripping sleeve 34 through the external coned face 37 of the sleeve being forced against the internal coned face 41 of the outer rotating sleeve 38. This pressure of the face 37 against the face 41 is brought about by the cam 8 moving the upper end of the intermediately pivoted lever and consequently the sliding collar 51 to the right in Fig. 1 thereby causing the arms 48 of the bell crank levers 43 to rise up on the coned face 49. The inner arms 46 of said levers consequently engage the outer end of the sleeve 34 and force the coned face 37 at the opposite end against the internal face 41 thereby contracting the split end of the sleeve 34 upon the blank. The frictional engagement of the face 41 and the bell crank levers with the gripping sleeve now causes the blank to be rapidly rotated with the outer rotating

sleeve 38. As the blank is thus rotated the shaping tool 63 is moved transversely bringing its cutting edge into contact with the periphery of the blank and thereby shaping the head and neck of the peg as previously described. Simultaneously with this sideward movement of the shaping tool the parting saw 82 moves through the space 89 between the sections 83 and 86 of the tubular guide which steadies the peg while it is being operated on by the shaping tool. This lateral movement of the shaping tool and parting saw is caused through the medium of the cam 9 acting on the lower end of the lever 76 and thereby moving the rocking arms 73 and 78 with said lever. As the shaping tool return from its cutting stroke the blank is released by the gripping sleeve 34 and is again fed forwardly by the gripping levers 29 until the shaped head of the peg has just passed the parting saw 82. The blank is now again released by the gripping levers which move backwardly while the blank is again gripped and rotated by the split sleeve 34. The shaping tool and the parting saw simultaneously move inwardly against the blank the parting saw severing the shaped peg 60 from the blank immediately behind the head of the peg as seen in Fig. 6, while the shaping tool forms the head and neck of the following peg.

It will be thus evident that the intermittent forward movement of the gripping levers with the blank causes the severed pegs to be pushed along through the guide 86 toward the gulleting saw 107. Simultaneously with the parting of one peg from the blank as seen in Fig. 6, the peg in advance which has already been severed is gripped by the jaws 92 and 93 of the third gripping device or clamp the movable jaw 93 of which is moved inwardly by the operation of the cam 11 against the lower end of the lever 94. While the peg is thus securely held the upper end of the lever 99 is through the medium of the first cam 7 and a connecting rod 102 moved to the right in Fig. 1 thereby causing the gulleting saw to engage the end of the peg held by the jaws 92 and 93 and gullet the peg to the requisite depth. At the same time the cutters 108 at the sides of the gulleting saw form the flared mouth at the outer end of the gullet as clearly seen in Fig. 10. The gulleting saw then again recedes to its original position and the jaw 93 is simultaneously thrown well apart from the jaw 92 by the roller 97 engaging the part 90 of the groove or the cam 11. This allows the gulleted peg to drop from the jaws and through an opening 95 in the machine bed into any suitable receptacle placed to receive it. Immediately the finished peg has been thus dropped the jaws 92, 93 are partially closed to support and guide the next peg as it is pushed forwardly. The jaw 93 is then owing to the contour of the cam 11, forced tighly against the peg and holds it firmly until it has been gulleted as above described.

From the foregoing it will be seen that the pegs or other articles are formed continuously from the blank as it is intermittently fed through the machine the finished pegs being ejected therefrom by the forward movement of the blank and the whole operation being entirely automatic.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a machine for making clothes pegs, a shaping tool, means including a rocking lever for intermittently feeding a blank lengthwise to the shaping tool, a cam shaft, a cam thereon immediately engaging said lever to actuate the same, means operating alternately with the feeding movement to intermittently rotate the blank while in contact with the shaping tool and released by the feeding means, a gulleting saw disposed in alinement with the path of movement of the blank, a rocking lever carrying said gulleting saw, and a rod connecting the two levers together so as to cause the actuation of the second by the first one, whereby the gulleting saw is moved inwardly against the peg as the blank is released by the feeding means.

2. In a machine for making clothes pegs, a sliding tube adapted to accommodate a blank, gripping means carried by said tube, a longitudinally rocking lever adapted to actuate said gripping means to intermittently grip the blank and feed it forwardly with said tube, a rotary gripping device associated with said tube, a second longitudinally rocking lever adapted to actuate said gripping device to intermittently grip and rotate the blank, a sliding shaping tool and a parting saw, a laterally rocking lever adapted to move said shaping tool and parting saw transversely against the rotating blank, a stationary tubular guide adapted to accommodate the blank while being acted on by said shaping tool and parting saw, means for gripping the peg after being severed from the blank by the parting saw, a gulleting saw, a third longitudinally rocking lever carrying the gulleting saw, a cam shaft, cams thereon individual to the first and second longitudinally rocking levers and the laterally rocking lever for actuating the same, and a connecting rod joining the first and third longitudinally rocking levers to operate the latter from the former.

3. In a machine for making clothes pegs and the like, the combination of a reciprocatory tube to accommodate a blank; a collar mounted for sliding movement on and relatively to said tube; a stop on said tube; adjustable means carried by said collar for engagement with said stop to limit the rela-

tive sliding movement of the collar and to determine the extent of such movement; an operating lever connected to said collar to initially effect its relative sliding movement and thereafter move the tube and collar together; and gripping members connected to be shifted by the collar, during its sliding movement, into engagement with the blank.

4. In a machine for making clothes pegs and the like, the combination of a reciprocatory feeding element for the blank; a collar fixed thereon and formed with a peripheral groove; a collar of less width than said groove fitted therein for sliding movement in opposite directions; an operating element connected to the sliding collar to initially move it relatively to the fixed collar into engagement with the adjacent wall of the groove and thereafter move the two collars and the feeding element together as a unit; and gripping means carried by the fixed collar and operatively connected with the sliding collar to be shifted by the latter into and out of engagement with the blank during the relative sliding movements of said sliding collar.

5. In a machine for making clothes pegs and the like, the combination of a reciprocatory feeding element for the blank; a collar fixed thereon and formed with a peripheral groove; a collar of less width than said groove fitted therein for sliding movement in opposite directions; an operating element connected to the sliding collar to initially move it relatively to the fixed collar into engagement with the adjacent wall of the groove and thereafter move the two collars and the feeding element together as a unit; gripping levers pivoted intermediate their ends to the fixed collar; and links pivoted at one end to the sliding collar and at the other end to said levers to operate the latter during the sliding movements of the former.

6. In a machine for making clothes pegs and the like, the combination of a reciprocatory feeding element for the blank; a collar fixed thereto and provided at its rear end with a stop; a collar mounted for sliding movement on and relatively to the fixed collar; an adjustable member carried by the sliding collar for engagement with said stop to limit the relative sliding movement of the sliding collar and to determine the extent of such movement; an operating lever connected to said sliding collar to initially effect its relative sliding movement and thereafter move said feeding element and fixed and sliding collars together as a unit; gripping members pivoted to the front portion of the fixed collar; and links for operating said gripping members pivoted at opposite ends to the gripping members and the sliding collar.

In testimony whereof I affix my signature.

M. JONES.

Witness:

CECIL M. ELASTREW.