No. 609,899 Patented Aug. 30, 1898.

A. M. McGEE.

PROCESS OF AND MACHINE FOR MAKING CHAPLETS.

(Application filed Mar. 19, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

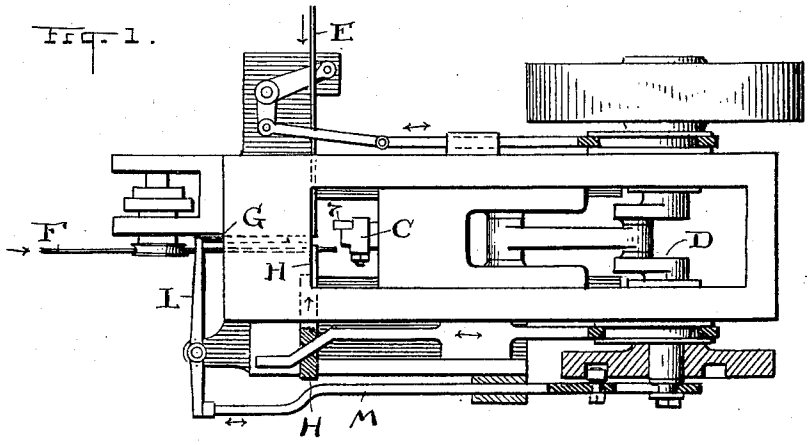


Fig. 5.

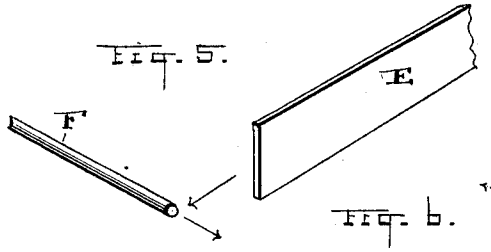


Fig. 6.

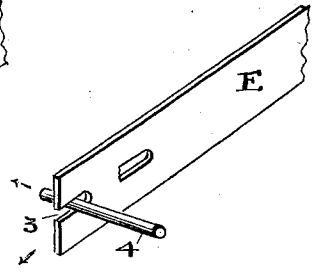
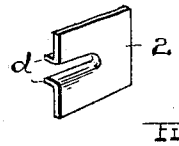


Fig. 10.



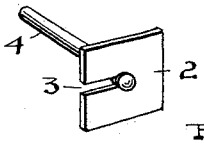


Fig. 9.

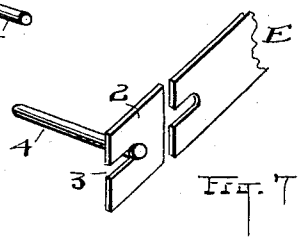


Fig. 7.

Fig. 11.

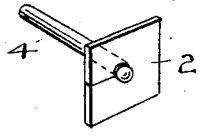
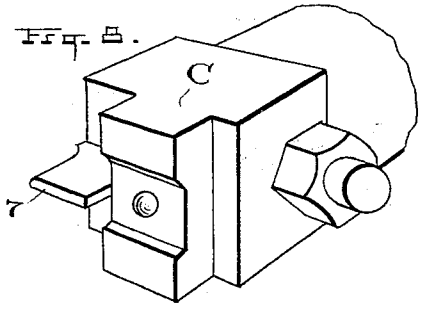


Fig. 8.



ATTEST

R. Blue

N. E. Myrda.

INVENTOR

Augustus M. McGee.

BY H. F. Fisher ATTY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 609,899. Patented Aug. 30, 1898.

A. M. McGEE.

PROCESS OF AND MACHINE FOR MAKING CHAPLETS.

(Application filed Mar. 19, 1898.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

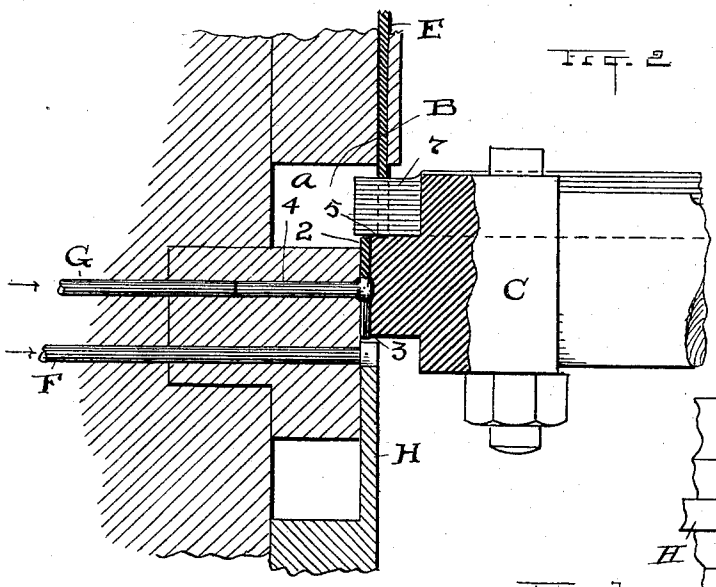


Fig. 12.

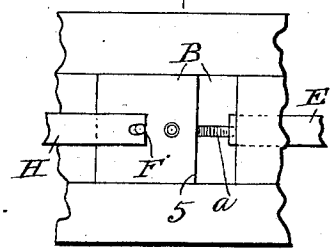
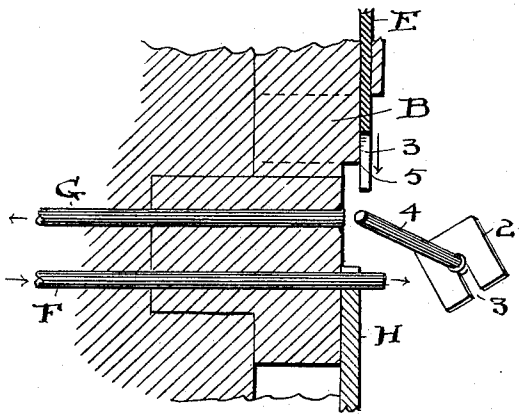


Fig. 3.



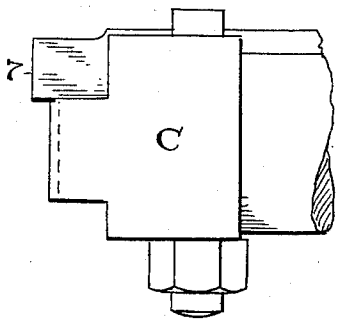
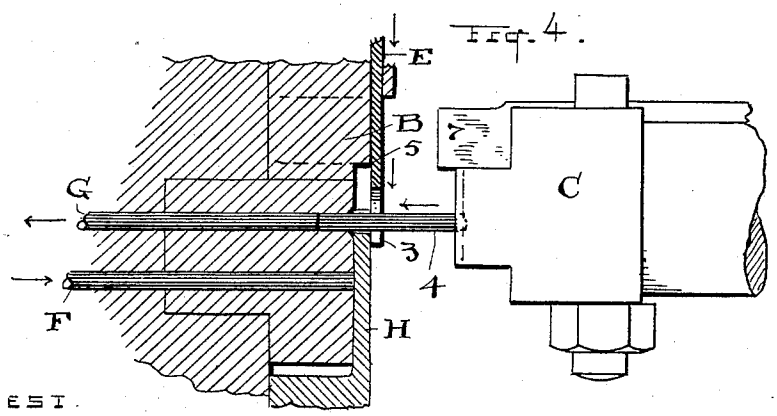


Fig. 4.



Attest.
R. B. Moore
H. E. Mudra.

Inventor.
Augustus M. McGee
By H. F. Fisher Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

AUGUSTUS M. McGEE, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO CHARLES HAAS, OF SAME PLACE.

PROCESS OF AND MACHINE FOR MAKING CHAPLETS.

SPECIFICATION forming part of Letters Patent No. 609,899, dated August 30, 1898.

Application filed March 19, 1898. Serial No. 674,458. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS M. McGEE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Processes of and Machines for Making Chaplets; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a process of and machine for making chaplets, all substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of a machine constructed to carry out my process. Fig. 2, Sheet 2, is an enlarged horizontal section of the two dies in operating relation with stock between and a separate view of the completed product, as hereinafter more fully described. Figs. 3 and 4 show the process of manufacture in different steps of advancement and with the producing parts in different relations, all substantially as hereinafter described. Fig. 5 shows the rod from which the stems of the chaplet and the plate from which the head of the chaplet are produced at right angles to each other and as indicated, for example, in Fig. 1. Fig. 6 shows a step in the process of manufacture in which the plate and the rod-forming stem are brought into relation, substantially as seen in Fig. 4, but with the second slot already formed, as shown in Fig. 2. Fig. 7 is a perspective view of the rod and plate not only brought together, but in which the chaplet is nearly completed, substantially as shown in Fig. 2. Fig. 8 is a perspective front elevation of the moving die, showing its face construction. Fig. 9 is a perspective elevation of a completed chaplet, as also is shown on the reverse side in connection with Fig. 3. Figs. 10 and 11 show a modification of plate and chaplet, and Fig. 12 is a face view of the stationary die.

As already indicated, Fig. 1 shows a plan view of a machine which is constructed to produce chaplets after the manner of my invention. In the main I do not claim novelty for this machine, and the novelty consists in the machine as modified and arranged to adapt it to my special use. Hitherto, so far as I am aware, it has been the practice to make chaplets of this general character by punching holes into the center of the flat head and introducing the stems through said holes and then upsetting the stem on each side of the hole, and this process of manufacture is now well known; but the said process has the defects of slowness in production as well as difficulty in manufacture, and these I have overcome by my new method of manufacture. This new method comprehends, as elements in the manufacture, a chaplet plate or head 2, Fig. 9, with a slot 3 extending to the center thereof, and a stem 4 through the slot upset upon both sides of the head 2 and firmly fixed therein. The slot in itself has no value except to expedite manufacture, and by reason of the slot I am enabled to make a continuous direct feed of the plate from which the head 2 is produced, as well as a direct feed of the rod from which the stem is produced, said parts approaching each other at right angles in all their movements and coming together in such way as to enable me to make all the operations rapid and reliable. Of course any machine or mechanism which will produce the article substantially as shown is understood to be within the scope of my invention. However, the special machine here shown has functions and constructions that are believed to be original and novel, and referring to Figs. 2 and 3, where the views are enlarged, we find two main elements of the machine enlarged and consisting of a stationary or fixed die B and a movable die C, adapted to slide back and forth in the machine and operated by a crank-shaft D.

E represents the stock or plate from which the heads of the chaplet are formed, and F represents the rod from which the stems are formed. Both said plate and rod are automatically fed the requisite distance each time to make a complete chaplet and lodged at the desired place for the next step in the process of manufacture. Thus in Fig. 3 we see the die C withdrawn and the rod F fed forward part way to produce a chaplet-stem, and the plate E likewise is fed forward part way in its course to position between the dies. In Fig. 4 both

E and F are shown in a still more advanced relation, and a stem 4 has been severed from rod F and brought part way into slot 3 of the plate E. A further movement of the plate E and the stem 4 brings said parts into the relation substantially as shown in Fig. 2, wherein the stem 4 is carried back against the plunger-rod G by the die C, and the plate E is carried forward so as to engage the stem on the bottom of the recess 3. It only remains now that the head 2 should be severed from the plate E and the stem 4 be upset or swaged upon the said head, as occurs when the dies complete their work. This is shown in Fig. 2, wherein the head 2 has been severed from the plate by the action of the die C upon the die B, a shearing cut between said parts on the sharp edge 5 of the stationary die and a corresponding edge on the die C effecting this result. At the same time the angular tongue or projection 7 on the die C cuts the slot 3 in the plate, so that when the said plate is fed forward again a slot is produced and ready for the reception of the next stem 4. Any suitable feed mechanism for plate E and rod F may be adopted, and there is but a momentary pause in the feed of said parts, and the dies come together and the work is done so quickly that in a certain sense all the steps in the process are simultaneous as well as instantaneous.

It will be noticed that the rod F passes through the stationary die B and is severed by the plunger or cutter H, which operates at right angles to the die across its face and carries the stem that is cut off over in line with and in front of the plunger G. This plunger is held firmly against backward pressure when the swaging or upsetting of the stem upon the head 2 occurs, and a slight cavity is formed in each of the two dies to enable the swaging of the spindle 4 on both sides to be accomplished; but as soon as this occurs and the reciprocating die C is withdrawn the plunger G becomes active and by a thrust ejects the stem 4 and casts off the finished product, as clearly appears in Fig. 3, the die C being withdrawn as this occurs. Thereupon the plunger G is again withdrawn and room is made in die B for the next stem, which has been cut from rod F and which is carried transversely of the die into alinement with the plunger G, so as to be in position to be carried back into the stationary die by the next forward movement of die C. Thus it will be seen that the stem 4 is first caused to move transversely toward the approaching plate E and the plate toward the stem and that the two are brought together at the proper time and place to swage the stem on the plate and in the same operation and time to sever the head 2 from the plate and produce the next slot 3 in the end of the plate.

On the feed side of die B the said die has a slot or opening *a*, adapted to accommodate the tongue or projection 7 on die C, and has sharp shearing edges, so as to assist in removing the stock to produce the slot 3 in the chaplet. However, if I prefer I can allow this stock to adhere on one or both sides and after the chaplet-stem has been brought into position cause the said stock to close back again and fill up slot 3. In this way I get the advantage of the slot for manufacture and the advantage of the stock to strengthen and fill out the chaplet. However, the slot is there for all the purposes of manufacture and is only bent back to afford room for the introduction of stem 4, after which it is restored to its original place.

Of course I might proceed by all handwork or partly by handwork and partly by machinery to produce the chaplet in either of the forms described; but all-machine work is preferred because of its greater economy and speed.

In Fig. 1 one of many devices for temporarily holding plunger G to its work is shown and consists of a pivoted arm L and a rod or bar M, actuated from or by a cam on the crank-shaft D to control the action of said lever. So, also, is there shown special mechanism for controlling the rod-cutter H and for feeding the plate E.

If a central hole for the stem 4 were made in the head of the chaplet and an incision or slit run from the edge to said hole and both edges of the slit were bent laterally out of the way, so as to enter the stem from the edge of the plate to the said hole, it would serve my purpose and be within my invention, and the die-tongue 7 would be modified to produce this form of opening. Then the said edges would be turned back again after the stem was entered, or, as shown in Figs. 10 and 11, I can slit the stock and turn the edges *d* of the slit back, so as to allow the stem 4 to be introduced the same as in the construction shown in the other views, and then close said stock back again as nearly as possible where it was originally. This closes the stock all around the stem 4 in plate 2 and assists materially in locking the stem firmly in place, while it also preserves all the material to the plate and on the whole produces probably a more satisfactory article than any other way. Of course such slight modifications of the dies as may be necessary to produce this style of plate are easily made and are within the scope of my invention.

What I claim is—

1. The method herein described of making chaplets, which consists, first, in forming an opening from the edge to the center of the plate which constitutes the head of the chaplet, then passing the stem laterally through said opening to the base thereof and then securing the stem upon the plate, substantially as described.

2. A machine for making chaplets, having dies to cut the chaplet-plates to the desired length, and a tongue to form a slot from the edge to the center of the head, in combination with means to cut the stems of the chap-

let to suitable lengths and pass them to position laterally from the edge to the center of the plate, and means to lock the stem rigidly in the plate, substantially as described.

3. The method substantially as described of making chaplets, consisting, first, in forming an opening from the edge to the center of the chaplet-plate and turning back the stock along both sides of the said opening to form an open slot to introduce the stem, then passing the stem laterally into the bottom of said opening, and, lastly, turning the stock back to close said opening and against said stem, and locking the stem in said head, substantially as described.

Witness my hand to the foregoing specification this 18th day of March, 1898.

AUGUSTUS M. McGEE.

Witnesses:
H. T. FISHER,
R. B. MOSER.