F. M. COMSTOCK.

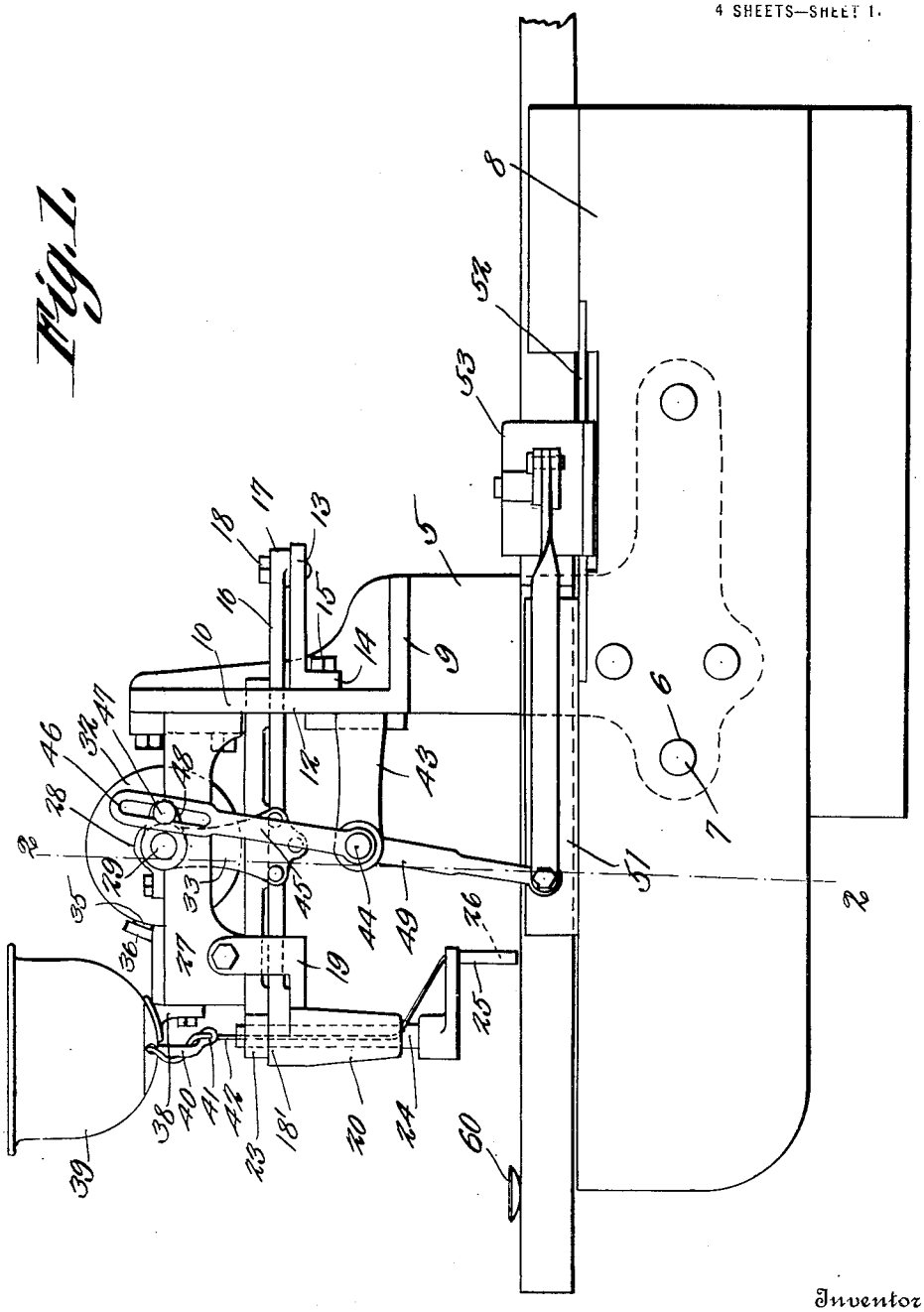
TOBACCO LOOPER.

APPLICATION FILED AUG. 6, 1919.

1,376,318. Patented Apr. 26, 1921.

4 SHEETS—SHEET 1.

Fig. 1.



Witness

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4 SHEETS—SHEET 2.

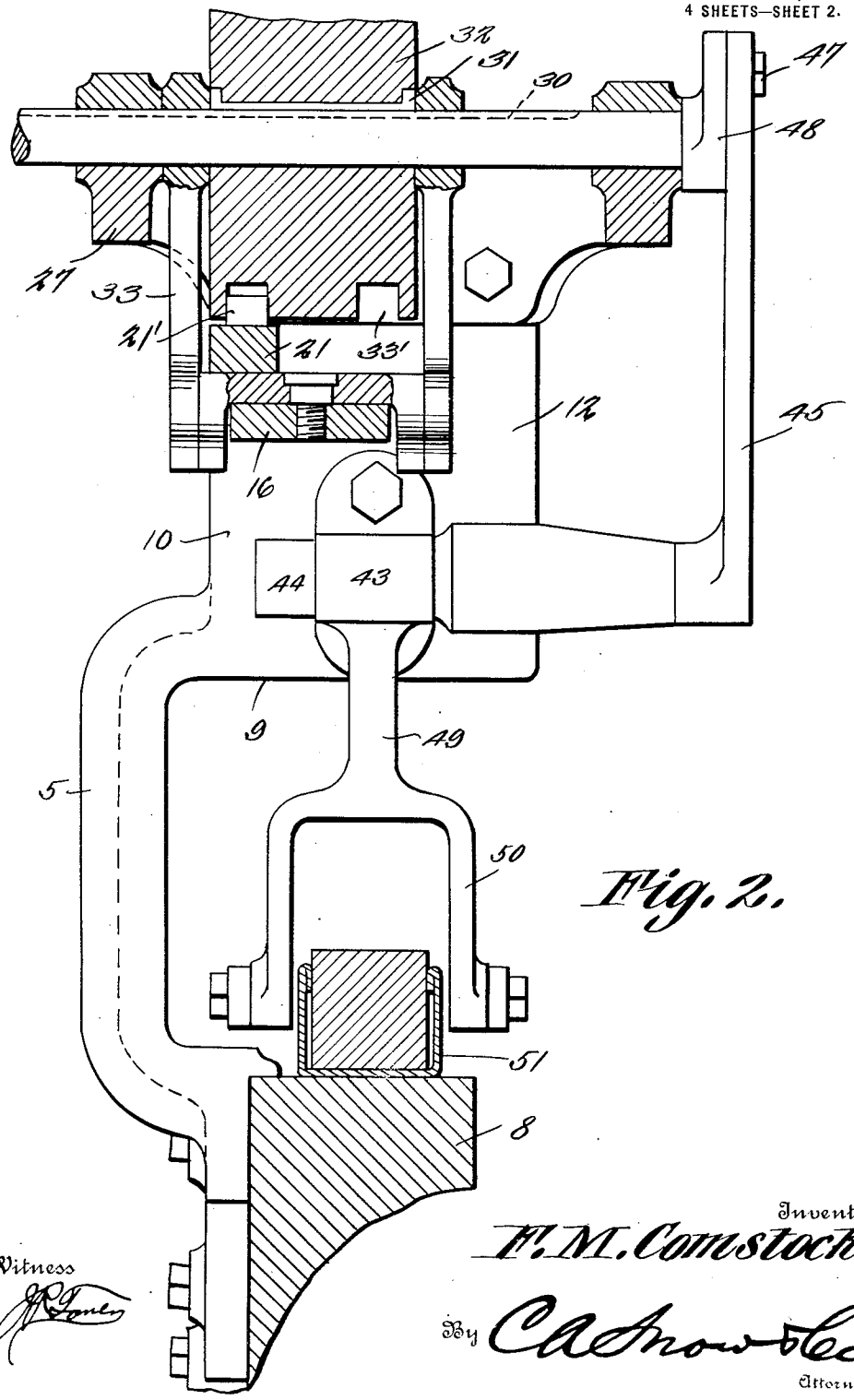


Fig. 2.

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4 SHEETS—SHEET 3.

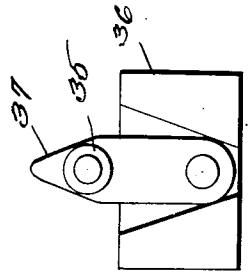


Fig. 5.

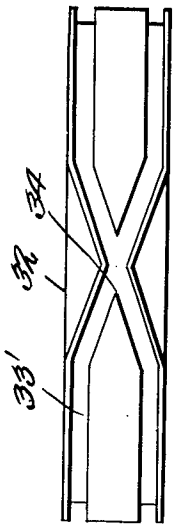


Fig. 4.

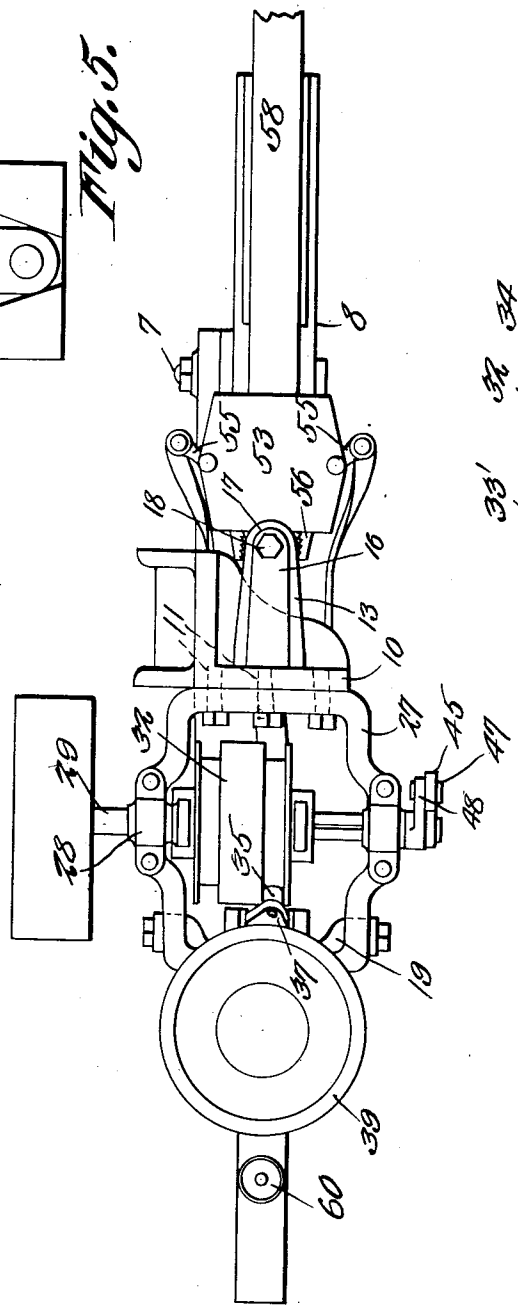


Fig. 3.

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Patented Apr. 26, 1921.
4 SHEETS—SHEET 4.

Fig. 6.

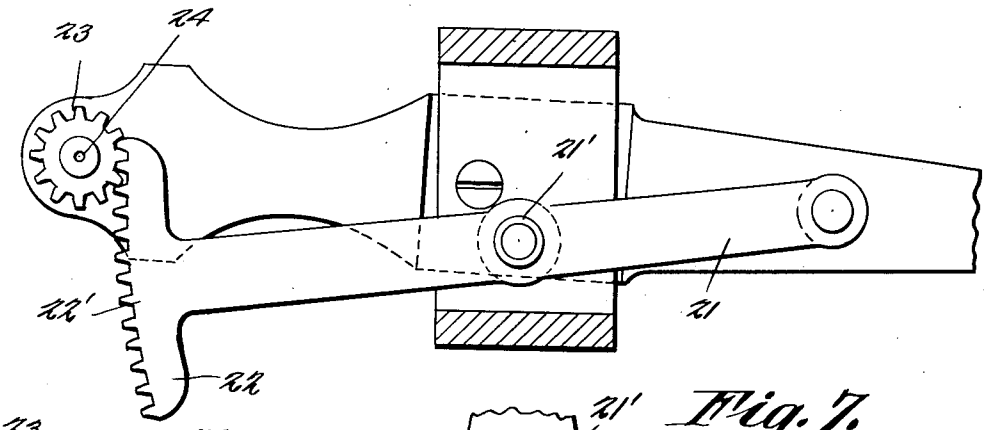
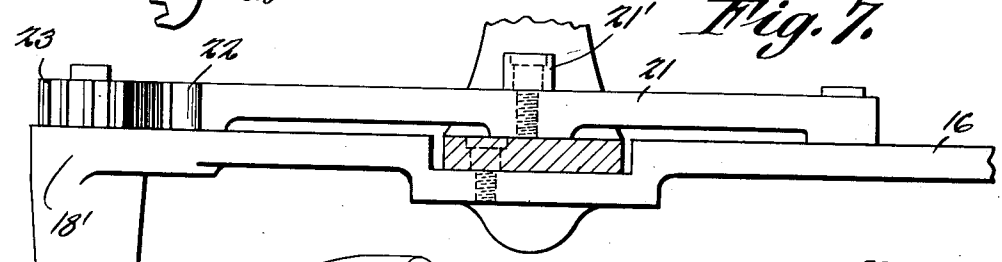


Fig. 7.



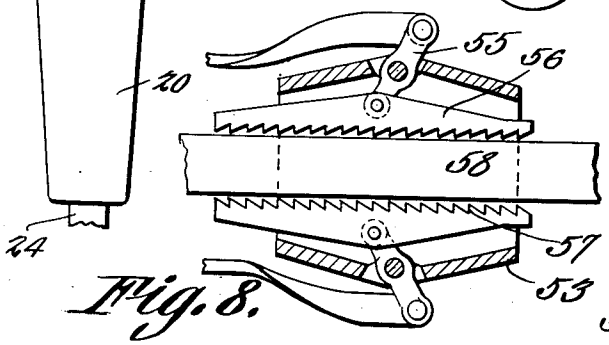


Fig. 8.

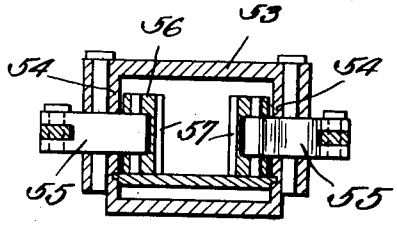


Fig. 9.

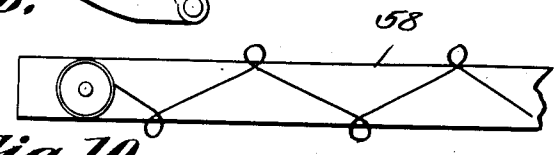


Fig. 10.

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UNITED STATES PATENT OFFICE.

FRANCIS M. COMSTOCK, OF NEWBERN, NORTH CAROLINA, ASSIGNOR TO WILLIAM S. HOWELL AND C. D. BRADHAM, OF NEWBERN, NORTH CAROLINA.

TOBACCO-LOOPER.

1,376,318. Specification of Letters Patent. Patented Apr. 26, 1921.

Application filed August 6, 1919. Serial No. 315,724.

To all whom it may concern:

Be it known that I, FRANCIS M. COMSTOCK, a citizen of the United States, residing at Newbern, in the county of Craven and State of North Carolina, have invented a new and useful Tobacco-Looper, of which the following is a specification.

This invention relates to improvements in loop forming machines, and more particularly to machines employed for automatically forming cord or wire loops around tobacco leaves, adjacent the tobacco sticks, for securing the leaves to the sticks forming the temporary support for the leaves, before the same are placed in the curing houses.

A further object of the invention is to provide a loop forming machine of this character which will automatically form a loop at the opposite sides of the tobacco stick for temporarily securing the leaves to the stick.

A still further object of the invention is to provide means for automatically feeding the stick through the machine and intermittently stopping the stick at predetermined points so that the same will be moved directly under the looping arm.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed without departing from the spirit of the invention.

Referring now to the drawings:—

Figure 1 illustrates a side elevational view of a machine constructed in accordance with my invention.

Fig. 2 illustrates a longitudinally sectional view taken on line 2—2 of Fig. 1.

Fig. 3 illustrates a top plan view of the same.

Fig. 4 illustrates a diagrammatical view of the grooves of the cam drum.

Fig. 5 illustrates a detail view of the finger and roller associated with the cam drum.

Fig. 6 illustrates a top plan view of the swinging arm, the cam drum being shown in sections.

Fig. 7 is a side elevational view of the same.

Fig. 8 is a detail view of the feeding jaws, partly in section.

Fig. 9 is an end elevational view of the same, and;

Fig. 10 is a top plan view of a tobacco stick showing the manner in which the loops are formed.

Referring now to the drawings in detail reference character 5 designates a bracket having openings 6 providing means for the reception of the securing bolts 7 which secure the bracket to a suitable support 8.

The bracket 5 includes an upwardly extending arm having a right angle portion 9 integrally formed therewith, said right angle portion also having an upwardly extending arm 10 provided with apertures 11 and the substantially flat face 12.

A bracket 13 has its right angled end 14 secured to the rear of the arm 10, as by bolt 15 passing through a suitable opening formed in the end 14, and arm 10. The bracket 13, extends rearwardly and provides a support for the swinging arm 16, which arm has its rear end 17 pivotally connected to the bracket by means of pivot pin 18 secured to the bracket, the front end 18′ thereof rests on the guide bar 19, and forms a support for the hollow depending bearing 20, to be hereinafter more fully described.

A lever 21 has one of its ends pivotally connected to the swinging arm 16, the opposite end thereof being formed into an elongated head 22 having suitable rack teeth 22′, which teeth mesh with the teeth of the pinion 23, keyed or otherwise secured to the upper end of the looping finger shaft 24, on one end of which is carried the looping finger 25, which as shown is provided with a central longitudinal opening 26 to receive the looping thread, wire or the like. As shown, this lever 21 is also provided with a central roller 21′ adapted to operate in the cam grooves of the cam drum 32, to be more fully described.

Rigidly secured to the arm 10 adjacent the upper end thereof, is a frame 27 having bearings 28 in which operates the crank shaft 29, which in turn is provided with a longitudinal groove 30 to receive the key 31 carried by the cam drum 32 so that the cam drum 32 is capable of a rotary movement

with the shaft 29 and a simultaneous movement longitudinally of the shaft.

The depending brackets 33, connect the cam drum 32 and the swinging arm 16 whereby lateral movement of the cam drum 32, causes a relative swinging movement of the swinging arm 16.

As shown the cam drum 32 is provided with circumferential grooves 33', which grooves intersect each other as at 34, and provide cam grooves to receive the roller 21' on one side thereof, and the roller 35 on the opposite side thereof, the latter being mounted on one end of the bracket 36, which in turn is rigidly mounted on the frame 27, the roller 35 having a guide finger 37 supported in front thereof, so that the roller will be properly guided in the cam groove.

From the foregoing it is obvious that the arm 16 is moved alternately from one side of the machine to the other, thereby moving the looping finger transversely of the machine, while the rack teeth of the elongated head 22' impart rotary movement thereto, for forming the loops.

Supported on one end of the frame 27 is a bracket 38, which bracket supports the cord or wire cage 39, said cage having a depending curved finger 40, apertured as at 41 to receive the cord or wire 42 employed in forming the loops. It follows that when the machine is threaded, the cord 42 is passed around the finger 40, to prevent racing of the cord during the operation of the machine, the cord 42 is then passed through the aperture 41 from where it passes through the shaft 24 and to the looping finger 26.

The arm 43, secured to the arm 10, has its outer end extending horizontally and terminating at a point below the cam drum 32, and provides a bearing for the shaft 44 which has connection with the lower end of the arm 45, the upper end of said arm 45 being slotted as at 46 to receive the crank pin 47 carried by the eccentric 48 mounted on one end of the shaft 29.

Connected to the shaft 44, and secured thereto, is a rocking forked lever 49, the arms 50 thereof being constructed to straddle the trough 51, which extends from a point substantially flush with the forward portion of the bracket 5, rearwardly and terminates a suitable distance to the rear thereof.

A slide plate 52, is mounted on the support 8, and provides a surface on which operates the metallic box 53, which is apertured at its opposite sides, and provided with apertured ears 54 forming bearings for the pivoted levers 55, which have their inner ends connected to the jaws 56, said jaws being provided with teeth 57 adapted to engage the tobacco stick 58 used in connection with this machine, for advancing the stick in the trough 51, also mounted on the support, step by step, a predetermined distance. It will therefore be seen that due to this construction, loops are formed along the tobacco stick, on opposite sides thereof, and in spaced relation with each other.

The operation of the device is as follows:

A tobacco stick is positioned in the trough 59, with the forward end thereof in a position directly under the looping finger 26, the cord or wire 42 used in forming the loops, has one of its ends positioned around the fastening element 60, whereby the end of the cord 42 is securely fastened to the end of the stick.

The shaft 29 is then given a rotary movement, due to its connection with a suitable power mechanism, not shown, with the result that the swinging arm 16 is moved laterally, carrying with it arm 21, which arm, due to its connection with the cam drum is also moved transversely of the arm 16.

It follows that due to the connection between the arm 21 and the looping finger shaft 24, the looping finger 25 is given a rotary movement around a bunch of tobacco leaves supported adjacent one side of the stick.

Upon the continuous rotation of said shaft 29, the gripping jaws 56 grip the tobacco stick, moving the same forward a predetermined distance. The arm 16, is then moved transversely of the machine in the opposite direction, and the operation is repeated on the opposite side of the stick, which operation continues until the stick has been filled, whereupon it is removed and another tobacco stick is positioned in the trough.

Having thus described my invention, what I claim is:—

1. In a loop forming machine, a main bracket, an auxiliary bracket carried by the main bracket, a loop forming finger supported by the auxiliary bracket, means for moving the loop forming finger laterally of the machine, and means for simultaneously rotating the same.

2. In a loop forming machine, a main bracket, an auxiliary bracket supported by the main bracket, a swinging arm having connection with the auxiliary bracket and having a bearing forming a part thereof, a loop forming finger rotatably supported within the bearing, and means including a cam drum for moving the loop forming finger transversely of the machine, and simultaneously rotating the same.

3. In a loop forming machine, a main bracket and an auxiliary bracket, a swinging arm pivotally supported by the auxiliary bracket, a pivoted arm connected to the swinging arm, a loop forming finger shaft, and a looping finger carried by said shaft, means for moving the swinging arm laterally of the machine, means for imparting rotary

movement to the loop forming finger shaft, and means for automatically feeding a tobacco stick to the looping finger.

4. In a loop forming machine, a main bracket and an auxiliary bracket, a swinging arm, an arm pivotally connected to the swinging arm, a cam drum, means for connecting the cam drum to the swinging arm to move the arm laterally, means for connecting the cam drum and pivoted arm to swing the pivoted arm laterally, a loop forming finger, means for connecting the loop forming finger and pivoted arm for rotating said loop forming finger, and means for feeding a tobacco stick to the loop forming finger.

5. In a loop forming machine, a main bracket and an auxiliary bracket, a swinging arm having connection with the auxiliary bracket, a looping finger rotatably supported by the swinging arm, means for moving the looping finger laterally of the machine and means for simultaneously rotating the looping finger, means for feeding a tobacco stick through the machine, said means including pivoted jaws, and means for moving the jaws to automatically grasp and release a tobacco stick at predetermined intervals.

6. In a loop forming machine, a main bracket, an auxiliary bracket on the main bracket, a shaft journaled on the main bracket, a cam drum splined on the shaft, a swinging arm having connection with the drum, a looping finger, means carried by the swinging arm for operating the looping finger, and means for permitting rotary movement of the cam drum with the shaft, and means for moving the cam drum longitudinally of the shaft.

7. In a loop forming machine, a main bracket, an auxiliary bracket, a rotary shaft supported on the main bracket, a cam drum having cam grooves, splined on the rotary shaft, a swinging arm supported under the cam drum, means coöperating with the grooves of the cam drum for moving the cam drum longitudinally of the shaft, means connecting the cam drum and swinging arm to produce a relative movement of the arm with relation to the cam drum, an arm supported on the swinging arm, a looping finger, means on the second mentioned arm and engaging the cam grooves for moving the second mentioned arm laterally, and means for connecting the second mentioned arm and looping finger, whereby movement of the second mentioned arm produces a relative movement of the looping finger.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

FRANCIS M. COMSTOCK.

Witnesses:

WILLIAM S. HOWELL,

N. W. JONES.