Jan. 7, 1936. O. S. HALL 2,026,783

BASKET WEB ASSEMBLING MACHINE

Filed July 27, 1934 5 Sheets-Sheet 1

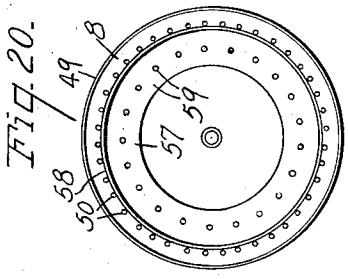


Fig. 20.

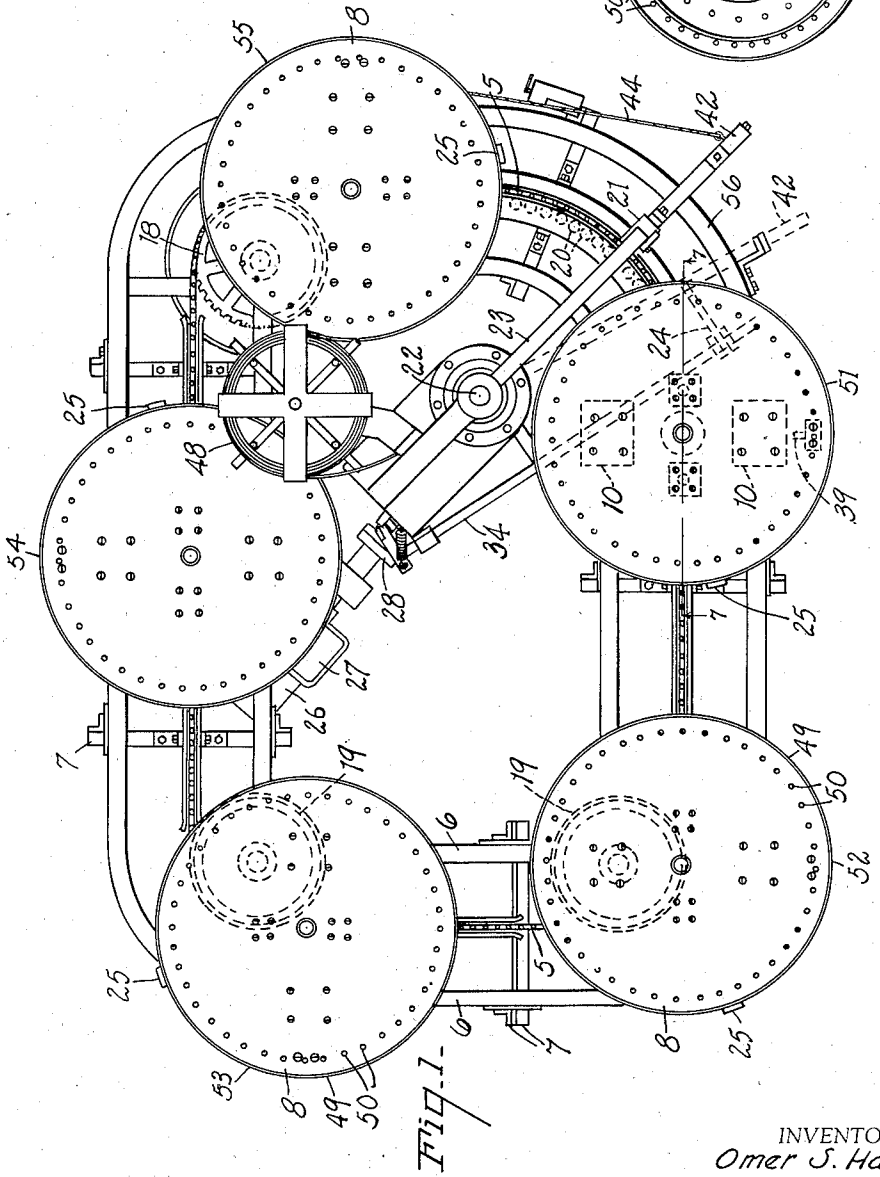


Fig. 1.

INVENTOR.
Omer S. Hall

BY Chappell & Earl

ATTORNEYS

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BASKET WEB ASSEMBLING MACHINE

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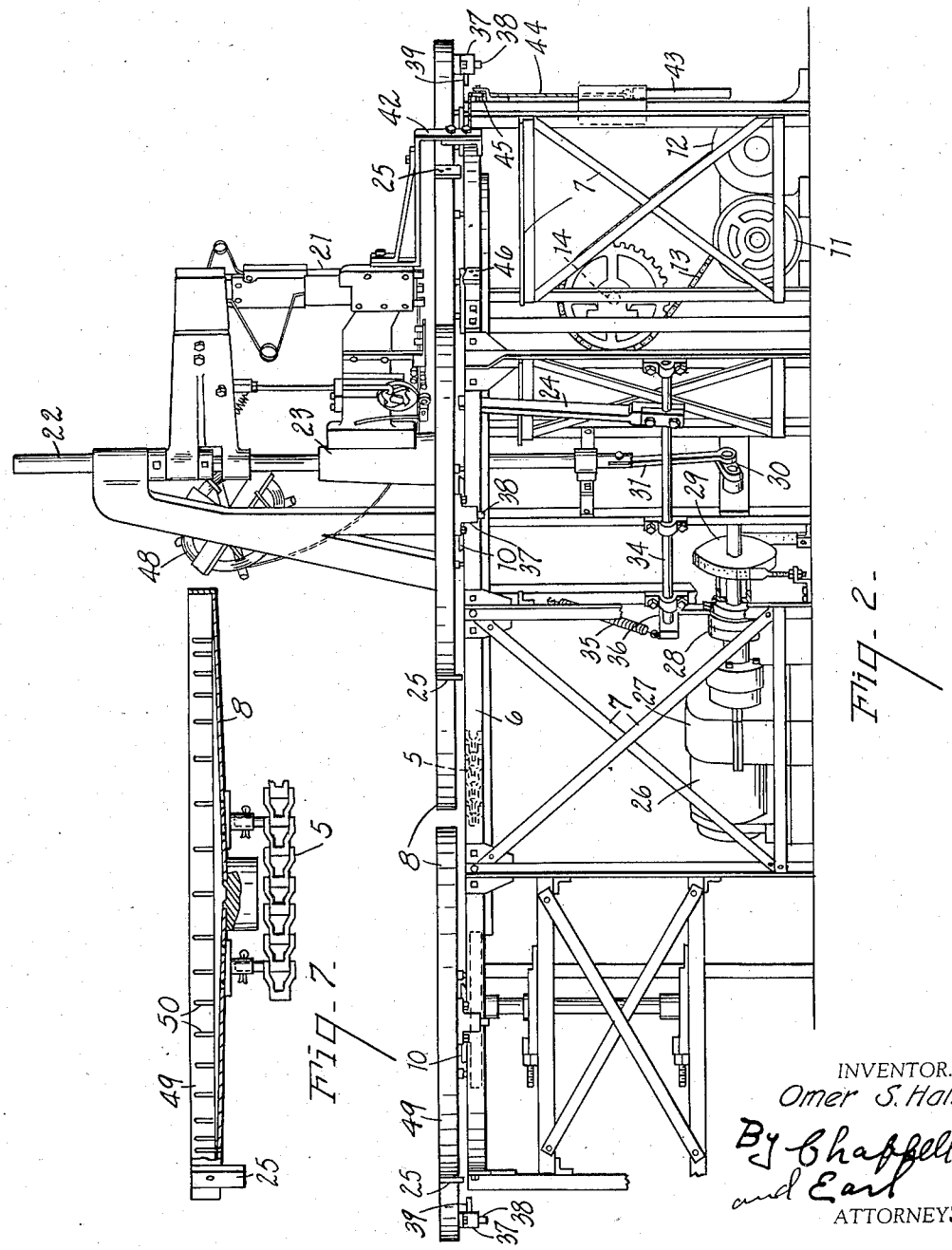


Fig. 2.

Fig. 7.

INVENTOR.
Omer S. Hall
By Chappell and Earl
ATTORNEYS

Jan. 7, 1936. O. S. HALL 2,026,783

BASKET WEB ASSEMBLING MACHINE

Filed July 27, 1934 5 Sheets-Sheet 3

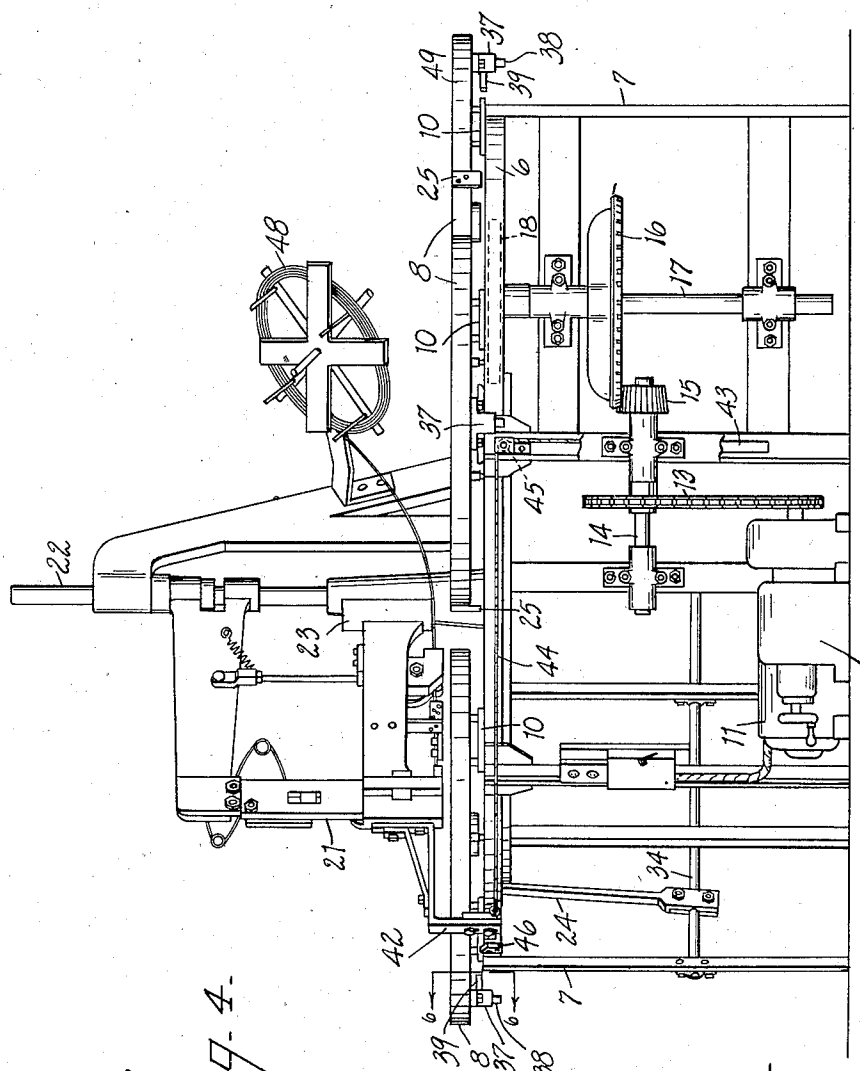


FIG. 3.

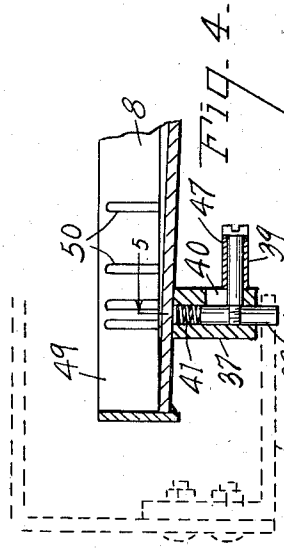


FIG. 4.

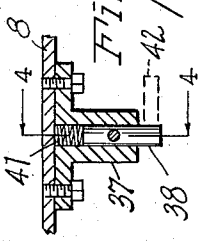


FIG. 5.

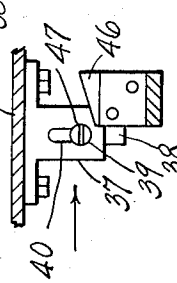


FIG. 6.

INVENTOR.
Omer S. Hall

BY Chappell & Earl
ATTORNEYS

Jan. 7, 1936. O. S. HALL 2,026,783

BASKET WEB ASSEMBLING MACHINE

Filed July 27, 1934 5 Sheets-Sheet 4

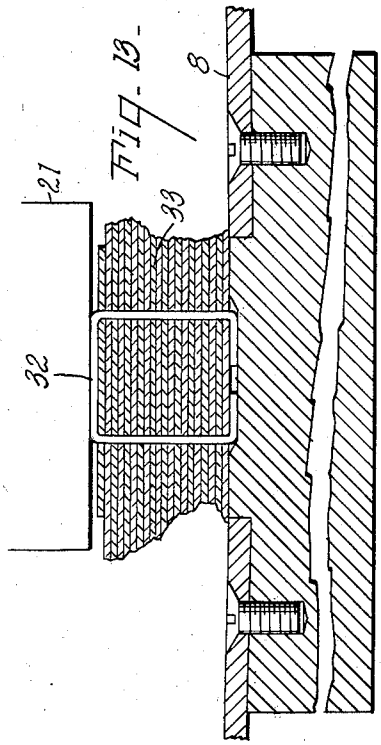


Fig. 13.

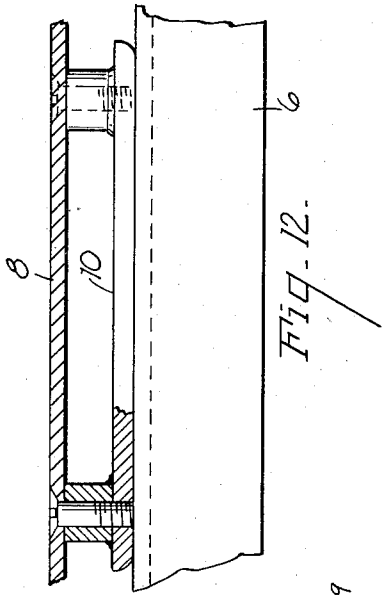


Fig. 12.

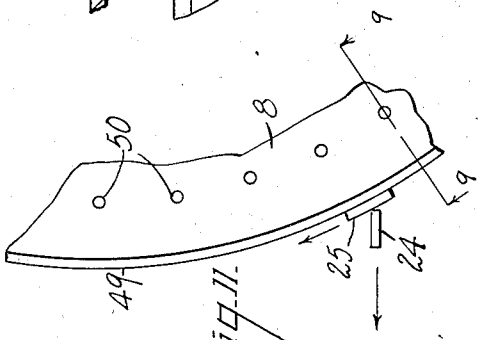


Fig. 11.

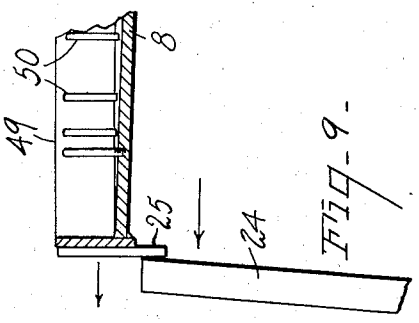


Fig. 9.

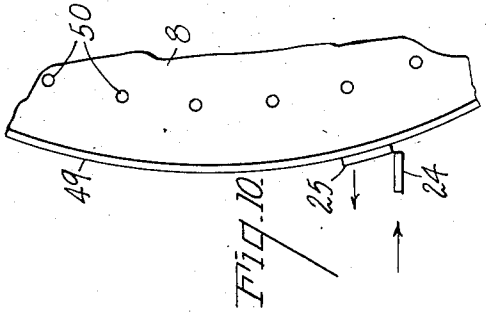


Fig. 10.

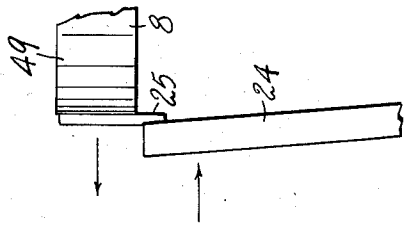


Fig. 8.

INVENTOR.
Omer S. Hall
BY Chappell Teal
ATTORNEYS

Jan. 7, 1936. O. S. HALL 2,026,783

BASKET WEB ASSEMBLING MACHINE

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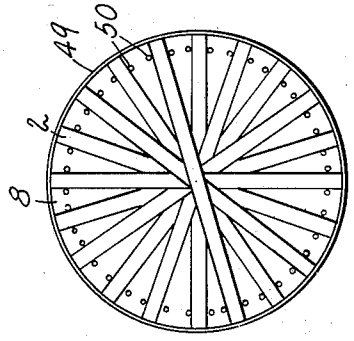


Fig. 16.

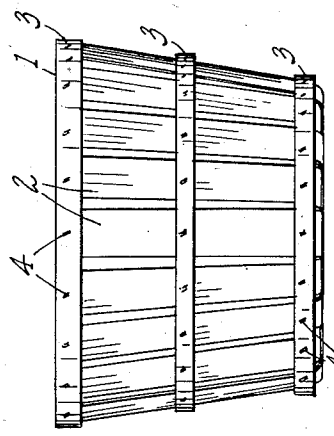


Fig. 19.

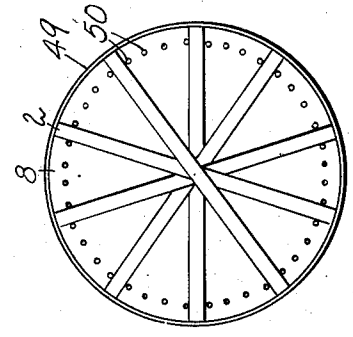


Fig. 15.

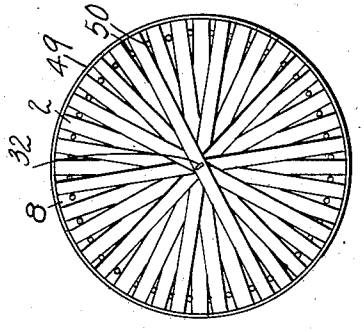


Fig. 18.

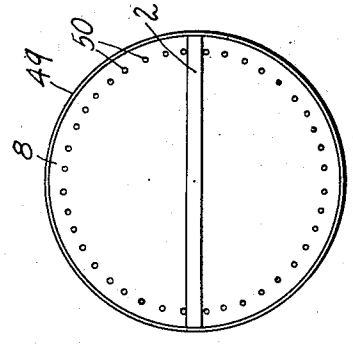


Fig. 14.

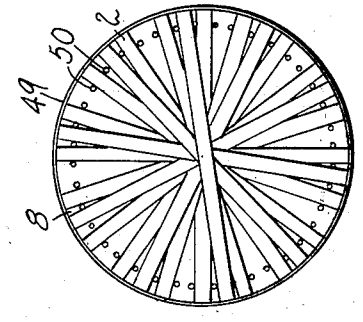


Fig. 17.

INVENTOR.
Omer S. Hall
BY Chappell & Earl
ATTORNEYS

Patented Jan. 7, 1936 2,026,783

UNITED STATES PATENT OFFICE

2,026,783

BASKET WEB ASSEMBLING MACHINE

Omer S. Hall, Paoli, Ind., assignor to The Edgerton Manufacturing Co., Plymouth, Ind.

Application July 27, 1934, Serial No. 737,147

3 Claims. (Cl. 1—13.6)

The main objects of this invention are:

First, to provide an improved method of and means for assembling and stapling together the flat strips or staves of a basket into a web or mat preliminary to forming the basket.

Second, to provide a basket web assembling machine which is simple and economical in its parts and efficient and effective in operation.

Third, to provide a machine of this character which is of very large capacity.

Fourth, to provide a basket web assembling machine which may be operated by unskilled labor with very uniform results.

Objects relating to details and economies of my invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is illustrated in the accompanying drawings, in which:

Fig. 1 is a top plan view of a basket web assembling machine embodying the features of my invention.

Fig. 2 is an enlarged fragmentary view in side elevation.

Fig. 3 is an enlarged view in end elevation.

Fig. 4 is a fragmentary view in section on line 4—4 of Fig. 5 showing the mechanism for picking up the stapler head and moving said head with the form, parts of the stapler head being shown by dotted lines.

Fig. 5 is a fragmentary sectional view on line 5—5 of Fig. 4.

Fig. 6 is an enlarged fragmentary section on a line corresponding to line 6—6 of Fig. 3 showing the mechanism for releasing the stapler head after it has completed its travel with the form.

Fig. 7 is an enlarged fragmentary section taken on a line corresponding to line 7—7 of Fig. 1 and showing details of one of the strip or stave receiving forms and associated parts.

Fig. 8 is a fragmentary view in side elevation of the mechanism for initiating the stapling operation showing the trigger about to be released by the form.

Fig. 9 is a fragmentary sectional view on line 9—9 of Fig. 11 showing the form initially engaging the trigger for operating the stapler.

Fig. 10 is a fragmentary top plan view of the parts as shown in Fig. 8.

Fig. 11 is a fragmentary top plan view of the parts as shown in Fig. 9.

Fig. 12 is an enlarged fragmentary view partially in side elevation and partially in section showing how a bearing shoe on the form coacts with one of the rails of the circuitous track.

Fig. 13 is an enlarged fragmentary sectional view showing the strips or staves constituting a basket web or mat stapled together by the operation of the stapling head.

Fig. 14 is a top plan view of a form charged with the first strip at the first strip loading station.

Fig. 15 is a similar view at the second strip loading or web forming station.

Fig. 16 is a similar view at the third strip loading station.

Fig. 17 is a similar view at the fourth strip loading station.

Fig. 18 is a similar view of the completely assembled and stapled strips after leaving the stapling station and ready for discharge.

Fig. 19 is a view in side elevation of a finished basket.

Fig. 20 is a top plan view of a form provided with an auxiliary form for assembling the strips of a smaller basket.

Referring to the drawings, Fig. 19 illustrates a straight side or tub type of basket formed of a mat or web assembled on my machine. The basket 1 comprises a plurality of fiber (commonly wood) slats or strips 2 which are first arranged in crossed relation to provide a web or mat and then bent to form the side wall and bottom of the basket. The portions constituting the side wall are held in place by the hoops 3, the parts being secured together by staples 4. The basket which I illustrate in Fig. 19 is of conventional design and forms no part of the present invention. Heretofore, the webs of baskets of this character have been formed by a single operator who arranged the strips in a radial web and then stapled them together at the center. I aim to provide an improved method of and means for arranging the strips to form the radial web, and for stapling the strips together.

My web assembling machine as illustrated in the drawings, comprises an endless chain conveyor 5, and a pair of rails 6, 6 arranged in spaced relation to provide a circuitous track in a substantially horizontal plane, the parts being supported by a frame 7. On the circuitous track, I mount a plurality of spaced strip or stave receiving forms 8 which are connected to the conveyor for movement therewith. The forms are preferably detachably secured to the conveyor as illustrated by Fig. 7 so that they may be readily changed if desired.

As shown by Fig. 12, the forms 8 are provided

with bearing shoes or plates 10 which are adapted to slide on the rails 6 and hold the forms in a substantially horizontal position throughout their circuit. In completing one circuit, each form passes a series of spaced operator stations where the forms are loaded with strips 2, stapled together and finally discharged. The forms are charged or loaded with the strips at the various loading stations by operators who place the strips in position while the forms move past the stations.

The conveyor 5 is driven at a constant speed with an uninterrupted motion by the motor 11 which is connected to the conveyor by means of transmission 12, chain 13, shaft 14, beveled gear 15, gear wheel 16, vertical shaft 17, and sprocket 18, the latter directly engaging the links of the chain conveyor. Idler sprockets 19, 19 guide the conveyor 5 around the outer turns of its path, vertical rollers 20 being used in the corner under the swinging stapler head 21. The path of the conveyor under the stapler head is the segment of a circle whose center is at the vertical shaft 22 of the stapler head.

Except for the swinging stapler head 21, the stapler 23 is or may be of conventional design and is therefore well known to those skilled in the art. It will therefore be sufficient to point out that the stapling operation automatically follows the actuation of the trigger 24 which is arranged to be engaged by the finger 25 on each of the forms so that the strips are stapled together, the last step in forming the web, as the stapler head travels with the form.

The power for the stapling operation is supplied by the motor 26 which is connected to the shaft 22 by means of the transmission 27, clutch 28, brake 29, crank 30, and connecting rod 31. The motor 26 runs continuously, the trigger 24 being adapted to close the clutch 28 which results in turning the crank 30 around once so as to move the stapler head 21 down and then up, or through one cycle. In so moving, the stapler head drives a staple 32 through the radial web 33 on the form 8, as illustrated by Fig. 13.

The trigger 24 is secured to the shaft 34 and is held in its initial position by the tension spring 35 acting on the shaft through the arm 36. Before the finger or tappet 25 on the form engages the trigger 24, the swinging stapler head 21 is picked up by the form and moved therewith.

For moving the stapler head with the forms, I provide each with a depending socket 37 in which is mounted a slide 38 having a lateral arm 39 projecting through a slot 40 in the side of the socket, Figs. 4 and 6. The slide 38 is urged to its normal or engaging position by the compression spring 41 and in such position the slide is adapted to engage the arm 42 of the stapler head.

After carrying the stapler head with it for a predetermined distance, the form is adapted to release the stapler head which is thereupon returned to its initial position by the weight 43 which is connected to the arm 42 by means of the cable 44 which passes over the pulley 45.

The mechanism for releasing the slide 38 from the arm 42 comprises the stationary cam 46 and the sleeve-like roller 47 on the lateral arm 39 of the slide. As shown by Fig. 6, the movement of the form 8 brings the roller 47 into engagement with the cam 46 which acts to elevate the slide 38 above the arm 42, thereby releasing the latter and allowing the weight to return the stapler head to its initial position. As pointed out above, during the travel with the form, the stapler head is operated to drive the staple home, this operation being initiated by the engagement of the finger 25 on the form with the trigger 24. The spool 48 of wire supplies the stapler head 21 with stapling material in the conventional way.

Each of the strip receiving forms 8 comprises a concave or dished plate having an annular upstanding flange 49 at its rim. An annular series of pins 50 is arranged in spaced relation to the flange for locating the strips 2 as they are placed in the form by operators at the various strip loading stations. At the first station 51, the operator removes the previously stapled web and places one strip, preferably bearing a stock number and/or trademark, in position, as illustrated by Fig. 14. This form then travels past the second station 52 where the second operator lays four more strips of staves in the form, as shown by Fig. 15. The third operator at the third station 53 lays five more staves in the form, as shown by Fig. 16, and the operators at the fourth and fifth stations 54 and 55, respectively, each add five more, as illustrated by Figs. 17 and 18, respectively. This completes the steps of laying the strips in place in the form, the assembly now being ready for the stapling operation.

As the form fully loaded with staves leaves the last loading station 55 and approaches the stapling station 56, the slide 38 on the form picks up the arm 42 of the stapling head causing the stapling head to travel with the form in proper stapling position while moving. While the stapler head and form move together in this manner, the finger 25 on the form engages the trigger 24 which results in the operation of the stapler to staple the staves together at the center, thus completing the assembly of the web. The lateral arm 39 then engages the cam 46 as the form advances, resulting in the release of the arm 42 and the return of the stapler head to its initial position for cooperation with the succeeding form. This completes the cycle of operation of the machine, the operator at the first station removing the completed web and inserting the first stave of another web in the form as described above.

The forms are concave to allow for the thickness of the superimposed strips arranged in crossing relation at the center, the top layer being substantially flat or level for proper coaction with the stapler. The forms are readily removable from the assembly so that they may be replaced by similar forms of different sizes, the arrangement being such that the change can be made in a comparatively short time for the whole machine, or the forms may be adapted for smaller baskets as shown in Fig. 20.

In my machine, the forms move continuously in a circuitous path and are thereby made capable of being filled with stock in an orderly manner and the stock stapled together while in motion. Each operator works while the forms move past his station and thus the webs are assembled at a predetermined rate. The track may be extended to provide more operator stations and the capacity of the machine thus increased.

In Fig. 20, I show one of the forms 8 provided with an auxiliary form 57 which comprises an annular ring having an upstanding flange 58 at its rim and an annular series of pins 59 spaced inwardly therefrom, the flange 58 being adapted to fit within the pins 50 of the form 8. Thus, the form is adapted to receive shorter slats for making a smaller basket, such as a half-bushel size, compared to the full bushel size for the regular

form 8. By virtue of the auxiliary form 57, the machine may be quickly adapted to make the smaller sized webs without removing the forms 8 from the conveyor.

From the above description of my invention, it will be apparent to those skilled in the art that I provide a web assembling machine which is simple and economical in its parts and efficient and effective in operation. The machine is capable of assembling a large number of webs in a comparatively short time and in this respect it is much superior to the method commonly employed prior to my invention. While I have found the use of five stations in connection with five forms which travel in a path of the character set forth highly satisfactory, it is to be understood that any number of stations may be employed with any number of forms which travel in any desired path, so long as the path is circuitous and each form returns to its initial potition upon completing the assemblies and stapling of the webs.

I have illustrated and described my improvements in an embodiment which I have found very practical. I have not attempted to illustrate or describe other embodiments or adaptations, as it is believed this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

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

1. In a basket web assembling machine, the combination with an endless conveyor and a plurality of rails arranged in parallel relation to provide a circuitous track in a substantially horizontal plane, of a plurality of spaced strip receiving forms slidably mounted on said track and connected to said conveyor for movement therewith via a series of spaced stations where the forms are first loaded with strips, stapled together and finally discharge, means for actuating said conveyor at constant speed with an uninterrupted motion, a stapler at the stapling station adapted to travel with each form a short distance and then return to its normal position, and means for operating said stapler to staple the strips together while traveling with the form.

2. In a basket web assembling machine, the combination with an endless conveyor and a plurality of rails arranged in parallel relation to provide a circuitous track in a substantially horizontal plane, of a plurality of spaced strip receiving forms slidably mounted on said track and connected to said conveyor for movement therewith via a series of spaced stations where the forms are first loaded with strips, stapled together and finally discharged, a stapler at the stapling station adapted to travel with each form a distance and then return to its normal position, and means for operating said stapler to staple the strips together while traveling with the form.

3. In a basket web assembling machine, the combination with an endless conveyor arranged in a substantially horizontal plane, of a plurality of spaced strip receiving forms connected to said conveyor for movement therewith via a series of spaced stations where the forms are first loaded with strips, stapled together and finally discharged, a stapler at the stapling station adapted to travel with each form a distance and then return to its normal position, and means for operating said stapler to staple the strips together while traveling with the form.

OMER S. HALL.