No. 888,989. PATENTED MAY 26, 1908.

R. B. FULLER.

MACHINE FOR MAKING BASKET COVERS.

APPLICATION FILED FEB. 9, 1906.

3 SHEETS—SHEET 1.

Fig. 1.

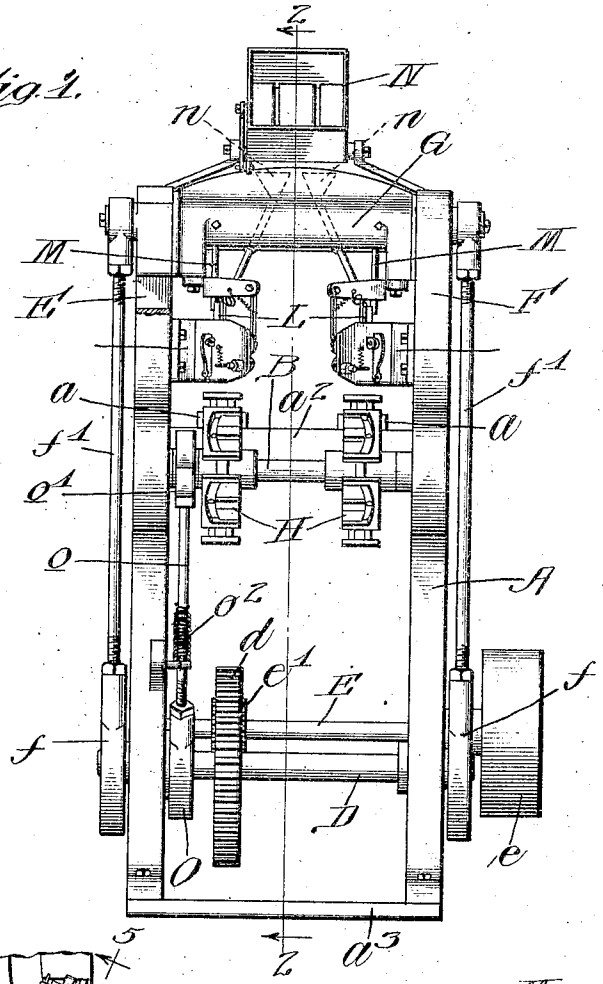


Fig. 4.

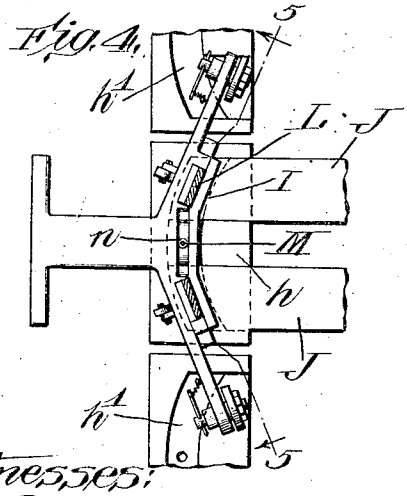
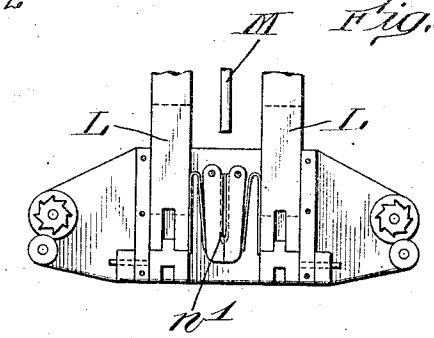


Fig. 5.



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3 SHEETS—SHEET 2.

Fig. 9.

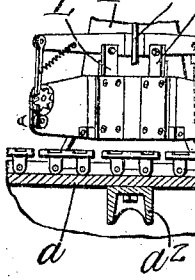
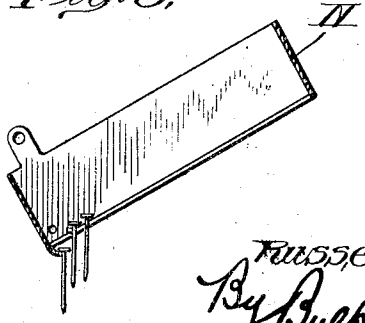


Fig. 7.

Fig. 10.

Fig. 8.



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3 SHEETS—SHEET 3.

Fig. 3.

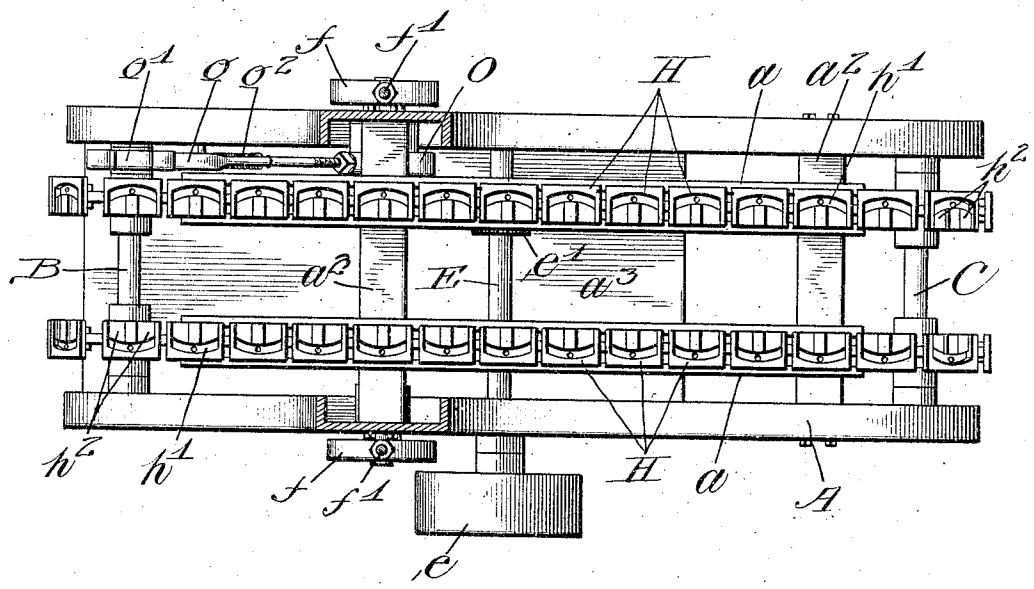


Fig. 6.

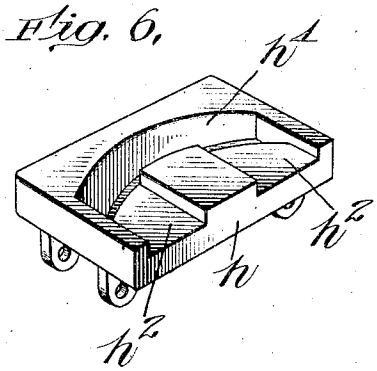
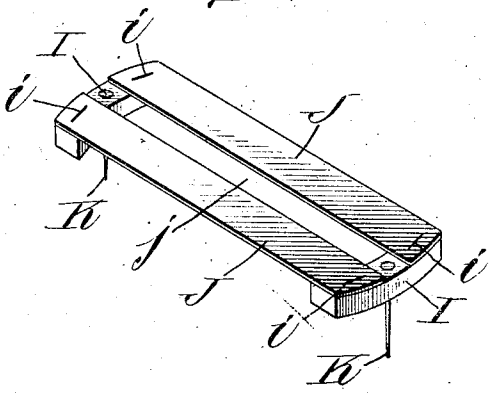


Fig. 7.



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UNITED STATES PATENT OFFICE.

RUSSELL B. FULLER, OF EVANSVILLE, INDIANA.

MACHINE FOR MAKING BASKET-COVERS.

No. 888,989. Specification of Letters Patent. Patented May 26, 1908.

Application filed February 9, 1906. Serial No. 300,346.

To all whom it may concern:

Be it known that I, RUSSELL B. FULLER, a citizen of the United States of America, and resident of Evansville, Vanderburg county, Indiana, have invented a certain new and useful Improvement in Machines for Making Basket-Covers, of which the following is a specification.

My invention relates to machinery for making basket covers or other similar articles of manufacture.

Generally stated, the object of my invention is to provide an improved and highly efficient machine for making basket covers of that particular character in which a couple of curved end cleats are secured to the ends of the two parallel and longitudinally extending slats and each provided with a long nail or wire which can be inserted through recesses or openings in the ends of the basket and then bent around to secure the cover in place.

Special objects of my invention are to provide an improved construction and arrangement whereby basket covers of this particular character can be made in practically one operation—that is to say, whereby the slats can be secured to the curved end cleats and the nails or long fastening wires driven through the centers of the latter by one and the same operation; to provide means for spacing the slats apart at each side of a perforation or partial perforation in the center of each cleat; to provide a machine combining means for driving fastening devices to secure the slats of the cover to the end cleats thereof, with means for inserting long nails or pieces of wire through the uncovered or exposed middle portion of each cleat, to serve as attaching devices by which the cover may be secured to a basket, in the usual and well-known manner; to provide an improved construction and arrangement involving the combination of two pairs of stapling or tacking mechanisms, a nailing or wire-driving mechanism disposed between the members of each of said pairs, and a work-holding structure for holding the said curved end cleats and longitudinal slats of the cover in place to simultaneously receive the staples or other devices by which the seats are secured to the cleats, and also the long nails or wires which are driven through the centers of the cleats to provide means by which the cover can be fastened to the basket; and to provide certain details and features of improvement and combinations tending to increase the general efficiency and serviceability of a machine of this particular character.

To the foregoing and other useful ends, my invention consists in the matters hereinafter set forth and claimed.

In the accompanying drawings—Figure 1 is an end elevation of a basket-cover-making machine embodying the principles of my invention; Fig. 2 is a longitudinal section on line 2—2 in Fig. 1; Fig. 3 is a horizontal section on line 3—3 in Fig. 2. Fig. 4 is an enlarged detail plan view of a portion of one of the work-carrying chains or link belts, showing the location of the two stapling machines or mechanisms above said chain or link belt, as well as the intermediate nailing or wire-driving mechanism, and showing the arrangement of the same with respect to the curvature of the cleat through which the staples or long nails or wires are to be driven. Fig. 5 is a side elevation showing a mechanism for driving the long nails or wires. Fig. 6 is an enlarged detail perspective view of one of the links of the work-carrying chain or link belt. Fig. 7 is a perspective of the finished basket cover. Fig. 8 is an enlarged detail sectional view of the nail shaker. Figs. 9 and 10 are detail views of the punches.

As thus illustrated, my invention comprises an upright body frame A adapted to support the various operative parts of the machine in suitably elevated positions. At its top, the said frame has a couple of parallel and longitudinally-extending supports or guides *a*, and the end portions of the two side members of the frame are connected by rotary shafts B and C. The two portions of the body frame are connected by cross beams a^2 which support the said guides or chain supports *a*. Sprocket wheels *b* and *c* are mounted upon the said shafts. At its base or bottom the two portions of the body frame are connected by a base plate a^3, and also by a couple of rotary shafts D and E. The upper portions of the side members of the body frame provide a couple of upright guideways F in which a transversely arranged cross-head G is adapted to slide up and down. It will be seen that this cross-head is reciprocated vertically by the eccentric devices *f* through the medium of the connecting rods f^1. The cams for the said eccentric devices are mounted upon the shaft D and are adapted to give the said cross-head the desired extent of vertical throw or move-

ment. The driving shaft E is provided with a pulley e, and also with a pinion e^1 which engages and rotates the gear wheel d, which latter is secured to the shaft D. The endless chains or link belt work-carriers H are arranged with the said sprocket wheels, and the upper and forwardly traveling portions of said chains or link belts rest upon the guides or supports a. It will be seen that each chain or link belt is preferably composed of links of any suitable character, the alternate links h, however, being of the character shown in Fig. 6. Each link h has a longitudinally-disposed and outwardly curved recess or pocket h^1, and also a couple of inwardly extending and more shallow recesses h^2.

Referring to Fig. 7, it will be seen that this particular kind of basket cover (which is of a well-known form) consists of curved end cleats I, and a couple of parallel and longitudinally-extending slats J, the latter being preferably separated to provide the cover with a longitudinally-extending slot j. These slats are secured to the tops of the end cleats by means of staples i, and the cleats in addition are provided with long nails or wires K. The curved recesses h^1 are, therefore, adapted to receive the curved end cleats of the basket cover, while the recesses h^2 are adapted to receive the end portions of the slats J, thus keeping the latter properly separated and in position to be secured to the said cleats. It will be understood that an opening can be formed in these links h to permit the long nails or wires K to pass through without danger of bending.

The cross-head G is employed for simultaneously operating the four staplers and the two nailers which simultaneously drive the staples i and the nails I. Referring to Fig. 4, for example, it will be seen that the staple drivers L are disposed above the end portions of the cleat, (shown in dotted lines immediately below) and that the nail driver M is located between the staple drivers and in position to drive a long nail or long wire through the middle portion of such cleat. It is essential that the stapling and nailing mechanism thus provided be simultaneously operated by (for example) the cross-head G, in order that parts of the basket holder may be secured together and the ends of the cover provided with the long nails or wires by practically one operation of the machine. In other words, when this cross-head G moves downwardly it simultaneously drives the four staples i and inserts two long nails I, thus making it possible to complete the making of the cover in one operation. The said stapling and nailing mechanisms can, of course, be of any suitable, known or approved construction, the exact construction of these devices being immaterial. As there are many different kinds of staple forming and driving mechanisms which are on the market, it will not be necessary to further illustrate or describe the same. As to the nailing mechanisms, these are also well known to those skilled in the art, and, for example, may be of that character in which the nails are delivered from a shaker N to feed tubes n leading downwardly to the nail holders n^1 which receive the nails and hold them in position to be driven by the said nail drivers.

In Fig. 5, as well as in other views, I have merely indicated the stapling and nailing mechanisms, showing the position of the nail drivers between the two staple drivers, which arrangement is essential in order to carry out the objects of my invention. Thus, there are two pairs of staplers or stapling mechanisms, one pair at each side of the machine, and each pair mounted directly over one of the endless chains or work-holding link belts. Also, there are two mechanisms for driving nails or long wires, each of these mechanisms or driving devices being located between the members of one of the pairs of staplers or staple driving mechanisms. In this way, the mechanisms for driving staples or nails and other devices into the basket covers are arranged along the curve of the cleats, as shown more clearly in Fig. 4, so that when the cross-head G descends, the staple i will be properly driven through the end portions of the cleat, and simultaneously therewith the long nails or wires I will be inserted downwardly through the middle portions of the said cleats. It will also be understood, of course, that the said endless traveling work-holder, thus provided, is given an intermittent feeding motion, so as to carry the stock forward beneath the staplers and nailers, and that the motion of the traveling work-holder is so timed that each set of cleats and slats remains stationary while the staples and nails are being inserted. This intermittent feeding motion of the traveling work-holder can be accomplished in any suitable manner, as, for example, by providing the shaft D with an eccentric device O, having a pawl o adapted to engage a ratchet wheel o^1 on the shaft B, a spring o^2 being provided for holding the said pawl in engagement with the said ratchet wheel. These parts are so adjusted and arranged that the traveling work-holder moves forward the desired distance, and then ceases such feeding movement while the staples and nails are being driven, the motion of the work-holder being preferably interrupted just before the staples and nails commence to enter the wood of the cleats and slats. It will be readily understood, however, that any other suitable arrangement can be employed for so timing the relative operations of the work-carrying and staple and nail driving mechanisms that the work will be fed forward and allowed to remain stationary

while the staples and nails are being inserted.

Thus, it will be seen that I provide a novel construction and combination, whereby the fastening of the cover parts together and the insertion of the long nails or wires are accomplished by one and the same operation. It will also be seen that I provide a traveling work-holder having longitudinally disposed and curved pockets adapted to receive the end cleats of basket covers of this particular character. Furthermore, it will be seen that I provide endless traveling link belts having the links thereof provided with curved recesses adapted to receive the end cleats of the basket covers, and having more shallow recesses adapted to receive and keep the slats of the cover separated. In this way, the materials of which the covers are made are maintained in their proper relative positions while the fastening devices, such as staples, tacks or wires, are being inserted by the one downward stroke of the cross-head. With a machine of this character, the said basket covers can be made with accuracy and certainty, and with surprising speed or rapidity. The staplers and the nailers are simultaneously operated, whereby the cover slats are secured to the curved cleats, and the flexible attaching devices are inserted through the middle portions of the cleats, by practically one and the same operation of the machine.

The punches X (shown in Figs. 9 and 10) are actuated by the same cross-head and disposed in advance of the nail inserter and adapted to punch holes in the cleats to receive the nails.

The hand lever Y (shown in Fig. 11) can be used for actuating the work-holder by hand when necessary or desirable.

It will be understood, of course, that the nailing or other equivalent mechanisms are not necessarily mounted between the staplers, and it will also be understood that for the broader purposes of my invention it is not necessary that the long nails or wires be inserted in the cover which is at the same time receiving the staples or other fastening devices for securing the slats to the cleats. In other words, the nailers and staplers can be given any suitable or desired arrangement, the desired result being that the parts of each cover be securely fastened together, and that each cover be provided with the long nails or other attaching devices, when the covers are finally discharged from the machine. This, of course, obviates the necessity of making the covers and inserting the long nails or wires afterwards by hand or by another machine.

It will be seen that the slats of each cover are spaced apart in such manner as to leave the central portions of the cleats uncovered, and that it is these exposed portions of the cleats which are pierced or perforated to receive the flexible attaching devices. In this way each cleat is preferably perforated before it is subjected to the operation of the stapling or nailing devices, and the perforation can, of course, extend entirely or partially through the cleat. By the term perforated or perforation I therefore mean the making of a hole in the cleat, which hole or recess extends partially or entirely through the cleat, according to requirements. Again it will be seen that each cleat holding link of the two link belts is provided with means for spacing the slats apart, and that the distance between the two staplers at either side of the machine is less than the length of any one of said cleat holding links. In other words, a row of drivers is provided at each side of the machine, for inserting fastening devices, and each row of drivers is shorter than any one of the cleat holding links. With this arrangement the center of each cleat holding link is preferably provided with a recess or other suitable means for receiving the ends of the flexible attaching devices, when the latter are inserted through the uncovered or exposed central portions of the cleats. The nailers or other devices for inserting the flexible attaching devices are not necessarily located between the staplers, as previously explained.

It will be seen that the work-holder provides a continuous support for each cleat—that is to say, each cleat is supported throughout its length by a member or support which is rigid throughout the length of the cleat. In this way each cleat is not supported on a plurality of flexibly connected sections, notwithstanding the fact that the work-holder is made up of a plurality of flexibly or hinged connected sections. In other words, each section is wider than the cleats are long, and, consequently, the section of work-holder below each cleat is rigid or continuous throughout the length of such cleat—that is to say, is not adapted to break joint or bend at any point in the length of the cleat. In this way, the cleats are moved endwise in two longitudinally traveling rows, and the endwise moving cleats are rigidly or continuously supported throughout their lengths. The work-holder is adapted to break joint or bend at points between the cleats, but is inflexible at all points within the length of the cleats—that is to say, at all points between the opposite ends of any particular cleat. This, I find, gives increased efficiency in the manufacture of basket covers of this particular character.

What I claim as my invention is—

1. A machine for making basket covers, having curved end cleats and flexible attaching devices, comprising an endless traveling work-holding structure for receiving the curved end cleats and the longitudinal slats of the cover, adapted to provide a continu-

ous support throughout the length of each cleat, mechanism for driving fastening devices to secure the slats to the cleats, mechanism for inserting the said flexible attaching devices between the slats, in the same cover which is receiving the fastening devices, and means for simultaneously operating all of said mechanisms, whereby the fastening together of the portions of the cover and the insertion of said flexible attaching devices are accomplished by one operation, said work-holding structure adapted to hold the cleats in two parallel rows and move the same endwise.

2. In a machine of the character set forth, adapted for making basket covers composed of slats and end cleats, the combination of endless traveling means for receiving and holding the end cleats of a basket cover, adapted to provide a continuous support throughout the length of each cleat, and provided with means for holding the cleats in two parallel and longitudinally traveling rows, means for spacing the cover slats apart upon the said cleats, mechanism for inserting fastening devices to secure the slats to the cleats, mechanism for inserting flexible attaching devices between the slats and through the middle portions of said cleats, together with means for simultaneously operating all of said mechanisms, whereby the cleats and slats are fastened together and the said flexible attaching devices inserted by one and the same operation.

3. In a machine of the character set forth, adapted for making basket covers composed of slats and end cleats, the combination of endless traveling means for receiving and holding the end cleats of a basket cover, adapted to provide a continuous support throughout the length of each cleat, and provided with means for holding the cleats in two parallel and longitudinally traveling rows, means for spacing the cover slats apart upon the said cleats, two pairs of staplers for inserting staples to secure the slats to the cleats, and a nail-inserting mechanism disposed between the members of each pair of staplers, together with means for simultaneously operating the said staplers and nailers, whereby the cleats and slats are secured together and long attaching nails are inserted between the slats by one and the same operation of the machine.

4. In a machine of the character set forth, adapted for making basket covers composed of slats and end cleats, the combination of endless traveling means for receiving and holding the end cleats of a basket cover, adapted to provide a continuous support throughout the length of each cleat, and provided with means for holding the cleats in two parallel and longitudinally traveling rows, means for spacing the cover slats apart upon said cleats, a vertically reciprocating cross-head, two pairs of staplers operated by the cross-head to insert the staples for securing said slats to the cleats, and a nail driving mechanism disposed between the members of each pair of staplers, said nailers being also operated by the cross-head, whereby the slats and cleats are secured together and long and flexible attaching nails are inserted between the slats and in the same cover by one and the same downward stroke of said cross-head.

5. In a machine of the character disclosed, adapted for making basket covers each composed of but two slats and two end cleats, the combination of two pairs of staplers, a mechanism for inserting flexible attaching devices, disposed between the members of each pair of staplers, adapted to press the heads of said attaching devices below the upper surfaces of the slats, and means for simultaneously operating said staplers and intermediate mechanism for inserting the attaching devices, together with means consisting of two separate link belts for directly holding the work and having provisions thereon for spacing the slats apart to receive the attaching devices between them.

6. In a machine of the class described, adapted for making basket covers each composed of but two slats and two end cleats, the combination of staplers and punches, and means for simultaneously operating the same, together with means consisting of two separate link belts for directly holding the work and having provisions thereon for spacing the slats apart to receive the attaching devices between them, said staplers adapted to staple the slats to the cleats, and said punches disposed in position to pierce the middle portion of each cleat, for the purpose set forth.

7. In a machine of the class specified, adapted for making basket covers each composed of but two slats and two end cleats, the combination of staplers and punches, a work-holder, and means for operating the staplers and punches, said staplers adapted to staple the slats to the cleats, and said punches disposed in position to pierce the middle portion of each cleat, for the purpose set forth.

8. In a machine for making basket covers, the combination of separate endless belts for directly supporting the cover members with the ends of two slats resting on the cleats, means for spacing apart the two slats to leave the central portion of the cleats uncovered, mechanism for inserting fastening devices to secure the slats to the cleats, mechanism for inserting flexible attaching devices through the exposed central portions of said cleats, by which the cover may be attached to a basket with the heads of attaching devices below the upper surfaces of the slats, and means for simultaneously operating said mechanisms.

9. In a machine for making basket covers composed of cleats with slats secured thereto and flexible attaching devices inserted therein, the combination of a plurality of separate or unconnected link-belts for supporting the cleats with the slats thereon, means for spacing apart the slats to leave the central portions of the cleats uncovered, means for inserting fastening devices through the slats and cleats, and means for inserting the flexible attaching devices through the exposed central portions of said cleats, with the heads of said attaching devices brought below the upper surfaces of the slats.

10. In a machine for making basket covers composed of cleats with slats secured thereto and flexible attaching devices inserted therein, the combination of a plurality of separate or unconnected link-belts for supporting the cleats with the slats thereon, means for spacing apart the slats to leave the central portion of the cleats uncovered, and means in the said machine for inserting the flexible attaching devices through the exposed central portions of said cleats, with the heads of said attaching devices brought below the upper surfaces of the slats.

11. In machinery of the class set forth, the combination of means for first perforating the article, means for supporting the article, and means for inserting flexible attaching devices through the perforation in said article, with the flexible end portions of said devices left protruding therefrom, and means for securing slats at each side of said devices.

12. In a machine for making basket covers composed of cleats with slats secured thereto and flexible attaching devices inserted therein, the combination of a plurality of separate and endless traveling link-belts for supporting the cleats with the slats thereon, means for spacing apart the slats to leave the central portion of the cleats uncovered, means for driving fastening devices to secure the slats to the cleats, means for inserting the flexible attaching devices through the exposed central portions of said cleats, with the flexible portions of said attaching devices left protruding below the cleats, and with the heads of said attaching devices brought below the heads of the fastening devices, means for moving the cover materials along step-by-step, and means for operating the fastener driving means simultaneously with the means for inserting the attaching devices.

13. A machine for making basket covers by fastening slats to perforated cleats, and by inserting flexible attaching devices in the perforations of the cleats, comprising a pair of separate or unconnected link-belts, means on said belts for spacing the slats apart on the cleats, leaving the perforations uncovered, and means for inserting the flexible attaching devices in the perforations of the cleats, with the heads of said attaching devices below the slats.

14. Means for making basket covers by fastening slats to cleats, comprising suitable mechanism for first perforating the cleats, mechanism for then holding the cleats and slats in proper position, mechanism for driving fastening devices to secure the slats to the cleats, and mechanism for inserting flexible attaching devices in the perforations of the cleats.

15. A machine for making basket covers, comprising a pair of endless link belts, each belt having links for holding the cleats of the basket covers, each cleat-holding link provided with means for receiving a single cleat, and also with means for spacing apart the slats, a pair of staple drivers disposed over each link belt, the distance between the members of each pair being less than the length of any one of said cleat-holding links, and means for inserting flexible attaching devices through the cleats, each cleat-holding link being adapted to receive said flexible attaching devices.

16. A machine for making basket covers, comprising a pair of endless link belts, each belt having links for holding the cleats of the covers, each cleat-holding link provided with means for spacing apart the slats of a cover, to leave the central portions of the cleats uncovered, and means for inserting flexible attaching devices through the exposed portions of the cleats, each of said links being of a length to support a cleat longitudinally thereof, whereby each cover is entirely supported by and engages only two of said links.

17. A machine for making basket covers, comprising a pair of link belts, each belt having links for holding the cleats of the covers, means on said links for spacing apart the slats of the covers, and a row of fastener drivers disposed over each link belt, each said row being shorter than any one of said links, whereby each cover is entirely supported by and engages only two of said links.

18. In a machine of the class specified, an endless traveling work-holder provided with means for holding curved cleats in two parallel and longitudinally traveling rows, means on said work-holder for spacing the slats apart on said cleats, and staplers arranged over the path of travel of the cleats, each stapler turned slightly to conform to the curvature of the cleats, said work-holder providing a continuous support throughout the length of each cleat.

19. In a machine for making basket covers, means for holding perforated cleats adapted to provide a continuous support throughout the length of each cleat, means for spacing the slats apart at each side of the perforations in said cleats, means for driving staples to secure the slats to the cleats, and means for

inserting flexible attaching devices through said perforations, adapted to position the heads of said nails or flexible attaching devices below the heads of the staples.

20. In a machine of the class specified, a pair of separate and unconnected link belts, sprockets for actuating said belts in unison, and means for operating on the material carried by said belts, each belt provided with links having means for receiving and holding the cleats, each cleat supported by a single link.

Signed by me this fifth day of Feb., 1906.

RUSSELL B. FULLER.

Witnesses:
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ALFRED GREENE.