

A. M. TAYLOR.
BASKET NAILING MACHINE.
APPLICATION FILED NOV. 16, 1906.

1,040,456.

Patented Oct. 8, 1912.

2 SHEETS—SHEET 1.

Fig. I.

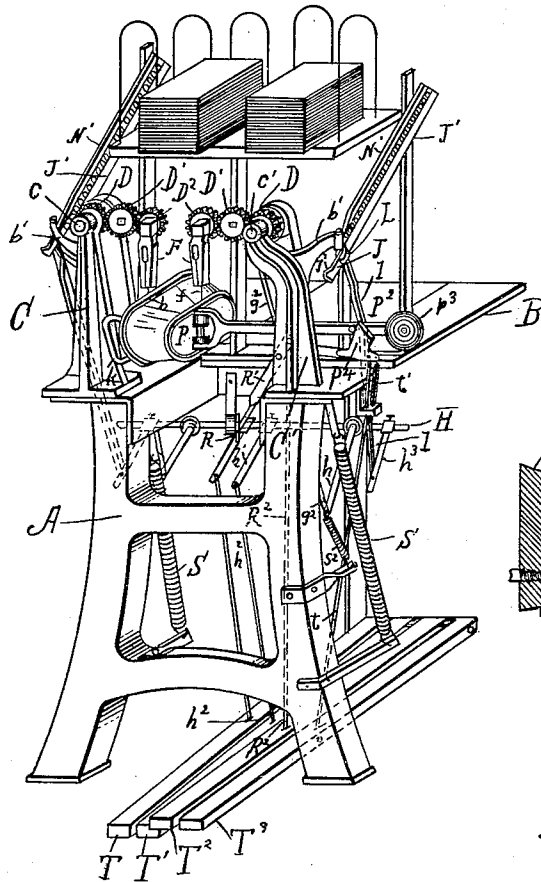


Fig. II.

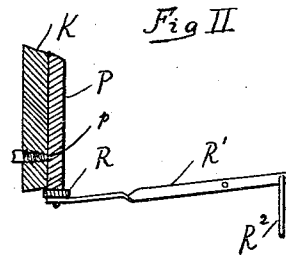
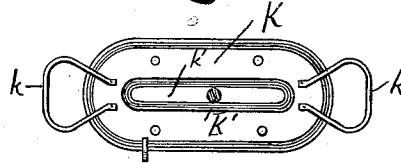


Fig. III.



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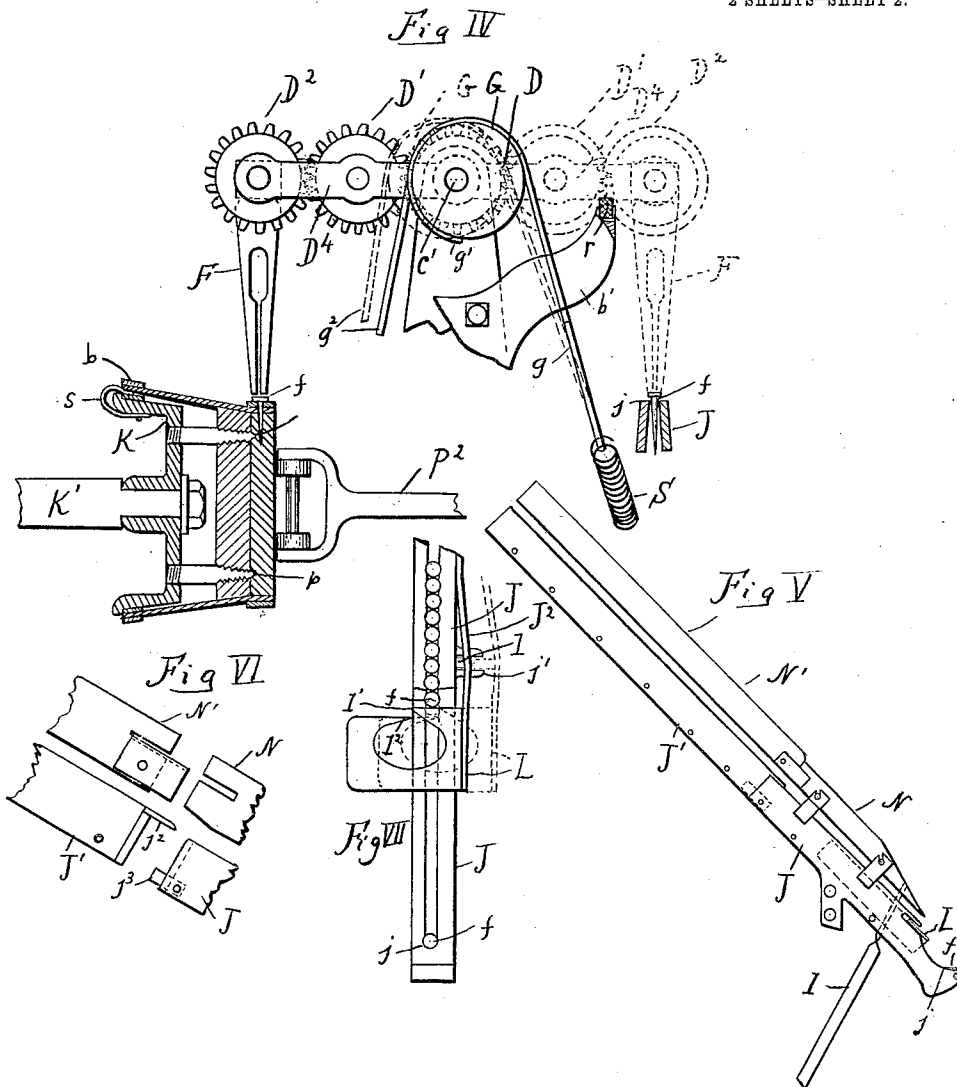
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WITNESSES
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UNITED STATES PATENT OFFICE.

ARTHUR M. TAYLOR, OF KEUKA PARK, NEW YORK, ASSIGNOR TO THE TAYLOR BASKET AND MACHINE COMPANY, OF ERIE, PENNSYLVANIA, A CORPORATION OF NEW YORK.

BASKET-NAILING MACHINE.

1,040,456.

Specification of Letters Patent.

Patented Oct. 8, 1912.

Application filed November 16, 1906. Serial No. 343,715.

To all whom it may concern:

Be it known that I, ARTHUR M. TAYLOR, a citizen of the United States, residing at Keuka Park, in the county of Yates and State of New York, have invented certain new and useful Improvements in Basket-Nailing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to basket making machines; to that class which are constructed and operated to manufacture baskets having solid wooden bottoms, splint sides, and hoops or bands which are secured thereto by staples, nails or tacks.

The object of my invention is to provide a machine, simple in construction, easy to manipulate or operate by inexperienced hands, and positive in its action and operation.

The object of my invention is to provide a machine having hammers adapted to pick up nails, tacks or staples, and to drive the same into an article such as a basket, the hammers having special actuating devices adapting them for this purpose.

My invention further consists in providing two hammers adapted to pick up and drive nails, tacks and staples, each of said hammers being provided with a feeding device for nails, tacks or staples, located so as to present a tack, nail or staple to the respective hammers. One of said hammers being adapted to drive the nail, tack or staple through the fabric of the basket into the bottom of the same; the other of said hammers being adapted to drive the tacks, nails, or staples through the upper portion of the basket, or through the bands of the same, in combination with an adjustable mold or former for receiving the basket, holding the fabric in position and shaping the basket.

My invention still further consists in parts and combination of parts, all of which will be hereinafter fully set forth and claimed.

In the accompanying drawings I have illustrated a machine and details of a machine, so constructed as to embody my invention.

Figure I illustrates a view in isometric

of the machine illustrating the parts as assembled and showing the hammers in the act of driving a fastener through the fabric into the bottom, and into and through the fabric around the top or upper hoop, respectively. In practice the bottom is usually entirely finished before the upper portion of the basket is operated upon, but this is immaterial as the parts may be operated upon either together or separately, at the option of the operator. In Fig. II is illustrated the swinging support for the bottom piece of the basket, acting as a cage for sustaining the bottom in proper relation to the bottom of the mold, where it is subsequently held by means of a protruding piston and an anti-friction holding plunger or arm, as illustrated in Figs. I and IV. Fig. III illustrates a modified form of the mold, showing that the same is adapted to be moved around a spindle, so as to permit all parts of the upper and lower periphery of the basket to be operated upon by the hammers. In this figure I have illustrated the former or mold provided with handles so that the same may be easily operated. Fig. IV is an enlarged view illustrating the mechanism employed for operating and reversing the hammers, whereby the face of the same is brought alternately in position to pick up a tack, nail or staple and subsequently drive it. The former position being shown in dotted lines in the figure and the latter in solid lines. In this Fig. IV is also illustrated in enlarged proportions a basket former or mold provided with a holding arm or plunger, and with points which enter the solid bottom of the basket; and also is illustrated the fabric of the basket surrounding the mold, and the inner top hoop being held to the basket by a spring. Fig. V illustrates a tack or nail feeder, showing the same in side elevation, and being formed of two parts, each having a guard bar located above it to prevent the tacks or nails from being jarred out of the feeder. In Fig. VI is shown the construction of the joint for securing the upper portion of the feeder, or the detachable portion of the feeder to the stationary or attached portion. Fig. VII illustrates in plan view the feeder and the operation of the escape mechanism for feeding the individual tacks at all times

to be in position to be received by the hammer.

The machine is mounted upon a suitable standard such as A, having a table B. Mounted on the table B are two standards C, C' forming at their upper ends journals for the spindles c, c' respectively, said spindles c, c' being rigidly secured to the standards C, C'.

The further construction of both hammers being the same both in operation and detail, with the exception that they operate in reverse directions, I will proceed to describe but one as illustrated in Fig. IV, of the drawings. Secured to the spindle c' is a gear wheel or pinion D, which meshes with an idler pinion D¹, which in turn meshes with another pinion D². The hubs of the idler D¹ and the pinion D² being mounted in an arm D³, which in turn journals, reverses and oscillates about the spindle c' allowing the arm D³ to oscillate from the position shown in solid lines in Fig. IV, to the position shown in dotted lines in same figure; and inasmuch as the pinion D is immovable, the idler D¹ and the pinion D², to which the hammer F is secured, cause the hammer to assume the position shown both in dotted lines and in solid lines in Fig. IV; or in other words the hammer is face downward at all times during its movement from one position to the other. In one position, such as in the dotted position, it will be seen that (as in this case the hammers are what are known as magnetic hammers) the hammer attracts the nail on tack f ; from the lower portion j of the feeder J, carries it to the position shown in solid lines and drives it home (as shown) into the solid bottom of the basket, or in the case of the companion hammer into the upper hoop and side fabric, securing these parts together. Presuming that this Fig. IV. was reversed and the hammer shown in solid lines was presenting and fastening the nail f to the upper portion b of the basket, the tack would be driven home through the two hoops at the upper portion of the basket and clenched on the iron portion of the former K.

The manner of operating the hammers is by means of flexible connections, one of which is secured upon the cam shaped piece G, which operates with and forms part of the arm D³, which moves or revolves around the spindle c' in either direction as shown in solid lines and dotted lines in Fig. IV. One of the flexible connections, such as g , is secured over the cam, and runs from the bottom as at g' over the cam G to the spring S. This constitutes the power for returning the hammer to the position shown in dotted lines in Fig. IV. The manner of reversing the hammer to the position shown in solid lines in Fig. IV, and for driving the nail is

to employ a flexible connection such as g^2 , which is shown in both solid and dotted lines. This flexible connection g^2 also passes over the cam G, down to its under portion, or in other words, the flexible connection surrounds the cam very nearly three fourths of its periphery. The flexible connection g^2 is in turn secured, (see Fig. 1) to an arm h , forming part of the rock shaft H, which is in turn mounted on the frame A, of the machine, at the rear portion thereof. This rock-shaft is provided with another arm h^1 which is in turn connected by the rod h^2 to the treadle T'. Thus it will be seen that as the treadle T' is depressed the arm h^1 is pressed downward, as is also the arm h , and the flexible connection g^2 which causes the cam G, and the arm D³ with their connected hammers F, to assume the position shown in solid lines in Fig. IV. Observing Fig. IV, it will be noted that the cam G is so positioned relatively to the arm D³ that a decreasing radius is presented to the actuating device or flexible connection g^2 as the hammer advances toward its work, so that in its starting position the longest radius is presented, and consequently, the flexible connection has its greatest leverage, and as the hammer proceeds the radius decreases, but on the other hand the acceleration of the hammer is increased relatively to a given movement of the actuating device. Thus the actuating device has the greatest leverage for starting the hammer and as the inertia of the hammer is overcome, it is accelerated so that when it delivers its blow it is moved with such rapidity that its momentum readily drives the tack. The return actuating device or flexible connection g it will be noted operates just the reverse of this, as the hammer approaches the work the longer radius of the eccentric is presented to the flexible connection g , so that as the hammer applies the tack, the longer leverage incident to the longer radius of the cam is presented to the flexible connection g , and consequently the inertia of the hammer for the return movement is quickly overcome and the return movement thus accelerated. This variation of leverage and acceleration is very important because it increases very materially the speed with which the machine can be operated.

The rock shaft, H, is provided with another arm h^3 which moves in unison with the arm h , and is also operated by the treadle T'. This arm h^3 is connected to and operates an escapement attachment L, by means of a bar or rod l , attached to said arm h^3 and being operated up and down by said arm. The upper end of the rod l engages a guide j' at the side of the stationary portion J of the feeder, its point entering between the side of the feeder J, and the

spring J². This spring J² is provided on its forward end with an escapement device constructed as illustrated in Fig. VII, operating across the face of the feeder J by the up and down stroke of the bar L, allowing the tack f, to be caught by the advanced prong l', (see dotted lines in Fig. VII) the tack being meanwhile held by the prong l², until the escapement has advanced to the position shown by dotted lines, which position is attained as the hammer is brought to the position illustrated in solid lines in Fig. IV, thus allowing the tack or nail to be in position as illustrated in dotted lines in Fig. IV, and at the lower end of Fig. V and VII, so that the hammer F, will catch it, or attract it and pull it out of the feeder, and retain it in position on the face of the hammer, until it is hammered into the basket fabric. The upper end of the rod L, is tapered as indicated in Fig. VII, and thus the escape L is operated.

In forming the feeder the stationary part J is secured to the standards C, C' by suitable brackets, such as b' and the upper portion of the feeder is made detachable for the purpose of allowing it to be filled. The manner of securing the parts together is illustrated more clearly in Fig. VI. The part J' is provided with an over-lapping lip j² which rests upon the upper face of the part J. The guide piece j³ being provided to enter the slot in the feeder piece J', keeping the parts in proper relation to each other. The feeder is provided with a top guard piece made removable, which may be used to prevent the tacks from flying out of the feeder, but is not absolutely essential. This top guard is shown at N, N', more clearly in Figs. V, and VI, in the drawings being made separable at the joint where the feeder is separated in the manner illustrated in Figs. V, and VI.

The mechanism described for actuating the hammer on the bottom of the basket is duplicated but in reverse position for operating upon the top of the basket. In the accompanying drawings I have used similar letters for marking these parts. This companion mechanism is actuated by the lever T.

In order to properly secure the bottom P of the basket in position, the free end of the mold is provided with points p, p, preferably four in number, two only being shown in Fig. IV. These points p, p, project from the mold, from $\frac{1}{8}$ to $\frac{1}{4}$ of an inch, more or less, and as the bottom P is brought against the mold by the hand, the gage R is brought up against the lower end of the mold by means of the treadle T², (see Fig. I). In Fig. I the treadle is shown by means of dotted lines, to be secured to the upper end of the pivoted lever R'. The dotted lines

illustrating the rod R² secured to the outer or free end of the lever R' and extending downwardly, in turn secured to the treadle T². In Fig. I of the drawings this gage R is shown dropped. In Fig. II it is shown in position to sustain and gage the bottom P.

After the bottom P has been properly gaged against the mold K, the ball p³ is grasped and the plunger arm P² is brought forward against the bottom P, with some force, being aided by means of the ball p³ at its free end, the arm P² being guided in the standard C' in a suitable manner, so as to slide backward and forward. When the plunger arm P² is brought forward against the bottom P it is locked in position by the catch P⁴, which in turn may be depressed by the treadle T³, through the rod t, it being held in position by the expansion of the spring t'. The catch P⁴ engages a pin, as illustrated, on the arm P². The arm P² at the point where it engages the bottom P is provided with an anti-friction bearing or roller, allowing the mold with the basket fabric contained thereon to move in any direction to be operated upon by the hammer, this being accomplished by the operation of the handles h, of said mold. The mold K, is provided with a clasp s adapted to hold the inner band of the mold as illustrated in Fig. IV, before the fabric, constituting the sides and ends of the basket is placed on the mold. As illustrated in Fig. III, the mold K is so secured to the standard C, by means of the spindle K', that it may be moved in any direction, presenting the bottom or upper edge of the basket beneath the hammer at any point of the periphery.

In describing the operation of one of the hammers I have described the operation of both, both in their action on the fabric of the basket, and their relative constructions, and also their connection with the fastener feeder; and inasmuch as the hammers are magnetic hammers, and furthermore inasmuch as it is not desired that said hammers should come against the feeder J with any appreciable force, I have provided cushions r, (see Fig. IV) at the upper end of the brackets b' thus when the arm D⁴ is returned to the position shown in dotted lines in Fig. IV, by the action of the spring S, the arm will strike the cushion r just before it reaches the portion j of the feeder J; and in addition to this cushion r, I have provided a small spring s² secured to the arm h to which the flexible connection g² is attached. The cam G is also so formed for the purpose of procuring the best effect of the flexible connection on the hammer, the greatest leverage being obtainable upon the start of the arm, D⁴, in either direction.

It will be seen from the above that I have

provided a basket machine which is simple both in construction and operation, and one which can be easily operated, adjusted and kept in order by the ordinary person, not necessitating the employment of skilled labor. I have also provided a machine in which the tacking or nailing is automatically accomplished as is also the feeding of the fasteners to the hammers.

In setting forth this invention I have shown and described it as I consider it best adapted to perform the objects in view, but I do not hence wish to be limited to the details of construction or assemblage of parts, as they may be modified, and still the main objects of the invention be attained.

What I claim is:—

1. In a basket making machine, the combination of a magnetic hammer, a spindle, a standard and said spindle rigidly secured to the top thereof, a fixed pinion upon said spindle, a freely swinging arm journaled on said spindle, a pinion journaled in said arm and adjacent the free end thereof, and said hammer secured to said pinion, an idler pinion journaled in said arm, said pinions meshing with each other, a cam piece secured to said arm and journaled on said spindle, and resilient means attached to said cam piece for normally positioning the hammer, a flexible member secured to the cam piece opposed to the resilient means, a power treadle, and a rock shaft connecting means between said treadle and flexible member.

2. In a basket making machine, the combination of a plurality of magnetic hammers, of spindles, and freely swinging arms journaled on said spindles, trains of gears positioned between said spindles and hammers, one of said gears being secured to each spindle and another of said gears secured to each hammer, treadle means for shifting the hammers to positions for driving fasteners at the top and bottom of the basket, and a resilient means for returning said hammers to their normal positions.

3. In a basket making machine, the combination of a hammer; a swinging mounting for the hammer on which the hammer is pivotally mounted; and a system of gears operating upon the hammer and swinging the hammer relatively to the mounting as the mounting is swung to operate the hammer.

4. In a basket making machine, the combination of a hammer, and the mounting for the hammer, comprising a swinging arm on which the hammer is pivotally mounted, a fixed gear concentric with the arm, and gear fixed with the hammer, and an intermediate gear, said gears swinging the hammer relatively to the arm.

5. In a basket making machine, the combination of a nail feeding device; a ham-

mer; a swinging mounting for the hammer adapted to carry the hammer from the feeding device to the work, said hammer being pivotally mounted on said mounting; and a system of gears for swinging the hammer relatively to the mounting to position the face of the hammer relatively to the feeding device and to the work as the hammer is swung with the mounting.

6. In a basket making machine, the combination of a hammer; a swinging mounting for the hammer; a device for actuating the mounting, and a connecting means between the device and the mounting, arranged to accelerate the hammer as it approaches the work.

7. In a basket making machine, the combination of a hammer; a swinging mounting for the hammer, comprising a geared paralleling device, a device for actuating the mounting; and a connecting means between the said device and the mounting arranged to accelerate the hammer as it approaches the work.

8. In a basket making machine, the combination of a hammer; a swinging mounting for the hammer; an eccentric fixed with the mounting; a device operating upon the eccentric to actuate the mounting, said eccentric being set with relation to the device; and the mounting to present a decreasing radius as the hammer approaches the work.

9. In a basket making machine, the combination of a hammer; a swinging mounting for the hammer, comprising a geared paralleling device; an eccentric fixed with the mounting; a device operating upon the eccentric; said eccentric being set with relation to the device; and the mounting to present a decreasing radius as the hammer approaches the work.

10. In a basket making machine, the combination of a hammer; a swinging mounting for the hammer; an eccentric fixed with the mounting, a device operating upon the eccentric to actuate the mounting, said eccentric being set with relation to the device; and the mounting to present a decreasing radius as the hammer approaches the work; and a return device operating upon the opposite side of the eccentric from the actuating device.

11. In a basket making machine, the combination of a basket form; a hammer adapted to drive a fastener into a basket on the form; a swinging mounting for the hammer arranged at the side of the form, and extending above the face of the hammer when the hammer is in contact with the face of the basket to permit the operator to reach under the mounting to a point beyond the hammer; and devices for shifting the plane of the face of the hammer relatively to the mounting as it is actuated.

12. In a basket making machine, the combination of a basket form; a hammer adapted to drive a fastener into a basket on the form; a swinging mounting for the hammer arranged at the side of the form, and extending above the face of the hammer to permit the operator to reach under the mounting to a point beyond the hammer; and a paralleling device for maintaining the face of the hammer in parallel planes throughout its excursion to the work.

13. In a basket making machine, the combination of a basket form; a swinging mounting for the hammer arranged at the side of the form, and extending above the face of the hammer to permit the operator to reach under the mounting to a point beyond the hammer; and a system of gears connected to the hammer, and adapted to shift the face of the hammer relatively to the arm as the arm is swung.

14. In a basket making machine, the combination of a basket form; a hammer adapted to drive a fastener into a basket on the form; a swinging mounting for the hammer arranged at the side of the form and extending above the face of the hammer when the hammer is in contact with the face of the basket to permit the operator to reach under the mounting to a point beyond the hammer; a paralleling device for maintaining the face of the hammer in parallel planes throughout the excursion to the work; and a nail feeding device arranged in a position at the opposite side of the pivot from the basket form to which the hammer returns for a tack after delivering the blow.

15. In a basket making machine, the combination of a basket form; a pair of hammers, one adapted to drive a fastener into the bottom of the basket on the form, and the other adapted to drive a fastener into the top of the basket on the form; swinging mountings arranged at the sides of the form and arranged above the faces of the hammers when the hammers are in contact with the basket to permit the operator to reach along the planes of the faces of the hammers under the mountings to points beyond the hammers; and means for driving the hammers.

16. In a basket making machine, the combination of a basket form; a pair of hammers, one adapted to drive a fastener into the bottom of the basket on the form and the other adapted to drive a fastener into the top of the basket on the form; swinging mountings arranged at the sides of the form, and arranged above the faces of the hammers when the hammers are in contact with the basket to permit the operator to reach along the planes of the faces of the hammers under the mountings to a point beyond the hammers, said mountings swinging to carry the hammers to a position away from above

the form to give the operator unobstructed access to the form; and means for driving the hammers.

17. In a basket making machine, the combination of a basket form; two hammers, one adapted to drive a fastener into the bottom of the basket on the form, and the other adapted to drive a fastener into the top of the basket on the form; swinging mountings for said hammers arranged at the sides of the form above the faces of the hammers when the hammers are in contact with the basket to permit the operator to reach along the planes of the faces of the hammers under the mountings to points beyond the hammers; devices for shifting the face of the hammers relatively to the form as the hammers swing; and means for driving the hammers.

18. In a basket making machine, the combination of a basket form; a hammer adapted to drive a fastener into the basket on the form from above and upon the upper surface of the basket on the form; a swinging mounting for the hammer with its pivot at the side of the form, the pivot being at a distance from the side of the form, and the mounting extending above the plane of the hammer, leaving a space at the side of the form along and above the plane of the face of the hammer when in contact with the basket on the form to permit the operator to reach past the mounting to a point on the form back of the hammer and means for driving the hammer.

19. In a basket making machine, the combination of a basket form; a mounting on which the form is rotatively mounted; a hammer adapted to drive a fastener into the basket on the form from above and upon the upper surface of the basket on the form; a swinging mounting for the hammer with its pivot at the side of the form, the pivot being at a distance from the side of the form, and the mounting extending above the plane of the hammer, leaving a space at the side of the form along and above the plane of the face of the hammer when in contact with the basket on the form to permit the operator to reach past the mounting to a point on the form back of the hammer; and means for driving the hammer.

20. In a basket making machine, the combination of a basket form; a mounting for the form on which the form is movable rotatively and at right angles to the axis of the mounting; a hammer adapted to drive a fastener into the basket on the form from above and upon the upper surface of the basket on the form; a swinging mounting for the hammer with its pivot at the side of the form, the pivot being at a distance from the side of the form, and the mounting extending above the plane of the hammer,

leaving a space at the side of the form along and above the plane of the face of the hammer when in contact with the basket on the form to permit the operator to reach past the mounting to a point on the form back of the hammer; and means for driving the hammer.

Signed at Cleveland in the county of Cuyahoga and State of Ohio, this 4th day of October 1906.

ARTHUR M. TAYLOR.

Witnesses:

MAUDE L. BARRUS,

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."