

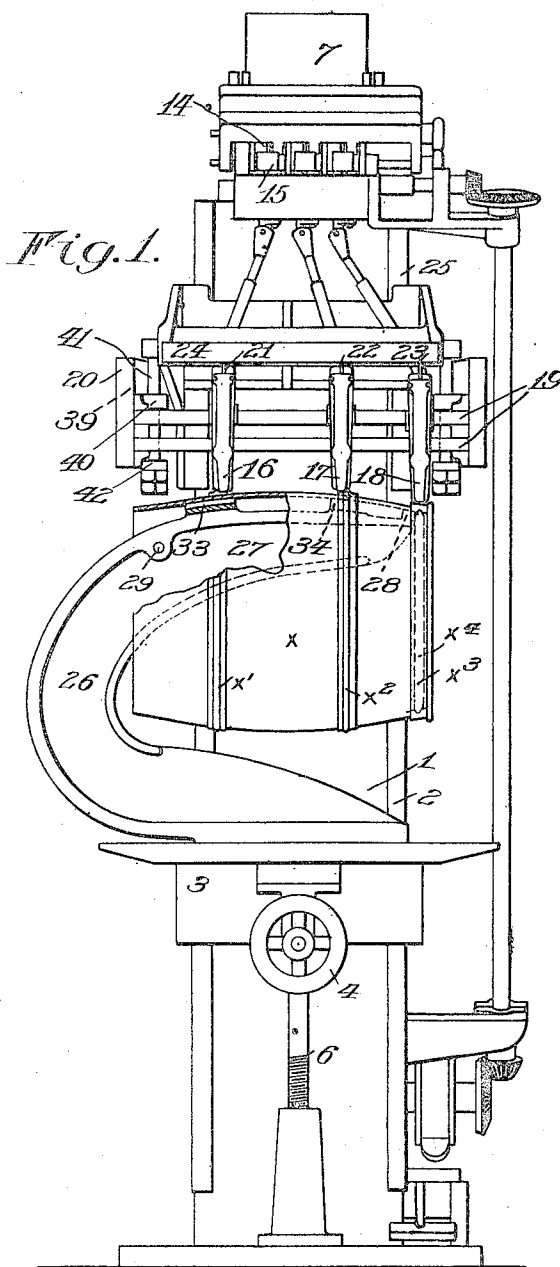
H. W. MORGAN.
NAILING MACHINE.

APPLICATION FILED JUNE 19, 1905.

Patented Dec. 14, 1909.

3 SHEETS—SHEET 1.

943,035.



Inventor

Henry W. Morgan

Witnesses

Walter B. Payne,

Clarence A. Bateman

By

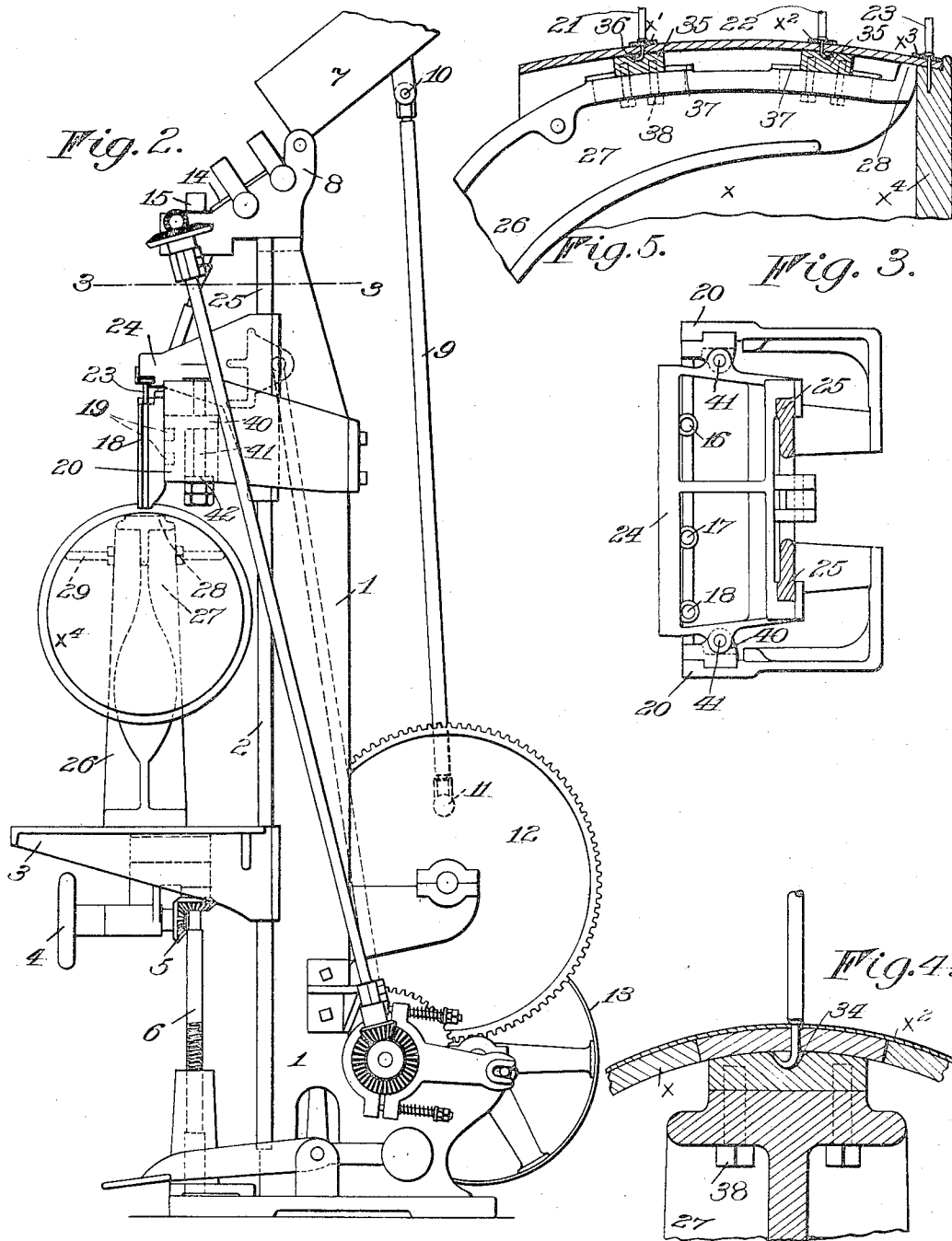
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3 SHEETS—SHEET 2.



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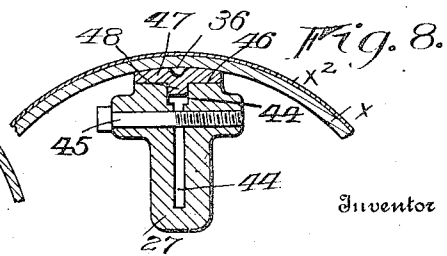
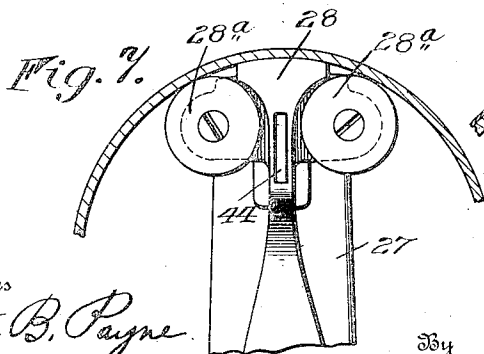
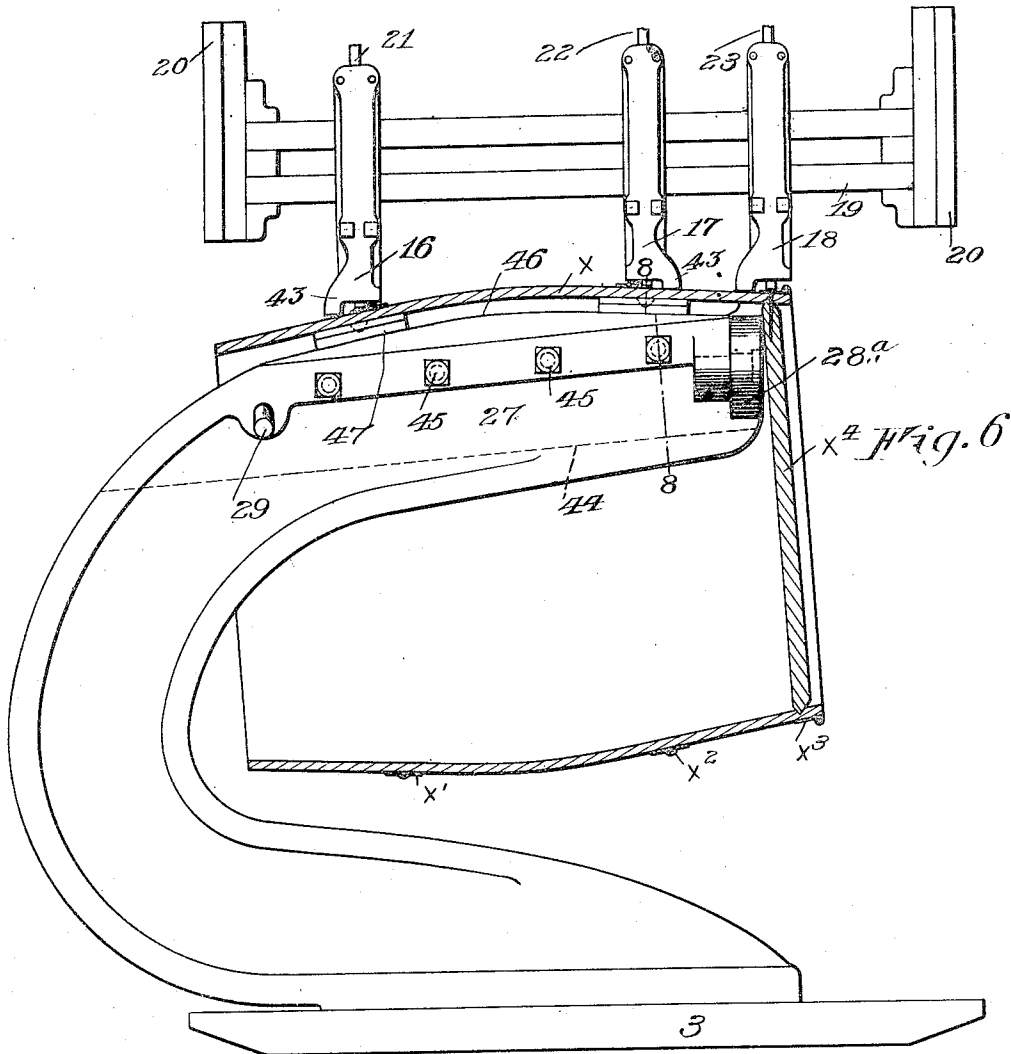
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3 SHEETS—SHEET 3.

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UNITED STATES PATENT OFFICE.

HENRY W. MORGAN, OF ROCHESTER, NEW YORK.

NAILING-MACHINE.

943,035.

Specification of Letters Patent.

Patented Dec. 14, 1909.

Application filed June 19, 1905. Serial No. 265,907.

To all whom it may concern:

Be it known that I, HENRY W. MORGAN, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Nailing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference characters marked thereon:

My present invention relates to improvements in nailing machines of the general type shown in my prior patent No. 586,711 granted July 20th, 1897, and the purpose of my invention is to provide a machine for nailing and stapling hoops on kegs, barrels and similar articles in such a way that the nails will be clenched so as to form a staple at the inner side of the keg that will insure ample security to the securing nails that will prevent loosening of the hoops, features being provided which enable the machine to accommodate kegs, the hoops of which are spaced at different distances.

To these and other ends the invention consists of certain improvements and combinations of parts all as will be hereinafter more fully explained, the novel features being pointed out in the claims at the end of the specification.

In the drawings: Figure 1 is a front elevation of a machine for securing the hoops on kegs according to my invention, portions of the keg being broken away for clearness and illustration. Fig. 2 is a side elevation of the machine shown in Fig. 1. Fig. 3 is a sectional view on the line 3—3 of Fig. 2. Fig. 4 is a fragmentary view of one of the anvils, an adjacent portion of the barrel, and its hoop resting thereon, the nail being shown fully driven and clenched against the inner side of the keg, and Fig. 5 is a sectional view of the upper arm of the supporting yoke and the nail drivers, showing the guides for the keg and a different form of anvil which may be adjusted into positions corresponding with those of the nail drivers to accommodate kegs, the hoops of which are spaced at different distances. Fig. 6 is a view in elevation showing a different form of work support constructed in accordance with my invention. Fig. 7 is a fragmentary view looking at the work support from the right, and Fig. 8 is a section on the line 8—8 of Fig. 6.

Similar reference characters in the several figures indicate similar parts.

My invention in its present form is shown applied to that general class of nailing machines such as shown and described in my prior patent above mentioned, such a machine in the present instance embodying a main frame provided with the standard 1 on the front of which are provided vertical ways 2 to receive the table 3. The latter is movable vertically on its ways, and is provided with an operating wheel 4 connected through the gearing 5 to an adjusting screw 6, the latter being fitted to operate in a relatively fixed portion of the main frame in such a way that operation thereof by means of the hand wheel 4 will cause the table 3 to be adjusted vertically. The nail feeding and driving devices are preferably located at the upper portion of the standard, the nail receptacle 7 being pivoted to the frame 8 of the standard and provided with a suitable agitating device in the form of a pitman 9 connected at 10 to the receptacle and at 11 to the operating wheel 12, the latter being connected through suitable gearing to the driving wheel 13.

Leading downwardly at an incline from the receptacle 7 are provided the usual guide ways 14 provided with selecting devices 15 for properly depositing the nails in their respective conductors communicating with the nail holders 16, 17 and 18 respectively, the nail feeding and conducting devices and the holders above described being of any desired form, preferably such as that described in my prior patent hereinbefore mentioned. These nail holders are mounted on ways 19 in such a way that they may be adjusted laterally relatively to each other in order to vary the spaces between them, the ways 19 being carried by a suitable frame 20 which is fixed to the standard 1. Each of these nail holders is provided with a plunger or nail driver 21, 22 and 23 respectively, the latter being attached to a cross head 24 mounted on vertical ways 25 on the standard and provided with suitable operating means whereby it may be reciprocated vertically and thereby operating the nail drivers simultaneously.

My present improvements in the forms shown embody a work support preferably comprising a yoke 26 secured to the vertically adjustable table 3 and having the horizontally extending arm 27. On the upper

surface of this arm at its free end is provided a transversely - arranged arc-shaped guide 28, the side of which is so formed as to engage one side of the head of the keg as a stop to limit its axial motion when it is applied to the support, and its upper surface is struck on an arc approximating that of the sides of the keg and is so arranged as to engage the concave inner surface of the sides of the keg to center it in a direction vertically and laterally. I also prefer generally to employ anti-friction devices for guiding and steadying the kegs while they are revolving and resting thereon, and for this purpose I have shown the suitably spaced rollers 28^a one of which is journaled at either side of the arc-shaped guide 28, having in the present instance their peripheries arranged approximately in the same curve with the arc-shaped guide so as to engage the keg at either side thereof. Projecting laterally from this arm 27 in opposite directions are the pins or projections 29 arranged to rest within the keg and engage the inner sides thereof and thereby center it from lateral motion while it is in position on the support. On the upper side of this arm 27 are provided the anvils for clenching the ends of the nails to form a staple at the inner side of the keg, and in Fig. 1 I have shown an anvil for each of the intermediate hoops of the keg, which may be, if desired, formed separately from the arm 27 and of harder material, and each of these anvils is provided with a longitudinal groove 33 and 34, the walls of these grooves being preferably inclined so that as the point of the nail while being driven, engages therewith, it will be turned so that it passes transversely of the groove, engaging the opposite wall thereof and bending back against the inner wall of the keg to form a staple. It is preferable to employ anvils having the longitudinal grooves, for this enables the same anvils to be employed in kegs or barrels, the hoops of which are spaced at different distances, in which case it would be only necessary to properly space the nail holders 16, 17 and 18 by adjusting them along their ways 19, it being obvious that adjustment of these nail holders will be in a direction longitudinally of the grooves of the anvils, and therefore relation between these parts will not be disturbed. However, should it be desirable to employ the anvils having a substantially circular depression 36, it is preferable to mount these anvils on the arm 27 in such a way that they may be adjusted longitudinally thereof, ways 37 being provided in the construction shown in Fig. 5 for this purpose and bolts 38 or other securing means being provided for locking them in the desired adjusted positions, or if preferred, the form shown in Fig. 6 may be employed, the supporting arm in this

form being split or divided longitudinally by the slot 44, those portions of the arm thus separated being arranged to clamp together by a series of bolts 45, the upper surfaces of the divided portions being formed with ways 46 conforming generally with the contour of the keg and adapted to receive the anvils 47 which are longitudinally movable thereon and provided with the projections 48 adapted to be firmly clamped between the separated portions of the supporting arm when these portions are clamped together by means of the bolts 45 after being set in proper positions. In employing anvils of this kind it will be understood that in order to accommodate kegs or similar objects, the hoops of which are spaced at different distances, it will be necessary to adjust the anvils 35 longitudinally of the arm 27, and so as to correspond in relative positions with the nail holders 16 and 17 which will be similarly adjusted.

In operating a machine of the kind described for securing the hoops on kegs and similar bodies, the keg x will be slipped longitudinally over the arm 27 of the yoke 26 so that the stop 28 will engage the head or bottom thereof as a gage to limit the longitudinal motion of the keg, and the arc shaped surface thereon and the upper surfaces of the anvils which are preferably formed on the proper curvature to conform to the contour of the side of the keg, will engage the latter so as to firmly support it, the pins 29 projecting laterally from the arm 27 engaging the sides of the keg to maintain it in centered position and prevent it from swinging laterally. The nail holders 16, 17 and 18 having been previously adjusted so as to occupy the proper positions relatively to the corresponding hoops x' , x^2 and x^3 of the keg, the proper mechanism controlling the operation of the nail drivers may be set into action to depress the cross head 24, causing the plungers 21, 22 and 23 respectively to descend within their corresponding nail holders 16, 17 and 18 to each drive a nail or securing device through its corresponding hoop. The nail holder 18 which is arranged to drive the nails into the lower hoop x^3 is preferably offset from the stop 28 so that the nails driven thereby will pass directly into the barrel head x^4 and will not be clenched, but the nails driven by the holders 16 and 17 will be turned and clenched against the inner sides of the keg by their corresponding anvils so as to form staples that will prevent loosening or withdrawal of the nails or securing devices for these intermediate hoops x' and x^2 . After each series of nails have been driven, the holders 16, 17 and 18 may be lifted or the table 3 depressed, as may be preferred, in order to separate the holders and the anvils to permit the keg to be rotated into position

to receive the next series of nails and for the purpose of permitting the keg to be positioned and removed from the work support, and the latter is preferably yoke shaped so as to provide an overhanging arm 27 which is capable of supporting the keg in position while it is being operated upon. It is preferable though to so arrange the parts that the nail holders will move toward and away from the anvils and the keg or other object thereon in order to allow the latter to be manipulated, and for this purpose the ways 19 for supporting the nail holders 16, 17 and 18 are movable vertically in the guides 39 of the relatively fixed frame 20, and apertured lugs 40 are provided thereon to receive the bolts 41, and cooperate with the shoulders 42 thereon, the bolts 41 being attached to the vertically movable cross-head 24, and consequently when the cross head is being elevated after driving the nails the shoulders 42 of the bolts 41 will cooperate at a given point in their upward motion with the lugs 40, continued motion of the cross-head 24 causing the ways 19 and the nail holders 16, 17 and 18 thereon to be elevated, and this will cause a separation of the nail holders from the anvils and keg, and this will permit the latter to be positioned or otherwise handled, subsequently to each nailing operation, and this operation is accomplished automatically and without disturbing the adjustment of any of the parts of the machine, the nail holders being returned and retained in operative position by the weight of the parts that are movable therewith. But as hereinbefore stated this is not essential, and any suitable devices may be employed for producing relative motion between the nailing devices and the keg and anvils. However, it has been found advantageous to provide the lower ends of the nail holders or chucks with the offset stops 43 which may be provided either on one or all of the nail holders, these stops being so arranged as to engage the keg preferably at one side of the adjacent hoops so as to sustain the weight or thrust of their respective nail holders and connected parts, the offset arrangement of the stops preventing them from interfering with the nailing operation.

A nailing machine provided with my improvements is well adapted for nailing or stapling the hoops on kegs, barrels and similar hollow bodies, for by the use of the supporting and centering devices, the kegs or other bodies may be readily applied thereto and instantly positioned with the hoops in place to receive the nails or securing devices, and by the use of the peculiarly formed anvils, the ends of the nails during the nailing operation will be so turned and guided as to double against the inner side of the keg or body and thereby form a staple that will effectually prevent loosening and

displacement of the nails or securing devices for the hoops. Kegs or similar bodies the hoops of which are spaced at different distances may be accommodated by correspondingly spacing the nailing devices and the anvils, provided the form thereof shown in Fig. 8 is employed, and adjustment of the anvils is even unnecessary when anvils of the kind shown in Fig. 1 are employed, as the extended clenching groove or surface thereon will remain in operative position relatively to the nailing devices though the latter may be adjusted along their supporting ways.

I claim as my invention:

1. In a nailing machine, the combination with a work supporting arm formed to permit the turning of a keg or the like thereon and having a longitudinal series of stationary anvils over which the work is moved after each nailing operation, of a row of nailing devices extending longitudinally of the arm to cooperate with the anvils thereon and embodying nail holders cooperating with the arm to clamp the keg prior to a nailing operation, and mechanism for effecting the separation of the nail holders and the arm after each nailing operation to permit the keg to be turned on the arm.

2. The combination with a work supporting arm having a plurality of stationary anvils thereon curved transversely of the arm to permit free movement of the work over the anvils, of a row of nailing devices extending longitudinally of the arm and embodying nail holders cooperating with the arm to clamp a keg prior to the nailing, and mechanism for effecting the separation of the nail holders and the arm after each nailing operation to permit the keg to be turned on the arm.

3. In a nailing machine, the combination with a work supporting arm having anvils thereon curved transversely of the arm to permit the turning of a keg or the like thereon, the end of said arm acting as a stop to engage the head of a keg and position the latter relatively to the anvils, of a row of nailing devices arranged longitudinally of the arm, one of said nailing devices being positioned to operate beyond the end of the arm to secure the head to the keg.

4. In a machine for securing hoops on kegs, the combination with a series of suitable nailing devices capable of being spaced at different distances, of a support for the keg having anvils thereon adapted to engage the inner side of the keg and provided with depressions arranged opposite to the nailing devices and extending in the direction of adjustment of the latter to accommodate kegs having hoops spaced at different distances and adapted to cooperate with the nails for clenching them at the inner side of the keg.

5. In a machine for securing hoops on kegs, the combination with a series of suitable nailing devices capable of being spaced at different distances, of a support having
 5 an arm to receive the keg, and anvils arranged on the said arm opposite to the nailing devices having grooves therein extending in the direction of adjustment of the nailing devices for clenching the nails.

10 6. In a machine for securing hoops on kegs, the combination with a series of suitable nailing devices, of a support to receive the keg having a stop thereon to position the keg longitudinally, projections for centering
 15 it transversely, and anvils arranged to engage the sides of the keg opposite to the nailing devices for supporting it during the nailing operation.

7. In a machine for securing hoops on
 20 kegs, the combination with a series of suitable nailing devices, of a support to receive the keg having a stop thereon offset from one of the nailing devices and adapted to cooperate with the head of the keg to position the said head beneath the said nailing
 25 device, and transversely curved anvils arranged opposite to the other nailing devices of the series for supporting the keg in operative position relatively to the nailing devices and permitting the turning of the keg
 30 relatively to the support.

8. In a machine for securing hoops on kegs, the combination with suitable nailing devices, of a support for the keg having an

arm provided with a stop to position the keg 35 longitudinally relatively to the nailing devices, projections extending laterally of the arm and arranged to engage the sides of the keg to center it laterally, and anvils on the upper side of the arm opposite to the corresponding nailing devices for supporting 40 the keg in operative position thereto.

9. In a machine for securing hoops on kegs, the combination with suitable nailing devices, of a support comprising an arm 45 formed to receive the keg having the anvils thereon arranged in cooperative relation with the nailing devices, and spaced rollers mounted on the upper side of and at the free end of the arm and arranged to cooperate with the inner circumference of the 50 keg for guiding and positioning the keg thereon.

10. In a nailing machine, the combination with a support for the object to be operated upon, of a nailing device arranged to move into and out of cooperative relation with the object embodying a nail holder and a driving device, and a stop offset laterally from the nail holder and having a face 60 transverse to the plane of operation of the driving device arranged to engage the object for limiting the movement of the nailing device toward said object.

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Witnesses:

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