No. 731,685.

PATENTED JUNE 23, 1903.

C. P. A. JENSSEN.

NAIL FEEDING DEVICE.

APPLICATION FILED NOV. 18, 1901.

NO MODEL.

4 SHEETS—SHEET 1.

Fig. 3.

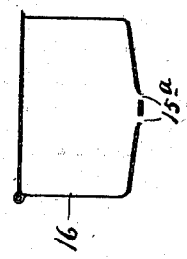


Fig. 2.

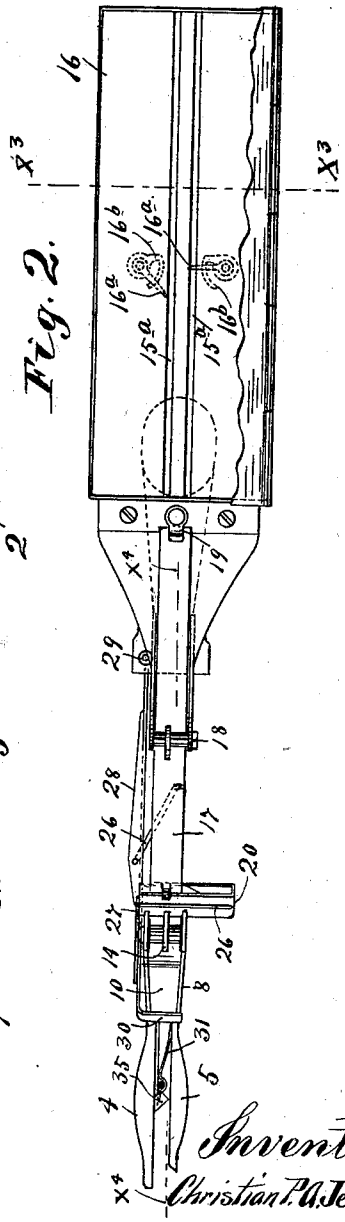


Fig. 1

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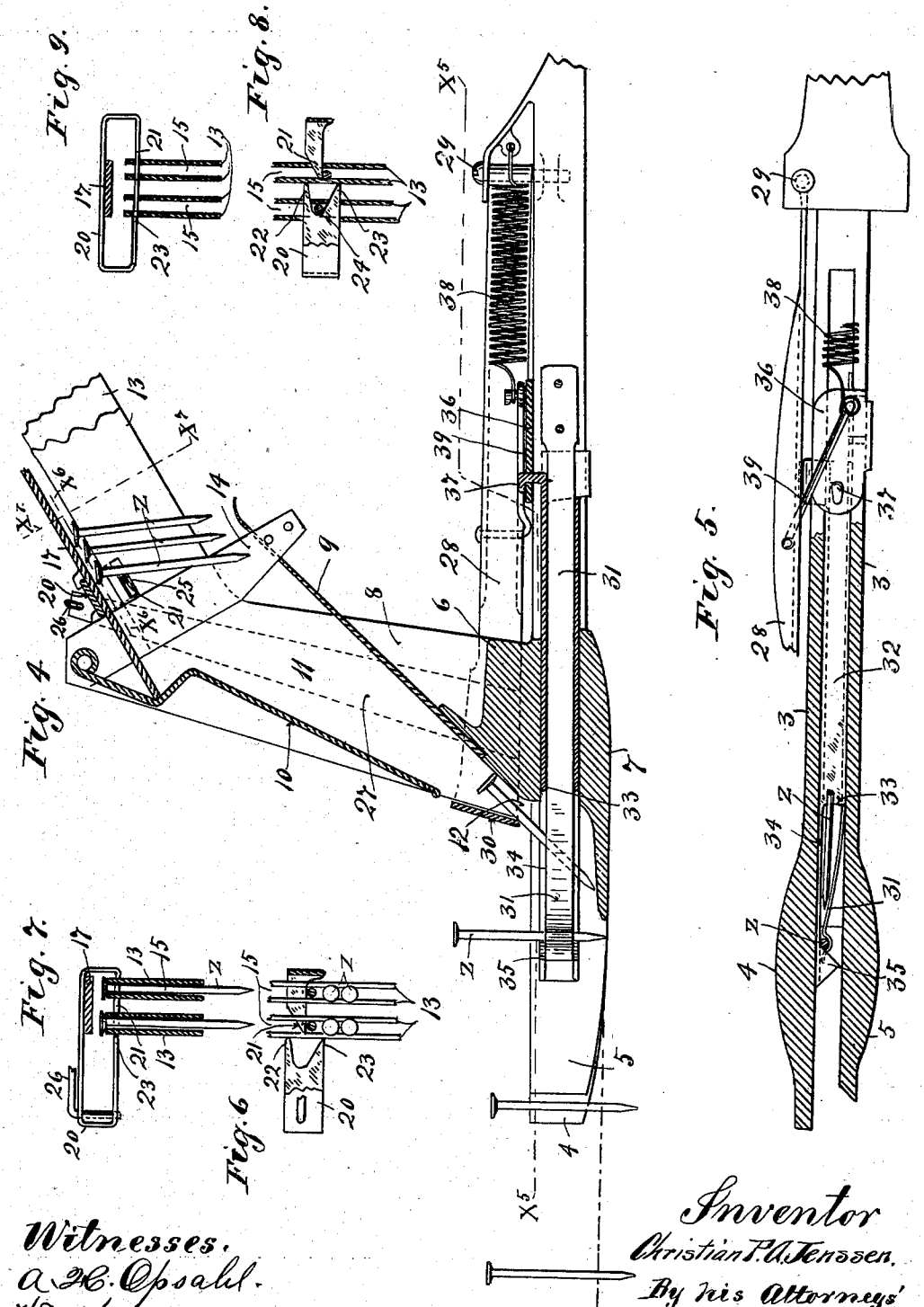
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NO MODEL. 4 SHEETS—SHEET 2.



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NO MODEL. 4 SHEETS—SHEET 3.

Fig. 10.

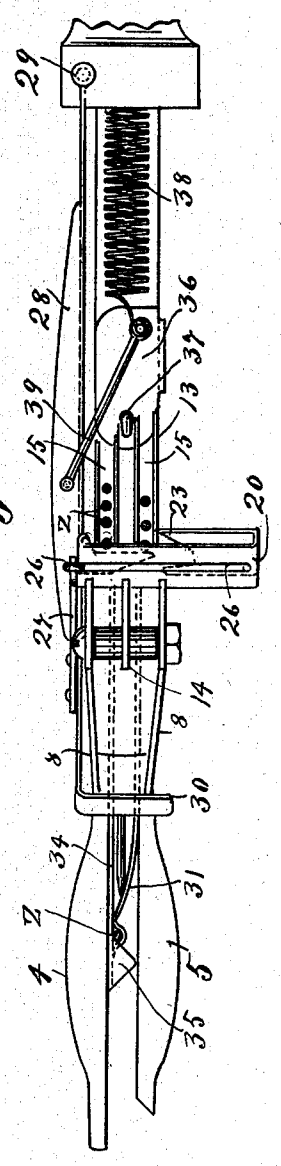
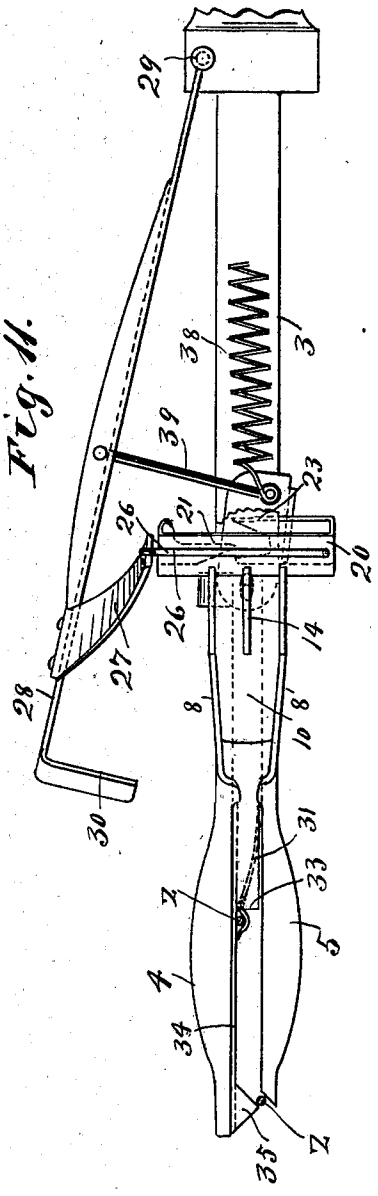


Fig. 11.



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NO MODEL. 4 SHEETS—SHEET 4.

Fig. 12.

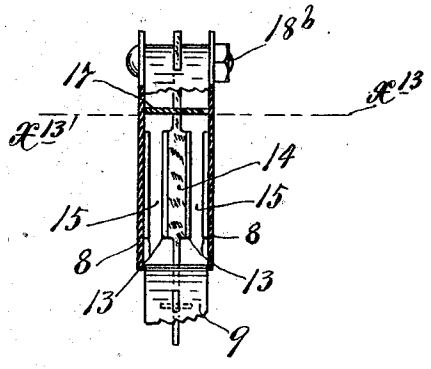


Fig. 13.

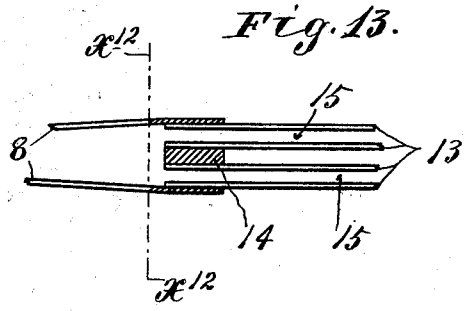


Fig. 14.

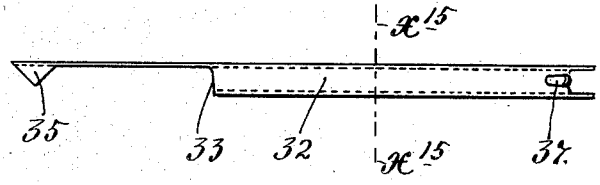
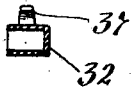


Fig. 15.



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No. 731,685. Patented June 23, 1903.

UNITED STATES PATENT OFFICE.

CHRISTIAN P. A. JENSSEN, OF DWIGHT, NORTH DAKOTA.

NAIL-FEEDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 731,685, dated June 23, 1903.

Application filed November 18, 1901. Serial No. 82,633. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN P. A. JENSSEN, a citizen of the United States, residing at Dwight, in the county of Richland and State of North Dakota, have invented certain new and useful Improvements in Nail-Feeding Devices; 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 appertains to make and use the same.

My present invention has for its object to provide an improved nail-feeding device; and to this end it consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a right side elevation with some parts broken away, showing a nail-feeding device embodying the several features of my invention. Fig. 2 is a plan view of the same with some parts broken away. Fig. 3 is a transverse vertical section on the line x^3 x^3 of Fig. 2. Fig. 4 is an enlarged detail, in vertical section, approximately on the line x^4 x^4 of Fig. 2, some parts being broken away. Fig. 5 is a horizontal section approximately on the line x^5 x^5 of Fig. 4. Fig. 6 is a detail approximately on the line x^6 x^6 of Fig. 4, some parts being broken away. Fig. 7 is a section on the line x^7 x^7 of Fig. 4, some parts being broken away, the position of the escapement in this view corresponding to that shown in Fig. 6. Fig. 8 is a view corresponding to Fig. 6, but showing the escapement in a different position. Fig. 9 is a view corresponding in the line of its section to Fig. 7, but showing the escapement in a position corresponding to that shown in Fig. 8. Fig. 10 is a diagrammatic plan view illustrating certain parts of the device in normal position. Fig. 11 is a view corresponding to Fig. 10, but illustrating different positions of the parts. Fig. 12 is an approximately vertical section on the line x^{12} x^{12} of Fig. 13, showing a cross-section of the nail-delivery chute. Fig. 13 is an approximately horizontal section on the line x^{13} x^{13} of Fig. 12. Fig. 14 is a plan view of the so-called "nail-arighting plunger," and Fig. 15 is a section on the line x^{15} x^{15} of Fig. 14.

As the device is adapted to be held in the hand, it is provided with a suitable handpiece 1, to the base of which is rigidly secured a shoe 2, which shoe, as shown, is integral with a pair of parallel supporting-bars 3, that terminate at their outer ends in prongs or cheeks 4 5. A block portion 6 is shown as formed integral with the intermediate portions of the bars 3, and the under portion of this block projects to form a nail-supporting web 7, as will presently more fully appear. Plates 8, rigidly secured to the block 6, rise therefrom and coöperate with an inclined bottom plate 9 and front plate 10 to afford a nail-delivery throat or passage 11, the bottom of which opens at 12, just above the web 7 of said block 6. As shown, the front plate 10 is pivoted, so that when it is swung open it affords ready access to the said throat 11. Four inclined and laterally-spaced straps 13 are rigidly secured to and extend upward and rearward from the upper end of the throat 11, the two outer straps being secured to the side plates 8 and the inner two straps being supported by a thin bar 14. The said four straps 13 afford two parallel nail-delivery chutes 15, which are adapted to deliver the nails directly into the upper end of the throat 11. Near their upper extremities the said straps 13 are connected to the upper end of the handpiece 1, which handpiece serves as an additional support therefor. At their upper ends the straps 13 are so disposed as to form a bottom to a nail box or magazine 16, which bottom has longitudinal nail-collecting slits that run one into each of the nail-chutes 15. As shown, a guard-strap 17 runs over the top of the nail-chutes 15 to prevent the nails from jumping out of the chute. As shown, the upper end of the guard 17 is pivoted at 18 and adapted to be locked down into working position by a button 19, pivoted to a suitable support.

The delivery of the nails from the chutes 15 into the throat 11 is controlled by an escapement, which in its preferred form (best shown in Figs. 6 to 9, inclusive) is in the form of a yoke or loop 20, provided with pointed escapement lugs or fingers 21, 22, and 23, the latter two of which form a stop-crotch 24, for a purpose which will hereinafter appear. The fingers 21, 22, and 23 work through

slots 25, cut in the four straps 13 near their lower ends, as best shown in Fig. 4, and they are adapted to engage with the nails *z* in a manner to be hereinafter described. The escapement 20 is connected by a small link 26 or other device to the upper end of an arm 27, carried at the free end of an escapement-actuating lever 28, which escapement-actuating lever is pivoted to the shoe 2 at 29 and is provided at its extreme free end with a stop blade or projection 30, which normally partially closes the open lower end of the throat 11 and coöperates with the web 7 of the block 6 to prevent the nail from falling entirely out of said throat. The nails are delivered at the driving-point between the cheek-piece or guide-prongs 4 5 just forward of the web 7, where they are caught and held by the notched or indented end of a holder afforded by a leaf-spring 31, secured at its rear end to one of the bars 3, as best shown in Figs. 4 and 5.

Mounted to reciprocate longitudinally of and between the bars 3 is a so-called "nail-arighting plunger or slide" 32, which is U-shaped in cross-section and is provided at its forward end with two arighting-shoulders 33 and a thin projecting neck 34, secured to the free forward end of which are two heads 35. The heads 35 normally stand as best indicated in Fig. 5 and extend nearly or quite the distance between the two cheeks or prongs 4 5. The said head 35 is beveled on its forward face for an important purpose, which will hereinafter appear, and in its preferred form is V-shaped. A coupling-plate 36 is shown as pivotally connected to a hook 37 on the rear end of the arighting-plunger 32. A quite heavy coiled spring 38 connects the said coupling-plate 36 to a portion of the shoe 2 and yieldingly holds the said plunger rearward or in a retracted position. A link 39 connects the said coupling 36 to the intermediate portion of the escapement-actuating lever 28.

On the bottom of the box 16, coöperating one with each of the collecting-grooves 15^a, is a pivoted stop-finger 16^a, held by a stop 16^b for movement in one direction only. These stop-fingers 16^a permit the nails to move forward, but prevent return movements of the same.

18^a and 18^b indicate short nutted bolts connecting parts of the nail-chute, as best shown in Figs. 1 and 12.

Operation: The nails are loosely thrown into the box or magazine 16 and under a shaking action, which is given to the same through the handpiece 1, the nails will be collected in the collecting-channels 15^a, and by these two channels the collected nails are delivered in two parallel rows to the delivery-chutes 15. Under the action of the escapement all of the nails in the left-hand chute 16 will be discharged before any of the nails in the right-hand chute will be discharged. Hence the nails in the said right-hand chute are held as a reserve, which will afford the proper supply of nails in case the supply of nails to the left-hand chute should be temporarily interrupted. The action by which this is accomplished will be better understood by particularly noting Figs. 6 and 8. In Fig. 6 it will be seen that the escapement-finger 21 holds back both rows of nails. Now when the escapement is moved into the position indicated in Fig. 8 the finger 21 has released the lower nail in the left-hand chute; but this released nail has been caught in the stop-crotch 24 and serves as a stop to prevent the finger 21 from being moved far enough to release the lower nail of the right-hand column. As is evident, when the escapement moves back into the position indicated in Fig. 6 the released nail of the left-hand column will be permitted to drop down the left-hand chute and into the throat 11, where it will be caught and held by the cut-off blade 30 and web 7, substantially as shown in Fig. 4. In starting the device into action the first nail is placed in the notch at the free end of the spring-holder 31, either by hand or by imparting a preliminary movement to the plunger 32, and this nail is partially driven by a blow from the hammer or other suitable tool. Then as the device is drawn endwise from the nail or in the direction away from the partially-driven nails (indicated in Fig. 4) the partially-driven nail in attempting to escape between the prongs or cheeks 4 5 will act upon the head 35 and draw the arighting-plunger 32 outward into the position indicated in Fig. 11. In the position of the parts indicated in Fig. 11 the head 35 stands away from the end of the cheek or prong 5 just far enough to let the nail escape, or, in other words, to permit the device to be drawn free of the nail. Furthermore, the said movement of the arighting-plunger from the position indicated in Figs. 2, 5, and 10 into the position indicated in Fig. 11 causes the arighting-shoulder 33 to engage the nail which is held at the lower end of the throat 11, first aright the same, and then carry the said nail into the notch at the free end of the spring nail-holder 31. As is evident, as soon as the device is drawn away from the partially-driven nail or just beyond the position indicated in Fig. 11 the spring 38 becomes operative to restore the parts to their normal position. Under the forward or outward movement of the arighting-plunger 32 the escapement-actuating lever 28 is moved laterally outward, as indicated in Fig. 11. This movement of the said lever 28 carries the stop or cut-off blade 30 into a releasing position, so that the nail may be arighted, and, furthermore, it serves to move the escapement from the position indicated in Fig. 6 into the position indicated in Fig. 8. When the nails in the left-hand chute 15 are all discharged, the escapement under this outward movement of the said lever 28 will be moved farther toward the right, so that the escapement-finger 21,

coöperating with the fingers 22 and 23, will release the nails in the right-hand chute one after the other until nails are again delivered into the left-hand chute, whereupon it will be again returned for action only on the nails contained in the left-hand chute. When the lever 28 and its arm 27 are given their shorter movement, the coupling-plate 36 will be forced slightly one side, as shown in Fig. 11. Under the action of the escapement on the two rows of nails a continuous or uninterrupted supply of nails is insured, inasmuch as the two independent sources of supply are provided.

The action of the device in supplying the nails in position to be driven is rapid and reliable. In fact, the device requires but to be moved from one point to another, and all of the other actions take place automatically.

The device will be found to be especially serviceable for use in shingling; but it is also serviceable for many other classes of work.

From the foregoing description and statements made it will be understood that the device above described is capable of a large range of modification within the scope of my invention.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a nailing device, the combination with a nail-delivery chute and a nail-holder, of an escapement controlling the delivery of the nails from said chute to said holder, a movable nail-arighting device having a projecting part which is held in engagement with the partially-driven nail while the device is being withdrawn laterally from the nail and serving under such movement to actuate said arighting device, and connections whereby said escapement is actuated from said arighting device, substantially as described.

2. In a nailing device, the combination with a shoe or base-piece having parallel prongs, of a nail-holder between said prongs, means for delivering the nails to said holder involving a chute and coöperating escapement, a movable spring-retracted nail-arighting plunger working between said parallel prongs, for delivering the released nails to said holder, said arighting device having a projecting head or part also working between said parallel prongs and operating, when the nailing device is drawn laterally from the partially-driven nail, to draw out said arighting device and deliver another nail to said holder, and which head is released from the partially-driven nail only after it is moved to an extreme position, substantially as described.

3. In a nailing device, the combination with the shoe or block 6 having the prongs 4 5 and web 7, of the movable spring-retracted arighting-plunger 32 with arighting-shoulder 33, neck 34 and head 35, which head 35 works between said prongs 4 5, as described, the spring nail-holder 31 working between said prongs, the throat 11 carried by said block or shoe 6, a nail-delivery chute leading to said throat 11, an escapement controlling the delivery of the nails from said chute to said throat, and the pivoted arm 28 connected to said plunger 32 by a link 29, which lever 28 has the cut-off blade 30 and spring-arm connections to said escapement, which said parts operate, substantially as described.

4. In a nailing device the combination with a pair of chutes each receiving an independent supply of nails in rows, of an escapement for action on both rows of nails, said escapement having a stop which primarily acts upon the nails in the row adjacent thereto, the said engaged row confining said escapement to a movement which will release only the nails of the said row, and means for shifting said escapement for action on the other row when the nails of the first-mentioned row are exhausted, substantially as described.

5. In a nailing device, the combination with the parallel nail-delivery chutes 15 containing the nails in two rows, of the laterally-shiftable escapement having the escapement fingers or points 21, 22 and 23, which points 22 and 23 coöperate to form a crotch 24 and which crotch 24 operates as a stop on the nails in the adjacent row to cause said escapement to release only the nails of that particular row until the nails of the said row are exhausted but thereafter permitting said escapement to shift for action on the nails of the other row, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTIAN P. A. JENSSEN.

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F. D. MERCHANT.