(No Model.) 5 Sheets—Sheet 1.

C. SINNING.

TACKING MACHINE.

No. 456,226. Patented July 21, 1891.

Fig. I.

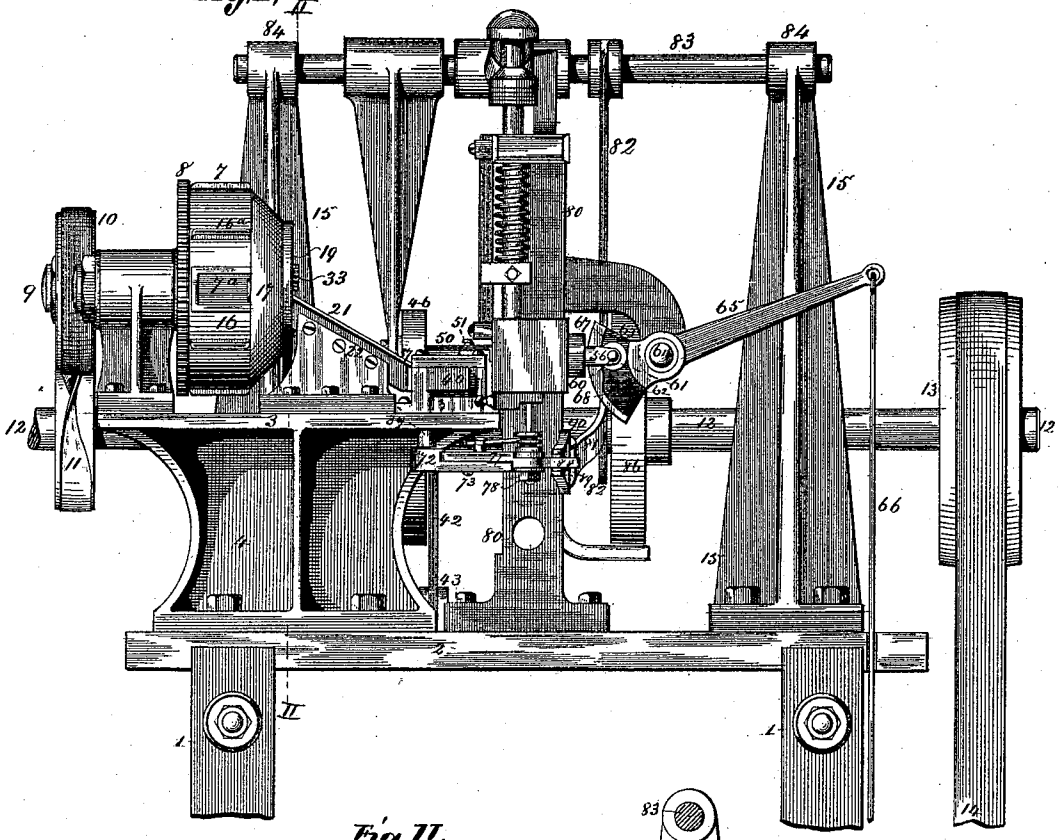
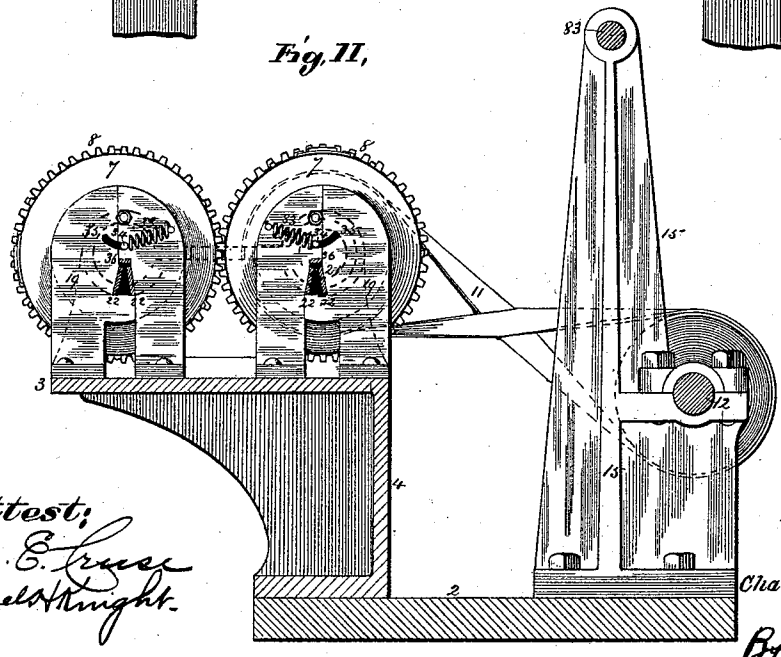


Fig. II.



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Fig. III.

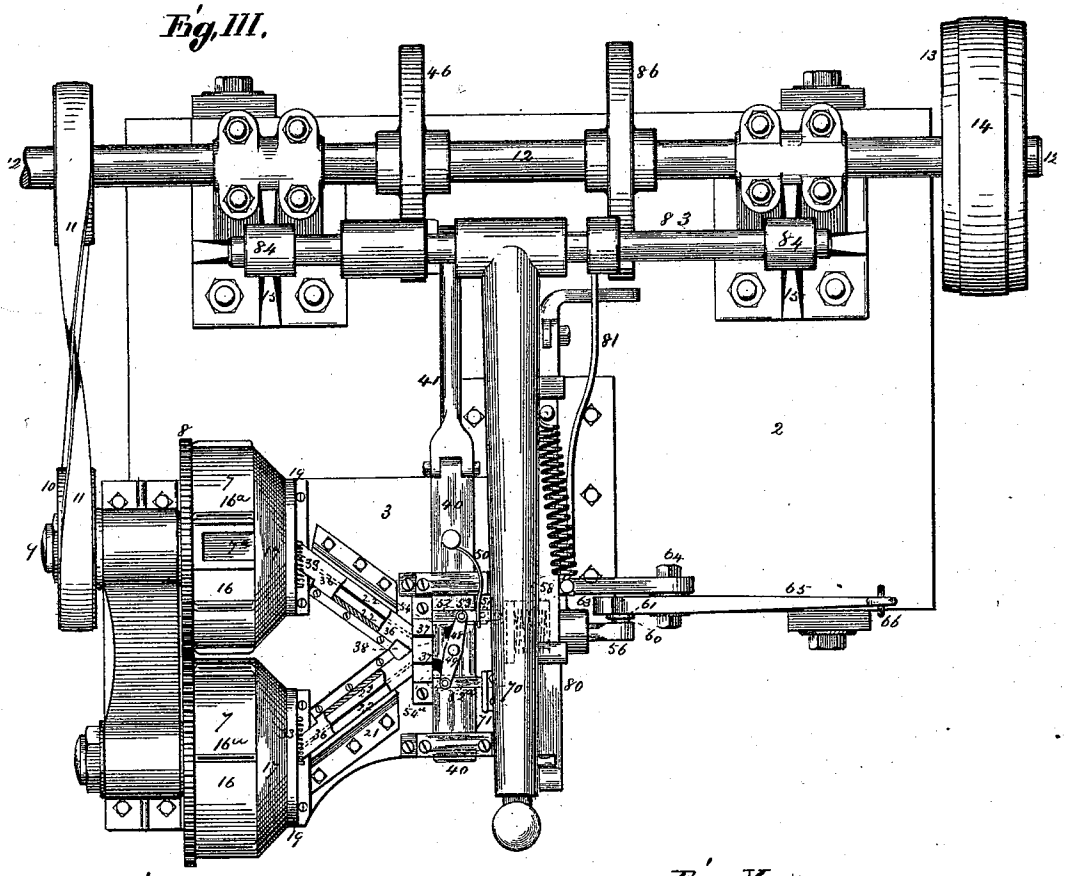


Fig. IV.

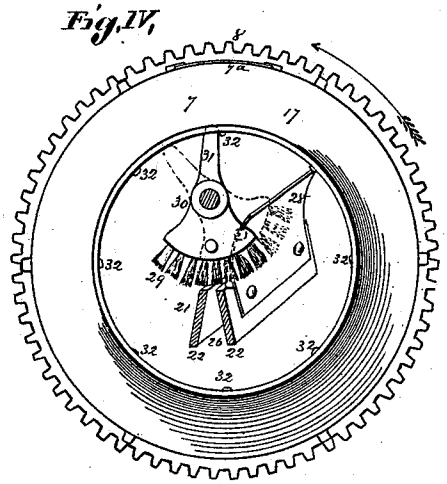
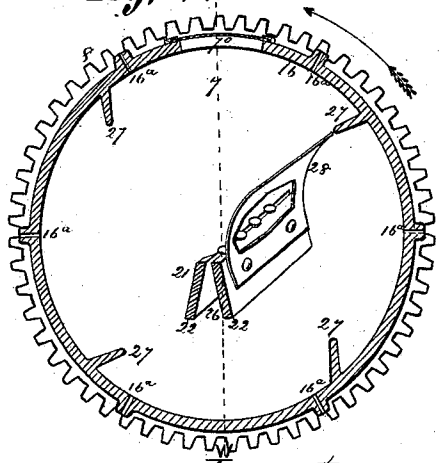


Fig. V.



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Fig. VI.

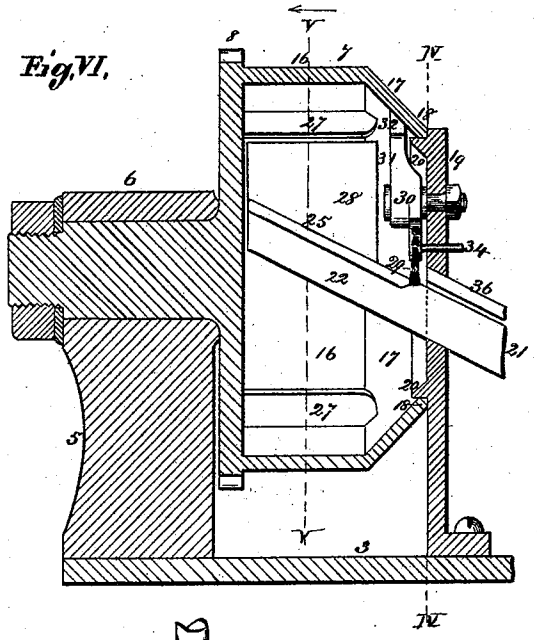


Fig. VII.

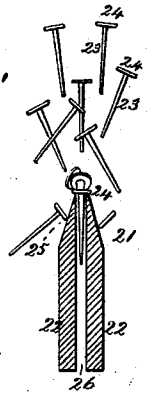


Fig. IX.

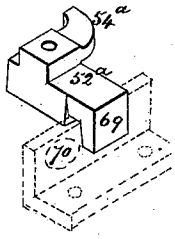


Fig. VIII.

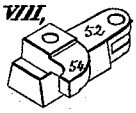


Fig. X.

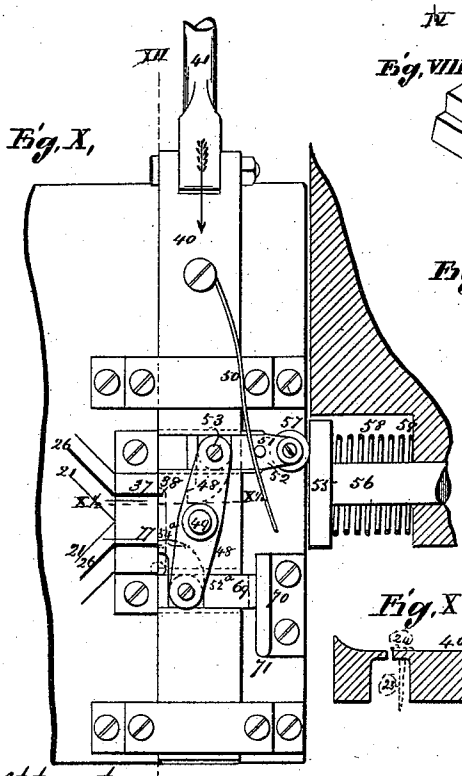
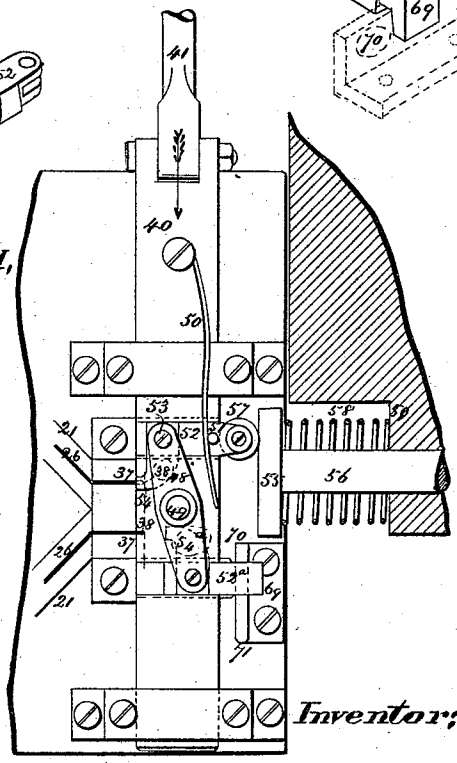


Fig. X½

Fig. XI.



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Fig. XIII

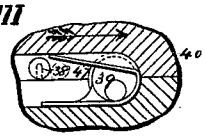


Fig. XII,

Fig. XIV,

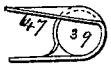


Fig. XV,

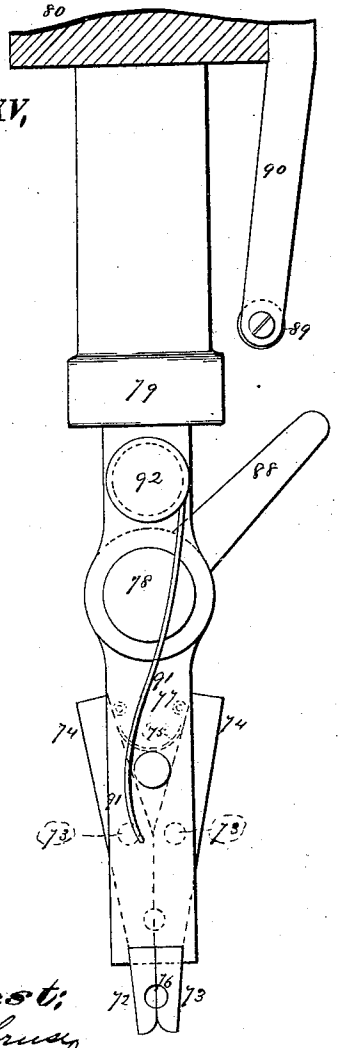
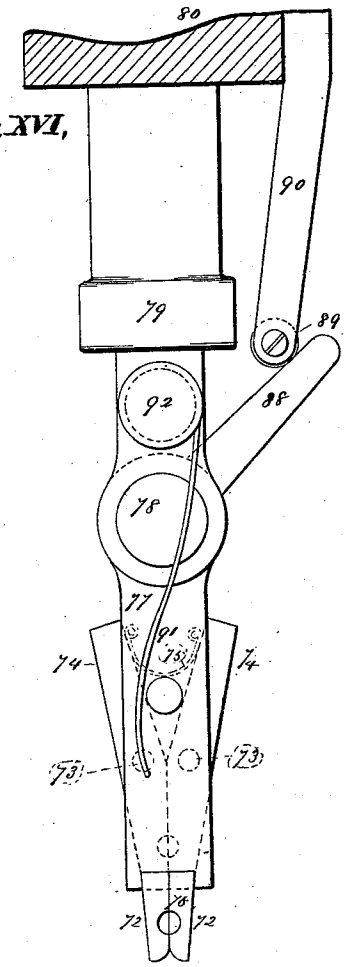


Fig. XVI,



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TACKING MACHINE.

No. 456,226. Patented July 21, 1891.

Fig. XVII.

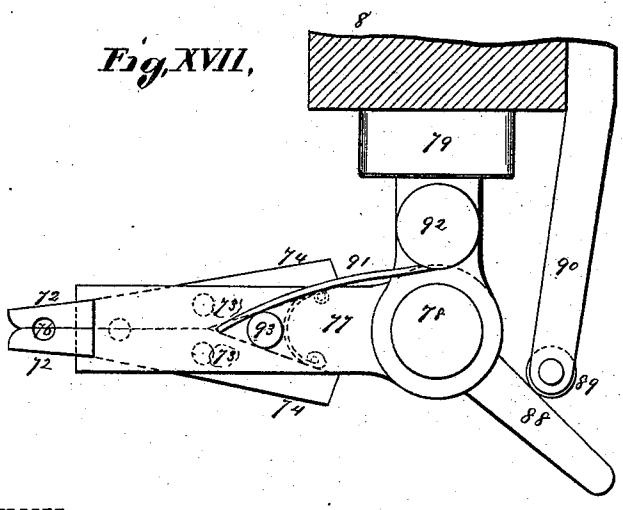


Fig. XVIII.

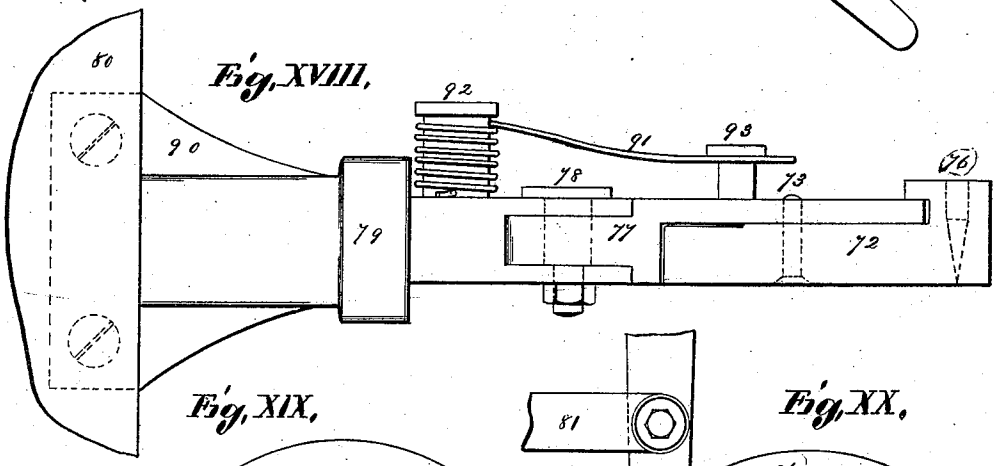


Fig. XIX.

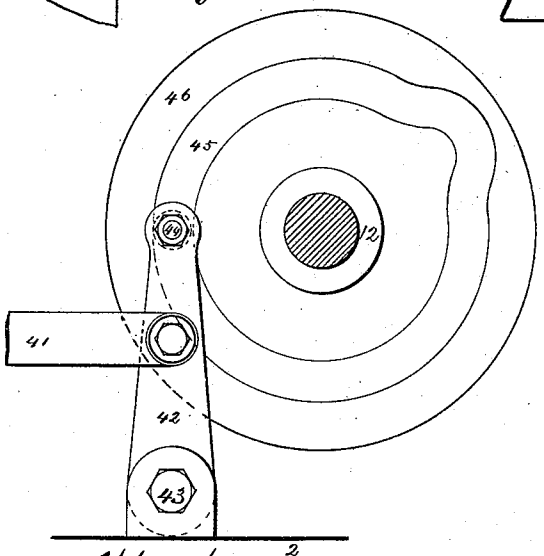
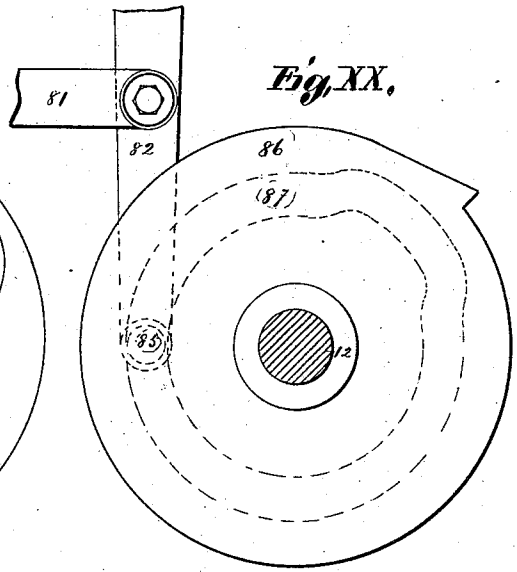


Fig. XX.



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UNITED STATES PATENT OFFICE.

CHARLES SINNING, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE SINNING LASTING MACHINE COMPANY, OF EAST ST. LOUIS, ILLINOIS.

TACKING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 456,226, dated July 21, 1891.

Application filed June 24, 1889. Renewed January 20, 1891. Serial No. 378,418. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SINNING, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in an Apparatus for Feeding Tacks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This is an apparatus by which tacks in bulk may be presented one at a time in proper position for driving.

Figure I is a side elevation of the apparatus. Fig. II is a transverse section at II II, Fig. I. Fig. III is a plan of the machine. Fig. IV is a detail section at IV IV, Fig. VI. Fig. V is a detail section at V V, Fig. VI. Fig. VI is a section at VI VI, Fig. V. Fig. VII is a detail cross-section of the raceway enlarged. Figs. VIII and IX are detail perspective views of the tack-stop. Figs. X and XI are detail enlarged plan views of tack-shifter, showing the tack-stop in different positions. Fig. X½ is a detail vertical section at X½ X½, Fig. X. Fig. XII is a detail section at XII XII of Fig. X. Fig. XIII is an enlarged detail horizontal section at XIII XIII, Fig. XII. Fig. XIV is a top view of a tack-chute. Figs. XV, XVI, and XVII are top views of the tack-carrier, showing it in various positions. Fig. XVIII is a side elevation of the tack-carrier. Fig. XIX is a side elevation of a cam which actuates the tack-shifter. Fig. XX is a side elevation of the cam which actuates the tack-carrier.

At 1 are shown the upper parts of legs supporting the table 2.

3 is an upper table or frame supported on a standard 4, upon which are standards 5, giving bearing at 6 to the rotary tack-drums 7. These two drums carry spur-wheels 8, which gear together. One of the drum-shafts 9 carries a pulley 10, connected by a belt 11 with a pulley upon the cam-shaft 12. 13 is a pulley on the cam-shaft having upon it a drive-belt 14. The cam-shaft 12 has bearing on the standards 15.

The drums 7 are similar in construction, a description of one applying equally to the other. The purpose of having two drums is to give means for using tacks of different sizes at will, (the drums containing, respectively, tacks of different sizes.)

At 7ª is a feed-mouth closed by a slide. The drum has a cylindrical part 16 and a frusto-conical part 17, the edge of which has bearing against a standing plate 19, with an annular flange 20, fitting the inner circumference of the edge 18. (See Fig. VI.) The inclined tack-race 21 passes through an aperture in the plate 19 and serves to conduct the tacks from the interior of the drum. The tack-race has two parallel bars or rails 22, which are set so far asunder that the body of the tack 23 passes easily between them, while the head 24 of the tack rests upon their upper edges, so that the tack is supported in a nearly vertical position. The race is inclined downwardly from the interior of the drum, so that the tacks slip down it by gravity, with the help of the shaking which follows the running of the machine. The part 25 of the tack-race within the drum is beveled, as seen in Figs. VI and VII, so as to bring the upper edges of the rail 22 to a knife-edge to prevent the lodgment of any tacks thereon, except those whose points enter the slot 26 between the rails. As the drum 7 rotates, the tacks are carried up by the ledges 27 and dropped on an inclined plate 28, by which they are guided to the race 21 in such a position that the points of many of the tacks enter the slot 26. In order to dislodge any tacks which may be lodged on the race in an improper position, I provide a curved brush 29, which is carried on an oscillating arm 30, and which extends transverse of and works over the race in a transverse direction. This arm has a projection 31, whose end is in the course of a number of tappets 32 on the inner side of the drum, so that as the drum turns the tappets impinge against the projection 31 and move the brush in one direction. The brush is moved backward, after the disengagement of the projection 31 from the tappet 32, by a spring 33, which connects with the plate 19 a pin 34, which extends from the arm 30 through a curved slot 35 of the plate 19. The part of the race outside the drum has a strip 36, which extends above it at such a distance that the head of the tack passes freely between the top of the race and the slot. The purpose of the strip is to pre-

vent the tacks getting out of place. (See Figs. IV, V, VI, and VII.) The slot 26 of the tack-race is open at the lower end 37, so that the tacks may escape therefrom, which they do one at a time by passing into a shallow slot or notch 38 of the tack-shifter. The purpose of the tack-shifter is to shift the tack from the lower end of the race to the chute 39, down which it passes to the tack-carrier. The shifter has a plate or slide 40, which works endwise in guides, and which is connected by a rod 41 to a lever 42, fulcrumed to the table 2 at 43, and having at its moving end a stud 44, carrying an anti-friction roller which works in a groove 45 of the cam 46 upon the shaft 12. The form of the groove 45 is such that the tack-shifter has a rapid forward-and-backward movement to carry the tack to the chute 39 and return to normal position to receive another tack. The tack-races of the two drums do not end at the same point 37, so that the shifter has two notches 38, one for each race, each notch being in line with its proper race when the shifter is in normal position.

I will now describe the device for discharging the tack from the notch 38 and dropping it point down into the chute 39. This device consists of an inclined strip 47, which extends obliquely across the mouth of the chute 39, and by acting against the body of the tack as the shifter moves forward forces the tack from the notch 38 and causes it to drop into the chute. (See Figs. XIII and XIV.)

It will be understood that tacks are not used simultaneously from the two drums, and some means must be had to stop the end 37 of one of the races, so as to prevent the escape of tacks from it. This means consists of a bar 48 rocking on a pivot 49, and held in what may be considered its normal position by a spring 50, which bears against a pin 51 upon a slide 52, to which one end of the bar is connected by a pivot 53.

52^a is a slide, to which the other end of the bar 48 is connected by a pivot 53^a.

Each of the slides 52 and 52^a carries a stopper 54 or 54^a, which is adapted to close the lower end 37 of one of the slots, as will be seen by comparing Figs. X and XI, in the former of which figures the stopper 54^a is in use and in the latter the stopper 54. In order to move the bar 48 from the position shown in Fig. X to that shown in Fig. XI, the head 55 of a rod 56 is forced against an anti-friction wheel 57 upon the slide 52. The rod 56 is pushed forward for this purpose by a spring 58, which surrounds the rod, and one end of which bears against the head, while the other bears against a fixed point 59. In order to hold the head 55 in its retracted position, a stud 60 projects transversely from the rear end of the rod 56, the stud carrying an anti-friction wheel 61, which works in the cam-groove 62 of a head 63, which oscillates on a pivot 64.

65 is an arm extending from the head and connected by a rod 66 with a treadle, (not shown,) by which the lever is raised or lowered. When the part 67 of the cam bears against the anti-friction wheel 61, the head 55 is held in its retracted position, as seen in Fig. X. When the arm 65 is drawn down, the stud 60, with its anti-friction roller 61, rests in the recess 68 of the cam-groove, and the head is allowed to move forward and is carried forward by the spring 58 into the position shown in Fig. XI.

69 is a downturned lip upon the slide 52, which is adapted to engage over a fixed rib or flange 70 when the bar 48 is in the position shown in Fig. XI, and thus prevent the change of the position of the bar 48, except at the forward position of the shifter, at which time the lip 69 is past the forward end of the rib 70. It will be observed that the movement of the bar 48 in both directions is by means of springs, so that there is no positive movement of the bar, but the change always takes place when the lip 69 has passed the end 71 of the rib 70. To accomplish this result in moving from the normal position, as in Fig. X, to the position shown in Fig. XI, the spring 58 must have greater power than the spring 50, so that whenever the spring 58 is allowed to act it will overcome the spring 50, for the purpose stated.

From the chute 39 the tack is received by the tack-carrier, which is immediately beneath the chute when in the position seen in Fig. XVII. The carrier has two jaws 72 working upon pivots at 73 and extending back of the pivot in two ends 74, between which is a spring 75, by which the rear ends are forced asunder and the fore ends or jaws proper held together, as shown. 76 is a conical hole into which the tack falls (from the chute 39) point foremost. The construction of the hole is such that the tack is supported by its head, its point not extending beyond the lower side of the jaws. The conical hole is made one half in each jaw. The construction of the jaws with this conical hole is the same as described in Patent No. 387,926, dated August 14, 1888, to which reference is made for detailed description. In the present application, however, the jaws are pivoted to an arm 77 oscillating upon a pivot 78, which is fixed to a sliding bar or stem 79. The stem 79 has endwise movement in a guide-socket of the housing or standard 80.

81 is a rod connecting the stem 79 with a lever 82, which oscillates on a rock-shaft 83, working in bearings 84 of the standards 15. The lever 82 carries at its lower end a stud 85, armed with a friction-roller which works in a cam-groove in a rotary cam 86. The position and form of the cam-groove are indicated by dotted lines at 87 in Fig. XX. The arm 77 has an extension 88, which, as the stem moves backwardly from the position shown in Fig. XV to the position shown in Fig. XVI, comes in contact with an anti-friction roller 89 upon a fixed arm 90, and as the stem 79

continues to move backward the tack-carrier is swung around into the position shown in Figs. I and XVII, so that the conical hole 76 is directly beneath the chute 39 and receives a tack therefrom. As the stem 79 again moves forward, the arm 77 is swung into the position shown in Figs. XV and XVI by the spring 91, which is coiled around the pin 92 upon the stem and bears against a pin 93 upon the arm 77.

It will be understood that the tack-carrier has two positions in which it comes to a rest—namely, the position shown in Fig. XVII, in which position it receives the tack, and the position shown in Fig. XV, at which time the tack is driven from the conical hole 76. The devices for driving the tack and for guiding the last and applying the upper to the last form no part of the present invention, and are described in Letters Patent No. 387,926 aforesaid.

As the drums 7 revolve, the dust, &c., escapes through slots 16ª. (See Figs. I, III, and V.)

I claim as my invention—

1. In a tack-feeding apparatus, the combination of the revolving drum 7, with a fixed head-plate 19, having a slot 35, a tack-race passing through said plate, the brush 29, oscillating arm 30, carrying the brush and provided with a pin 34, extending through slot 35, the tappets 32 upon the drum, and spring 33 outside of the plate connected with pin 34, all constructed and arranged to operate substantially as set forth.

2. In a tack-feeding apparatus, the combination of the drum 7, with ledges 27 and tappets 32, the tack-race with guide-plate 28, and the curved oscillating brush 29, transverse of and working over the tack-race, substantially as and for the purpose set forth.

3. In a tack-feeding apparatus, the combination of the revolving drum 7, having ledges and tappets 32, the tack-race having parallel bars 22, with tack-receiving beveled portions 25 brought to a knife-edge, the guide-plate 28, and the oscillating brush 29, all constructed and adapted to operate substantially as and for the purpose set forth.

4. In a tack-feeding apparatus, the combination of the two revolving drums 7, with tack-races extending from the interior to the exterior of the drums, a longitudinally-reciprocating slide 40 at the discharging ends 37 of the tack-races, having two recesses 38 at the edge adapted to receive a single tack, and a shut-off device for the recess that is not to receive a tack, substantially as described.

5. In a tack-feeding apparatus, the combination, with the slide 40, having recesses 38, of the chute 39 and guide-strip 47, substantially as and for the purpose set forth.

6. In a tack-feeding apparatus, the combination, with the slide 40, having the recesses 38, of the stoppers 54 and 54ª, connected to a pivoted bar 48, and adapted, respectively, to close the recesses 38 against the entrance of tacks, substantially as set forth.

7. In a tack-feeding apparatus, the combination of the slide 40, having recesses 38, the stoppers 54 and 54ª on slides 52 and 52ª, the bar 48, the spring 50, roller 57, the rod 56 with head 55, the spring 58, and means for drawing back the head 55 against the spring 58, substantially as and for the purpose set forth.

8. In a tack-feeding apparatus, the combination of the slide 40, slides 52 and 52ª, bar 48, stoppers 54 and 54ª, spring 50, roller 57, head 55, rod 56, spring 58, means for drawing back the rod 56, lip 69 on the slide 52ª, and fixed flange 70, constructed and adapted to operate substantially as set forth.

9. In a tack-feeding apparatus, the combination of the slide 40, slides 52 and 52ª, bar 48, stoppers 54 and 54ª, spring 50, roller 57, head 55, rod 56, spring 58, stud 60, and oscillating cam 61, all adapted to operate as set forth.

10. In a tack-feeding apparatus, the combination of the slide 40, slides 52 and 52ª, pivoted bar 48, stoppers 54 and 54ª, spring 50, roller 57, head 55, rod 56, spring 58, stud 62 on the rod 56, cam 61, lip 69, and flange 70, all constructed and adapted to operate substantially as and for the purpose set forth.

11. In a tack-feeding apparatus, the combination of the slide 40, having two recesses 38 in its edge, the two tack-races whose lower ends 37 connect with the recesses 38, pivoted bar 48, slides 52 and 52ª, with stoppers 54 and 54ª, wheel 57, lip 69, flange 70, rod 56, with head 55, spring 58, stud 60, and cam 61, substantially as and for the purpose set forth.

12. In a tack-feeding apparatus, the combination, with the tack-chute 39, of the oscillating tack carrier having spring-jaws 72, with recess 76 between them to receive the tack, the jaws being supported on an arm 77, pivoted at 78 to a rod 79, having endwise motion, a spring 91 on the rod bearing against the arm to turn it upon the pivot 78, an extension 88, and roller 89, all constructed and adapted to operate substantially as set forth.

CHARLES SINNING.

In presence of—
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BENJN. A. KNIGHT.