March 27, 1928. 1,663,812

G. A. PARKER

MACHINE FOR PUNCHING STAPLES AND PROVIDING THE SAME WITH WOOD FIBER INSULATION

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Fig. 1.

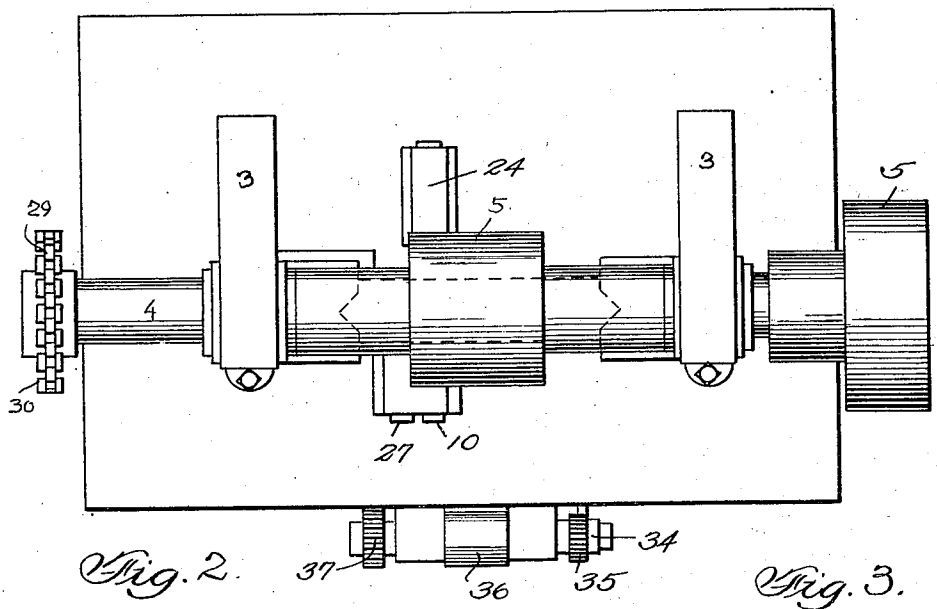
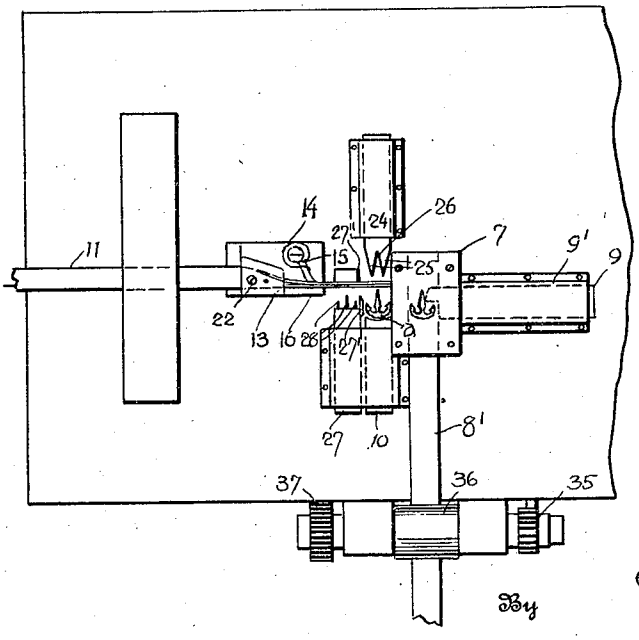
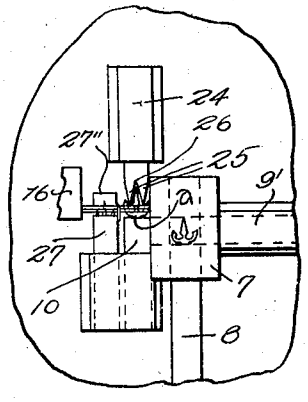


Fig. 2.

Fig. 3.





Inventor

Geo. A. Parker.

E. W. Anderson Jr.

By

Attorney

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G. A. PARKER

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Fig. 4.

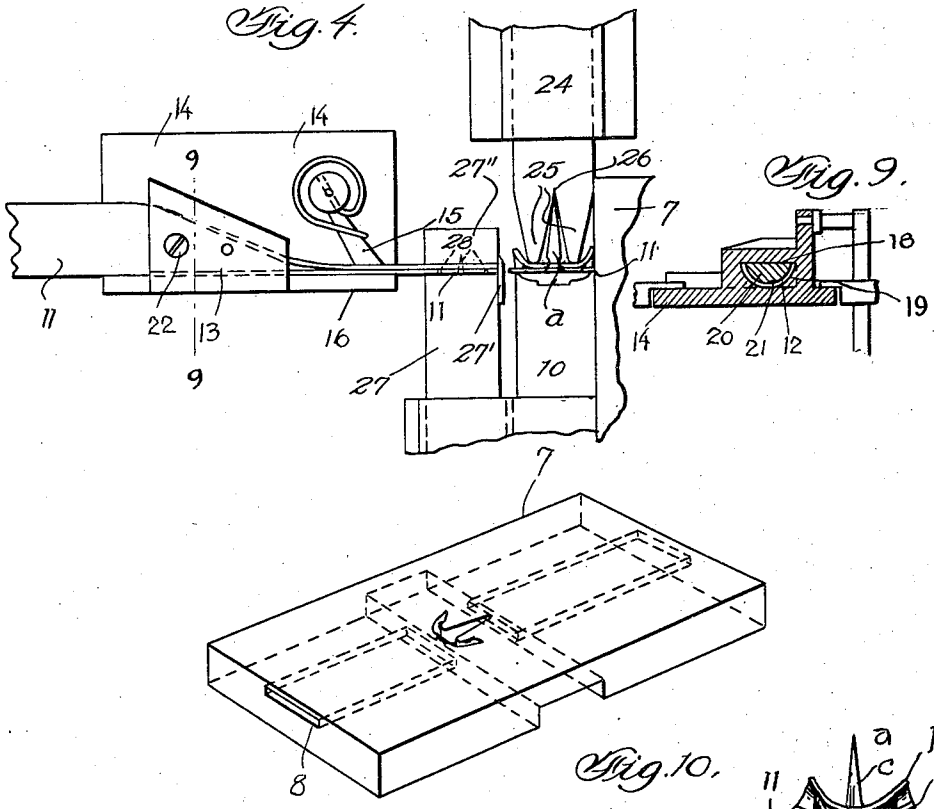


Fig. 9.

Fig. 10.

Fig. 15.

Fig. 14.

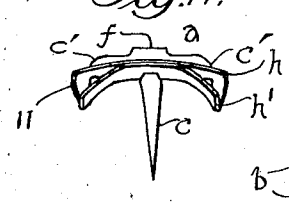




Fig. 11.

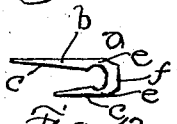


Fig. 13.

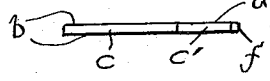


Fig. 12

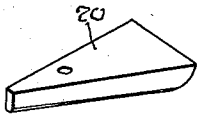


Fig. 16.

Inventor

Geo. A. Parker.

By E. W. Anderson & Son.

Attorney

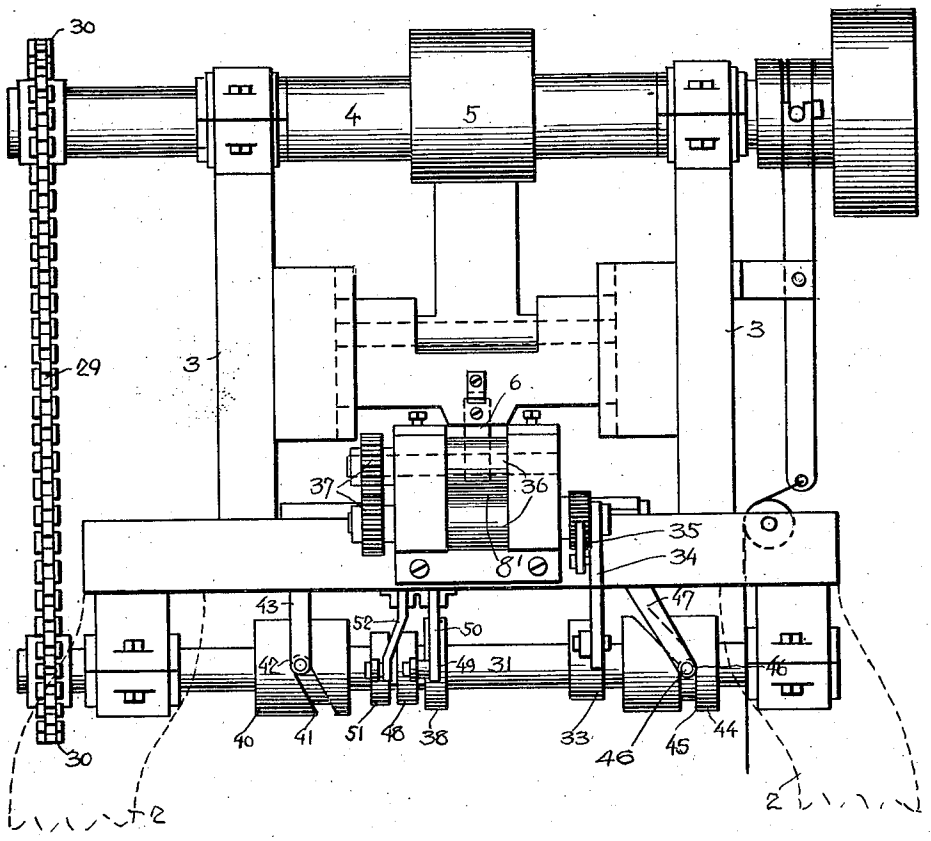
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MACHINE FOR PUNCHING STAPLES AND PROVIDING THE SAME WITH WOOD FIBER INSULATION

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Fig. 5.



Inventor

Geo. A. Parker.

E. W. Anderson Son

By

Attorney

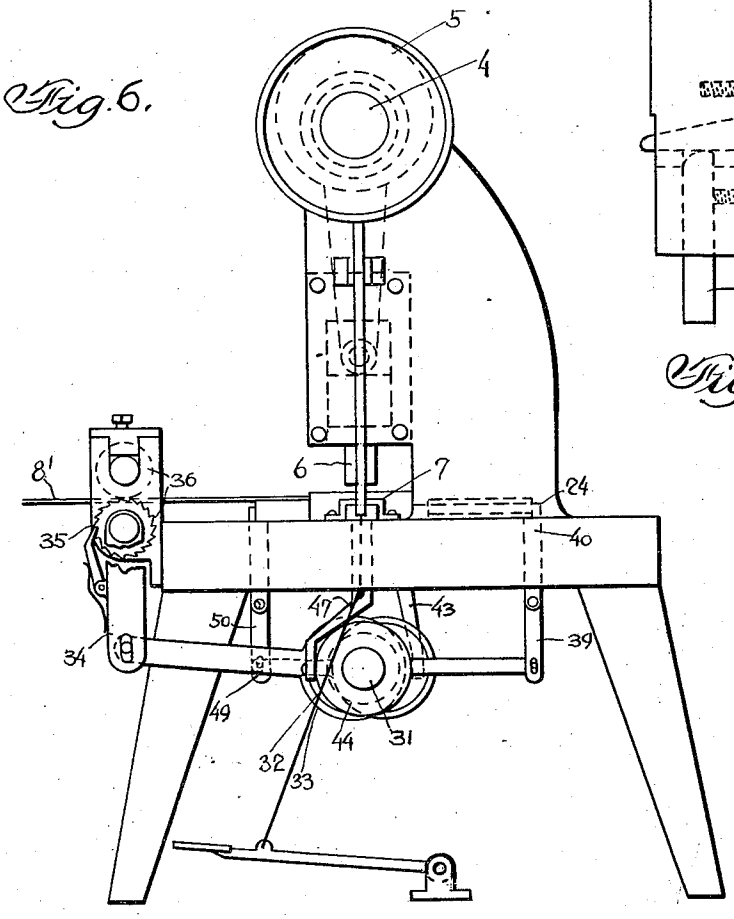
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G. A. PARKER

MACHINE FOR PUNCHING STAPLES AND PROVIDING THE SAME WITH WOOD FIBER INSULATION

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Fig. 6.



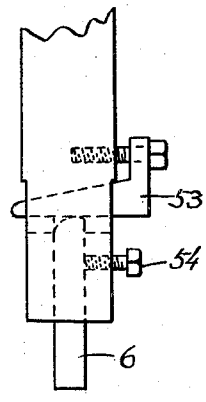


Fig. 7.

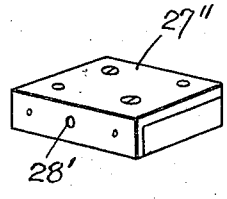


Fig. 8.

Inventor

Geo. A. Parker.

By E. W. Anderson Son

Attorney

Patented Mar. 27, 1928. 1,663,812

UNITED STATES PATENT OFFICE.

GEORGE A. PARKER, OF BROCKTON, MASSACHUSETTS.

MACHINE FOR PUNCHING STAPLES AND PROVIDING THE SAME WITH WOOD-FIBER INSULATION.

Application filed August 3, 1926. Serial No. 126,872.

The invention has relation to a machine for making staples and providing the same with an insulation of wood fiber or the like and it consists in the novel construction and combinations of parts as set forth in the appended claims.

An object of the invention is to provide a machine for automatically supplying staples with an insulation of wood fiber. Another object is to automatically supply the staples with an insulation of folded wood fiber.

In the accompanying drawings, illustrating the invention, Figure 1 is a plan view of the machine; Figure 2 is a plan view of the machine with the punch and its operating shaft removed and parts broken away, the parts being in position to feed the staple; Figure 3 is a similar view (fragmentary) wherein the operating parts show the staple as fed and as driven through the fiber insulation strip; Figure 4 is a similar view on a larger scale; Figure 5 is a side view of the machine, the supporting legs being shown in dotted lines; Figure 6 is an end view of the machine; Figure 7 is a detail side view of the punch head partly broken away showing the adjustment devices thereof; Figure 8 is a detail perspective view of the stationary knife block; Figure 9 is a detail sectional view on the line 9—9, Figure 4; Figure 10 is a detail perspective view of the staple die; Figures 11 and 12 are detail perspective and edge views of the staple; Figure 13 is a detail plan view of a single form of staple; Figures 14 and 15 are detail perspective and plan views of the staple with fiber strip applied thereto; and Figure 16 is a detail perspective view of the insert piece of the fiber folding device.

In these drawings, the numeral 1 designates the bed of the machine supported upon legs 2, said bed having standards 3 wherein is journaled a shaft 4, carrying an eccentric 5, the strap of which operates the punch 6 having a head slidable in guides of said standards.

Carried by the bed of the machine and immediately below said punch is the staple die 7, being of rectangular block form wherein is provided a groove or passage 8 for the metal strip 8′ wherefrom the staples *a* are struck in the operation of the punch, each staple as it is punched falling upon bed plate 1 where it comes to rest in the path of movement of a reciprocatory push bar 9, working in guides 9′, said push bar being moved to feed said staple along the top of the bed plate to a new position thereon in the path of movement of a reciprocatory push bar 10 working at right angles to the push bar 9.

The wood fiber insulation strip 11 is fed to the machine in a direction opposite to that of the feed movement of push bar 9 and at right angles to the feed of the metal strip from which the staples are punched. Said wood fiber strip is at its free end bent transversely to engage the groove 12, arcuate in cross-section, of the folding device 13 of a reciprocatory carriage 14 working along the top of said bed plate 1, said carriage having a spring pressed pawl 15 engaging one side of the folded wood fiber strip and pressing said strip against one side of an upstanding lug 16 of said carriage to hold said strip as folded and serving in the movement of the carriage forwardly to feed the folded fiber strip one step to provide sufficient material for insulating one staple. In the reverse movement of the carriage 14 the folding device 13 will ride along the wood fiber strip and fold the part thereof engaged thereby, the spring pressed pawl 15 permitting this reverse movement and in the next forward movement of the carriage engaging the wood fiber strip and feeding it one step as previously stated. The folding device of the carriage consists of a base block 14 having a tapered recess 18 provided with a concave bottom wall 19, and a removable tapered insert piece 20 having a flat top located against the flat top of said recess, and a convex tapered bottom wall 21 located adjacent to and spaced from the concave bottom fall 19 of said recess, said insert piece being held in raised position above the bottom wall of said recess by screws 22. The transversely bent free end of the wood fiber strip is manually engaged within the space 12 of arcuate cross-section between the bottom of the insert piece 20 and the bottom of said recess and is passed forwardly through the folding device to gradually fold said strip longitudinally upon itself, being finally passed between the string pressed pawl 15 and the upstanding lug 16 of said carriage, thereby holding the wood fiber strip as folded. The

machine may then be started in operation, the action of the folding device thereafter being automatic.

The staple being punched and fed to a new position on the bed plate opposite push bar 10 and the wood fiber strip being folded and being fed one step, also opposite to the push bar 10, these actions taking place simultaneously, a reciprocatory brace device 24 is operated to bring the spaced points 25 thereof in contact with one side wall of the folded wood fiber strip, and immediately thereafter the push bar 10 is operated to move the staple to penetrate the wood fiber strip, the main shank or prong of the staple being received in the space 26 between said brace points 25 and at the end of the movement engaging the inner lateral surfaces of said points and the shorter shank or shanks of the staple engaging the outer lateral surfaces of said points to limit the movement. At the same time that the push bar 10 is operated to pierce the wood fiber strip with the staple, or shortly thereafter, push bar 27 is operated to cause knife 27′ thereof to sever the free end portion of the wood fiber strip pierced by and carrying the staple and to cause points 28 of said push bar to pierce the wood fiber strip preparatory to the piercing of said strip by the next staple in order, the middle point 28 piercing both folds of the fiber strip and the lateral points 28 piercing only one fold. Knife 27′ coacts with one edge of a stationary block 27″ acting as a stationary knife, having a recess 28′ to receive the center point 28. The object of this preparatory piercing of the wood fiber strip is to facilitate the engagement of the next staple with the wood fiber strip upon the next movement of the push bar 10. The operation of the parts is repeated indefinitely to punch the staples and provide the same with the fiber insulations.

Power being applied, the shaft 4 will rotate eccentric 5, the strap of which operates punch 6, said shaft through belt 29 and pulleys 30 operating the shaft 31, being the main operating shaft of the machine. The shaft 31 carries the following: eccentric 32, the strap 33 of which operates lever 34 having pawl and ratchet connection 35 with feed rollers 36 for the metal strip 8′, the shafts of said feed rollers carrying inter-meshed gears 37; eccentric 38, the strap of which operates lever 39 having an actuating pin and slot connection with brace device 24; cam 40 having a cam groove 41 wherein works roller 42 of an operating device 43 for carriage 14; cam 44 having a cam groove 45 wherein works roller 46 of an operating device 47 for push bar 9; eccentric 48, the strap of which has a pin and slot connection 49 with lever 50 operating the push bar 10, and eccentric 51, the strap of which has an operating connection 52 with push bar 27.

The stroke of the punch 6 may be varied by a suitable means, such, for instance, as adjustable wedge 53, engaging a groove of the punch head, the adjustment of the punch shank being fixed by a screw 54.

The staple a made by this machine forms the subject matter of a divisional application S. No. 165,330, and has opposite flat parallel sides b, and approximately parallel tapered pointed shanks c, c', one of which is usually longer than the other. The tapered shanks c, c' are each joined to the head of the staple by a contracted neck e. The top of the staple is provided with a flat face f at right angles to the longitudinal axis of the longer shanks c, c', thereby facilitating the driving of the staple.

The insulation of wood fiber 11 applied to the staple is pressed upon the pointed shanks c, c', into engagement with the contracted necks e of said shanks, whereby the fiber insulation is held from escape by the shouldered portions of said shanks adjacent said necks. The fiber insulation is usually folded longitudinally as shown, with one layer h thereof engaging said contracted necks e and the other or inner layer h', lying over the pointed portions of the shorter shank or shanks c', for better cushioning effect.

I claim:

1. In a machine for manufacturing staples with a fiber insulation, means for feeding a metal strip, means for punching staples successively therefrom, means for feeding a wood fiber strip, means for feeding the stables into alignment with successive end portions of the wood fiber strip, and means for driving the staples successively through successive end portions of the wood fiber strip and thereafter severing said end portions.

2. In a machine for manufacturing staples with a fiber insulation, means for feeding a metal strip, means for punching staples successively therefrom, means for feeding a wood fiber strip, means for feeding the staples into alignment with successive end portions of the wood fiber strip, and means for driving the staples successively through successive end portions of the wood fiber strip and thereafter severing said end portions, including a pronged brace device for engaging the staple between the prongs.

3. In a machine for manufacturing staples with a fiber insulation, a table, means for feeding a metal strip, means overlying said table for successively punching staples therefrom to cause the staples to fall upon said table, means for feeding a wood fiber strip, means including a push bar overlying said table for feeding the staples into alignment with successive end portions of the wood fiber strip, and means including a push bar overlying said table for driving the staples successively through successive end portions

of the wood fiber strip and thereafter severing said end portions including a pronged brace bar overlying said table and adapted to engage the staple between the prongs.

4. In a machine of the class described, means for feeding successive staples, means for feeding a wood fiber strip and for folding the same longitudinally, and means for successively driving the staples through successive end portions of the wood fiber strip and thereafter severing said end portions.

5. In a machine of the class described, means for feeding successive staples, means for feeding a wood fiber strip and folding the same longitudinally, means for bracing successive end portions of the folded strip, and means for successively driving the staples through successive braced end portions of the wood fiber strip and thereafter severing said end portions.

In testimony whereof I affix my signature.

GEORGE A. PARKER.