Feb. 2, 1943. S. A. CROSBY 2,309,628

TACKER

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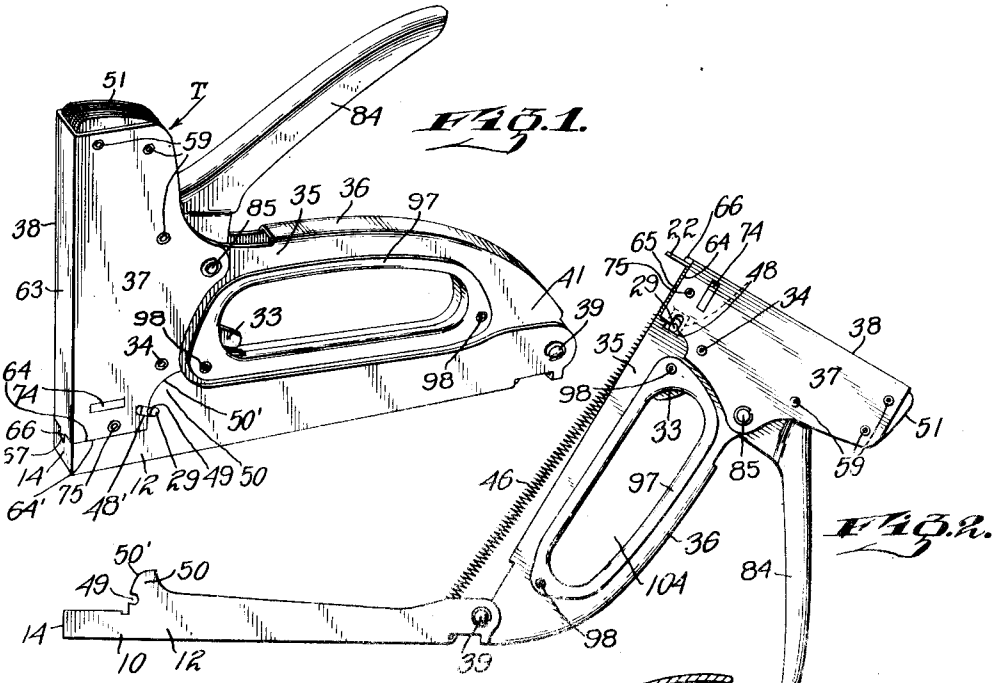


FIG. 1.

FIG. 2.

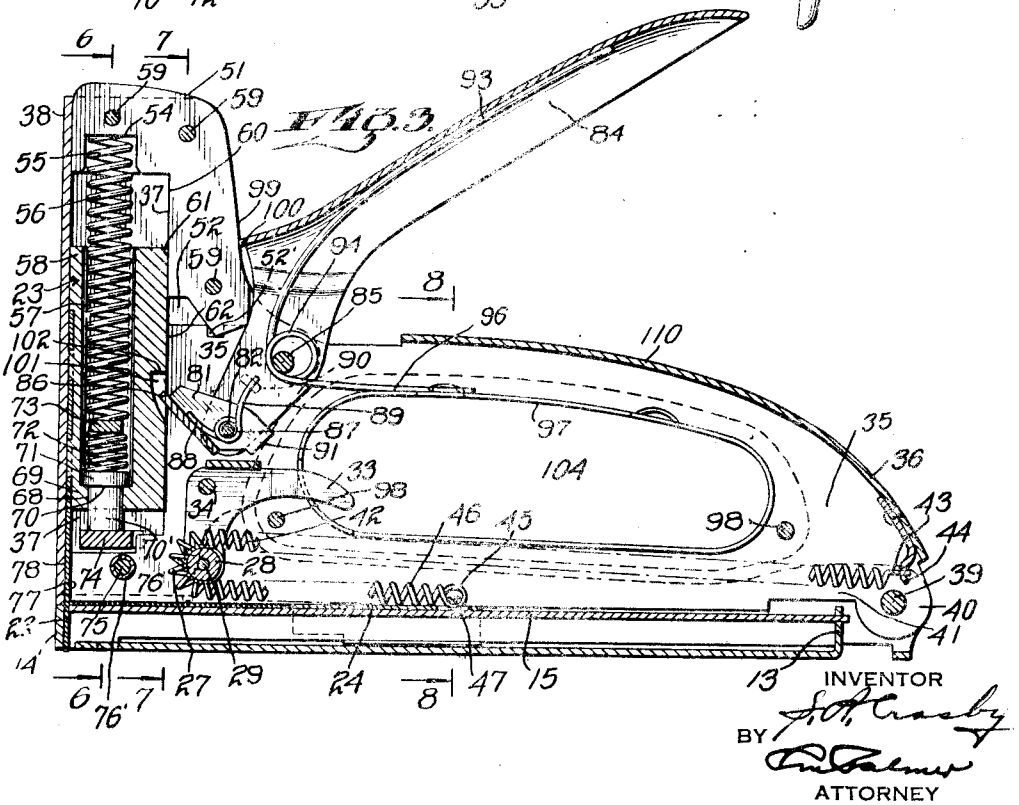


FIG. 3.

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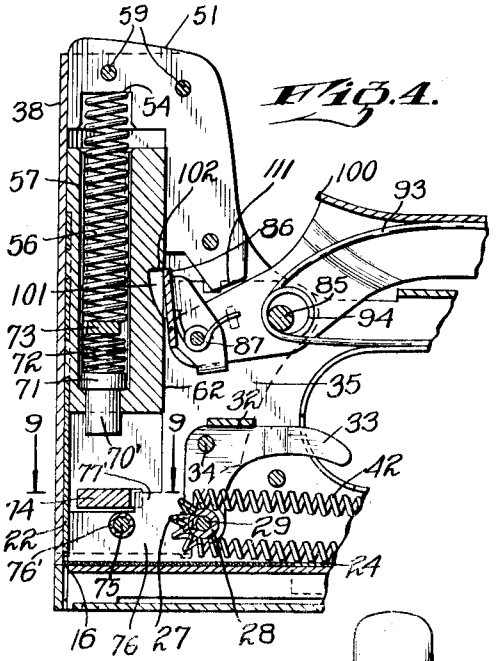


Fig. 4.

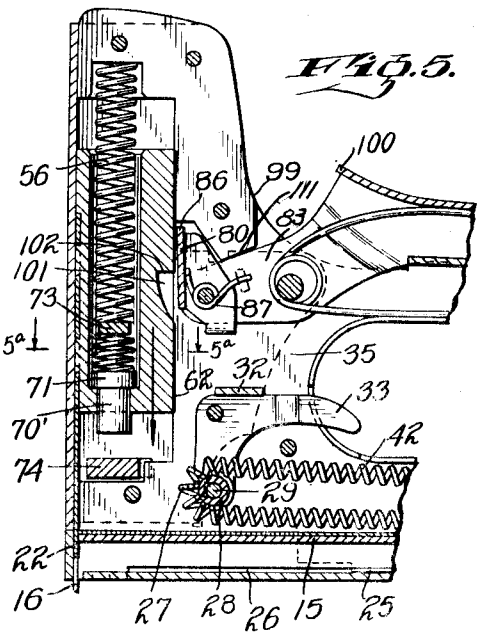


Fig. 5.

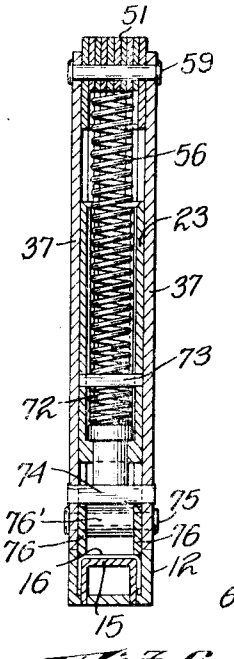


Fig. 6.

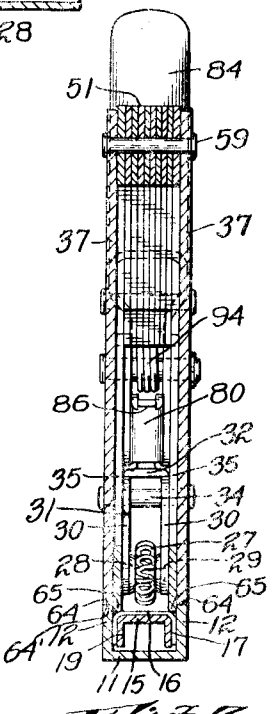


Fig. 7.

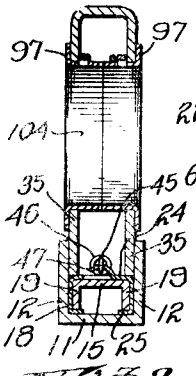


Fig. 8.

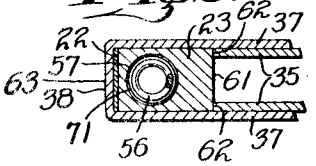


Fig. 5a.

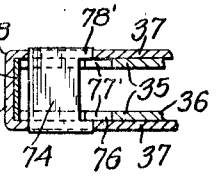


Fig. 9.

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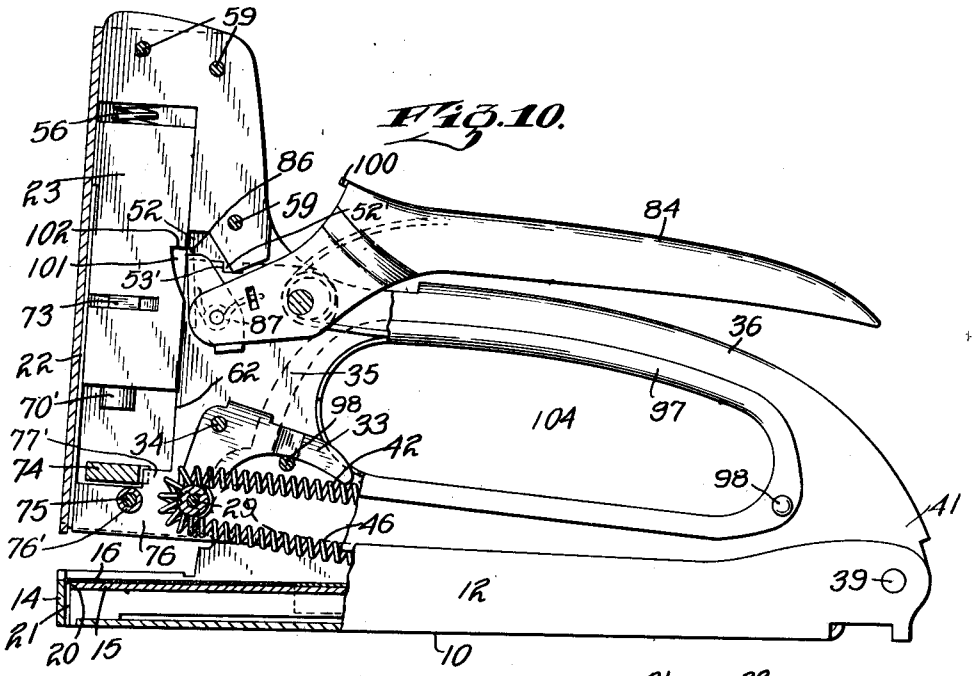


FIG. 10.

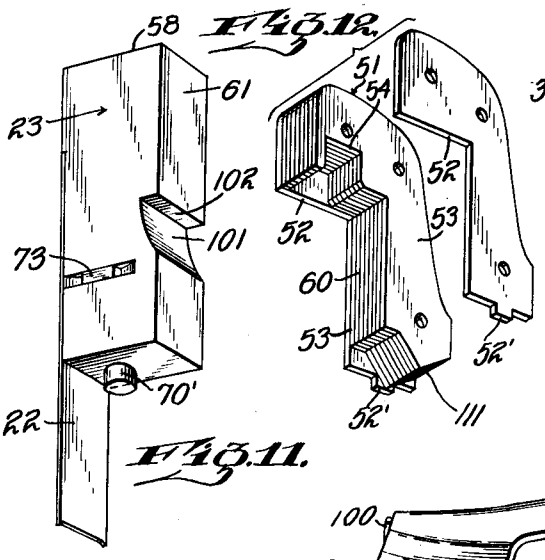


FIG. 12.

FIG. 11.

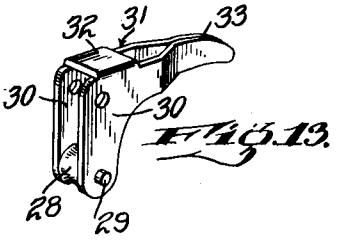


FIG. 13.

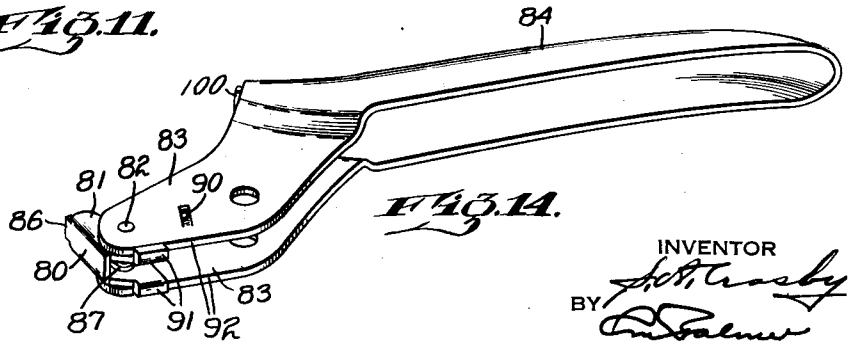


FIG. 14.

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UNITED STATES PATENT OFFICE

2,309,628

TACKER

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Application July 22, 1939, Serial No. 286,006

20 Claims. (Cl. 1—49)

The present invention is concerned with stapling machines and more particularly is directed to an improved but relatively light weight and stabilized staple tacker. The objects, advantages, and functional and structural aspects of the invention will be better understood from the teachings of the following detailed description considered in the light of the accompanying drawings wherein:

Fig. 1 is a perspective view of the tacker according to my invention showing the cover for the magazine closed and the handle for actuating the staple ejecting driver in its normally raised position.

Fig. 2 is a side view of the tacker, however illustrating the cover swung to a position to open the staple magazine.

Fig. 3 is a longitudinal sectional view of Fig. 1, illustrating the driver or ram in its normally depressed position.

Fig. 4 is a fragmentary view of Fig. 3 however illustrating the position of the driver approximately at the completion of its upward stroke after it has been raised upon depressing of the manipulatable handle.

Fig. 5 is a view similar to Fig. 4 but showing the driver moving downwardly to complete its return stroke.

Fig. 5ª is a sectional view on the line 5ª—5ª of Fig. 5.

Fig. 6 is a sectional view on the line 6—6 of Fig. 3.

Fig. 7 is a sectional view on the line 7—7 of Fig. 3.

Fig. 8 is a sectional view on the line 8—8 of Fig. 3.

Fig. 9 is a sectional view on the line 9—9 of Fig. 4.

Fig. 10 is a side elevational view of Fig. 1 partly broken away and partly in section, illustrating the manner in which the latch may be unlocked to permit the cover to be swung rearwardly relative to the base.

Fig. 11 is a perspective view of the staple ejecting driver or ram.

Fig. 12 is a perspective view of the laminated shock absorbing head for the driver to prevent recoil of the frame of the tacker.

Fig. 13 is a perspective view of the locking latch for the magazine, and

Fig. 14 is a perspective view of the handle showing the ram actuating pawl pivoted at the front end thereof.

The tacker generally denoted T embodies a staple magazine 10 in the form of a one piece metal rectangularly shaped box having bottom wall 11, upstanding sides 12, back wall 13, and front wall 14.

Fixed within the magazine is the elongated inverted U-shaped rail 15 which slidably supports a staple strip 16 having legs 17 slidably guided between the elongated gaps 18 defined by the depending sides 19 of the rail and the upstanding sides 12 of the magazine.

It should be observed however that the forward end 20 (Fig. 10) of the rail 15 and the upstanding front wall 14 of the magazine characterize a staple driveway or slot 21 to allow the foremost staple of the staple strip to be driven out by the blade 22 of a reciprocable driver or ram broadly denoted 23.

For urging the foremost staple of the staple strip to be in alinement with the driveway, a spring actuated follower 24 is provided.

This follower (Fig. 8) is of inverted U-shape and is slidably guided in gaps 18 and is provided with inwardly turned lugs 25 (Figs. 5 and 8) slidably guided in gaps 26 in the sides of the rail.

Thus the follower is slidably interlocked with the rail and for urging the follower forwardly a looped helicoidal spring 27 is utilized.

Spring 27 has its intermediate portion trained over the grooved bearing or roller 28 rotatably mounted on the stud or pintle 29 fixedly carried by the spaced arms 30 of the magazine rockable or pivotal latch generally designated 31 having the latch stop or bridge 32 interconnecting the arms 30 which extend rearwardly and are brought in close and fixed juxtaposition to define a tail or manipulating portion 33.

Latch 31 in effect may be said to characterize a bell crank lever having the alined elbow portions thereof pivotally or rotatably mounted on the fixed rivet pin 34 passing through the spaced sides 35 of the hollow case 36 and the spaced sides 37 of the hollow sheath broadly denoted 38, the sheath together with its secured case constituting the cover for the magazine which cover is hinged on the fulcrum pin 39 carried by the sides 12 of the magazine. Stated in another way, ears 40 of the spaced rear portions 41 of the spaced sides 35 of the case 36 are rotatably sustained by the fulcrum pin 39 of the magazine.

Returning however to the helicoidal spring 27, the upper reach 42 thereof has its rear end 43 (Fig. 3) appropriately hooked to the fixed lug 44 carried at the rear of the case while the rear end 45 of its lower reach 46 (Figs. 3 and 8) is connected to hook 47 extending upwardly from the slidable interlocked staple follower 24.

With the cover closed, the free ends of the pintle 29 on which roller 28 is mounted extend through the relatively large openings 48 (Fig. 2) in the spaced sides 35 of the case 36. These free ends of pintle 29 are adapted to be received by alined gaps 48' in the spaced sides 37 of sheath 38 and are adapted to interlock with the walls of the alined gaps 49 (Fig. 1) in the spaced wings 50 extending from the spaced sides 12 of the magazine. The normal action of the coiled spring 27 is such as to maintain the free ends of the pintle 29 in the alined gaps 49 when the cover is closed.

The other function of the helicoidal spring 27 is to normally urge the follower 24 forwardly in the closed relation of the cover and rearwardly away from the staple strip when the cover is opened.

If therefore the cover is closed and locked the foremost staple is across the raceway or driveway 21 at which time pintle 29 is within slots 49 and the tail portion 33 of latch 31 of course is in its raised position.

Fixedly associated between the sides 37 of the sheath or shell 38 is the laminated sheet metal core or relatively heavy mass 51 which consists of two end plates 52 held against the outer plates or laminations 53 of the laminated core or body 51 which embodies recess 54 for locating and receiving the upper end 55 of helicoidal power spring 56 having its major portion confined in bore or well 57 of the relatively rectangular shaped body 58 of the ram or driver 23 to which the upper end of blade 22 is fastened.

However for positively securing the core or head 51 to the sheath, the core is appropriately located in respect to the case 36 for the purpose of alining end guide faces 62 of the sides 35 of the case with the transverse alined faces 60 of the laminations. Thus end plates 52 of the core are provided with lugs 52' which are received by correspondingly shaped recesses 53' in the spaced sides 35 of the case. Consequently the core is properly positioned relative to the case independent of the sheath or any anchoring means.

Pursuant to the positioning of the core in respect to the case and to the sheath, rivets 59 are utilized to fasten the laminated core or head to the sides 37 of the sheath and the latter in overlapped relation against the case. Thus the transverse faces 60 of the alined laminations of the core are positively held and constitute cooperative means to slidably guide the rear face 61 of the driver 23 which is also guided by the front faces 62 of the sides 35 of the case 36 and by the front wall 63 and side walls 37 of the sheath 38 which has its lower faces 64 (Figs. 2 and 7) extending above the lower margins 65 of the spaced sides 35 of the case.

Margins 65 on the side walls 35 cooperate to prevent upward displacement of the staple strip 16 when the cover is closed and locked and in such relation the sides 35 of the case may be said to closely but movably telescope with the sides 12 of the magazine at which time lug 66 depending from the front wall 63 of the sheath is positioned within the locating notch 67 in the front wall 14 of the magazine. By this arrangement, the case and sheath are always in proper operative alinement with the magazine when the latter is closed at which time faces 64 (Fig. 7) of the sides 37 of the sheath rest on the upper stop surfaces 64' of the sides 12 of magazine. These stop faces 64 limit downward pivotal displacement of the cover.

Slidably guided in opening 68 of the bottom wall 69 of the driver or ram 23 is the cylindrical shank 70' of spring controlled plunger 70 having an enlarged head 71 slidably disposed in bore 57 and adapted to be limited in its downward travel by the bottom wall 69 of course after the relatively heavy stiff spring 72 has released its energy. This stiff spring 72 however has its lower end seated on head 71 and has its upper end held under the retaining bar 73 which is fixedly driven through and anchored to the ram body 58 and which also constitutes a seat for the power spring 56.

In the retracted relation of the driver 23 (Fig. 3) shank 70' of the spring controlled plunger 70 has its lower face urged against the fixed transverse abutment bar 74 held anchored in the spaced sides 37 of the sheath 38 the sides 37 of which are resisted from spreading outwardly by the upset rivet 75 which also bridges the forward ends 76 of the case sides 35 which are resisted from spreading inwardly by the sleeve 76' mounted on rivet 75.

The forward ends 76 of sides 35 of the case have transverse faces 77 defining with the inner surface 78 of the front wall 63 of the sheath a suitable gap which slidably guides the staple ejecting blade 22 of the driver 23 and shoulders 77' (Figs. 5[a] and 9) extending above the ends 76 of the case 36 closely and fixedly interlock with lugs 78' of abutment block 74 anchored in the sides of the sheath to prevent accidental shifting thereof transversely of the cover.

For elevating the driver, a pivoted pawl 80 is employed. This pawl is a U-shaped member having its sides 81 (Fig. 14) rotatably mounted on pin 82 fixedly carried by the spaced sides 83 of the channeled shaped handle 84 pivoted on the fixed rivet pin 85 retained by the spaced sides 35 of the case and the spaced sides 37 of the sheath. This rivet pin 85 also prevents spreading of the sides of the sheath away from the sides of the case.

The plunger lifting pawl 80 is normally urged outwardly or counter-clockwise by a coiled spring 87 and particularly by the free arm 88 thereof while the other end 89 (Fig. 3) of spring 87 is fixedly anchored to a lug 90 struck out of a side 83 of the handle 84. However counter-clockwise movement of the pawl is limited since the outwardly extending lugs 91 of the sides 81 thereof strike the stop faces 92 of the sides 83 of the handle 84.

Normally handle 84 is in its raised position shown in Fig. 3 and is brought automatically to such position by the free upper arm 93 of a spring 94 having its intermediate portion coiled about hinge pin 85. However its lower arm 96 is fixed to one of the elliptical shaped rims 97 fastened by rivets 98 to the spaced sides 35 of the case 36.

The rear face 99 of the laminated core 51 constitutes stop means for the apron 100 of the handle 84 to limit upward displacement thereof in which instant nose 86 of the tiltable pawl 80 (Fig. 3) is within recess 101 and below shoulder 102 defined thereby.

Where it is desired to tack a piece of material which may be paper, cardboard, and/or cloth to a body which may be of wood or the like, the tacker while in its closed relation, is placed against the material to be tacked into the body, for example, the bottom wall 11 of the magazine is first properly located on the material. This may be accomplished by the operator using one of his hands only, that is, the operator applies

the under surface of this hand against handle 84 and in such a way that the fingers of this hand project through an elongated opening 104 of the fixed rims 97 of the case 36 below the upper curved back 110 of the case, however without causing handle 84 to be depressed until the magazine is properly positioned on the material at which time this handle is depressed and the sides of the latter abut the inclined stop faces 111 of the core 51.

It follows that nose 86 of the pawl 81 moves upwardly in recess 101 of the driver 23 and ultimately strikes shoulder 102 thereof. Hence the driver is elevated, compressing the relatively heavy duty power spring 56 until nose 86 clears or trips shoulder 102 in which event spring 56 starts to release, expand, or recoil, thus urging the driver to retract automatically whereupon plunger 70, that is, its shank 70' on the return or down stroke of the driver appreciably impacts the fixed abutment plate 74 carried by the sides 37 of the sheath 38. Or in other words, the power spring 56 after the pawl is tripped operates to accelerate the driver on its downward stroke and upon completion of this return stroke, the driver has accumulated appreciable momentum. However on the completion of the down stroke, the impact of the plunger 70 of the driver or ram is instantaneous against the abutment plate 74. This action causes the relative stiff shock absorbing spring 72 to become compressed to cushion and absorb the impact of plunger 70 against the abutment 74. Thus the stiff spring 72 causes the ram or driver to decelerate.

The shock absorbing spring 72 is appreciably stiffer than the power spring 56. The expression "stiff" is herein used advisedly to denote that a relatively large load is required to cause a relatively small deflection thereof. Or stated in another way, the power spring is appreciably less in stiffness than the decelerating or shock absorbing spring 74 in that, for example, the momentum produced in the ram by the power spring in undergoing a linear deflection of three quarters of an inch is negatived by the shock absorbing spring in undergoing a deflection to the order of one sixteenth of an inch in instances where the driver is idling, to wit;—operated when the magazine is without any staples. However where a staple is driven out of the tacker by blade 22 into the material and body to be tacked together, in such cases while the power spring deflects substantially to the order of three quarters of an inch, the shock absorbing spring is deflected to the order of a few thousandths of an inch only since the material into which the staple is driven absorbs most of the momentum imparted to the ram by the power spring.

Thus it is appreciated that the sheath 38 is prevented from fracture in that the impact applied by the plunger 70 to abutment 74 is absorbed by the shock absorbing spring, that is to say, the plunger of the ram never strikes the sheath directly although the latter is slightly stressed.

Where the driver is operated to eject a staple for tacking in the case of tackers of the prior art and prior to the herein disclosed invention these in practice generally rebound or recoil, thus materially reducing the effect or intensity of the desired blow or impact. Because of this deficiency it has been discovered that if an appreciable mass be applied to the head of the tacker above the driver such recoil action of the frame of the tacker is absorbed or stabilized and to accomplish this purpose there is provided the laminated mass 51 which is concentrated in its most effective position, namely, over the driver to absorb or stabilize the recoil of the hollow frame which according to the invention comprises the magazine, sheath, and case of the tacker. By such action, a desirable and uninterrupted but effective hard blow is capable of being administered in the matter of driving a staple out of the tacker and into the material and body to be tacked together. Thus it is apparent that where a relatively great, concentrated or localized mass is positioned over the driver the recoil of the frame of the tacker is partially neutralized, and therefore relatively less mass is required for the remaining parts of the tacker and consequently the latter according to the invention merely comprises relatively light weight hollow members, for example, the cover, and the magazine employed are merely of sheet metal stamped into channeled shaped forms, the sheath merely taking the incidental internal stresses following driver impacts.

By reason of the fact that the frame of the tacker is hollow throughout and only a concentrated mass is positioned above the driver, the weight of the tacker herein disclosed is appreciably light. Therefore in actual practice the tacker according to the invention reduces fatigue in the matter of operating and thus may be readily handled with a maximum of ease and convenience. Since also the internal stresses are merely transmitted to the sheath, the remaining parts of the cover and the magazine are not stressed, thus preventing these parts of the frame from getting out of relative alinement, thus precluding accidental buckling or breakage thereof, salient characteristics and advantages resulting by reason of the relatively heavy shock absorbing mass 51 over the driver which mass is relatively greater than the mass of the driver.

Pursuant to the deceleration of the driver, handle 84 is released by the operator and consequently it rises automatically due to the action of the spring arm 93. The nose 86 of the pawl 80 however at this time yieldingly bears against rear face 61 of the driver 23 and ultimately becomes arranged within recess 101 at which time lugs 91 are against the stop faces 92 of the sides 85 of the handle.

Where access is desired to the rail, the operator merely depresses manipulator 33 causing latch 31 to be tilted, thus removing the free ends of the pintle or stud 29 from notches 49 of the wings 50 of the sides 12 of the magazine. Thereafter the cover of the tacker characterized by the case and sheath thereof may be swung rearwardly (Fig. 2) and access is had to the staple rail. To close the cover, the latter is swung downwardly against the magazine whereby the free ends of pintle 29 strike cam surface 50' of the wings 50 until reaching notches 49 at which time spring 27 automatically shifts the roller 28 rearwardly and therefore the free ends of the pintle become interlocked with the walls of notches 49. The tacker is now in its normal relation and is ready for use.

Thus it is apparent that a relatively light weight tacker is provided wherein stabilizing means over the driver is utilized to absorb frame recoil and wherein the deceleration of the driver is controlled by a reciprocable shock absorbing plunger cushioned by a relatively stiff spring in axial alinement with a lighter power spring. These functional and structural features consti-

tute the objects and advantages of the invention in the matter of providing a relatively light weight tacker adapted to be conveniently operated and controlled. As a further aspect of the invention, the tacker herein specifically set out may be idly operated when empty of staples without causing fracture of the frame even though an internal impact is administered by the plunger of the ram to the abutment block 74 at the time the tacker is empty or even when staples are driven through soft or fluffy material. These and other advantages are inherent in the herein disclosed tacker.

Furthermore it should be realized that with the tacker according to the invention, the frame thereof is of relatively thin sheet metal stock so that the overall width of the machine is only slightly greater than the width of the staple strip hence permitting the tacker to be placed in narrow and ordinarily inaccessible corners and also permitting staples to be driven therefrom even though the tacker be disposed contiguous to a wall of a corner. This also constitutes an important object of the invention.

Another important object is realized in the provision of a relatively light weight but stabilized staple tacker embodying my well known "Swingline" principles which inter alia embody automatic staple follower action in the matter of closing and opening of the cover and complete inside accessibility to the staples in the raceway and magazine at a time when the cover is swung rearwardly of the magazine at which time the latter may be conveniently loaded with staples even though the operator is in awkward positions, for such as on a step ladder, scaffold or the like. For reasons expounded in the foregoing detailed and complete disclosure, the successfully operating and most serviceable tacker according to the invention is now offered to the existing and contemporary stapling art.

While the principles of the invention have been shown and described in connection with several preferred embodiments thereof, the functional and structural features of which have also been disclosed in detail it is to be understood that this has been done for purpose of illustration and disclosure only in that the invention is not limited thereby but is susceptible to various changes in form and details of its scope.

I claim:

1. In combination, a magazine, a rail within the magazine for supporting staples, a cover for closing said magazine, a movable staple ejecting driver guided by said cover, a plunger movably guided by said driver, shock absorbing spring means for normally holding said plunger depressed, power spring means independent of said shock absorbing spring means for normally holding said driver depressed, actuator means for raising said driver against the resistance of said power spring means, and abutment means within said cover and above said rail to receive the impact of said plunger on the release of said power spring means and on the downward stroke of said driver for compressing said shock absorbing spring means.

2. In combination, a magazine, a rail within the magazine for supporting staples, a swingable cover for closing said magazine and having sides removably telescoping with said magazine to prevent upward displacement of said staples, a movable driver guided by said cover, a movable handle carried by said cover, a plunger movably guided by said driver, power means for normally holding said driver depressed, shock absorbing means for normally holding said plunger depressed, means operatively associated with said handle for raising said driver against the resistance of said power means, abutment means associated with said cover to receive the impact of said plunger on the release of said power means and on the retractive stroke of said driver for compressing said shock absorbing means, and disconnectable locking means for holding said cover closed.

3. In combination, a magazine, a rail within the magazine for supporting staples, a swingable cover for closing said magazine and having a sheath and case secured to said sheath, a movable staple ejecting driver guided by said sheath, a movable handle pivotally carried by said cover, a plunger movably guided by said driver, power means for normally holding said driver depressed, shock absorbing means for normally holding said plunger depressed, means operatively associated with said handle for raising said driver against the resistance of said power means, abutment means sustained by said sheath to receive the impact of said plunger on the release of said power means on the retractive stroke of said driver for operating said shock absorbing means, and a laminated mass carried by said sheath and in alinement with and above said driver to partially neutralize the recoil of said magazine.

4. In combination, a magazine, a rail within the magazine for supporting staples, a swingable cover for closing said magazine and comprising a front sheath and a rearwardly disposed case having sides removably telescoping with the sides of said magazine to prevent upward displacement of said staples, a movable staple ejecting driver guided by said sheath and case and having a recess defining a shoulder, a movable handle carried by said cover, a plunger movably guided by said driver, power means for normally holding said driver depressed, shock absorbing means for normally holding said plunger depressed, a spring controlled pawl pivoted to said handle and coacting with said shoulder to raise said driver against the resistance of said power means, abutment means sustained transversely of said sheath to receive the impact of said plunger on the release of said power means on the retractive stroke of said driver for operating said shock absorbing means, disconnectable locking means for holding said cover closed against said magazine, and stabilizing means secured to said sheath above said driver.

5. In combination, a magazine, a rail within the magazine for supporting staples, a staple follower slidably guided by said rail, a swingable cover for closing said magazine and having a front sheath and a rearwardly disposed case having sides removably telescoping with the sides of said magazine to prevent upward displacement of said staples, a movable staple ejecting driver guided by said sheath and case and having a recess defining a shoulder, a movable handle carried by said cover, a plunger movably guided by said driver, power means for normally holding said driver depressed, shock absorbing means of relatively greater stiffness than said power means for normally holding said plunger depressed, a spring controlled pawl pivoted to said handle and coacting with said shoulder to raise said driver against the resistance of said power means, abutment means sustained transversely of said sheath to receive the impact of said plunger on the release of said power means

on the retractive stroke of said driver for operating said shock absorbing means, disconnectable latch means for holding said cover closed against said magazine, spring means common to said follower and latch means for urging said follower forwardly upon closing of said cover and for urging said follower rearwardly upon opening of said magazine and for yieldingly sustaining the locked relation of said latch and magazine, and a laminated stabilizing body secured to said sheath above said driver.

6. A shock absorbing device for a stapling machine comprising a sheath, a case secured to said sheath, a staple ejecting driver movably guided by said sheath and case, an anvil fixed to said sheath, a plunger movably guided by said driver, spring power means retained by said driver, and shock absorbing spring means of relatively greater stiffness than said spring power means acting on said plunger and retained within said driver.

7. The shock absorbing device according to claim 6 wherein a common abutment for said spring power means and said shock absorbing means is anchored to said driver.

8. In combination, a slidable driver, a stabilizer coacting with said driver, the stabilizer having a plurality of plates disposed in juxtaposition, means fixedly securing said plates together, and means sustaining said plates in alinement with and above said driver.

9. In combination, a slidable driver, a stabilizer coacting with said driver, the stabilizer having a plurality of plates disposed in juxtaposition and including depending lugs, and means for positioning said lugs to sustain said plates in alinement with and above said driver.

10. In combination, a stabilizer having a plurality of plates disposed in juxtaposition, slidable staple driving means, and spring means interposed between said plates and said driving means.

11. In combination, a magazine, a rail within the magazine for supporting staples, a cover closing said magazine, a movable driver slidably guided by said cover and comprising a bottom wall, a movable handle carried by said cover, a plunger having an enlarged head adapted to be seated on said wall and including a depending shank slidably guided in said wall and projecting therefrom, power means for normally holding said driver depressed, shock absorbing means for normally holding said head against said wall, means operatively associated with said handle for raising said driver against the resistance of said power means, and abutment means below said driver and carried by said cover to receive the impact of said shank to raise said head from said wall on the release of said power means and on the retractive stroke of said driver for operating said shock absorbing means.

12. In combination, a magazine, a rail within the magazine for supporting staples, a cover hinged to and for opening and closing said magazine and having sides removably telescoping with said magazine to prevent upward displacement of said staples, a movable driver guided by said cover, a movable handle carried by said cover, a plunger movably guided by said driver, power spring means for normally holding said driver depressed, shock absorbing spring means for normally holding said plunger depressed, means operatively associated with said handle for raising said driver against the resistance of said power means, abutment means carried by said cover to receive the impact of said plunger on the release of said power spring means and on the retractive stroke of said driver for compressing said shock absorbing means, and disconnectable locking means for holding said cover closed.

13. In combination, a magazine, a rail within the magazine for supporting staples, a cover hinged to said magazine for rendering said rail accessible or inaccessible and having sides removably telescoping with said magazine, a movable driver slidably guided by said cover, a movable handle carried by said cover, a plunger slidably guided by said driver, power means for normally holding said driver depressed, shock absorbing means for normally holding said plunger depressed, means operatively associated with said handle for raising said driver against the resistance of said power means, abutment means carried by said cover to receive the impact of said plunger on the release of said power means and on the retractive stroke of said driver for compressing said shock absorbing means, and disconnectable locking means for holding said cover closed.

14. In a stapling machine, a frame having spaced sides, a sheath embracing said sides, a laminated body secured to the upper part of said sheath, a magazine containing staples, a driver for ejecting said staples and slidably guided in and by said sheath and body, alined and interrupted elastic springs of different strengths coaxially disposed in said driver and arranged between the latter and said body, the body being of greater weight than said driver, said frame having means for positioning said body in and relative to said sheath and above said driver, and means fastening said body to said sheath.

15. A shock absorbing device for a stapling machine comprising a sheath, a case straddled by and secured to said sheath, a staple ejecting driver movably guided by said sheath and case, an anvil fixed to said sheath, a plunger slidably guided by said driver and having a shank projecting therefrom for coacting with said anvil, spring power means retained by said driver, and shock absorbing means of relatively greater stiffness than said spring power means and acting on said plunger and retained within said driver for resisting displacement of said plunger relative to said driver.

16. A shock absorbing device for a stapling machine comprising a cover, a staple ejecting driver movably guided by and within said cover, an anvil fixed to said cover below said driver, a plunger slidably guided by said driver and having a shank projecting therefrom, spring power means retained by said driver, and shock absorbing spring means of relatively greater stiffness than said spring power means acting on said plunger and retained within said driver, said shank on the driving stroke of said driver adapted to impact said anvil against the resistance of said shock absorbing means.

17. In a stapling machine, a housing, a staple ejecting driver slidably guided in said housing and including a bore, said driver characterizing a hollow member including a bottom wall having an opening, a plunger having a head seated on said wall and embodying a shank movably guided in said opening and projecting downwardly beyond said wall, an abutment carried by said driver and traversing said bore, a power spring in said bore and abutting said housing and abutment, and a shock absorbing spring in said bore and interposed between said abutment and head

for normally holding the latter yieldingly against said seat.

18. In a stapling machine, a housing, a staple ejecting driver slidably guided in said housing and including a bore, said driver characterizing a hollow member including a bottom wall having an opening communicating with said bore, a plunger having a head seated on said wall and embodying a shank movably guided in said opening and projecting downwardly beyond said wall, an abutment fixedly carried by said driver and traversing said bore, a power spring in said bore and abutting said housing and abutment, a shock absorbing spring in said bore and interposed between said abutment and head for normally holding the latter against said seat, and a blade carried by said driver.

19. In a stapling machine, a housing, a staple ejecting driver slidably guided in said housing and including a bore, said driver characterizing a hollow member including a bottom wall having an opening, a plunger having a head adapted to be seated on said wall and embodying a shank movably guided in said opening and projecting downwardly beyond said wall, an abutment carried by said driver and traversing said bore, a power spring in said bore and abutting said housing and abutment, a shock absorbing spring in said bore and interposed between said abutment and head for normally holding the latter against said seat, and a blade carried by said driver, said housing having a laminated body above said driver and having means retaining one end of said power spring.

20. In a stapling machine, a housing, a staple ejecting driver slidably guided in said housing and including a bore, said driver characterizing a hollow member including a bottom wall having an opening, a plunger having a head seated on said wall and embodying a shank movably guided in said opening and projecting downwardly beyond said wall, an abutment carried by said driver and traversing said bore, a power spring in said bore and abutting said housing and abutment, a shock absorbing spring in said bore and interposed between said abutment and head for normally holding the latter against said seat, a blade carried by said driver, and an anvil secured to said housing and positioned below said shank and adapted to be impacted by the latter to elevate said head above said wall and against the resistance of said shock absorbing spring.

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