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(54) **MAGAZINE FOR A NAILING TOOL**

MAGAZIN FÜR EIN NAGELWERKZEUG

CHARGEUR POUR OUTIL DE CLOUAGE

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(73) Proprietor: **Illinois Tool Works Inc.**

Glenview, IL 60025 (US)

(72) Inventors:

- **SCARINI, Edoardo**
Sylvania
New South Wales 2224 (AU)

• **WU, Yi-Chang**

Dali City
Taichung County 41280 (CN)

(74) Representative: **HGF Limited**

Merchant House
30 Cloth Market
Newcastle upon Tyne NE1 1EE (GB)

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Description

[0001] The present invention relates to a nail magazine for a nailing tool and more particularly to a coil magazine.

[0002] Power operated nailing tools for use in building and construction typically comprise a nail magazine for storing a large number of nails capable of being driven from the tool in relatively rapid succession. For this purpose, the successive nails are usually collated into a strip stored within the magazine from which nails are fed successively into a driving zone of the tool. An existing form of tool in common use is known as a coil nailer having a magazine which stores a long strip of collated nails wound into a coil or spiral; a coil magazine for such a tool can typically have a storage capacity of 200 to 300 nails. Typically, the coil nailer is driven by pressurised air fed to the tool by an air line, although other forms of power operation may be provided in order to drive the tool.

[0003] In order to provide adjustment within the magazine to enable the magazine to house nails of different length it has been proposed to provide within the interior of the magazine a movable tray for supporting the coil, the tray being movable along an axial post at the centre of the magazine, with the position of the tray along the post determining the length of nail which can be stored. The presence of the centre post for the tray complicates the loading process and also renders the magazine rather bulky. An alternative design of magazine incorporates a removable coil tray; however the removable tray suits only one length of nail and can easily be lost or misplaced when not in use.

[0004] European patent application publication number 0 145 963 describes a magazine having a housing enclosing a cavity for a coil of fasteners. One member of the housing is movable to open the housing for reloading. An object of EP 0 145 963 is to provide a fastener supporting plate with adjustability for fasteners of different lengths.

[0005] United States patent application publication number 2007/0170223 describes a nail magazine for a nailer comprising a base, a cover pivotally connected to the base, and a receiving disc.

[0006] Aspects of the invention are set out in the appended claims.

[0007] An embodiment of the invention will now be described by way of example only with reference to the accompanying drawing, the sole figure of which is a perspective view of a coil magazine in accordance with the preferred embodiment, the magazine being shown in its open condition with a support tray exposed for loading with a fresh nail coil.

[0008] The coil magazine of the preferred embodiment is of generally cylindrical form comprising an outer body principally formed by two body parts 2, 4 connected at an outer edge for movement between a closed position and an open position (as shown) in which a fresh coil of nails can be loaded into the magazine. The body part 2 is the main body part and has a part-circular upper wall

2a, a part-cylindrical circumferential wall 2b, and a circular base wall 2c. The body part 4 has a part-circular upper wall 4a and part-cylindrical circumferential wall 4b. The two body parts 2, 4 are pivotally interconnected at their circumferential wall 2b, 4b by a pivot pin 6, the axis of which is parallel to the central axis of the magazine and thus the central axis of the nail coil when stored within the magazine.

[0009] A coil supporting tray 8 within the magazine is mounted at its outer periphery on the pivot pin 6 for swinging movement on the pivot pin and also for axial movement along the pivot pin. It is to be noted that the mounting of the tray 8 to the pivot pin 6 at its outer periphery leaves the body of the tray unobstructed to thereby permit easy loading of the nail coil onto the tray when the two body parts 2, 4 are in their open position. The mounting of the tray 8 for axial movement along the pivot pin 6 enables the height of the tray 8 within the magazine to be adjusted to accommodate different lengths of nail.

[0010] The tray 8 is lockable in a selected one of several predetermined positions along the pivot pin 6, each corresponding to a different nail length. In the embodiment shown, this is achieved by engaging the outer edge of the tray 8 into a selected one of several recesses 10 positioned along the adjacent edge of the circumferential wall of one of the two body parts (as shown, the wall 2b), the movement into engagement with the selected recess to lock the tray and the movement out of the recess to permit height adjustment occurring by swinging the tray 8 on the pivot pin 6. Circumferential ribs 12 are formed on the interior surface of the circumferential wall at least one of the body parts (as shown, both body parts) to provide circumferential support for the tray 8 when the magazine is closed. When the magazine is closed, a vertical rib 14 on the main body part 2 releasably snaps into engagement with a recess 16 in the periphery of the tray to releasably lock the tray within the main body part and thereby to prevent the tray from freely swinging outwardly when the magazine is next opened.

[0011] Nails are withdrawn from the magazine into the tool through a passage in the circumferential wall of the magazine and defined, when the magazine is closed, between radially projecting portions 2d, 4d of the two body parts and which lie adjacent when the magazine is closed. In the preferred embodiment, the magazine is mounted to the tool by engagement of a bracket portion 18 on the main body part 2 with the handle of the tool and by engagement of the projecting portion 2d and adjacent parts with the body of the tool adjacent its driving zone. With this configuration, the magazine is opened by pivoting the body part 4 to the open position.

[0012] The magazine particularly described can be configured for use with zero degree coil nailers in which the nails are collated in the coil in a configuration parallel to the axis of the coil or nailers in which the nails are orientated at an acute angle to the axis of the coil, this being determined by the configuration of the mounting of the magazine to the tool.

[0013] The magazine particularly described enables easier and quicker reloading together with easy adjustment to suit a range of different nail sizes.

[0014] The embodiment has been described by way of example only and modifications are possible within the scope of the invention.

Claims

1. A nail magazine for a nailing tool, the magazine being adapted to store nails collated into a coil, the magazine comprising:

a body of generally cylindrical form with a magazine axis, said body being defined by two body parts (2, 4) pivotally connected by a pivotal connection for relative swinging movement between a closed position in which nails are stored within the magazine and an open position for loading with fresh nails, the pivotal connection having a pivotal connection axis substantially parallel to the magazine axis and being positioned adjacent an outer peripheral wall of the magazine; and

a tray (8) within the magazine for supporting the coil, the tray being adjustable axially of the magazine so as to accommodate nails of different length and being lockable within the magazine in a selected adjusted position, wherein the tray is mounted at its outer periphery for:

movement along an adjustment axis parallel to the magazine axis, and
swinging movement about that same adjustment axis;

the magazine being **characterised in that** the adjustment axis is substantially coincident with the pivotal connection axis.

2. A nail magazine according to claim 1, wherein the two body parts are pivotally connected by a pivot pin (6) and the tray is mounted to that pin for movement along the pin for height adjustment and for swinging movement about an axis of the pin.
3. A nail magazine according to claim 2, wherein the tray is lockable into a selected one of two or more predetermined positions along the pivot pin by engagement with a locking formation on one or other of the body parts.
4. A nail magazine according to claim 3, wherein the locking formation comprises recesses (10) into which a peripheral portion of the tray engages by swinging the tray about the axis of the pivot pin.

5. A nail magazine according to any preceding claim, wherein at least one of the body parts has within it interior circumferential ribs (12) for supporting the peripheral edge of the tray when in each of its adjusted positions.
6. A nail magazine according to any preceding claim, wherein one of the body parts has retaining means for releasably retaining the tray in a position in which the periphery of the tray is releasably held adjacent to a peripheral wall of that body part.
7. A nail magazine according to claim 6, wherein the retaining means is formed by a rib (14) on the body part and extending axially of the magazine and being adapted for snap-in engagement with a recess (16) in the periphery of the tray.
8. A nail magazine according to claim 1, wherein the tray is mounted at its outer periphery on a pin (6) for swinging movement about an axis of the pin and for movement along the axis of the pin, said axis of the pin being parallel to the magazine axis.
9. A nail magazine according to claim 8, wherein the tray is lockable into a selected one of two or more predetermined positions along the pin by releasable engagement with a locking formation.
10. A nail magazine according to either of claims 8 or 9, comprising means for releasably retaining the tray in an angular position about the axis of the pin in which the periphery of the tray is adjacent a peripheral wall of one of the body parts when the body parts are in their open position.

Patentansprüche

1. Nagelmagazin für ein Nagelwerkzeug, wobei das Magazin dazu ausgelegt ist, zu einer Spule kollationierte Nägel zu speichern, wobei das Magazin Folgendes umfasst:

eine Struktur von allgemein zylindrischer Form mit einer Magazinachse, wobei die Struktur durch zwei Strukturteile (2, 4) definiert ist, die durch eine Drehverbindung zur relativen schwenkenden Bewegung zwischen einer geschlossenen Position, in der Nägel innerhalb des Magazins gespeichert sind, und einer offenen Position zum Laden mit neuen Nägeln drehbar verbunden sind, wobei die Drehverbindung eine Drehverbindungsachse aufweist, die im Wesentlichen parallel zu der Magazinachse verläuft und angrenzend an eine äußere periphere Wand des Magazins positioniert ist; und eine Schale (8) innerhalb des Magazins zum

Stützen der Spule, wobei die Schale axial zum Magazin einstellbar ist, um Nägel verschiedener Länge aufzunehmen, und innerhalb des Magazins in einer ausgewählten eingestellten Position sperrbar ist, wobei die Schale an dessen äußere Peripherie montiert ist für:

eine Bewegung entlang einer Einstellachse parallel zu der Magazinachse und eine Schwenkbewegung um dieselbe Einstellachse;

wobei das Magazin **dadurch gekennzeichnet ist, dass** die Einstellachse im Wesentlichen ko-
inzident mit der Drehverbindungsachse ist.

2. Nagelmagazin nach Anspruch 1, wobei die zwei Strukturteile durch einen Drehstift (6) drehgelenkig verbunden sind und die Schale an diesem Stift für eine Bewegung entlang des Stifts zur Höheneinstellung und für eine schwenkende Bewegung um eine Achse des Stifts montiert ist. 20
3. Nagelmagazin nach Anspruch 2, wobei die Schale in eine ausgewählte von zwei oder mehr vorbestimmten Positionen entlang des Drehstifts durch Eingreifen in eine sperrende Formation an dem einen oder anderen Strukturteil sperrbar ist. 25
4. Nagelmagazin nach Anspruch 3, wobei die sperrende Formation Vertiefungen (10) umfasst, in die ein peripherer Abschnitt der Schale durch Schwenken der Schale um die Achse des Drehstifts eingreift. 30
5. Nagelmagazin nach einem der vorangehenden Ansprüche, wobei mindestens eines der Strukturteile in seinem Inneren Umfangsrippen (12) aufweist, um den peripheren Rand der Schale zu stützen, wenn sie sich in jeder ihrer eingestellten Positionen befindet. 35 40
6. Nagelmagazin nach einem der vorangehenden Ansprüche, wobei eines der Strukturteile ein Haltemittel zum lösbaren Halten der Schale in einer Position aufweist, in welcher die Peripherie der Schale angrenzend an eine periphere Wand dieses Strukturteils lösbar gehalten wird. 45
7. Nagelmagazin nach Anspruch 6, wobei das Haltemittel durch eine Rippe (14) an dem Strukturteil ausgebildet ist und sich axial zum Magazin erstreckt und für einen Einrasteingriff in eine Vertiefung (16) in der Peripherie der Schale ausgelegt ist. 50
8. Nagelmagazin nach Anspruch 1, wobei die Schale an ihrer äußeren Peripherie an einem Stift (6) für eine schwenkende Bewegung um eine Achse des Stifts und für eine Bewegung entlang der Achse des

Stifts montiert ist, wobei die Achse des Stifts parallel zu der Magazinachse verläuft.

9. Nagelmagazin nach Anspruch 8, wobei die Schale durch lösbares Eingreifen in eine Sperrformation in eine ausgewählte von zwei oder mehr vorbestimmten Positionen entlang des Stifts sperrbar ist. 5
10. Nagelmagazin nach einem der Ansprüche 8 oder 9, das Mittel zum lösbaren Halten der Schale in einer Winkelposition über der Achse des Stifts umfasst, in der die Peripherie der Schale an eine periphere Wand von einem der Strukturteile angrenzt, wenn sich die Strukturteile in ihrer offenen Position befinden. 10 15

Revendications

1. Chargeur à clous pour outil de clouage, le chargeur étant adapté pour stocker des clous rassemblés en une bobine, le chargeur comprenant:

un corps de forme généralement cylindrique avec un axe de chargeur, ledit corps étant défini par deux parties de corps (2, 4) reliées de manière pivotante par une liaison pivotante pour un mouvement de pivotement relatif entre une position fermée dans laquelle des clous sont stockés dans le chargeur et une position ouverte pour charger des clous neufs, la liaison pivotante ayant un axe de liaison pivotant sensiblement parallèle à l'axe du chargeur et étant placée près d'une paroi périphérique extérieure du chargeur; et

un plateau (8) à l'intérieur du chargeur pour supporter la bobine, le plateau étant réglable axialement par rapport au chargeur afin de s'adapter à différentes longueurs de clous et pouvant être verrouillé dans le chargeur dans une position réglée sélectionnée, le plateau étant monté sur sa périphérie extérieure pour:

le déplacement le long d'un axe de réglage parallèle à l'axe du chargeur, et
le mouvement d'oscillation autour de ce même axe de réglage;

le chargeur étant **caractérisé en ce que** l'axe de réglage coïncide sensiblement avec l'axe de liaison pivotant.

2. Chargeur à clous selon la revendication 1, dans lequel les deux parties de corps sont reliées de manière pivotante par une broche de pivotement (6) et le plateau est monté sur cette broche pour un déplacement le long de la broche pour le réglage en hauteur et pour un mouvement d'oscillation autour d'un

axe de la broche.

3. Chargeur à clous selon la revendication 2, dans lequel le plateau peut être verrouillé dans une position choisie parmi au moins deux positions prédéterminées le long de la broche de pivotement par engagement avec une formation de verrouillage sur l'une ou l'autre partie du corps. 5
4. Chargeur à clous selon la revendication 3, dans lequel la formation de verrouillage comprend des évidements (10) dans lesquels une partie périphérique du plateau s'engage par oscillation du plateau autour de la broche de pivotement. 10
15
5. Chargeur à clous selon l'une quelconque des revendications précédentes, dans lequel au moins l'une des parties de corps comporte des nervures circonférentielles intérieures (12) pour supporter le bord périphérique du plateau dans chacune de ses positions ajustées. 20
6. Chargeur à clous selon l'une quelconque des revendications précédentes, dans lequel l'une des parties de corps comporte des moyens de retenue pour retenir de façon amovible le plateau dans une position dans laquelle la périphérie du plateau est maintenue de façon amovible près d'une paroi périphérique de cette partie de corps. 25
30
7. Chargeur à clous selon la revendication 6, dans lequel le moyen de retenue est formé par une nervure (14) sur la partie de corps et s'étendant axialement du chargeur et étant adapté pour un engagement par encliquetage avec un évidement (16) sur la périphérie du plateau. 35
8. Chargeur à clous selon la revendication 1, dans lequel le plateau est monté à sa périphérie extérieure sur une broche (6) pour un mouvement d'oscillation autour d'un axe de la broche et pour un mouvement le long de l'axe de la broche, ledit axe de la broche étant parallèle à l'axe du chargeur. 40
9. Chargeur à clous selon la revendication 8, dans lequel le plateau peut être verrouillé dans une position choisie parmi au moins deux positions prédéterminées le long de la broche par engagement amovible avec une formation de verrouillage. 45
50
10. Chargeur à clous selon l'une ou l'autre des revendications 8 ou 9, comprenant des moyens pour retenir de manière amovible le plateau dans une position angulaire autour de l'axe de la broche dans laquelle la périphérie du plateau est adjacente à une paroi périphérique de l'une des parties de corps lorsque celles-ci sont dans leur position ouverte. 55

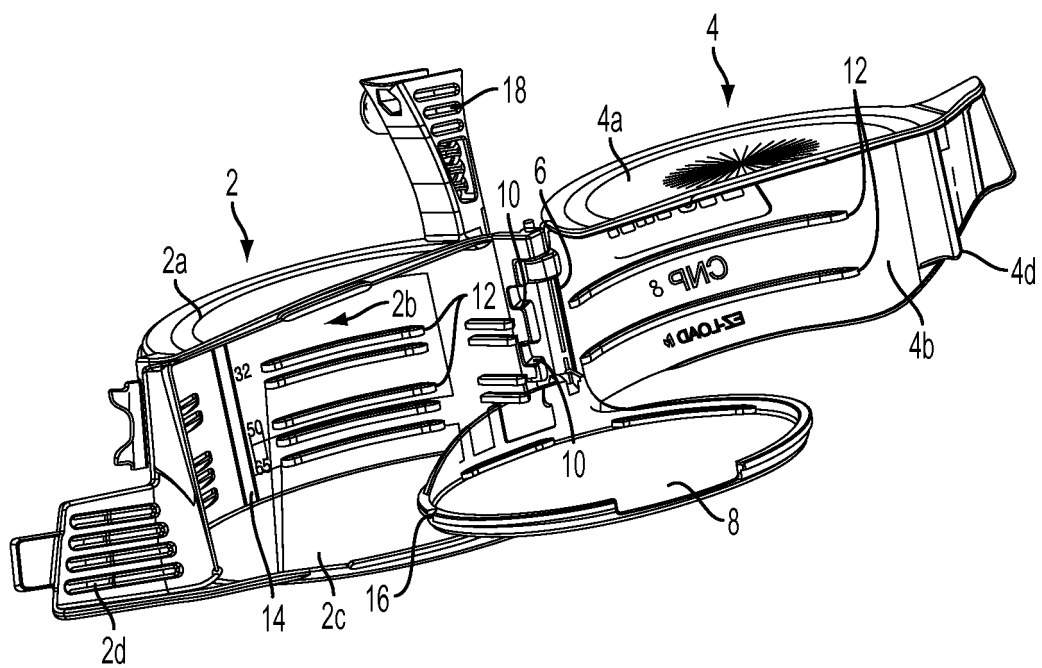


FIG. 1

REFERENCES CITED IN THE DESCRIPTION

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