United States Patent

[11] 3,556,326

[72] Inventor **Marion D. Cline**
R.D. 01, Blairsville, Pa. 15717

[21] Appl. No. **809,336**
[22] Filed **Mar. 21, 1969**
[45] Patented **Jan. 19, 1971**

[54] **AUTOMATIC SHEET STACKER DEVICE AND THE LIKE**
8 Claims, 8 Drawing Figs.

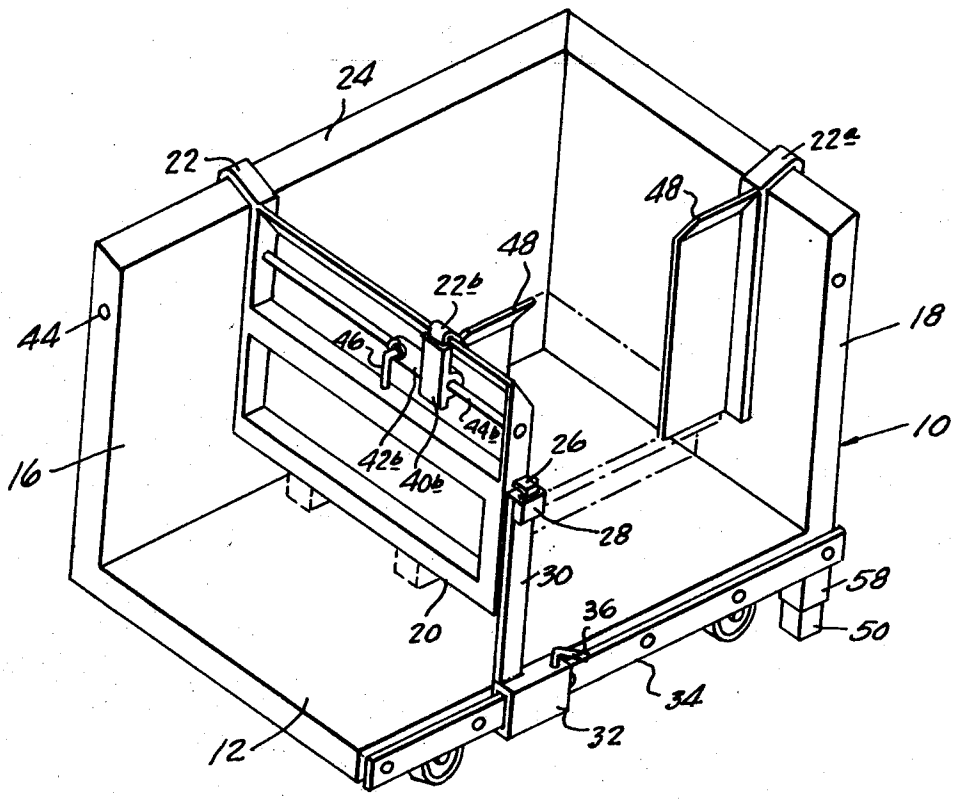
[52] **U.S. Cl.** **214/512,** 214/6
[51] **Int. Cl.** **B60p 1/02**
[50] **Field of Search** 214/512, 6D, 6S, 6H, 8, 9

[56] **References Cited**
UNITED STATES PATENTS

1,107,859	8/1914	Stevens	(214/6S)
1,432,086	10/1922	Plonka	(214/6D)
1,565,840	12/1925	Wise	214/6(D)
2,585,076	2/1952	Bandura et al.	214/6(D)
3,392,892	7/1968	Rainbow et al.	214/6(H)
3,439,605	4/1969	Hanley	214/6(S)

Primary Examiner—Albert J. Makay
Attorney—Berman, Davidson and Berman

ABSTRACT: An automatic sheet stacker for converting a continuous flow of sheared sheet metal pieces into predetermined size vertical stacks for further handling comprising a dolly platform having caster wheels with a fixed sidewall and a fixed end wall and a removable and adjustable side disposed on said fixed sidewall and adjustable toward and away from said fixed end wall. The removable and adjustable side wall is further provided with an adjustable guide which is slidable along said removable and adjustable side in a direction toward and away from said fixed sidewall. The fixed end wall is provided with an adjustable guide which is moveable toward and away from said fixed sidewall and slidably disposed on said fixed end wall. The dolly platform is further provided with biasing means or brake means for maintaining the dolly platform in a fixed position until released and moved to another position. The device is further provided with an attachment for stacking very small sheet metal segments.



PATENTED JAN 19 1971 3,556,326

SHEET 1 OF 2

FIG. 1.

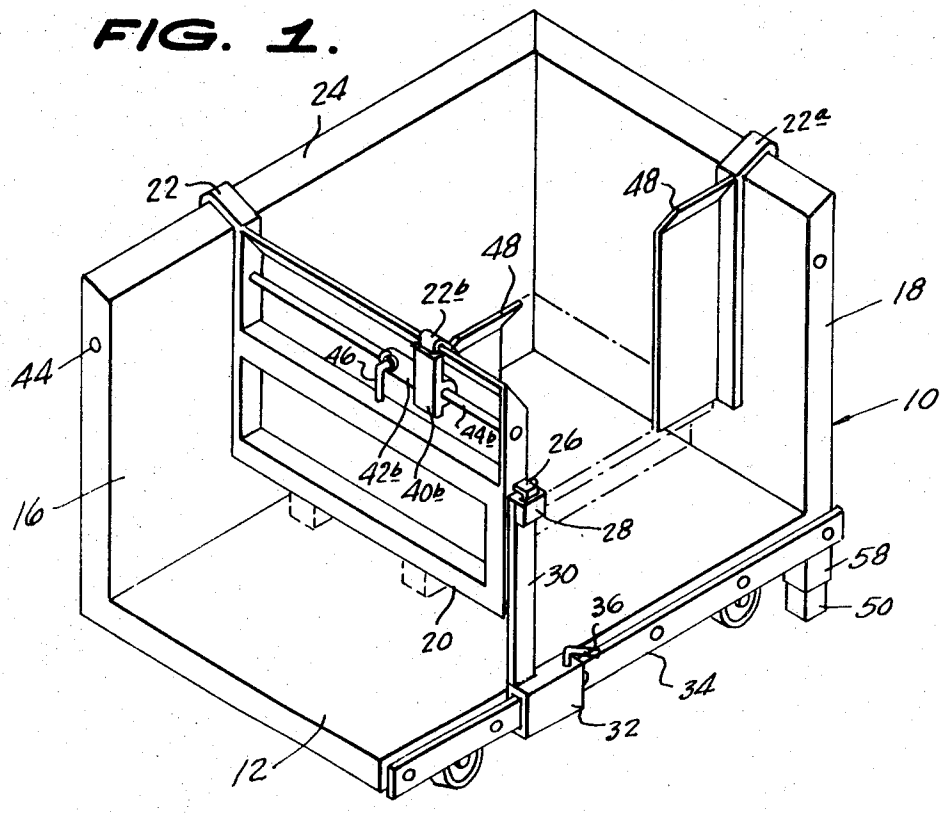


FIG. 2.

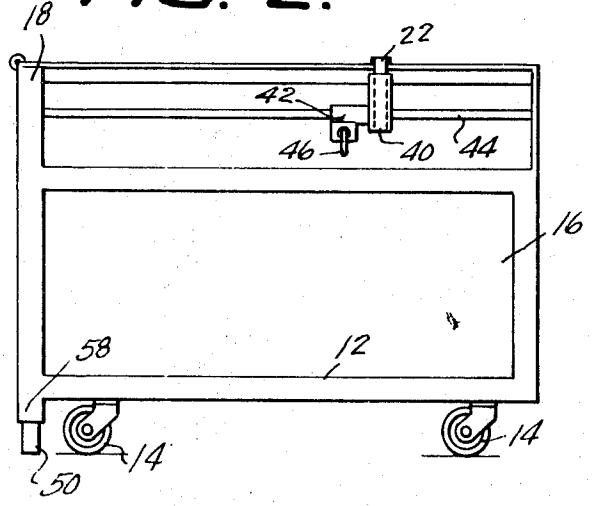
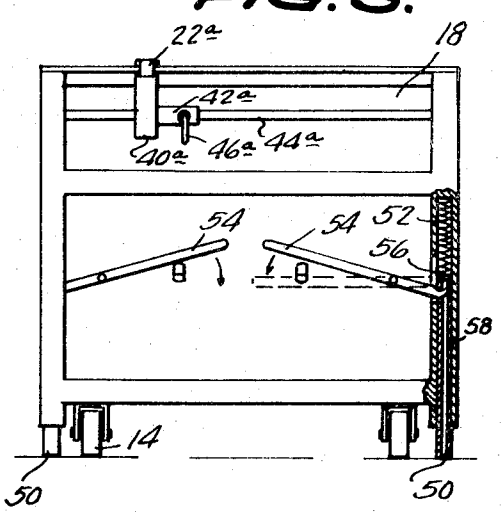


FIG. 3.



INVENTOR.
MARION D. CLINE,
BY
Berman, Davidson & Berman.
ATTORNEYS.

FIG. 4.

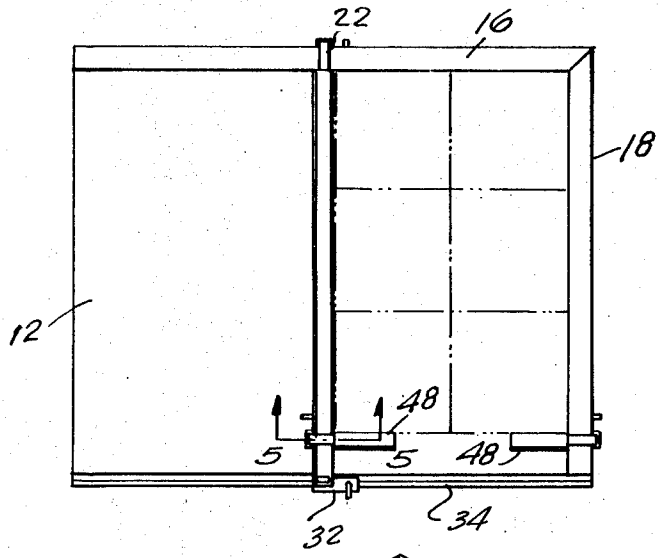


FIG. 5.

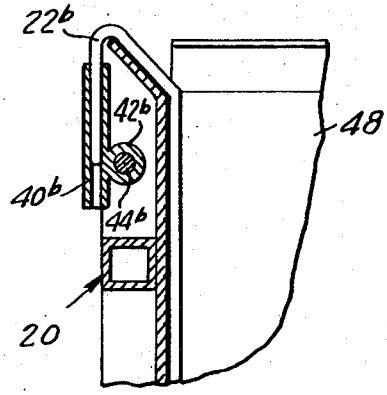


FIG. 6.

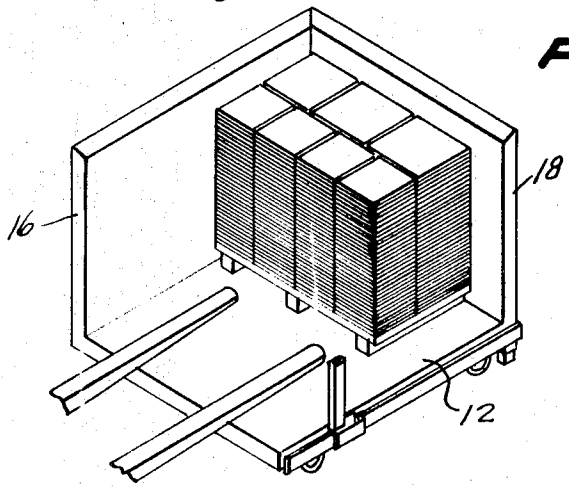


FIG. 7.

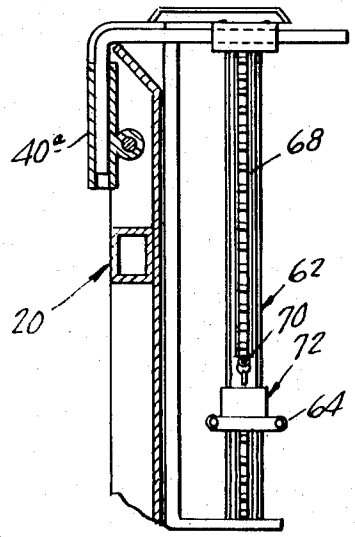
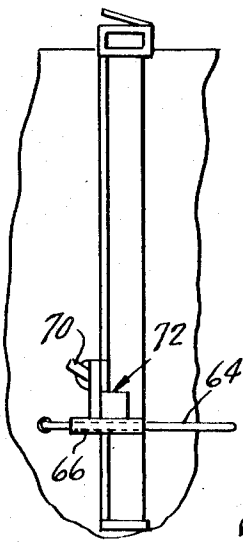


FIG. 8.



INVENTOR.
MARION D. CLINE,
BY
Berman, Davidson & Berman
ATTORNEYS.

AUTOMATIC SHEET STACKER DEVICE AND THE LIKE

It is an object of the present invention to provide an automatic stacking device for packing steel blanks or sheets directly from a power shear onto a skid or pallet, ready for banding and shipping.

It is an object of the present invention to provide a dolly platform device having a fixed sidewall and a fixed end wall and an adjustable wall that can be moved toward and away from the fixed end wall with other guide means that can be moved toward and away from the fixed sidewall so that an automatic stacker is provided for receiving a plurality of steel blanks directly from a power shear onto the dolly platform which will double the production of a shear, when the hand method of stacking or packing is used.

It is yet another object of the present invention to provide an automatic stacking device that is economical and has a low manufacturing cost, in that no electric, air or hydraulic mechanism is used so that it can be easily installed and requires very low or little maintenance.

It is yet another object of the present invention to provide an automatic stacking dolly platform device that utilizes gravity feed from another machine, such as a shear machine, and which is versatile in that it can stack any size or gauge material and any amount of stacks of material desired on a single skid or pallet.

It is yet another object of the present invention to provide an automatic stacking device for packing steel blanks and the like which adjusts automatically to various high skids or pallets when rough lumber is used, and which can further pack or stack blanks as small as five inches square.

Various other objects and advantages will be readily apparent from the following detailed description when considered in connection with the accompanying drawings, forming a part thereof and in which:

FIG. **1** is a perspective view of the automatic stacking device embodied in the present invention;

FIG. **2** is a side view of the dolly platform automatic stacker embodied in the present invention;

FIG. **3** is an end view of the automatic stacker shown in FIG. **2**, with portions broken away to indicate the biasing brake means incorporated in the invention;

FIG. **4** is a plan view of the automatic stacker device of the present invention;

FIG. **5** is an enlarged detail view taken along the lines **5–5** of FIG. **4**;

FIG. **6** is a perspective view illustrating a stacked pile of blanks disposed on a pallet and ready to be lifted from the automatic stacker device of the present invention by a fork lift or other material handling device;

FIG. **7** is a view of a lift attachment for the automatic stacker device of the present invention when stacking or handling cut segments smaller than 12 inches; and

FIG. **8** is a side view of the lift attachment illustrated in FIG. **7**.

Referring to the drawings, the reference numeral **10** generally designates the automatic stacker device of the present invention which is provided with a dolly platform or bottom **12** to the underside of which is secured a plurality of heavy duty caster wheels **14**.

One side of the dolly platform **12** is provided with a fixed vertical sidewall **16** and one end of the platform is provided with a fixed end wall **18**. The other side and end of the dolly platform **12** is open and has no vertical wall attached thereto.

The dolly platform is provided with a removable and adjustable side or frame **20** which is provided with a hook member **22** adjacent one side thereof, which slides along the upper edge **24** of the fixed sidewall **16**. The other side of the adjustable side or frame **20** is provided with an L-shaped tongue member **26** which fits into a rectangular sleeve disposed on top of a vertical member **30** which has on its lower end a slide member **32** which can be slidably moved along a track or guide member **34**. The slide member **32** is provided with a lock handle **36** which may be a threaded member which when

turned will engage the top of the track or guide member **34** so as to fix the member **30** in a predetermined position after the frame **20** has been moved toward or away from the end wall **18** the desired distance. The lock handle **36** may use other suitable means for locking the slide member **32** in a predetermined fixed position.

Referring to FIG. **2**, it will be seen that the hook member **22** is secured to a vertical member **40** disclosed on the outer side of the fixed wall **16**. The member **40** is secured to a horizontal sleeve **42** which slides along a horizontal guide bar **44**. The sleeve **42** can be fixed with respect to the horizontal bar **44** by the lock handle **46** after the frame **20** has been moved a predetermined distance from the fixed end wall **18**. The lock handle **46** can be of a threaded type so that when it is turned in one direction it will act like a set screw and prevent the sleeve **42** from moving, or the lock handle means may be any other desired type.

Referring to FIG. **1**, the automatic stacker device of the present invention is further provided with a pair of vertical adjustable guides generally designated **48** for movement in a direction toward and away from the fixed sidewall **16**. One adjustable guide member is disposed on a hook member **22***a* which extends over the top edge of the fixed end wall **18** and which hook member **22***a* is substantially identical to the previously described hook member **22**. The other guide member **48** is also provided with a hook member **22***b*, which is substantially identical to the hook member **22***a*. The vertical adjustable guide members **48** are adapted to be slid along their respective surfaces and to be disposed in a fixed position on guide bars **44***a* and **44***b* which are identical to that described in connection with the guide bar **44**. The guide member **48** which is disposed on the end wall **18** is also provided with a vertical member **40***a* and a sleeve member **42***a* and a handle member **46***a*, which are identical in construction and function to the members **40**, **42** and **46** described in connection with the movement of frame **20** along the wall **16**. The guide member **48** is positioned in a predetermined location on the frame **20** by moving the member **40***b* and the sleeve **42***b* along the horizontal rod **44***b*, which parts are identical in construction and operation to the parts **40** and **42** and **44**, described in connection with the movement of the frame **20** along the wall **16**. The locking handle **46***b* is also identical in construction to the lock handle **46** already described.

Referring to FIG. **3**, the stacker device is provided with two telescoping sleeves **50** adjacent the fixed end wall **18**, which are normally forced or biased downwardly by spring members **52** so that the sleeves **50** engage the surface upon which the caster wheels **14** roll, in order to maintain the device in a fixed position after it has been moved. Pivoted levers **54** are provided for moving the sleeves upwardly against the force of the springs **52** in order to move the stacker device to a different position and to move the bottom of the sleeves **50** out of contact with the ground or surface upon which the device is located. The levers **54** have their ends which move the sleeves **50** extending through the slots **56** and the tubes **58** in which the sleeves **50** telescope. The levers **54** are provided with any suitable lug means **60** for maintaining the levers **54** in the position shown in dotted lines in FIG. **3**, to maintain the telescoping sleeves **50** in an upward position when desired.

In operation, it is apparent that the automatic stacker device can be readily adjusted for receiving a stack of steel blanks and can be adjusted so as to receive a particular size of blanks by moving the frame **20** toward or away from the end wall **18** the proper distance and by adjusting the guides **48** toward and away from the sidewall **16** the proper distance to receive the stacks.

Referring to the lift attachment illustrated in FIGS. **7** and **8**, this lift attachment is provided to handle cut segments smaller than 12 inches which cannot be stacked successfully in a conventional manner. The lift attachment consists of a jack **62** with a pair of prongs or forks **64** disposed in sleeves **66** to receive blanks thereon. The jack **62** is a conventional automobile-type jack, although it may be of another type if desired.

The jack has a rack **68** and a socket **70** for receiving an elevating lever and a lift assembly **72** which moves up and down the rack **68** as the lever is operated, and carries the forks **64** therewith. The lift attachment is removably connected to the frame **20** and can be readily inserted into the member **40***b*, as seen in FIG. **7**, which normally carries the adjustable guide member **48**. The lift attachment is lowered to accommodate more blanks. The frame **20** is moved very close to the endwall **18** and the lift attachment is moved so that its forks **64** are closely adjacent the fixed wall **16** when it is desired to receive or stack a plurality of segments smaller than 12 inches. As the segments accumulate on top of the forks, the lift is lowered to accommodate more. When the desired amount is reached, the lift is completely lowered to the pallet, and the forks are removed by a tool allowing segments to be placed on the pallet. Operation is repeated as desired or until the pallet is completed.

Thus, from the foregoing description, it is apparent that the present invention provides an automatic stacker device which can be very easily adjusted to accommodate the stacking of various sizes of steel blanks and further provides a device that has a lift attachment for receiving very small segments to be stacked. The present invention further provides a device in which all of the adjustable guide means can be readily removed from the device or lifted therefrom so as not to interfere with the removal of the pallet and the stacked blanks by a fork lift truck and the like.

Inasmuch as various changes may be made in the relative arrangement and form and location of the parts without departing from the spirit and scope of the present invention, the invention is not meant to be limited except by the scope of the appended claims.

I claim:

1. A stacking device for sheet material comprising: a flat dolly platform having a plurality of swivel caster wheels thereon; a first substantially vertical sidewall extending along one side of the platform and a first substantially vertical end wall extending along one end of said platform; a movable frame disposed on said platform to move in a direction toward and away from said end wall; a pair of substantially vertical horizontally adjustable guide members mounted on said frame and end wall respectively; for movement toward and away from said sidewall; and brake means extending below said platform for preventing movement of said device after it has been moved to a predetermined location.

2. The device of claim **1** wherein said frame extends transversely of said platform, and said sidewall has a slide bar disposed therein and said frame has a hook assembly adapted to slide along said bar to adjust the distance of said frame from said end wall.

3. The device of claim **2** wherein said frame has a parallel slide bar, and a hook assembly is provided for sliding along said frame bar and one of said adjustable guide members is detachably connected to the frame hook assembly for movement toward said sidewall.

4. The device of claim **3** wherein said end wall has a parallel slide bar, and a hook assembly is provided for sliding along said end wall slide bar and the other of said adjustable guide member is detachably connected to said end wall slide bar for movement toward and away from said sidewall.

5. The device of claim **4** wherein lock handle means are provided for locking their respective hook assembly along their respective slide bar at a predetermined location.

6. The device of claim **5** wherein said brake means comprises telescoping tube members with a biasing means normally urging one of said tube members in downward position so as to bear against the floor on which said device is disposed, and handle means for lifting said one tube member upwardly to release said brake means.

7. The device of claim **6** wherein detachable lift means are provided for handling small segments including fork means.

8. The device of claim **7** wherein said detachable lift means includes a vertical rack and socket means for receiving an elevating handle, and a lift assembly operatively connected to said rack assembly for moving up and down said rack, and said fork means includes spaced horizontal prongs secured to said lift assembly.