Oct. 28, 1947. J. F. WASCO 2,429,969

MATERIAL LIFTER

Filed Jan. 22, 1946 2 Sheets-Sheet 1

Fig. 2.

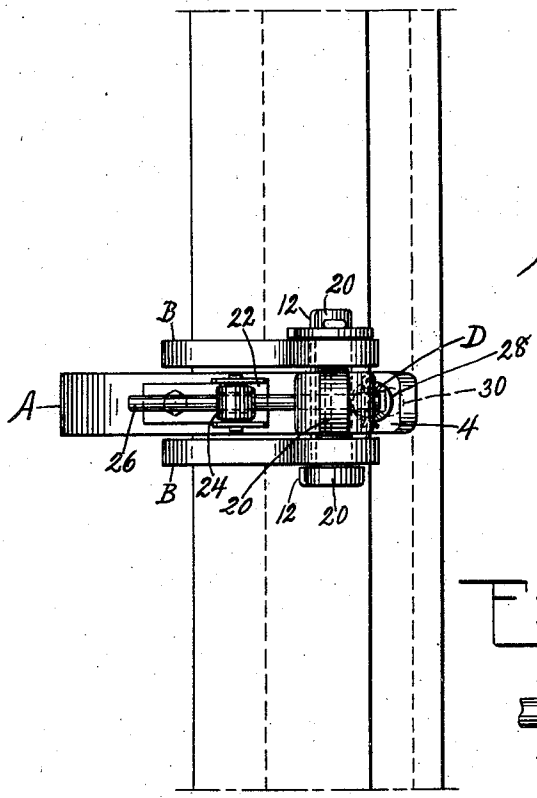


Fig. 1.

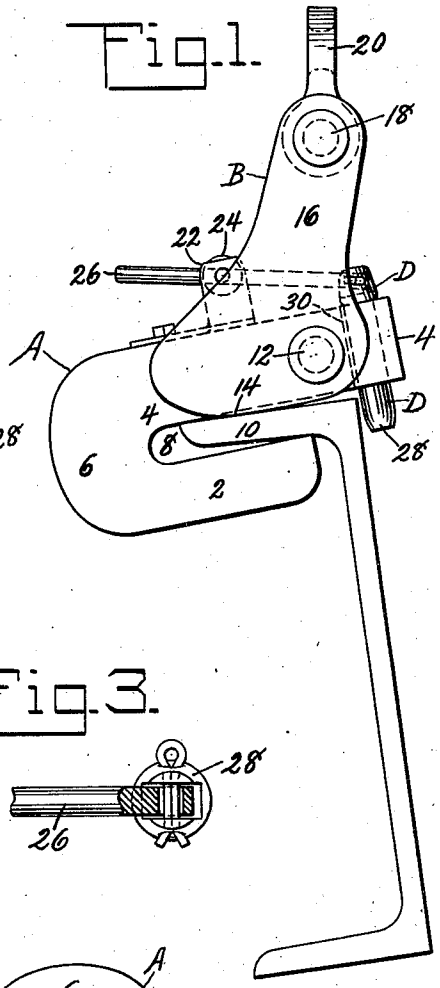
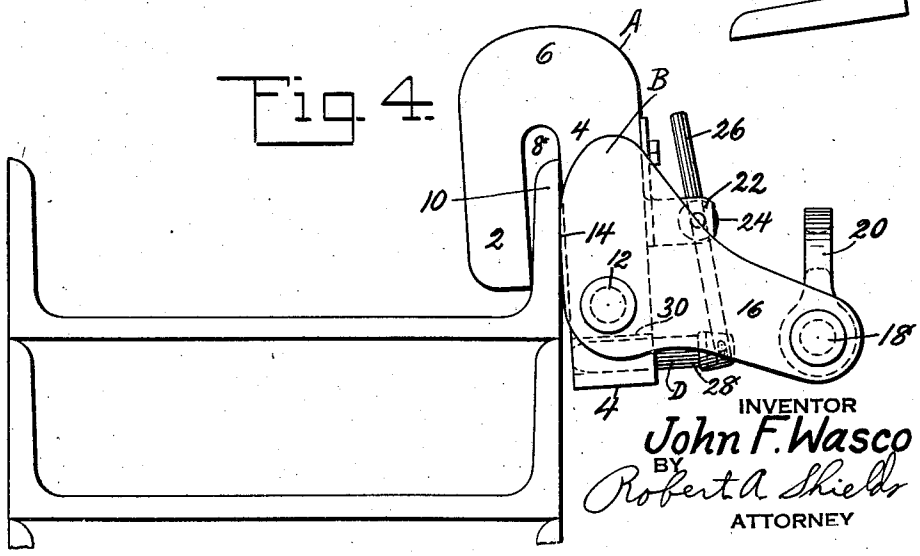


Fig. 3.

Fig. 4.



INVENTOR
John F. Wasco
BY
Robert A. Shields
ATTORNEY

Oct. 28, 1947. J. F. WASCO 2,429,969

MATERIAL LIFTER

Filed Jan. 22, 1946 2 Sheets-Sheet 2

Fig. 5.

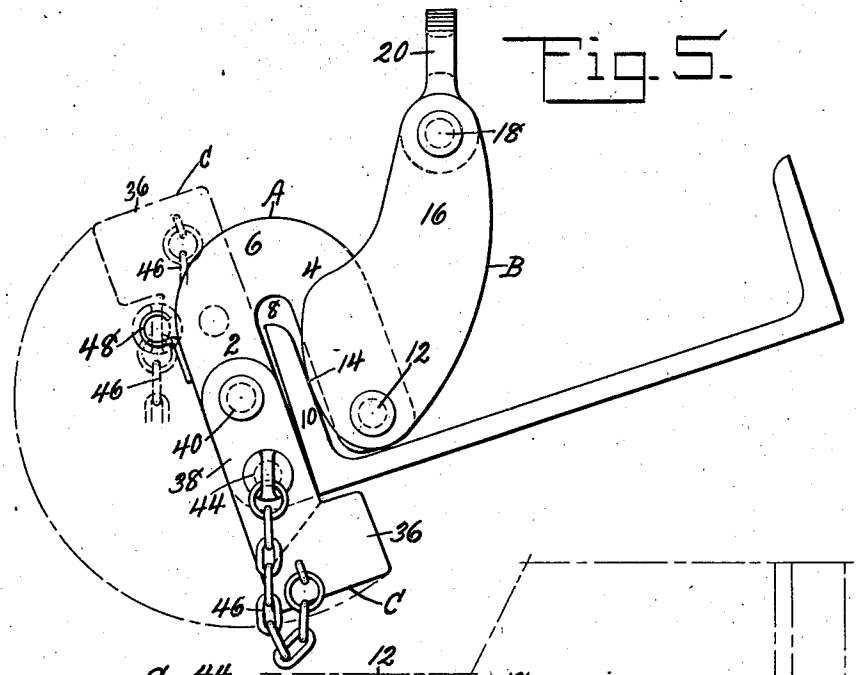


Fig. 6

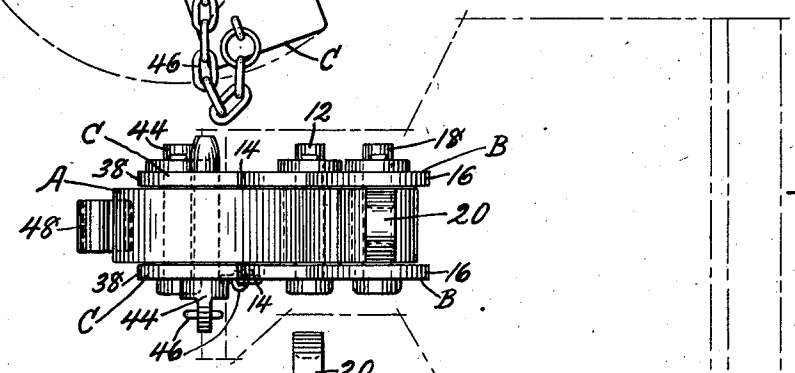
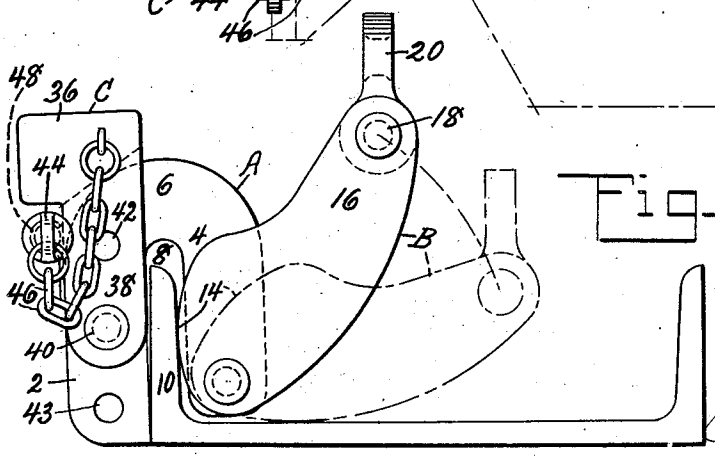


Fig. 7.



INVENTOR
John F. Wasco
BY
Robert A. Shields
ATTORNEY

Patented Oct. 28, 1947

2,429,969

UNITED STATES PATENT OFFICE

2,429,969

MATERIAL LIFTER

John F. Wasco, Berwick, Pa., assignor to American Car and Foundry Company, New York, N. Y., a corporation of New Jersey

Application January 22, 1946, Serial No. 642,687

8 Claims. (Cl. 294—104)

1

This invention relates to material lifters in general and in particular to material lifters intended primarily for use in handling rolled sections, such as channels, angles, etc.

In handling rolled sections, such as angles, it has been necessary to separate the members so that chains or other means could be passed around the member so that it could be lifted and transported to the desired position. Any means of separating members will, of course, consume space and accordingly reduce the number of members which can be piled in a given space. Also, the use of chains complicates the handling problem exceedingly where the channel or other member is to be placed on a flat table or similar structure preliminary to being measured or punched. It is an object, therefore, of the present invention to provide material lifters which can readily grip the member to be lifted irrespective of its position in a pile of members.

Another object of the invention is the provision of a material lifter adapted to grip the flange of a rolled member and transport the member without any danger of droppage.

A further object of the invention is the provision of a material lifter including safety means positively preventing droppage of the lifter member from the lifter.

A still further object of the invention is the provision of a material lifter which includes an automatically operating means preventing loss of the lifted member from the lifter.

These and other objects of the invention will be apparent to persons skilled in the art from a study of the following description and accompanying drawings, in which

Fig. 1 is an elevational view of the lifter shown in position to transport a channel;

Fig. 2 is a plan view of the lifter of Fig. 1;

Fig. 3 is a detail of a portion of the safety locking means;

Fig. 4 is an elevational view showing one manner of applying the lifter to grip a channel to be lifted;

Fig. 5 is an elevational view similar to Fig. 1 but showing a modification thereof;

Fig. 6 is a plan view of the modified lifter of Fig. 5, and

Fig. 7 is an elevational view showing the lifter in position to raise a channel.

Referring now to the drawings in detail, it will be seen that the lifter comprises three main parts, namely, the U-shaped jaw member A, gripping cam members B and safety dog or catch member D. As clearly shown by the figures, the

2

U-shaped jaw member A is formed with spaced arms 2 and 4 joined together by a curved portion 6 of sufficient strength to resist the strains to which it may be subjected. The arms 2 and 4 are spaced apart to provide a slot 8 of sufficient width to receive the flange 10 of a channel or other flanged rolled member. Although the lifter has been shown as transporting a channel, it is obvious that it will have equal use in connection with Z's and angles, either plain or bulb, as well as T's and other shapes and can in an emergency even be used to lift plate, but is not intended for this latter use. It will be seen that the leg 4 of the U-shaped jaw member is pierced to receive a bolt or pin member 12 extending through the jaw member and through spaced gripping cam members B. These spaced gripping cam members are formed to provide a cam shaped surface 14 adapted to engage the flange of the rolled member and grip the same by exerting pressure upon the flange member which bears on its opposite side against the arm 2 of the jaw member. The cam members are extended as at 16 to receive a bolt or pin 18 upon which is pivotally mounted between the spaced gripping cams a lifting eye element 20 adapted to be fastened to a hoist hook or other lifting means. It will be seen from a comparison of Figs. 1 and 5 that the cam shaped portion 14 will vary slightly, since in the form shown by Fig. 1 the cam portions grip the flat part of the flange, while in Fig. 5 they grip the tapered surface of the flange.

In the form shown in Figs. 1 to 4 inclusive, which is intended primarily to transport rolled members in a hanging position such as shown in Fig. 1, the safety latch or locking member is mounted on the arm 4 of the jaw member. This mounting is accomplished by fastening a support 22 on the jaw arm between the spaced gripping cams and this support pivotally carries a block 24 through which is slidably extended a rod 26. To one end of the rod 26 is fastened a relatively heavy pin 28, which pin can rise or fall in a hole 30 formed in the outer end of arm 4 of the U-shaped jaw member.

In the form shown in Figs. 5, 6 and 7 the safety catch or dog is mounted on arm 2 of the U-shaped jaw member and as shown is formed with a solid end portion 36 of considerable weight, from which extend spaced arms 38. These spaced arms are pierced at their outer end to receive a bolt or pin 40, upon which the safety dog can freely swing. The arms are also pierced as at 42 in alignment with a similar hole 43 in arm 2 of the jaw member so as to receive a secondary

safety locking pin 44. This locking pin is attached to the safety catch or dog C by means of a chain or other flexible means 46. In order that the safety dog or catch may be rendered inoperative when desired, a loop 48 is attached to the arm 2 and is adapted to receive the pin 44, thus retaining the safety catch in the position shown in Fig. 7.

With the lifter as shown in Figs. 1 to 4 it is only necessary to drop the lifter over the flange of the channel or other member to be lifted and in the position as clearly shown in Fig. 4. Application of power to eye 20 will cause the cam surfaces 14 to jam the flange 10 of the channel against arm 2 of the jaw member, thus gripping the channel and rotating it toward the position of Fig. 1. During the rotation from the position of Fig. 4 to the position of Fig. 1 the safety dog or catch will automatically operate, due to the heavy pin 28 dropping downwardly under influence of gravity to the position of Fig. 1 in which it effectively blocks any movement of the flange out of the space 8 between the arms of the U-shaped jaw member. The channel or other rolled member can then readily be transported and handled without any danger of droppage. When it is desired to release the channel or other rolled member, it is only necessary to depress the free end of rod 26, thereby lifting pin 28 and removing the lifter from the channel as soon as hoist pressure has been relieved.

In the form shown in Figs. 5, 6 and 7 the lifter will be applied to the inside of the channel or other rolled member with the gripping cams in the position shown by line and dash of Fig. 7. Application of lifting power to eye 20 will cause the cam surfaces 14 to jam the channel flange against arm 2, thereby permitting preliminary lifting at least of the channel. As soon as the channel or other member has been lifted slightly from the floor, table or other supporting structure, pin 44 will be removed from the loop 48, thus allowing the safety catch or dog to swing downwardly from the line and dash position of Fig. 5 to the full line position, after which the pin 44 can be inserted in holes 42 and 43, thus effectively locking the safety catch or dog so that weighted end 36 blocks the exit from slot 8. It will be seen in all cases where the pin 44 has not been placed in loop 48 that the safety catch will automatically swing downward to a position blocking egress from the slot 8 of any element retained therein.

From the preceding it will be seen that the material lifter positively grips the flange of the rolled member and that the loss of the rolled member from the lifter can not be accomplished accidentally since it is necessary to positively operate the safety catch or dog. The lifter of Figs. 1 to 4 will, of course, be most advantageous where the channel or other member is to be handled with the web portion vertical, whereas the lifter of Figs. 5 to 7 is more suited to cases where the channel is to be handled in a horizontal position. In ordinary handling, however, for transporting, lifting or loading either type of lifter can be used without any danger of accidental droppage. It will be obvious that in handling plate either type of lifter can be used in an emergency, but without the safety locking feature, unless there is a hole or opening in the plate into which pin 28 or weighted end 36 can be inserted. It will be obvious to persons skilled in the art that various modifications, other than those described, may be made and all such modifications are contemplated as will fall within the scope of the appended claims.

What is claimed is:

1. In a material lifter of the character described, the combination of a jaw member having spaced arms defining a slot therebetween, a gripping member pivotally carried by one of said arms, said gripping member being provided with lifting means and a cam surface movable toward the other of said arms, and safety latch means movably carried by one of said spaced arms and movable into position blocking removal of material lengthwise of said slot.

2. In a material lifter of the character described, the combination of a jaw member having spaced arms defining a slot therebetween for reception of material to be lifted, spaced gripping members pivoted to one of said arms, said gripping members being provided with lifting means and cam surfaces movable toward the other of said arms to grip material in said slot, and safety latch means carried by one of said spaced arms and movable into position blocking removal of material lengthwise of said slot.

3. In a material lifter of the character described, the combination of a jaw member having spaced arms defining a slot therebetween for reception of material to be lifted, spaced gripping members pivoted to one of said arms, said gripping members being provided with lifting means and cam surfaces movable toward the other of said arms to grip material in said slot, and safety latch means slidably carried by one of said spaced arms and slidable into position blocking removal of material lengthwise of said slot.

4. In a material lifter of the character described, the combination of a jaw member having spaced arms defining a slot therebetween for reception of material to be lifted, spaced gripping members pivoted to one of said arms, said gripping members being provided with lifting means and cam surfaces movable toward the other of said arms to grip material in said slot, and safety latch means pivotally carried by the arm opposite from said gripping members and swingable into position blocking removal of material lengthwise of said slot.

5. In a material lifter of the character described, the combination of spaced gripping members, a lifting eye pivotally mounted between said spaced gripping members, a U-shaped jaw member having spaced arms one of which is pivotally mounted between said spaced gripping members remote from said lifting eye, cam surfaces formed on said spaced gripping members and movable toward the other arm of said U-shaped jaw member to grip material inserted between the arms, and safety locking means carried by said U-shaped jaw member and movable into position positively blocking removal of material lengthwise of the U-shaped member.

6. In a material lifter of the character described, the combination of spaced gripping members, a lifting eye pivotally mounted between said spaced gripping members, a U-shaped jaw member having spaced arms one of which is pivotally mounted between said spaced gripping members remote from said lifting eye, cam surfaces formed on said spaced gripping members and movable toward the other arm of said U-shaped jaw member to grip material inserted between the arms, and safety locking means carried by said U-shaped jaw member and movable into position positively blocking removal of

material lengthwise of the U-shaped member, said safety locking means being pivotally mounted on an arm of the U-shaped jaw member and swingable into blocking position.

7. In a material lifter of the character described, the combination of spaced gripping members, a lifting eye pivotally mounted between said spaced gripping members, a U-shaped jaw member having spaced arms one of which is pivotally mounted between said spaced gripping members remote from said lifting eye, cam surfaces formed on said spaced gripping members and movable toward the other arm of said U-shaped jaw member to grip material inserted between the arms, and safety locking means carried by said U-shaped jaw member and movable into position positively blocking removal of material lengthwise of the U-shaped member, said safety locking means being slidably mounted on the arm of the U-shaped jaw member to which said gripping members are pivoted.

8. In a material lifter of the character described, the combination of spaced gripping members, a lifting eye pivotally mounted between said spaced gripping members, a U-shaped jaw

member having spaced arms one of which is pivotally mounted between said spaced gripping members remote from said lifting eye, cam surfaces formed on said spaced gripping members and movable toward the other arm of said U-shaped jaw member to grip material inserted between the arms, safety locking means carried by said U-shaped jaw member and movable into position positively blocking removal of material lengthwise of the U-shaped member, and means preventing accidental movement of said safety locking means.

JOHN F. WASCO.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,021,564	Warnitz	Mar. 26, 1912
1,279,274	Comrie	Sept. 17, 1918
1,351,530	Meals	Aug. 31, 1920
1,888,083	Holz	Nov. 15, 1932
2,359,146	Odell	Sept. 26, 1944