

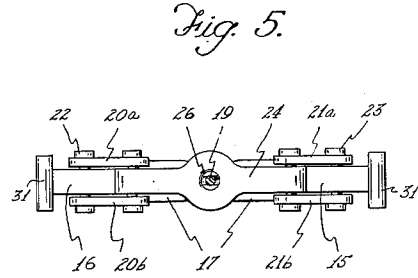
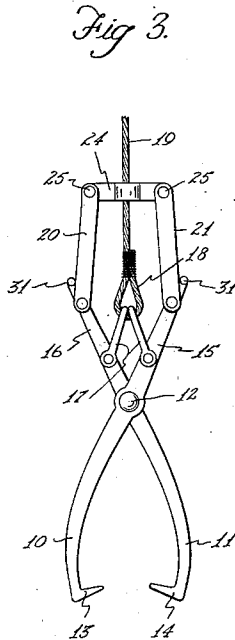
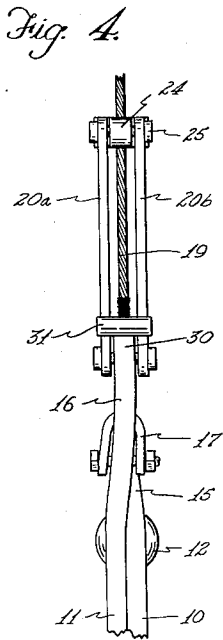
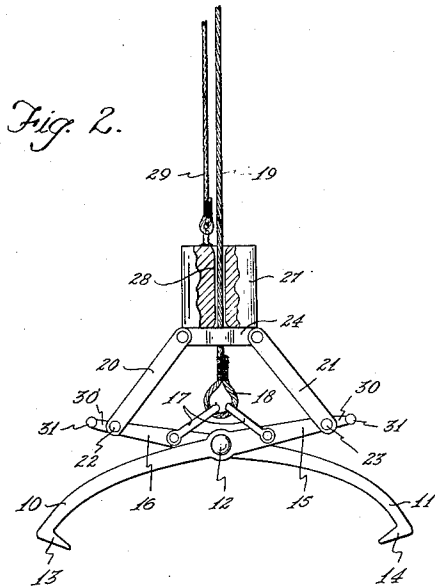
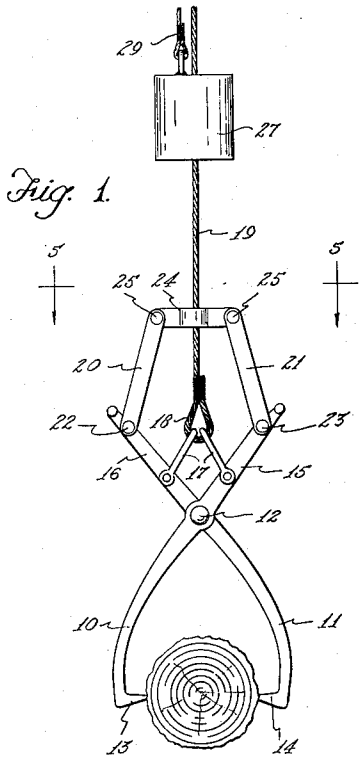
Sept. 4, 1956

D. MOORE

2,761,727

LOGGING TONGS AND MEANS FOR OPENING AND CLOSING SAME

Filed June 14, 1954



INVENTOR.

Durward Moore

BY

Grech Wells

Atty.

2,761,727

LOGGING TONGS AND MEANS FOR OPENING AND CLOSING SAME

Durward Moore, Snider, Mont.

Application June 14, 1954, Serial No. 436,524

4 Claims. (Cl. 294—118)

The present invention relates to improvements in a device for opening and closing logging tongs.

In present day logging operations, the cut timber is often lifted and carried by tongs suspended by a cable from a crane or other lifting device. The tongs have inwardly directed spikes thereon which bite into the logs and secure them so that they may be lifted and carried. The difficulty encountered in the use of such devices is that the tongs do not open and release the logs automatically. When a log is lifted with a pair of tongs the spikes are imbedded in the wood firmly enough that they remain stuck until jarred loose. The present practice is to have a man at the releasing point to perform the task of jerking the tongs free of the logs, or to allow the logs to fall the last foot or two to the releasing point and jar the spikes loose by the impact. Both of these methods are impractical since they involve either additional manpower or possible damage to the loading surface whereon the logs fall. This is particularly true where logs are loaded on trucks or docks.

It is the principal purpose of my invention to provide a pair of tongs which may be opened and closed by the operator of the crane or jammer without the aid of another man and without the necessity of allowing the logs to fall to the loading surface.

My invention comprises a pair of tong elements pivotal near the upper ends and having upper arm portions extending beyond the pivot. Each of the upper arms has a clevis attached thereto intermediate the pivot and the free end. A supporting cable is attached to the clevises. Links are attached to the free ends of the arm portions and extend upwardly. A guide bar connects the upper ends of the links. The supporting cable extends upwardly through the guide bar to the boom of the crane or jammer. A weight or hammer is slidably mounted on the supporting cable above the guide bar and is adapted to be dropped on the guide bar to open the tongs.

The nature and advantages of my invention will appear more fully from the following description and the accompanying drawings wherein a preferred form of the invention is shown. The drawings and description are illustrative only and are not intended to limit the invention except insofar as it is limited by the claims.

In the drawings:

Figure 1 is a front view of a pair of tongs embodying my invention in position to carry a log;

Figure 2 is a view similar to Figure 1 except showing the tongs open;

Figure 3 is a view of a pair of tongs embodying my invention in closed position, and illustrating the means by which the tongs are held from closing too far;

Figure 4 is an enlarged partial side view of the device; and

Figure 5 is an enlarged plan view of the device looking in the direction of the arrows 5—5 of Figure 1.

Referring now to the drawings, my invention is shown in coordination with a pair of logging tong elements 10 and 11. The tong elements 10 and 11 are pivoted at 12

and have inwardly directed spikes 13 and 14 at their lower ends. The tong elements 10 and 11 have upper arms 15 and 16 which extend upward beyond the pivot 12 for a substantial distance. Each arm 15 or 16 has a clevis member 17 pivoted thereto intermediate its ends. The clevis members 17 pass through a loop 18 in a supporting cable 19 to support the tongs 10 and 11. The cable 19 extends upwardly to a sheave mounted on a crane boom and then down to a power winch. With this construction, the weight of the tong elements 10 and 11 causes them to grip objects placed between their jaws automatically. When the tongs are placed around a log such as is shown in Figure 1, their weight causes them to close about the log, and when the cable 19 is drawn taut, the weight of the log itself causes the spikes 13 and 14 to bite into the wood and secure the log for movement.

When it is desired to release the log, the cable is allowed to slacken, thus releasing the tension on the tong elements 10 and 11. However, the spikes 13 and 14 remain imbedded in the wood, so that when the cable is drawn up to remove the tongs, the log will again be gripped. It is necessary, therefore, to include some means by which the tong elements 10 and 11 may be spread to withdraw the spikes 13 and 14 from the wood. This frequently is done by raising the log from its resting place with the tongs and then allowing it to fall back, thus jarring the spikes loose. However, this procedure is undesirable when the resting place for the log is a truck bed or dock since repeated blows of the falling logs damage the structure. In the event that the resting place of the log is on a pile of other logs, this technique could result in dislodging the pile.

In order to open the tongs without allowing the log to drop, or without involving additional manpower to jerk the spikes loose, I provide a mechanism on the tongs 10 and 11 which may be operated by the crane operator to release the tongs from the log when desired.

To accomplish this result, I provide links 20 and 21 near the free ends of the arms 15 and 16. The links 20 and 21 are each comprised of two bars such as 20a and 20b shown in Figure 4. The bars 20a and 20b are positioned on either side of the arm 16 and a pivot pin 22 is provided to pivotally secure them to the arm 16. A similar pin 23 pivots the links 21a and 21b to the arm 15. The upper ends of the links 20 and 21 are secured together by a guide bar 24 and pivot pins 25 at each end of the guide bar 24. The guide bar 24 has a central aperture 26 to pass the cable 19.

The members 15, 16, 20, 21 and 24 form a pentagon having pivotal connections at each of its five vertices. If the guide bar 24 is forced downward as in Figure 2, the arms 15 and 16 will be spread, thus spreading the tong elements 10 and 11. To perform this action, a weight 27 is provided above the guide bar 24. The weight 27 has a central aperture 28 through which the cable 19 extends, so that the weight 27 may slide up and down on the cable 19. A lead cable 29 is attached to the weight 27 and extends upward beside the cable 19 to a sheave on the crane and then to the operator's platform.

When the weight 27 is drawn upon the cable 19 so that it is not resting on the guide bar 24, the weight of the tong elements 10 and 11 causes them to swing together. The arms 15 and 16 also swing together. If these arms 15 and 16 are allowed to close far enough so that the distance between the pivot pins 22 and 23 is less than the length of the guide bar 24, the links 20 and 21 will be placed in such position that downward pressure on the bar 24 will fail to open the tongs. To prevent this from occurring, I provide short extensions 30 on the arms 15 and 16 beyond the pivots 22 and 23. Transverse stop pins 31 are attached to the ends of the extensions 30. When the arms 15 and 16 close far

enough so that the links 20 and 21 are nearly in a vertical position, the stop pins 31 strike the links 20 and 21 and hold the arms 15 and 16 from closing further. Figure 3 shows the device in such a position.

The operation of the device is very simple. The operator merely allows the weight 27 to rest upon the bar 24, thus holding the tongs 10 and 11 open. When the tongs are positioned around a log, he draws the weight 27 up and the tongs 10 and 11 close on the log. When it is desired to release the log, the operator allows the cable 19 to slacken enough that there is no tension on the tongs 10 and 11. Then he drops the weight 27 on the guide bar 24. This forces the spikes 13 and 14 out of the log and opens the tongs to receive the next log.

It is believed that the nature and advantages of my invention appear fully from the foregoing description and the accompanying drawings.

Having thus described my invention, I claim:

1. A device for lifting and carrying logs or the like comprising a pair of curved tong elements pivotally connected near their upper ends and crossing each other at the pivotal connection, an arm portion on each tong element extending upwardly beyond the pivotal connection, a connecting member attached to each arm portion intermediate the pivotal connection and the free end, a supporting cable attached to the connecting members, a link pivotally attached to the free end of each arm portion and extending upwardly, a guide bar pivoted to and connecting the upper ends of the links, the supporting cable extending through the guide bar, a hammer member slidable on the cable above the guide bar so that it may be dropped on the guide bar and links to spread the tongs, and means to lift said hammer member.

2. A device for lifting and carrying logs or the like comprising a pair of curved tong elements pivotally connected near their upper ends and crossing each other at the pivotal connection, an arm portion on each tong element extending upwardly beyond the pivotal connection, a connecting member attached to each arm portion intermediate the pivotal connection and the free end, a supporting cable attached to the connecting members, a link pivotally attached to the free end of each arm portion and extending upwardly, a guide bar pivoted to and connecting the upper ends of the links, the supporting cable extending through the guide bar, extensions on the arm portions adjacent the links, stop members on the extensions whereby to engage the links as the upper ends of the arm portions approach each other and thereby position the links upright, a hammer member slidable on the cable above the guide bar so that it may be dropped on the guide bar and links to spread the tongs, and means to lift said hammer member.

3. A device for lifting and carrying logs or the like comprising a pair of curved tong elements pivotally connected near their upper ends and crossing each other at the pivotal connection, an arm portion on each tong element extending upwardly beyond the pivotal connection, a clevis pivotally attached to each arm portion intermediate the pivotal connection and the free end, a supporting cable having a loop formed in its end, said loop passing through each clevis and securing it to the cable, a pair of links positioned at the free end of each arm portion, said links being pivoted to each side of the arm and extending upwardly, a guide bar positioned above the arm portions and being pivotally connected at each end to the upper ends of the pairs of links, said guide bar having an aperture therein intermediate its ends, the supporting cable passing through said aperture, a weight slidable on the supporting cable above the guide bar so that it may be dropped on the guide bar and links to spread the tongs, and means connected to the weight to lift it from the guide bar.

4. A device for lifting and carrying logs on the like comprising a pair of curved tong elements pivotally connected near their upper ends and crossing each other at the pivotal connection, an arm portion on each tong element extending upwardly beyond the pivotal connection, a clevis pivotally attached to each arm portion intermediate the pivotal connection and the free end, a supporting cable having a loop formed in its end, said loop passing through each clevis and securing it to the cable, a pair of links positioned at the free end of each arm portion, said links being pivoted to each side of the arm and extending upwardly, a guide bar positioned above the arm portions and being pivotally connected at each end to the upper ends of the pairs of links, said guide bar having an aperture therein intermediate its ends, the supporting cable passing through said aperture, extensions on the arm portions adjacent the links, stop members attached to the ends of the extensions, said stop members each extending transversely of the pairs of links whereby to engage the links as the upper ends of the arm portions approach each other and thereby position the links upright, a weight slidable on the supporting cable above the guide bar so that it may be dropped on the guide bar and links to spread the tongs, and means connected to the weight to lift it from the guide bar.

References Cited in the file of this patent

UNITED STATES PATENTS

2,494,010 Spann ----- Jan. 10, 1950

FOREIGN PATENTS

206,391 Germany ----- Feb. 2, 1909