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2,947,514

LOG BINDER

Filed April 4, 1958

2 Sheets-Sheet 1

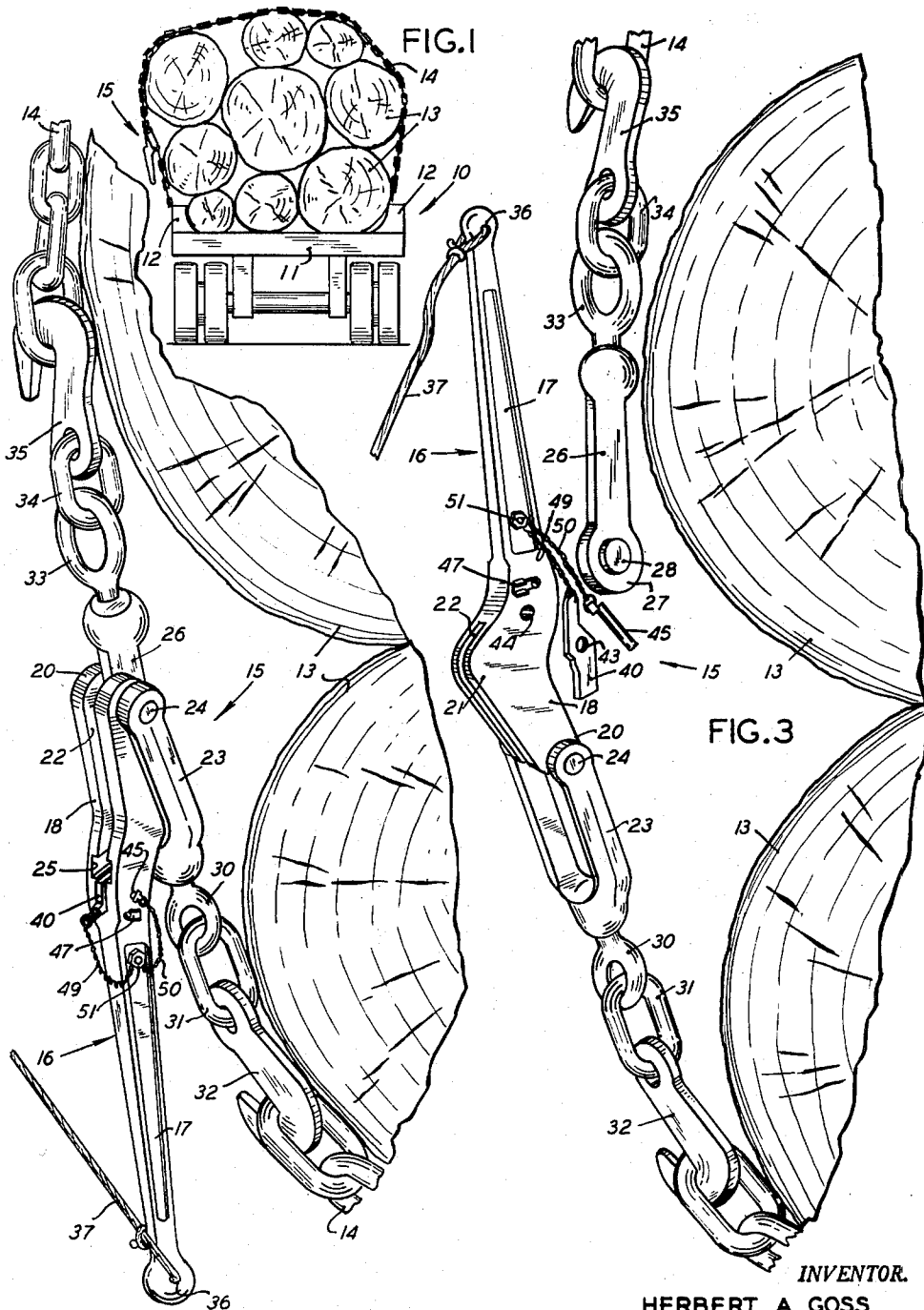


FIG. 2

FIG. 3

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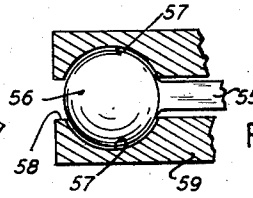
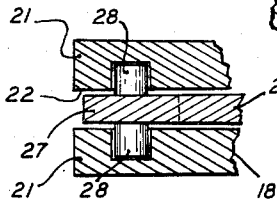
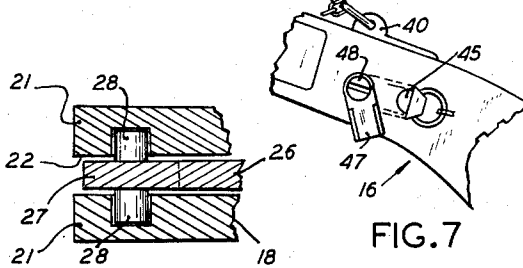
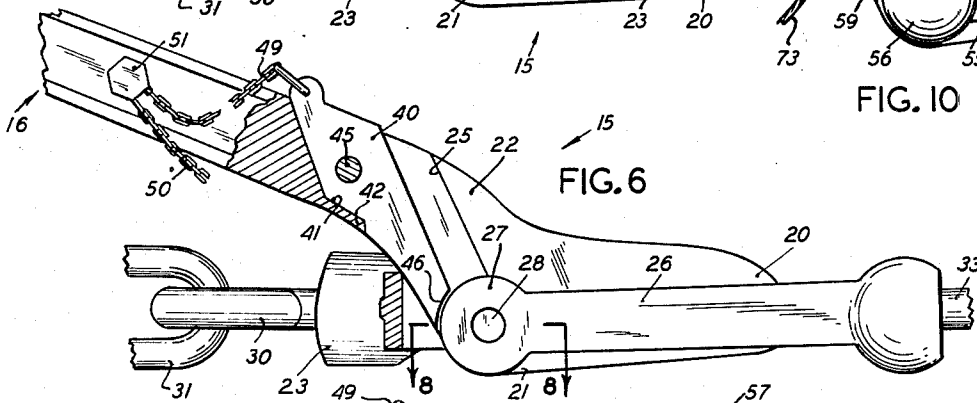
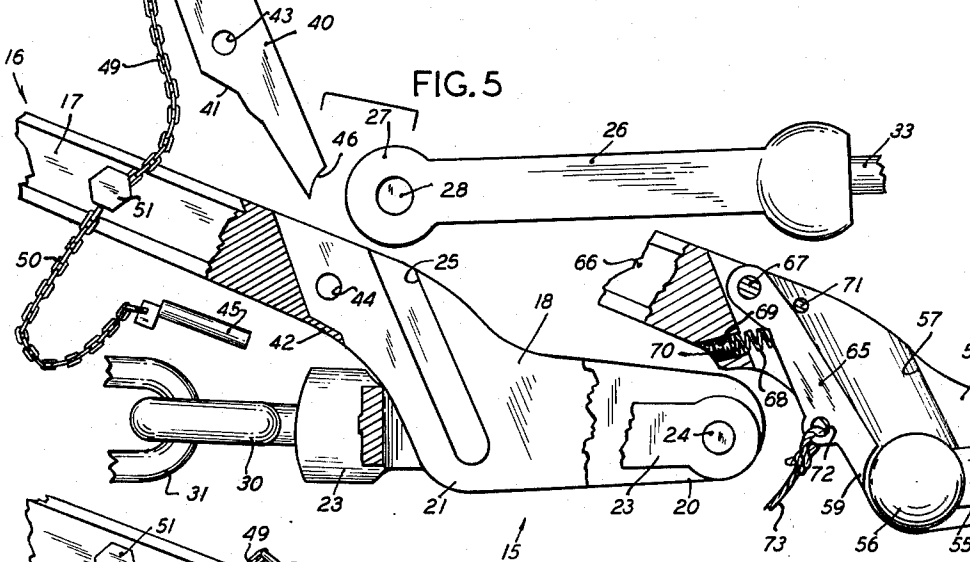
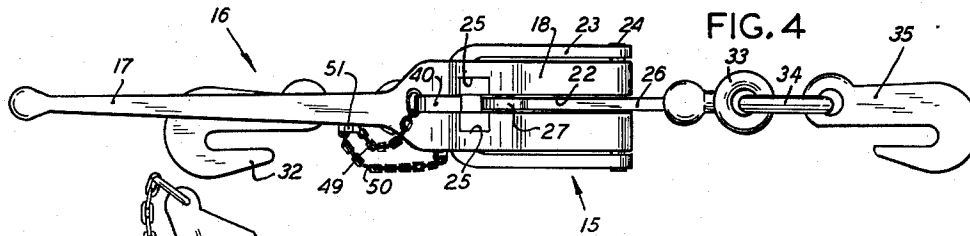


FIG. 9

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LOG BINDER

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4 Claims. (Cl. 254—78)

The present invention comprises a binder for tightening a flexible retainer about a load of logs or the like. While the invention has been particularly developed for the hauling of logs from the woods to a disposal point by motor, it will be readily appreciated that it is capable of use in any situation wherein a retainer such as a chain, cable, strap or the like is used to bind separate articles together.

In hauling logs from the woods it is customary to bind the logs at several points by means of binder chains which are tightened around the logs by a device generally known as a log binder. Such a device usually comprises an over center tightening linkage having hooks at opposite ends by means of which the ends, or intermediate links, of a length of chain may be drawn tightly around the load to prevent it from shifting while in movement. When the logs are positioned on the carrier, they obviously are in stable equilibrium so that a person is generally safe in positioning the chains and drawing them tight by use of the binders. However, during movement a load sometimes shifts with resulting danger to the person who loosens the chains. The carriers are generally provided with transverse bunks upon which the bottom logs rest and upon which they are retained by movable chocks or stakes at the ends of the bunks, but the upper logs may shift so as to overhang and be ready to roll down toward the sides of the truck immediately upon loosening the binders. Usually, the carrier is driven onto a laterally inclined unloading space so that, as soon as the binders, which are located on the high side, are released, the logs will tend to roll off toward the low side. Sometimes, however, a load so shifts that a log or logs will roll off toward the high side and crush the person releasing the binder. It is a principal object of the present invention to provide a binder which may be safely released at a distance by using a pull cord attached thereto.

Applicant appreciates the fact that log binders have heretofore been developed which may be released by the use of a pull cord, but the present invention is an improvement on any such prior art device in many particulars, including the following: When a load is released and rolls toward the low side, for example, rolling onto an inclined chute leading into a river or other body of water, the binder chains and attached portions of the binder may fly over the load and become crushed between the chute and the falling logs. The present invention eliminates the expense occasioned by the requirement of replacing or repairing crushed parts of the binder.

A further object of the present invention is to provide a log binder with a safety latch to prevent unintentional separation and loss of the separable parts when the binder is not in use, and in one form of the invention to provide a positive lock to prevent separation of the otherwise separable parts if the binder should accidentally be opened during hauling movements.

The foregoing and other objects and advantages of the present invention will be more readily understood by

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reference to the accompanying drawings, taken in connection with the following specification, wherein like numerals refer to like parts throughout.

In the drawings,

5 Fig. 1 is a rear view of a conventional log trailer having a load of logs thereon, bound by means of the present invention;

Fig. 2 is an enlarged detail view in perspective showing the binder in binding position;

10 Fig. 3 is a similar view showing the binder in released position;

Fig. 4 is a plan view of the binder in binding position;

15 Fig. 5 is an exploded view showing the several parts separated from each other and with parts broken away for clarity;

Fig. 6 is a partially broken away view showing the parts in binding condition;

20 Fig. 7 is a partial side elevation showing a detail of the locking device;

Fig. 8 is a partial section taken substantially along line 8—8 of Fig. 6;

Fig. 9 is a view similar to Fig. 8 showing a modification in a detail; and

25 Fig. 10 is a partially broken away view showing a modified form of latching device.

In Fig. 1 a conventional log carrier 10 is illustrated, the same comprising transverse bunks 11 upon which movable chocks 12 are mounted to hold the lower logs 13 in position. The logs are bound by binder chains 14 drawn taut by the log binder 15 of the present invention.

The form of the invention illustrated in Figs. 2 to 8, inclusive, comprises a preferred form of the device. The device comprises a lever 16 including an elongated, substantially straight handle portion 17 and a foot portion 18. The foot portion has a toe 20 which is substantially in line with the handle portion 17 and a heel 21 which is offset from the toe-handle portion line. The foot portion has a central, longitudinal groove 22 therein which opens at the toe and extends through the foot portion into the beginning of the handle portion. A clevis 23 is pivotally fixed to the toe on pintles 24 which journal the ends of the clevis arms for pivotal movement about a pivotal axis at right angles to the slot. The side walls of the slot are provided with opposed, parallel grooves 25 which extend forwardly at an acute angle to the handle portion 17, the slots having open ends at the top of the foot and extending to closed ends within the heel 21. The lever may be moved from a binding position as illustrated in Fig. 2 wherein the clevis embraces the foot portion to a releasing position as shown in Fig. 3 wherein the clevis and lever extend in opposite directions. A bar link 26 is provided with a head 27 including oppositely extending trunnions 28 capable of entering the grooves 25. When the binder is in binding position the bar link 26 lies within the slot 22 with the trunnions at the closed ends of the groove and over center with respect to the longitudinal axis of the clevis, as seen most clearly in Fig. 6.

The clevis is provided with a swivel eye 30 in which is engaged a link 31 supporting a hook 32 by which one end of the binder chain may be engaged. The bar link is provided with a swivel eye 33 engaging a link 34 which supports a hook 35 by means of which the opposite end of the binder chain may be engaged. After the ends of the chains are engaged with the hooks, the lever 16 may be thrown to binding position, causing the trunnions 28 to move over center so that the force exerted on the chain holds the device in binding position. When the lever is moved a slight distance in the opposite direction, the

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over center movement of the bar link causes continued movement of the lever until the trunnions 28 can slide out of the slots 25 to release the chains. The lever 16 is preferably provided with an opening 36 in its free end in which a wire cable 37 or rope may be engaged so that the operator can stand far clear of the load to effect releasing movement. If the logs or a portion thereof fall off toward the right, as seen in Fig. 1, the chain 14 will be thrown toward the ground but only the bar link will be thus positioned beneath the falling logs, and there is no crushable portion of the apparatus which might be damaged thereby. The comparatively crushable lever and clevis, on the other hand, fall beneath the truck so that if logs fall on the left side nothing will be damaged thereby. The cable 37 may be utilized as a safety device to bind the lever in binding position during movements.

Preferably a latch is provided to prevent separation of the binder parts. This latch is in the form of a short bar 40 capable of entering the slot 22, the bar 40 having a shoulder 41 to engage a limiting abutment 42 at the bottom of the slot. The bar 40 is provided with an opening 43 which is aligned with openings 44 in the end of the handle portion 17 to receive a locking pin 45. The bar 40 is provided with an end surface 46 which engages the head 27 and prevents its release as long as the locking pin 45 remains in position. A safety latch 47 is pivotally mounted on the side of the lever by means of a screw 48, the safety latch engaging a portion of the pin 45 to prevent its accidental displacement. The latch 40 is permanently attached to the lever 17 by means of a chain 49 and the pin 45 is permanently attached thereto by means of a chain 50, both chains being secured by a bolt 51, or equivalent device. When it is desired to release a load the safety latch 47 is moved to one side, and pin 45 withdrawn whereupon the latch 40 may likewise be withdrawn, or it may be forced out of the slot by the link bar 26 when it moves out of engagement with the foot.

A more rugged construction is provided in the modification of Fig. 9 wherein a modified form of link bar 55 is provided with a spherical knob end 56 for reception in appropriately shaped grooves 57 in the side wall of a slot 58 in a modified form of foot 59.

In the modification of Fig. 10 a movable latch 65 is pivotally mounted in permanent relationship with a modified handle 66 by means of a riveted pivot 67. The latch is in the form of an elongated bar having an end capable of engaging the spherical head 56 to prevent separation of the separable parts under normal handling. The latch is held in latching position by a spring 68 which is mounted in a bore 69 in the handle and retained by a threaded plug 70. A transverse abutment 71 engages the opposite side of the latch to limit inward swinging movement of the latch. The latch is provided with an eye 72 in which may be engaged a cable 73 so that disengagement of the latch may be manually accomplished if desired. The force of spring 69 is such that the latch

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will remain in latching position during normal handling of the binder. However, when the binder lever is moved toward disengaging position, the stress exerted by the heavy logs will displace the latch and permit separation of the bar link from the grooves 57.

Having illustrated and described preferred embodiments of my invention, it should be obvious to those skilled in the art that the same permits of other modifications in arrangement and detail. I claim as my invention all such modifications as come within the true spirit and scope of the following claims.

I claim:

1. A binder for tightening a flexible retainer about a load of logs or the like comprising a lever including a substantially straight, elongated handle portion and a foot portion including a heel and a toe, said toe being substantially in alignment with the handle portion and said heel being offset from the toe-handle portion line, said foot portion having a central longitudinal slot therethrough from the toe rearwardly through the heel, a clevis pivotally fixed to said toe along a pivotal axis at right angles to said slot, the side walls of said slot having a pair of opposed parallel grooves therein, said grooves having open ends at the top of said foot portion, extending diagonally forward into said heel toward the toe and having closed ends within said heel, said lever and said clevis being relatively movable from a load binding position in which said foot is embraced by said clevis to a releasing position in which said foot portion and said clevis extend in opposite directions, and an elongated bar link having a head slidably retained in said grooves, the closed ends of said grooves being over-center with respect to the clevis and said bar link lying within said slot when said lever and said clevis are in binding position, said bar link separating from said lever when said lever swings toward releasing position.

2. The construction set forth in claim 1 wherein a movable latch is positioned in said slot to prevent release of said head from said grooves and said lever has holding means for holding said latch in latching position relative to said head.

3. The construction set forth in claim 1 wherein a latch is removably positioned in said slot to prevent release of said head from said grooves, and said lever has lock means for holding said latch in said slot in latching engagement with said head.

4. The construction set forth in claim 2 wherein said holding means comprises spring means engaging said latch to hold the latch in said latching position until a predetermined load is placed on said bar link whereupon said spring means may yield to permit release of said bar link from said lever.

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