April 22, 1958 N. F. WATKINS 2,831,317

MEANS FOR ATTACHING BEATER CHAINS TO A ROTOR WEB

Filed Aug. 7, 1956

FIG. 1.

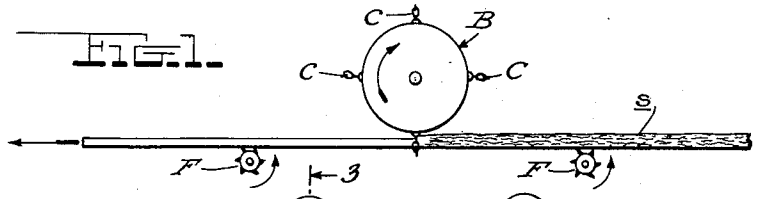


FIG. 2.

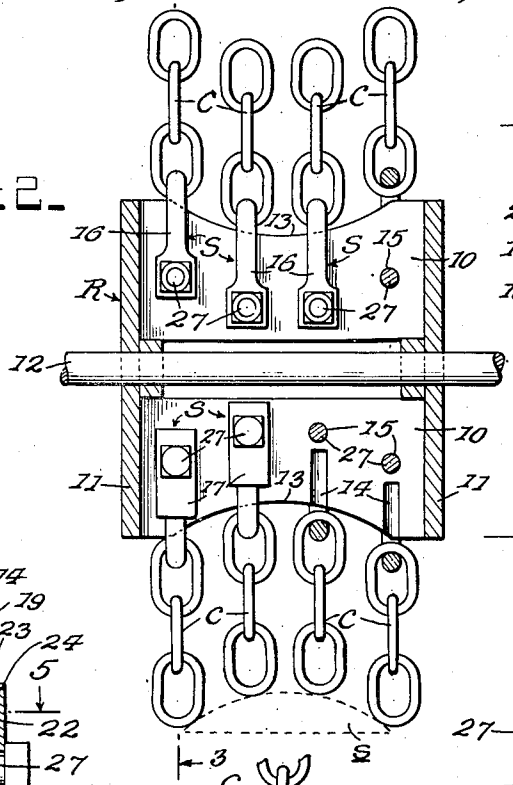


FIG. 6.

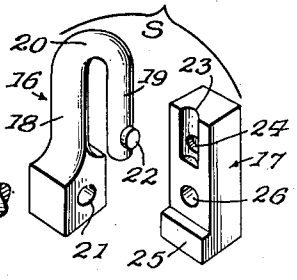


FIG. 4.

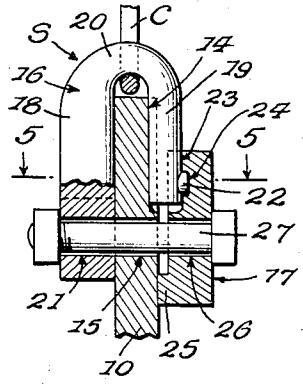
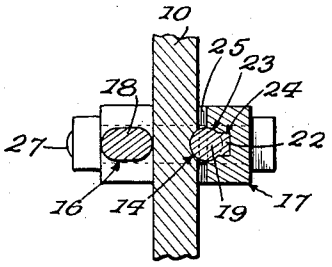


FIG. 5.



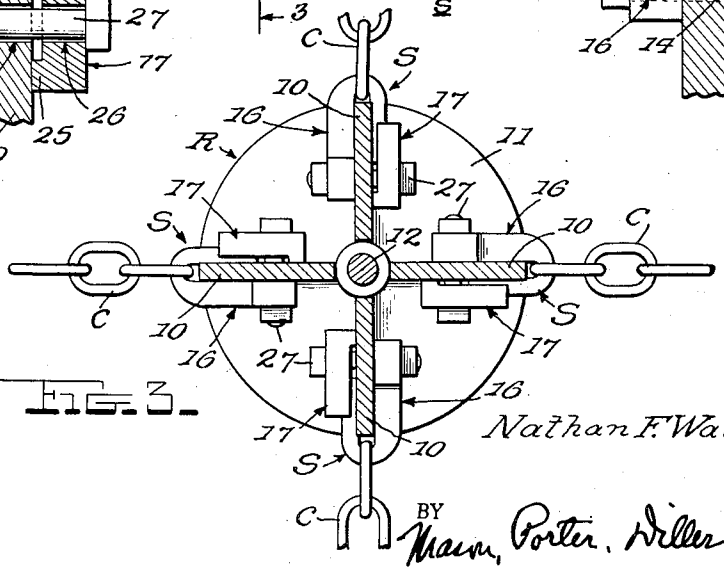


FIG. 3.

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MEANS FOR ATTACHING BEATER CHAINS TO A ROTOR WEB

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Application August 7, 1956, Serial No. 602,573

10 Claims. (Cl. 59—93)

This invention relates to a new and improved rotary beater having beater chains and intended primarily for beating the bark from slabs which have been cut from saw logs, thus making the slabs completely useable as pulp wood for the manufacture of paper, chip board, wall board and the like.

A beater of this general type is disclosed in my U. S. patent application, Serial Number 460,484, filed October 5, 1954, now Patent No. 2,792,860, dated May 21, 1957, and directed to a log-slab-debarking apparatus; and while the beater of that apparatus has proven to be of great advantage, it has been found that a beater having shorter chains and having such chains attached to the beater head or rotor more remotely from the center of rotation, will deliver harder, more accurately aimed and more effective blows against the bark. One object of the invention, therefore, has been to improve the beater in this regard and at the same time to provide a novel construction in which the outer ends of the beater chains will be disposed on an arc as they are held out by centrifugal force, said arc corresponding substantially to the curvature of the transversely arcuate bark-bearing sides of the slabs to be debarked, the efficiency of the chains being thus increased.

Another object of the present invention has been to provide a new and improved beater having radial webs, said webs having free concavely curved outer edges along which the short beater chains are spaced, said chains being of uniform length and extending equidistantly from said curved edges, whereby the outer ends of said chains will be disposed on the desired arcs.

A further object of the invention has been to provide new and improved chain-attaching shackles for individually connecting the beater chains with the rotor or beater head and permitting quick and easy replacement of any broken chain without disturbing any of the others.

Other objects, features and advantages of the present invention will be readily apparent from the following detailed description of a preferred embodiment thereof taken in conjunction with the accompanying sheets of drawings, in which:

In the drawings:

Figure 1 of the accompanying drawing is a diagram showing the improved beater associated with slab-feeding means.

Figure 2 is an enlarged substantially diametrical sectional view of the beater, some of the chain-attaching shackles being shown in section.

Figure 3 is a transverse sectional view on line 3—3 of Fig. 2.

Figure 4 is an enlarged radial section, partly in elevation, showing one of the chain-attaching shackles.

Figure 5 is a sectional view on line 5—5 of Fig. 4.

Figure 6 is a perspective view showing the chain-engaging hook and cooperating clamping block of one of the shackles.

The construction disclosed in the drawing has proven to be of maximum advantage from all standpoints and is

therefore preferably followed but it is to be understood that variations may well be made within the scope of the invention. Moreover, it is to be understood that any appropriate metal or metals may be employed and as the chains do not exert wear on any parts of the rotor or beater head, the latter need not be constructed of high-grade tempered steel. The shackles and chains, however, are preferably formed of such steel. It is to be further understood that even though the novel shackles are primarily intended for attaching beater chains to radial webs of a rotor or beater head, they are not restricted to this particular field of use.

Figure 1 of the drawing merely illustrates an operative association of the improved bark-removing beater B with toothed rools F for feeding the bark-bearing slabs *s* under said beater, as in the above-mentioned application.

The beater B comprises a beater head or rotor R, short beater chains C of uniform length, and shackles S connecting said chains with said head or rotor. The chains C are of conventional construction but have their links suitably hardened to resist wear. The shackles S are similarly hardened but the head or rotor R need not be.

The head or rotor R includes circumferentially spaced webs **10** disposed in radial planes. In the present disclosure, the ends of these webs are welded to end disks **11** and the latter are suitably secured to the shaft **12**. All of the webs **10** have the same radial dimensions and these webs are formed with concavely curved outer edges **13**. The curvature of these edges corresponds substantially to the transverse curvature of the bark-bearing sides of the slabs to be debarked.

One side of each web **10** is formed with shallow grooves **14**, the outer ends of which open through the curved edge **13** at points spaced about equidistantly along said curved edge. These grooves **14** terminate in spaced relation with the inner edges of the web **10**, and between said grooves and said inner edge, bolt holes **15** are formed through said web, these bolt holes being equidistant from the curved edge **13**.

Each shackle S includes a hook **16** and a clamping block **17**. The hook **16** comprises a straight shank **18**, a straight bill **19**, parallel with said shank **18**, and a bight **20** integrally joining said shank and said bill. The free end of the shank **18** is preferably enlarged and is formed with a bolt hole **21**. The bill **19** is provided near its free end with an integral lateral lug **22** which projects away from the shank **18**. In use, the shank **18** of the various hooks **16** lie against the ungrooved sides of the webs **10** and the bills **19** are disposed at the grooved sides of said webs and are seated in the shallow grooves **14**. The bights **20** are disposed at the curved edges **13** of the webs and extend through the innermost links of the chains C.

Each clamping block **17** is of elongated rectangular form and is provided in one side with a shallow groove **23** which opens through one end of the block. Near the inner end of this groove **23**, the block is formed with a socket **24** which opens through the wall of said groove. At its other end, the block **17** is provided with an integral fulcrum heel **25** which projects beyond the grooved side of said block. Between the heel **25** and the groove **23**, a bolt hole **26** extends through the block **17**, and one end of said bolt hole opens through the grooved side of said block. In use, the various blocks **17** are disposed at the grooved sides of the webs **10**, their heels **25** contacting said sides. The blocks contact the hook bills **19**, the grooves **23** receive portions of said bills, and the lugs **22** of these bills are received in the sockets **24**.

With the hooks **16** properly disposed at one side of the webs **10** and the blocks **17** disposed at the other side of said webs, the bolt holes **15**, **21** and **26** are in alinement and receive clamping bolts **27**. When these bolts are tightened, they tightly clamp the hook shanks **18** and

blocks 17 against the webs 10, and tightly clamp the hook bills 19 between said webs and blocks. Then, the lugs 22 and sockets 24 coact in resisting any tendency of the bills 19 to straighten out under the centrifugal pull of the chains C. Also, the web grooves 14 hold the hooks 16 against any pivotal movement about the bolts 27, and the elements 22, 23 and 24 prevent any pivoting of the blocks 17 about said bolts. The short chains C are thus effectively secured to the beater head or rotor R and it will be seen from Fig. 2 that these chains extend equidistantly beyond the curved edges 13 of the webs 10. Thus, the outer ends of the chains are disposed on arcs corresponding to the curvature of the edges 13 and therefore corresponding substantially to the transverse curvature of the slabs *s* to be debarked. The chains will thus strike forcible and well aimed blows on the bark and will rapidly and completely remove the same.

As all of the chains are of the same length, it is not necessary to keep chains of different lengths on hand for replacements or to cut one length or another from a stock chain to obtain a replacement of required length. Moreover, any broken chain may be quickly and easily replaced without disturbing any of the others.

It will be seen from the foregoing that novel and advantageous provision has been made for attaining the desired ends, but attention is again invited to the possibility of making variations within the scope of the invention.

I claim.

1. In a device having a web and a chain for connection of said web; a hook having a shank at one side of said web, a bill at the other side of said web and parallel with said shank, and a bight joining said shank and bill and extending through an end link of said chain; a bill-clamping block at said other side of said web, said bill being confined between said clamping block and said web and being in contact with both thereof, and a clamping bolt extending through said shank, said web and said clamping block.

2. A structure as specified in claim 1, in which said clamping block is provided with a heel contacting said other side of said web.

3. A structure as specified in claim 1, in which said clamping block and said web are formed with grooves receiving opposite sides of said bill.

4. A structure as specified in claim 1, in which said bill is provided with a lateral lug and said clamping block in provided with a socket receiving said lug.

5. A structure as specified in claim 1; said clamping block and said web being formed with grooves receiving opposite sides of said bill, the wall of the groove in said clamping block being formed with a socket, said bill being provided with a lug received in said socket.

6. A structure as specified in claim 1; said clamping block and said web being formed with grooves receiving opposite sides of said bill, the wall of the groove in said clamping block being formed with a socket, said bill being provided with a lug received in said socket, said clamping block having a fulcrum heel abutting said other side of said web.

7. In a chain shackle, a hook having a shank, a bill parallel with said shank, and a bight joining said bill and shank, said shank having a bolt hole, said bill having an integral lateral lug.

8. In a chain shackle, an elongated hook-bill-clamping block having a longitudinal groove in one side and opening through one of its ends to receive a hook bill, the other end of said block being provided with an integral fulcrum heel projecting from said one side of said block, said block having a bolt hole one end of which is disposed at said one side of said block.

9. In a chain shackle, an elongated hook-bill-clamping block having a fulcrum heel at one end and projecting beyond one side of said block, said block having a socket which is open at said one side of said block, said block also having a bolt hole between said heel and said socket, one of the ends of said bolt hole being disposed at said one side of said block.

10. A structure as specified in claim 9, said one side of said block having a longitudinal hook-bill-receiving groove into which said socket opens.

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