Nov. 15, 1960 D. M. HULL 2,960,310

DUAL HOOK BLOCKS

Filed April 10, 1959

Fig. 3.

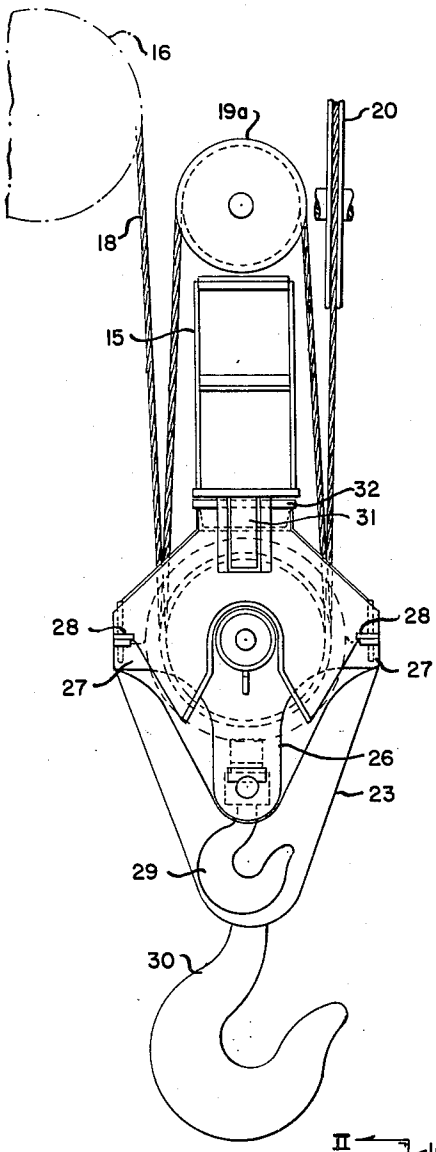


Fig. 2.

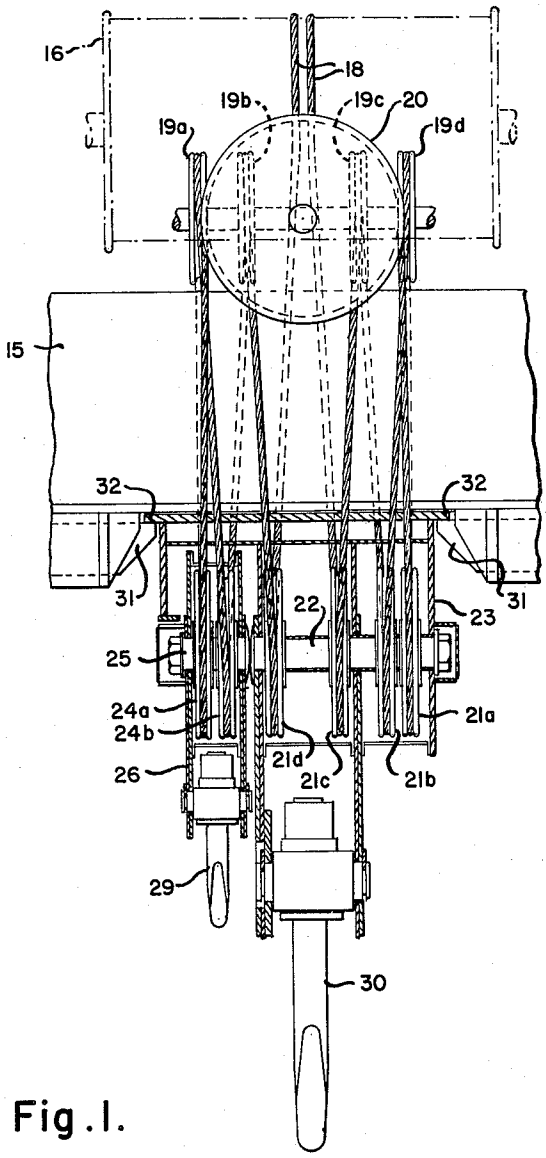
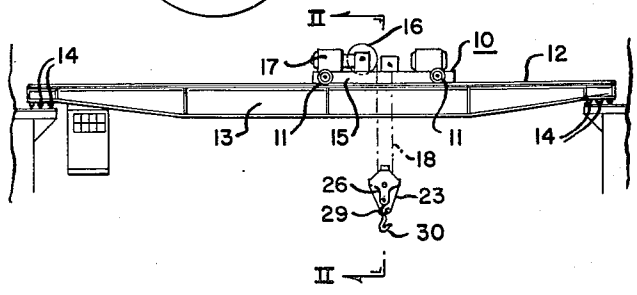


Fig. 1.



INVENTOR
Duane M. Hull

By Hooper, Leonard & Ruelf
his attorneys

United States Patent Office 2,960,310 Patented Nov. 15, 1960

2,960,310

DUAL HOOK BLOCKS

Duane M. Hull, Alliance, Ohio, assignor to The Alliance Machine Company, a corporation of Ohio

Filed Apr. 10, 1959, Ser. No. 805,508

4 Claims. (Cl. 254—168)

This invention relates to dual hook blocks and particularly to a hook block separable into two portions operable from a single drive.

There are frequently instances where it is desirable to have a fast moving light hook block operable on the same crane with a heavy duty, slow moving hook block. In the past this has necessitated two separate drive systems and two separate hoisting drums. Generally, these two hoisting units were spaced apart on the crane frame, requiring heavier load bearing members as well as the additional expense of the second hoisting system.

I have invented a double block structure which provides both a light duty fast operating hook block independently operable on the same hoisting mechanism as the main heavy duty block. I preferably provide a crane frame, a hoisting drum on said frame, drive means on the frame for driving the hoisting drum, a cable on said drum extensible and retractable by rotation of said drum, sheave means on the main frame, a main hook block, a main hook on said block, sheave means in said hook block receiving said cable in multiple reeving with the sheave means on the main frame whereby said main hook block depends from said main frame, at least one part of sheave means on the hook block being movable independently of the main hook block, a secondary hook on said one part of the sheave means, lug means on said one part of the sheave means adapted to supportingly engage the main hook block when in contact therewith, locking means on the main frame releasably locking the main hook block thereto whereby to selectively hold said main block against movement relative to the main frame and permit independent movement of the secondary hook and associated sheave. Preferably, the main hook block is provided with sheaves mounted on two separate shafts, one fixed for rotation in the main hook block, the other fixed for rotation in a secondary hook block carrying lugs engageable on the main hook block to hold the two shafts in axial alignment and aid in supporting the main hook block. In a preferred form the two ends of a single cable are fixed to the main hoisting drum passing over the sheaves on the main frame and the two hook blocks and equalized over an equalizer sheave mounted on the main frame.

In the foregoing general description, I have set out certain objects, advantages and purposes of my invention. Other objects, advantages and purposes will be apparent from a consideration of the following description and the accompanying drawings in which

Figure 1 is a side elevation of a crane embodying the dual hook block structure of my invention;

Figure 2 is a section on the line II—II of Figure 1;

Figure 3 is a view in elevation taken from the left of Figure 2.

Referring to the drawings, I have illustrated a conventional crane having a trolley **10** movable on wheels **11** on tracks **12** of crane girders **13**. The crane girders

13 are in turn movable on tracks **14** on the main building frame.

The trolley **10** is provided with a main frame **15** carrying a hoisting drum **16** driven by a drive motor **17**.

The hoisting drum **16** is provided with a cable **18** whose two ends are fixed to the drum **16** and which is reeved over sheaves **19***a*, **19***b*, **19***c* and **19***d* on the main frame **15**, an equalizer sheave **20** on the main frame **15** and over sheaves **21***a*, **21***b*, **21***c* and **21***d* rotatable on a shaft **22** in a main hook block **23** depending below the main frame **15** and over sheaves **24***a* and **24***b* rotatable on a shaft **25** in a secondary hook block **26** movable selectively independently of the main hook block **23**. The secondary hook block **26** is provided with lifting lugs **27** which are adapted to engage pads **28** on the main hook block **23** with the shafts **22** and **25** in axial alignment. A hook **29** depends from the secondary hook block **26**. A hook **30** depends from the main hook block **23** to a level below hook **29**. Locking latches **31** are mounted on the main frame **15** to engage supporting lugs **32** on the main hook block **23**. The latches **31** are preferably operated by magnetic means (not shown) although they may be operated manually, pneumatically or by any other suitable means.

The operation of the dual hook block of my invention is as follows. When it is desired to use the main hook block **23**, the latches **31** are opened and the hoisting drum **16** is rotated to pay out cable **18** over the sheaves **19***a–c* and **21***a–d*, **24***a–b*. This permits the entire main hook block to be lowered supported on sheaves **21***a–d* and on sheaves **24***a–b* through the lifting lugs **27** and pads **28**. When it is desired to use the secondary hook block for rapidly moving light loads, the main hook block **23** is raised and latches **31** are engaged beneath lugs **32**. Cable **18** is then payed out by rotating hoist drum **16**. This causes the cable to pass over all of the sheaves with relative movement of sheaves **21***a–21d* with respect to the main frame. Secondary hook block **26** is thereby independently rapidly lowered on sheaves **24***a–b* away from the main hook block **23**.

While I have illustrated and described certain preferred embodiments of my invention it will be understood that the invention may be otherwise embodied within the scope of the following claims.

I claim:

1. In a crane, a main frame, sheave means on the frame, a cable reeved on said sheave means, hoisting means acting on the cable to move it over said sheave means to elongate and retract said cable, a main hook block, a main hook on said block, sheave means in said hook block receiving said cable in multiple reeving with the sheave means on the main frame whereby said main hook block depends from said main frame, at least one part of said sheave means on the hook block being movable independently of the main hook block, a secondary hook on said one part of the sheave means, lug means on said one part of the sheave means adapted to supportingly engage the main hook block when in contact therewith, locking means on the main frame releasably locking the main hook block thereto whereby to selectively hold said main hook block against movement relative to the frame and permit independent movement of the secondary hook and associated sheave.

2. In a crane, a main frame, a hoisting drum on said frame, drive means on the frame for driving the hoisting drum, a cable on said drum extensible and retractible by rotation of said drum, sheave means on the main frame, a main hook block, a main hook on said block, sheave means in said hook block receiving said cable in multiple reeving with the sheave means on the main frame whereby said main hook block depends from said main frame,

at least one part of said sheave means on the hook block being movable independently of the main hook block, a secondary hook on said one part of the sheave means, lug means on said one part of the sheave means adapted to supportingly engage the main hook block when in contact therewith, locking means on the main frame releasably locking the main hook block thereto whereby to selectively hold said main hook block against movement relative to the frame and permit independent movement of the secondary hook and associated sheave.

3. In a crane, a main frame, a hoisting drum on the frame, drive means on the frame for driving the hoisting drum, a cable on said drum extensible and retractible by rotation of said drum, sheave means on the main frame, a main hook block depending from said main frame, a main hook on said block, sheave means in said main hook block receiving said cable in multiple reeving with the sheave means on the main frame, said sheave means on the hook block being mounted on two separate shafts, a secondary hook mounted on one of said shafts, said one

shaft being movable independently of the main hook block, lug means on said one shaft adapted to engage the main hook block whereby to partially support said main hook block when in contact therewith, locking means on the main frame releasably locking the main hook block thereto whereby to selectively hold said main block against movement relatively to the main frame and to permit independent movement of the secondary hook and associated sheaves.

4. In a crane structure as claimed in claim 3 an equalizer sheave on the main frame, the cable being connected at its ends to the hoisting drum and supported intermediate its ends on said equalizer sheave on the main frame.

References Cited in the file of this patent

UNITED STATES PATENTS

1,436,608	Rodier	Nov. 21, 1922
2,463,394	King	Mar. 1, 1949
2,752,120	Bogle	June 26, 1956