

F. S. BARKELEW.
CROWN BLOCK.
APPLICATION FILED NOV. 8, 1909.

956,926.

Patented May 3, 1910.

Fig. 1.

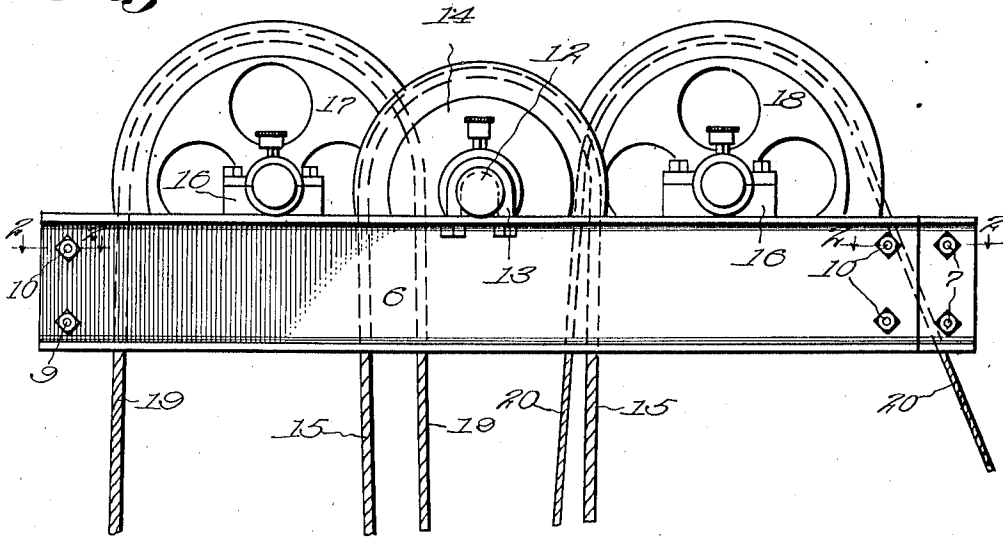


Fig. 2.

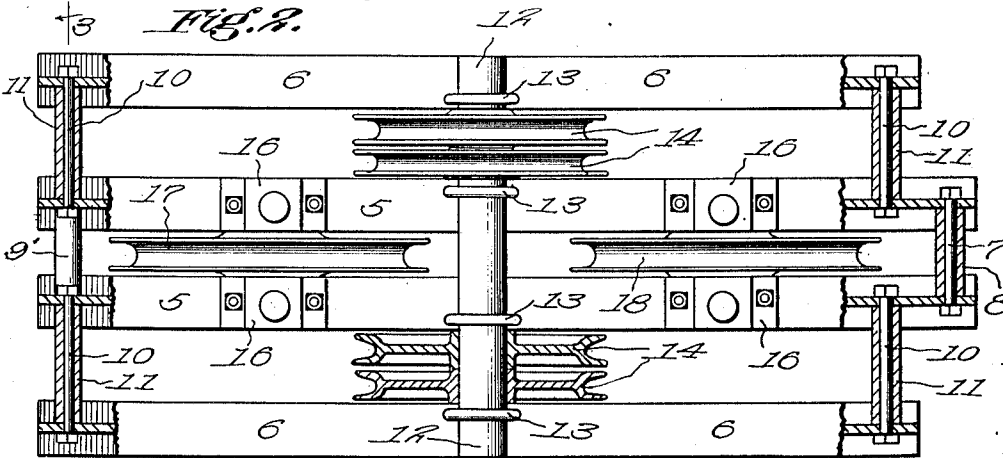
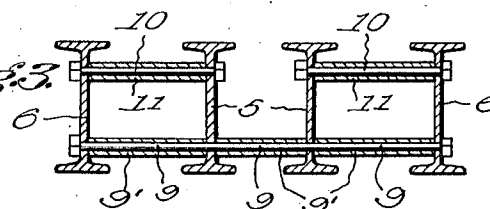


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

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CROWN-BLOCK.

956,926.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK S. BARKELEW, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Crown-Blocks, of which the following is a specification.

This invention relates to a crown block particularly adapted for well drilling purposes, the present form having been designed to meet the peculiar requirements met in the drilling of extremely deep oil wells. In deep well drilling the weight of the casing and tools become excessively great and a very strong block is consequently required for placement on the top of the derrick. It has been the usual practice to employ a block made up of wooden beams of rectangular cross section placed parallel to each other and spaced apart, the sheave being mounted on the beams and lying between them. Various forms and configuration of blocks have been used and the sheaves have also been variously arranged thereon.

In the usual form of crown block the sheaves are so arranged that the casing hoisting lines do not pull directly above the hole, but to one side of it. This diagonal pull strains the derrick more than a straight vertical pull and is the cause of a large number of derrick failures.

It is the prime object of the present invention to provide a block which may be constructed of steel forms with the sheaves arranged in such positions that any desired number of lines may be put up and always pull directly over the hole. It is also an object to construct the block in a simple manner and with such a mode of assembly that it may be easily taken apart for transportation.

In the accompanying drawings: Figure 1 is a side elevation of the block, showing the passage of the various lines over the sheaves. Fig. 2 is a plan view with parts in section taken on line 2—2 of Fig. 1. Fig. 3 is a cross section taken on line 3—3 of Fig. 2.

The main frame of the block is made up of two inside I-beams 5 and two outside I-beams 6. The inner beams are held parallel to each other and spaced apart by bolts 7 and spacers 8 at one end and by center spacer 9' and bolt 9 at the other end. Bolt 9 passes entirely through all four beams, carrying three spacers 9' between the four beams. Bolts 10 and spacers 11 also hold

the outer beams in position as illustrated, the space between the inner and outer beams being preferably greater than the space between the two inner beams. The outer beams are shorter than the inner beams, being designed to rest centrally upon the crown of the derrick while the inner beams overhang the crown at the right hand end in the drawings. Extending across the top of the beams and placed centrally on the short outer beams is a shaft 12. This shaft is secured to the beams by means of yoke bolts 13, the whole construction being such that an added rigidity is imparted to the whole block.

Journalled on shaft 12 are casing sheaves 14. In the present construction there are two sheaves in each of the spaces between the outer and inner beams. These sheaves are designed to support casing line 15 which is passed over them successively as many times as is desired to double the line. The casing line passes through a hoisting block hanging in the derrick below, one end of the line usually being secured to the block while the other end passes to the hoisting machinery. Shaft 12 is placed directly over the well being drilled and the line is passed successively over sheaves 14 on opposite sides of the crown block so that the hoisting block hangs centrally under the crown block. This is one of the great advantages of the present invention, the pull on the derrick and the casing being truly vertical and the resultant line of stress being coincident with the center line of the casing and the derrick.

Journalled in bearings 16 are two sheaves 17 and 18, these sheaves being for the drilling line 19 and the sand line 20 respectively. Sheaves 17 and 18 are situated between inner beams 5, sheaves 17 being as close to shaft 12 as is convenient. This is for the purpose of having the drilling line also hang as nearly centrally as possible over the well. Sheave 18 may be slightly farther from shaft 12 than sheave 17 as sand line 20 passes out of the derrick on the outside while drilling line 19 passes inside of the derrick. Its position, however, depends upon the size of the derrick crown, but it is not so detrimental to efficient working to have it situated at some distance from shaft 12 as it is to have sheave 17 so situated, the pull upon the sand line being much less than that upon the drilling line.

It will be seen that the gist of the inven-

tion is contained in the peculiar arrangement of the sheaves upon a set of beams which may be detachably secured together to form a rigid frame. The above description is of the present preferred form of the block. Other methods and means of securing the beams together and for mounting the sheaves thereon may be used. The particular points of construction may be varied to suit the needs of any case in question, it being sufficient that the sheaves be arranged in such a manner as is above described and the beams assembled with the facilities for dismemberment and transportation noted.

15 Having described my invention, I claim:—

1. A block, comprising a frame made up of four beams arranged parallel to each other, means to connect the beams together and hold them from each other, a transverse shaft mounted on the beams and extending across the upper parts thereof, a sheave mounted on the shaft in each of the spaces adjacent the outermost beams, and a sheave mounted on the beams on each side of the transverse shaft, the last named sheaves being between the two inner beams.

2. A block, comprising a frame made up of four beams arranged parallel to each other, means to rigidly connect the beams together and hold them spaced from each other, a transverse shaft extending across the tops of the beams, means to secure the shaft to the beams, a plurality of sheaves mounted on the shaft in each of the spaces

adjacent the outermost beams, and a sheave mounted on the beams at each side of the transverse shaft, the last named sheaves being between the inner two beams and having their axes parallel to the shaft.

3. A block, comprising a frame made up of four beams arranged parallel to each other, means to hold the beams in spaced relation to each other, a shaft secured across the beams and crossing the three spaces between them, a sheave mounted on the shaft in each of the spaces adjacent the outer beams, and a pair of sheaves mounted on the center beams and lying between the center beams one on each side of the transverse shaft.

4. A block, comprising a frame made up of four beams arranged parallel to each other, means to hold the beams in spaced relation to each other, a shaft secured across the beams and crossing the three spaces between them, a plurality of sheaves mounted on the shaft in each of the spaces adjacent the outer beams, and a pair of sheaves mounted on the center beams and lying between the center beams one on each side of the transverse shaft.

In witness that I claim the foregoing I have hereunto subscribed my name this 2nd day of November 1909.

F. S. BARKELEW.

Witnesses:

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JAMES T. BARKELEW.