M. T. C. WING.

TOY DERRICK.

APPLICATION FILED MAR. 25, 1909.

942,229. Patented Dec. 7, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

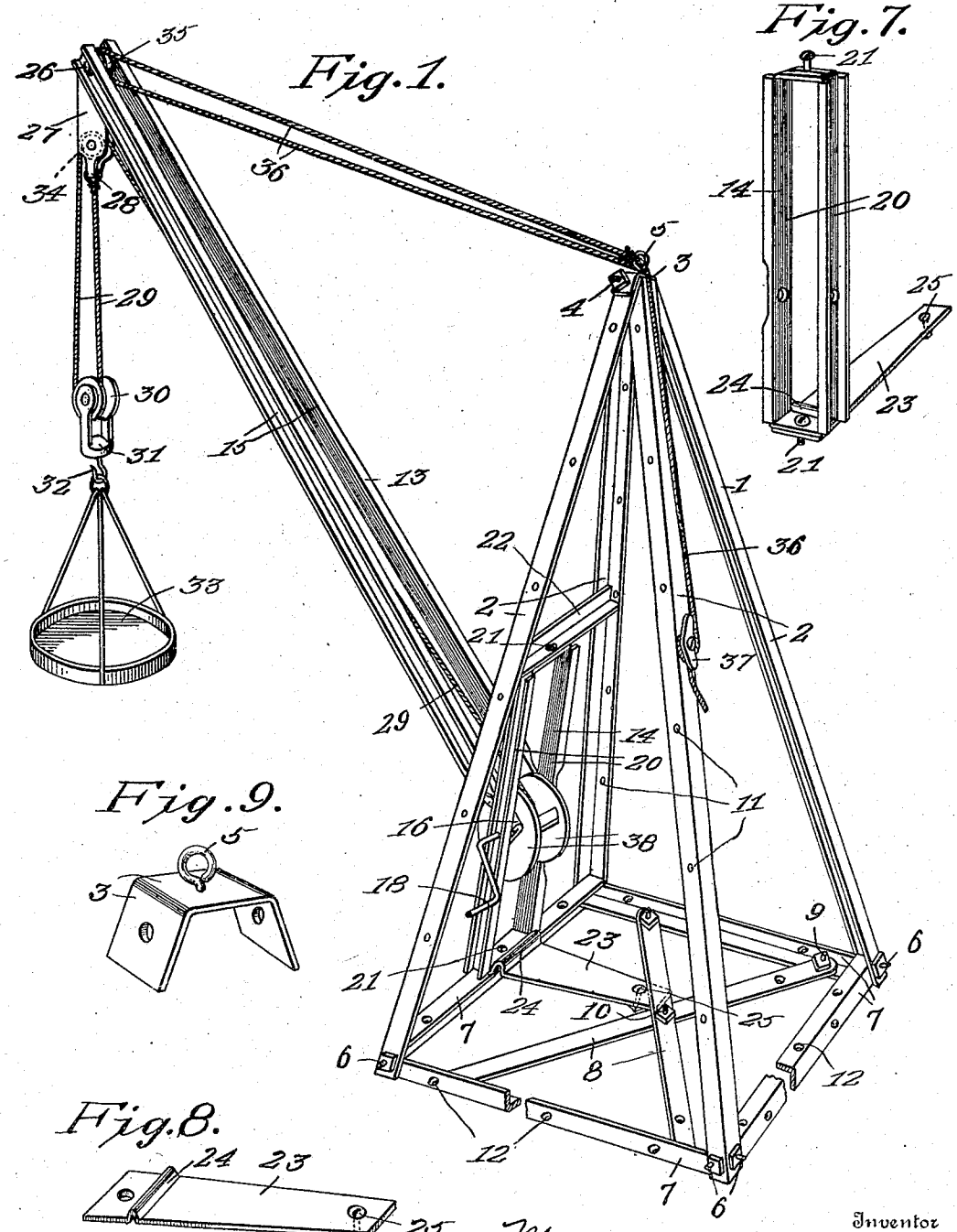

Fig. 7.

Fig. 9.

Fig. 8.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 6

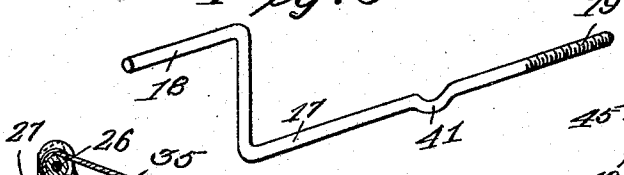


Fig. 3.

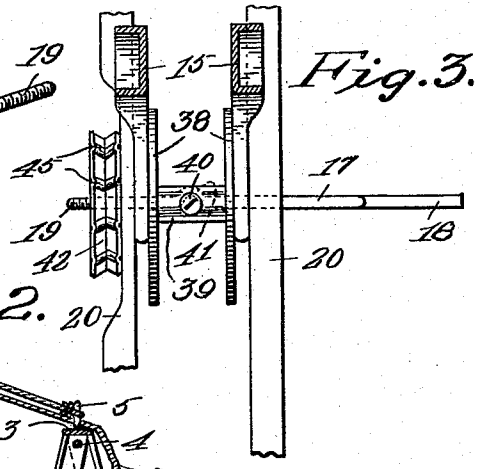


Fig. 2.

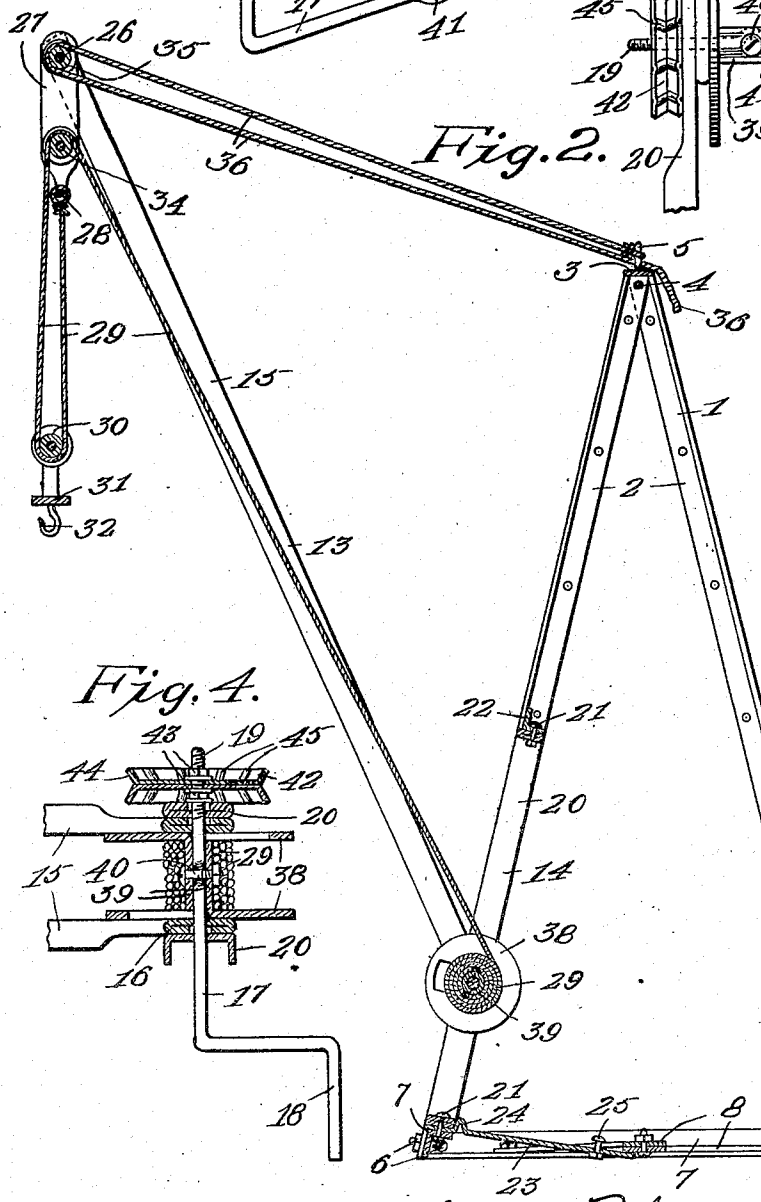


Fig. 5.

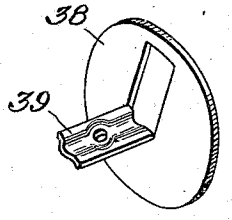
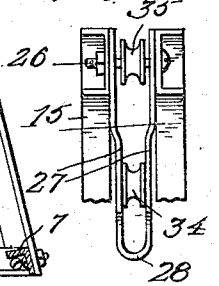


Fig. 4.

Fig. 10.



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UNITED STATES PATENT OFFICE.

MARCUS T. C. WING, OF SEWICKLEY, PENNSYLVANIA.

TOY DERRICK.

942,229. Specification of Letters Patent. Patented Dec. 7, 1909.

Application filed March 25, 1909. Serial No. 485,725.

To all whom it may concern:

Be it known that I, MARCUS T. C. WING, a citizen of the United States, residing at Sewickley, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Toy Derricks, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in toys and more particularly toys of the character set forth in my application for patent, Serial Number 435,315, filed May 27, 1908.

The object of the invention is to provide a toy of this character composed of a plurality of metal parts which may be readily taken apart and put together again and which may be put together in different ways to provide a toy derrick, tower, or various other mechanical, architectural and engineering structures.

With the above and other objects in view, the invention consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a toy derrick embodying the present invention; Fig. 2 is a vertical sectional view through the same; Fig. 3 is a detail front elevation of the winding drum and portions of the parts associated therewith; Fig. 4 is a horizontal section through the drum and parts shown in Fig. 3; Fig. 5 is a detail perspective of one section of the drum; Fig. 6 is a detail perspective of the crank shaft of the winding drum; Fig. 7 is a perspective view of the rotatable drum carrying frame and its retarding arm; Fig. 8 is a detail perspective of the retarding arm; Fig. 9 is a perspective view of the derrick cap; and Fig. 10 is a front view of the pulley block or hanger at the outer end of the boom.

In the drawings 1 denotes an upwardly tapering frame composed of metal strips or bars resembling a derrick, oil well tower, windmill tower, etc. It is composed of four angle metal corner bars 2 having their angles turned inwardly and their converging upper ends arranged in overlapping engagement with each other and united by means of a cap 3 and a transverse bolt 4. The cap 3 is of substantially inverted U-shape and has in its opposite depending flanges openings to register with openings in the flanges of the corner bars 2 for the reception of the bolt or other fastening pin 4. Upon the top of the derrick cap 3 is an eye 5 for a purpose presently explained. The diverging lower ends of the corner bars 2 are secured by bolts 6 to four connecting base bars 7 also preferably of angular shape in cross section. Two of the base bars 7 have their channels disposed downwardly and inwardly while the other two have their channels disposed upwardly and inwardly, as clearly shown in Fig. 1 of the drawings. If desired, these base bars may be further united by crossed or diagonal strips 8 which reinforce and strengthen the tower and which have their ends connected by bolts 9 to the lower flanges of opposing bars 7 and which also have their intersecting central portions united by a bolt 10. If desired, the other portions of the derrick frame may be similarly united by diagonal bracing strips and openings 11 are formed at intervals in the corner bars 2 for the reception of bolts which fasten such bracing strips. Said openings 11 together with similar openings 12 formed in the base bars 7 permit these parts to be connected together in different ways to produce different kinds of toys.

13 denotes a boom hung upon a horizontal pivot which is arranged in a support or frame 14 mounted in turn upon a substantially vertical pivot so that the boom may swing both vertically and horizontally. Said boom is composed of two bars 15 preferably of channel or U-shape in cross section, as shown more clearly in Fig. 3 and disposed with their channels outwardly. The lower or inner ends of the bars 15 have their flanges bent or folded over upon their body portions, as shown at 16, and said ends are apertured to receive a horizontal pivot 17, which latter is in the form of a shaft, one end of which is bent to form a crank handle 18 and the other end of which is screw threaded, as shown at 19. Said pivot or shaft 17 also extends through and is rotatable in bearing openings formed in vertical side bars 20 of the frame 14, which latter is of rectangular shape and constructed preferably from a single piece of channel bar, as clearly shown in Fig. 7 of the drawings. In constructing said frame, such piece of channel bar has its flanges notched at the four points at which it is bent to provide the four corners of the frame 14. The flanges of the top and bottom portions

of the swinging frame 14 are bent or folded inwardly to strengthen said top and bottom portions, as shown in Fig. 2, and passing through the central points of said top and bottom portions are bolts or studs 21 which serve as pivots to connect the frame 14 to one of the base bars 7 and to a horizontal angle metal cross bar 22 arranged between two of the corner bars 2, as shown in Fig. 1. The pivot bolts 21 permit said frame to swing laterally or horizontally and for the purpose of retarding such swinging movement and frictionally retaining the frame in adjusted position, a retarding or brake arm 23 is provided. The latter is in the form of a metal plate having one end arranged beneath the bottom bar of the frame 14 and secured to the same by the lower pivot bolt 21, said arm being prevented from turning upon the pivot bolt by forming or crimping it in a transverse rib 24 which engages the bottom portion of the frame 14, as clearly shown in Figs. 1 and 2. The free inner end of the arm 23 is adapted to swing under the brace strips 8 of the derrick frame, which latter frictionally hold it in adjusted position and thereby hold the frame 14 against rotation. The inner end of the retarding arm 23 carries a bolt 25 which serves as a stop to engage one of the bars 7 to limit the swinging movement of the frame or support 14 and hence the horizontal swinging movement of the boom.

The outer ends of the boom bars 15 are united by a transverse pivot bolt 26 from which hangs a swinging pulley block or support 27 in the form of a metal plate bent upon itself or into U-form, as shown in Fig. 10, and having its closed end reduced, as shown at 28, for the attachment of one end of a cord 29. The latter passes around a pulley 30 in a block 31 which has a hook 32 from which any load may be suspended. As illustrated, a pan 33 is supported from the hook for the reception of various objects or loose material such as sand which children frequently play with, but it will be understood that any objects or articles may be suspended from the hook 32 and lifted by means of the cord 29. Said cord, after leaving the pulley 30 passes around a pulley 34 journaled in the lower portion of the support 27 and from said pulley the cord passes downwardly between the bars 15 of the boom and to a winding drum or windlass arranged upon the shaft 17. Journaled upon the pivot bolt 26 in the upper portion of the support 27 is a pulley 35 around which passes a cord 36 having one end attached to the eye 5 on the derrick cap and its other end, after passing through the eye bolt 5, is adapted to be wound upon a cleat 37 fixed to one of the corner bars of the derrick. It will be seen that by means of the cord 36, the boom may be raised or lowered vertically and secured at any angle and that by means of the cord 29 the load upon the hoisting block 31 may be raised or lowered.

The winding drum is formed from two similar half-sections, each of which consists of a circular plate or disk 38 from which is stamped a tongue 39 so disposed that when the two disks or sections 38 are placed in opposition, as shown in Fig. 4, the tongues 39 will be oppositely disposed to receive the shaft 17 between them. Said tongues 39 are channeled longitudinally so as to form opposing seats for the reception of the shaft 17 and their central portions are apertured to receive a fastening bolt 40 which clamps the drum or windlass to the shaft for rotation therewith. To prevent endwise movement of the shaft and to afford fastening for the cord, its portion within the drum is crimped or offset, as shown at 41, so as to extend around the bolt 40, as indicated in dotted lines in Fig. 3. By means of the crank handle 8 the shaft and hence the drum may be rotated to wind up or pay out the cord 29, which latter has one end fixed to the drum.

Upon the threaded end 19 of the shaft 17 is preferably arranged a sprocket wheel 42 which may be used when it is desired to rotate the shaft 17 by a sprocket chain from a suitable motor or a power shaft. The sprocket wheel 42 is formed from two metal disks secured upon the threaded end of the shaft between nuts 43 and interposed washers, as clearly shown in Fig. 4, the edges or peripheries of said disks being bent outwardly, as shown at 44, to produce a channeled rim and they are also crimped, as shown at 45, to provide sprocket projections, as shown more clearly in Fig. 3, or a similar cast metal wheel may be used.

From the foregoing description, it will be seen that the toy is composed of a plurality of metal parts which may be readily taken apart and put together again and which can be put together in different ways to produce various architectural, mechanical and engineering structures according to the ingenuity of the child playing with the toy.

All parts of the toy are simple in construction so that they will be strong and durable and not easily broken, and they are of such shape that they may be readily put together in different ways to produce different kinds of toys.

Having thus described the invention what is claimed is:

1. A toy of the character described comprising a tower having upwardly converging angle metal corner bars having their angular or channeled portions turned inwardly, and the flanges at their upper ends overlapping, a cap plate bent into substantially U-shape and arranged over said overlapping flanges of the upper ends of the corner bars, a removable transverse fas-

tening passed through the depending portions of the cap and said overlapping flanges of the corner bars, and a base to which the lower ends of said corner bars are detachably united.

2. A toy of the character described comprising a tower having upwardly converging angle metal corner bars having their angular or channeled portions turned inwardly and the flanges at their upper ends overlapping, a cap plate bent into substantially U-shape and arranged over said overlapping flanges of the upper ends of the corner bars, a removable transverse fastening passed through the depending portions of the cap and said overlapping flanges of the corner bars, connecting bars detachably uniting the lower ends of said corner bars and forming a base, a horizontally swinging member upon one side of said tower, a vertically swinging boom carried by said member, means for operating said boom, and a hoisting tackle carried by said boom.

3. A toy of the character described comprising a tower having upwardly converging angle metal corner bars having their angular or channeled portions turned inwardly, and the flanges at their upper ends overlapping, a cap plate bent into substantially U-shape and arranged over said overlapping flanges of the upper ends of the corner bars, a removable transverse fastening passed through the depending portions of the cap and said overlapping flanges of the corner bars, an eye at the top of said cap plate, a cleat upon one of said corner bars, a vertically swinging boom carried by the tower, a guide upon the outer end of the boom, an operating cord for the boom passed through said eye and around said guide, one end of said cord being attached to the eye, and its other end being engaged with said cleat, a hoisting tackle carried by said boom, and a base to which the lower ends of the corner bars are detachably united.

4. A toy of the character described comprising a tower composed of detachably connected bars including upper and lower horizontal bars, a rectangular frame arranged between said horizontal bars, removable pivots mounting said frame between said bars for horizontal swinging movement, a horizontal crank shaft in said frame, a winding drum on said crank shaft, a boom swung from said crank shaft and having spaced members, a guide between the outer ends of said boom members, a boom operating cord between the upper portion of the tower and said guide, and a hoisting tackle upon the boom and including a cord wound upon said winding drum.

5. A toy of the character described comprising a tower, a horizontally swinging boom support in said tower, a retarding arm carried by said support and adapted to frictionally engage a portion of the tower to retard the swinging movement of said support and a boom carried by said support.

6. A toy of the character described comprising a tower composed of detachably connected bars including upper and lower horizontal bars, a frame arranged between said horizontal bars, removable pivots mounting said frame between said horizontal bars for swinging movement and a boom carried by said frame.

7. A toy of the character described comprising a tower, a horizontal shaft therein having a crank handle at one end, a power wheel at the other end of said shaft, a winding drum on the intermediate portion of the shaft, a boom on said shaft, and hoisting tackle upon the boom including a cord engaged with said drum.

8. A toy of the character described comprising a tower, a shaft therein having a crimp or offset intermediate its ends, a winding drum composed of two sections having tongues struck from them, said tongues being arranged to receive the shaft between them, a fastening passed through said tongues and arranged in the offset of the shaft, a boom upon said shaft, and means for operating said boom.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

MARCUS T. C. WING.

Witnesses:
J. S. MYERS,
JOHN H. DAILEY.