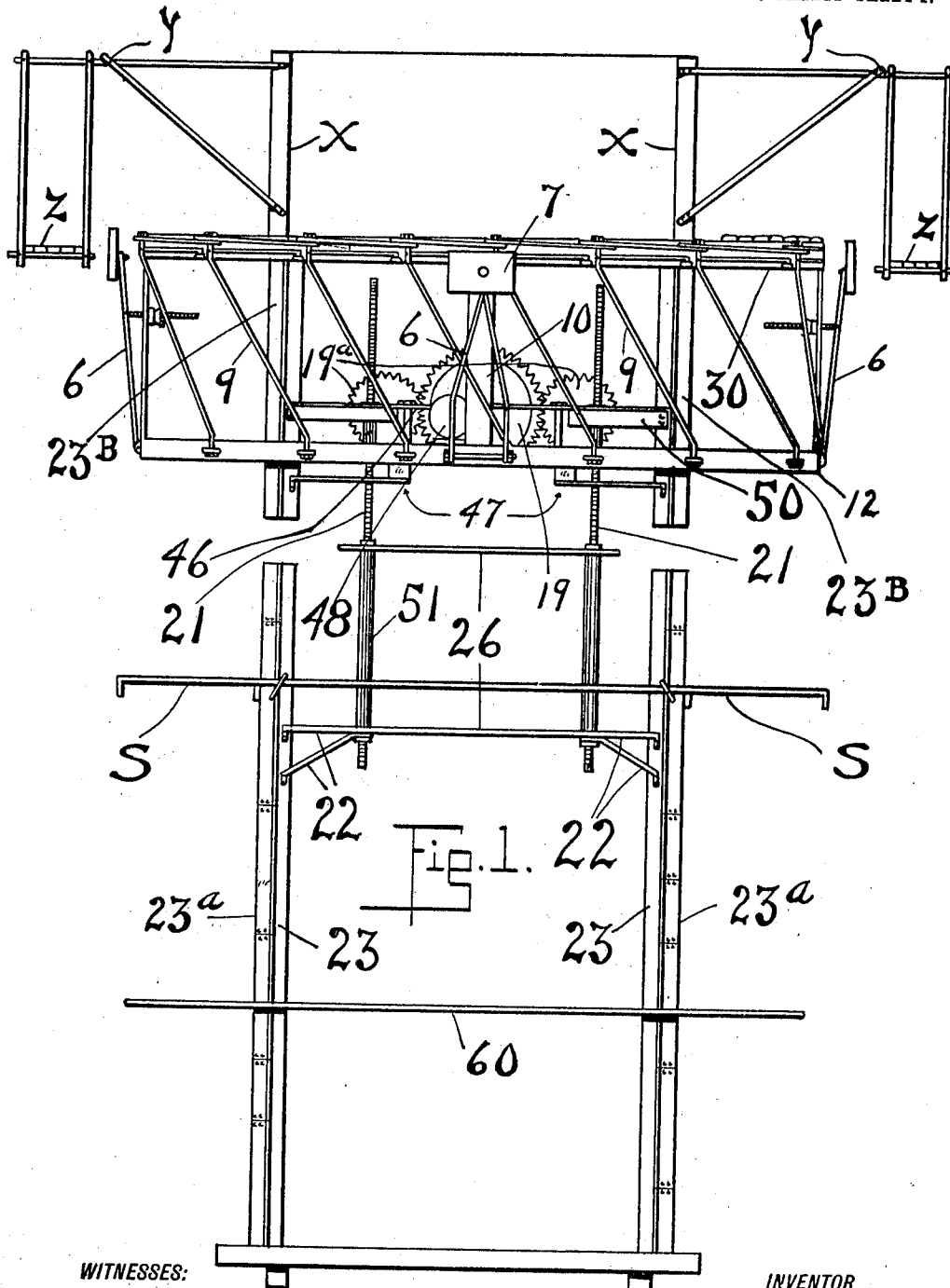


G. JOHNSON.
ADJUSTABLE SCAFFOLD.
APPLICATION FILED FEB. 3, 1912.

1,035,595.

Patented Aug. 13, 1912.

3 SHEETS-SHEET 1.



WITNESSES:

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C. N. Whitfield

INVENTOR

Gustav Johnson

BY

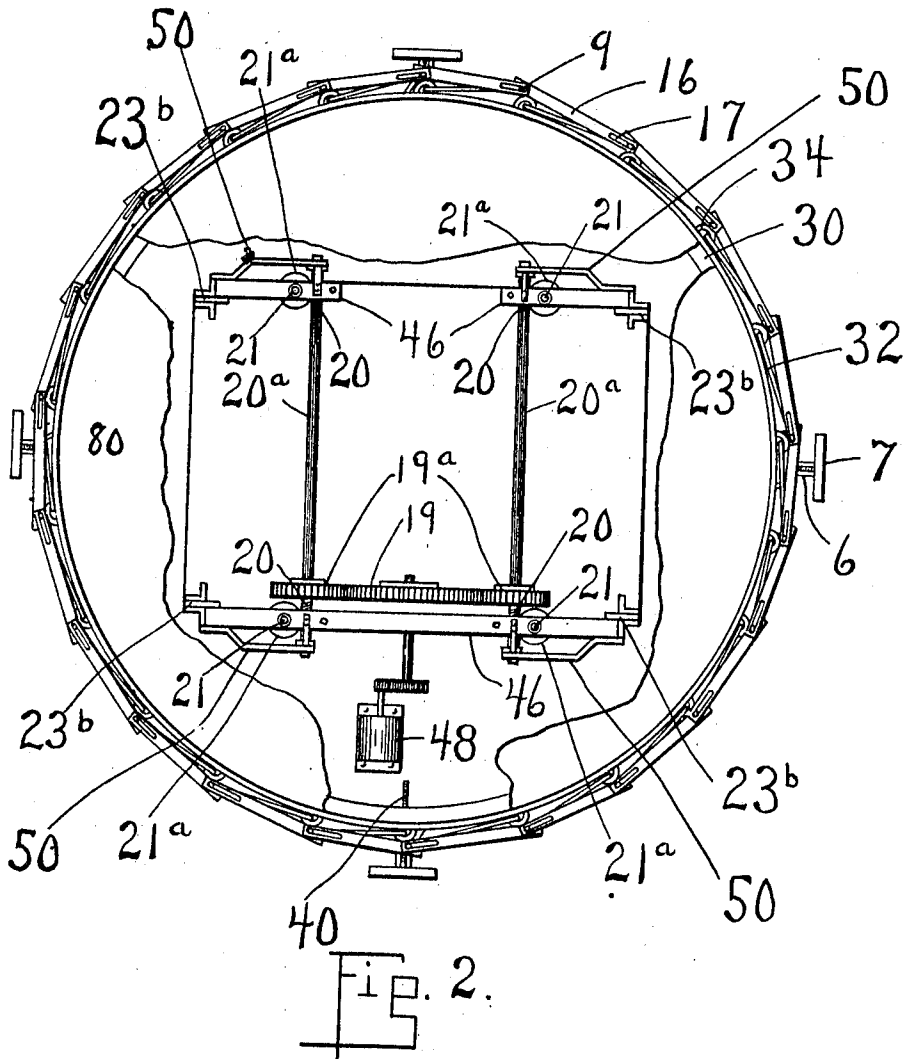
John A. Bommhardt
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3 SHEETS—SHEET 2.

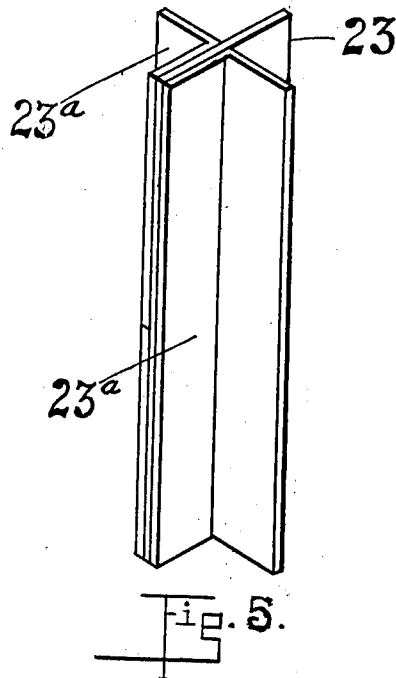
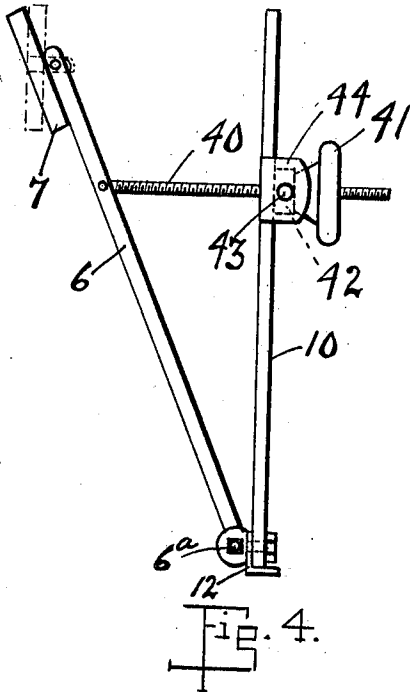


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Fig. 3



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UNITED STATES PATENT OFFICE.

GUSTAV JOHNSON, OF CLEVELAND, OHIO.

ADJUSTABLE SCAFFOLD.

1,035,595.

Specification of Letters Patent.

Patented Aug. 13, 1912.

Application filed February 3, 1912. Serial No. 675,319.

To all whom it may concern:

Be it known that I, GUSTAV JOHNSON, citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Adjustable Scaffolds, of which the following is a specification.

This invention relates to adjustable scaffolds, and particularly to scaffolds adapted and intended for use in building smoke stacks, blast furnaces or other tubular structures, the scaffold being mounted within the structure, and capable of being raised as the work progresses.

The apparatus comprises an upper part or superstructure which can be raised or lowered by means of screw rods connected thereto and to a support below, the support being mounted on four (more or less) posts, which are built up as the upper structure is raised. The upper structure also includes special devices for supporting the working platform, and for centering and holding the superstructure in place within the chimney or furnace.

In the drawings,—Figure 1 is a side elevation of the scaffold. Fig. 2 is a top plan. Fig. 3 is an enlarged detail of part of the upper structure. Fig. 4 is a detail in side elevation of one of the centering devices. Fig. 5 is a perspective view of a section of one of the posts.

Referring specifically to the drawings 12 indicates a ring or frame, preferably made of angle iron, and forming the bottom member of the superstructure which supports the platform, and this is connected by uprights 10 to an upper ring or frame 30. A series of brackets are pivotally mounted on these frames, to swing in or out or expand or contract, to accommodate the scaffold to the structure being built, and to support the platform on which the workmen stand, at the top. Each bracket consists of a lower inclined arm 9 and an upper horizontal arm 32. The former is pivoted at its lower end to a lug 33 projecting from the lower ring 12, and the latter is pivotally hooked at its inner end into a lug or eye 34, projecting from the upper member 30, and the arms 9 and 32 are fastened together at the outer end of the latter, as indicated at 35, and the bracket thus formed will swing on a vertical pivot in or out. The upper ends of the respective arms 9 of the brackets are con-

nected by links 16, having slots 17 through which the ends of the arms 9 project, so that the various brackets are coupled together.

For swinging the brackets in or out they are divided into several sets, each comprising four, more or less, and each set is operated by a lever 10^a fulcrumed on one of the uprights 10, and connected to a plate 11 which is guided by a pin 14 projecting from the upright 10 and through a slot 13 in the plate 11. The plate 11 is fastened to a bar 15 which can slide on the frame 12. This bar 15 is connected by pins 18 to short crank arms 25 projecting from the members 9 of the brackets, the cranks 25 being fastened to the arms 9, a short distance above the pivoted lugs 33 and the pins 18 working in slots in said cranks 25. Thereby, when the lever 10^a swings the plate 15 will be shifted one way or the other, and by means of the crank connections to the bracket members 9, the respective brackets will be adjusted or swung in or out to the desired extent. The outer ends of the boards 36, forming the upper or working platform, rest on the links 16, and their inner ends on the upper frame 30, and these boards may be set in place after the supports are adjusted.

For centering the device in the chimney or furnace, and preventing any slip, I provide a number of levers 6 which are pivotally connected at 6^a to the lower ring 12, and extend therefrom upwardly and outwardly at an incline, and the upper ends of these levers carry hinged blocks 7 of rubber or similar material. Each lever may be adjusted to press the blocks against the inner surface of the chimney by means of a screw 40 operated by a nut 41 rotatably connected to a block 42 which is pivoted at 43 to a bracket 44 fastened to one of the uprights 10. The pivoted block 7 accommodates itself to any inclination of the surface against which it is pressed.

The hoisting devices are mounted on the superstructure by means of cross beams or pieces 46 fastened to post sections 23^b which support said superstructure, by suitable brackets or connections some of which are indicated at 47. The gear 19 is driven by a motor 48, and meshes with pinions 19^a on shafts 20^a which have worms 20 at opposite ends meshing with worm gear nuts 21^a which travel on screws 21, the nuts being set in suitable castings 50 fastened to the beams 46,

so that as the nuts are raised or lowered the said beams and the superstructure connected thereto will also be raised or lowered. The lower ends of the screws 21 are rigidly supported by sleeve pillars 51 with cross brace bars 26 at top and bottom, and the lower bars 26 are formed with brackets 22 suitable for bolting to the plates 23 of the posts. These posts are made of sections comprising said plates 23 and angle irons 23^a on opposite sides, the various parts being of different lengths, say four and eight feet, to break joints every four feet, assuming that the screws will lift four feet, more or less, each time. A platform 60 may be supported on the posts, under the superstructure, to protect workmen below from falling bricks or the like.

To raise the top or superstructure of the scaffold the motor will be started to cause the nuts 21 to turn in proper direction to travel up the screws, the holding devices 7 being first swung in out of contact with the wall. This will cause the upper part of the structure to be raised. When the nuts reach the upper ends of the screws, the motor is stopped, and the posts are then built up by the addition of pieces 23^a until they support the sections 23^b, the added lengths being suitably bolted or fastened in place. Then, the bolts which connect the braces 22 to the posts are removed, and by reversing the motor the screws 21 and frames 26 are lifted a corresponding distance, after which the brackets 22 are again bolted to the posts, ready for the next lift. Thus the upper structure is lifted step by step and the posts are built up to support the same, as the work progresses; and by reverse operation the structure may be taken down.

By putting a man at each lever 10^a the brackets may be shifted simultaneously, around the platform. If the bore of the chimney or structure being built is symmetrical one adjustment will do for the whole thing. If it is varied in size the brackets 9 may be swung in or out accordingly.

For special purposes, platforms Z may be supported upon the superstructure, by means of posts X and brackets Y. These platforms will enable a workman to get at the top and outer edge of a stack or furnace. For inside work, as in relining a furnace, these platforms and brackets will be removed. Also, the lower posts may be stiffened by braces S, designed to extend from the posts to contact with the wall of the structure being built. These braces may be used or not as necessary. Furthermore, although the above specification refers to a motor for driving the hoisting gear, it is to be understood that the hoisting devices

may be operated by hand and no limitation in this respect is implied.

The scaffold will preferably be built with two shafts for elevators, one on each side of the center of the scaffold. Suitable safety ladders (not shown) will also be provided.

What I claim as new is:

1. In a scaffold, the combination of supporting posts, set at corners to form an area therebetween, a platform supporting structure mounted upon the posts, hoisting screws between the posts and the said structure, supports for said screws on said posts, and located within said area, whereby the scaffold may be erected in a stack or the like, means carried by said structure and acting upon the screws to raise said structure, whereby additional post members may be added, said screws being connected to said supports to lift the same, by turning the screws, to new position with respect to the posts, for another operation.

2. In a scaffold, the combination of a frame, a plurality of platform-supporting brackets pivotally connected at intervals to the periphery of said frame and arranged to swing in or out, horizontally, toward or from said frame, and means to swing the brackets in or out.

3. In a scaffold, the combination of a frame, a plurality of brackets pivoted to swing horizontally at the outer edge of said frame, and connecting links between the brackets.

4. In a scaffold, the combination of a supporting frame, a plurality of platform-supporting brackets pivoted at the outer edge of said frame to swing in or out horizontally, connections between said brackets, to swing the same simultaneously, and means connected to said brackets to turn the same on their pivots.

5. In a scaffold, the combination of a supporting frame, brackets pivoted at the outer edge of said frame to swing horizontally toward and from the same, a crank connected to one of the brackets, and a lever operatively connected to the crank, for the purpose described.

6. The combination of posts, a platform-supporting superstructure vertically adjustable thereon, vertically-swinging levers pivoted to said superstructure, blocks pivoted to the outer ends of the levers, and means to swing the levers outwardly, to press the blocks against the wall of a structure being built.

In testimony whereof, I do affix my signature in presence of two witnesses.

GUSTAV JOHNSON.

Witnesses:

JOHN A. BOMMARDT,
STEDMAN J. ROCKWELL.