July 9, 1935. G. A. SCHERNEKAU 2,007,480

BUILDER'S SCAFFOLD

Filed June 20, 1934 2 Sheets-Sheet 1

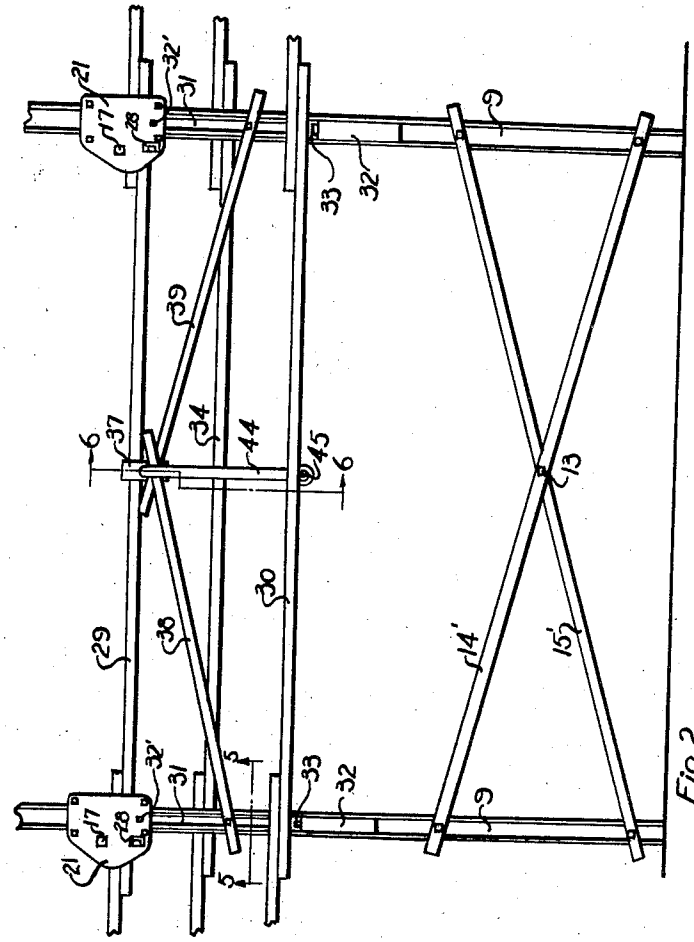


Fig. 2

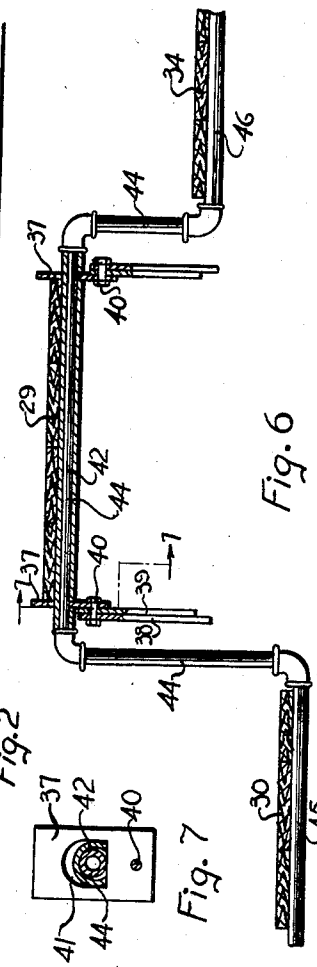


Fig. 6

Fig. 7

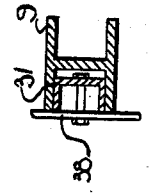


Fig. 5

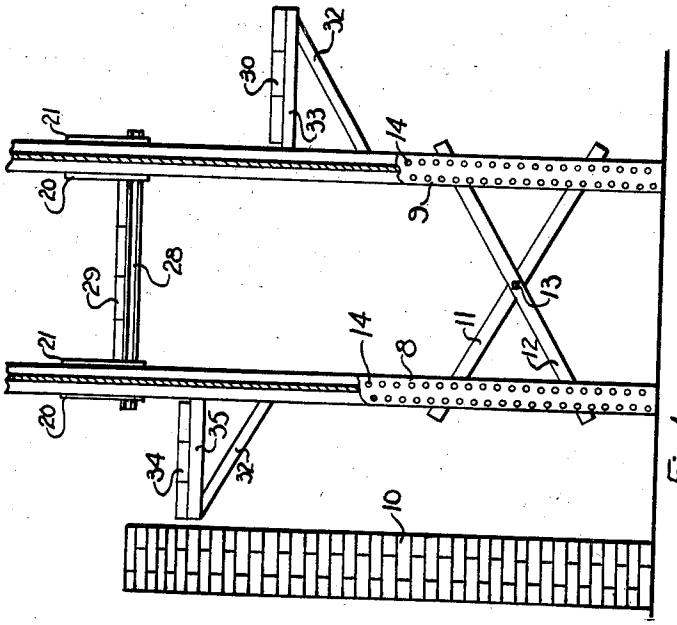


Fig. 1

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BUILDER'S SCAFFOLD

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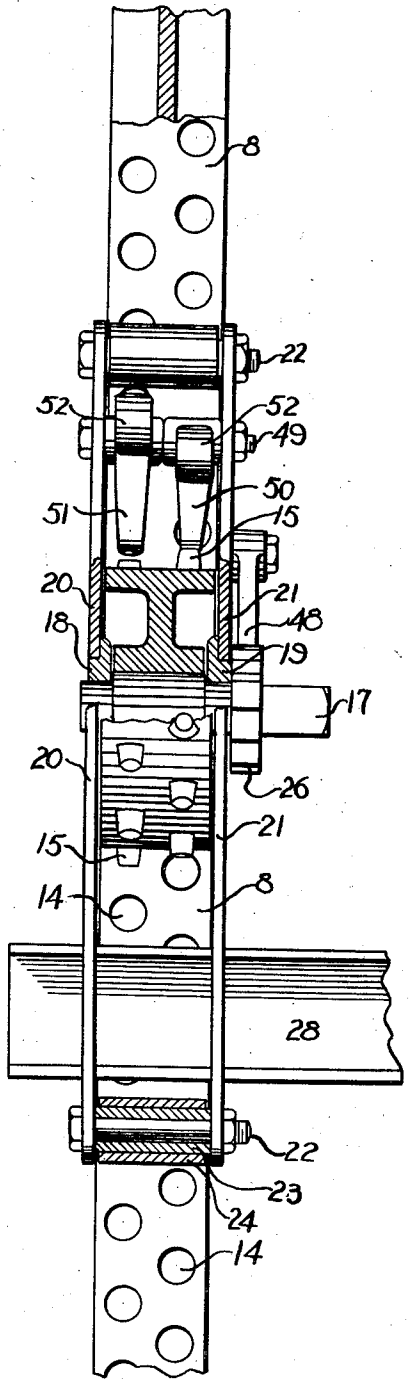


Fig. 3

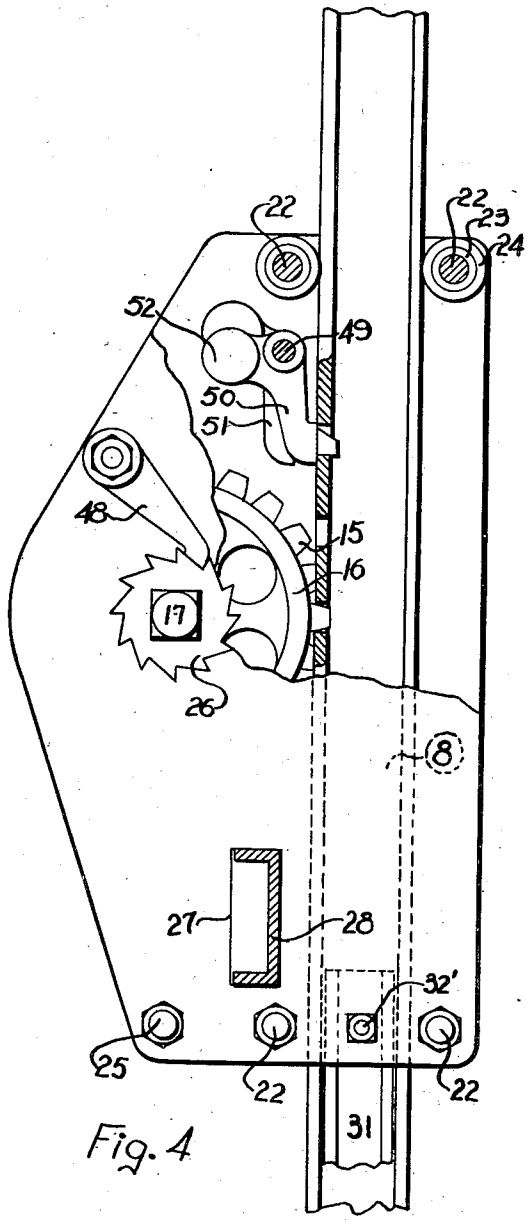


Fig. 4

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BUILDER'S SCAFFOLD

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Application June 20, 1934, Serial No. 731,471

11 Claims. (Cl. 304—29)

The object of this invention is to provide a scaffold for the use of bricklayers, carpenters, and builders generally that will have strong vertical members for the support of horizontal platforms which are provided with easy means for raising and lowering them, and are provided with safety means which will avoid all danger of the platforms falling regardless of overloads or careless manipulation of the raising and supporting devices.

The object, also, is to provide a durable, easily erected and removed scaffolding and which will be inexpensive to manufacture.

I accomplish the above and other objects which will hereinafter appear, by the mechanism illustrated in the accompanying drawings, in which—

Fig. 1 is a vertical end elevation of my invention in operative position adjacent a brick wall under construction, the upper outer portions of the vertical supporting members being broken away to disclose the inner construction;

Fig. 2 is a side elevation of the same scaffold structure shown in Fig. 1;

Fig. 3 is a fragment in vertical edge view on an enlarged scale of the housing and contained hoisting mechanism showing some portions in vertical section;

Fig. 4 is a side elevation of the parts illustrated in Fig. 3 on the same scale as in Fig. 3;

Fig. 5 is a cross-section of one of the vertical supporting members and scaffold bracket on the line 5—5 of Fig. 2;

Fig. 6 is a detail of the platform supporting means midway of the vertical supporting members on the line 6—6 of Fig. 2;

Fig. 7 is a section on the line 7—7 of Fig. 6 on a larger scale.

Like characters of reference indicate like means in the several views of the drawings.

Inner scaffold supporting members or standards 8, by which is meant those members which are nearest the wall 10, under construction, and outer supporting members or standards 9, are each preferably formed of steel I beams which operate in pairs connected by diagonal angle bars 11 and 12 (see Fig. 1) bolted together at their intersections 13, and bolted at each end to the standards 8 and 9.

The pairs of standards are connected and braced (see Fig. 2) by diagonal angle bars 14' and 15', which are similarly bolted together and to the standards.

Looking toward the wall of the building under construction, the left hand flanges of the I beam standards are provided with a longitudinal series of holes 14, which are relatively close together and are staggered with relation to the holes in the two perforated flanges of each beam. These perforated flanges function as rack bars to engage radial pins 15 (see Figs. 3 and 4) of a wheel 16. The wheel 16 is mounted on a shaft 17, which is reduced in diameter on each side of the wheel to receive split bearings 18 and 19, preferably of bronze. The bearings 18 and 19 are seated in holes in a pair of sheet metal plates 20 and 21, forming a housing which has vertical sliding adjustment on a standard 8, or 9 as the case may be. The plates 20 and 21 are connected by four bolts 22, on each of which is a spacing sleeve 23 (see bottom of Fig. 3) and a friction roller 24, an additional bolt 25, also carrying a spacing sleeve, is preferably used.

The wheel shaft 17 is extended on one side of the housing and squared to receive a ratchet wheel 26 next to the housing and beyond the ratchet wheel to receive a crank (not shown) for manually rotating wheel 16 to cause the housing to travel (up or down according to the direction in which the crank is turned) on the standard 8.

Holes 27 are formed through both housing plates for the insertion therethrough of a channel bar 28. This bar 28 extends across to and through the housing on the adjacent vertical standard. Planks 29 are supported upon the bars 28 of two adjacent pairs of standards as shown in Fig. 2, thereby forming a loading platform on which brick and other material are deposited by workmen who as tenders stand on an outside platform of planks 30.

The planks 30 are supported on brackets formed from channel bars 31 bolted at 32' to the housings on the standards 9.

The channel bars 31 extend down between channels of the I beam 9 the requisite distance and are then bent outwardly and upwardly to form a diagonal support 32, the outer end of which is connected with the vertical member 31 by a horizontal bar 33.

A workman, such as a hod carrier, reaches the platform 30 by a ladder (not shown) in the usual manner, walks thereon to the place where his material is wanted and dumps it upon the platform 29. The platform 30 is thus raised and lowered by the travel of the housing to which it is bolted.

A similar platform 34, for the bricklayer or other artisan, is supported upon a like bracket 35 made out of channel bars, one end of which is bolted in like manner to the housing on the standard 8.

The platforms 29, 30 and 34 are steadied and

supported midway between the pairs of standards by the means illustrated in Figures 2 and 6, comprising plates **37**, **37**, on each side of platform **29**, supported from standards as **9**, **9** by truss-bars **38** and **39**, the plate and two truss bars at the intersections of the bars are united by a bolt **40**. Above the bolt **40** is a vertically elongated hole **41** (see Fig. 7) formed with a horizontal bottom. A pipe **42** passes through the hole **41** in plates on each side of the platform **29**, and this pipe, at proper distances apart, has under-side notches into which the horizontal portions of the plate at the bottom of holes **41** are entered to keep the pipe **42** from moving longitudinally. This pipe supports the planks of platform **29** at the middle of the platform.

Passing through the pipe **42** is a smaller pipe **44**, one end of which is extended downwardly and then horizontally by suitable pipe fittings to form the support **45** for the platform **30**. The other end of pipe **44** is extended down and again horizontally in like manner to form the support **46** for the platform **34**.

As a safety appliance to hold a given position of the wheel **16**, I provide a pawl **48** pivotally attached to the housing and operating with the ratchet wheel **26** in the usual manner.

A further safeguard is provided by a pair of pawls **50** and **51** positioned on shaft **49** to press against the perforated flanges of the standard and enter appropriate ones of the holes by the action of gravity caused by weights **52**, off-set from the shaft **49**.

The operation of my scaffold mechanism has been so fully explained in connection with the above detailed description that further explanation is deemed unnecessary.

It will be apparent that numerous modifications and rearrangements of parts may be made without departing from the essential characteristics of my invention.

What I claim is—

1. The combination with a standard having flanges perforated in longitudinal series, of a housing comprising a pair of parallel plates mounted on and slidable longitudinally of the standard with the standard between the plates, a pair of friction rollers at the top and bottom of the housing contacting both flanges of the standard between the rollers of each pair, and a wheel rotatably supported by the housing, said wheel having radial pins successively engaging the perforations to move the housing on the standard by the rotation of the wheel.

2. The combination with a standard having flanges with a plural series of perforations extending longitudinally of the standard, said perforations being staggered in arrangement transversely of the standard of a housing comprising a pair of parallel plates mounted on and slidable longitudinally of the standard with the standard between the plates, spacing sleeves between the plates, bolts through the plates and sleeves holding the plates against the sleeves, friction rollers on some of said sleeves, in pairs, making rolling contact with the flanges of a standard assembled between the pairs, and a wheel rotatably mounted in the housing, said wheel having as many circumferential rows of radial pins as there are series of perforations in the flanges, said pins being staggered transversely of the wheel to operatively engage corresponding perforations of the flanges to move the housing on the standard by the rotation of the wheel.

3. The combination with a standard having flanges with a plural series of perforations extending longitudinally of the standard, said perforations being staggered in arrangement transversely of the standard of a housing comprising a pair of parallel plates mounted on and slidable longitudinally of the standard with the standard between the plates, spacing sleeves between the plates, bolts through the plates and sleeves holding the plates against the sleeves, friction rollers on some of said sleeves, in pairs, making rolling contact with the flanges of a standard assembled between the pairs, and a wheel rotatably mounted in the housing between upper and lower friction roller pairs, said wheel having as many circumferential rows of radial pins as there are series of perforations in the flanges, said pins being staggered transversely of the wheel to operatively engage corresponding perforations of the flanges to move the housing on the standard by the rotation of the wheel, means to rotate the wheel and means to lock the wheel against movement in one direction.

4. The combination with a standard having flanges with a plural series of perforations extending longitudinally of the standard, said perforations being staggered in arrangement transversely of the standard, of a housing comprising two spaced apart plates embracing the standard between them and slidable longitudinally of the standard, a shaft, a wheel fixed on the shaft, said shaft reduced in diameter on each side of the wheel, split bearings with inside flanges receiving the reduced portions of the shaft and supported by the plates with the flanges against the inner sides of the plates, said wheel having as many circumferential rows of radial pins as there are series of perforations in the flanges, said pins being staggered transversely of the wheel to operatively engage corresponding perforations of the flanges to move the housing on the standard by the rotation of the wheel, means to rotate the wheel and automatic means to lock the wheel against movement in one direction.

5. The combination with a standard having flanges with a plural series of perforations extending longitudinally of the standard, said perforations being staggered in arrangement transversely of the standard, of housing comprising two spaced apart plates embracing the standard between them and slidable longitudinally of the standard, a shaft, a wheel fixed on the shaft, said shaft reduced in diameter on each side of the wheel, split bearings with inside flanges receiving the reduced portions of the shaft and supported by the plates with the flanges against the inner sides of the plates, said wheel having as many circumferential rows of radial pins as there are series of perforations in the flanges, said pins being staggered transversely of the wheel to operatively engage corresponding perforations of the flanges to move the housing on the standard by the rotation of the wheel, means to rotate the wheel and automatic means to lock the wheel against movement in the direction, comprising one or more pawls pivotally carried by the housing and weighted on one side of the pivot to press the pawl against the perforated flange to enter one of the perforations by the action of gravity, a ratchet wheel on the shaft and a pawl pivoted to the housing and engaging the ratchet wheel to prevent lowering of the device when both of the first pawls are out of engagement with the perforations of the flange.

6. A scaffold unit comprising a pair of vertical standards each having a rack formation,

cross bars connecting the standards at their lower portions, a housing for each standard through which the standard passes having a hole through the housing transverse to the standards, a wheel carried by each housing having formations engaging those of the rack when the wheel is rotated, means for rotating the wheels, a bar slidingly inserted through the holes in the housing and connecting the two housings, a loading platform supported at one end by the bar, a bracket suspended against the respective standards from each housing, a workman's platform supported at one end by one of the brackets, a tender's platform supported at one end by the other bracket and means to prevent the accidental lowering of the housings.

7. In a scaffold, supporting standards in pairs, a loading platform, a workman's platform and a tender's platform below the loading platform, a plate on each side of the loading platform, a pair of truss bars for each plate bolted at one of their ends to a respective plate and at their ends to respective scaffold standards, a pipe crossing under the platform and passing through holes in the two plates, a smaller pipe passing through the first pipe and having one end bent and extended to and under the workman's platform and the other end bent and extended to and under the tender's platform.

8. In a scaffold, supporting standards in pairs, a loading platform, a workman's platform and a tender's platform below the loading platform, a plate on each side of the loading platform, a pair of truss bars for each plate bolted at one of their ends to a respective plate and at their ends to respective scaffold standards, a pipe crossing under the platform and passing through holes in the two plates, a smaller pipe passing through the first pipe and having one end bent and extended to and under the workman's platform and the other end bent and extended to and under the tender's platform, said first pipe being notched at its ends on the under side and receiving the plate at the bottom of the hole in the notch to prevent the spreading apart of the plates.

9. In a platform, I beams forming vertical standards, the two flanges on one side of the I beam having a longitudinal series of holes which are staggered transversely of the two series of each beam, a housing for each standard comprising a pair of plates each having a hole transverse to the standards, bolts connecting the plates, spacers on the bolts and friction rollers on the spacers making sliding contact against the standards, a channel bar slidingly assembled in the holes of and connecting a pair of the housings, cross bars connecting the standard pairs at their lower portions, a wheel journaled in the housing between the two plates of the housing, said wheel having two rows of radial pins staggered to successively enter holes in the standard of that housing, means for rotating the wheels, a ratchet wheel rotating with each pin wheel, a pawl pivoted to the housing and engaging the ratchet wheel, a platform supporting bracket carried by each housing and platform supported at an end of each by the bracket and a loading platform by the channel bars.

10. In a platform, I beams forming vertical standards, the two flanges on one side of the I beam having a longitudinal series of holes which are staggered transversely of the two series of each beam, a housing for each standard comprising a pair of plates each having a hole transverse to the standards, bolts connecting the plates, spacers on the bolts and friction rollers on the spacers making sliding contact against the standards, a channel bar slidingly assembled in the holes of and connecting a pair of the housings, cross bars connecting the standard pairs at their lower portions, a wheel journaled in the housing between the two plates of the housing, said wheel having two rows of radial pins staggered to successively enter holes in the standard of that housing, means for rotating the wheels, a ratchet wheel rotating with each pin wheel, a pawl pivoted to the housing and engaging the ratchet wheel, a pair of pawls pivoted in the housing above the wheel and weighted to enter the holes in the standard by gravity, a platform supporting bracket suspended by each housing and sliding against its standard and platforms supported at an end of each by the bracket and a loading platform by the channel bars.

11. In a platform, I beams forming vertical standards, the two flanges on one side of the I beam having a longitudinal series of holes which are staggered transversely of the two series of each beam, a housing for each standard comprising a pair of plates each having a hole transverse to the standards, bolts connecting the plates, spacers on the bolts and friction rollers on the spacers making sliding contact against the standards, a channel bar slidingly assembled in the holes of and connecting a pair of the housings, cross bars connecting the standard pairs at their lower portions, a wheel journaled in the housing between the two plates of the housing, said wheel having two rows of radial pins staggered to successively enter holes in the standard of that housing, means for rotating the wheels, a ratchet wheel rotating with each pin wheel, a pawl pivoted to the housing and engaging the ratchet wheel, a pair of pawls pivoted in the housing above the wheel and weighted to enter the holes in the standard by gravity, a platform supporting bracket suspended by each housing and sliding against its standard and platforms supported at an end of each by a bracket, and means comprising a pair of platform spacing plates supported by truss bars from the standards and a pipe passing through holes in the plates for supporting the platforms at their middles said pipe being notched to engage the plates to prevent lateral movement of the plates on the pipe and spread of the platform.

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