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A. L. N. FLEMING

TRAVELING SCAFFOLD

Filed Aug. 12, 1922

3 Sheets-Sheet 1

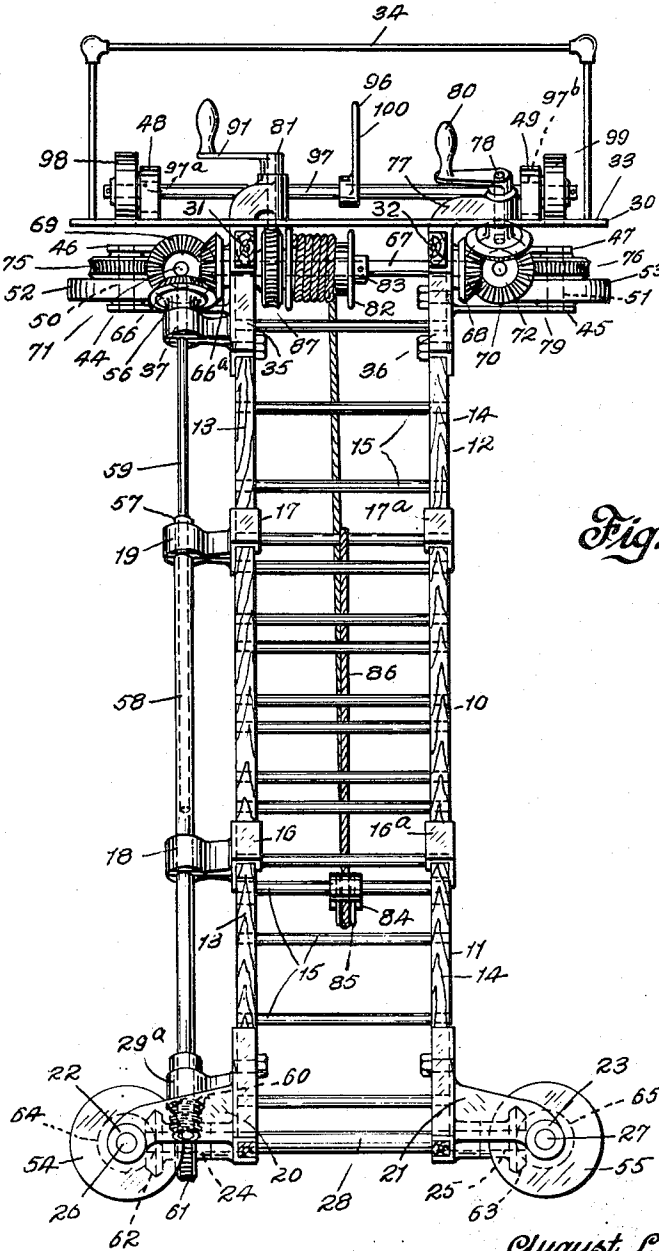


Fig. 1

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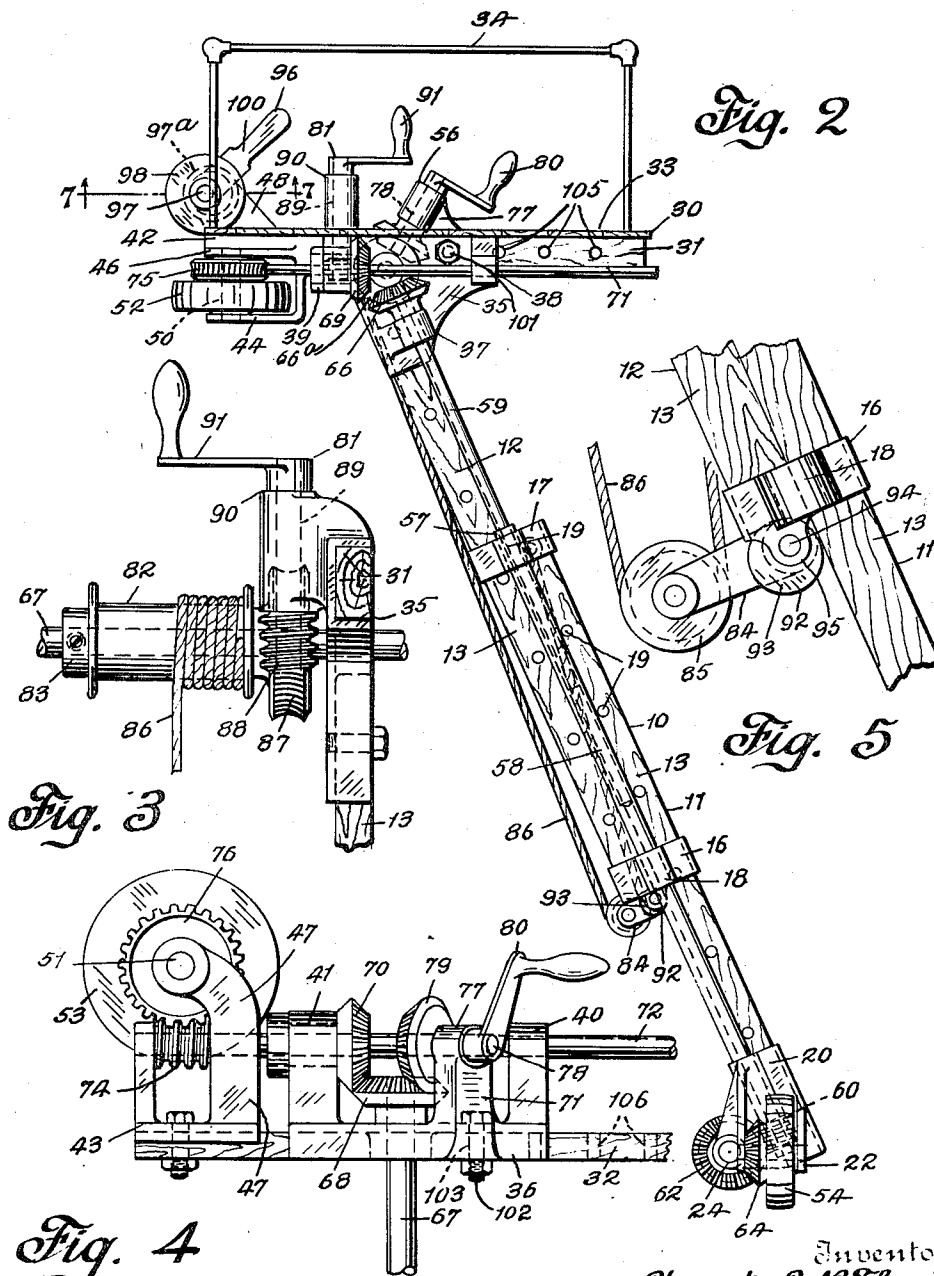
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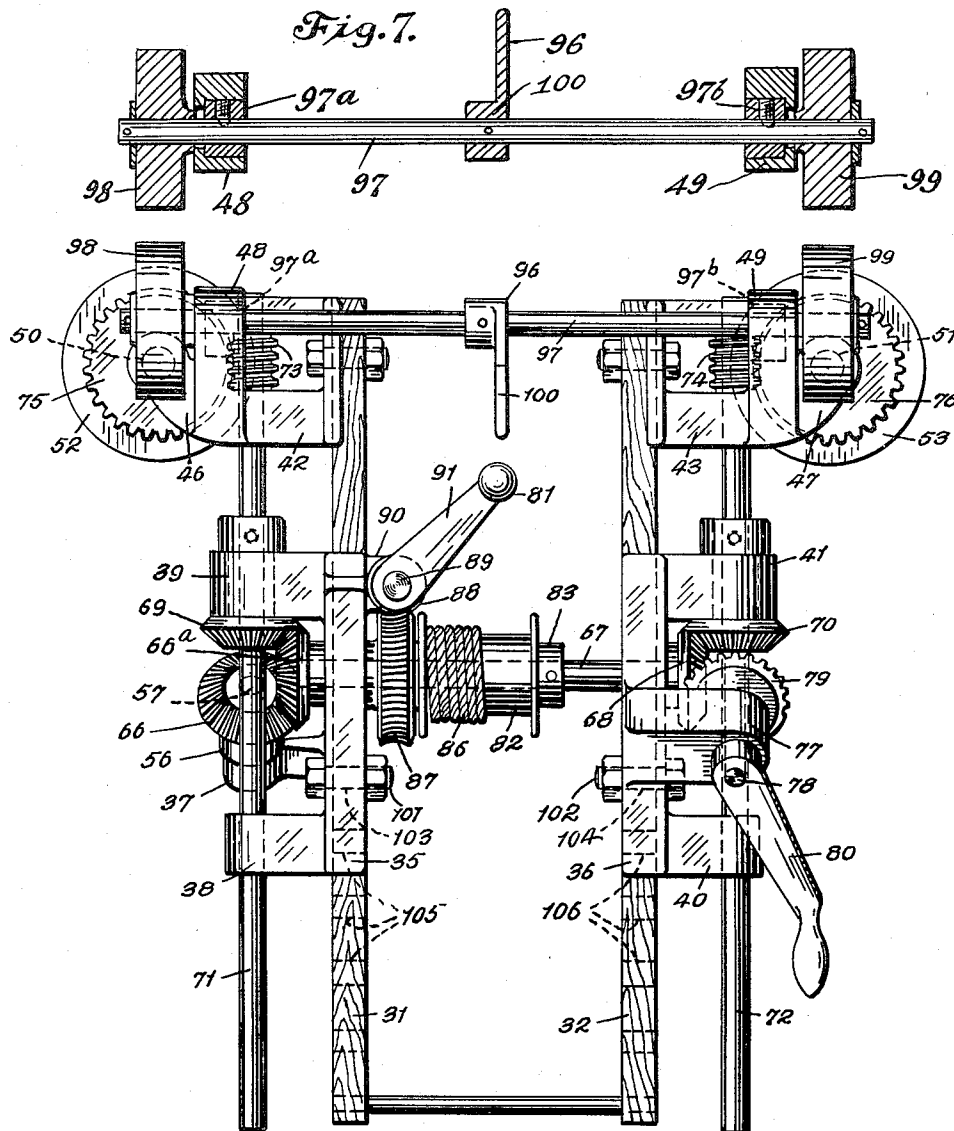
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

AUGUST L. N. FLEMING, OF LYNDHURST, NEW JERSEY.

TRAVELING SCAFFOLD.

Application filed August 12, 1922. Serial No. 581,383.

To all whom it may concern:

Be it known that I, AUGUST L. N. FLEMING, a citizen of the Republic of France, and a resident of Lyndhurst, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in a Traveling Scaffold, of which the following is a full, clear, and exact specification.

This invention relates to a class of apparatus adapted to be used for construction work.

My invention has for its object primarily to provide a scaffold designed to be employed by persons in the work of erecting, repairing and painting buildings and other structures wherein the scaffold is required to be shifted to various parts of the walls thereof by being moved back and forth in longitudinal directions or extensibly adjusted upwardly and downwardly to different heights, and which is of a form whereby these adjustments are accomplished from the uppermost part of the scaffold, in order to save time and trouble when it is desired to change the positions of the scaffold as is incident to the forms of suspended scaffolds in ordinary use. The invention consists essentially of a ladder composed of extensibly adjustable sections, and on the lower section are wheels for traveling on a surface, while on the uppermost section are wheels for traveling on the walls of a structure. Manually operative mechanism is provided on the uppermost section to revolve all the wheels in unison when it is desired to move the scaffold lengthwise of the wall, and also on the uppermost section is provided manually operative mechanism for adjusting the sections of the ladder in upward and downward directions so that persons working on the scaffold may appropriately adjust its height as well as move it to suitable positions as occasion requires.

Other objects of the invention are to provide a safety brake which is operative when the cable is severed to check accidental lowering of the upper sections of the ladder for preventing accidents; to provide rollers on the uppermost section of the ladder above the upper wheels, and these rollers are adjustable for spacing the uppermost section with the upper wheels from the wall prior to operating the cable for extensibly adjusting the sections of the ladder; and to provide a traveling scaffold of a simple, efficient and

durable construction which may be made in any appropriate size.

With these and other objects in view, the invention will be hereinafter more fully described with reference to the accompanying drawings forming a part of this specification in which similar characters of reference indicate corresponding parts in all the views, and will then be pointed out in the claims at the end of the description.

In the drawings, Figure 1 is a front elevation of one form of traveling scaffold embodying my invention.

Fig. 2 is a side elevation of the scaffold.

Fig. 3 is an enlarged fragmentary view, showing an elevation of the parts of the mechanism for extensibly adjusting the sections of the ladder used in the apparatus.

Fig. 4 is an enlarged fragmentary view, showing a plan of parts of the mechanism for causing the ladder to be wheeled.

Fig. 5 is an enlarged fragmentary view showing the form of safety brake used in conjunction with the sections of the ladder.

Fig. 6 is an enlarged top plan of the parts of the scaffold with the floor and railing of the platform removed, and

Fig. 7 is an enlarged detail sectional view taken on the line 7-7 of Fig. 2.

The apparatus or scaffold has a ladder which may be composed of any appropriate number of separate sections, though the form of the ladder illustrated has two sections 11, 12 each having two side bars 13, 14 and spaced rungs or rods 15 therebetween so that persons may climb up and down the ladder. The sections are relatively arranged so that the upper parts of the side bars of the section 11 movably overlap the lower parts of the side bars of the upper section 12 for allowing the ladder to be extensibly lengthened and shortened. On the upper end portion of the side bars 13, 14 of the section 11 of the ladder are spaced sleeves 16, 16^a and 17, 17^a in which the lower end portions of the side bars of the upper section 12 are slidably disposed for holding the sections of the ladder extensibly together, and projecting laterally from the sleeves 16 and 17 are two alined bearings, as 18, 19. On the lower ends of the side bars 13, 14 of the lower section 11 are two brackets, as 20, 21, which protrude in opposite lateral directions as well as terminating with bearings, as 22, 23, and also extending from the brackets at the rear of the bearings 22, 23 are two more

bearings 24, 25. The holes in the bearings 22, 23 are on alinement with the holes in the bearings 24, 25, and the pairs of bearings are relatively arranged so that the holes of the bearings 24, 25 are disposed transversely relatively to the holes in the bearings 22, 23. In the bearings 22, 23 are journaled one of the ends of studs or short shafts 26, 27 both of which extend toward the bearings 24, 25, and in the bearings 24, 25 are journaled the end portions of a shaft 28, which extends across the lower end of the ladder. Also protruding from the bracket 20 may be a bearing 29^a which is on alinement with the bearings 18, 19 of the sleeves 16, 17.

On the upper end of the section 12 of the ladder 10 is a platform, as 30, having two spaced parallel beams or bars 31, 32 on top of which is a floor, as 33, of substantially a rectangular shape, and extending upward from the floor may be a railing, as 34, so that persons using the scaffold may safely stand on the platform while working. The central parts of the beams 31, 32 of the platform 30 are mounted on the upper ends of the side bars 13, 14 of the uppermost section 12 of the ladder by two brackets, as 35, 36, so that the platform will be longitudinally level when the ladder is disposed on an incline, as shown in Fig. 2, and these brackets are adjustable on the beams 31, 32, as will be hereinafter more fully explained. On the lower part of the bracket 35 may be a bearing, as 37, which is on alinement with the bearings 18, 19 of the sleeves 16, 17 and with the bearing 29^a of the bracket 20. Protruding laterally from the bracket 35 above the bearing 37 are two alined spaced bearings 38, 39, and projecting laterally in an opposite direction from the bracket 36 are also two alined spaced bearings 40, 41. On the rear ends of the beams 31, 32 of the platform 30 are two brackets, as 42, 43, and extending in opposite lateral directions from these brackets are two arms or plates 44, 45. Also extending in opposite lateral directions from the brackets 42, 43 are two arms or plates 46, 47 which are spaced above the plates 44, 45. On the upper faces of the plates 46, 47 are two hollow bearings 48, 49 Fig. 6 which extend upwardly as well as rearwardly toward the rear ends of the beams 31, 32 of the platform 30.

In registered holes provided at the ends of the pairs of spaced plates 44, 45 and 46, 47 of the brackets 42, 43 are journaled the ends of vertical studs 50, 51 on which are held two wheels 52, 53 adapted to travel when revolved on the wall or the like of a building or other structure when the scaffold is in use. On the studs 26, 27 of the brackets 20, 21 on the lower end of the ladder are held two wheels, as 54, 55, adapted when revolved to travel on the surface adjacent the wall when the scaffold is employed, and serving to

cause all of these wheels to revolve in unison I provide a mechanism, as 56, which is manually operative from the platform 30 for shifting the scaffold from place to place.

The mechanism 56 may be of any appropriate type, though the form of the mechanism illustrated, has a shaft 57 which is journaled in the bearings 29^a, 18, 19, 37 on the sections of the ladder 10, and this shaft is of an extensibly adjustable form having a tubular section 58 of a length approximately similar to the length of the lower section 11 of the ladder. In the upper end of the tubular section 58 of the shaft 57 is an extensibly adjustable section 59 which extends somewhat above the bearing 37 of the section 12 of the ladder. These sectional parts of the shaft 57 will thereby be extensibly lengthened and shortened with the extensible adjustment of the sections of the ladder, and the sections of this shaft are revolvable in unison by the section 59 being frictionally held in the section 58 against tendency to rotate independently of the section 58 or the sections may be formed with angular extensibly interfitting parts. On the lower end of the section 58 of the shaft 57 is a worm 60 which is in mesh with a worm gear 61 held on the shaft 28 and also on both ends of the shaft 28 are held bevel gears 62, 63 in mesh with bevel gears, as 64, 65, held on the studs 26, 27 of the wheels 54, 55. On the upper end of the section 59 of the shaft 57 is a bevel gear 66 in mesh with a bevel gear 66^a held on one end of a shaft 67 which is journaled in the brackets 35, 36, of the beams 31, 32 of the platform 30. The shaft 67 thus extends across the beams of the platform, and on the second end of the shaft 67 is a bevel gear 68. The bevel gears 66, 68 are in mesh with bevel gears 69, 70 held on shafts 71, 72 which are journaled respectively in the bearings 38, 39 and 40, 41 of the brackets 35, 36 of the beams of the platform. The shafts 71, 72 are of such lengths that their rear ends terminate at the rear ends of the beams of the platform, and at the rear ends of these shafts are worms 73, 74 meshing with worm gears 75, 76 held on the studs 50, 51 of the upper wheels 52, 53. Projecting on an upward incline from the bracket 36 of the beam 32 of the platform is a bearing 77 in which is journaled a stud 78 having on its lower end a bevel gear 79 in mesh with the bevel gear 68 of the shaft 67. On the upper end of the stud 78 is held a crank handle 80 adapted to be manually operated by a person positioned on the platform 30. The mechanism 56 is operated to cause the scaffold to be moved from place to place by the handle 80 being revolved accordingly. The stud 78 and the bevel gears 79, 68, will then be rotated to revolve the shaft 67 and bevel gear 66. The bevel gears 69, 70, shafts 71, 72, worms 73, 74, and the worm gears 75, 76

will be rotated to revolve the wheels 52, 53 on the wall or the like of a building or other structure when the scaffold is in use. With the operation of these parts the bevel gear 66 will be rotated to drive the sectional shaft 57, and in turn the worm 60, worm gear 61, shaft 28, bevel gears 62, 63 and bevel gears 64, 65 will be rotated to drive the studs 26, 27 and the wheels 54, 55 to cause the scaffold to move on the surface at the base of the wall simultaneously with the travel of the wheels 52, 53 on the wall.

Serving to cause the platform 30 to be raised and lowered as occasion requires by extensibly adjusting the sections 11, 12 of the ladder 10, a mechanism, as 81, is provided. The mechanism 81 preferably includes a drum or pulley, as 82, which is freely revolvable on the shaft 67 of the mechanism 56, and this drum may be movably held in proximity to the beam 31 of the platform against tendency to slidably shift on the shaft 67 by a collar 83 which is fixed to the shaft. On the central part of one of the lower rungs 15 of the section 12 of the ladder is held one of the ends of a bracket, as 84, protruding rearwardly of the ladder, and this bracket carries a pulley, as 85 Figs. 1, 2, 5. Wrapped on the drum 82 is one end portion of a cable or line 86 which passes downwardly over the pulley 85 and then upwardly so that an end of the cable is held to one of the rungs of the upper end of the lower section 11 of the ladder. On the shaft 67 and held to one end of the drum 82 is a worm gear 87, and meshing with this worm gear is a worm 88 provided on the lower end of a stud 89 which is journaled in a bearing 90 extending upwardly from the bracket 35 of the beam 31 of the platform. On the upper end of the stud 89 is a crank handle 91 disposed above the platform 30 so that when a person on the platform revolvably swings the handle the stud 89, worm 88 and the worm gear 87 will be rotated. The drum 82 will then also be revolved to wrap or unwrap the cable 86 for causing the upper section 12 of the ladder to be extensibly adjusted relative to the lower section 11 of the ladder when it is desired to raise or lower the platform 30 without requiring the person to leave the platform.

Should the cable 86 be accidentally severed the sections of the ladder will be prevented from collapsing by a safety device, as 92 Figs. 2 and 5. This safety device is composed of a cam wheel 93 which is eccentrically held on a stud 94 journaled in a bearing, as 95, provided on the sleeve 18 of the ladder so that in event of the upper section 12 of the ladder and the platform 30 tending to accidentally move downwardly the cam wheel will revolve for being frictionally wedged against the side bar 13 of the section 11 of the ladder. The downward

movement of the section 12 with the platform will thereby be effectually checked.

Prior to operating the mechanism 81 for causing the sections of the ladder to be extensibly adjusted, as explained, the wheels 52, 53 are spaced from the wall with which they contact, and this is accomplished by operating a mechanism, as 96. The mechanism 96 includes a shaft 97 having in proximity to its ends two eccentric wheels or cams 97^a and 97^b which are journaled in the hollow bearings 48, 49 of the brackets 42, 43 of the beams 31, 32 of the platform. On the ends of the shaft 97 above the wheels 52, 53 are two freely revolvable wheels 98, 99 of such diameters that when partly revolved accordingly their peripheries will extend beyond the rims of the wheels 52, 53. On the central part of the shaft 97 is held a handle 100 which is positioned with relation to the cams 97^a, 97^b so that when the handle is swung this shaft will be revolved for revolvably swinging the cams 97^a, 97^b for causing the idler wheels 98, 99 to contact with the wall to space the wheels 52, 53 therefrom and with the operation of the mechanism 81 these wheels will travel upwardly or downwardly on the wall to allow the sections of the ladder to be readily adjusted extensibly.

The brackets 35, 36 are movable on the beams 31, 32 to allow the platform 30 to be adjustably positioned against a wall for positioning the ladder a suitable distance from the wall. The brackets 35, 36 are therefore movably fastened to the beams by nut bolts, as 101, 102, which are removably inserted in registered holes 103, 104 in the brackets, and in forward end portions of the beams 31, 32 are spaced pairs of registered holes 105, 106. When it is desired to adjust the platform the brackets 35, 36 are moved by removing the bolts 101, 102 from the holes in the brackets and from the holes in the beams in which they may be seated. The brackets are then slidably moved on the beams to properly position the platform, in which instance, the pair of holes 103, 104 of the brackets must be in register with one of the other pair of holes 105, 106 in the beams. By then refastening the bolts in the pairs of registered holes in the brackets and in the holes of the beams the platform will be held against accidental movement in its adjusted position. The mechanisms 56 and 81 being carried by the brackets 35 and 36 will be adjusted with the positioning of the brackets so that the adjustment of the platform will not interfere with the operation of the mechanisms, as above explained.

In the foregoing description, I have embodied the preferred form of my invention, but I do not wish to be understood as limiting myself thereto, as I am aware that modifications may be made therein without departing from the principle or sacrificing any

of the advantages of this invention, therefore, I reserve to myself the right to make such changes as fairly fall within the scope thereof.

5 Having thus described my invention, I claim as new and desire by secure by Letters Patent:

1. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable
10 sections, a platform on the uppermost section, wheels on the lower section for traveling on a surface, wheels on the upper section for traveling on a wall, and mechanism manually operative on the platform for simultaneously revolving all of the wheels to
15 cause the scaffold to travel on the surface.

2. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable sections, a platform on the uppermost section, wheels on the lower section for traveling on a surface, wheels on the upper section for traveling on a wall, mechanism manually operative on the platform for simultaneously revolving all of the wheels to
20 cause the scaffold to travel on the surface, and mechanism also manually operative on the platform to extensibly adjust the sections of the ladder.

3. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable sections, a platform on the uppermost section, wheels on the lower section for traveling on a surface, wheels on the upper section for traveling on a wall, and mechanism manually operative on the platform for simultaneously revolving all of the wheels to
35 cause the scaffold to travel on the surface, a cable operatively holding the sections of the ladder together, and mechanism also manually operative on the platform for operating
40 the cable to extensibly adjust the sections of the ladder.

4. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable
45 sections, a platform on the uppermost section, wheels on the lower section for traveling on a surface, wheels on the upper section for traveling on a wall, and mechanism manually operative on the platform for simultaneously revolving all of the wheels, a
50 cable operatively holding the sections of the ladder together, mechanism also manually operative on the platform for operating the cable to extensibly adjust the sections of the ladder, and a safety brake operative
55 when the cable is severed to check accidental lowering of the upper sections of the ladder.

5. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable
60 sections, a platform on the uppermost section, wheels on the lower section for traveling on a surface, wheels on the upper section for traveling on a wall, and mechanism manually operative on the platform for simultaneously revolving all of the wheels, a
65 cable operatively holding the sections of the ladder together, mechanism also manually

operative on the platform for operating the cable to extensibly adjust the sections of the ladder, rollers on the upper section of the ladder above the upper wheels, adjustable for moving the platform and upper sections to space the upper wheels from the wall preceding operation of the cable to
70 extensibly adjust the sections of the ladder.

6. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable sections, a platform on the uppermost section, wheels on the lower section for traveling on a surface, wheels on the upper section for traveling on a wall, and mechanism manually operative on the platform for simultaneously revolving all of the wheels, a
80 cable operatively holding the sections of the ladder together, mechanism also manually operative on the platform for operating the cable to extensibly adjust the sections of the ladder, a safety brake operative when the cable is severed to check accidental lowering of the upper sections of the ladder, rollers on the upper section of the ladder
90 above the upper wheels, adjustable for moving the platform and upper sections to space the upper wheels from the wall preceding operation of the cable to extensibly adjust
95 the sections of the ladder.

7. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable sections, a platform on the uppermost section, wheels on the lower section for traveling on
100 a surface, mechanism manually operative on the platform for simultaneously revolving all of the wheels, a cable operatively holding the sections of the ladder together, mechanism also manually operative on the platform for operating the cable to extensibly adjust the sections of the ladder, and
105 a safety brake operative when the cable is severed to check accidental lowering of the upper sections of the ladder.

8. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable sections, a platform on the uppermost section, a shaft journaled in the lower end of the lower section, wheels held on the shaft
115 for traveling on a surface, a shaft journaled in the uppermost section, wheels held on the upper shaft for traveling on a wall, and manually operative mechanism on the platform for simultaneously driving both shafts
120 to revolve all of the wheels to cause the scaffold to travel.

9. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable sections, a shaft journaled in the lower end of the lower section, wheels held on the shaft
125 for traveling on a surface, a shaft journaled in the uppermost section, wheels held on the upper shaft for traveling on a wall, manually operative mechanism on the uppermost
130

section for simultaneously driving both shafts to revolve all of the wheels to cause the scaffold to travel, a cable operatively holding the sections of the ladder together, and manually operative mechanism on the uppermost section to extensibly adjust the sections of the ladder.

10. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable sections, a platform on the uppermost section, a shaft journaled in the lower end of the lower section, wheels held on the shaft for traveling on a surface, a shaft journaled in the uppermost section, wheels held on the upper shaft for traveling on a wall, manually operative mechanism on the platform for simultaneously driving both shafts to revolve all of the wheels to cause the scaffold to travel, a cable operatively holding the sections of the ladder together, manually operative mechanism on the platform for operating the cable to extensibly adjust the sections of the ladder, and a safety brake operative when the cable is severed to check accidental lowering of the upper sections of the ladder.

11. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable sections, a shaft journaled in the lower end of the lower section, wheels held on the shaft for traveling on a surface, a shaft journaled in the uppermost section, wheels held on the upper shaft for traveling on a wall, manually operative mechanism on the uppermost section for simultaneously driving both shafts to revolve all of the wheels to cause the scaffold to travel, a cable operatively holding the sections of the ladder together, manually operative mechanism on the platform for operating the cable to extensibly adjust the sections of the ladder, a safety brake operative when the cable is severed to check accidental lowering of the upper sections of the ladder, and rollers on the upper section of the ladder above the upper wheels, adjustable for moving the platform and upper sections to space the upper wheels from the wall preceding operation of the cable to extensibly adjust the sections of the ladder.

12. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable sections, a platform on the uppermost section, a shaft journaled in the lower end of the lower section, wheels held on the shaft for traveling on a surface, a shaft journaled in the uppermost section, wheels held on the upper shaft for traveling on a wall, manually operative mechanism on the uppermost section for simultaneously driving both shafts to revolve all of the wheels for causing the scaffold to travel, a cable operatively holding the sections of the ladder together, manually operative mechanism on the platform for op-

erating the cable to extensibly adjust the sections of the ladder, a safety brake operative when the cable is severed to check accidental lowering of the upper sections of the ladder, and rollers on the upper section of the ladder above the upper wheels, adjustable for moving the platform and upper sections to space the upper wheels from the wall preceding operation of the cable to extensibly adjust the sections of the ladder.

13. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable sections, an adjustable platform on the uppermost section, a shaft journaled in the lower end of the lower section, wheels held on the shaft for traveling on a surface, a shaft journaled in the uppermost section, wheels held on the upper shaft for traveling on a wall, and gearing manually operative on the platform for simultaneously driving both shafts to revolve all of the wheels to cause the scaffold to travel.

14. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable sections, an adjustable platform on the uppermost section, a shaft journaled in the lower end of the lower section, wheels held on the shaft for traveling on a surface, a shaft journaled in the uppermost section, wheels held on the upper shaft for traveling on a wall, gearing manually operative on the platform for simultaneously driving both shafts to revolve all of the wheels to cause the scaffold to travel, a cable operatively holding the sections of the ladder together, and gearing manually operative also on the platform for operating the cable to extensibly adjust the sections of the ladder.

15. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable sections, an adjustable platform on the uppermost section, a shaft journaled in the lower end of the lower section, wheels held on the shaft for traveling on a surface, a shaft journaled in the uppermost section, wheels held on the upper shaft for traveling on a wall, gearing manually operative on the platform for simultaneously driving both shafts to revolve all of the wheels to cause the scaffold to travel, a cable operatively holding the sections of the ladder together, gearing manually operative also on the platform for operating the cable to extensibly adjust the sections of the ladder, and a safety brake operative when the cable is severed to check accidental lowering of the upper sections of the ladder.

16. In a traveling scaffold, in combination, a ladder composed of extensibly adjustable sections, an adjustable platform on the uppermost section, a shaft journaled in the lower end of the lower section, wheels held on the shaft for traveling on a surface, a shaft journaled in the uppermost section, wheels held on the upper shaft for traveling

on a wall, gearing manually operative on the platform for simultaneously driving both shafts to revolve all of the wheels to cause the scaffold to travel, a cable operatively holding the sections of the ladder together, gearing manually operative also on the platform for operating the cable to extensibly adjust the sections of the ladder, a safety brake operative when the cable is severed to check accidental lowering of the upper sections of the ladder, and rollers on the upper section of the ladder above the upper wheels, adjustable for moving the platform and upper sections to space the upper wheels from the wall preceding operating of the cable to extensibly adjust the sections of the ladder.

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This specification signed and witnessed this 11th day of August A. D. 1922.

AUGUST L. N. FLEMING.

Witnesses:

D. MAGUIRE,

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