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(54) **Sectional scaffolding with motor-driven base und sidemounted elevator.**

(57) This invention concerns scaffolding constructed to combine numerous identical sectional and stackable components, resting on a base fitted with two driving wheels and two steering wheels; characterized in that along the side of the scaffolding an elevator trolley for lifting objects and people can slide vertically.

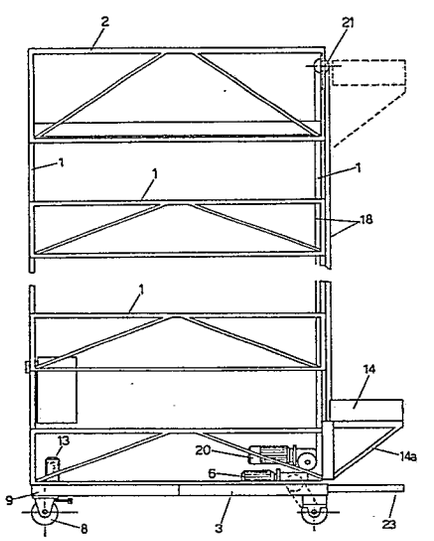

FIG. 1

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Description

Sectional scaffolding with motor driven base and side elevator

This patent application for an industrial utility model concerns a sectional scaffolding with motor driven base and side elevator.

The invention was designed to facilitate the work of all those bricklayers, electricians, plumbers, painters and other workers who are forced to work at a certain height from the ground.

Currently work of this kind is carried out either with ladders or with the fixed conventional scaffolding commonly available on the market.

Despite the fact that these are acceptably functional, both are penalized by their own specific disadvantages: ladders are not extremely safe for the worker nor do they provide any working surface while conventional scaffolding is often difficult to move and not extremely versatile.

In addition to this, the main problem characterizing both ladders and current scaffolding lies in the fact that they create serious problems to the user when the same has to work at a distance which is greater than arms length.

In this case it is currently necessary to climb down from the ladder or scaffolding each time to move the same into a suitable position and then climb up again.

The same problem arises when the operator has to bring his tools or working material to a certain height, unless a hoist pulley or assistant is available.

In order to eliminate these working problems the scaffolding according to the invention has been designed to provide an efficient solution to all the problems encountered by operators in the sector.

This scaffolding, constructed with light and reliable, easy to mount sectional modular components, is fitted with a self-driven base which moves autonomously even along curves and which can be operated directly by the worker on the platform at the top of the scaffolding.

Another important feature of the model according to the invention is a hoist platform sliding vertically along the side of the scaffolding and capable of transporting persons and loads of a considerable total weight; obviously this hoist may also be controlled by the operator at the top of the scaffolding.

It is evident from the above that this scaffolding can be considered extremely practical since not only is it light, versatile and safe to use but also extremely useful, especially for loading and moving operations which can be controlled by a single person without inconvenience or physical effort.

For major clarity the description according to the invention continues with reference to the attached drawings which are intended for illustration purposes rather than in a limiting sense in which:

- figure 1 is a side view of the scaffolding according to the invention;
- figure 2 is a top view of the self-driven base of the scaffolding according to the invention;
- figure 3 is a top view of the platform at the top of the scaffolding according to the invention, with the hoist on the side;
- figure 4 illustrates a view of the connection between the scaffolding upright and one of the sliding trolleys fitted to this hoist platform.

With reference to the attached figures, the scaffolding consists of a series of identical and stackable components (1) having a rectangular surface and constructed with square section pipes, to form a framework having a square plan at the top of which a platform (2) having perimetral railing and a passage area, is fitted.

This framework rests on a base (3), having an identical square plan and fitted with two pairs of wheels opposite to each other, one being the driving pair and the other the steering pair.

The two driving wheels (4) are fitted at the side ends of one side of the square base (3) and connected to each other by means of a shaft (5) to which a geared motor (6) having a horizontal axis transmits the rotation for turning the wheels (4) in both operating directions, by means of a standard driving chain (7).

In particular a pinion, by means of which the above driving chain (7) is actually connected, is splined next to one of the two driving wheels (4) and along the connecting shaft (5).

In this regard it should be noted that this chain is operated by a gear fitted to the shaft of the geared motor, drawn by an adjustable lining clutch which reduces the tractive force allowing the gear to slide in the case of obstacles when the scaffolding is moved.

The steering wheels (B) positioned opposite to the driving wheels (4) are fitted under the respective side (9) of the base (3), each being fitted on a axial bearing support allowing them to rotate about a vertical axis.

Each of the steering wheels (8) has an arm (10) fitted to the respective base fixing pin (3), the arm being turned inwards to the base structure (3), connected to a transverse bar (11) parallel to the above motor shaft (5). This bar (11) is connected by means of a rocker lever (12) to a geared motor (13), fitted with a vertical axis allowing the same to translate alternatively on a horizontal plane, and by means of which the two steering wheels (8) are rotated about a vertical axis.

It should be noted in this regard that steering is limited by two mechanical end stops; this prevents the driving wheels operating in this scaffolding with no differential effect, from sliding.

As mentioned above, a platform (14) for transporting objects and people up and down and vice versa, slides vertically along the side of the scaffolding in question.

At the ends of the front of this platform (14), which is fitted with a supporting pipe framework (14a) and a loading surface, there are two pairs of wheels (15) having a horizontal axis, and placed at 90° with respect to each other, which touch and slide along the external sides of an "L" shaped guide square

(16) - as illustrated in figure 4 -fitted longitudinally for the full height of the external side of each of the two tubular uprights (17) fitted on the side of the framework along which the platform (14) in question slides.

The vertical movement of this platform (14) is obtained by means of a cable (18) operated by a winch (19) whose drum is operated by a geared motor having a horizontal axis (20); the geared motor (20) and the winch (19) being positioned on the base (3) of the scaffolding on the same side on which the two driving wheels (4) are fitted, and the cable (18) being wound at the top around a transmission pulley (21) fitted at the top end component (2) of the scaffolding, pivoted on a suitably sturdy cross member (22).

Finally it should be pointed out that a "C"-shaped tubular railing (23) delimiting a surface equal to approximately that of the hoist (14) projects horizontally on the side of the base (3) on the framework side along which the hoist trolley (14) slides; this railing (23) being fitted to prevent operators on the ground from accidentally walking under the hoist (14) and running the risk of being struck by the same during its descent.

The electrical system of the scaffolding according to the invention was purposely omitted from this description since the same is a standard system.

Claims

1) A sectional scaffolding with motor driven base and side elevator, having sectional, stackable components for constructing a framework characterized in that a platform (20) is fitted at the top having a perimetral railing and a passage area, and resting on a base (3) fitted with two pairs of wheels positioned opposite each other, one pair being the driving wheels (4) and the other the steering wheels (8); the driving wheels (4) being fitted at the side ends of one side of the base (3) and connected to each other by means of a motor shaft (5), the same being operated in both directions by a geared motor (6) through a standard driving chain (7); the steering wheels (8) being fitted by means of axial bearing supports on another side (9) of the base (3) and positioned opposite the driving wheels (4), on whose base (3) fixing pin an arm (10) is fitted, the same being turned inwards to the base (3), and coupled with a transverse bar (11) parallel to the above motor shaft (5), the same transverse bar (11) being connected by means of a rocker lever (12) to a geared motor having a vertical axis (13), which allows its alternate translation on a horizontal plane, in order to steer the two wheels (8).

2) A sectional scaffolding with motor driven base and side elevator, having sectional, stackable components for constructing a framework according to claim 1, characterized in that an elevator trolley (14) can slide vertically along one of its sides, the movement of the same being obtained by means of a cable (18) operated at the bottom by a winch (19) whose drum is operated by a geared motor having a horizontal axis (20) fitted to the above base (3) on the same side on which the driving wheels (4) are fitted, while at the top this cable (18) is wound around a transmission pulley (21) positioned on the top platform (2) of the scaffolding, pivoted on a cross member (22); the elevator trolley (14) being fitted at the side ends of the front with two pairs of wheels (15) having a horizontal axis, and placed at 90° with respect to each other, the same touching and sliding along the external sides of an "L" shaped guide square (16) fitted longitudinally along the full height of the external side of each of the tubular uprights (17) fitted along the side of the framework along which the hoist (14) slides.

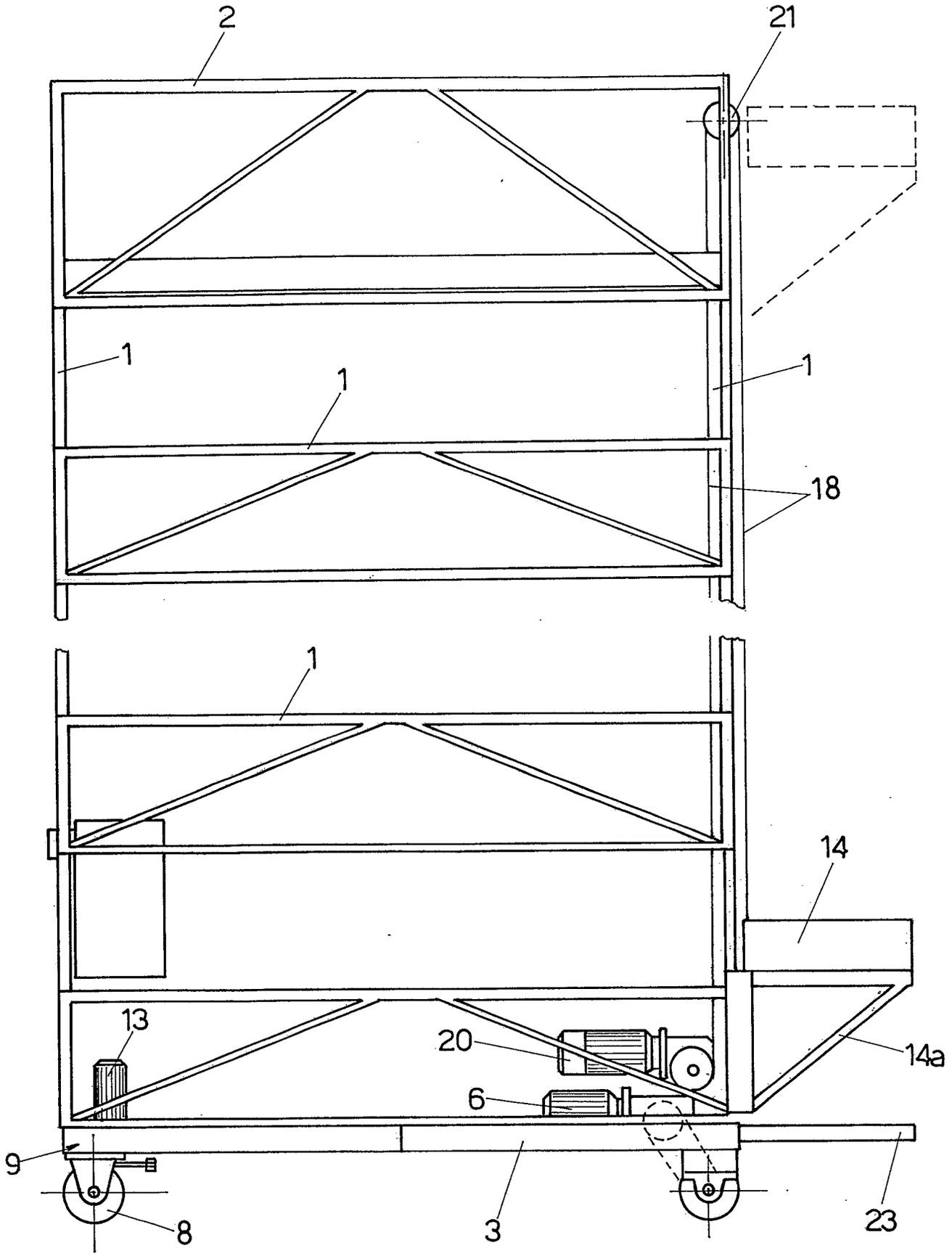

FIG. 1

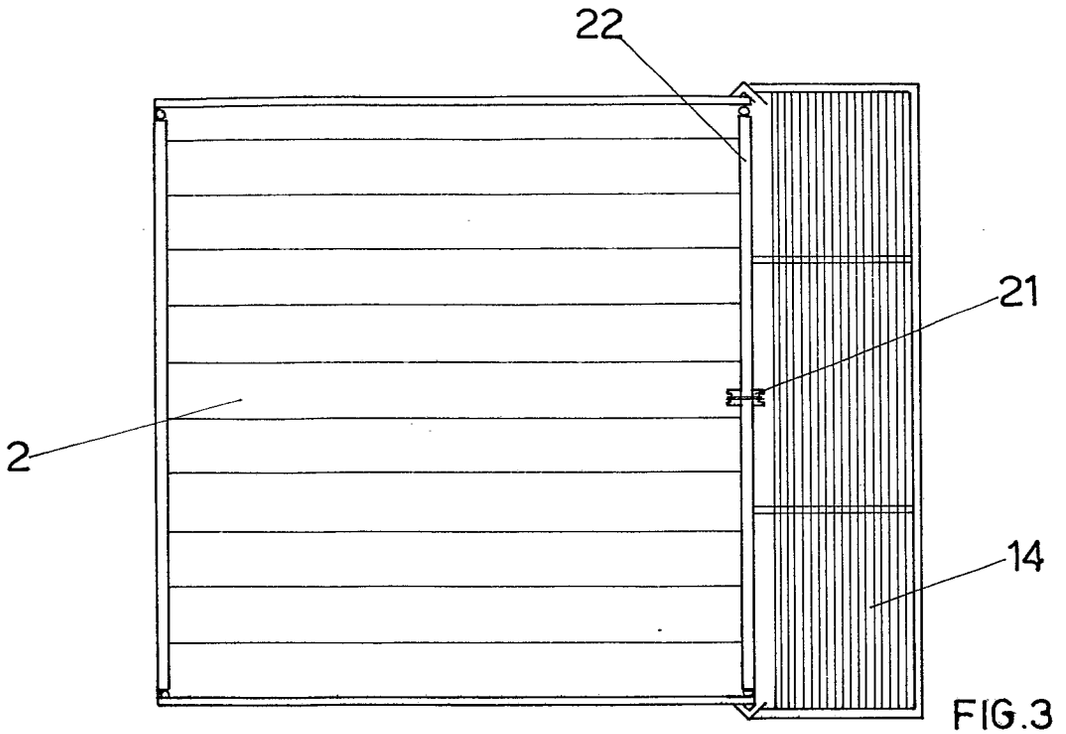

FIG.3

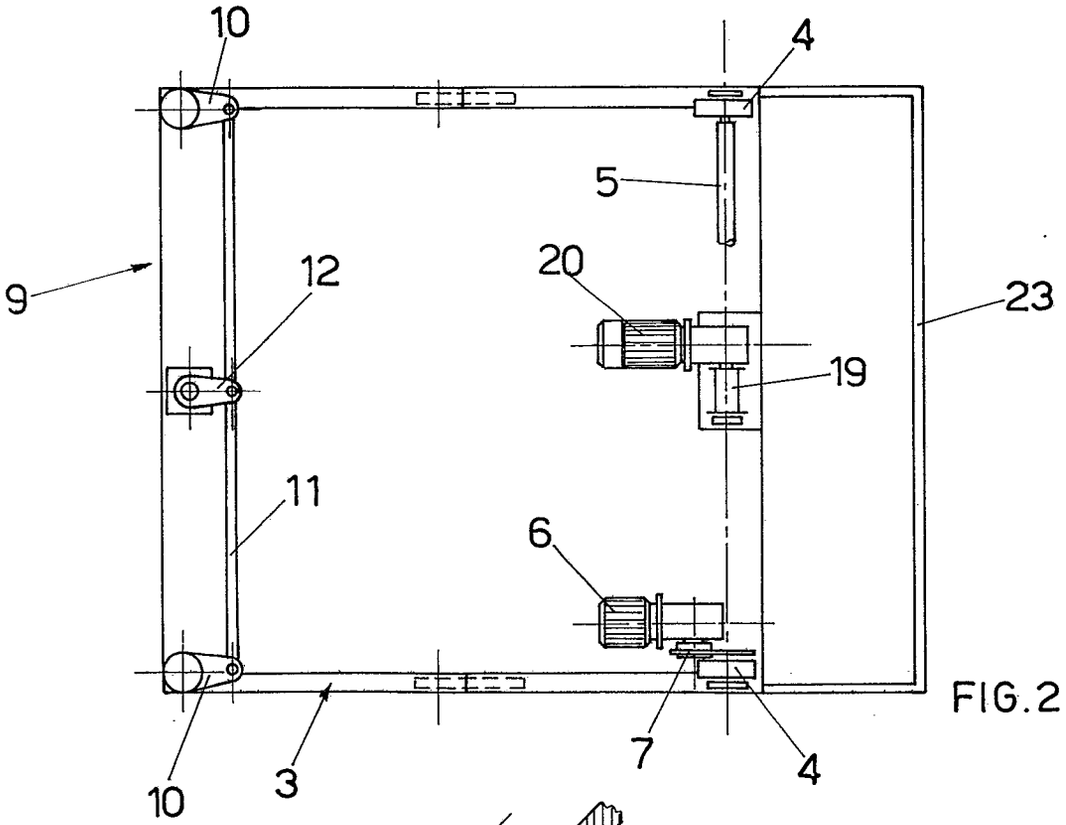

FIG.2

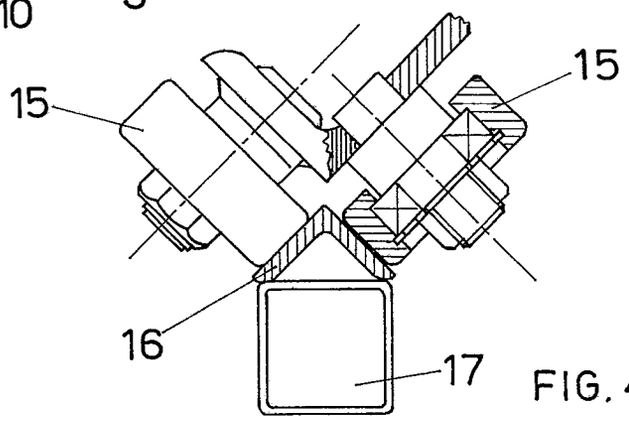

FIG. 4