The invention relates to apparatus for plastering ceilings, walls, and the like, and
has for its object to produce such an apparatus which will reduce the manual labour
in plastering walls and ceilings and for rough casting or "pebbling" buildings.

For this purpose, we provide a framework, preferably of steel, which can be moved hori-
40 zontally, running on suitable guides secured to the ground or floor.

For rough casting or wall plastering, the framework includes a vertical support on
which a carrier for the plaster or mortar is adapted to slide and be set at any required
vertical position.

A carrier, open at each end, is filled at the mixing floor or table with the plastering
material, a loose board forming the bottom of the carrier. The carrier is then in-
50 serted in the carrier which is open at the top, and the loose board, which is then in a
vertical position, will form the side of the carrier furtthest from the wall to be
plastered. The carrier is provided with means, preferably, a rack and pinion, by
which the loose board can be forced towards the wall and cause the plastering material
to be extruded from the carrier into contact with the face of the wall.

Rollers carried by the bottom of the frame-
60 work are adapted to run in guides, which
may be of channel section, and are so placed
that the open front end of the carrier car-
rier is at the required distance from the wall
to apply to the wall the required thickness of
plastering material.

The vertical frames of the framework are
70 formed telescopically in order to adapt the
apparatus for working on walls of different
heights.

A flat vertical plate, secured to and pro-
jecting below the carrier in the same plane
as the open end of the carrier next to the
wall, smooths and levels off the plaster that
has been applied.

The carrier is guided, preferably by
rollers, in its upward and downward move-
ment on the vertical leg of the framework
and can be raised by any suitable means,
such as a wire rope, secured to the carrier
and passing over a pulley at the top of the
framework, and led thence to a windlass bar-
rel operated by hand or, in large installa-
tions, by electrical or other power.

The carrier will descend by its own weight,
the windlass barrel running freely.

The carrier is lowered to its lowest posi-
tion, the charged cartridge introduced, pres-
75 sure applied to the board at the end of the
cartridge in order to force the plastering ma-
terial against the face of the wall and the
carrier is gradually raised to its uppermost
position, leaving the required thickness of
plaster on the wall.

The framework is then moved horizontally for a distance approximately equal to the
80 width of the cartridge, the carriage lowered and the operation repeated, the empty car-
tridges being replaced by others previously filled ready for use.

For ceiling work an easily detachable sup-
90 plementary framing is provided with rollers
running on horizontal guides, as described
above. This supplementary framing is se-
cured telescopically to frame work of the
wall machine, which for this purpose is
turned so that the previously vertical leg
carrying the carriage is now horizontal and
100 the length of the carriage is vertical instead of
horizontal. The carriage is placed at one end of the framing and drawn by the
windlass to the end of its stroke. The frame-
work is then moved on its guide rails for a
distance approximately equal to the width
of the cartridge and the operation is re-
peated until the whole length of the ceiling
has been covered. It is then necessary to
move the guide rails on the floor to another
position, repeating the process until the
whole surface of the ceiling has been covered.

The invention is illustrated in the annexed
drawings in which:

Fig. 1 is a rear elevation of the apparatus;
Fig. 2 is a similar side elevation;
Fig. 3 is an enlarged detail view of the
carrier;
Fig. 4 shows the apparatus turned through
an angle of 90° for applying plaster to a
ceiling.

In these drawings, a is the main frame,
which is mounted on rollers b, so that it can
110 be moved readily as required, the distance
of this frame from the wall e representing
the thickness of the layer of plaster to be ap-
p lied.

d is the carrier which is adapted to be
moved in a vertical direction in the secondary
frame e, which can in turn move vertically.

The carrier is guided, preferably by
rollers, in its upward and downward move-
ment on the vertical leg of the framework
and can be raised by any suitable means,
such as a wire rope, secured to the carrier
and passing over a pulley at the top of the
framework, and led thence to a windlass bar-
rel operated by hand or, in large installa-
tions, by electrical or other power.
in the main frame. e' represents a further frame, which carries pulleys f over which the ropes g, which are adapted to be attached to the carrier d, pass to the windlass h. The shaft of the windlass h has a gear wheel 't' at one end which meshes with a gear wheel carried by a spindle t. The height of the frames e' and e' can be varied by means of a rope 'j' connected to the lower end of the frame e' and passing over a pulley at the upper portion of the main frame a and then to a second windlass j, and are set in accordance with the height of the wall to be plastered.

k is a spindle which is driven from the windlass h by means of a belt i, and this spindle carries a brake drum m and a barrel n. The spindle k can be held against movement or allowed to rotate by means of a brake lever o which operates a band on the brake drum m. One end of a wire rope p has one end attached to the barrel n, passes over a pulley 10 at the upper end of the secondary frame e, then over a pulley 11 mounted on the lower part of the carrier d, and has its other end attached to a pulley q secured to a shaft q' or journalled on the carrier d. A pinion r is also carried by this shaft.

The operation is as follows: The carrier d is lowered to the bottom of the frame e and filled with plaster. The spindle t is then rotated, causing the windlass h to rotate and the ropes g attached to the carrier d to be wound on the windlass, thus raising the carrier in the frame. The brake lever o is then actuated to cause the brake band to grip the brake drum m and thus to lock the spindle k against rotation. The wire rope p attached to the barrel n is then held. As the carrier continues to rise, the pinion r on the shaft q' is rotated by means of the wire rope p and pulley q and operates a rack s, connected to a foot member g which is movable longitudinally in the carrier d and presses against a board w in said carrier. The movement of the rack s toward the forward end of the carrier forces the plaster out of the carrier d on to the surface of the wall, where it is smoothed off by the vertical plate w depending from the forward end of the carrier, as shown clearly in Fig. 3. The pulleys 10 and 11 are so located that pull upon the rope p serves not only to rotate the pulley q and thus force the plaster from the carrier d, but also to press the open end of the carrier and the SM WALL a carried thereby toward the wall to be plastered. When the required height is reached the machine is moved horizontally a distance approximately equal to the width of the carrier d. The lever o is actuated to release the brake band from the drum m, the carrier is allowed to descend and the rack s is drawn back to rewind the rope p on the pulley q. After refilling the carrier with plaster, the operation is repeated as many times as may be necessary. w represents a stay or support for the framework.

The carrier d and cartridge s are shown more clearly in Fig. 3. The cartridge is merely a box without ends, a loose board w being fitted loosely within the cartridge.

For filling purposes the cartridge s is turned into a vertical position, the loose board w then forming the bottom. It is then lifted into position in the carrier d by means of handles on the cartridge and a foot member g attached to the rack s then bears against the loose board w.

When the rack s is moved forward the loose board is pushed forward with it so that the plaster is forced out of the cartridge and on to the face of the adjacent wall. It will be seen that the windlass h and barrel n are caused by the belt i to turn in the same direction. But since the ropes g are wound over the windlass h and the rope p is wound under the barrel n, the ropes g and p will move in opposite directions. Therefore, when the windlass h is rotated in a direction to wind the ropes g thereon, and thus move the carrier upward, the barrel n will be caused to rotate in the direction to unwind the rope p from said barrel, thus permitting the carrier to rise without movement of the loose board w therein until the carrier d arrives opposite the point where the plastering operation is to begin. At that time, the brake m is applied to the spindle k so as to cause a pull upon the rope p in the further upward movement of the carrier d and causing the rope p to unwind from and rotate the pulley q and moving the loose board w toward the open end of the carrier to deliver the plaster to the wall. When the windlass h is rotated in the opposite direction, to permit the ropes g to unwind therefrom and thus permit the carrier d to descend, the rotation of the windlass h will, through the belt i, rotate the barrel or drum n in the direction to wind the rope p thereon as the carrier is lowered. When the carrier is in its lowermost position the clutch t is released, the rack s is pulled by the handle attached thereto toward the rear end of the carrier d, thus unwinding the rope p from the barrel or drum n and winding it upon the pulley q.

Means are provided for adjusting the inclination of the apparatus to suit walls that are not perpendicular or ceilings that are not horizontal. Such means is shown in Figure 1 as comprising a wheel 1 carried by an adjustable arm 2 attached to the bottom member a of the frame by means of a bolt 3 about which it is free to turn. The other and of the arm 2 carries a pin 4 to which is secured an eyebolt 5 extending...
through an eye carried by the stay or support \( v \). By adjusting a nut 6 on the eye bolt 5 the arm 2 can be caused to pivot about the bolt 3, and thus raise or lower the wheel 1, with consequent variation of the inclination of the machine.

In order that the rack may be drawn back readily each time the carrier is lowered, the spindle \( k \) is provided with a clutch of any suitable form. This may consist of a leather disc \( l \) held in contact with the brake drum \( m \) by means of a spiral spring \( s \), release of the disc \( l \) from the drum \( m \) being effected by a hand lever 9. When the clutch is released, the spindle \( k \) can rotate freely, whereas without the provision of such clutch it would be necessary to slip the belt \( l \) connecting the spindle \( k \) and the spindle on which is mounted the windlass \( h \).

In Fig. 4 the machine is shown turned through an angle of 90° so that the carrier can be used to apply plaster to a ceiling. Having thus described the nature of our said invention and the best means we know of carrying the same into practical effect, we claim:

1. An apparatus for plastering ceilings and walls, comprising a framework, a carrier for the plaster movable horizontally and vertically in said framework, means for adjusting said carrier vertically, said carrier comprising an open-ended cartridge and a loose board closing one end of and movable longitudinally of said cartridge, means on said carrier operative by the vertical movement of said carrier to move said loose board toward the open end of said carrier, and means including a brake and brake lever for controlling the operation of said last-named means.

2. An apparatus for plastering ceilings and walls, comprising a framework, a carrier for the plaster movable horizontally and vertically in said framework, said carrier comprising an open-ended cartridge and a loose board associated with said cartridge, means for adjusting said carrier vertically, and means for horizontally displacing said board in said carrier, said means comprising a rack associated with said loose board, a pinion engaging said rack, and means engaging said pinion and said framework, and operated by said carrier in its vertical movement to rotate said pinion.

3. An apparatus for plastering walls and ceilings, comprising a carrier for the plaster, supporting means in which said carrier is movable horizontally and vertically, and means for adjusting said carrier vertically, said support comprising vertical telescopic members which do not come into contact with the walls or ceilings to be plastered, one of said telescopic members operating to guide said carrier and the other to support said carrier.

4. An apparatus for plastering walls and ceilings, comprising a framework, a carrier for the plaster movable horizontally and vertically in said framework, and means for varying the inclination of said framework comprising a ground engaging wheel and means between said wheel and framework for vertically adjusting said frame work.

5. Apparatus for plastering walls and ceilings comprising a framework, a carrier for the plaster movable horizontally and vertically in said framework, flexible means connected to said carrier for moving said carrier horizontally, means including a windlass for adjusting said carrier vertically, a shaft driven from said windlass, a drum loose on said shaft and on which said flexible means is wound, and means for clutching said drum to said shaft.

6. An apparatus of the character described, a framework, a frame vertically movable in said framework, a carrier for plaster vertically movable in said frame, said carrier having its forward end open, means including a pulley mounted on said carrier and operable, when said pulley is rotated in one direction, to extrude plaster from said carrier, means including a rotatable shaft for moving said carrier vertically in said frame, a second rotatable shaft driven from said first-named shaft, a drum loosely mounted on said second shaft, means for clutching said drum to said second shaft, and flexible means having its opposite ends windable on said pulley and said drum, respectively.

7. An apparatus according to claim 6 wherein the carrier is movable horizontally and wherein a guiding pulley under which the flexible means is movable is mounted on the carrier and a second guiding pulley over which the flexible means is movable is mounted on the frame adjacent the upper end of the latter.

8. An apparatus according to claim 6 comprising a brake for securing the drum against rotation during the vertical movement of the carrier.

In testimony whereof we have signed our names to this specification.

EDWARD CORNELL CALEY.

LEONARD CALEY.