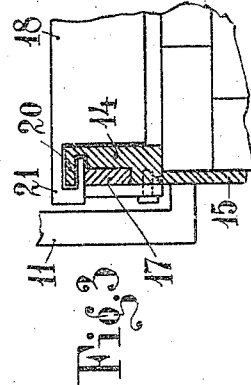
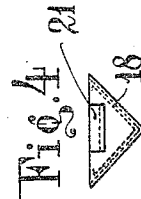
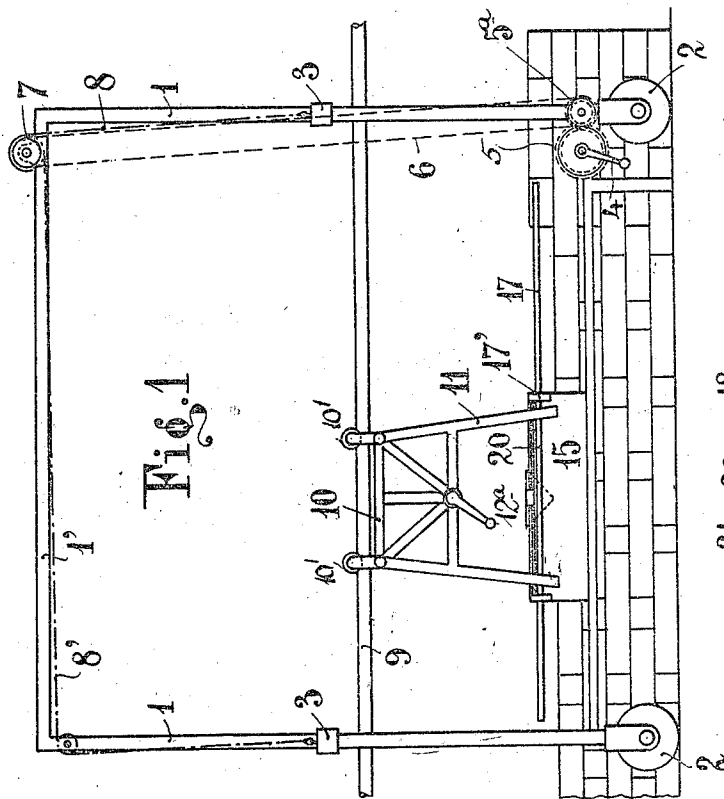
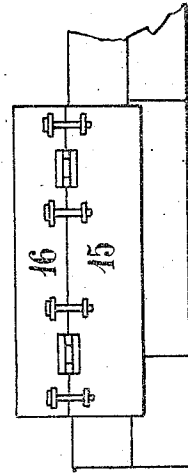
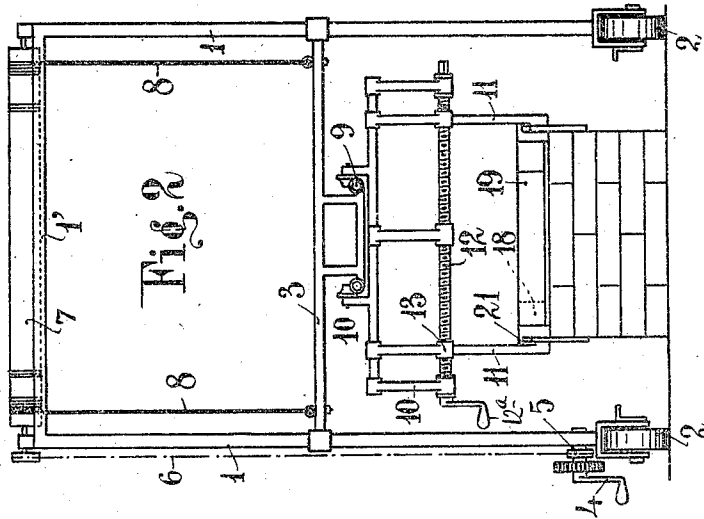


U. CAGNASSI.  
 MACHINE FOR ERECTING WALLS AND THE LIKE.  
 APPLICATION FILED NOV. 10, 1911.

1,054,635.

Patented Feb. 25, 1913.

2 SHEETS—SHEET 1.



Witnesses.  
 C. A. Walter,  
 A. H. Hawley.

Inventor,  
 Uberto Cagnassi.  
 by *[Signature]*  
 Attorney.



# UNITED STATES PATENT OFFICE.

UBERTO CAGNASSI, OF TURIN, ITALY.

MACHINE FOR ERECTING WALLS AND THE LIKE.

1,054,635.

Specification of Letters Patent.

Patented Feb. 25, 1913.

Application filed November 10, 1911. Serial No. 659,556.

To all whom it may concern:

Be it known that I, UBERTO CAGNASSI, a subject of the King of Italy, residing at Turin, in Italy, have invented certain new and useful Improvements in Machines for Erecting Walls and the Like, of which the following is a specification.

This invention relates to machines for constructing walls and the like, which greatly simplifies the masonry work by limiting the positioning of the materials within a definitely fixed space.

The machine determines with precision the position of the blocks or bricks constituting the wall and also spreads the mortar, which the workman has only to simply lay on said blocks or bricks. Means may also be provided to compress and equalize each row of bricks or the like as they are laid on the bed of mortar.

In the annexed drawings, which illustrate embodiments of the invention, Figure 1 is a front elevation of the machine and a portion of wall erected therewith. Fig. 2 is an end elevation of Fig. 1. Fig. 3 is a sectional detail view on a larger scale of one of the sides of the machine. Fig. 4 is a detail end elevation of a device for spreading mortar. Fig. 5 is a detail view representing a variation of construction. Figs. 6 and 7 are respectively side and end elevations representing a modified construction of machine. Figs. 8 and 9 are detail views illustrating parts shown in Figs. 6 and 7.

In the construction shown in Figs. 1 and 2, the machine comprises a framework consisting of the uprights 1 and cross pieces 1<sup>1</sup> and mounted on wheels 2. On the uprights 1 cross pieces 3 are slidably mounted, the height of which can be regulated by means of the crank 4 gearing 5, 5<sup>a</sup> and a chain 6 passing about a roller 7 and connected to the cross pieces by means of suitable cords or the like 8, 8<sup>1</sup>. To the cross pieces 3 are connected the two guides 9 on which the apparatus may be moved or displaced.

In the form shown in Figs. 6 to 9, the machine is supported by lateral uprights 1<sup>2</sup> on each of which is slidably mounted a sleeve 27 fixed to a cross piece 3<sup>1</sup> provided with guides 9 on which the carriage 10 of the machine can be moved or displaced by the aid of small wheels 10<sup>1</sup>. The upright 1<sup>2</sup> has along all its length a guide 28 which may be graduated and the sleeve 27 sliding

on said upright may be fixed at the desired height by means of a set screw 29 which forces the cheeks of said sleeve firmly against the lateral walls of said guide 28. On the sleeve 27 is mounted a drum 30 operated by means of a hand wheel 31 and on which is wound a cord 8<sup>1</sup> which after having passed over a roller 7<sup>1</sup> is attached to the cross piece 3<sup>1</sup> and thus permits of raising or lowering same by actuation of said hand wheel 31. A member 9<sup>2</sup> carrying the guides 9 is carried by a sleeve 33 movable along the cross piece 3<sup>1</sup> and can be fixed in the desired position by means of a set screw 32 which presses the sleeve 33 on to a guide 34 which projects from the cross piece 3<sup>1</sup>. The upright 1<sup>2</sup> is supported in the manner shown in detail in Fig. 9, which allows of readily fixing it in any position. As will be seen from the drawing the said upright is connected at its lower end to a member 35 provided below with a hemispherical recess 35<sup>a</sup> engaged by a sphere 36 carried by a base 37 which is attached in any suitable way to the scaffolding. A sleeve 38 incloses the sphere 36 and can be screwed on to the member 35 attached to the upright 1<sup>2</sup>. It will be seen that by unscrewing sleeve 38 the upright 1<sup>2</sup> can be removed and given any desired position and that by screwing up the said sleeve the upright will remain fixed.

The apparatus for spreading the mortar comprises a frame which can run by means of small wheels 10<sup>1</sup> on the guides 9 and on which the two frames 11 carrying the members which limit the edges of the wall are mounted so as to be laterally movable. The distance between said frames 11 can be regulated according to the position and thickness of the wall, by means of a hand crank 12<sup>a</sup> actuating the screw spindle 12 engaging nuts 13 attached to the frames 11. At the lower ends of the frames 11 are mounted two lateral plates 14 arranged as shown in Fig. 3 to arrest the mortar at a certain distance from the edge of the facing blocks or bricks in order to prevent said mortar flowing out when the corresponding bricks of the next row are placed in position. The plates 14 are extended downward to provide blades 15 which are applied against the row of bricks below and can slide relatively to the plates 14 (Fig. 7) or be removed therefrom owing to their hinged

method of mounting (Fig. 5) to allow of placing the first row of bricks or the advance of the apparatus in accordance with prominences of the wall. In the arrangement shown in Fig. 5 keys 16 are provided by which the plates 14 and 15 can be rigidly connected. The blades 15 are connected to the plates 14 and are rigid with the same during the operation of the machine. The connection between the plates 14 and blades 15 is preferably detachable, to allow of removing the same in case of need, but while in use the said two members 14 and 15 are united and operate like a single plate bearing against the outer faces of the outer bricks and extending upward to prevent the mortar spread upon the wall from falling. On the plates 14 are mounted rods 17 which allow of limiting with precision the face of the wall, and are adapted to be slid axially so as not to hinder the movement of the apparatus when it is adjacent an angle in the wall.

The device for spreading the mortar comprises two trowels for example of triangular section 18, 19 arranged to overlap so as to form as a whole an extensible device which can occupy the whole width of the wall whatever the distance between the two lateral plates 14 on which the two trowels 18, 19 are mounted. This arrangement of partially superposed members is rendered necessary because the thickness of the wall and consequently the distance between the two plates may vary. The two trowels can be overlapped more or less according to this width and form a continuous transverse device traversing the wall. Each of the trowels is mounted on a guide 20 carried by the plates 14 by means of a nose 21 fixed to the end of the trowel. The mortar spreading device can thus be moved along the plates 14 of the apparatus without however being able to rise or fall. The inclination of the walls of the trowels 18, 19 has the effect of compressing the mortar which collects in front of them during their forward movement with the apparatus and of causing it to penetrate the interstices between the bricks or blocks of the course below. As the trowels 18 and 19 can move freely relatively to the plates 14 when the apparatus advances, this device obviously passes to its extreme rearward position where they are arrested by the cross pieces 17<sup>1</sup> in which the rods 17 have bearing, but if desired it is possible to cause the trowels to advance alone so as to spread the mortar on the surface of the wall covered by the apparatus.

Instead of arranging the plates 14 and 15 so that the former form an edge directed toward the interior of the wall, intended to prevent the mortar from reaching the face of the wall, plates 14 and 15 can be ar-

ranged to form a single surface directed toward the wall as in Fig. 7 and applied to the two ends of the trowels 18, 19, the latter having below abutments 39 which reach to the surface of the bricks laid, and which during the movement of the apparatus to spread the mortar scrape the latter which was carried to the edge of the wall and which projected therefrom when laying the next course of bricks.

The operation of the machine is as follows: The support is arranged on the scaffolding and the height of the guides 9 adjusted according to requirements, the lateral plates 14 being also adjusted according to the thickness of the wall. The said plates 14 (which in the construction shown in Fig. 3 bear on the edge of the wall at their inner faces) form with the horizontal surface of the wall a mold in which the mortar is spread. When moving the frame 10 along the guides 9, the trowels 18 and 19 which partially overlap each other and occupy the entire width of the wall, spread the mortar in a uniform layer which only leaves uncovered that portion of the facing bricks which corresponds to the edges of the wall, owing to the extension of said plates toward the interior. By "facing bricks" I refer to the bricks forming the outer vertical surface or surfaces of the wall. If there is a set-back or angle in the wall it is necessary to place at this point a stop device of any kind to produce the same action as the edges of the plates 14 for preventing the mortar from reaching the edges of the bricks and the trowels 18, 19 will be caused to advance separately in order to spread the mortar equally in the space occupied by the apparatus. A layer of mortar is thus obtained on which the next course of bricks is laid which is accomplished by placing the facing bricks against the rods 17 and then conveniently filling the space between said facing bricks. To locate the support for the machine at the necessary place and regulate the height of the guides 9; in the construction of Figs. 1 and 2 the frame constituted by the uprights 1 and the cross pieces 1<sup>1</sup> is moved on the wheels 2 and the cross pieces 3 are raised or lowered by means of the crank 4, and parts operated thereby. In the support shown in Figs. 6 to 9, the sleeve 38 is unscrewed so as to enable the upright 1<sup>2</sup> to be inclined in any desired direction and consequently the cross piece 3<sup>1</sup> is brought to the desired height. When the desired position is attained the said sleeve is screwed up again which secures the upright by pressure on the sphere 36. To raise the cross piece 3<sup>1</sup> and the whole apparatus with it, the drum 30 is rotated by means of the hand wheel 31. When a course has been laid a layer of mortar is spread thereon by shifting the frame 10 and so on.

It will be understood that with the machine described the work of the bricklayer is simplified and the positioning of the materials is limited within a space definitely fixed by the machine which is operated similarly for all the courses of the wall if the guides are raised when necessary. The machine is portable so that it may be displaced and adjusted according to the nature of the wall to be constructed.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. In a machine for the construction of walls, the combination of supports, guides regulable in height mounted on said supports, a carriage traveling on said guides, continuous lateral plates, the distance between, which is regulable, mounted on said carriage, a movable transverse mortar spreading device mounted on said plates, and blades extending below said plates and capable of embracing the facing (or outer) bricks of the wall.

2. In a machine for the construction of walls, the combination of supports, guides regulable in height mounted on said supports, a carriage traveling on said guides, continuous lateral plates embracing the facing bricks, and a transverse device movably mounted on said plates and having inclined walls capable of compressing the mortar downward during the displacement of said device on the wall.

3. In a machine for the construction of walls, the combination of supports, guides regulable in height mounted on said supports, a carriage traveling on said guides, continuous lateral plates embracing the facing bricks and a transverse device and two superposed pieces movably mounted on the said table and having inclined walls capable of compressing the mortar downward dur-

ing the displacement of this member on the wall.

4. In a machine for the construction of walls, the combination of supports, guides regulable in height mounted on said supports, a carriage traveling on said guides, continuous lateral plates embracing the facing bricks, blades on said plates bearing on the surface of the wall and an extensible transverse device movably mounted on said plates and having inclined walls for compressing downward the mortar during the displacement of this device on the wall.

5. In a machine for the construction of walls, the combination of supports, guides regulable in height mounted on said supports, a carriage traveling on said guides, continuous lateral plates embracing the facing bricks, a transverse extensible device movably mounted on said walls and having inclined walls for compressing the mortar downward and lower abutments at the lateral ends of said device for scraping the mortar from the edges of the wall.

6. In a machine for the construction of walls, the combination of supports, guides regulable in height mounted on said supports, a carriage traveling on said guides, two continuous lateral plates comprising a movable lower portion intended to embrace the facing bricks and a transverse extensible member movably mounted on the said tables and having inclined walls for pressing down the mortar during the displacement of this member on the wall.

In witness whereof I have signed this specification in the presence of two witnesses:

UBERTO CAGNASSI.

Witnesses:

JOCELYN CLOUBEYRAN,  
SECONDO CORTE.