Sept. 22, 1970 J. BRANCATO 3,529,650

ROLL UP GATE

Filed Aug. 28, 1968

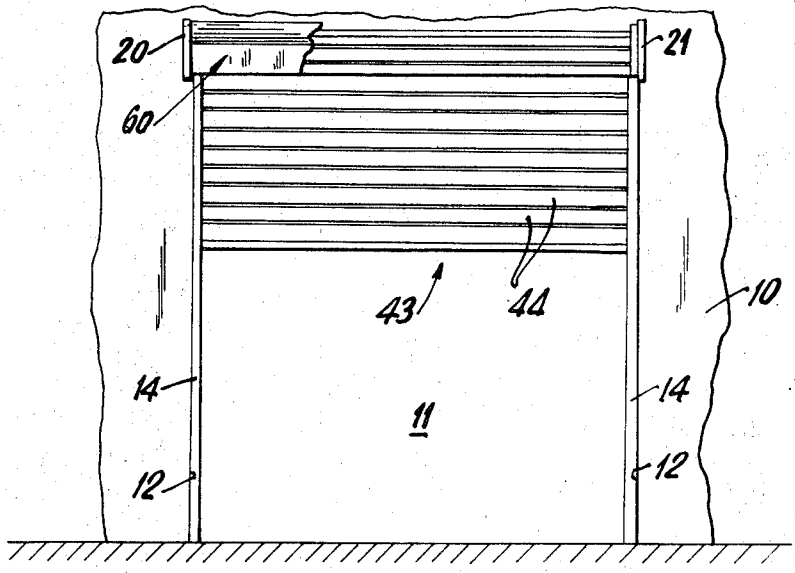


FIG. 1

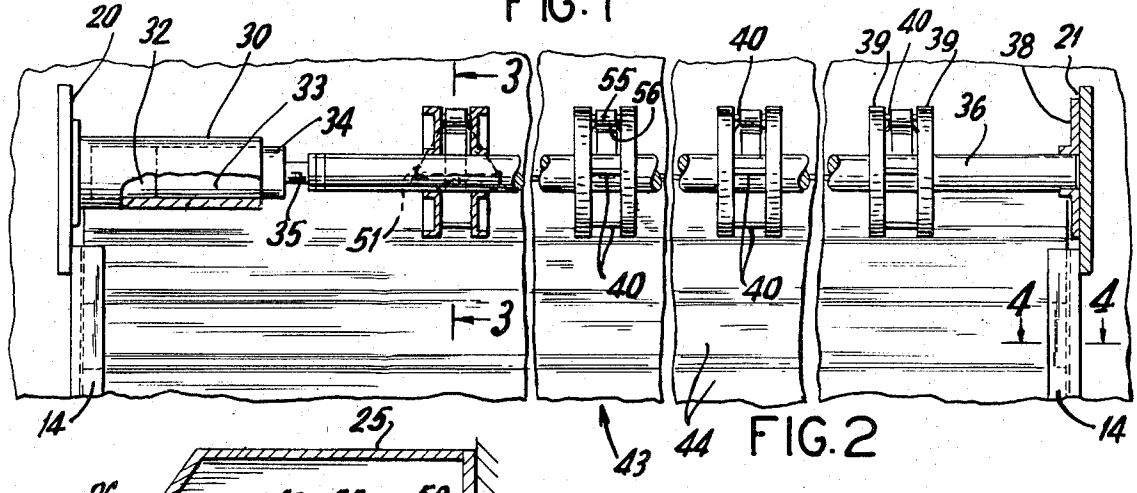


FIG. 2

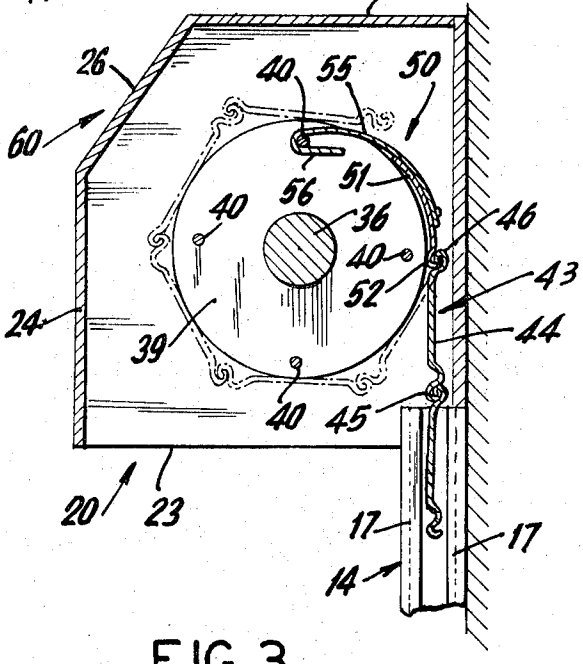


FIG. 3

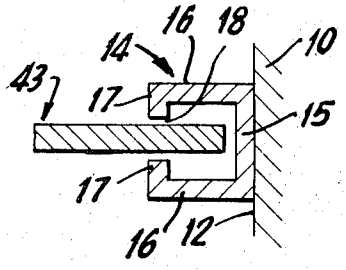


FIG. 4

INVENTOR.
JOSEPH BRANCATO

BY

J. B. Fellshin

ATTORNEY

United States Patent Office 3,529,650 Patented Sept. 22, 1970

3,529,650

ROLL UP GATE

Joseph Brancato, Jamaica, N.Y., assignor to Brancato Iron Works, Inc., Jamaica, N.Y.

Filed Aug. 28, 1968, Ser. No. 756,028
Int. Cl. E06b 9/08
U.S. Cl. 160—133 10 Claims

ABSTRACT OF THE DISCLOSURE

The roll up gate comprises a pair of opposing brackets. On one bracket is fixed a horizontal tube in which a combination motor, brake and reduction gearing is mounted. The output shaft of the reduction gearing is fixed to one end of a horizontal shaft. The other end of the shaft is journalled in the other bracket. On the shaft are a plurality of similar circular discs. A roll up curtain has its upper end attached to the discs, and its side edges are received in vertical fixed side guides. When the motor operates, the curtain is rolled up on the discs and covers the motor, supporting tube and the discs.

BACKGROUND OF THE INVENTION

Field of the invention

This invention relates to roll up gates or doors for openings of buildings or for the like uses.

Description of the prior art

Roll up gates are known in which the motor is located outside of the rolled up gate or curtain.

SUMMARY OF THE INVENTION

An object of this invention is to provide a roll up gate of the character described in which the rolled up curtain completely encircles the motor and roll up shaft for the curtain.

Another object of this invention is to provide a device of the character described in which the motor shaft and roll up shaft are coaxial and wholly located between the end edges of the rolled up curtain.

Yet another object of this invention is to provide a strong and durable roll up gate of the character described which shall be relatively inexpensive to manufacture, neat and attractive in appearance and yet practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the feature of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claims.

BRIEF DESCRIPTION OF THE DRAWING

In the accompanying drawing, in which are shown various illustrative embodiments of this invention,

FIG. 1 is a front elevational view of a building opening provided with a roll up gate embodying the invention with the gate curtain partially raised;

FIG. 2 is a partial, vertical cross-sectional view taken on the axis of the roll up shaft;

FIG. 3 is a cross-sectional view taken on line 3—3 of FIG. 2; and

FIG. 4 is a cross-sectional view taken on line 4—4 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now in detail to the drawing, 10 designates a building wall provided with an entrance opening 11. This opening 11 may be an entrance opening to a garage or a factory through which vehicles as well as pedestrians enter. The wall 10 has opposed vertical inner side surfaces 12. Attached to the opposed vertical surfaces 12 are fixed vertical guide members 14. Each guide member 14 has an outer web 15. Projecting therefrom are parallal walls 16 from which coplanar flanges or ribs 17 extend toward each other leaving a slot 18 therebetween.

Adjacent the upper end of opening 11 and disposed above the guide members 14 and fixed to the building structure and guide members are a pair of opposed vertical supporting brackets 20 and 21. Said brackets are parallel to each other and extend forwardly from the guide members 14. Bracket 20 has a lower horizontal edge 23, a front vertical edge 24 and a top horizontal edge 25. The forward end of edge 25 is connected to the upper end of edge 24 by an inclined edge 26. The brackets 20 and 21 may be fixed to the building wall in any suitable manner.

Fixed to the bracket 20 and extending inwardly therefrom toward the bracket 20, is a horizontal tube 30. Fixedly mounted to the bracket 20 within the tube 30 is an electric brake 32, and a reversible electric motor 33. Attached to the electric motor 33 and projecting from the tube 30 is a reduction gearing device 34. Such a combination of motor, brake, and reduction gearing device as well known in the market may be purchased as a unit and fixed within the tube 30.

Extending from the reduction gearing mechanism 34 is a horizontal output shaft 35 coaxial with said motor. Fixed to the horizontal shaft 35 and coaxial therewith is a horizontal shaft 36 extending to bracket 21.

Fixed to the inner side of bracket 21 is a bearing 38 journalling the free end of the shaft 36. Fixed on to the shaft 36 are a plurality of spaced pairs of discs 39. Each pair of discs 39 may be welded to the shaft 36 and may also be interconnected by a plurality of horizontal equiangularly spaced pins 40. The pairs of discs may be spaced equal distances apart. It will now be observed that when the motor 33 is energized, the shaft 36 and the discs 39 will rotate. The motor 33 is preferably a reversible motor.

Mounted on the disc 39 is a solid roll up curtain 43. The curtain 43 may comprise hingedly articulated similar sections 44. Each section 44 has a curved hook like lower end edge portion 45 hookingly and swingably engaging a hook-like upper end edge 46 of the next adjacent section. The sections 44 are old and well-known in the art. Said sections are assembled by sliding one longitudinally relative to adjacent sections.

Horizontally engaging the upper end edge portion of the uppermost section 44 are a plurality of adapters 50, therebeing one said adapter for each pair of discs 39.

Each adapter 50 comprises a substantially triangular portion 51 provided at its lower end with a hook portion 52 to swingably and hookingly engage with the hooked portion 46 of the uppermost section 53. The assembly is also done longitudinally. Riveted to the middle of each triangular portion 51 is a strip 55 which extends between a pair of discs 39 and is provided with the hook 56 hookingly engaging one of the cross-pins 40 which interconnects a pair of discs. The hooks 56 engage pins 40 which are aligned with one another.

Side edges of the curtain **43** project through the slots **18** of the guide members **14** as shown in FIG. 4 of the drawing. It will now be observed that as the motor rotates in one direction (counter-clockwise, looking at FIG. 3), the curtain will be rolled up on the outer peripheries of the discs and will encircle the shaft **36**, the shaft **35**, the gearing box **34**, the motor **33**, the brake **32**, the tube **30**, and the discs **39**.

Thus the motor can wind up the entire curtain so as to expose the opening **11**.

When the motor rotates the shaft **35** in an opposite direction (clockwise, looking at FIG. 3), the curtain comes down to close the opening **11**.

A cover **60** may be mounted on the brackets **20, 21** and engage the edges **24, 25, 26**, of said brackets. The cover may be fixed to the brackets by screws or in another suitable manner.

It will thus be seen that there is provided an apparatus in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all mattter herein set forth or shown in the accompanying drawings, is to be interpreted as illustrative only.

I claim:

1. A roll up gate comprising a pair of opposed spaced brackets, an electric, reversible motor fixed and disposed adjacent to the inner side of one bracket and projecting toward the other bracket, an elongated shaft coaxial with said motor, means to connect one end of said shaft to the output of said motor, bearing means on the other bracket coaxial with and journalling the opposite end of said elongated shaft, a flexible curtain, said curtain having side edges disposed just inside of said brackets, and means to connect the upper end of the curtain to said elongated shaft so that when said motor is energized to rotate said elongated shaft in one direction, said curtain will roll up around said elongated shaft and motor, annular disc means fixed to said shaft, said means to connect the upper end of said curtain to said shaft comprising means connected to said curtain and connected to said disc means, said disc means comprising spaced similar pairs of spaced discs having circular outer peripheries, each pair of discs being interconnected by a plurality of spaced, parallel cros-pin, said means on said curtain, connected to said disc means, comprising plurality of members each having means to hookingly engage said curtain and means to hookingly engage a pin connecting a pair of spaced discs.

2. The combination of claim **1**, and a pair of fixed side guides receiving side edges of said curtain.

3. The combination of claim **2**, a tube coaxial with said elongated shaft, fixed to said one bracket and projecting toward the other bracket, and said motor being received within said tube, said discs being of a diameter at least equal to the diameter of said tube.

4. A roll up gate comprising a pair of opposed spaced brackets, an electric, reversible motor fixed and disposed adjacent to the inner side of one bracket and projecting toward the other bracket, an elongated shaft coaxial with said motor, means to connect one end of said shaft to the output of said motor, bearing means on the other bracket coaxial with and journalling the opposite end of said elongated shaft, a flexible curtain, said curtain having side edges disposed just inside of said brackets, and means to connect the upper end of the curtain to said elongated shaft so that when said motor is energized to rotate said elongated shaft in one direction, said curtain will roll up around said elongated shaft and motor, and a tube fixed to said one bracket and projecting toward said other bracket, said motor being located and fixed within said tube, said means to connect one end of said shaft to said output of said motor, comprising a reduction gearing mechanism connected to said output and projecting from said tube and a horizontal output shafts interconnecting said mechanism and said elongated shaft coaxial with said elongated shaft, said curtain comprising hingedly articulated transverse sections of the width of the curtain, and annular disc means fixed on said shaft, said means to connect the upper end of said curtain to said shaft, comprising means hingedly connected to the uppermost of said curtain sections and to said disc means.

5. A roll up gate comprising a pair of opposed spaced brackets, an electric, reversible motor fixed and disposed adjacent to the inner side of one bracket and projecting toward the other bracket, an elongated shaft coaxial with said motor, means to connect one end of said shaft to the output of said motor, bearing means on the other brackte coaxial with and journalling the opposite end of said elongated shaft, a flexible curtain, said curtain having side edges disposed just inside of said brackets, and means to connect the upper end of the curtain to said elongated shaft so that when said motor is energized to rotate said elongated shaft in one direction, said curtain will roll up around said elongated shaft and motor, and a tube fixed to said one bracket and projecting toward said other bracket, said motor being located and fixed within said tube, said means to connect one end of said shaft to said output of said motor, comprising a reduction gearing mechanism connected to said output and projecting from said tube and a horizontal output shaft interconnecting said mechanism and said elongated shaft and coaxial with said elongated shaft, said curtain comprising hingedly articulated transverse sections of the width of the curtain, and a pair of fixed side guides slidably receiving the ends of said curtain sections, and similar pairs of spaced discs on said elongated shaft, having outer circular peripheral flanges of a diameter at least as large as said tube and coaxial with said shaft, each pair of discs being interconnected by a plurality of spaced, parallel cross-pins, said means on said curtain connected to said shaft comprising a plurality of members each having means to hookingly engage the uppermost section of said curtain and means to hookingly engage a cross-pin connecting a pair of spaced discs.

6. A roll up gate comprising a pair of opposed, spaced, aligned, fixed brackets, a tube rigidly fixed at its periphery, at one end thereof, directly to the inner side of one of said brackets and projecting inwardly toward the other of said brackets, an electric, reversible motor rigidly fixed to and disposed within said tube, an elongated member coaxial with said fixed tube and motor, means connecting one end of said elongated member to the output of said motor and maintaining said end of said elongated member coaxial with said tube, bearing means on the other bracket coaxial with and journalling the other end of said elongated member, a flexible roll type curtain, said curtain having outer side edges disposed just inside of said brackets, said elongated member comprising circular curtain support means on which said curtain can roll up, said curtain support means having an outer peripheral dimension at least as great as that of the outer periphery of the fixed tube, means to connect the upper end of the curtain to said curtain support means of said elongated member, the width of said curtain being such that when said motor is energized to rotate said elongated member in one direction, said curtain will roll up around said curtain support means and cover said tube, elongated member and motor.

7. The combination of claim **6**, said means to connect one end of said elongated member to the output end of said motor comprising reduction gearing having an input end connected to the output end of said motor and an output end connected to said one end of said elongated member.

8. The combination of claim **6**, said curtain comprising hingedly articulated transverse sections of the width of

the curtain, said means to connect the upper end of said curtain to said elongated member comprising adapter means having means to hingedly connect to the uppermost of said curtain sections and means to hookingly engage said elongated member adjacent the periphery of said curtain support means.

9. The combination of claim **6**, said curtain support means comprising circular peripheral means and said tube comprising cylindrical means.

10. The combination of claim **9**, said curtain comprising a plurality of hingedly articulated transverse sections of the width of said curtain, said means to connect the upper end of said curtain to said elongated member, comprising a plurality of adapter members each having means at one end hingedly connected to the uppermost of said sections, hook means at its other end to engage said elongated member adjacent said curtain support means, and a curved portion between its hingedly connected end and its hook end.

References Cited

UNITED STATES PATENTS

1,594,819	8/1926	Deller	160—23 X
1,708,377	4/1929	Cornell	160—25 X
1,723,487	8/1929	Ohno	160—133
1,742,094	12/1929	Perks et al.	160—310
2,231,778	2/1941	Swanson.	
3,285,089	11/1966	Tsugawa	160—133 X

FOREIGN PATENTS

251,189	4/1964	Australia.
580,781	8/1958	Italy.

PETER M. CAUN, Primary Examiner