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H. C. ARMSTRONG

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ROLLING DOOR

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2 Sheets-Sheet 1

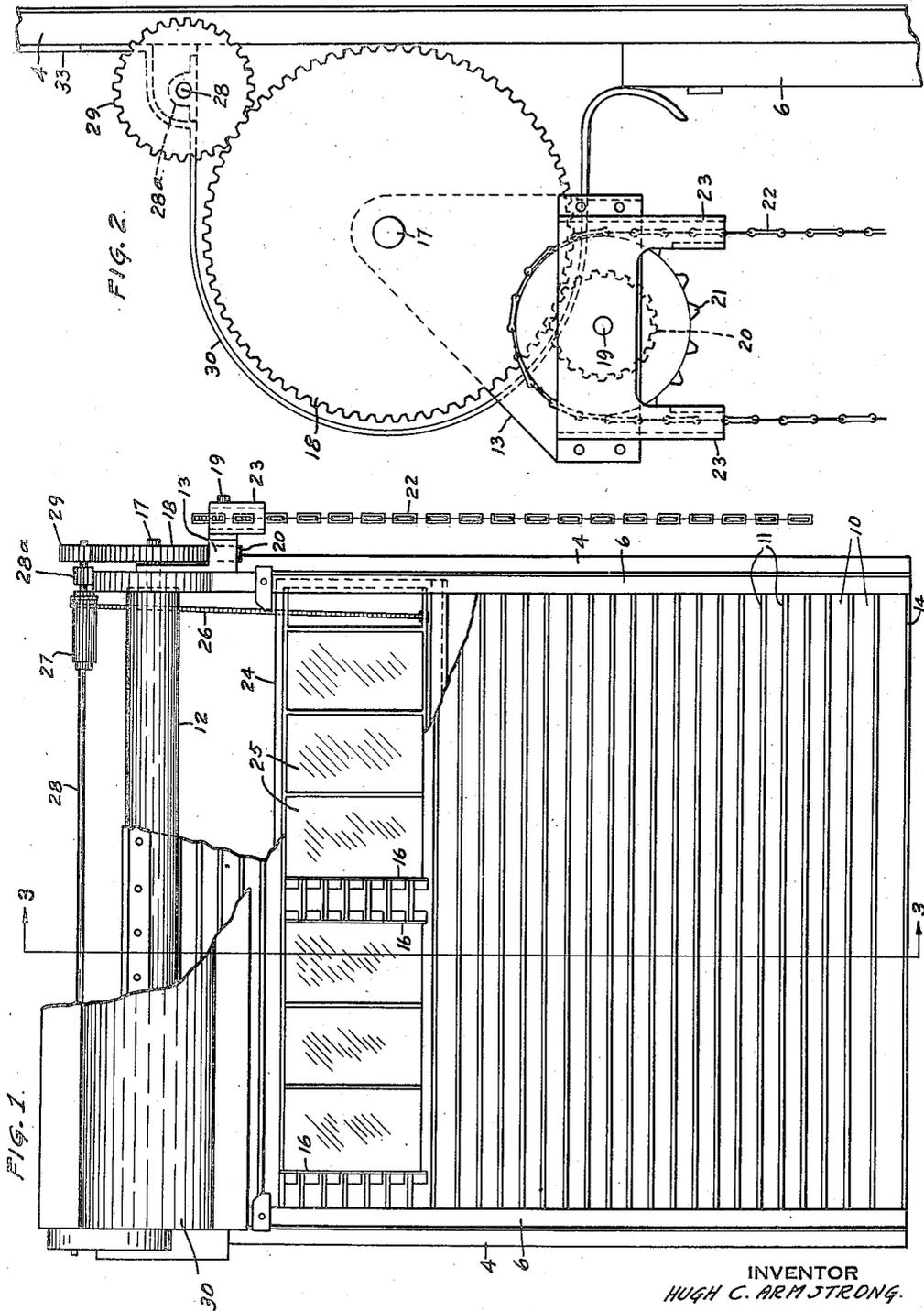


Fig. 1.

Fig. 2.

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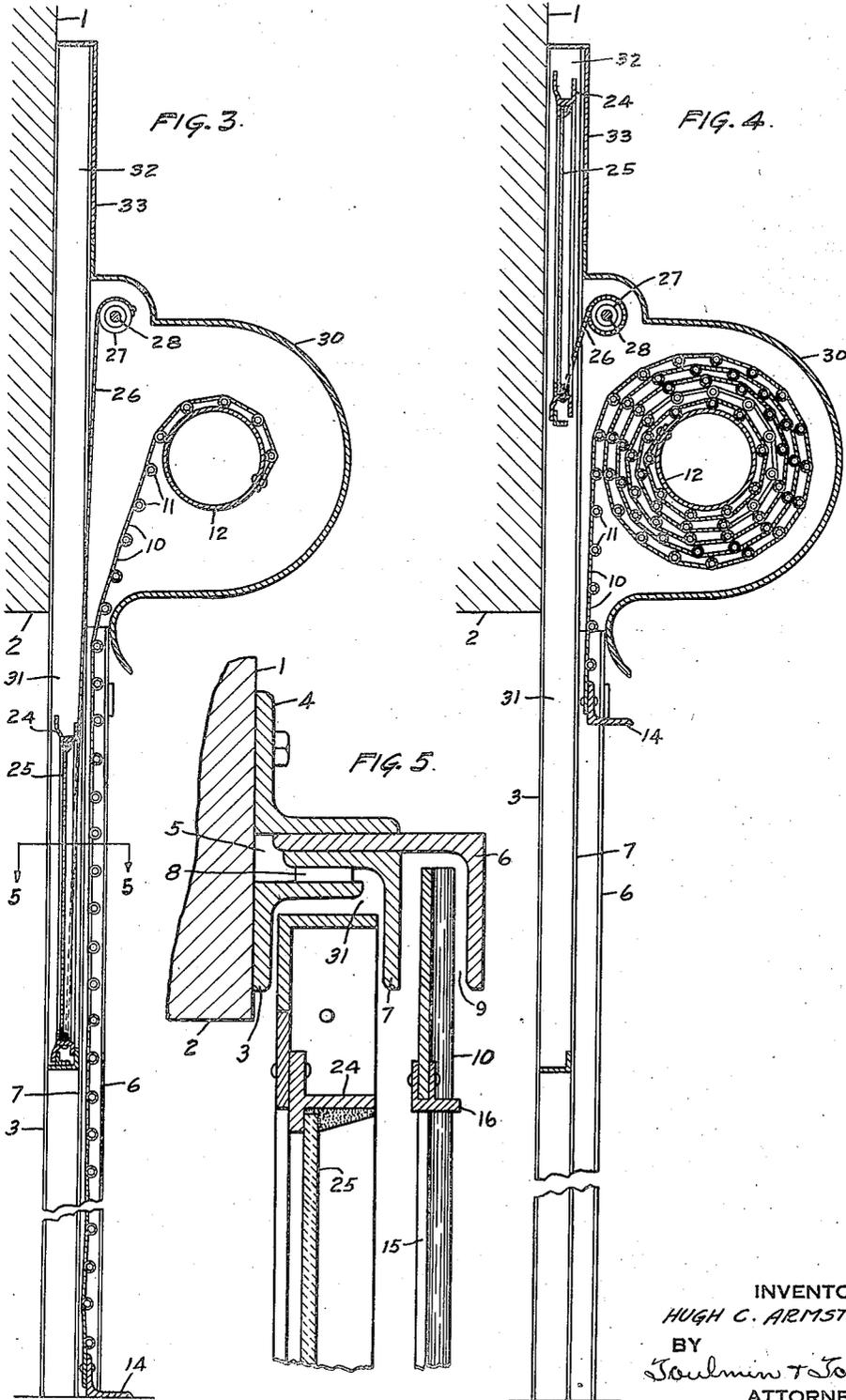
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ROLLING DOOR

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Application January 30, 1933, Serial No. 654,160

6 Claims. (Cl. 189—57)

This invention relates to improvements in doors, and particularly to rolling doors supported so that the door may be moved to and from a doorway in a wall.

5 It is also an object of this invention to provide a door with an opening therein, and a closure for the opening, said door and closure being independently supported and operated.

10 It is also an object of this invention to provide a rolling door supported by means of a drum for moving the door to and from a doorway in a wall. This door is provided with an opening and a closure for closing the opening, said closure being supported for movement with relation to the door and operated simultaneously with but independent of the door.

15 These and other advantages will appear from the following description taken in connection with the drawings.

20 Referring to the drawings:

Figure 1 is a front elevation of the door, showing its supporting and operating mechanism and the guard therefor, with the guard and the door partly broken away.

25 Figure 2 is a side elevation of the door and the closure supporting an operating mechanism.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is a section similar to Figure 3, showing the door and the closure in elevated positions.

30 Figure 5 is a section on the line 5—5 of Figure 3. The present door is adapted to be used in connection with various types of buildings for closing doorways therein. The numeral 1 indicates the wall of a building, such as a garage, warehouse or other building. In this wall is a doorway 2 adapted to be closed by the door, the subject-matter of this application.

35 On each side of the doorway and supported by the wall is an angle iron 3, which has one arm suitably attached to the wall, while the other arm projects from the wall at right angles thereto. Spaced from the angle iron 3 is an angle iron 4, which has one arm attached to the wall and the other arm extending from the wall parallel to an arm of the angle iron 3. (Figure 5.)

40 Between these two angle irons is a space 5, into which projects one arm of an angle iron 6, one arm of an angle iron 7 and a spacer block 8, which holds the angle irons 6 and 7 in a fixed position between the angle irons 3 and 4. The other arms of the angle irons 6 and 7 form a groove or space 9, in which one end of the door composed of sections 10 fits and is guided.

45 The door sections have their opposite edges 11 looped with adjacent edges, interengaging for the

purpose of supporting the sections in hinged relationship with one another. The upper edge of the door is supported by means of a drum 12, which may be rotated for elevating or lowering the door as the case may be. This drum is supported by means of brackets 13, one at each end of the drum, supported by the wall. On the lower edge of the door for engagement with the floor of the building to which the door is applied, an angle iron strip 14 is attached. (Figures 1 and 3.)

5 The door is provided with one or more openings 15. At each end of each opening the door is strengthened by means of a strap 16. On each end of the drum is a shaft 17, which serves to support the drum in bearings provided therefor in the brackets 13. On one shaft 17 is a gear 18, which meshes with a gear 20, located on a short shaft 19 also supported by one of the brackets 13.

10 On this shaft 19 is a sprocket wheel 21 over which passes a sprocket chain 22 for rotating the gear 18 and the drum 12. There is also provided on the bracket 13 a guide 23 for the sprocket chain. The openings in the door are closed by means of panels consisting of a frame 24, with panes of glass 25 therein.

15 As shown in Figure 1 the closure is in a position to close the openings in the door, and is supported in position by means of chains or cables 26. Each chain or cable is attached at one end to the lower edge of the closure, while its upper end is attached to a drum 27 located on one end of a shaft 28 supported by means of a bracket 28a, supported on a guard 30.

20 On one end of the shaft 28 is a pinion 29, which meshes with the gear 18 so that as the door is operated to close or open the doorway the panel is operated to open or close the opening in the door. The guard 30 is attached to the wall above the doorway and serves to protect the drums and the shaft 28 from dust and other foreign materials.

25 The channelways 31, which guide the ends of the closure, continue upwardly above the doorway and form housings 32, in which the ends of the closure rest when the door is open. These housings are at the back of and above the guard 30, the guard having an upwardly extending part 33 connecting the two housings so there is formed a complete closure for the panels containing panes of glass.

30 In Figure 1 the door is shown in a closed position. In order to open the door the sprocket chain is operated so that the drum rotates to

wind up the articulated door. At the same time the shaft 28 and the drums are rotated so that the closure is moved with relation to the door. This closure is moved vertically upwardly so that it will be housed behind and above the drum on which the door is rolled.

When it is desired to close the door the sprocket chain is operated in the reverse direction, lowering the door and at the same time lowering the panel which closes the opening in the door. On account of the pinion 29 being smaller in diameter than the gear 18 the closure moves at a greater rate of speed than the door, and during the opening and closing of the door moves at a speed different from that at which the door is moved. The closure is supported and operated independent of the door, the connection between the two being the gear 18 and the pinion 29, and the common actuating mechanism.

I vary the speed by varying the spool size of 27 and thereby adjust the exact location of the closure 24, depending upon the height of the opening it is to close.

It will be understood that I desire to comprehend within my invention such modifications as come within the scope of my claims and my invention.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a door structure, a door composed of articulated sections and having therein an opening, a light transmitting closure for the opening, means to support and elevate the closure, means to support and roll up the door, and operatively-interconnecting means to operate both of said means in timed relationship at the same time substantially throughout the period of closure of the door.

2. In a door structure, a door composed of articulated sections and having therein an opening, a light-transmitting closure for the opening, means to support and elevate the closure, means to support and roll up the door, and operatively-interconnecting means to operate both of said means in timed relationship at the same time substantially throughout the period of closure of the door at relatively different speeds.

3. In a door structure, a door composed of articulated sections and having therein an opening, a light-transmitting closure for the opening, means to support and elevate the closure, means to support and roll up the door, and operatively-interconnecting means to operate both

of said means in timed relationship at the same time substantially throughout the period of closure of the door, said interconnecting means comprising gearing operatively joining said closure-elevating means and said door-supporting means.

4. In a door structure, a door composed of articulated sections and having therein an opening, a light-transmitting closure for the opening, means to support and elevate the closure, means to support and roll up the door, and operatively-interconnecting means to operate both of said means in timed relationship at the same time substantially throughout the period of closure of the door, said closure-elevating means comprising a shaft mounted on the wall above the doorway, said door-supporting means comprising a drum mounted on the wall above the doorway, and said interconnecting means including a gearing assembly adapted to rotate the shaft and the drum simultaneously but at different speeds of rotation.

5. In a door structure, a door composed of articulated sections and having therein an opening, a light-transmitting closure for the opening, means to support and elevate the closure, means to support and roll up the door, an operatively-interconnecting means to operate both of said means in timed relationship at the same time substantially throughout the period of closure of the door, a guide for the closure on each side of the doorway, and a housing above the doorway connecting the upper ends of the guides, said closure-elevating means and said door-supporting means being mounted within said housing.

6. In a door structure, a door composed of articulated sections and having therein an opening, a light-transmitting closure for the opening, means to support and elevate the closure, means to support and roll up the door, operatively-interconnecting means to operate both of said means in timed relationship at the same time substantially throughout the period of closure of the door, a guide for the closure on each side of the doorway, and a housing above the doorway connecting the upper ends of the guides, said closure-elevating means and said door-supporting means being mounted within said housing, said interconnecting means being arranged to operate said closure-elevating means and said door-supporting means simultaneously but at different rates of speed.

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