

(No Model.)

2 Sheets—Sheet 1.

T. C. PROUTY.
DOOR HANGER.

No. 526,659.

Patented Sept. 25, 1894.

Fig. 1

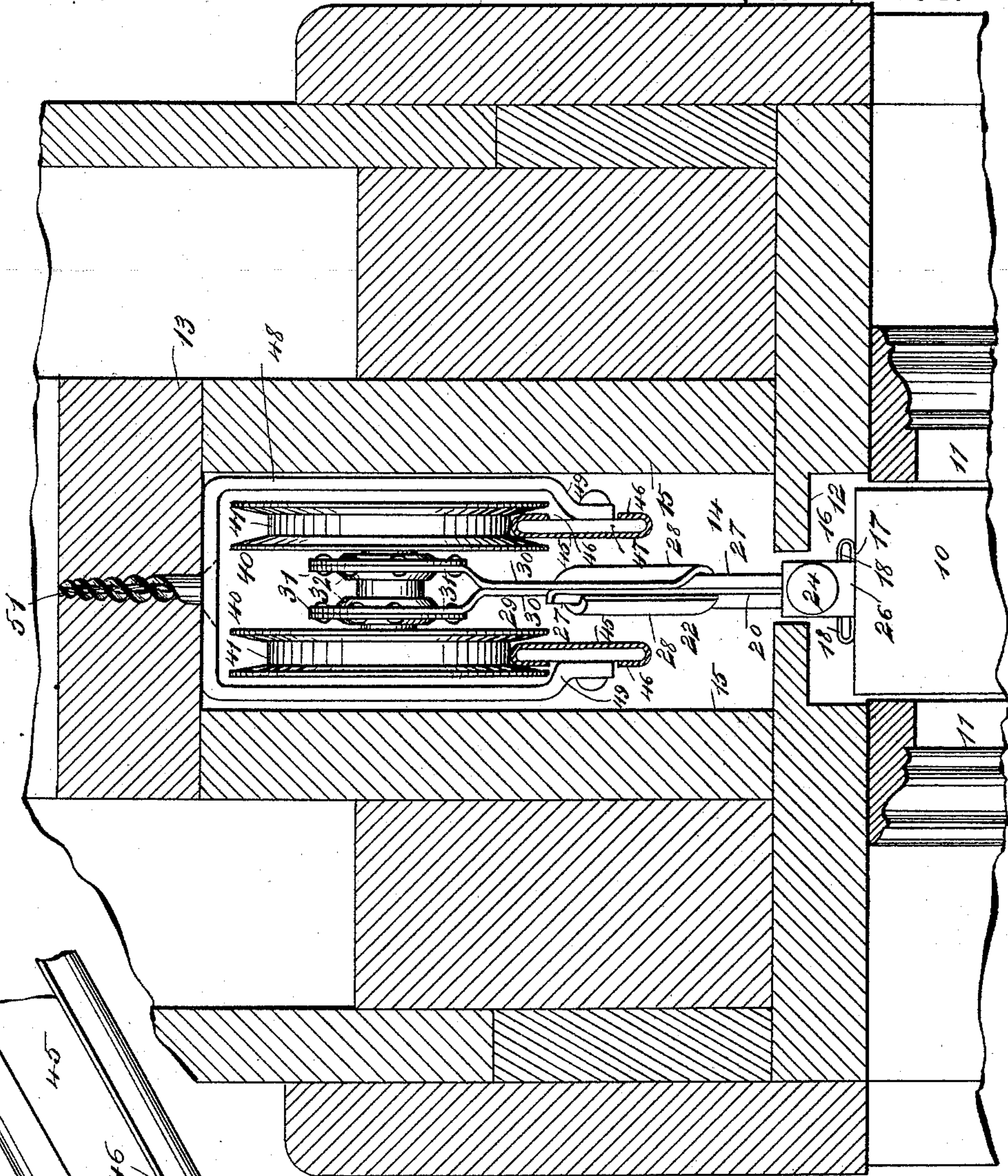


Fig. 3

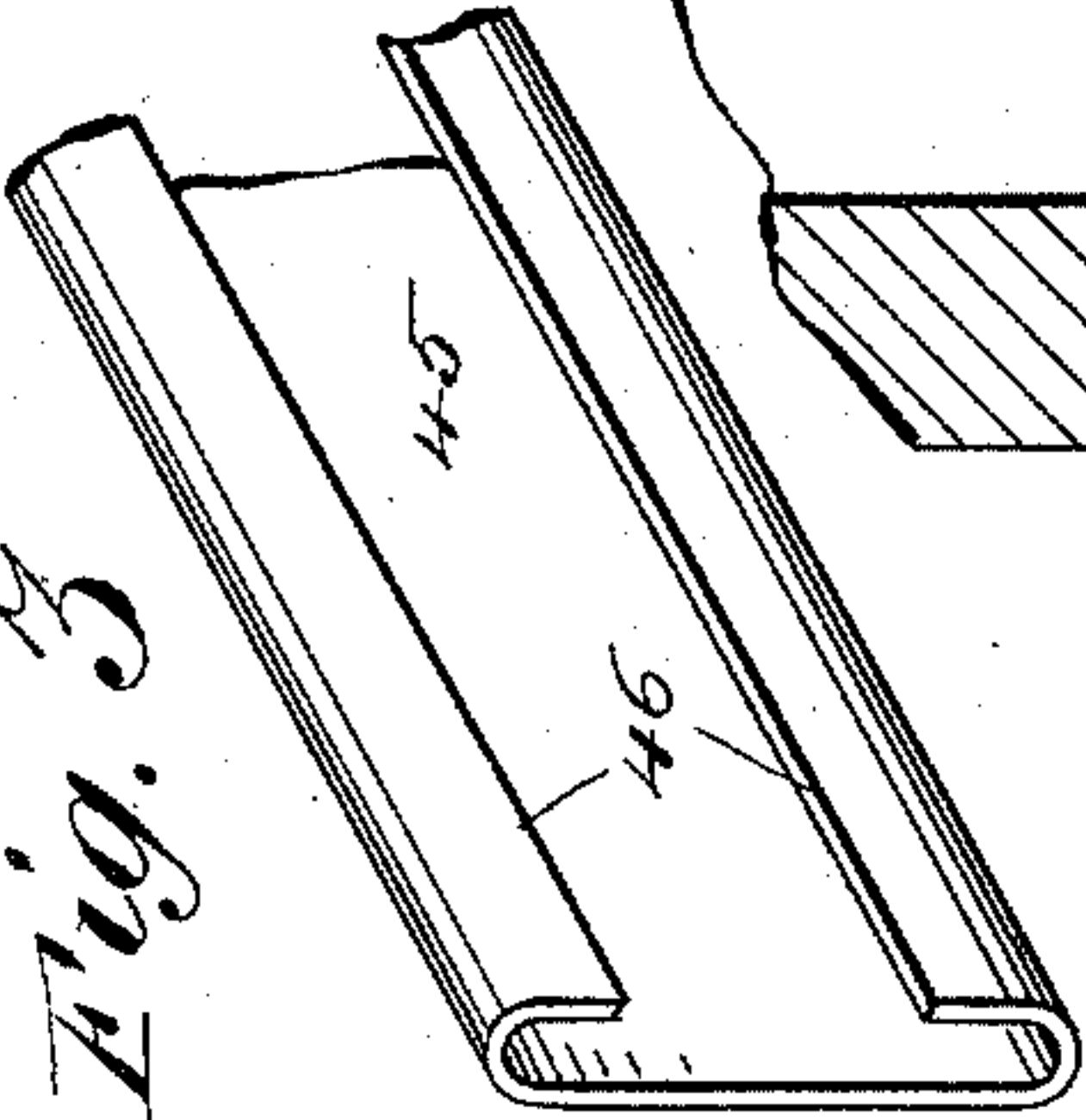
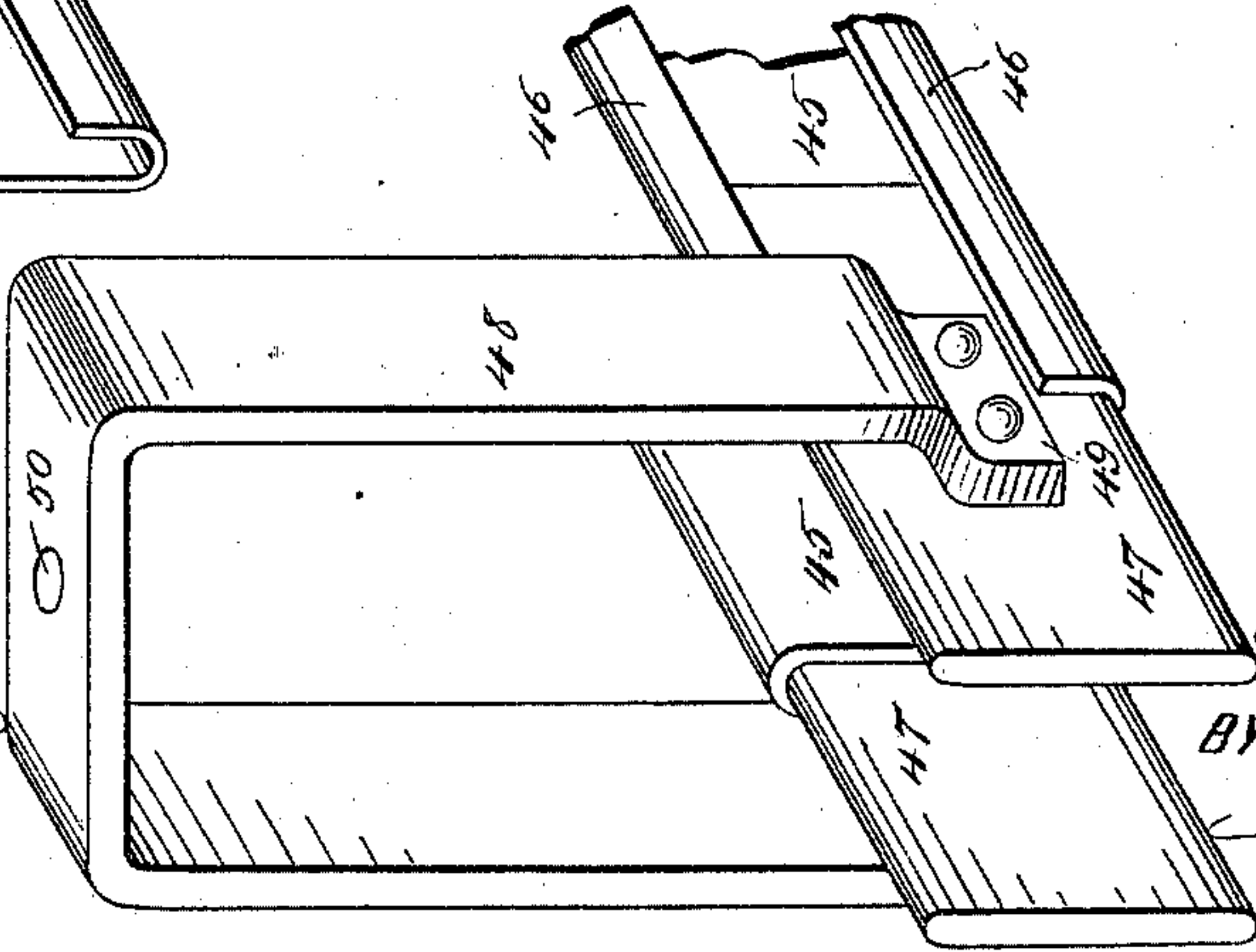


Fig. 2



WITNESSES:

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W. R. Hutchinson

INVENTOR

T. C. Prouty

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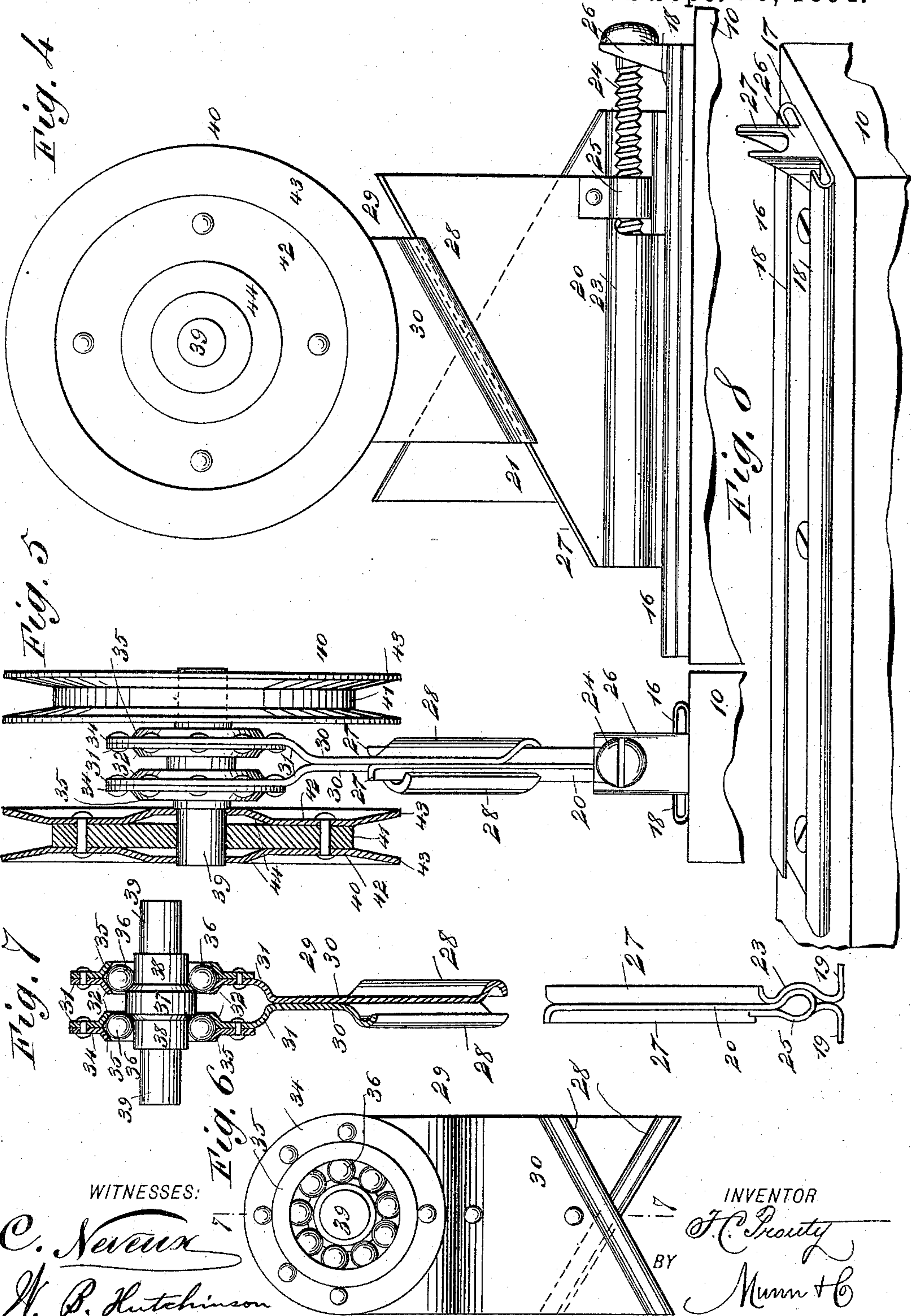
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UNITED STATES PATENT OFFICE.

THEODORE C. PROUTY, OF ST. JOSEPH, MICHIGAN, ASSIGNOR TO THE
THEODORE C. PROUTY COMPANY, OF SAME PLACE.

DOOR-HANGER.

SPECIFICATION forming part of Letters Patent No. 526,659, dated September 25, 1894.

Application filed April 3, 1894. Serial No. 506,192. (No model.)

To all whom it may concern:

Be it known that I, THEODORE C. PROUTY, of St. Joseph, in the county of Berrien and State of Michigan, have invented a new and Improved Door-Hanger, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of door hangers and tracks which are used in connection with sliding doors, and more particularly to double track hangers adapted to support the doors in such a manner that they may be pushed laterally.

The objects of my invention are, first, to provide a very simple, cheap and durable ball bearing hanger which may be struck up from sheet metal without the use of expensive machinery; second, to provide a sliding door hanger adapted to work in connection with any of the double-way wood tracks now in common use, but more especially for use on my double tracks hereinafter described; third, to provide a carriage adjustably connected to the door adapted to receive a shaft centrally mounted on two rows of bearing balls, one row being on each side of the middle of said shaft and the two ends of the shaft being adapted to receive the supporting wheels; fourth, to provide a cheap yet durable cone case to receive the balls around the shaft, the case being constructed in such a manner that it may be cheaply stamped from sheet metal to form a groove, V-shaped in cross section, adapted to receive the balls and requiring no further shaping, reaming or lathe work to render it fit for use, the case being also made so as to require no adjusting; fifth, to provide by the use of double bearings a means whereby the two supporting wheels may be kept from binding, either upon the track or on their own bearings, as is the case in double track hangers where the two wheels are mounted upon a single bearing centrally located between them; and, sixth, to provide, in connection with the hanger, an adjustable means for connecting the hanger to the door, the arrangement being such as to permit the ready vertical adjustment of the door with relation to the supporting track.

To these ends my invention consists of certain features of construction and combina-

tions of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken sectional view, showing my improved hanger in end elevation and the track in section, the view also illustrating the manner in which a door is hung. Fig. 2 is a broken perspective view of the double track and its supporting clip. Fig. 3 is a broken detail perspective view of one of the track rails. Fig. 4 is an enlarged side elevation of the hanger, showing the arrangement of the oppositely-inclined adjusting plates by which the height of the door in relation to the supporting track is regulated. Fig. 5 is an end view of the hanger, one of its wheels being shown in section. Fig. 6 is a side elevation of the hanger carriage. Fig. 7 is a vertical section on the line 7-7 of Fig. 6, showing also in end elevation the adjusting plates beneath the carriage; and Fig. 8 is a perspective view of the base plate as applied to the top of the door.

The door 10 is arranged in the usual way between the stops 11 and in the slotted socket 12, being hung from the dividing header 13 beneath which is the customary recess 14 for the track and hangers, the recess being formed between the sheathing 15 in the usual manner, but all this arrangement is common and has nothing to do with my invention, which relates exclusively to the means of hanging the door.

On the top of the door is a base plate 16, shaped to readily engage the hanger above it, this being formed of the flat strip 17 of sheet metal which is fastened securely to the upper edge of the door, and the opposite edges of the strip are doubled upward and inward, as shown at 18, so as to form a longitudinal slide-way in which the feet 19 of the inclined adjusting plates or planes 20 and 21 may move, these feet extending laterally outward in opposite directions, as clearly shown in Fig. 7, so that they may extend beneath the edges or flanges 18 of the base plate and thus support the plate and the door to which it is attached.

The plates 20 and 21 are similar in construction, but of opposite pitch, as clearly shown in Fig. 4, the upper edge of each plate being inclined, and, near the bottom, the plates are pressed outward in opposite directions, as shown at 23, so as to form a bore to receive the adjusting screw 24 which fits a thread in the collar 25 of the inclined plate 20, and the shoulder of the screw rests in a bracket 26 formed on one end of the base plate 16. The collar 25 is formed by cutting a strip from the plate 20 and turning it up and riveting it to the plate, as shown in Figs. 4 and 7. The shoulder of the screw is held in the bracket 26, and by turning the screw the plate 20 may be moved forward or back, the plate 21 remaining stationary and in this way the hanger is adjusted, as will appear from the connection between the said plates 20 and 21 and the carriage above them, as described below.

Each plate 20 and 21 terminates at its upper edge in an outwardly-extending flange 27, these flanges being adapted to engage the curved flanges or ways 28 on the lower end and opposite side of the carriage 29, the flanges 28 being bent outward and inward so as to hold their grip on the flanges 27 and, like the flanges 27, the flanges 28 are oppositely inclined and are formed of separate sheets 30 of metal, which sheets are riveted together, and the sheets 30 are, at their upper ends, bent outward and upward, as shown at 31, these parts 31 being each cut out in the center to receive the supporting shaft, as will appear presently, and around the center opening of each part 31 of the plate 30 is an outwardly pressed flange 32 which forms one-half of the V-shaped cone case which receives the bearing balls, the other end of each case being formed by a plate 34 which is shaped exactly like the parts of the plate 30, having the central aperture for the shaft and the outwardly pressed flange 35.

It will be seen that each pair of flanges 32 and 35 forms a cone case, which is V-shaped or cone shaped in cross section and is adapted to receive the bearing balls 26 which are arranged on each side of the enlarged middle portion 37 of the shaft 39, the balls running on shoulders 38 which are inclined where they merge in the middle or thickened part 37, so that the balls have a bearing laterally on the inclined portions and vertically on the plane surfaces of the shoulders.

The carriage 29 is pressed from sheet steel, and the cone cases thus formed are perfectly smooth and may be shaped so that the balls will fit nicely in them and a perfectly balanced bearing is provided for the shaft. The ends of the shaft 39 are carried by the supporting wheels 40, which are also made chiefly of sheet metal, each wheel comprising a central body 41, which is circular so that its edge serves as the tread surface of the wheel, and two side pieces 42 which are riveted together and to the central body, each side piece being flared outward at 43 at the edge,

so that a groove is formed between the strips to receive the track rail, and each strip is also pressed outward in the middle near its central opening, as shown at 44, to form a broad bearing surface on the shaft.

The wheels 40 are adapted to run on the supporting tracks, which may be of any ordinary kind, but which are preferably made in accordance with my invention as illustrated in Figs. 2 and 3, after the principle described and claimed in another application for a patent, filed by me September 28, 1893, Serial No. 486,693. Each track as here shown is formed of a plurality of sections, each made of a strip 45 which is doubled over at its upper and lower edges, as shown at 46, so that the tread portion of the track rail is smooth and half round, while the section of the rail is adapted to slip upon the slide blocks 47 on which the track is supported, the blocks 47 being secured to the supporting clips 48 which are of a generally inverted U-shape, the arms of each clip being bent inward at the bottom, as shown at 49, so as to provide clearance for the wheels 40, and the slide blocks are rigidly fastened to these bent ends. The clip 48 is perforated at the top, as shown at 50, to receive a screw 51 or equivalent fastening by which it is secured to the dividing header 13.

The whole outfit, including the hanger, the track and the base plate 16, is very light, being composed chiefly of sheet steel; and it will be seen that the hanger, including the track, may be very conveniently applied, the clips 48 being simply fastened in place, the track sections hung on the slide blocks 47, the base plate attached to the door, the hanger mounted on the track, and the feet of the hanger slipped beneath the flanges 18 of the base plate.

To adjust the height of the door, it is only necessary to turn the screw 24, as this moves the plate 20, changing its position in relation to the plate 21 and also changing the position of the plates in relation to the carriage 29 in which they are hung, so that by the simple turning of the screw the height of the door may be very nicely regulated.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a door hanger, the combination with the supporting shaft, of the carriage having means for attachment to a door, and provided at its upper end with parallel cone cases formed of united metal plates shaped to form bearing grooves, and the balls held in the said cases or grooves and against the shaft, substantially as described.

2. In a door hanger, the supporting bearing comprising a shaft having a thickened central portion, cone cases arranged on opposite sides of the said central portion, each case formed of united metal sheets cut away to receive the shaft and pressed outward at their inner edges to form a groove V-shaped in cross section,

and bearing balls held in the said grooves in the cases and against the shaft, substantially as described.

5 3. A door hanger, comprising a carriage and having oppositely inclined flanges at its lower end, oppositely inclined plates having flanges at their upper edges to engage the flanges of the carriage, means for attaching the inclined plates to a door, and means for shifting the
10 relative positions of the inclined plates, substantially as described.

15 4. A door hanger, comprising a carriage, a pair of oppositely inclined adjusting plates slidably connected with the carriage, and mechanism for adjusting the plates longitudinally in relation to each other, substantially as described.

20 5. A door hanger, comprising a carriage and provided at its lower end with oppositely inclined flanges, a pair of oppositely inclined adjusting plates having flanges at their upper edges to engage the flanges of the carriage, a base plate adapted to be attached to a door and having means for attachment to the slide
25 plates, and a screw mechanism for shifting the position of the slide plates longitudinally in relation to each other, substantially as described.

30 6. In a door hanger, the combination, of the carriage having oppositely inclined flanges at its lower end, oppositely inclined adjusting

plates having flanges at their upper edges connected with the flanges of the carriage, and outwardly-extending feet at their lower edges, a base plate secured to the door and provided
35 with flanges to engage those of the adjusting plates, a threaded collar on one of the inclined plates, and a screw mounted on the base plate and fitting the collar, substantially as described.

40 7. The combination, with the carriage, of the oppositely inclined adjusting plates connected as specified, the plates being pressed outward near the bottom to form a bore to receive the adjusting screw and having out-
45 wardly-extending feet at their lower edges, a base plate adapted to be secured to a door and provided with in-turned flanges to engage the feet of the inclined plates, a bracket on the base plate, and a screw journaled in the
50 bracket and extending through the collar of one plate and into the bore between the plates, substantially as described.

55 8. In a door hanger, the base plate having its opposite edges turned upward and inward as specified, and provided with a central integral bracket, substantially as described.

THEODORE C. PROUTY.

Witnesses:

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DELLA E. STONER.