

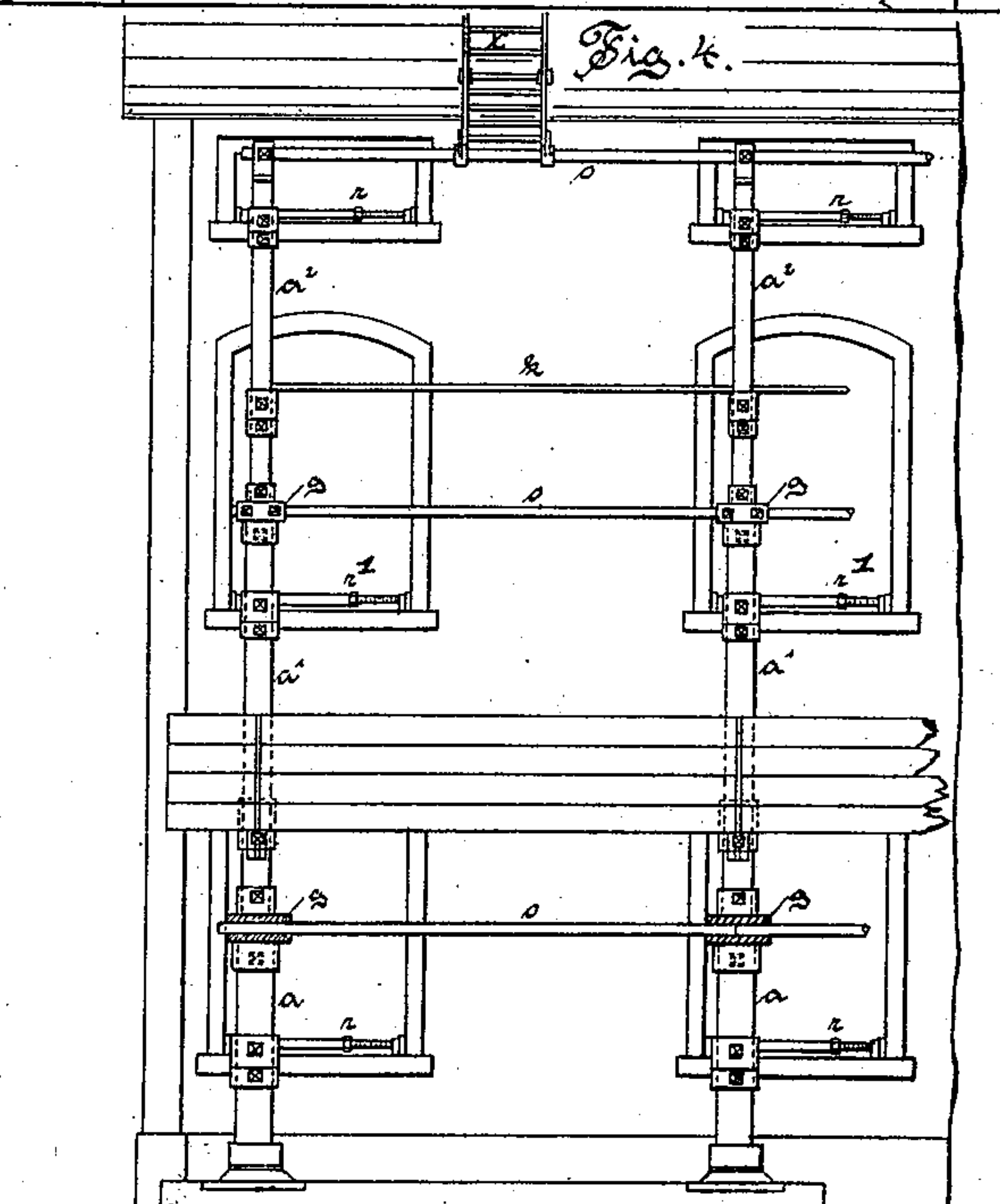
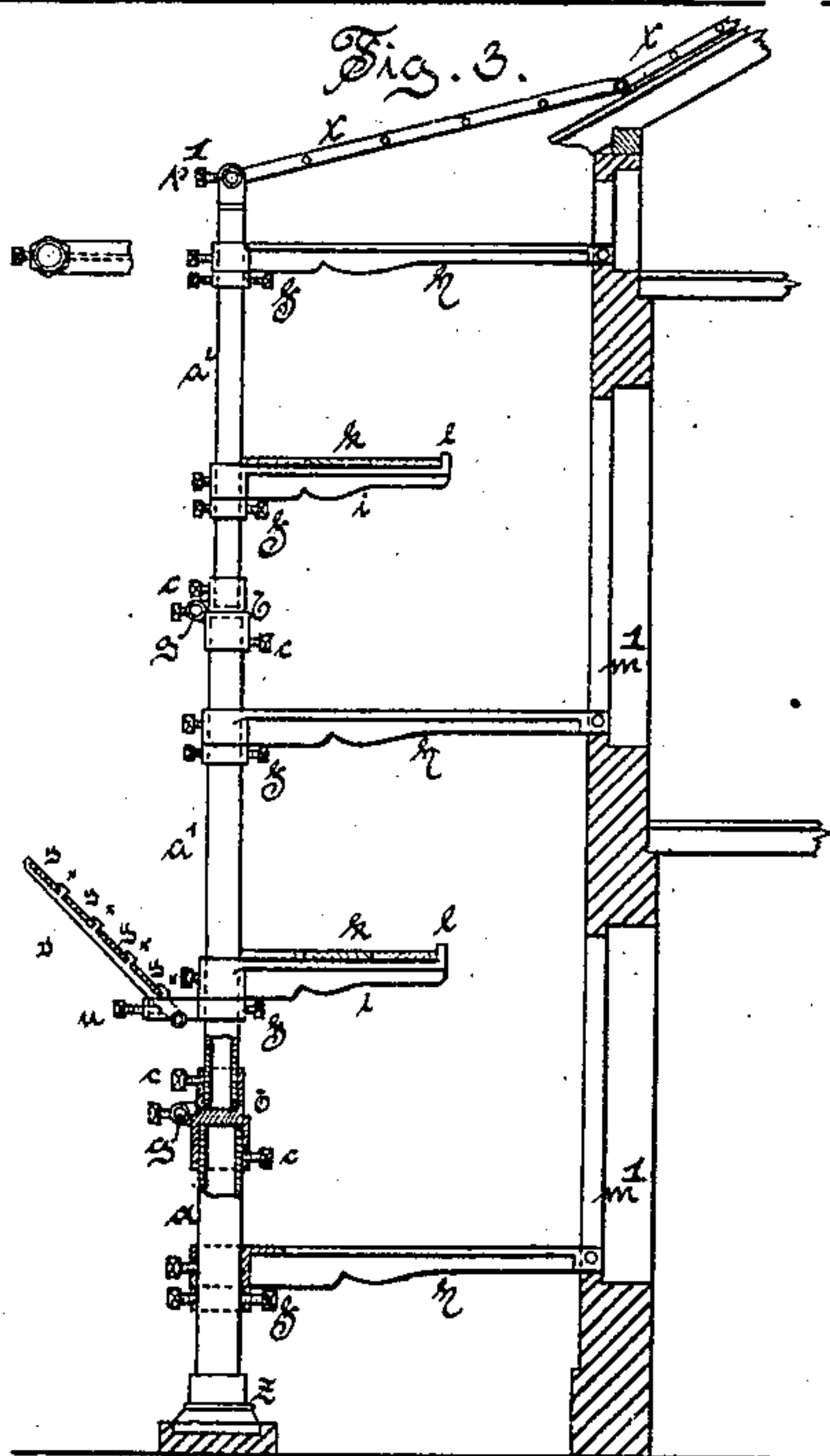
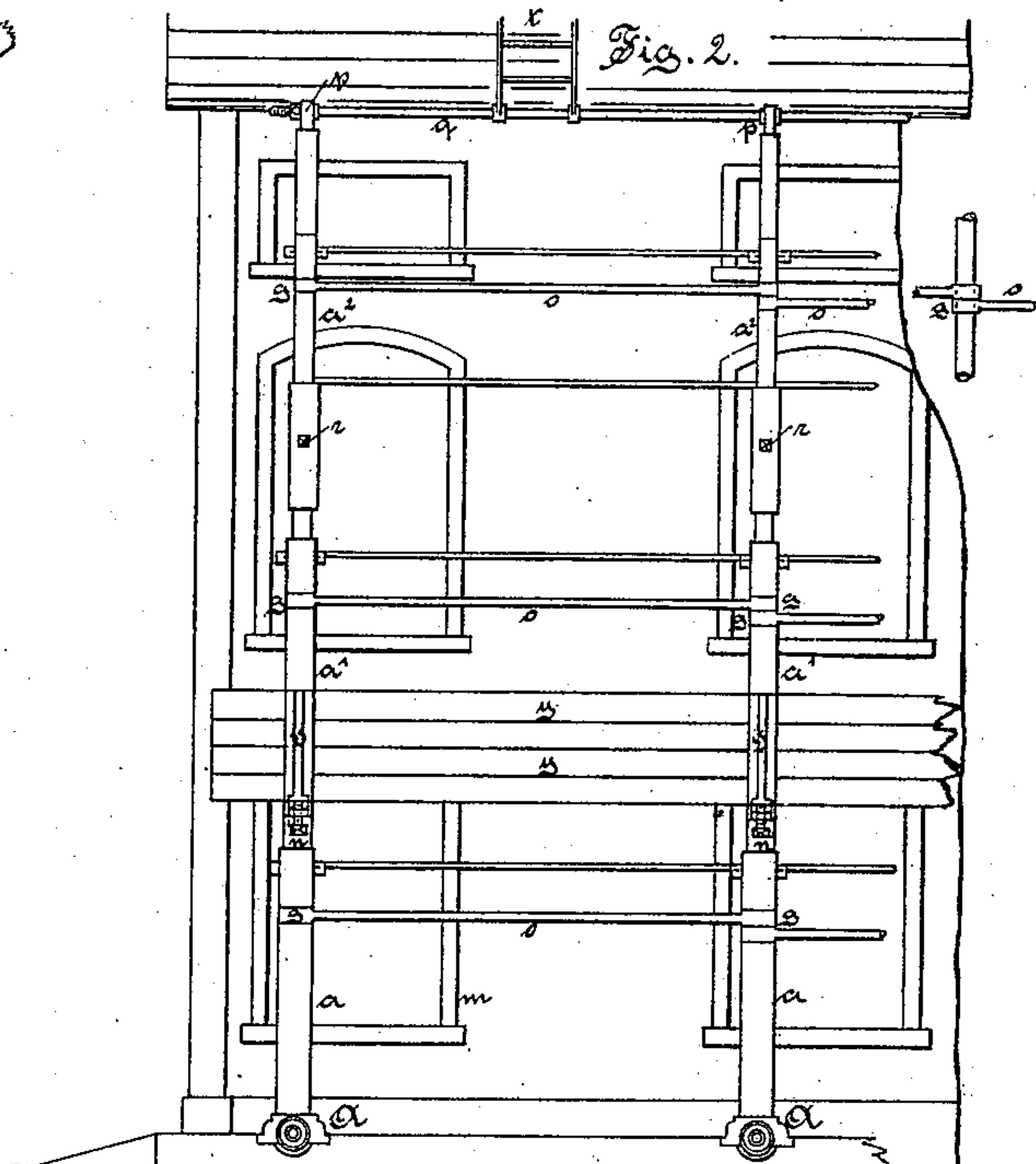
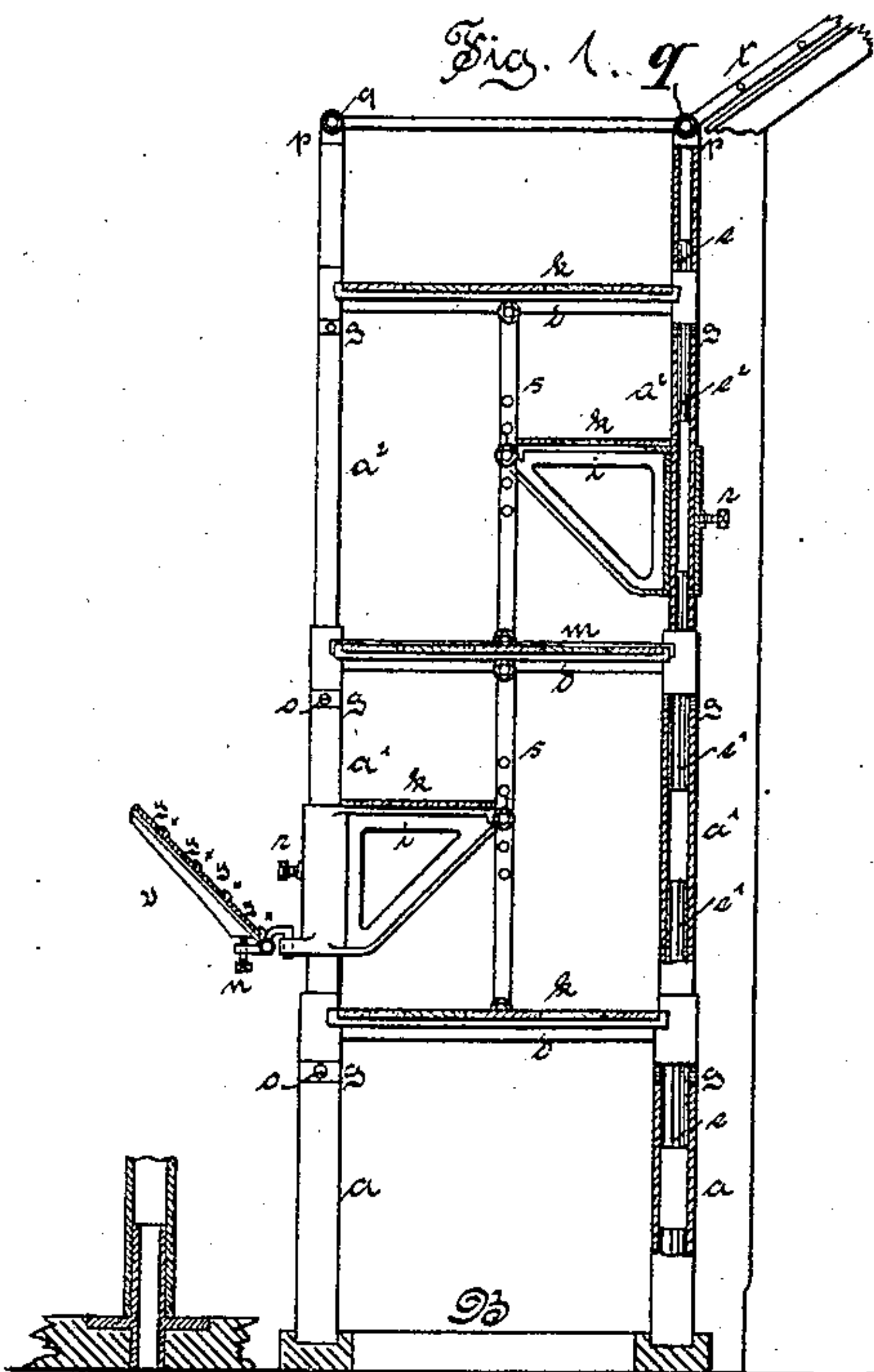
(No Model.)

2 Sheets—Sheet 1.

F. G. KNOPFE & H. A. RÖDER.
IRON SCAFFOLDING.

No. 576,858.

Patented Feb. 9, 1897.



Witnesses

Richard Hunt.

Carl Bülter.

Inventors

Franz Gustav Knopfe &
Heinrich Albin Röder

by Eustach Hopmann
Att'y.

(No Model.)

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Fig. 5.

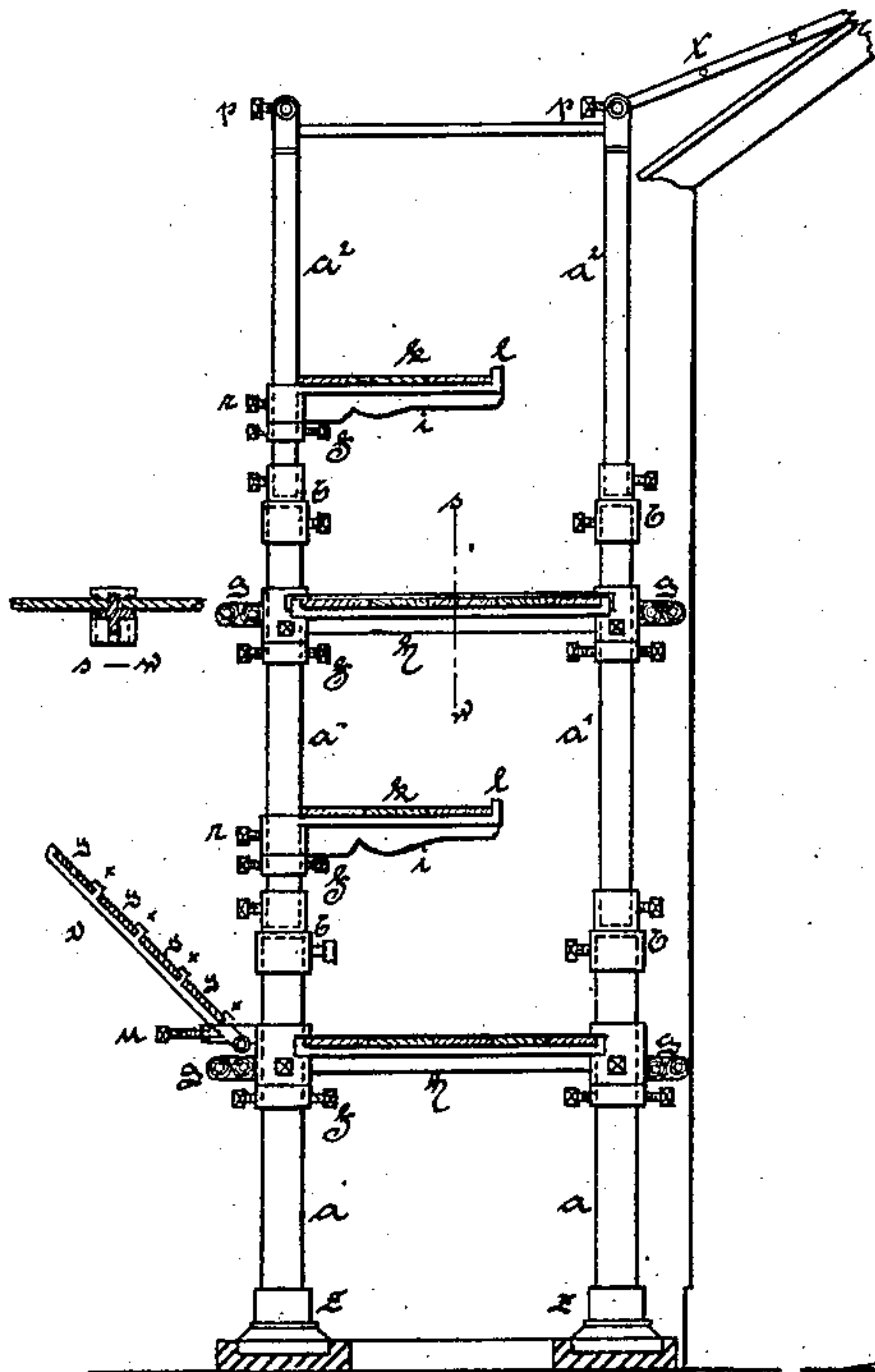
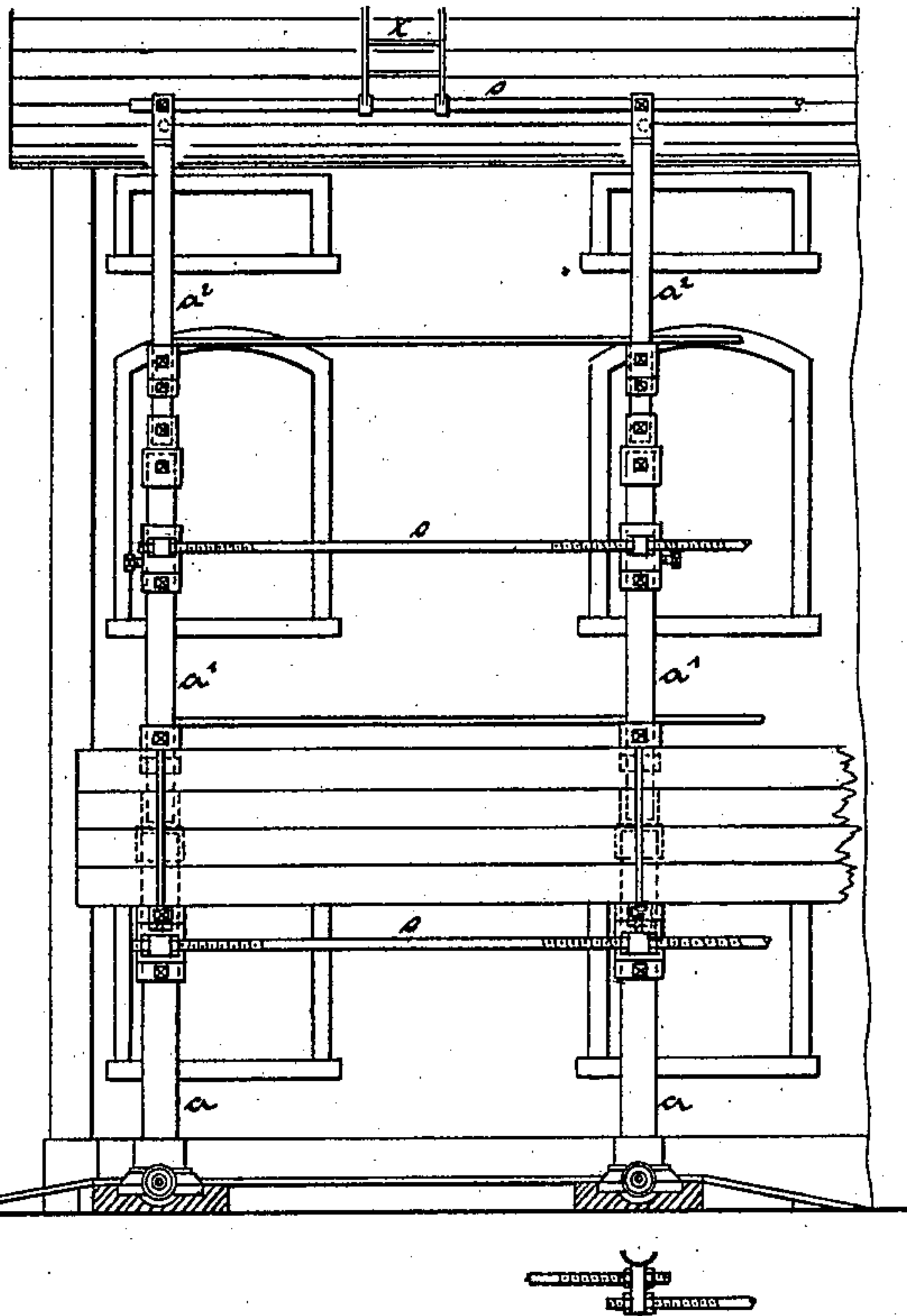


Fig. 6.



Witnesses

Richard Hart.

Carl Pilsner.

Inventors

Franz Gustav Knopfe &

Heinrich Albin Röder

by Eustace H. Hoppeing.

Att'y.

UNITED STATES PATENT OFFICE.

FRANZ GUSTAV KNOPFE AND HEINRICH ALBIN RÖDER, OF CHEMNITZ,
GERMANY.

IRON SCAFFOLDING.

SPECIFICATION forming part of Letters Patent No. 576,858, dated February 9, 1897.

Application filed January 17, 1896. Serial No. 575,928. (No model.)

To all whom it may concern:

Be it known that we, FRANZ GUSTAV KNOPFE and HEINRICH ALBIN RÖDER, subjects of the King of Saxony, and residents of Chemnitz, in the Kingdom of Saxony, Germany, have invented a certain new and useful Improved Iron Scaffolding, of which the following is a full, clear, and exact description.

The object of the present invention is to produce iron scaffolding which is more durable and more convenient to manipulate than the wooden scaffolding hitherto employed.

In order to render the present specification more easily intelligible, reference is had to the accompanying drawings, in which similar letters of reference denote similar parts throughout the several views.

Figure 1 is a sectional side elevation, and Fig. 2 a front elevation, of one form of carrying out the invention. Figs. 3 and 4 are similar elevations of a modified form of the invention, and Figs. 5 and 6 are similar elevations of a further modification.

According to the present invention the scaffold-poles consist of metal tubes $a a' a^2$, which decrease in diameter toward the top of the pole and are fitted together by means of intermediate studs or pins $e e' e^2$, fitted between the lengths of the pole. The lengths of the pole are advantageously made about equal to the height of the various stories of an ordinary house. Above or below or directly at the intermediate joints are attached the cross-bars d , which form the supports for the planks $k k$, which are retained in position on said supports by means of metal bands m , bent round at the ends and screwed to the support. Each pair of scaffold-poles is connected to the next pair by means of stays $o o$, having eyes at their ends, which engage over the pins or studs connecting the lengths of each pole, as shown at g .

To the top stay q , which is next to the house, is pivoted a ladder t , capable of movement along said stay and of being thrown upward onto the roof, as shown at Fig. 1. This stay q may either be secured in eyes p , arranged at the top of each pole, by means of a nut, as shown at Fig. 2, or by means of a set-screw p' , penetrating the said eye, as shown at Figs. 3 and 4. On such of the lengths $a a' a^2$

of the poles as may be considered necessary is mounted to slide a bracket i , which extends toward a bar s , mounted between the poles and having orifices therein in which the said bracket end may be adjusted by means of a bolt and nut or other suitable means. On each of two of these brackets the planks are laid, as shown at k . To the lower ones of these brackets are attached pivoted arms v , extending outwardly and upwardly at an angle and being adjustable in position by means of set-screw u , said arms having thereon hooks $x x$ for the support of planks $y y$ to catch anything falling from the scaffolding and prevent the injury of passers-by. The brackets i may be adjusted in position on the lengths of the poles by means of set-screws $r r$. The lower ends of the poles may be supported on joists B , as shown at Fig. 1, or may be provided with suitable feet A , as at Fig. 2.

According to the modification shown at Figs. 3 and 4 the lengths of tube are attached together by means of suitable sockets b , made of cast or malleable iron, said sockets having cast thereon the lugs $g g$ for the reception of the stays $o o$, which are held in position by means of set-screws. In this case the supports $h h$ for the planking are mounted on sleeves adapted to slide on the pole lengths and adjustable by means of set-screws or their equivalent. The inward end of the said supports rests on the window-sill m instead of having a second pole against the house, and the feet of the poles are supported in suitable sockets z . The lengths of the poles are also secured in the sockets by means of set-screws c . The brackets $i i$ have no inner support, but are mounted on sleeves sliding on and adjustable on the lengths forming the poles, said sleeves being secured in position by means of set-screws. The ladder t is in this case pivoted to the outer stay o and advantageously jointed, as shown at Fig. 3.

The supporting-arms v for the planks $y y$ are adjustable by means of set-screws u , supported in the lower sleeves f , to which the said arms are pivoted. The ends of the supports $h h$ are clamped in the window-openings by means of adjustable clamping-screws $r' r'$, as shown at Fig. 4. The brackets $k i l$, as also the supports h , are retained or adjusted in

position on the poles by means of the collars *j*, having set-screws.

In Figs. 5 and 6 a further modification is employed, which is substantially the same as that described with reference to Figs. 3 and 4, only that instead of single poles pairs of poles *a a*, *a' a'*, *a² a²* are provided. The stays *o o* are screw-threaded and adjustable in sleeves of the sockets *b*, as shown at *g*. The supports *h h* have a cross-shaped section, as shown in detail at the left-hand side of Fig. 5, which is a section on the line *s w* of the latter figure. Below Fig. 6 a detail plan view of one of the lugs *g* for the stays *o o* is shown. The brackets *i i* are bent round at *l l*, so as to secure the planks *k k* in position.

Many important advantages accrue from the employment of the class of scaffolding described. The same occupies much less room when not in use than the ordinary scaffolding, requiring only from fifteen to twenty feet of room, while the wood scaffolding requires from forty to fifty feet of room. Then again the metal scaffolding may be adapted to stories of any height without the least inconvenience. The scaffolding is put up one floor at a time, and consequently does not require so many hands to erect it as the ordinary wood scaffolding, while it is much more durable than the latter.

We claim as our invention—

1. The combination of tubular metal poles made in lengths sockets to connect the said lengths, lugs on said sockets and stays adjustable in said lugs to connect up the poles,

cross-supports adjustable on said poles and means for securing the same in position on the poles and brackets intermediate of said cross-stays adjustable on said poles, by means of sleeves and set-screws substantially as described.

2. The combination of a series of tubular poles made in lengths, sockets to connect up said lengths, cross-supports for the planking adjustable on said poles, brackets also adjustable on the poles to support planking intermediate of the cross-supports, lugs to the joint-sockets and stays *o o* adjustable therein and adjustable arms *v* on the lower socket-sleeves substantially as described.

3. The combination of tubular poles made in sections, sockets to connect up said sections, supports for the planking adjustable on said poles, brackets for planking adjustable on said poles intermediate of the supports, lugs on said supports, sleeves and stays adjustable in said lugs, outwardly-extending arms *v v* pivoted at the lower part of said poles and adjustable in their angle of incline and a ladder *t* laterally movable on the upper stay *o* to reach the roof substantially as described and shown.

In witness whereof we have hereunto set our hands in presence of two witnesses.

FRANZ GUSTAV KNOPFE.
HEINRICH ALBIN RÖDER.

Witnesses:

GEO. GLEABEL,
PAUL FABIAN.