

No. 760,178.

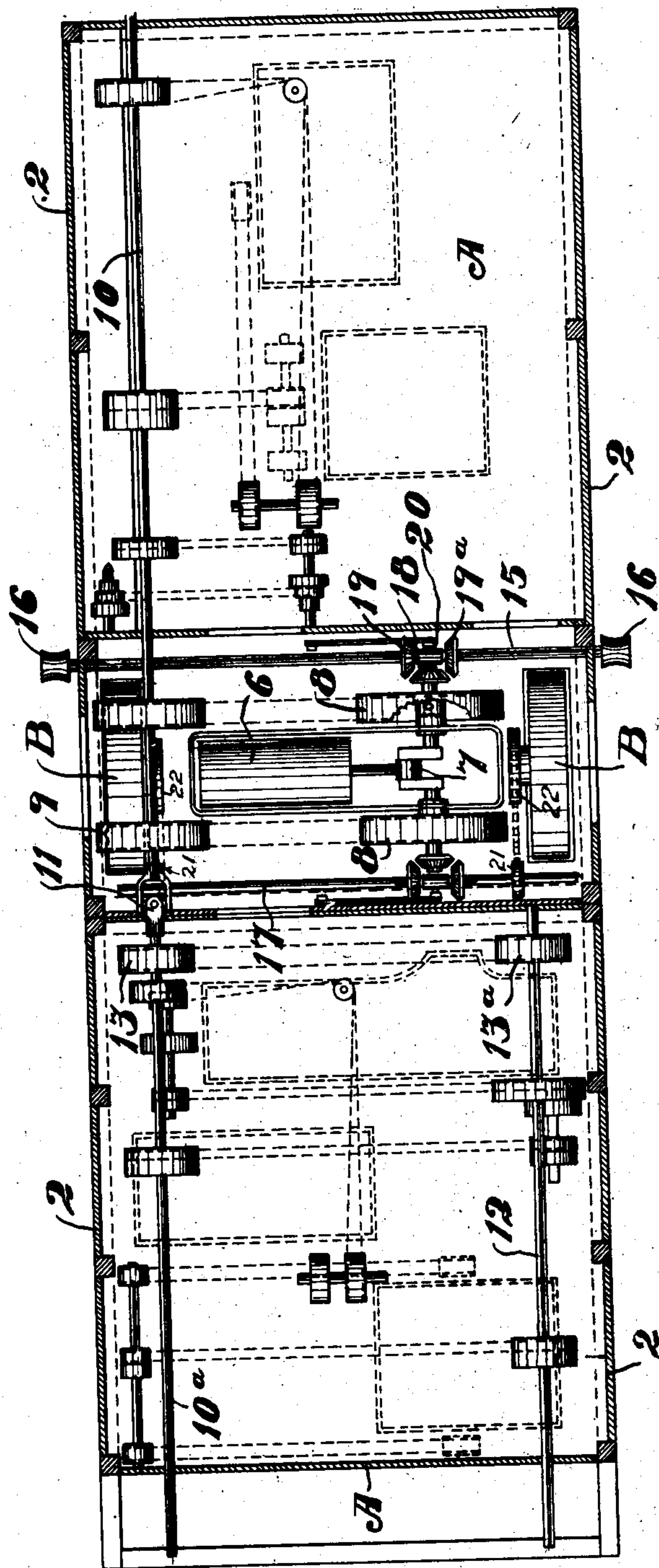
PATENTED MAY 17, 1904.

H. BRAND.
PORTABLE BUILDING APPARATUS.
APPLICATION FILED OCT. 31, 1903.

NO MODEL.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses,
George
Dudley Moas.

Inventor,
Harry Brand
By *Geo. H. Shony.* atty

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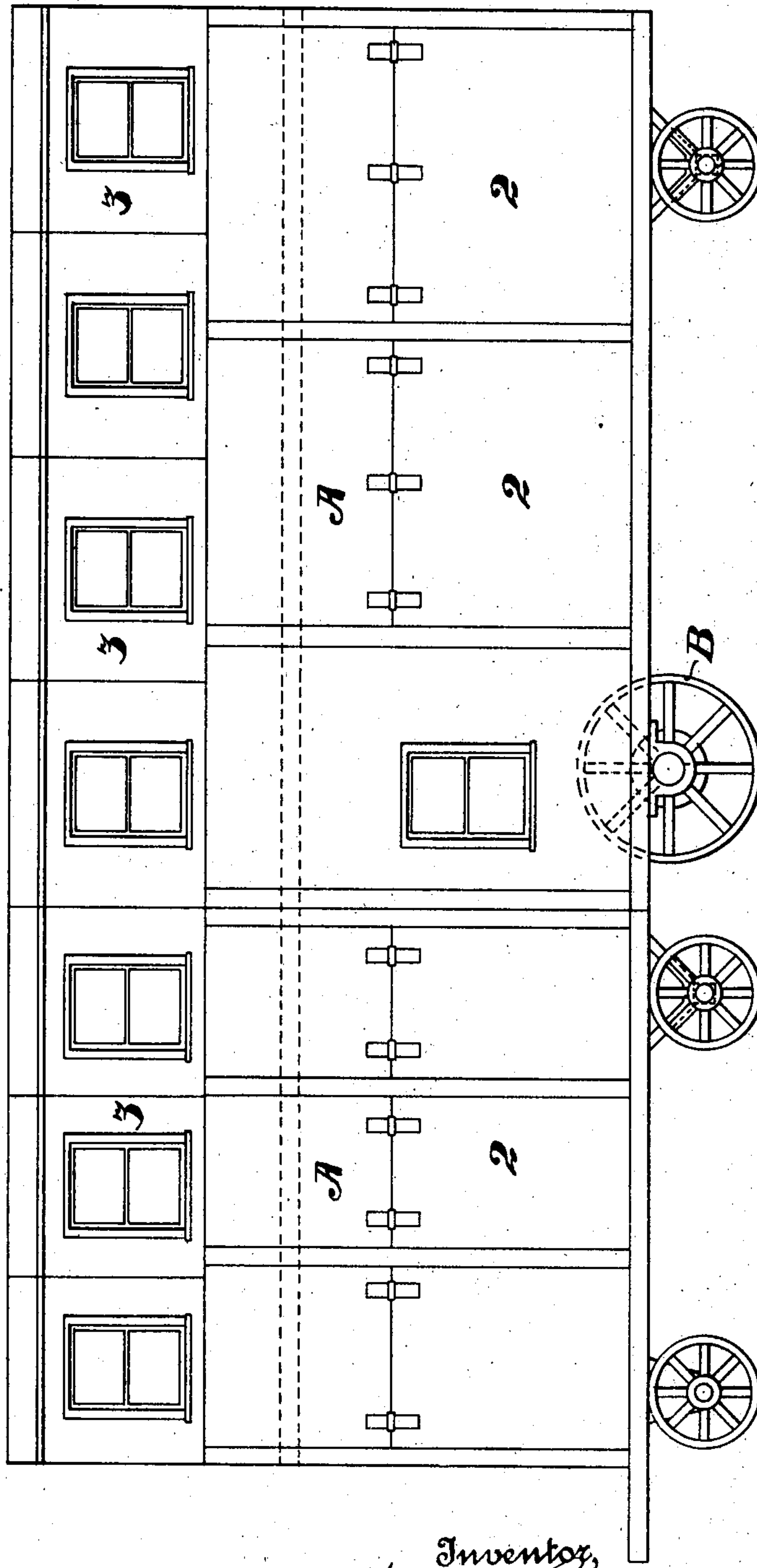
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4 SHEETS—SHEET 2.

Fig. 2.



Witnesses,

J. A. Morse
Dudley Moss.

Inventor,

Harry Brand
By Geo. H. Strong atty

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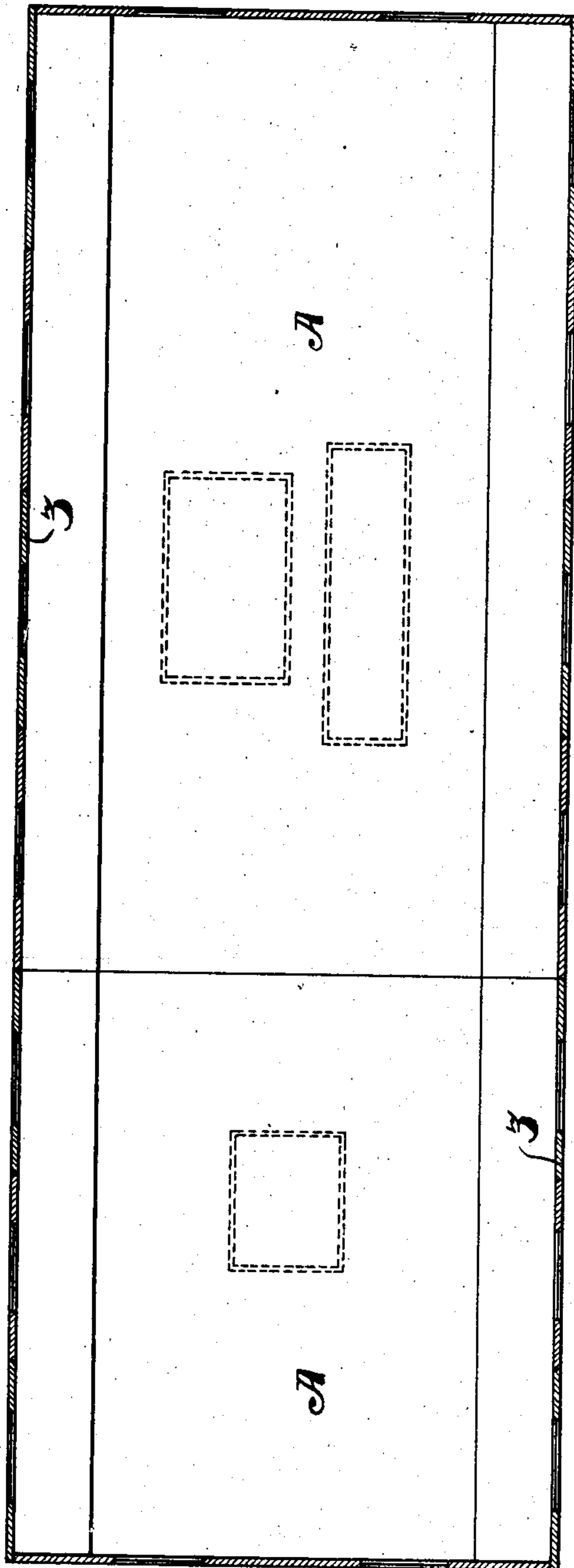
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NO MODEL.

4 SHEETS—SHEET 3.

Fig. 3.



Witnesses,

J. H. Morse
Dudley Morse.

Inventor,

Harry Brand
By Geo. H. Strong, atty.

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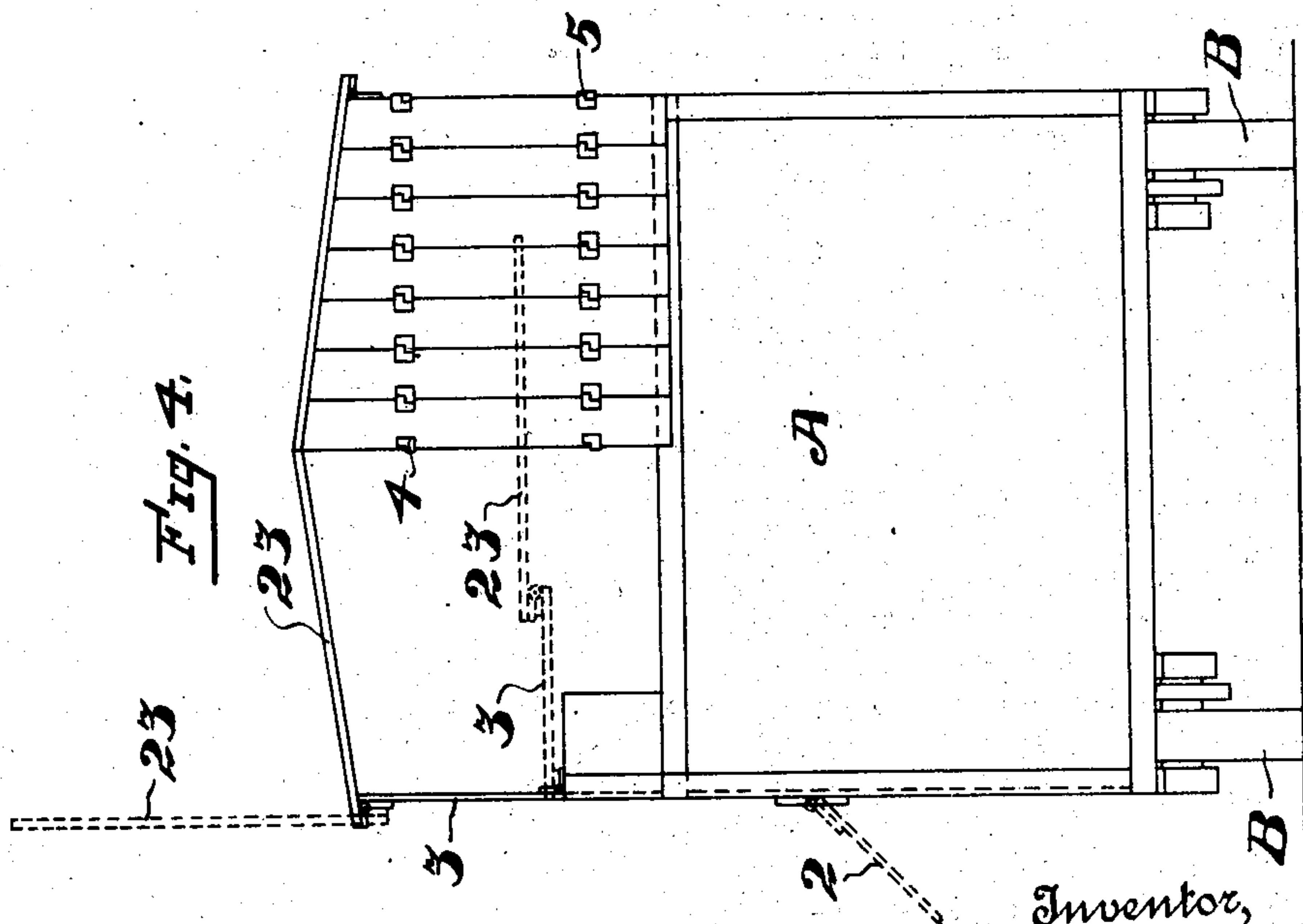
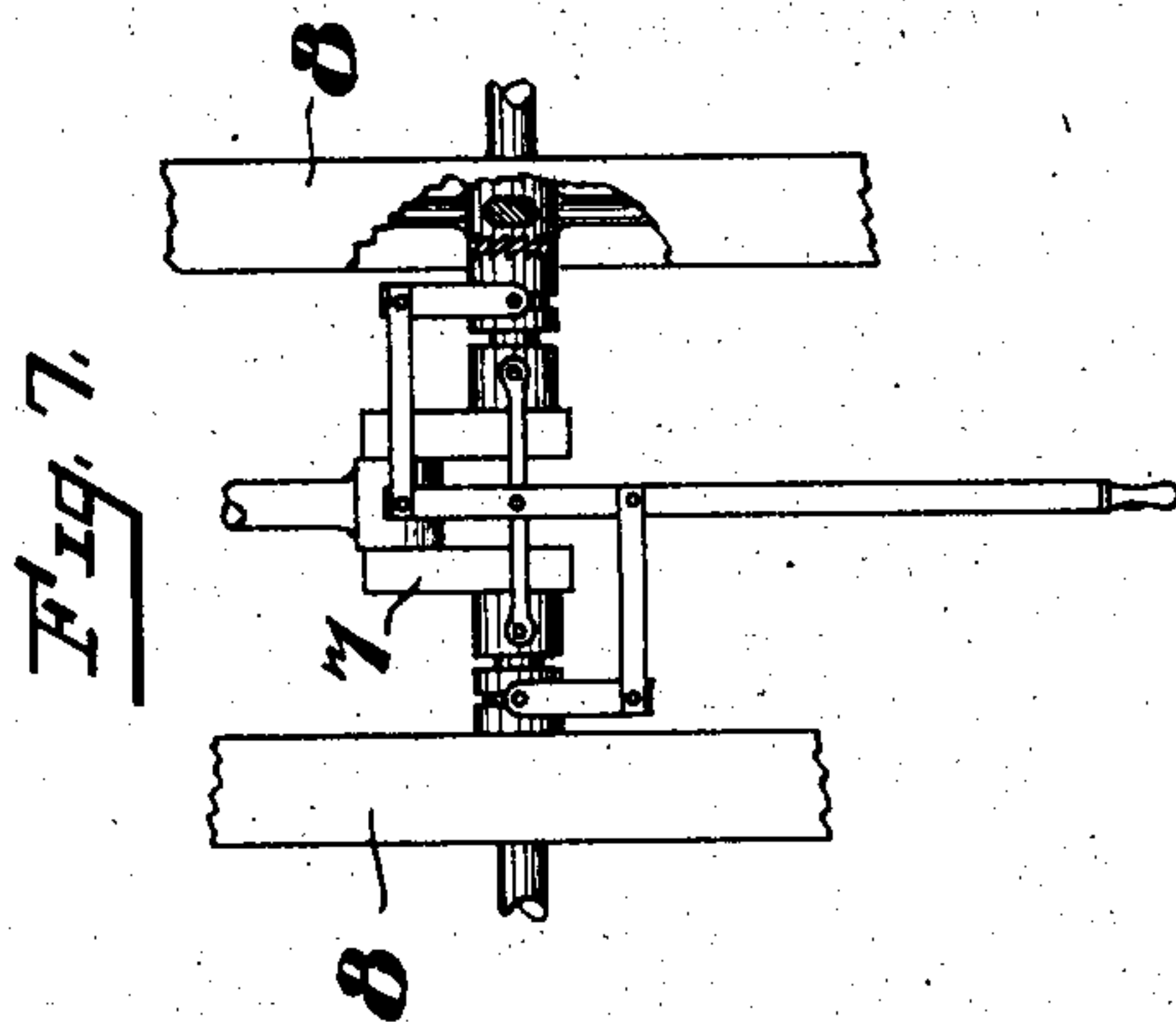
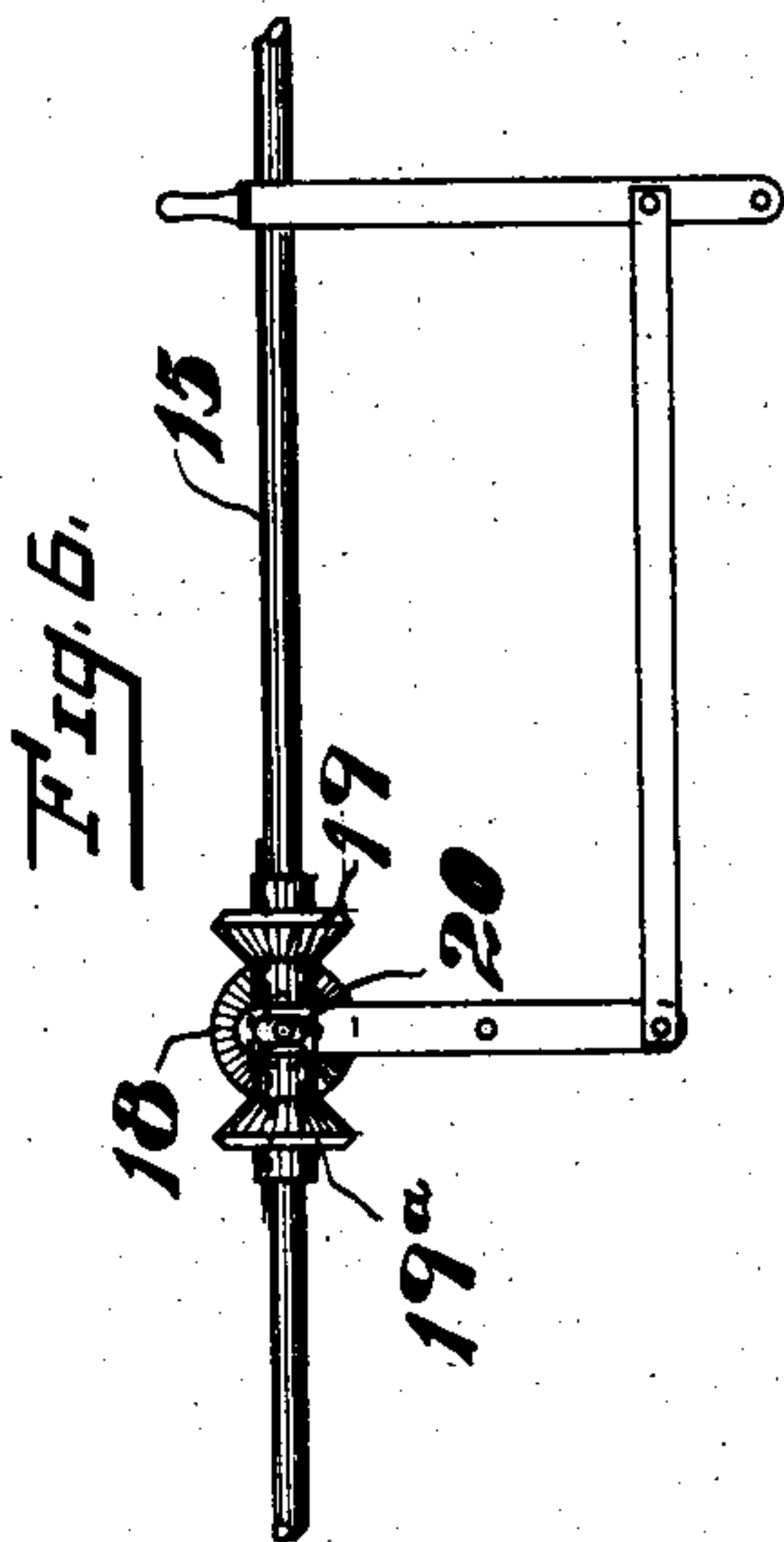
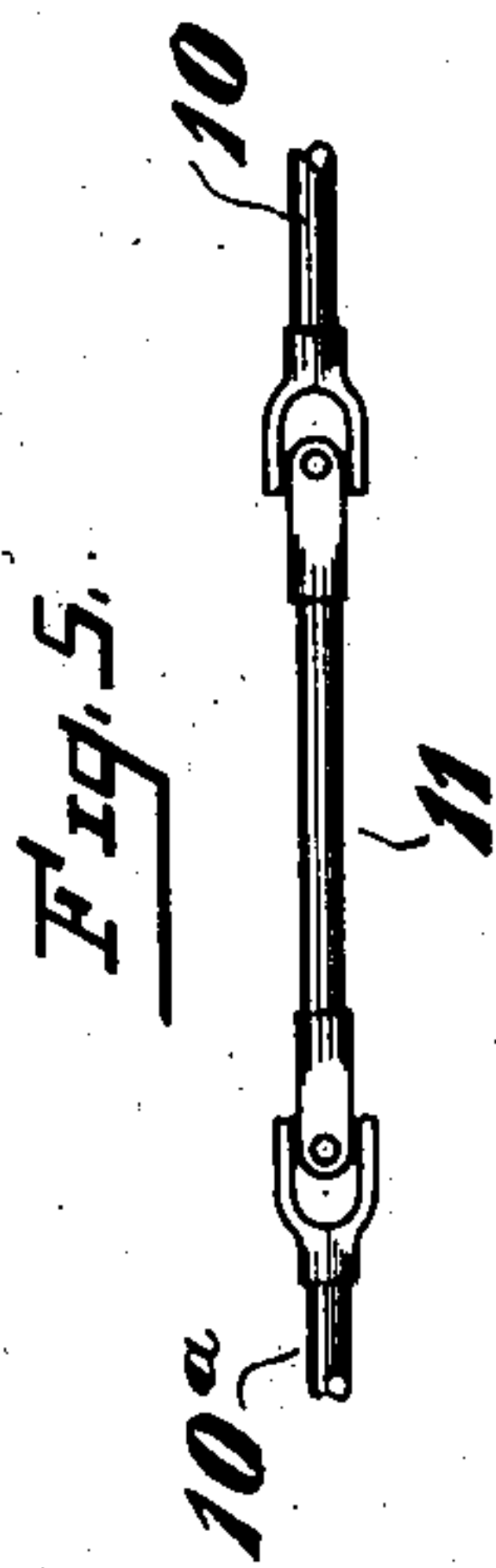
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PORTABLE BUILDING APPARATUS.

APPLICATION FILED OCT. 31, 1903.

NO MODEL.

4 SHEETS—SHEET 4.



Witnesses,
St. Morse
Dudley Mass.

Inventor,
Harry Brand
By *Geo. A. Strong.* atty

UNITED STATES PATENT OFFICE.

HARRY BRAND, OF OAKLAND, CALIFORNIA.

PORTABLE BUILDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 760,178, dated May 17, 1904.

Application filed October 31, 1903. Serial No. 179,348. (No model.)

To all whom it may concern:

Be it known that I, HARRY BRAND, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Portable Building Apparatus, of which the following is a specification.

My invention relates to an apparatus which is designed for the purpose of preparing finished building material ready for immediate use from substantially rough lumber and in a means for placing the apparatus in close proximity with each building from which the lumber is to be used.

It consists of a portable structure mounted upon wheels containing all the machines and apparatus necessary for the work permanently set up and maintained in line and in readiness for instant operation and a motor from which power is derived for the operation of the machines, wheels upon which the structure is mounted, and an independent connection between the motor and the wheels whereby the power of the motor may be directed to the transportation of the apparatus from point to point where necessary.

My invention also comprises details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a plan view of first floor of my apparatus. Fig. 2 is a side elevation of my apparatus. Fig. 3 is plan of second floor. Fig. 4 is a rear end view of forward section. Fig. 5 is a detail of shaft-coupling. Fig. 6 is a detail of transverse shaft connections. Fig. 7 is a detail of crank-shaft clutch.

In the present manufacture of lumber the large mills, located in or near the forests, cut the lumber to certain specified sizes, usually from one-fourth to one-half inch larger than the ultimate sizes which are to be used, to compensate for drying and shrinkage, and in the enormous quantity of lumber which is cut in a day by such mills there cannot be much accuracy as to the sizes. As a result of this all rough lumber must first go to the mill to be sized and then hauled to the building, making two haulage expenses and the additional work

of the local mill. In addition to this all the finished lumber—such as is produced by planers, stickers, shapers, jointers, saws, lathes, &c.—must also be produced in the mill and shipped to the building, making another expense.

It is the object of my invention to provide a portable self-propelling apparatus in which all necessary machines for sizing and wood-working are permanently set up and always in line and ready for use, to place in said structure an engine or motor of sufficient power to drive any or all the machines, and to mount the apparatus upon convenient wheels, with supplemental connections between said wheels and the motor, so that the latter may be disconnected from the machinery and connected with the bearing-wheels, so that the apparatus may provide its own traction to move it from place to place where work is to be done. This is especially valuable in the case of country building, where comparatively small houses are being built at great distances from mills, where lumber can be properly prepared, and in such cases the rough lumber may be shipped directly from the place where first manufactured to the place of use without breaking bulk or transporting to or from intermediate mills for the purpose of preparing it for its ultimate use.

This apparatus enables the carpenters to do accurately by machinery all that work which is usually done by hand and accomplishes a great saving in time and expense.

The apparatus may be made of any suitable or convenient size, either in a single structure or in a plurality of structures adapted to be connected together.

For convenience of transportation and reduction of weight of the apparatus I have here shown a plurality of buildings A A, which are preferably made of steel structural material rigidly united together and having a light but sufficiently permanent covering, which may be made of any suitable or desired material, depending upon the climate and locality in which the apparatus is to be used. In climates which are comparatively warm and dry, as in California, the covering may be made of waterproof canvas or of light wood

or the like. I have here shown the structure made with a second floor superposed above the lower one, the sides of the apparatus being sufficiently high for that purpose. The lower portion of the structure has doors, which may be suitably hinged, so as to be conveniently opened. In the present drawings I have shown these doors 2 occupying a considerable depth of the lower story, having the upper edges hinged to the permanent frame and capable of being opened upwardly, so as to allow of required light and ventilation to the lower story of the structure. The sides of the building corresponding with the upper floor may be provided with windows, as at 3, or in hot dry climates may have doors opening in a similar manner to those described for the lower floor. At each of those floors are permanently located such machines as are necessary in woodworking and which are common and well known in permanent mills—such as saws of all descriptions, shapers, turning-lathes, planers, jointers, &c. These machines are conveniently located upon the floor of the structure, as indicated in the drawings.

The two independent structures A are mounted upon wheels, as at B, these wheels having broad tread, so that the weight of the apparatus may be easily transported without sinking on soft roads or where it is necessary to cross land to reach the site of the proposed building. Each of the structures may have open ends, which are designed to be brought together when the apparatus is set up for use. When not in use, the two may be suitably coupled together and transported in a train, as will be hereinafter more fully described. When the place where they are to be employed has been reached, the two ends of the structure may be brought together and suitably united. For this purpose and in order to make a connection to throw the whole apparatus into a single room, I have shown doors formed of jointed sections, as at 4, and hinged to the end of one or both the cars, as at 5. These jointed sections or, if preferred, canvas or other flexible and foldable material, are closable when the apparatus is to be transported, so that the interior will be protected from the elements and from outside interference. When the cars are to be set up, these doors are opened out and the ends of the cars are brought together in proper alinement, being suitably leveled and blocked, so as to maintain the position while in use.

Any suitable or available motor may be employed upon the apparatus; but for convenience and safety I have designed to use a gasoline, distillate, or equivalent engine, as shown at 6, connected with a crank-shaft, as at 7. This engine is located upon the structure, and I have here shown it conveniently placed transversely thereto, and the engine-shaft extends sufficiently beyond the engine-frame to admit of two driving-pulleys 8, from which

belts pass to pulleys 9 upon the main or line shaft 10, which is suitably journaled longitudinally in the upper part of the structure or of that portion in which the engine is located. Where the apparatus is made in two separate sections, the two being alined, as previously described, the second line-shaft 10^a will be brought approximately into line with the shaft 10, and by means of a universal joint and preferably a tumbling-rod, as at 11, connections may be made between the two shafts, so that both may be driven from the motor, and absolute accuracy of alinement will not be required on account of the tumbling-rod and universal-joint connection. Thus all the apparatus in both the parts of the structure can be driven in any or all portions used, as required.

Various apparatus may be located, each portion with relation to the other, as may be found best suited to their relative work, and those portions on the second floor are driven by belts from the main line-shafting.

In order to provide a sufficient length of belts for the proper traction and driving of the apparatus, I have shown a second line-shafting, as at 12, extending across the opposite side of the structure, so that the driving-belts passing between pulleys 13 and 13^a will transmit motion to the shaft 12. The various machines are then driven by belts passing around pulleys on this shaft and extending across the structure to give the proper length of belt, the direction of such belts being dependent upon the character and relative position of the machines. Another object is also attained by this arrangement in that the machines may be conveniently located in the contracted space which is available for them.

15 is a shaft extending transversely from side to side of the structure and having spools or drums 16 upon opposite ends for the purpose of connecting hoisting-ropes, so that bricks, mortar, lumber, &c., can be conveniently hoisted upon the building which is being constructed. The apparatus will be set as close to the building foundations as will be necessary for this purpose and so that the finished lumber can be placed directly in the building without expense for transportation. The hoisting-shaft 15 is preferably set close to the engine upon one side, and another shaft 17 is journaled upon the opposite side of the engine. The engine-shaft projects beyond the pulleys 8 and carries upon each outer end a gear-wheel, as shown at 18, and these gears are in turn designed to transmit motion both forward and reverse to other gears mounted upon these shafts, as shown at 19 19^a. I have in the present case shown the gears 18 19 as beveled gears, and the gears 19 19^a may be slidable upon feathers upon their respective shafts and be movable by levers engaging clutches, as at 20, so that either of the gears may be engaged with the gear 18 and power

transmitted in either direction to the shafts 15 and 17, and each of the shafts may be operated independently of the other without stopping or changing the motion of the engine.

5 The shaft 17 has fixed upon it sprocket-wheels 21, and the chains from these sprocket-wheels pass around other sprocket-wheels 22 upon the shaft of the bearing-wheels B, so that when the gears are engaged to drive the
10 shaft 17 power may be transmitted to the bearing-wheels and the whole apparatus made self-propelling.

Any suitable differential-gear or pawl-and-ratchet mechanism may be interposed in the
15 wheel-shafts or connected parts to allow one wheel to travel faster than the other when turning corners, and when the apparatus is to be transported the shafting 10 10^a is disconnected at the coupling-point 11. The two
20 parts of the structure separated, the end doors may be closed and any suitable towing connection may unite the two structures, so that the power of the engine upon one of them will be transmitted to propel that structure
25 and to tow the other one. This is sufficiently effective upon reasonably level going; but if hills are encountered while the engine is not sufficiently powerful to haul both structures at once the one containing the engine and the
30 hoisting-drums may be first taken up the hill, then anchored in any suitable manner, and ropes connect the hoisting-drums with the second section of the apparatus, which can then be hauled up, and after the grade has been
35 overcome the two can be again connected, as previously described.

If the apparatus is made two stories in height, it will sometimes be found necessary to reduce its height to pass under bridges,
40 trees, telegraph-wires, or like low obstructions, and in order to effect this I have shown the upper part of the story made foldable, so as to temporarily reduce its height. Thus the upper portion of the sides containing the win-
45 dows, as at 3, may be folded down, and the roof 23 may be made in two sections meeting centrally and having the outer edges hinged to the folding sides 3, so that each half may be turned down along with the sides, thus re-
50 ducing the height of the structure by the depth of the portion which is folded. These sides may either be folded outwardly or inwardly, and the roof-sections in the latter case will lie in the same plane, the length of the two fold-
55 able parts not being greater than the entire width of the structure. For this construction it will be understood that the vertical frame-posts will not extend above the line on which the folding takes place.

60 This apparatus is especially valuable because it makes it possible to employ accurate machinery located in close proximity to any building which is being erected, so that the carpenters and finishers are enabled to accu-
65 rately form, cut, and fit all the work which is

usually done by hand, which labor constitutes a large portion of the ordinary expense of building operations.

Having thus described my invention, what I claim, and desire to secure by Letters Pat- 70 ent, is—

1. The combination in a building and lum-ber-working apparatus of a plurality of floors or structures arranged in line one with the other and mounted upon wheels, woodworking 75 and like machinery permanently fixed and alined upon said floors, main line-shafts and pulleys through which power is transmitted to said machines, a motor permanently located in the structure and driving connections be- 80 tween the motor and the line-shaft, bearing and traction wheels upon which the apparatus is supported and gearing intermediate between the engine and said bearing-wheels whereby power may be transmitted from the motor to 85 propel the apparatus from place to place.

2. The combination in a woodworking and building apparatus of a structure comprising one or more sections having woodworking 90 and like machinery permanently fixed upon its floors and shafts in the structures through which power is transmitted to said machines journaled and alined therewith, a motor lo- cated in the apparatus having its driving-shaft extending in each direction beyond the frame, 95 belt-pulleys upon the engine and line-shaft, and connecting-belts and means for connecting or disconnecting the same with the engine-shaft, gear-wheels fixed upon the ends of the engine-shaft outside of the pulleys, shafts 100 journaled at right angles with the engine-shaft and gears and clutch mechanism whereby said gears may be engaged with the en- gine-shaft gears, bearing-wheels upon which the structure is mounted, sprocket-wheels con- 105 nected with the bearing-wheels and other sprockets upon the transverse shaft and chains whereby power is transmitted to propel the apparatus.

3. The combination in a woodworking and 110 building apparatus of a plurality of structures mounted upon bearing-wheels, woodworking and like machinery permanently fixed upon the floors of said structures, line-shafts with 115 pulleys and belts through which motion is transmitted to the machines and a motor located in one of the structures, connections between said motor and the line-shaft whereby motion may be transmitted thereto, a second 120 shaft located in the other structure with universal-joint coupling and tumbling-rod connection between the two whereby motion is transmitted to the second shaft to drive ma- chinery in the second structure, wheels upon which both structures are mounted, connection 125 between the engine-shaft and the wheels of said structure whereby power may be transmitted to move the structure and place it in relation to the second structure.

4 The combination in an apparatus for 130

woodworking and building, of structures having floors, wheels upon which said structures are mounted, an engine located transversely in one of the structures, shafts journaled 5 transversely to the engine-shaft and parallel with the engine-frame, bevel-gears fixed upon the ends of the engine-shaft, other bevel-gears and clutches slidable to engage with either of the engine-shaft gears and upon either side 10 thereof, whereby the movements of said shaft may be reversed, connections between one of the shafts and the bearing-wheel whereby motion is transmitted to propel the structure, and connections between the other shaft and 15 winding-drums or gipsies whereby hauling power may be transmitted, woodworking and like machinery permanently located upon the floors of the structures, line-shafts, means for flexibly connecting said shafts, means for 20 transmitting motion from the engine to said shafts, and means for transmitting motion from the shafts to the machines upon the floors.

5. An apparatus for woodworking and 25 building, said apparatus comprising a plurality of structures having foldable and closable doors upon the sides and end, said end doors being capable of moving to allow the structures to be brought together and form a continuous open space, wheels upon which both 30 the structures are mounted, line-shafts journaled in the two structures, a flexible universal-joint connection between said shafts, whereby they run in unison, an engine located in one of said structures, connections 35 between it and the line-shafting in said structure whereby motion is transmitted through woodworking and like machinery located

upon the floors of the two structures, with belt connections between said machines and 40 the line-shafts, connections between the engine-shaft and the bearing-wheels of the structure whereby motion is transmitted to propel the latter, and means for engaging or disengaging the engine with either the traction or 45 machine-propelling devices.

6. An apparatus for woodworking and building purposes consisting of a structure mounted upon bearing-wheels having wood- 50 working machinery located upon the floors thereof, an engine and means for transmitting power therefrom to independently drive the machinery or to propel the structure over the ground, means for reducing the height of the apparatus to avoid obstructions when being 55 moved, said means consisting of foldable sides and roof capable of being depressed below the normal height substantially as herein described.

7. An apparatus for building purposes, said 60 apparatus comprising a plurality of structures arranged in line one with the other and each having woodworking-machines permanently located therein, means for transporting the structures and a motor, with connections 65 whereby the machinery and the propelling apparatus may be independently connected with the motor.

In testimony whereof I have hereunto set my hand in presence of two subscribing wit- 70 nesses.

HARRY BRAND.

Witnesses:

GEO. A. OAKES,
J. M. BRAND.