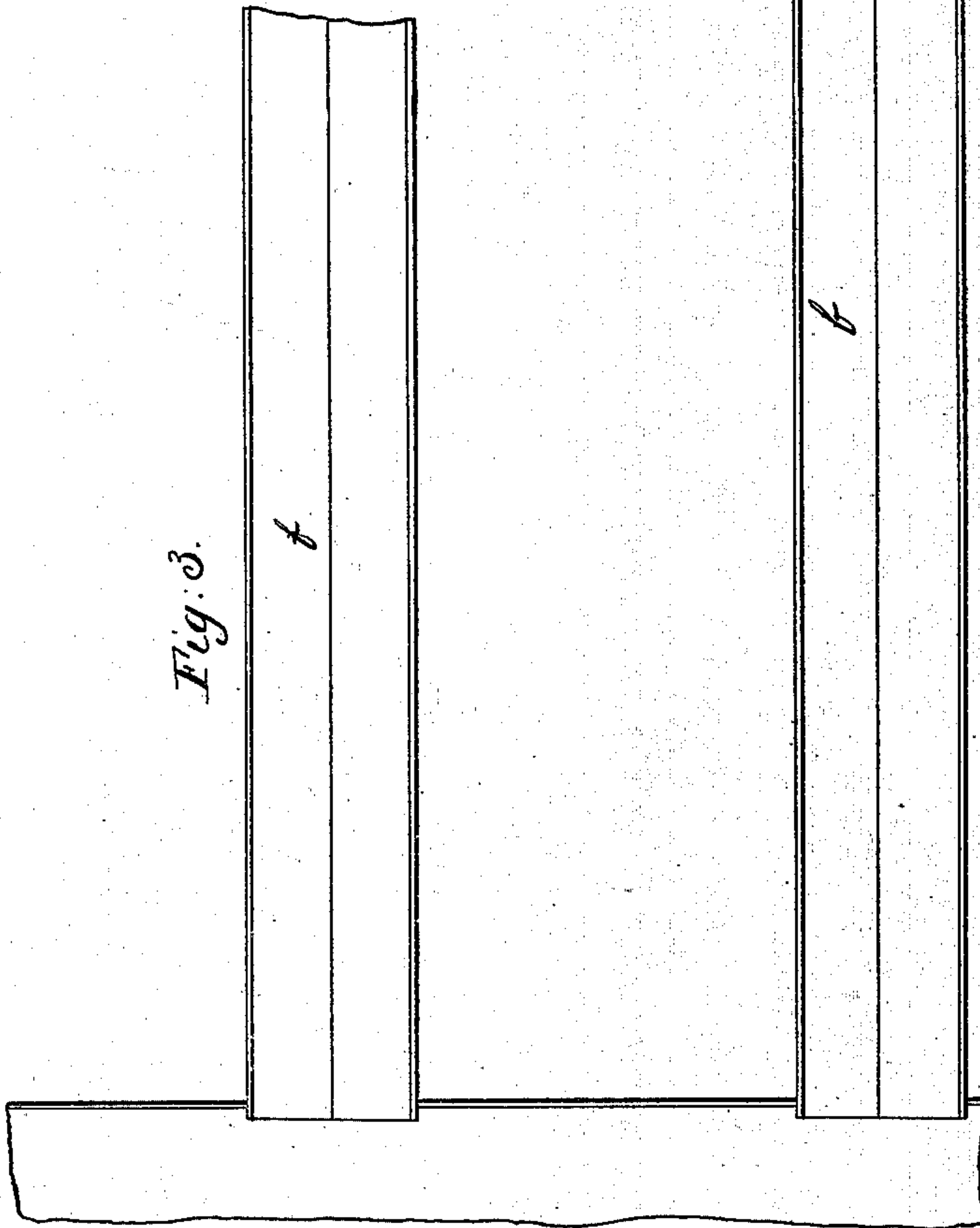
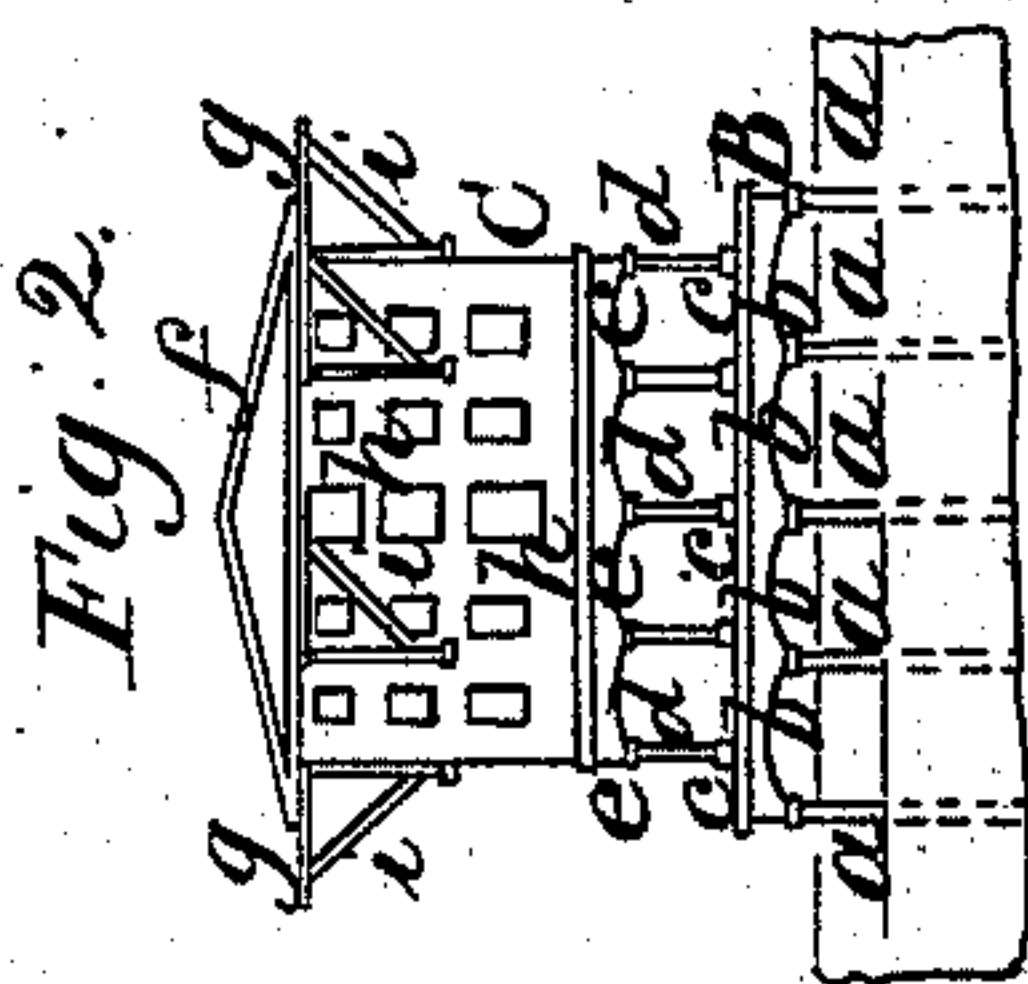
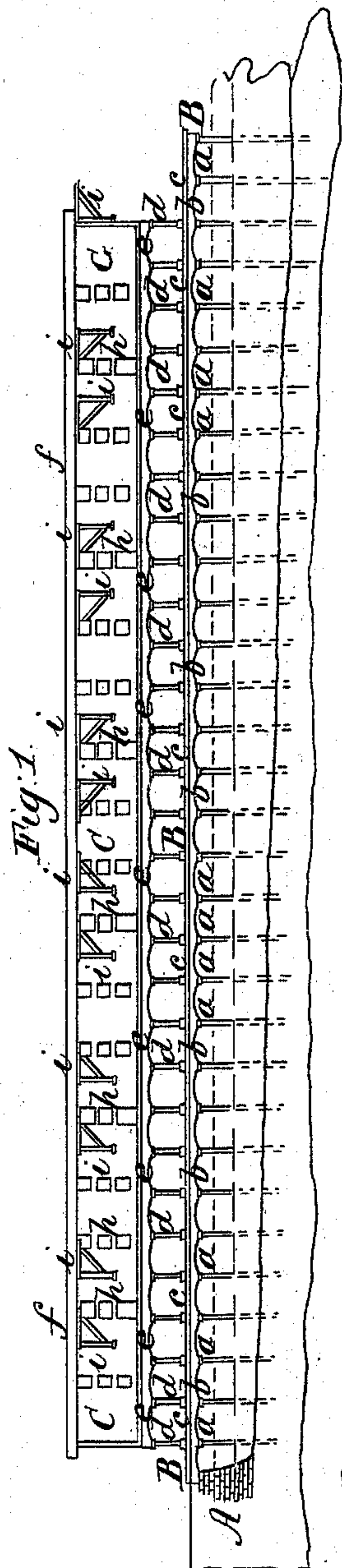


J. B. Hyde. Pier.

N^o 49,475.

Patented Aug. 15, 1865.



Witnesses;
James M. Blackwell
Thomas Ratten

Inventor;
J. B. Hyde

UNITED STATES PATENT OFFICE.

J. B. HYDE, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE NEW YORK PIER AND WAREHOUSE COMPANY, OF NEW YORK CITY.

IMPROVED WHARF, PIER, AND WAREHOUSE COMBINED.

Specification forming part of Letters Patent No. 49,475, dated August 15, 1865.

To all whom it may concern:

Be it known that I, J. BURROWS HYDE, of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Combining Wharves, Piers, and Warehouses; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference thereon.

My improvements in combining wharves, piers, and warehouses are particularly designed for use in such places as the harbor and shores of New York and similar localities, where the water-way is contracted, and into which wharf-piers are projected from the shore, alongside of which piers vessels are moored for loading and unloading goods, when such goods are usually exposed to rain and other damage, and where grounds for store-houses are very costly and more or less remote from the vessel, involving great expense and delay in cartage, storage, and labor, and where, as is too well known, a great proportion of the losses by fire, as in New York, arises from the destruction of such goods or storage where the fires have not originated in the store-houses, but in adjacent buildings.

In the harbor of New York it has hitherto been the practice to form a wharf-face of timber, from which piers are projected into the water-way and constructed in wood trestle-work, and planked over for the landing of goods, which are there exposed to damage at all seasons. Temporary coverings of cloth or tarpaulins are, however, used to shelter some kinds of merchandise, but at great cost for hire, amounting annually to upward of \$100,000, paid to parties owning the same, such sheltering being a special branch of business. From those piers, when the weather permits, the goods are taken by cartmen to the warehouses, or the rooms where the goods are intended for shipment. It is perhaps unnecessary to state that all such wooden structures decay rapidly above water, and are often sooner destroyed below water by the teredo, from which causes, at some time when the pier is loaded with goods,

the structure gives way, causing great loss or damage to the submerged property. This trestle-work greatly impedes the water-flow, which furthermore causes the spaces under and between the piers to become the depositories of mud, which is removed with difficulty from between the piers, and at great expense, while it cannot be taken at all from beneath them. There it gradually accumulates until constant dredging becomes necessary, from the mud which slips down from beneath the wood-work into the deepened space for the floating ships, if, indeed, they float at all at low tide.

To obviate some of these difficulties various plans have been submitted from time to time. One (by a gentleman when mayor of the city) was to erect a wall of masonry parallel with the shore-face, forming dark basins open at the ends. Another and more recent plan is to construct strong abutments of masonry at the outer ends of the piers, with intermediate stone structures for supports at proper intervals throughout the length of the pier. To both those plans there is a common objection. The masonry will impede the water-flow still more than the trestle-work, and by slackening the current induce the mud-deposits, as now. I have thought best to describe those three systems to more clearly show my combined improvements, which consist in constructing a permanent lineal face or sea-wall of masonry along the shore, through which the sewage-drains will debouch to the water, and from which wall iron piers are projected, and so constructed as to leave a free current for the tideway entirely under the piers and up to the wall itself, the spaces between the supports freely admitting contrivances for dredging such mud as may be there deposited; and I further construct and combine with such wall and pier a permanent iron warehouse, extending along and upon such pier, for sheltering goods on the cartway of the pier, and also for receiving and delivering all goods with safety, convenience, and economy, at the same time that the pier is further employed for the warehouse to receive and deliver goods either from and to the cartway below or from and to the vessel outside the pier, the storage in such ware-

house saving always one and often the expense of two cartages. (See drawings.)

Figure I shows a side elevation, Fig. II an end elevation, and Fig. III a plan, of the structure, the latter showing also a second plan, as the piers are constructed continuously around the shore.

A shows the face-wall or wharf, B the iron pier, and C the warehouse.

a shows the pier support or pillars of iron pipes filled with concrete-cement. These pipes may be coated with zinc or other proper preparation to impede the oxidation of the iron, and are placed as far asunder as possible for the weight they will have to bear, and all on the utmost space for the water-way. Upon the tops of those pillars *a* iron arches *e* are sprung lineally and transversely, for carrying the horizontal bearings *c* for the wooden planking or floor of the pier. Upon the pier I construct iron pillars *d*, from the tops of which lineal and transverse arches *e* are thrown, for holding the warehouse C, which I construct of iron; but in some cases wooden buildings may be chosen. This building I make narrower, and at the outer end shorter than the surface of the pier, so as to allow a space of, say, not less than five feet outside the building on the three sides, while the roof *f* may be made of corresponding width of the pier, as shown at *g*.

At proper intervals between and corresponding with the doorways *h*, I arrange swinging hoisting-cranes *i*, secured to the building. These cranes should be constructed with some common hoisting-power placed within or beneath the building, so that the cranes may be swung in or out and receive and deliver goods from and to the vessels, and also from and to the cartway or the warehouse, through the instrumentality of proper running hoisting-ropes, as usual.

Within the floors of the warehouse hatchways or scuttles are constructed for hoisting and lowering goods to or from the carts or the pier-floor. The hoisting and lowering gear should be actuated by the same power as for the cranes.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A structure embodying the following features in combination: a wharf or pier projecting into the water-way from the bulk-head or line of the shore, and built upon columns of metallic tubes that are filled in with concrete or masonry, or columns of masonry, such columns being so placed as to permit a free flow of the water-currents underneath the whole pier between the columns, and also along the face-wall of the bulk-head, to the opposite sides of which pier vessels can be moored to discharge or to receive their cargoes; a warehouse for receiving, storing, and delivering goods, and built upon columns resting on the pier or wharf to form a carriage-way between the wharf and the warehouse for the free passage of carts and drays to and from the ships; and the warehouse for the receipt and delivery of merchandise from or to the ships at the wharf or the warehouses, as above described.

2. In combination with the structure having the combined features above claimed, the employment of cranes and hoisting apparatus permanently constructed with the warehouse, and so located that they can be used to transfer goods from ships to the warehouse or wharf, or from the warehouse or wharf to the ships, substantially as described.

J. BURROWS HYDE.

Witnesses:

JAMES M. BLACKWELL,
THOMAS PATTON.