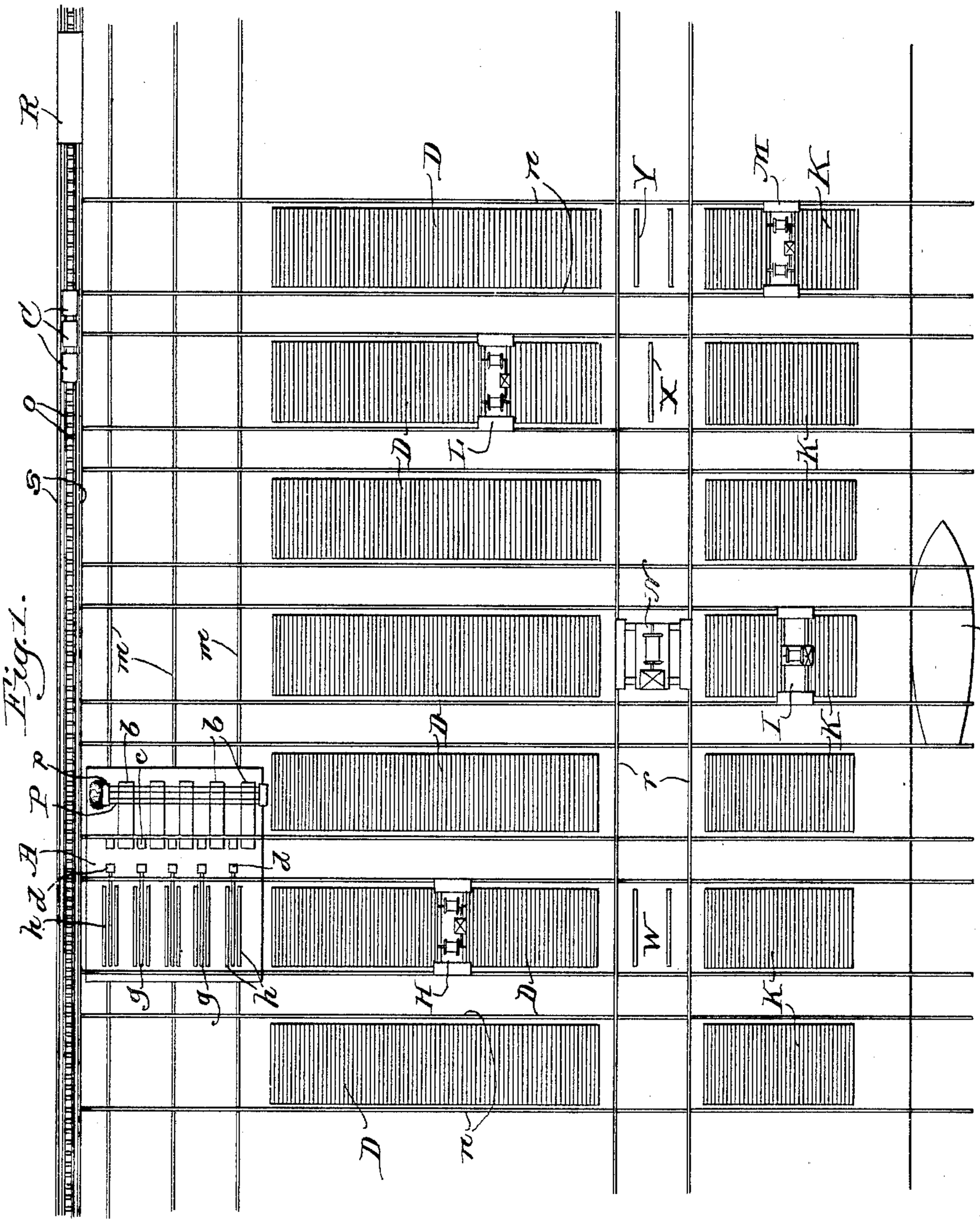
No. 675,560. Patented June 4, 1901.

J. P. B. FISKE.

APPARATUS FOR HANDLING BRICKS

(Application filed Aug. 25, 1900.)

(No Model.) 4 Sheets—Sheet 1.



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No. 675,560. Patented June 4, 1901.

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APPARATUS FOR HANDLING BRICKS.

(Application filed Aug. 25, 1900.)

(No Model.) 4 Sheets—Sheet 2.

Fig. 2.

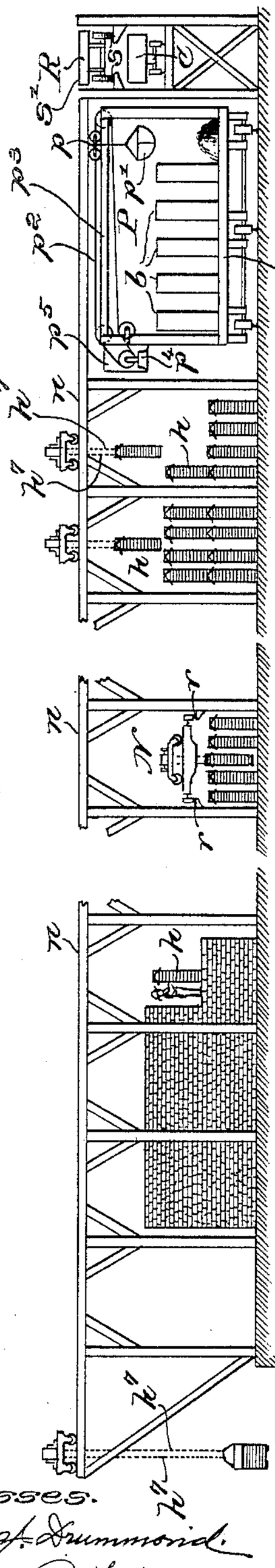
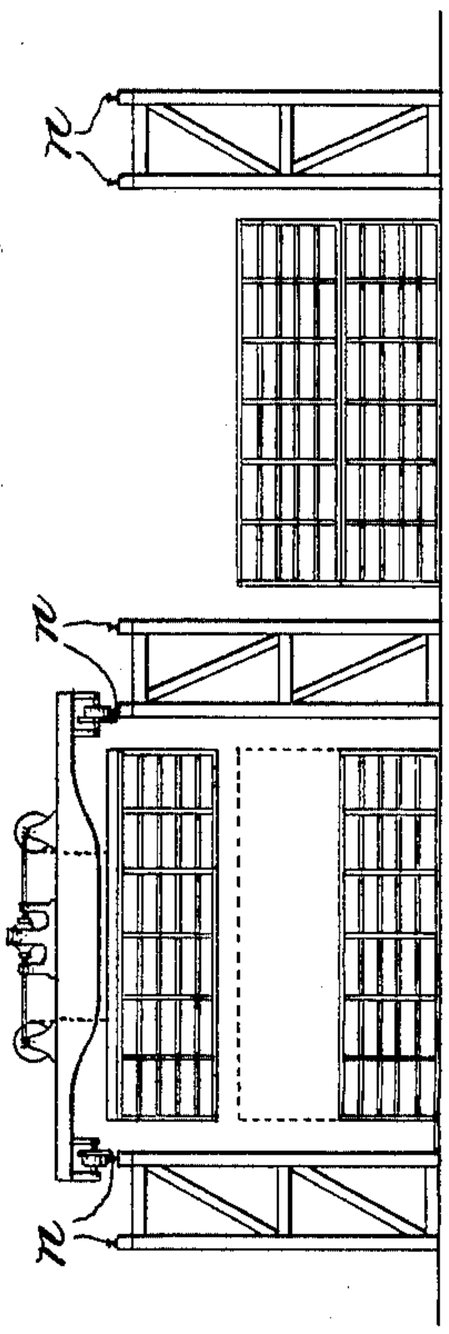


Fig. 3.



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(Application filed Aug. 25, 1900.)

(No Model.) 4 Sheets—Sheet 3.

Fig. 4.

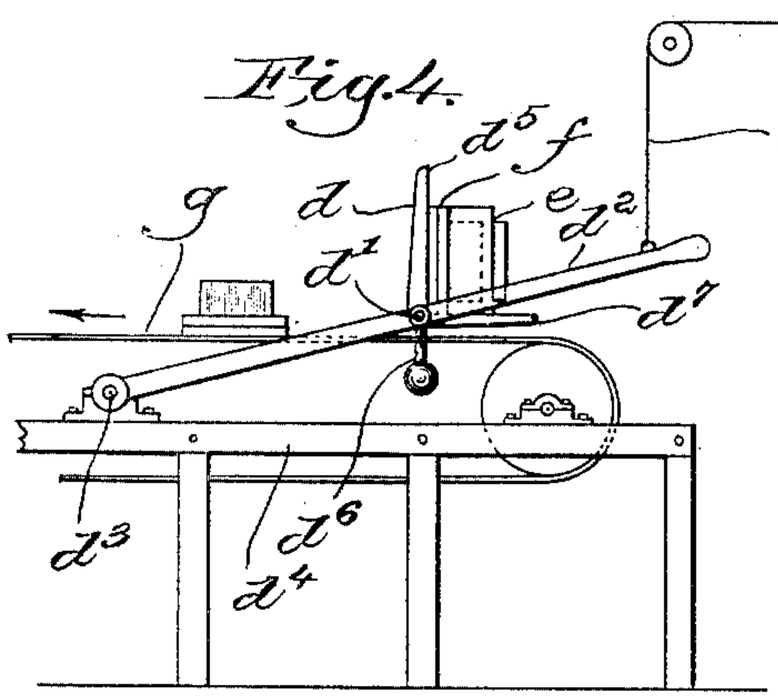


Fig. 5.

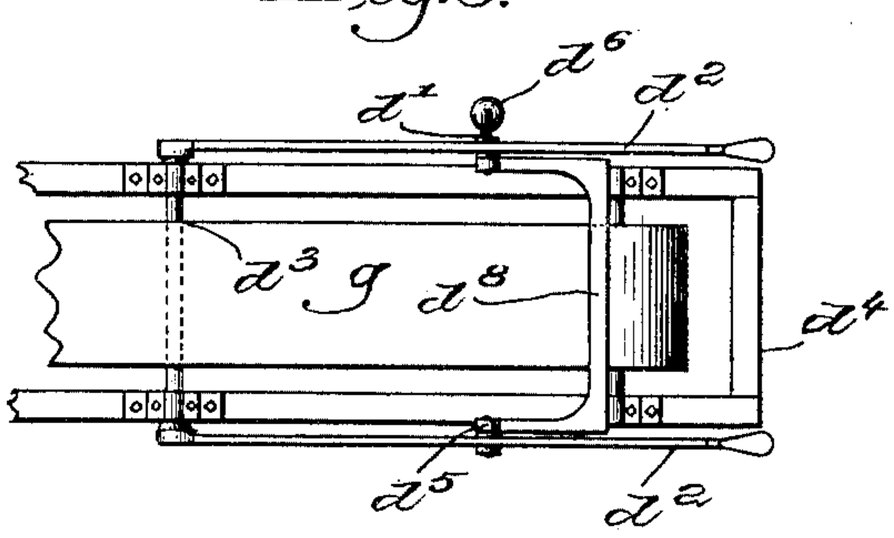


Fig. 6.

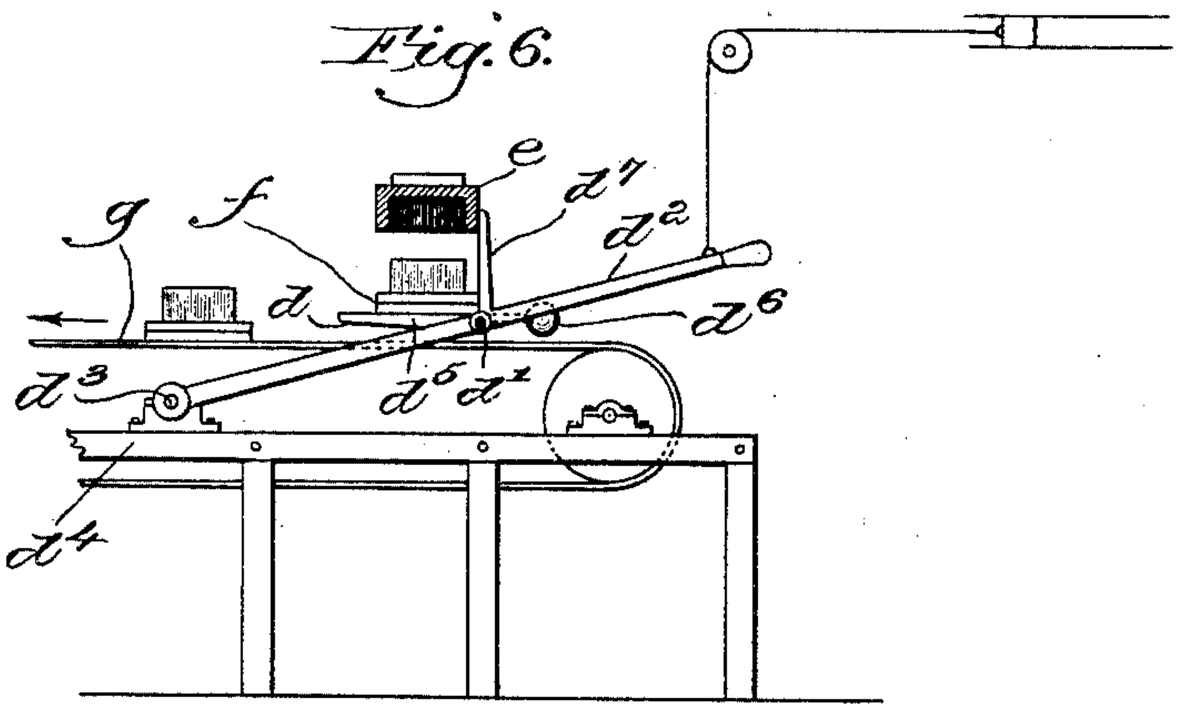
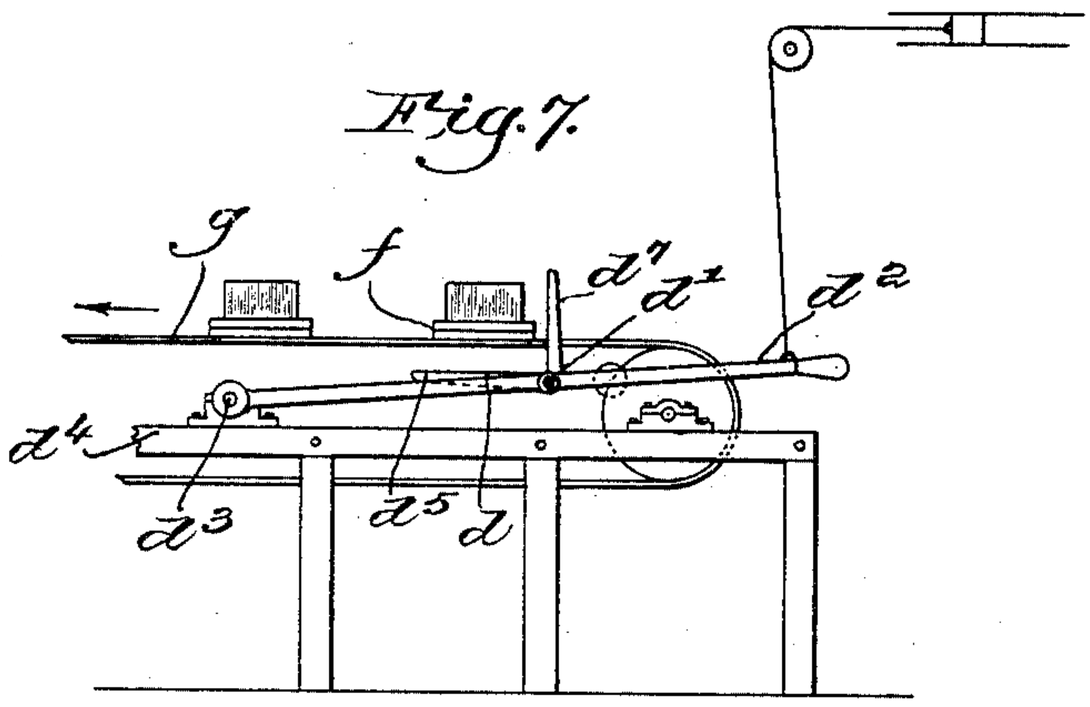


Fig. 7.



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No. 675,560. Patented June 4, 1901.

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APPARATUS FOR HANDLING BRICKS.

(Application filed Aug. 25, 1900.)

(No Model.) 4 Sheets—Sheet 4.

Fig. 8.

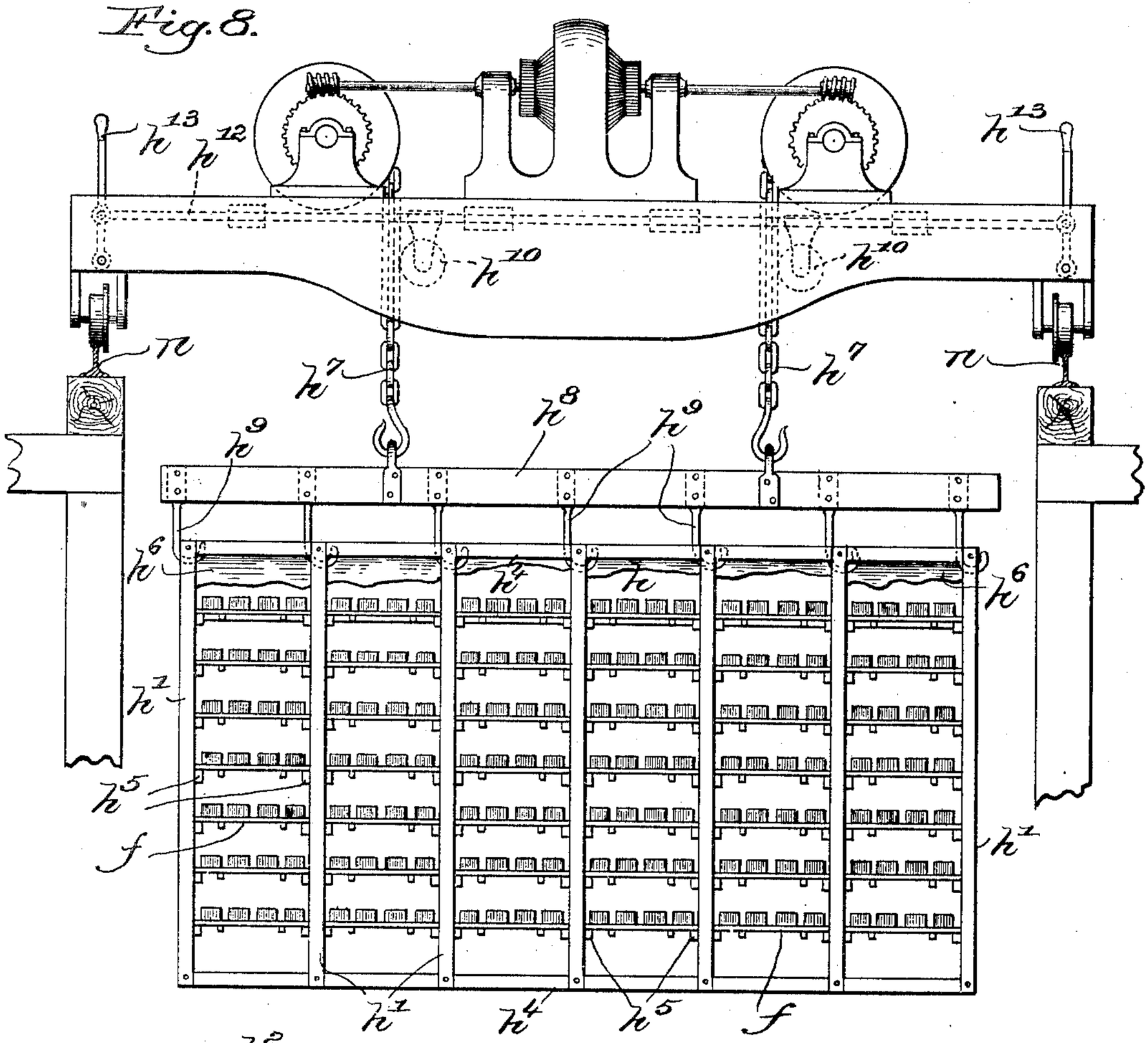


Fig. 10.

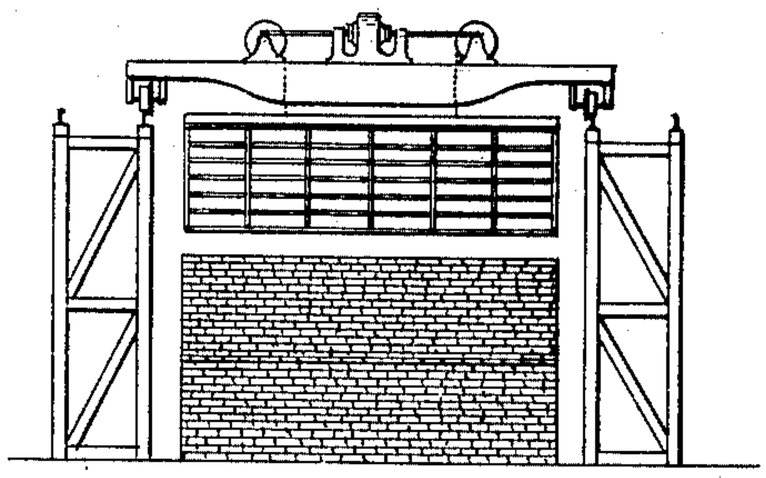
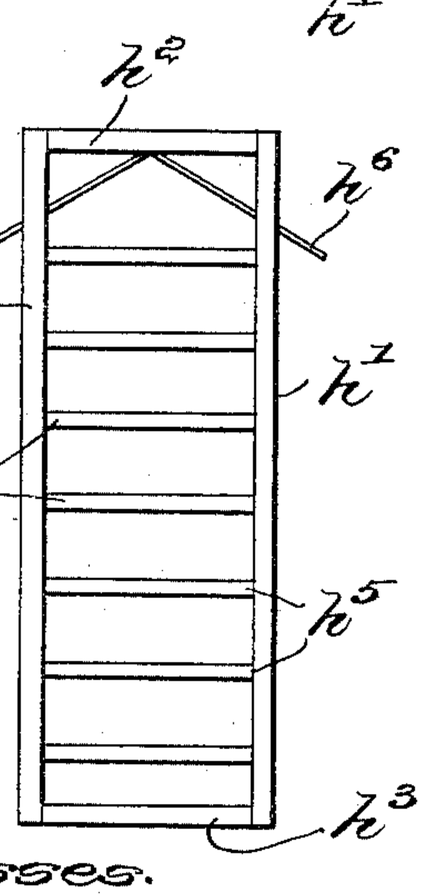


Fig. 9.



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UNITED STATES PATENT OFFICE.

JONATHAN P. B. FISKE, OF NEWTON, MASSACHUSETTS.

APPARATUS FOR HANDLING BRICKS.

SPECIFICATION forming part of Letters Patent No. 675,560, dated June 4, 1901.

Application filed August 25, 1900. Serial No. 27,972. (No model.)

To all whom it may concern:

Be it known that I, JONATHAN P. B. FISKE, a citizen of the United States, residing at Newton, county of Middlesex, State of Massachusetts, have invented an Improvement in Apparatus for Handling Bricks, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My present invention relates more particularly to what are called "soft-mud bricks," in which the clay is worked and the bricks are molded in an extremely soft condition and then dried slowly in an open drying-yard before burning.

In certain sections of the country the above kind of bricks is manufactured in enormous quantities, and the cost thereof is largely due to the large number of hands which it has been considered necessary to employ and the large proportion of partly-finished bricks damaged or destroyed in the process of manufacture. The two general systems of manufacturing this class of bricks are called, respectively, the "rack-and-pallet" system and the "open-yard" system. In the rack-and-pallet system the drying-yards are built with long drying-racks some six feet high and spaced apart, so as to form trucking-alleys, and roofed over, so as to aid in protecting the soft bricks from the action of rain and frost. The soft clay is molded usually by a machine into brick shape in wooden molds, and the soft bricks are then dumped on boards or pallets which are put on hand-trucks and wheeled to the racks, where the pallets, each with its load of bricks, are removed from the trucks and slid into the racks for drying. When the bricks have been dried by sun and wind, the bricks are removed from the pallet and put into ordinary wheelbarrows and are taken to the kiln, where they are passed through several hands and set ready for burning, the empty pallets being returned from the racks on barrows to the brick-molding machine. This trucking, which necessarily covers a very large area, is not only very slow and expensive, but on account of the soft condition of the bricks and the unavoidable shaking and jarring as the trucks pass over the rough and uneven ground often causes the bricks to "squat," so that being out of shape they are useless. This difficulty is so great that it becomes impractical to work many clays by this system, and it is then necessary to resort to the open-yard system. In this system the molds containing the soft bricks are put directly on the trucks without being dumped, and the molds, with their bricks, are trucked to the desired point, and the soft bricks are then dumped directly on the ground, where they dry by sun and wind, as before described. When the bricks are partly dried, they are turned up on edge to facilitate the drying, and when they are hard enough to withstand handling they are piled up in long rows or "hakes" and covered with boards, where the drying operation is completed. From these hakes they are taken on wheelbarrows and set for burning, as already described. This system is evidently more disadvantageous than the rack-and-pallet system, as the trucking is more tedious and expensive, because the heavy mold has to be trucked to the drying-yard and back again each time it is used, and the handling during the drying operation is excessive, as the bricks are at the mercy of the elements while on the drying-yard and are often ruined by rain or frost. It is evident that the frequency of handling by both these systems is excessive and results in damage to the yet soft bricks and in increased cost. I have found that the manufacture of this kind of bricks and the establishment of a satisfactory plant for the manufacture on a large scale require entirely different conditions and present entirely different problems from the practical standpoint from those presented in manufacturing the so-called "stiff-mud" bricks, and it has accordingly been the object of my study to invent a practical system by means of which the various difficulties of manufacture peculiar to this particular kind of bricks and the leading sources of expenditure and loss might be effectually obviated, while at the same time a better grade of bricks might be produced with extreme rapidity.

In accomplishing my purpose, as more fully described hereinafter, I have used overhead-traveling cranes and other devices, which although old in their general features are

brought together and arranged in a general system, by means of which I am enabled to operate a very large plant with a small fraction of the expense and labor heretofore required even for a smaller plant. The frequent handling heretofore inevitable is almost entirely done away with, while at the same time the bricks are transported smoothly and without any possibility of jar or disturbance. They are transported quickly, stacked in the drying-yard almost automatically, with economy of space, and delivered to the kiln-setters in the most advantageous position, said position being one in which there is no liability of mutilating the bricks, as has been the case heretofore. The burned bricks are delivered to the barge or car with similar facility, and the entire manufacture goes on systematically in an endless rotation of operations, so arranged as not to interfere but rather to coöperate with each other and mutually aid in facilitating the entire work.

Without entering into a fuller explanation of the details of arrangement and operation, it may be briefly summarized as comprising a movable platform carrying a suitable number of brick-making machines, dumping-tables, off-bearing belts, &c., arranged to be moved into various proper positions to meet the requirements of a series of open drying-yards arranged side by side and in suitable proximity to a series of kilns of any kind preferred, there being overhead tracks and cranes in alinement with the several yards and kilns, and another track and crane transversely thereof, but preferably at a lower level, together with a transfer car and track, preferably at one end of the plant, in a plane to receive the yard-cranes, the clay or mud being delivered from a clay-car to the brick-machines on the movable platform, being there molded into bricks and placed upon pallets, which are received by an off-bearing belt or belts or transfer mechanism, said pallets being then stacked in suitable racks, which when loaded are received by the adjacent crane and carried to the corresponding drying-yard, where they are deposited, preferably, in a double tier, there left for the usual several days' exposure for drying, the racks and their loads being then taken by another crane and carried to the transverse track, where the transverse crane receives them and transports them opposite to the kiln which is being filled and into which they are carried by the adjacent kiln-crane and deposited on a level with the setter, irrespective of whether the setter is standing upon the ground or has already set layers of bricks to a considerable height, and when burned the the bricks are loaded upon cradles and taken on these by a crane and deposited *en masse* upon barges for the market, the proper placing of the cranes for the different yards and kilns being accomplished as the work progresses by the transfer car and track at the end of the yard.

In the drawings, in which I have shown the preferred embodiment of my invention as at present contemplated by me, Figure 1 is a top plan view of the entire plant. Fig. 2 is a side elevation thereof looking toward the left, Fig. 1. Fig. 3 is an enlarged end elevation of two of the drying yards or stations, showing one as filled and the other as being filled with a crane delivering a rack thereto. Fig. 4 is an enlarged detail, in side elevation, of a portion of the dumping and conveying apparatus, showing it in position ready for dumping a mold. Fig. 5 is a top plan view thereof, the mold being omitted. Figs. 6 and 7 are views similar to Fig. 4, showing the parts, however, in position, respectively, Fig. 6 just after a mold has been dumped, the mold being removed from the pallet, and Fig. 7 the table lowered to deposit the pallet on the off-bearing belt. Fig. 8 is an enlarged view, in front elevation, of one of the cranes carrying a rack, parts being broken away for convenience. Fig. 9 is an end view of one of the racks. Fig. 10 is an end view of one form of kiln, showing the manner in which the dry bricks are deposited.

As already explained, I avail myself in carrying out my invention of such materials and agencies as are at hand, my invention having for its primary object the provision of an economical rapid and suitable system especially designed for a soft-mud brick-yard having open drying yards or stations and any kind of kilns. At a convenient place in the plant, herein shown as at the rear side thereof, I provide a car A of large dimensions, on which are mounted a series of soft-mud brick-machines *b*, capable of supplying green bricks as rapidly as they can be taken care of, it being understood that in connection therewith will be provided mold-sanding machines *c* and dumping-tables *d*, on which the bricks after they have been molded are turned out of the molds *e* on pallets *f*, placed on the tables, to be placed upon a traveling belt or belts *g* and carried thereby to rack-stations at the left, Fig. 1, where they are taken off from the belt and placed in racks *h*.

A considerable element of expense heretofore has been the number of men required around the brick-machine, and as one object of my invention is to decrease the cost I have provided automatic means for receiving loaded pallets from the dumping-table and carrying them to the racks *h*. The details of this mechanism are shown in Figs. 4 to 7, where it will be seen that adjacent one end of each off-bearing belt, it being preferable to provide a separate belt, as will be more fully hereinafter explained, for each machine, I mount a dumping-table or receiving device *d*, which although capable of embodiment in a great many forms is preferably pivotally mounted at *d'* on opposite side levers d^2, fast on the ends of a shaft d^3, journaled in the supporting-framework d^4 of the mechanism.

The dumping-table *d* comprises arms or

supporting-ledges d^5, maintained normally upward by suitable means, as a counterbalance weight or weights d^6, and other arms d^7 at right angles thereto, suitably connected, as by a heavy yoke d^8, and the levers d^2 are preferably connected by a rope or chain d^9 with a reciprocating part of the brick-machine, so as to be operated each time that a mold of bricks is made.

The operator places the mold of bricks against the pallet on the arm d^7, as shown in Fig. 4, and then turns the dumping-table over into position shown in Fig. 6 and removes the mold, whereupon the table d and levers d^2 are lowered by the operation of the chain or chains d^9, thereby automatically transferring the pallet and its load of bricks to the off-bearing belt, and as soon as said pallet and bricks are free from the arms d^5 the table is automatically restored to its original position by the weight d^6 and the retraction of the chain d^9, ready to receive another load. The car or platform A travels on surface tracks m, extending across the yard or plant, being moved from time to time opposite the respective drying-yards.

I have herein shown seven drying-yards D, these yards preferably being open sun-drying yards, which usually require that the green bricks shall be exposed for several days before they are properly dried to be set in the kiln, and hence the provision of several of these yards makes the rotation of work continuous. As herein shown, also, there are seven kilns K arranged, respectively, in line with the corresponding yards, this being a preferred construction. Arranged in line with each yard is an overhead track n, on which may travel any of the cranes H, I, L, or M, as required in the operation of my system. The tracks n are preferably a sufficient height to enable me to deposit the racks h in rows two racks high, as is clearly shown in Fig. 2. The clay is conveyed to the brick-machine by any suitable means, preferably by dump-cars C, traveling on a track o, raised sufficiently to enable said cars to dump the clay readily on the platform of the car A. The car A is herein shown as provided with a scoop and dumping apparatus P, comprising a trolley or carriage p, supporting a scoop and dumping-bucket p', hauled by an endless cable p^2 along the track or trestle p^3, operated by drums and motor p^4, located in the operator's cage p^5, so as conveniently to scoop the clay from the heap on the car-platform and deliver it to any one of the brick-machines which may need a fresh supply. The clay having been ground and mixed and molded into bricks is conveyed to the left-hand end of the car, where I have two stations for each belt conveyer g, so that boys can operate on both sides of the belt in loading the racks h, and when a rack is loaded it is picked up by the crane H which is traveling on the tracks n of the particular yard opposite which the delivery end of the car A is located and carried into position over said yard, where the rack itself and its load of bricks are deposited either on the ground to make a first layer or on top of said first layer, as shown. The racks may be of any preferred kind, being clearly shown in Figs. 8 and 9, where it will be seen that they comprise uprights h', joined by top bars h^2, bottom bars h^3, lengthwise bars h^4, and a roof h^6 for shedding rain and provided with cleats h^5 to receive the pallets f at the delivery end of the car A. The racks having remained in the drying-yard for several days, or a sufficient length of time for the bricks to be properly dried, are taken by the crane L and deposited just beyond the end of that particular drying-yard, as indicated at X, whence they are taken by a transverse crane N, traveling on tracks r, extending transversely of the tracks n and preferably considerably lower than said tracks. (See Fig. 2.) The crane N carries the racks of dried bricks to the receiving end at Y of the particular kiln which is being filled or built or "set," said kiln being herein indicated as at the extreme right end of the series of kilns, and here the racks are deposited by the transverse crane N and are taken up by the crane M and carried into convenient position for the brick-setter in the kiln.

It has been customary heretofore to wheel or truck the bricks to the kiln, and after the bricks have been set a few high the bricks have been tossed up to the man doing the setting, who has caught the bricks and put them in proper stacked order, the result being that frequently some of the bricks would be dropped, thereby not only spoiling them, but also those against which they struck, all the bricks being more or less injured by being tossed and handled; but by my arrangement the rack of dry bricks is placed on the same level as the man or men who are doing the stacking and close at hand, and they simply take the bricks directly from the rack and set them.

The empty racks are carried back by the crane M to the point Y and thence carried by the crane N to a point W opposite the end of the drying-yard which is then being filled with fresh undried bricks, and the crane H takes the empty racks from the point W to the delivery end of the car A, where they are filled with green bricks from the conveyer g and thence deposited by the crane H in the drying-yard being filled.

When the bricks have been burned, they are loaded on platforms or cradles and taken by the shipping-crane I, also running on the tracks n, and there carried to the outer ends of said tracks, where they are deposited in a barge B or other transporting means for the market.

As already stated, speed of operation is one of the objects of my invention, and accordingly, referring to Fig. 8, where I have shown a detail of the crane and coöperating mechanism, it will be seen that the crane is pro-

vided with opposite pairs of chains or lifting devices h^7, arranged to move in unison and which carry lifting-beams h^8, whose hooks h^9 engage beneath the cross-bars h^2, and the crane also has pulleys h^{10}, adapted to bear against one side of the chains when required, said pulleys being carried by a rod h^{12}, slidingly mounted in the side of the frame and reciprocated by a lever h^{13}, so that when it is desired to disengage the lifting-beams and hooks from a rack the chains h^7 are first slackened, so as to bring the hooks h^9 at the proper level, and then the handle h^{13} is shifted to the left, Fig. 8, causing the rolls or pulleys h^{10} to move the chains and lifting-beams to the left sufficiently to entirely free the hooks from the cross-bars h^2. This movement may be accomplished very expeditiously, causing all the hooks to disengage simultaneously, while a reverse movement causes said hooks to engage the cross-bars with quickness.

When a drying-yard has been filled with green bricks or has been emptied of dried bricks and when a kiln has been stacked full for burning or has been emptied after burning, the respective crane or cranes running on the tracks n are transferred to the tracks of another yard or kiln, an overhead track s and transfer-car R being provided at one end of the plant for this purpose, said track being slightly lower than the tracks n in order to bring the receiving-rails s', provided on the top of the car R, in level alinement with the rail n to receive the respective cranes for transfer. It will thus be seen that there is a continuous rotation of movements without interference with each other and each supplementary to the rest, that the bricks are handled with exceeding rapidity and safety, and all the movements of the bricks are effected by overhead cranes, which prevent any jarring tendency or unevenness and render it feasible to employ the racks with protecting-roofs, which carry large loads of the soft-mud bricks and dried bricks.

The great advantage of my invention is most pronounced in very large plants, although it is not restricted thereto. The object thereof has been not only to make it possible to avoid the jarring of the bricks, which has been objectionable in soft-mud brick-yards, where trucking the soft clay frequently squats the green bricks in a heap, and to avoid the damage done by the elements and to eliminate a large number of the present successive handlings of the green bricks, but to meet the requirements of modern competition, which demand the utmost economy of labor, directness, and speed of movement, as well as economy of space, permanency, and simplicity of plant, and high quality of product.

In meeting the above requirements I have herein presented one form of apparatus for carrying out my invention; but I wish it understood that I am not limited thereto, as various changes in details may be resorted to without departing from the spirit and scope of my invention as more particularly defined hereinafter in the claims. For example, while I have shown the platform or car A as movable and as provided with an off-bearing belt for each machine, it will be understood that other arrangements may be substituted, although this is preferred for important reasons, among them being that by the provision of a plurality of belts the crane H is never brought to a standstill in its operation for want of racks, as might be the case if one off-bearing belt were depended upon for attending to all the brick-machines, inasmuch as there being a plurality of said belts, even if one of them should be interrupted the others or certain of them will invariably be properly operative, and therefore there will always be a sufficient complement of filled racks. Also the arrangement of tracks and crane and various other details may be varied within limits. Moreover, as it is difficult to operate the brick-machines in time with each other a series of independent belts is advantageous, as it avoids any possible interference of the pallets with each other, as would be the case if the pallets from all the machines were placed on one belt, and another leading advantage of the arrangement shown is that it permits the individual pallets to be placed directly and properly in position on the belts.

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

1. An apparatus for the purpose described, comprising an overhead track, a brick-machine, pallets for receiving bricks from said machine, racks capable of carrying tiers of said pallets, a crane traveling on said overhead track for engaging successive racks with loaded pallets, transporting and depositing said racks and for engaging racks with empty pallets, transporting and depositing them adjacent the brick-machine in position to be reloaded.

2. An apparatus for the purpose described, comprising an overhead track for a drying-yard, a brick-machine, pallets for receiving bricks from said machine, racks capable of carrying tiers of said pallets, a yard-crane traveling on said overhead track for engaging successive racks with loaded pallets transporting and depositing said racks on the drying-yard and for engaging racks with empty pallets, transporting and depositing them adjacent the brick-machine in position to be reloaded, said racks each having a roof enabling the rack with its remaining construction to fulfil all the requirements of loading, transportation, drying, and protection without extraneous weather-protectors.

3. An apparatus for the purpose described, comprising a plurality of overhead tracks, one for each of a series of drying-yards, a series of brick-machines, racks to receive the bricks made by said machines, a yard-crane movable on said tracks for engaging, transporting and depositing on the drying-yards suc-

cessive racks filled with undried bricks and for engaging, transporting and depositing in position for filling a series of empty racks, a series of kilns, and means for carrying the racks filled with dried bricks from the drying-yard to the kiln and for returning the empty racks from the kiln.

4. An apparatus for the purpose described, comprising a plurality of overhead tracks, one for each of a series of drying-yards, a series of brick-machines, racks to receive the bricks made by said machines, a yard-crane movable on said tracks for engaging, transporting and depositing on the drying-yards successive racks filled with undried bricks and for engaging, transporting and depositing in position for filling a series of empty racks, a series of kilns, and means for carrying the racks filled with dried bricks from the drying-yard to the kiln and for returning the empty racks from the kiln, said means consisting of a second yard-crane movable on said yard-tracks, overhead kiln-tracks, a kiln-crane movable thereon, a transverse track, and transverse crane movable on the latter track.

5. An apparatus for the purpose described, comprising a plurality of overhead tracks, one for each of a series of drying-yards, a series of brick-machines, racks to receive the bricks made by said machines, a yard-crane movable on said tracks for engaging, transporting and depositing on the drying-yards successive racks filled with undried bricks and for engaging, transporting and depositing in position for filling a series of empty racks, a series of kilns, and means for carrying the racks filled with dried bricks from the drying-yard to the kiln and for returning the empty racks from the kiln, an overhead track for each kiln, and a shipping-crane movable on said kiln-tracks for removing *en masse* burned bricks from the kilns.

6. An apparatus for the purpose described, comprising a plurality of overhead tracks, one for each of a series of drying-yards, a series of brick-machines, racks to receive the bricks made by said machines, a yard-crane movable on said tracks for engaging, transporting and depositing on the drying-yards successive racks filled with undried bricks and for engaging transporting and depositing in position for filling a series of empty racks, a series of kilns, and means for carrying the racks filled with dried bricks from the drying-yard to the kiln and for returning the empty racks from the kiln, and a transverse track at the end of the drying-yards, and a transfer-car movable thereon for receiving the yard-cranes and the kiln-cranes and transferring the same from one track to another at will.

7. An apparatus for the purpose described, comprising a plurality of overhead tracks, one for each of a series of drying-yards, a track extending adjacent to said yards transversely of said overhead tracks, a platform or car movable on said transverse track, brick-making apparatus on said platform or car, racks for receiving green bricks made by said apparatus, a yard-crane movable on said overhead tracks for carrying said racks, a second transverse track, said second track being an overhead track and extending adjacent said drying-yards, one or more kilns adjacent said second transverse track, and a transverse crane movable on said second transverse track for carrying racks from the respective drying-yards to the kilns and vice versa.

8. An apparatus for the purpose described, comprising a plurality of overhead tracks, one for each of a series of drying-yards, a track extending adjacent to said yards transversely of said overhead tracks, a platform or car movable on said transverse track, brick-making apparatus on said platform or car, racks for receiving green bricks made by said apparatus, a yard-crane movable on said overhead tracks for carrying said racks from the brick-making apparatus to the drying-yards, a second yard-crane movable on said overhead tracks for removing racks of dried bricks from the drying-yards, a second transverse track, said second track being an overhead track and extending adjacent said drying-yards, one or more kilns adjacent said second transverse track, and a transverse crane movable on said second transverse track for carrying racks deposited by said second yard-crane to the kilns.

9. An apparatus for the purpose described, comprising a plurality of overhead tracks, one for each of a series of drying-yards, a track extending adjacent to said yards transversely of said overhead tracks, a platform or car movable on said transverse track, brick-making apparatus on said platform or car, racks for receiving green bricks made by said apparatus, a yard-crane movable on said overhead tracks for carrying said racks, a second transverse track, a transverse crane movable thereon, said second track being an overhead track and extending adjacent said drying-yards, one or more kilns adjacent said second transverse track and extending in the same direction as said yards, overhead tracks for each of said kilns, and a kiln-crane movable on said kiln-tracks for carrying the racks between said transverse crane and the respective kilns.

10. An apparatus for the purpose described, comprising a plurality of overhead tracks, one for each of a series of drying-yards, a track extending adjacent to said yards transversely of said overhead tracks, a platform or car movable on said transverse track, brick-making apparatus on said platform or car, racks for receiving green bricks made by said apparatus, a yard-crane movable on said overhead tracks for carrying said racks, a second transverse track, said second track being an overhead track and extending adjacent said drying-yards, a transverse crane movable on said second track, one or more kilns adjacent

said second transverse track and extending in the same direction as said yards, overhead tracks for each of said kilns, a kiln-crane movable on said kiln-tracks for carrying the racks between said transverse crane and the respective kilns, an overhead track extending transversely of and at the end of the said overhead yard-tracks, and a transfer-car mounted on said end track and provided with receiving means in level alinement with said yard-track to receive said yard-crane and transfer the same from one yard-track to another.

11. An apparatus for the purpose described, comprising a series of brick-machines, pallets to receive the bricks, a series of off-bearing belts arranged endwise to the brick-making machines, racks for receiving pallets of bricks from and at the farther ends of said belts, a plurality of overhead tracks, one for each of a series of drying-yards, a traveling yard-crane adapted to travel on said tracks, means connected with said yard-crane for detachably engaging said racks and transporting the filled racks to drying position on a yard, and transporting empty racks to said farther ends of the belts for filling, an overhead transverse track extending transversely of the yards, a transverse crane movable on said transverse tracks, and kilns, said transverse crane receiving racks of dried bricks from the drying-yards and depositing them in position for said kilns.

12. In an apparatus for the purpose described, a brick-machine, pallets to receive the bricks, an off-bearing belt for carrying said pallets, portable racks for receiving pallets of bricks from said belt, a plurality of overhead tracks, one for each of a series of drying-yards, a yard-crane movable on said tracks, means connected with said yard-crane for detachably engaging said racks and transporting empty racks to adjacent the belt for filling, an overhead transverse track extending transversely of the yard-tracks, a transverse crane movable on said transverse tracks, and kilns, said transverse crane receiving racks of dried bricks from the drying-yards and depositing them in position for said kilns.

13. An apparatus for the purpose described, comprising a plurality of overhead tracks arranged side by side, one for each of a series of correspondingly-arranged drying-yards, a platform at one end of said yards, a series of brick-machines on said platform, said brick-machines being arranged side by side, a track extending transversely of said drying-yards adjacent one end of said series of brick-machines for clay-cars to run on for delivering clay for said brick-machines, means on said platform for taking the clay delivered thereto by the clay-cars and feeding it as required to said several brick-machines, racks for receiving bricks made by said brick-machines, a crane traveling on said overhead yard-tracks for transporting said racks from said platform and depositing them on the yards, a kiln, and means for carrying the dried bricks from the drying-yards to the kiln.

14. An apparatus for the purpose described, comprising a plurality of overhead tracks arranged side by side, one for each of a series of correspondingly-arranged drying-yards, a platform at one end of said yards, a series of brick-machines on said platform, said brick-machines being arranged side by side, a track extending transversely of said drying-yards adjacent one end of said series of brick-machines for clay-cars to run on for delivering clay for said brick-machines, means on said platform for taking the clay delivered thereto by the clay-cars and feeding it as required to said several brick-machines, racks for receiving bricks made by said brick-machines, a crane traveling on said overhead yard-tracks for transporting said racks from said platform and depositing them on the yards, a kiln, and means for carrying the dried bricks from the drying-yards to the kiln, an overhead track extending transversely of said overhead yard-tracks, and a transfer-car substantially level with said yard-tracks for receiving a crane from one yard-track and transferring it to another yard-track.

15. In an apparatus for the purpose described, a brick-machine, a series of pallets, a table for dumping the soft bricks upon the pallets, an off-bearing belt, and means for automatically depositing said pallets upon said belt.

16. In an apparatus for the purpose described, a series of brick-machines arranged side by side, a series of off-bearing belts extending endwise of said machines, pallets to receive the bricks as made by said machines, the parts being in position to deliver said pallets to said belts at the ends of the latter, racks for receiving pallets of bricks from said belts, and overhead means for transporting said racks.

17. In an apparatus for the purpose described, a series of brick-machines arranged side by side, a series of off-bearing belts extending endwise of said machines, pallets to receive the bricks as made by said machines, means for automatically depositing said pallets upon said belts, and racks for receiving pallets of bricks from said belts.

18. In an apparatus for the purpose described, a brick-machine, an off-bearing belt adjacent thereto, a dumping device comprising opposite pairs of arms adjacent respectively to the opposite sides of the belt and extending approximately at right angles to each other, means for normally maintaining the same in a given position with one set of arms extending vertically to receive a pallet against them, and the other set of arms extending horizontally to receive the lower edge of the pallet and the side of a mold of bricks, said arms being pivotally mounted to turn simultaneously for dumping the bricks from a mold placed as stated onto a pallet placed as stated.

19. In an apparatus for the purpose described, a brick-machine, an off-bearing belt adjacent thereto, a dumping device comprising opposite pairs of arms adjacent respectively to the opposite sides of the belt and extending approximately at right angles to each other, one set of arms extending vertically to receive a pallet against them, and the other set of arms extending horizontally to receive the lower edge of the pallet and the side of a mold of bricks, said arms being pivotally mounted to turn simultaneously for dumping the bricks from a mold placed as stated onto a pallet placed as stated, and means for lowering said dumping device and automatically delivering the pallet of bricks supported thereby to said belt.

20. In an apparatus for the purpose described, a brick-machine, an off-bearing belt adjacent thereto, a dumping device comprising opposite pairs of arms adjacent respectively to the opposite sides of the belt and extending approximately at right angles to each other, means for normally maintaining the same in a given position with one set of arms extending vertically to receive a pallet against them, and the other set of arms extending horizontally to receive the lower edge of the pallet and the side of a mold of bricks, said arms being pivotally mounted to turn simultaneously for dumping the bricks from a mold placed as stated onto a pallet placed as stated, opposite supports for said dumping device in which the latter pivots, said supports being arranged to rise and fall relatively to said belt for automatically delivering a pallet of bricks carried thereby to said belt.

21. In an apparatus for the purpose described, a brick-machine, an off-bearing belt adjacent thereto, a dumping device comprising opposite pairs of arms adjacent respectively to the opposite sides of the belt and extending approximately at right angles to each other, means for normally maintaining the same in a given position with one set of arms extending vertically to receive a pallet against them, and the other set of arms extending horizontally to receive the lower edge of the pallet and the side of a mold of bricks, said arms being pivotally mounted to turn simultaneously for dumping the bricks from a mold placed as stated onto a pallet placed as stated, opposite supports for said dumping device in which the latter pivots, said supports being arranged to rise and fall relatively to said belt for automatically delivering a pallet of bricks carried thereby to said belt, and means for automatically operating said supports.

22. In an apparatus for the purpose described, a brick-machine, pallets on which the bricks may be dumped, mechanism for receiving said pallets and bricks, racks for said pallets and bricks delivered from said receiving mechanism said racks having at their upper sides a plurality of carrying portions to be engaged by a transporting device, an overhead track for a drying-yard, a crane thereon, a plurality of pairs of chains or the like depending from said crane, and separated lifting-beams carried by said chains and provided with engaging means for engaging said carrying portions of the racks.

23. In an apparatus for the purpose described, a brick-machine, pallets on which the bricks may be dumped, mechanism for receiving said pallets and bricks, racks to hold said pallets and bricks from said receiving mechanism, said racks having at their upper sides a plurality of carrying portions to be engaged by a transporting device, an overhead track for a drying-yard, a crane thereon, a plurality of pairs of chains or the like depending from said crane, separated lifting-beams carried by said chains and provided with engaging means for engaging said carrying portions of the racks, and a device mounted on said crane for quickly disengaging said lifting-beams from said racks.

24. In an apparatus for the purpose described, a brick-machine, pallets on which the bricks may be dumped, mechanism for receiving said pallets and bricks, racks to hold said pallets and bricks from said receiving mechanism, said racks having at their upper sides a plurality of carrying portions to be engaged by a transporting device, an overhead track for a drying-yard, a crane thereon, a plurality of pairs of chains or the like depending from said crane, separated lifting-beams carried by said chains and provided with engaging means for engaging said carrying portions of the racks, and a device mounted on said crane for quickly disengaging said lifting-beams from racks, said device comprising a reciprocating part having portions movable into engagement with said chains for forcing the latter laterally out of their normal suspended position, and thereby temporarily shifting the lifting-beams laterally relatively to the carrying portions of the racks.

25. In an apparatus for the purpose described, a plurality of overhead tracks, one for each of a series of drying-yards, a crane traveling on said tracks, a brick-machine, pallets to receive bricks therefrom, racks for carrying said pallets, said racks being transported to said drying-yards by said overhead crane, a kiln, and means for depositing the bricks from said drying-yards in said kilns at substantially the same level as the setter who is setting the bricks in the kiln.

26. An apparatus for the purpose described, comprising a series of overhead tracks one for each of a corresponding series of drying-yards, a movable platform, a track for said platform extending transversely to said yard-tracks, a series of brick-machines mounted on said platform, racks, and means for delivering pallets of bricks from said brick-machines in position to be placed in said racks and to be transported by said overhead yard-

crane to a drying-yard, an overhead track and crane extending transversely to said yard-tracks, a series of kilns, a second yard-crane traveling on said overhead yard-tracks for operating on yards on which the racks of bricks have become dried, said second yard-crane taking racks of dried bricks and delivering them in position to be taken by said transverse crane and carried in position for delivery to said kilns, overhead tracks for said kilns, and a crane traveling on said kiln-tracks for taking the racks of dried bricks deposited by said transverse crane, and delivering the same in position in a kiln substantially on a level with the setter.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JONATHAN P. B. FISKE.

Witnesses:

GEO. H. MAXWELL,

GEO. W. GREGORY.