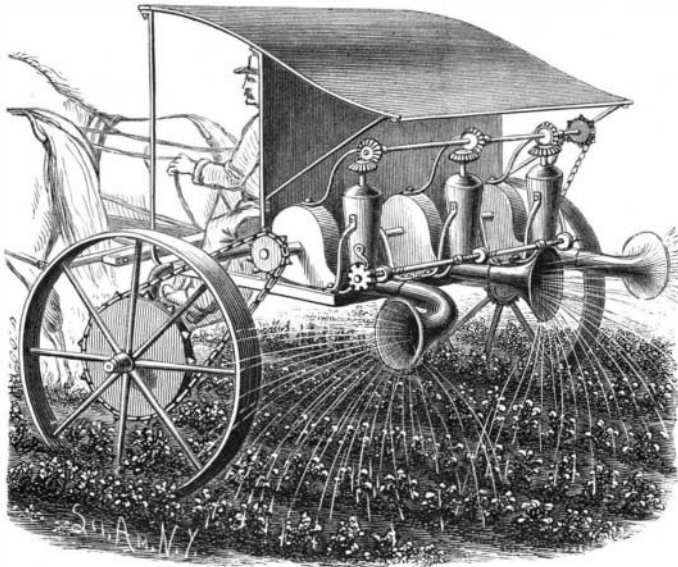


A MACHINE TO DISTRIBUTE POISON ON PLANTS.

A method of dusting poisonous powders on plants, to rid them of destructive insects, is illustrated herewith, and forms the subject of a patent issued to Messrs. George R. and John W. Brown, of Pledger, Texas. The axle of the machine is centrally arched to pass readily over plants, and the main frame has a screen to protect the driver from the poisonous dust. The casings of the air blast fans are fixed to the rear cross bar of the frame, and have outlet pipes com-



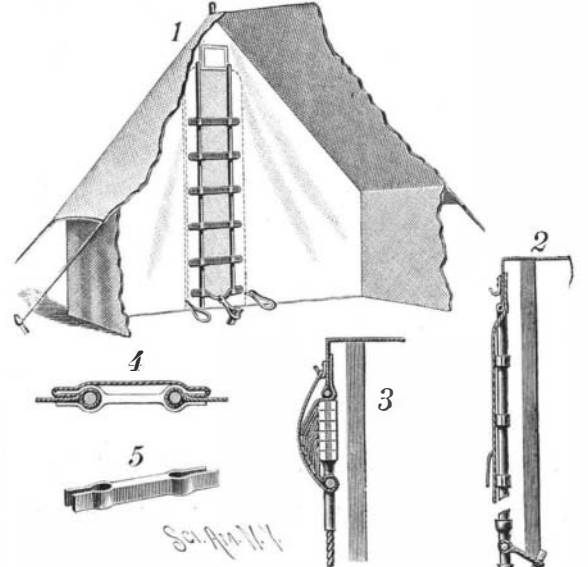
BROWNS' MACHINE TO DISTRIBUTE POISON ON PLANTS.

municating with nozzles having trumpet-shaped ends, the nozzles being so connected as to admit of their being turned in different directions. All three of the fans are operated by a shaft which at one end carries a sprocket wheel, from which a driving chain passes to a larger sprocket wheel on the sulky wheel, causing the rapid rotation of the fans. A hopper to contain the poison is arranged over the outlet pipe of each of the fan casings, and beneath each hopper is pivoted a valve having an opening which may be brought to coincide more or less fully with a hole in the bottom of the hopper, the valves for all the hoppers being simultaneously regulated by a hand wheel and a worm shaft. To prevent the clogging of the poison in the hoppers, a vertical shaft, carrying a winged agitator, is journaled in each, the top of the shaft carrying a bevel gear wheel engaged by a bevel pinion on a transverse shaft, the latter being operated by a driving chain from the sulky axle, and a lever controlling the operation of this shaft being in convenient reach of the driver. This machine may, if desired, be built with but one poison hopper, fan blast apparatus, and discharge nozzle.

IMPROVED DEVICE TO CLOSE A TENT ENTRANCE.

A device for closing the entrance opening in the wall of a tent readily and quickly, without the tying of cords, is illustrated herewith, and has been patented by Mr. Henry Thomas, Fort Omaha, Neb. The device may be applied to old as well as new tents, and the curtain arranged to operate from either the outside or inside. A suitable section of the tent wall is removed, and the edges of the opening turned over to leave an opening sufficient to receive a vertical guide rope on each side. At the top of the opening a flexible portion of a covering curtain is secured, while to the lower portion of the curtain, at intervals, clips are attached by sewing. The clip is shown in Fig. 5, its enlarged circular portions each embracing the guide rope in one of the edges, as shown in cross section in Fig. 4, Fig. 2 being a vertical section when the curtain is closed, as in Fig. 1. The clips slide up and down readily on the guide ropes, carrying with them the curtain, and to retain the curtain in raised position, as shown in Fig. 3, a cord or loop is attached to the lowest clip, and hung upon a hook secured above to the tent wall. To hold the curtain closed, a loop on the lowest clip is drawn over a tent peg.

central pavilion of the French colonies. Further along, there is an Indian temple, then a dwelling like those conceded to the colonists in our New Caledonian possessions, and, above this picturesque decoration, rises, nearly completed, the elegant minaret of the Coubba of Sidi-ben-Avouz, which overlooks the whole of the Tunisian section. This latter, seeing the peculiar interest taken in our new protectorate of Africa, will certainly be one of the principal attractions of the Exposition of the Invalides. The structures of the Tun-



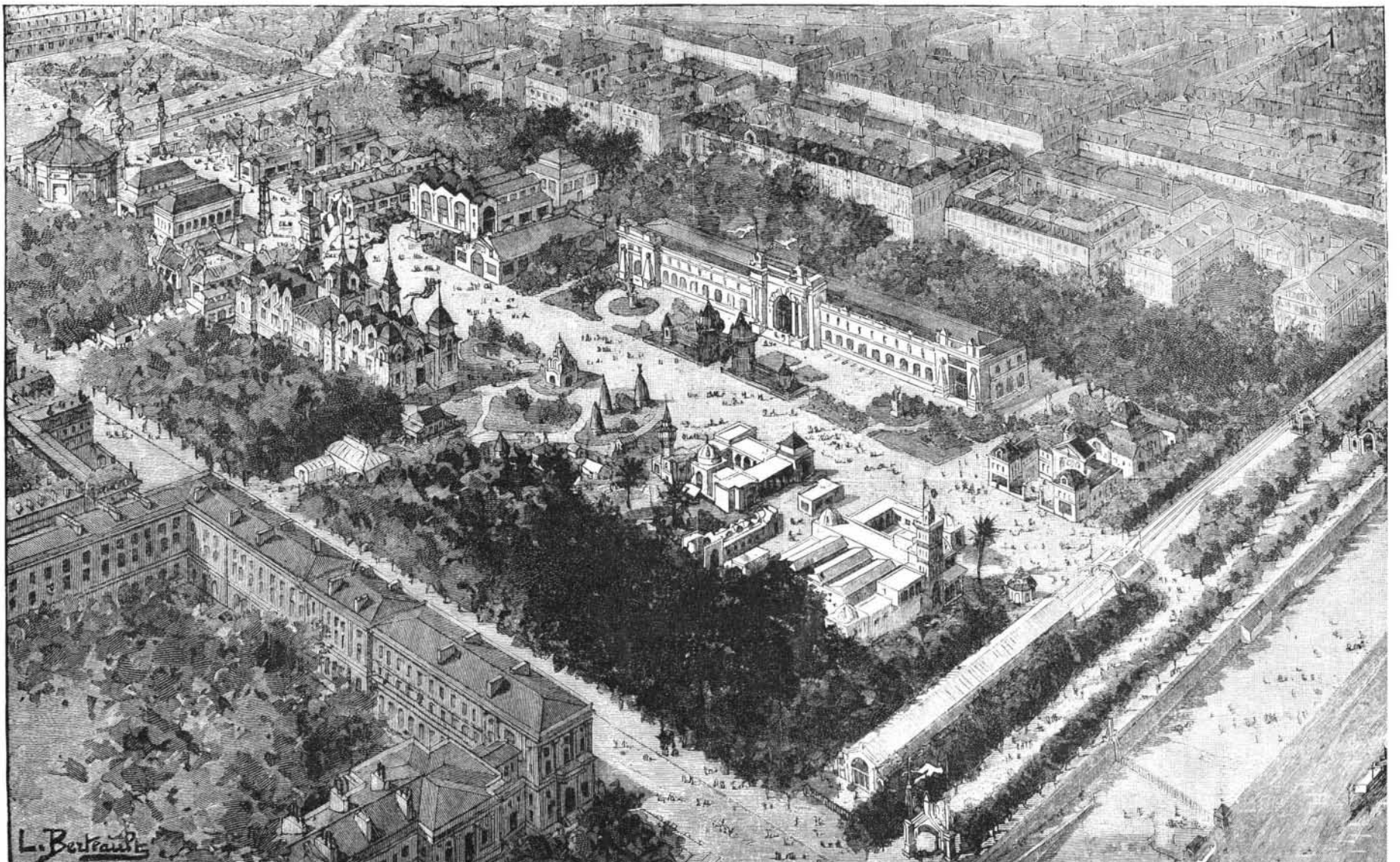
THOMAS' TENT-CLOSING DEVICE.

THE FRENCH EXPOSITION OF 1889 AT THE ESPLANADE DES INVALIDES.

One of the great novelties of the future exposition—and this will certainly be obvious to Parisians—will consist in the fact that one of the monumental entrances of the immense bazaar overlooked by the Eiffel tower will be very near the Concord bridge, nearly in the heart of Paris. The colossal palace of iron and steel which is building upon the Champ de Mars will extend its annexes, in fact, as far as to the Esplanade des Invalides, and here will certainly be found one of the most picturesque and entertaining points of the entire exposition. Although most of the structures are as yet unfinished, we wish now to lead our readers thither, and make them share with us the astonishment and admiration that a visit to this city of palaces, which is rising as if by enchantment, has caused us.

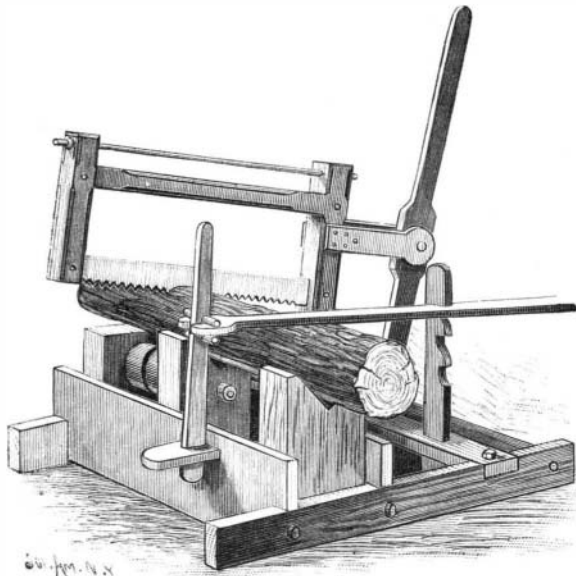
There is nothing but minarets, domes, steeples shaped in the Greek style, and white cupolas surmounted by the Oriental crescent; and here is the imposing facade of the exposition of the Minister of War, preceded by a formidable entrance to a feudal castle, an interesting specimen of the military architecture of the middle ages, due to Mr. Walrein, the skillful architect appointed by the Minister of War. Mr. Girault, one of the laureates of our Roman school, designed and is building the pavilion of hygiene, Mr. Ballu that of the Algerian exposition, and Mr. Sauvestre the Tunisian section, the heavy work upon which is now finished, are the ones that, for the moment, give the best idea of what the picturesque part of the exposition will be. Mr. Henri Saladin is the architect of it. Prepared for this work by a trip that he has given an account of in the *Tour du Monde*, in conjunction with Professor Cognat, of the College of France, he has united in the style of his picturesque pavilion the most delightful specimens of Oriental architecture. The arcades of the front were suggested by those of Bardo, the central dome is an exact reproduction of the Mikrab of the mosque of Kerouan, the loggia is that of a Tunisian house. There will be here some souks or covered bazars, an interior court with a pavement of colored tiles, and a cafe is going up under the shade of a group of trees. And all this will be filled at the proper time with the riches of Tunis—fabrics, carpets, ceramics, works of art, and, finally, with all the surprises that could be expected from the organizing zeal and talent with which Mr. Sauson, Commissary General of the Tunisian government, is endowed.

Let us not leave the Esplanade des Invalides with-



THE FRENCH EXPOSITION OF 1889 AT THE ESPLANADE DES INVALIDES.

out mention also of the Tonkin village that is to be built there, the English dairies, the Dutch bakeries, and especially the phenomena of All Paris, which we have had the good fortune to get a glimpse of. Mr. Castellani's brush has brought hither the entire Place



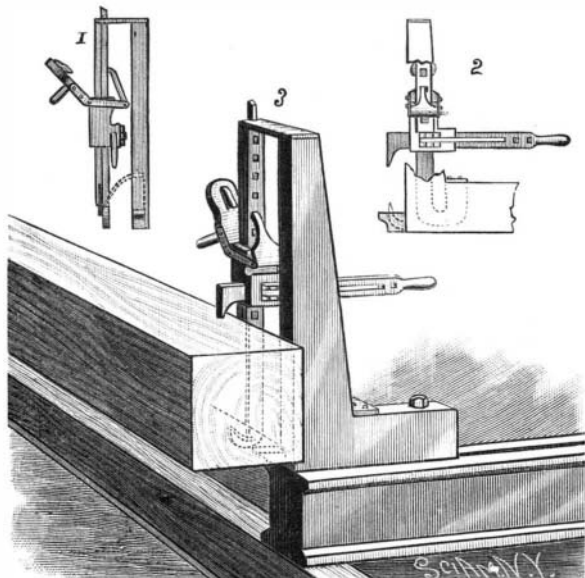
MOSER & BALDWIN'S WOOD-SAWING MACHINE.

de l'Opera, with its marble building, its tall houses, the groups of trees of the boulevards, the distant blues of the avenues, and, under the glowing sun with which he has illuminated his work, nearly a thousand persons are coming and going. There are nearly a thousand portraits of natural size—All Paris, all those who count, all those who are spoken of. There will be here . . . but why unveil one of the prettiest surprises that the exposition reserves for us? Mr. Castellani can calculate upon success. It is not only All Paris that will visit him, but also all those who care to see the exposition.—*Le Monde Illustré*.

AN IMPROVED SAW MILL DOG.

A dog designed to be easily and quickly adjustable to small or large logs on the carriage frame is shown herewith, and has been patented by Mr. John Flesher, of Edgington, Ontario, Canada, Fig. 1, showing an end and Fig. 2 a side elevation. The standard is secured in the usual manner to the head block, and has upper and lower arms supporting a vertical guide post on which slides a bar having at its lower end an upwardly turned point adapted to engage the log on its under side.

On the inside of the bar are notches adapted to be engaged by a spring pawl pivoted in a lever fulcrumed on a sleeve sliding vertically on both the guide post and the bar, the lever having near its outer end a handle, and a catch adapted to engage the upper pointed end of the sliding bar. On the inside of the sleeve is a notch to hold the spring pawl out of contact with the notches of the sliding bar, and a bar sliding transversely in the sleeve has on its outer end a downwardly extending point adapted to engage the top of the log. This latter bar is moved downward to bring its point in engagement with the log by operating the handle of the lever fulcrumed on the sleeve, its spring pawl engaging the notches of the vertical bar to drive the point into the top of the log. To release the dog, the lever is swung inward, the pawl being thereby disen-



FLESHER'S SAW MILL DOG.

gaged from the notches in the vertical sliding bar, and swinging downward into the recess of the sleeve, when the latter can be moved upward on the guide post and the bar until its catch is engaged by the top pointed

end of the bar. The weight of the sleeve and its connections thus resting on the vertically sliding bar, the latter is moved downward and its point disengaged from the bottom of the log.

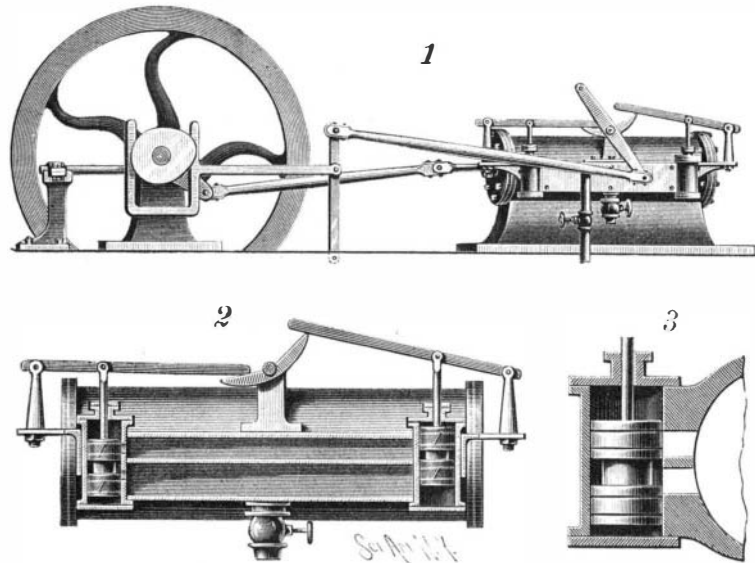
AN IMPROVED WOOD-SAWING MACHINE.

A device to facilitate wood sawing, patented by Mr. Thomas J. Baldwin, is illustrated herewith. The stick to be sawed is placed in notches in the upper end of blocks, fixed in a suitable base frame, in which also is journaled a circumferentially grooved roller. To a bar extending through one side of the frame is secured a standard, with pins adapted to engage a forked lever for holding the stick to be sawed steadily in position, the other end of the lever being engaged by notches in a standard on the other side of the frame. To a shaft journaled in the sides of the base pieces is fixed an upwardly extending lever, which is jointed by an arm to the frame carrying the saw, so that by moving the lever back and forth the saw is reciprocated, and its work effected. When the saw passes through the stick, its teeth engage the circumferential groove in the roller beneath, to rotate the same, and, by filling this groove with hard grease, the blade of the saw is always kept well lubricated.

For further particulars relative to this invention, address Messrs. Moser & Baldwin, care of Howe Scale Co., 612 N. Third Street, St. Louis, Mo.

AN IMPROVED STEAM ENGINE.

An improved valve gear for steam engines, patented by Mr. Ernest Beare, of Chester, Ill., is shown in the accompanying illustration. The steam chest is at one side of the cylinder, extending from end to end, and is divided into two longitudinal compartments, the upper one adapted to receive live steam, while the lower one receives the exhaust. Centrally upon the steam chest is a standard, with a rock shaft carrying upwardly curved fingers, while to the outer end of the shaft, as



BEARE'S STEAM ENGINE.

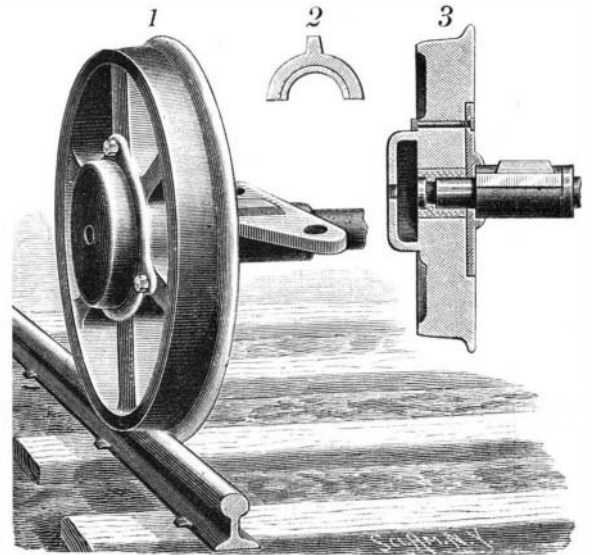
shown in Fig. 1, a lever is centrally secured, having a wrist pin at each extremity. Upon the drive shaft is keyed a heart-shaped cam, adapted to reciprocate a U-shaped yoke of a horizontal cam rod, pivoted near the center to a vertical link, the lower end of which is pivoted on the engine bed. The upper end of this link is pivotally connected, through a pitman, to one end of the lever secured on the rock shaft carrying the upwardly curved fingers, this lever having a wrist pin at each extremity, so that one may be utilized to go ahead and the other to back up. At each end of the steam chest is a vertical cylindrical casing, shown in detail in Fig. 3, having each a port leading into the live steam and the exhaust steam chambers, and in this casing reciprocates a plunger-like valve, with central circumferential groove, there being a metallic packing ring to take up the wear of the valve. In the rear of each casing are two ports coinciding with similar ports in the cylinder, the ports in the valve casing being just large enough to admit steam into the cylinder and take the exhaust steam. The valve rods extending through the top of the valve casings are each pivotally united to a lever, the outer end of which is pivoted upon a standard, while the inner end of each lever rests upon one of the upwardly curved fingers, so that when the plunger of one valve is down in the casing, the plunger of the opposite valve is elevated. This construction is designed to prevent down pressure on the valves, and obviate the grinding of the valve seats, while the wear of the valves will be effectively taken up by the packing rings.

Treatment of Warts.

Children often suffer from unsightly warts on the hands, which cannot be removed by caustic. G. B. Pullin, of Sialmouth (Bristol Medical Journal), recommends in such cases the administration of two or three minims of liq. arsenicalis twice a day. In a week or ten days, he says, the warts will disappear.

AN IMPROVED CAR WHEEL AND BEARING.

The accompanying illustration represents a wheel in which the end of the axle is protected by an outer cap made integral with the body of the wheel, while to the rear face of the wheel is bolted a cap which serves as an



WILLIAMS' CAR WHEEL AND BEARING.

abutment for the outer face of a bearing arranged for connection with the car body. This invention has been patented by Mr. Jesse S. Williams, of Beaver Dam, Ky. Fig. 3 is a central sectional view, and Fig. 2 shows one of the brasses. The cap has a central aperture, through which the lubricant is introduced, and the hub is formed with recesses adapted to receive flanges upon the brasses, which are made in semicircular sections. The axle has a collar, and in putting on the wheel the axle is first passed through the bearing and the cap placed in position, when the brasses are applied, their flanges resting in a circumferential groove near the end of the axle, and then the wheel is placed on and bolted, as shown in the sectional view.

THE Dayton Democrat relates the following, which illustrates pretty well the rapidity as well as extent to which building is carried on these days:

Citizen (to builder)—What are you going to put up there?

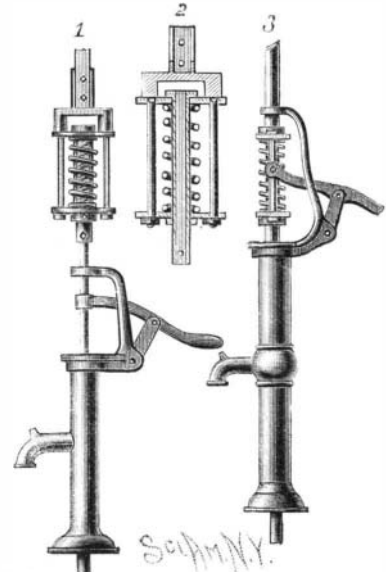
Builder—We're just beginning the finest row of flats ever built in New York City.

Citizen—I'd like a nice flat in this neighborhood.

Builder—Well, you stop on your way home from down town this evening and I'll show you through; but get here as early as possible or they may be gone.

IMPROVED PLUNGER ROD FOR PUMPS.

The accompanying illustration represents an improvement, patented by Mr. Walter C. Westaway, designed to relieve reciprocating pumps and pumping machinery of strain and sudden jar in starting and when in rapid operation. Fig. 1 shows the invention applied to a common windmill pump, with handles for starting and operating by hand, Fig. 2 showing a different application of the handle. On the upper end of the piston rod or plunger is attached a section, on which are placed plates having a coiled spring between them, to act as a cushion, a rod worked by the windmill or



WESTAWAY'S PLUNGER ROD FOR PUMPS.

other source of power being connected to the plunger rod to act thereon through the cushion. Fig. 2 is a detailed sectional elevation, showing the cushion and coupling. For further particulars relative to this invention address Messrs. H. & L. W. Beard, Decorah, Iowa.