

**POLISHING SCHOOL SLATES.**—William Kester, Cherryville, Pa.—In this invention the slates are supported upon a car which runs under the grinding stones or wheels, and alternately raises the slates against or depresses them from the stones. The cars are caused to rise and fall gradually and yet preserve a perfect level, by means of a series of inclines.

**EXCAVATOR.**—Chas. F. Woodruff, Newbern, Tenn.—This invention relates to that class of excavators in which a revolving scraper is employed, and consists in so adjusting such scraper, and the means for operating it, that it can be worked more conveniently than heretofore.

**BENCH VISE.**—O. H. Gardner, Fulton, N. Y.—This invention has for its object to improve the construction of bench vises so as to enable them to adjust themselves to the form of the object to be held, and to enable them to be adjusted so that the jaws may stand at any desired horizontal angle with the bench, and which shall at the same time be simple in construction, and easily adjusted.

**METHOD OF PRODUCING SILK FROM MULBERRY TREES.**—Wilhelm Holdmann, New York city.—This invention relates to a new method of preparing a good quality of silk directly from mulberry trees, without requiring the aid of the silk-worm. Silk can, by this method, be made as good as from the worm, and at least at half the expense. The preparation can be carried on profitably on a small scale by manufacturers. The production is increased from year to year with the growth of the trees.

**MACHINERY FOR MAKING LOOM HARNESSES.**—Joseph Sladdin, Lawrence, Mass.—This invention relates to certain improvements in machinery for weaving loom harness, whereby, by an automatically operating machine, one is enabled to form the head eye, and at the same time secure the yarn to the rig bands in a firm and substantial manner.

**MEDICAL COMPOUND.**—N. H. Cass, Henryville, Ind.—This invention relates to a remedy for the disease known as "hog cholera."

**STEAM EXHAUST DEVICE.**—Robert Brown, Norwich, Conn.—The object of this invention is to so construct a steam valve movement for the exhaust of the steam that it shall be self-acting and moved exclusively by the pressure of the steam, and it consists in operating two disk valves upon a rod in a partitioned steam chest, connected with the cylinder whereby the engine cylinder is relieved of undue pressure at its exhaust end, and also of the water of condensation.

**SCREW DRIVER.**—Isaac Allard, Belfast, Me.—This invention consists in making the shank of the screw-driver in a spiral form by twisting or otherwise, and operating it in a tube by a spiral spring, whereby the screw driver is made self-revolving.

**TATTING SHUTTLE.**—Ira H. Stockwell, and Lizzie C. Goodwin, Worcester, Mass.—This invention relates to the construction of an article called a shuttle, which is extensively used by females in fabricating what is known as "tattling," a kind of trimming or edging for female under-garments.

**DEVICE FOR MARKING BAGGAGE.**—G. S. True, Leavenworth, Kansas.—This invention relates to an improvement in the method of marking trunks, chests, boxes, and other similar articles used by travelers for transportation from place to place as baggage, or for other purposes.

**FIRE BACK.**—D. Hattan, Zanesville, Ohio.—This invention relates to an improvement in the backs of fireplaces, and it consists in arranging a horizontal sliding plate thereon, and providing for the admission of cold air, whereby a more perfect combustion of the gases which are evoked from the fuel is obtained.

**GLASS FURNACES.**—Miles Granger, Saratoga, N. Y.—This invention consists in providing a peculiarly constructed melting pot, whereby one is enabled to melt and blow glass without intermission, and by which improved melting pot, pursues a perpetual glass melting and blowing process.

**LET-OFF MECHANISM FOR LOOMS AND OTHER MACHINES.**—William Hall, North Adams, Mass.—This invention relates to a new and improved let-off mechanism for looms and other machines, in which a warp or web is required to be increased or let off from a shaft, with as uniform a tension as possible. The object of this invention is to obtain a simple means to effect the above result, and one which will keep the warp or web at a uniform tension throughout, or from the commencement of the let-off to the end of the same.

**FOLDING CHAIR.**—J. Nicolai, Boston, Mass.—The present improvement consists in connecting the legs and seat of the chair in such a manner that said parts will move simultaneously in folding and unfolding the chair, thereby rendering the chair capable of being adjusted (folded and unfolded) with far greater facility than hitherto.

**MACHINE FOR CLEANING THE FIBER FROM THE HULL OF COTTON SEEDS.**—Thos. W. Brown, Cudworth, Barnsley, Yorkshire county, England.—This invention consists essentially in accomplishing the same by the application of heat under such arrangements of apparatus, and by such applications as shall be found most advantageous for the same.

**HOMINY AND PEARLING MILL.**—E. A. Duer, Decatur, Ill.—This invention consists of a rotating shaft provided with beaters arranged to rotate in a horizontal cylindrical case, to which the grain is fed by suitable mechanism, and from which it is passed away through a fan and a separating screen.

**ELEVATOR BUCKET.**—O. W. Clark, Appleton, Wis.—The nature of my invention relates to improvements in elevator buckets, the object of which is to make them more durable, less liable to catch in the cases, and to make them of greater capacity.

**ALARM LOCK.**—Nash Cheek, Chapel Hill, N. C.—This invention relates to a lock of simple construction, which is designed to be unpickable, and capable of being applied in all cases where an ordinary lock may be used, and in combining with said lock an alarm.

**PRUNING SHEARS.**—Daniel Campbell, Elizabeth, N. J.—This invention relates to a new and useful improvement in pruning shears whereby the latter, when required, are rendered available as fruit pickers; the construction of the implement being such that the picking attachment will not interfere in the least with the pruning or cutting mechanism.

**SEED PLANTER.**—Moses Atwood, New Sharon, Iowa.—This invention relates to a new and improved machine for planting corn, and other seed designed to be dropped in check rows, and it consists in a novel construction and arrangement of parts, whereby the seed may be dropped or planted perfectly even or in bills at a uniform distance from each other and the working parts readily operated by the driver.

**PATTERNS FOR TRIMMING HAT BRIMS.**—C. M. Hawes, New York city.—This invention relates to a new and useful improvement in patterns for trimming hat brims, and it consists in attaching the pattern to a revolving frame constructed and arranged in such a manner as to admit of one pattern being readily detached from the frame, and another of a different size readily applied to it, so that hat brims of different sizes may be trimmed, the revolving frame admitting of the work being done very expeditiously and in a perfect manner.

**WATER WHEEL.**—John Y. Lanfair, Queensbury, N. Y.—This invention relates to a new and improved water wheel of the class which are placed on a vertical shaft and work within a scroll or curb. The wheel is designed to be submerged, and is constructed in such a manner that power is obtained from the water both by impact and reaction.

**DEVICE FOR FEEDING SAW DUST AND SHAVINGS TO FURNACES.**—J. A. McClelland, Vernon, Ind.—This invention relates to a new and improved device for feeding saw dust, shavings, etc., to furnaces, and is designed more especially to be applied to wood-working machines, such as planers, circular saw machines, etc., in order to take the shavings and dust from the same and convey or force them direct into the furnace.

**CURTAIN FIXTURES.**—Davis E. Long, Pawtucket, R. I.—This invention relates to a new and useful improvement in curtain fixtures, and consists in a novel means employed for attaching the tassel to the lower end of the curtain. At present the tassel is attached by boring a hole through the stick which is inserted in a bend at the lower end of the curtain, and passing the tassel cord through the hole in the stick and curtain, and securing the ends of the cord in the heads of the tassel. This plan is objectionable for two reasons: first, the hole in the stick weakens the same, rendering it liable to break; second, the detaching of the tassel to admit of the stick being withdrawn when the curtain requires to be washed, and the attaching of the cord of the tassel to the curtain are attended with considerable trouble.

**FILE-CUTTING MACHINERY.**—Sedgwick A. Sutton, Dixon, Ill.—This invention relates to certain new and useful improvements in file-cutting machinery, and is more especially designed to be applied to a file-cutting machine, for which Letters Patent were granted to Edward Bucklin, bearing date Feb. 27th, 1866. The present invention relates, first, to an improvement in the hammer shaft, whereby the teeth are cut more perfectly than hitherto, and the chisel, in its descent, prevented from cutting off a tooth made by a previous cut, a contingency of not unfrequent occurrence in the operation of other machines. The invention relates, second, to an improved pressure roller, the manner of applying it to the machine, etc., whereby it may always be adjusted at a proper distance from the chisel. The invention relates, third, to an improvement in the screw feed, the half nut pertaining to the same, whereby all play or back lash is avoided.

**NURSERY CUP.**—J. F. Leslie and Edwin A. Tibbets, Woburn, Mass.—The object of this invention is to furnish an article or vessel for heating liquids by the use of alcohol (or some equivalent combustible liquid), which shall be simple, cheap, and convenient, the same being intended more particularly for treating milk for children, water for shaving, as well as for all other purposes for which it is adapted; and it consists in a funnel-shaped cup with a handle and spout thereto, and combined with a disk-shaped base with a projecting center and a wire support for the cup, which base serves as a cover for the cup when the cup is not in use. Patented July 28, 1868.

**MACHINERY FOR SEPARATING ORE AND OTHER GRANULAR SUBSTANCES.**—Stephen T. Pearce, New York city.—This invention consists according to one example of my invention in the employment of a vertical hollow rotating cylinder to which the pulverized ore is fed by any suitable means and which is formed with lateral discharging tubes near the bottom through which the ore or other substance is impelled by the centrifugal force due to the rotation of the cylinder in combination with graduated annular receptacles under the said cylinder into which the substance will be discharged according to its specific gravity.

**YOKES FOR ANIMALS.**—F. M. Shields, Macon, Miss.—This invention consists in metallic hooks arranged to be suspended from the heads of the animals in a manner to hook into the fence to prevent jumping or throwing it down.

**MACHINE FOR SEPARATING ORES.**—S. T. Pearce, New York city.—This invention consists of an arrangement of means whereby the granulated and sized substance to be acted upon, being discharged upon the surface of a cone of polished metal under rotary motion upon its vertical axis, will be set in motion by the contact of the same with the cone, and discharged therefrom in various lines, governed by the specific gravity of the particles and the frictional quality of the same, in a manner to fall into various receptacles arranged with reference to the various positions in which the particles all fall, to separate them in the order of their falling.

**STAND FOR MUSKETO NETS.**—A. Strasser, and B. M. Lewy, Montgomery, Ala.—This invention consists of a frame in the form of a parachute suspended from the top of an adjustable support rising up from a stand or table, and susceptible of adjustment, either to a vertical or inclined position, on which the musketo net is suspended.

**TANNING.**—W. Wiudoes, Fond-du-lac, Wis.—This is a new and economical invention by means of which a very soft and beautiful leather may be expeditiously produced with great success. We have examined some excellent specimens of the leather, in fact we are using gloves made of it which are admirable in quality. We regard the improvement as one of value. The process is quite simple, and reflects credit upon the inventor.

**GAGE FOR MEASURING HOLES FOR KEYS.**—Benj. F. Merrill, West Lebanon, N. H.—This invention consists in a gage made of two pieces of wood or metal, united together by any adjustable connection, the general form of which, when so united, resembles to some extent a key as ordinarily constructed for securing a wheel to a shaft or the parts of a connecting rod and cut together; which may be inserted in a key hole and adjusted to the proper angle to fit the two inclined sides of the same, when the parts may be secured in that position and removed from the key hole after which the measurement may be readily taken to form the key to fit the said hole.

**STEAM VALVES AND VALVE MOTION.**—L. H. Allen and John B. Wilford, Tamaqua, Pa.—This invention relates to an improvement in sliding steam valves, and to the method in which they are operated, and it consists in forming the valve with bas for covering the exhaust ports and in moving the valve by steam from the main cylinder operating in an auxiliary cylinder.

**DOUBLE ACTING SUCTION PUMP.**—Patrick Foley, Nineveh, N. Y.—This invention relates to a new pump, of that class in which two vertical cylinders with reciprocating pistons are used, and which are generally employed for raising water from deep and other wells. It consists chiefly in a novel arrangement of valves, whereby the connections of the suction and discharge pipes with the cylinders are closed; said valves being so arranged that, when the pump is not to be used, they can be opened to discharge all the water from the cylinders, so that the freezing of the water within the pump or its pipes is completely avoided.

**CHURN DASHERS.**—T. W. Tyler, Corry, Penn.—This invention has for its object to furnish an improved churn dasher which shall be so constructed as to bring the butter quicker, with less labor, and in larger quantities than the dashers now in use, and which shall, at the same time, be easily washed and cleaned.

**DUMPING CARTS AND WAGONS.**—William W. Rogers, Hampden Corner, Me.—This invention has for its object to furnish an improved device by means of which the tail boards of dumping carts and wagons may be made self-operating—that is to say, so that the tail board will be raised automatically, as the cart or wagon body is tipped up to dump the load, and will drop back into place and fasten itself as the said body is again raised into a horizontal position.

**TIRE COOLER.**—John Wampach, Shakopee, Minn.—This invention has for its object to so improve the construction of tire frames that the tire when set may be instantly cooled before it can injure the felloes, and without wasting the water, which is an important consideration where water is scarce and has to be brought from a distance.

**SHEAR RUDDER BOOM.**—Levi W. Pond, Eau Claire, Wis.—This invention has for its object to furnish an improved boom which shall be so constructed and arranged that it may be held in any place to stop the floating lumber, and opened and closed when required by the action of the current of the stream.

**CHURN.**—D. A. Fiske, Delavan, Wis.—This invention has for its object to improve the construction of the dasher so as to make it more easily worked and more efficient in bringing the butter; and to improve the construction of the cover so as to prevent the escape of the cream while the churn is being operated.

**WEATHER-BOARD GAGE AND MEASURE.**—Isaac Williams, Westfield, Ind.—This invention has for its object to furnish an improved instrument simple in construction and easily and quickly adjusted, by means of which the exact length of the space between the window frames and other places may be conveniently and quickly measured, in such a way that the board when marked and sawed off may exactly fit into the desired space without its being necessary to use the plane upon the ends of said board to make it fit, and which shall be equally applicable for other similar uses.

**WEATHER-BOARD, GAGE AND REST.**—Isaac Williams, Westfield, Ind.—This invention has for its object to furnish an instrument to gage the distance apart of the edges of the weather boards and at the same time to support the board while being nailed on, so as to avoid the necessity of driving in nails to support each board, as is now the practice, economizing time and labor.

**BUNDLING MACHINE.**—Edward J. Reddy, Bayville, N. Y.—This invention has for its object to furnish an improved machine designed expressly for bunching or bundling asparagus and other vegetables, to be put up in bundles or bunches, and which shall at the same time be simple in construction and easily operated.

**CARRIAGE TOP.**—J. F. Sargent, North Tisbury, Vt.—This invention has for its object to furnish an improved carriage top, which shall be so arranged that it may easily and quickly be attached and detached from the seat and when detached may be so closed as to occupy a very small space.

**CAR COUPLING.**—Clinton R. Hardy, Lexington, Ind.—This invention has for its object, to furnish a simple convenient strong, safe and reliable car coupling, which shall at the same time be so constructed and arranged as to uncouple itself should one or more cars of the train be overturned or thrown from the track.

**COMPOSITION FOR DESTROYING INSECTS UPON HOP VINES AND OTHER PLANTS.**—W. A. Phillips, Perry Center, N. Y.—This invention has for its object to furnish an improved composition for destroying lice and other insects upon hop vines and other plants, which shall be composed of ingredients easily obtained, prepared and applied, and which shall at the same time be effectual in accomplishing its object, and harmless to the vines or plants.

**CHEESE VAT.**—Paschal Colvin, Peccatonica, Ill.—The object of this invention is to provide an apparatus which will accomplish the formation and manipulation of cheese curds in an effective and economical manner. Patented July 28, 1868.

**FIRE AND WATER-PROOF CEMENT.**—Snow and Hunkins, Macon, Missouri.—This invention relates to a new and useful cement which is adapted to various uses when the action of fire or water is to be resisted. Patented July 28, 1868.

**CEMENT BRANCH PIPE.**—Enoch Lockhart and Frank Roberts, Louisville, Ky., and Henry Knight, Brooklyn, N. Y.—This invention relates to an improvement in the manufacture of branch pipes for water conductors in drains or sewers, and for other purposes, and it consists in the peculiar formation of the mold and the cores, and the manner in which the cores are united and secured in place, and the method of using the same. Patented July 28, 1868.

**SHORES FOR RAISING HOUSE FRAMES.**—J. W. Glover, Wm. B. Orner and B. E. Orner, Martinsville, Ind.—The object of this invention is to accomplish the raising of house frames with a small number of persons. It consists of two or more toothed shores in combination with saddles, to be set on to the upper tie-beams of the "bents," so-called, and which accomplish the raising of the bents by the reciprocating action of the shores. Patented July 23, 1868.

**GRAIN REGISTERING MACHINE.**—Barnett Taylor, Forestville, Minn.—The object of this invention is to accomplish the registering of grain automatically. It consists of a box provided with a yielding top which is actuated downward by the weight of a measure of grain, the top being connected with suitable mechanism to register the number of times the top is so depressed. Patented July 28, 1868.

**HAT HOLDER.**—Z. Waters, Bloomington, Ill.—The object of this invention is to provide a means for holding hats, and locking the same in such a manner that none but the person having the key to the lock, can take it from the rack. It is particularly designed for hotels, steamboats, and public halls, to prevent those mistakes in taking hats from racks, which mistakes are generally annoying and disadvantageous to one of the parties concerned, and will save hotel keepers and other persons who are responsible for the loss of hats, a great deal of expense in replacing stolen hats. Patented July 23, 1868.

**VEGETABLE GRATER.**—E. A. Goodes, Philadelphia, Pa.—The object of this invention is to provide a machine for grating vegetables in an expeditious and easy manner. It consists of a case containing a grating cylinder of punched sheet metal, or other suitable substitution therefor, and arranged in such a manner that the vegetables will be brought in contact with the grating cylinder, and the grated particles permitted to fall below into any suitable receptacle. Patented July 28, 1868.

**PAPER CAP.**—G. Imbach and J. Weidenman, Hartford, Conn.—The object of this invention is to furnish a cap or hat of paper, or other equally light cheap material, having the crown and band in two distinct parts, whereby the former can be removed when soiled, and another substituted. Patented July 28, 1868.

**SUBSOIL ATTACHMENT FOR PLOW.**—J. C. Leonard, and J. J. Gobar, Clinton, Mo.—This invention consists of an auxiliary plow so constructed as to be attached in rear of a common sod or other plow. Patented July 23, 1868.

## Business and Personal.

The charge for insertion under this head is one dollar a line.

- Manufacturers of skate materials please address E. D. Tracy, Sterling, Ill.
- Makers of potato diggers and agricultural machines send circulars to G. E. Carleton, Colebrook, N. H.
- Anderson Bro's will contract to do lathe work at their machine works, Peekskill, N. Y.
- Manufacturers of cider mills will please send circulars and address to F. R. Burnham, Rushville, Yates county, N. Y.
- E. J. Hatch, Eaton, N. Y., wishes to know the construction, capacity, and peculiarities of the Jonval turbine.
- For sale—A part of a patent right now in successful operation, manufactured by Haas & Co., patentees, Nos. 25 and 27, Haydock st., Philadelphia, Pa., whom address for further particulars.
- Wanted—clear white birch wood, Higel & Hirst, 1126 Choltta st., Philadelphia.
- J. H. & N. A. Williams, Utica, N. Y., make the best patent sweet fern and chemical lacing that has been put in market. It has great strength, and is of very superior quality.
- If D. H. Carpenter, patentee of a gas machine, etc., will address Daniel H. Carpenter, 39 Bethune st., New York, he will hear of something to his advantage.
- Foundry and machine shop for sale, with engine, boiler, shafting, etc., all complete, located on the N. Y. & E. R. R.; coal, iron, lumber, and labor very low. Suitable for any class of manufacturing. Enquire of, or address J. A. P. Porter, 15 Cortlandt st., New York.
- Information is wanted concerning steam plows—address of inventors and makers, statements of the work they will do, where they have been successfully employed, sizes, prices, number of men required to operate, and all particulars in full. Address Louis Haas, Stockton, Cal.
- For sale—the patent right, in Great Britain, for perforated saws. The manufacture of these saws is now firmly established in the United States, and they are rapidly taking the place of all solid saws. Apply to J. E. Emerson, Trenton, N. J.
- Peck's patent drop press. For circulars, address the sole manufacturers, Milo Peck & Co., New Haven, Conn.
- Send for description of Huntoon governor on entirely new principles. 103 State st., Boston, or 79 Liberty st., New York.
- Bolt-heading machine just finished and ready for operation. May be seen at McLagan & Stevens', New Haven, Conn.
- For descriptive circular of the best grate bar in use, address Hutchinson & Laurence, No. 8 Dey st., New York.
- Millstone-dressing diamond machine, simple, effective, and durable. Also, Glazier's diamonds, diamond drills, tools for mining, and other purposes. Send stamp for circular. J. Dickinson, 64 Nassau st., N. Y.
- Prang's American chromos for sale at all respectable art stores. Catalogues mailed free by L. Prang & Co., Boston.
- For breech-loading shot guns, address C. Parker, Meriden, Ct.
- Winans' boiler powder (11 Wall st., N. Y.) 12 years a standard article for preventing incrustations. Beware of imitations and pretended agents.

**Improvement in the Velocipede.**

Within a few months the vehicle known as the velocipede has received an unusual degree of attention, especially in Paris, it having become in that city a very fashionable and favorite means of locomotion. To be sure the rider "works his passage," but the labor is less than that of walking, the time required to traverse a certain distance is not so much, while the exercise of the muscles is as healthful and invigorating. A few years ago, these vehicles were used merely as playthings for children, and it is only lately that their capabilities have been understood and acknowledged. Practice with these machines has been carried so far that offers of competitive trials of speed between them and horses on the race course have been made.

The engraving represents one used by the well known Hanlon Brothers in their public exhibitions, and has only two wheels, the vehicle being kept in an upright position while in motion by the skill of the rider. The power for propulsion is applied by the feet and the vehicle is steered by a lever worked by the hands, which is attached to the forked support of the forward wheel. The subjects of the Hanlons' patents are extension or adjustable cranks to suit the driver's peculiarities, an extensible seat, and its adaptation to the use of ladies by making it similar to a side saddle. The vehicle may have three wheels—a steering wheel in front and two supporting wheels in the rear of the occupant—in this form being better adapted to the use of women and children and to new beginners. The seat in this improved velocipede is a spring, being supported on flexible steel or wooden strips and insuring ease of motion. We are told that the capabilities of this machine are admirably exhibited by the Hanlon Brothers, some of their evolutions rivaling in grace and rapidity those of the best skaters.

The machines are built on this improved plan by Calvin Witty, carriage builder, 638 Broadway, New York. Patented July 7, 1868. For further particulars address Hanlon Brothers, 53 and 55 West 13th street, New York city.

action there is introduced into the passage-way, F, a cock by which the movement of the liquid from one end to the other may be governed. If the passage is nearly closed by the cock, the obstructed liquid forms a cushion which receives the shock of the steam piston. The time employed in changing the liquid from one side to the other may be exactly regulated by means of the cock, F, which may be adjusted by hand, or automatically by mechanism connected to the governor of the engine. By this means complete control

**HANLONS' PATENT IMPROVED VELOCIPEDE.**

over the action of the steam piston is obtained, in accordance with the amount of work to be done and the speed of the pump. The movement of the auxiliary valve and pistons commences at a point far enough removed from the end of the stroke to allow of a gradual shutting off and admission of steam, producing an easy and uniform motion, without jar or shock at each end of the stroke.

The pump itself does not differ materially from the ordinary steam pump; it is a double-acting plunger pump familiar to engineers and machinists.

These pumps were introduced in the mining region about eighteen months ago, and have proved themselves the best yet tried for heavy lifts. There have been built and put in

Rocky Mountains as a series of impassable crags, frightful precipices, and unattainable cañons. The builders of this road have reached and crossed the summit at an elevation of 8,263 feet above sea level, without any grade greater than 90 feet to the mile, and that only for a short distance. What has been called the "Great American Desert" has been found to have such rich agricultural resources that Nebraska, which lies almost wholly within the confines of that suppositious "Desert," produces more wheat to the acre than any other State of the Union. That popular faith in this enterprise is strong is attested by the fact that the public has, within a little more than a year, invested more than \$17,000,000 in its securities, and continue to look upon the bonds of this company as equalled only by Government's in all the elements of security and profit.—*Eclectic.*

**Central Underground Railway.**

It is announced that the subscription books of the Central Underground Railway Company, New York City, are now open at the office of Brown Brothers & Co. The Board of Directors comprises some of the best men in New York. The road is to be begun within a year and completed within five years according to the conditions of the Charter, and a pledge of \$300,000 for the fulfilment of these terms, is to be deposited with the Comptroller. It is said that \$1,200,000 are already guaranteed. The company intends to purchase and improve much of the property along the line of this road, and thus some portions of our city will doubtless receive a much-to-be-desired renovation. The route is to begin on the easterly line of Broadway, in City Hall Park, running underground in front of the City Hall, to Center street, to City Hall Place, under City Hall Place to Pearl street, across Pearl in a curved line to Mulberry, thence northerly under Mulberry to Bleecker street, across Bleecker to Astor Place, thence passing under Eighth and Ninth streets to Fourth avenue; continuing on under Union square and passing in a direct line to Madison square, under which it will pass to Madison avenue as now opened to Eighty-sixth street; continuing its course in a north-easterly direction to the Harlem river; thence easterly and westerly along the river until it reaches its terminus at the Harlem bridge.

**Patents Not Wanted.**

W. H. Higbee, of Trenton, N. J., whose letter appeared on page 83, wherein he stated that he would be glad of an opportunity to purchase an interest in a really good thing, writes to us to say that he has no desire at present to invest in a patent, and requests that letters to him on the subject may cease. Mr. Higbee informs us that his letter was not intended for publication; he supposed, at the time, that we had a list of patents for sale, which we had not.

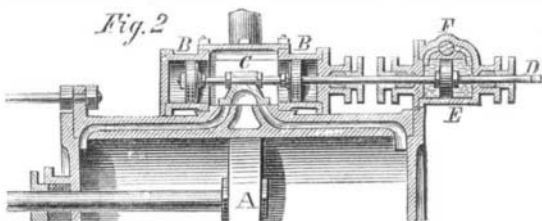
Two of the cables for the new suspension bridge at Niagara Falls have already been stretched and attached to the anchorages. The others will shortly be thrown across.

**Improvement in Double-acting Steam Pumps.**

The object of this invention is to overcome difficulties, heretofore experienced, in the working of reciprocating steam pumps for raising water from deep mines, and in other situations where it is necessary to elevate water to a considerable height. This object is sought to be accomplished by means of an auxiliary valve which, with its connections, operates and governs the main valve and the stroke of the piston, preventing all shock and jar at the end of the stroke.

Fig. 1 is a perspective view of the machine, in general appearance resembling the common steam pump, but having peculiar appurtenances for the purpose above stated. Fig. 2 is a sectional view of the most important of these appurtenances. They consist first, of an auxiliary steam chest on the side of the main steam chest, containing an auxiliary sliding valve covering the ports of passages leading from each end of the main steam chest, and an exhaust port connecting with the main exhaust. This valve is operated by the motion of the main steam piston, A, through the medium of a sliding bar on the outside of the steam cylinder, having its bearings in the flanges of the cylinder, and being provided with arms at each end, to which are connected parallel rods passing through stuffing boxes in the cylinder heads, and projecting far enough into the cylinder to be actuated by the piston as alternately it approaches either end of the stroke. This outside sliding bar has a cam slot which is connected to the rod of the auxiliary valve by means of a bell crank; one end of the crank engaging with the valve rod and the other, by means of a wrist, with the cam slot in the bar.

At each end of the main steam chest is a short cylinder, B, fitted with a piston, the two pistons as well as the main valve, C, being secured to a valve rod, D. As the main steam piston approaches the end of its stroke, the auxiliary valve is opened, admitting steam to one of the pistons in the auxiliary cylinders, B, and operating the main valve.



The valve rod to which the pistons in B are attached extends through an oil or water cylinder, E, in which is a solid piston secured to the rod and having, of course, the same stroke as those in B. This cylinder is filled with water, oil, or any other suitable liquid, and the ends are connected by a channel, F, providing a free passage from one side of the piston to the other. It will be seen that, as the piston in E moves, the liquid will be driven before it, if the passage is free, to the other end of the cylinder. But to govern this

**ALLISON'S STEAM PUMP AND GOVERNOR VALVE.**

use some sixteen, varying in size from 6-inch plunger with 9-inch steam cylinder, 3 feet stroke, up to 16½-inch plunger with 38-inch steam cylinder 6 feet stroke, and working on lifts up to 400 feet vertical height. In some cases the steam is carried over 1,500 feet. Their action is so smooth that they require no fastenings of any kinds, their own weight being sufficient to keep them perfectly steady. For these improvements one patent dated September 24th, 1867, was granted through the Scientific American Patent Agency, and another is now pending through the same agency.

For any further information or for pumps of any size, apply to Allison & Bannan, Franklin Iron Works, Port Carbon, Schuylkill County, Pa. Shop, County, or State rights for sale.

LETTERS are daily received at this office without the writers' signatures. We pay no attention to such communications—they are committed to the waste basket at once. Persons who write to us should always sign their names as a guarantee of good faith, and if their letters are intended for publication the writer's name need not be printed unless he so desires.

THE refusal of the Commissioner of Patents to extend the patent of the Union Paper Collar Company, has virtually terminated the protracted litigation between S. W. H. Ward and other paper-collar manufacturers, and that company.